

**DATA TRANSMITTAL REPORT FOR THE
GRAND TETON AND YELLOWSTONE NATIONAL PARKS
WINTER USE AIR QUALITY STUDY
DECEMBER 15, 2002 – MARCH 15, 2003**

Prepared for

John Ray
NATIONAL PARK SERVICE
12795 W. Alameda Parkway
Denver, CO 80228

Prepared by

AIR RESOURCE SPECIALISTS, INC.
1901 Sharp Point Drive, Suite E
Fort Collins, Colorado 80525
Telephone: 970-484-7941
Fax: 970-484-3423

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1.0 INTRODUCTION

Air Resource Specialists, Inc. (ARS) was contracted by the National Park Service (NPS) to conduct an air quality monitoring study in Grand Teton and Yellowstone National Parks to help assess the impact of human-caused pollutants during periods of winter activity. In the winter months, Yellowstone and Grand Teton National Parks open roads to oversnow vehicles (snowmobiles, snow coaches and MatTracks) as soon as adequate snow accumulations and safe driving conditions allow. During the 2002/2003 winter, the roads were open to oversnow vehicles from December 18, 2002 through March 9, 2003.

The monitoring program began December 15, 2002, and ran through March 15, 2003. The monitoring effort included meteorological, gaseous, particulate, optical and photographic monitoring at three monitoring locations. The meteorological, gaseous, particulate and optical variables were monitored continuously. The photographic monitoring included one digital image taken at the top of every daylight hour.

This data report presents all data collected during the study period, December 15, 2002, through March 15, 2003. The report is organized into the following major sections:

- Section 1.0 Introduction
- Section 2.0 Site Locations and Configurations
- Section 3.0 Data Collection, Validation and Quality Assurance
- Section 4.0 Data Summaries
- Section 5.0 Data Analysis

- Appendix A Maintenance and Calibration
- Appendix B Digital Image Tables
- Appendix C Tabular Data
- Appendix D Old Faithful Eruption Intervals

Any questions or comments regarding this report should be addressed to:

Heather Wayne
Air Resource Specialists, Inc.
1901 Sharp Point Drive, Suite E.
Fort Collins, CO, 80525
Telephone: 970-484-7941
hwayne@air-resource.com

2.0 SITE LOCATIONS AND CONFIGURATIONS

Monitoring was conducted at three (3) locations in Grand Teton and Yellowstone National Parks. The monitoring location at Grand Teton National Park included the Flagg Ranch area. Yellowstone National Park monitoring locations included the West Yellowstone Entrance station and the Old Faithful area. Table 2-1 summarizes the site locations, instrumentation, and operational period. A map that includes the location of the three (3) monitoring sites is presented as Figure 2-1.

2.1 Flagg Ranch Monitoring Site

The Flagg Ranch monitoring shelter was located directly across from the commercial vehicle parking lot near the Flagg Ranch Resort in Grand Teton National Park. Instrumentation at the site included a Beta Attenuation Monitor (BAM) for collection of PM_{2.5}, Carbon Monoxide (CO) analyzer, wind speed/wind direction sensor, ambient temperature and relative humidity sensor. A digital camera was installed on top of the shelter and overlooked the commercial vehicle parking lot. Figure 2-2 presents a photograph of the Flagg Ranch monitoring site.

Monitoring at Flagg Ranch began on December 20, 2002.

2.2 West Entrance Monitoring Site

The West Entrance monitoring shelter is located next to the vehicle kiosks at the west entrance to Yellowstone National Park. This air quality monitoring shelter operates year-round by the State of Montana. Instrumentation at the site includes a CO analyzer, wind speed/wind direction sensor, and an ambient temperature sensor. For this study, a BAM for collection of PM_{2.5}, was installed next to monitoring shelter in a separate enclosure. A digital camera was installed above the vehicle kiosks and overlooked the entrance lanes. Figure 2-3 presents a photograph of the West Entrance monitoring site.

Monitoring at West Entrance began on December 17, 2002. The west entrance to Yellowstone National Park opened to the public for winter use on December 28, 2002.

2.3 Old Faithful Monitoring Site

The Old Faithful monitoring shelter was located to the east of the main parking lot for the Snow Lodge and south of the Old Faithful geyser in Yellowstone National Park. Instrumentation at the site included a nephelometer for collection of particle scattering, Beta Attenuation Monitor (BAM) for collection of PM_{2.5}, Carbon Monoxide (CO) analyzer, wind speed/wind direction sensor, ambient temperature and relative humidity sensor. A digital camera was installed on the Park Rangers station and overlooked the main vehicle parking lot. Figure 2-4 presents a photograph of the Old Faithful monitoring site.

The Old Faithful shelter is located within 50 feet of one of the warming huts in the Old Faithful visitor area. The warming huts were warmed by wood-burning stoves. The park rangers

started the fire in the wood-burning stove between 7:45 and 9AM and continued to stoke the fire through 5PM. At times, the smoke from the stack could be seen blowing directly at the air quality shelter. Figure 2-5 presents a photograph of the warming hut and the Old Faithful shelter.

This shelter was also located in close proximity to the Old Faithful geyser. Geysers can emit several types of gases. The most abundant gas is carbon dioxide, but geysers can also emit, oxygen, carbon monoxide, hydrogen methane, nitrogen, argon and hydrogen sulfide. Old Faithful is the most regular geyser in the basin area and erupts approximately every 60-90 minutes. Figure 2-6 presents a map of the Old Faithful area.

Monitoring at Old Faithful began on December 19, 2002.

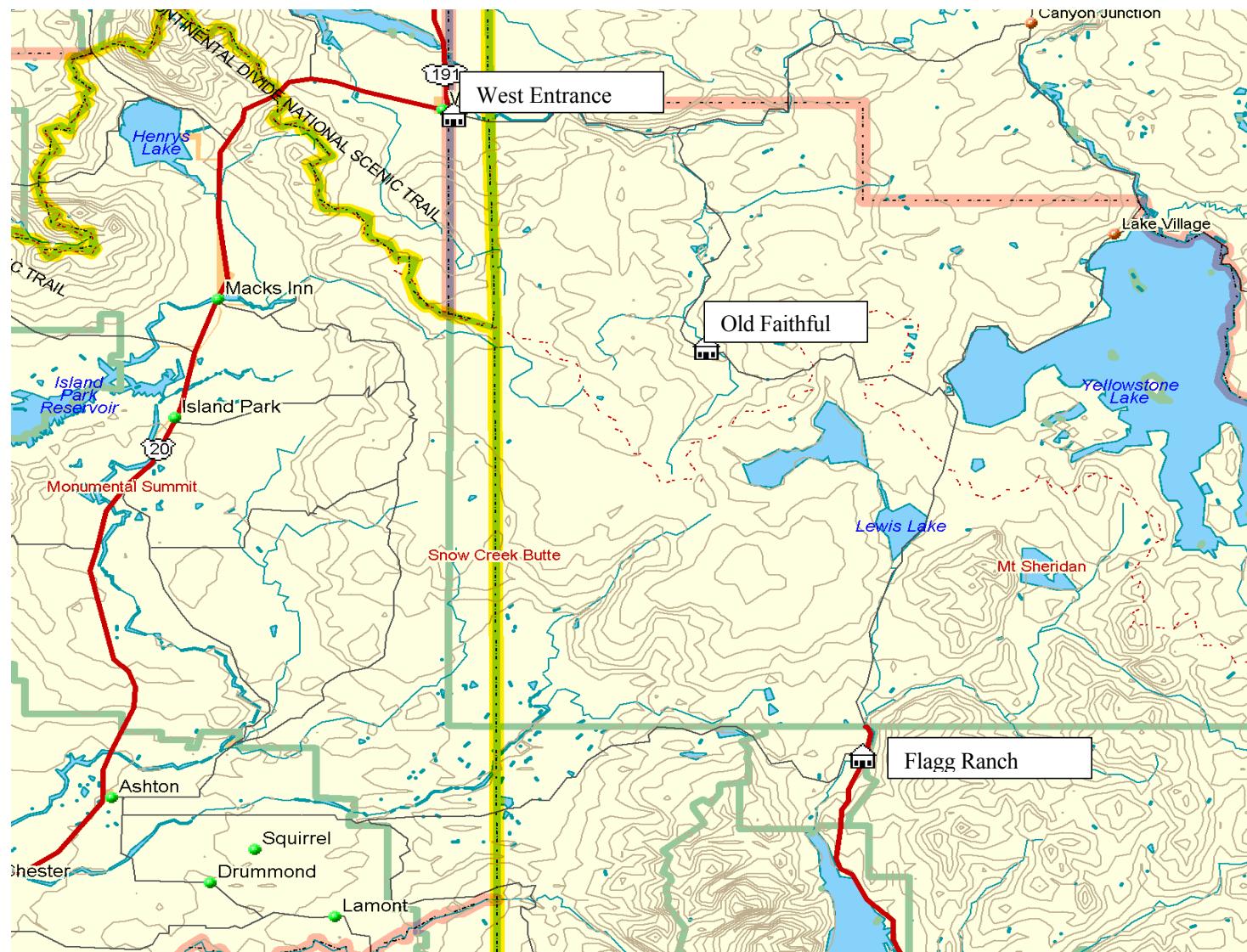


Figure 2-1. Monitoring Site Locations

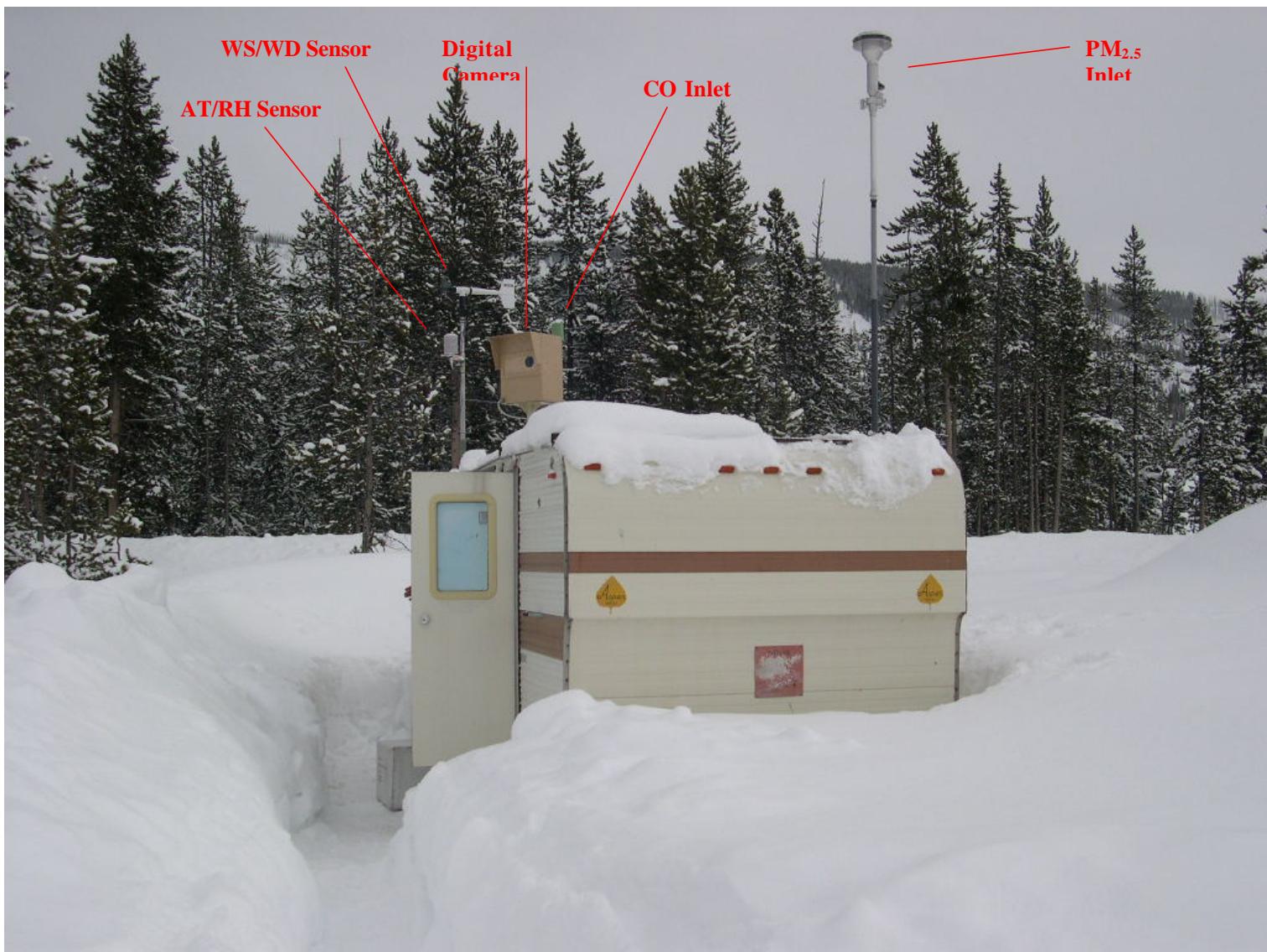


Figure 2-2. Grand Teton Flagg Ranch.



Figure 2-3. Yellowstone – West Entrance



Figure 2-4. Yellowstone – Old Faithful



Figure 2-5. Yellowstone – Old Faithful Shelter and Warming Hut

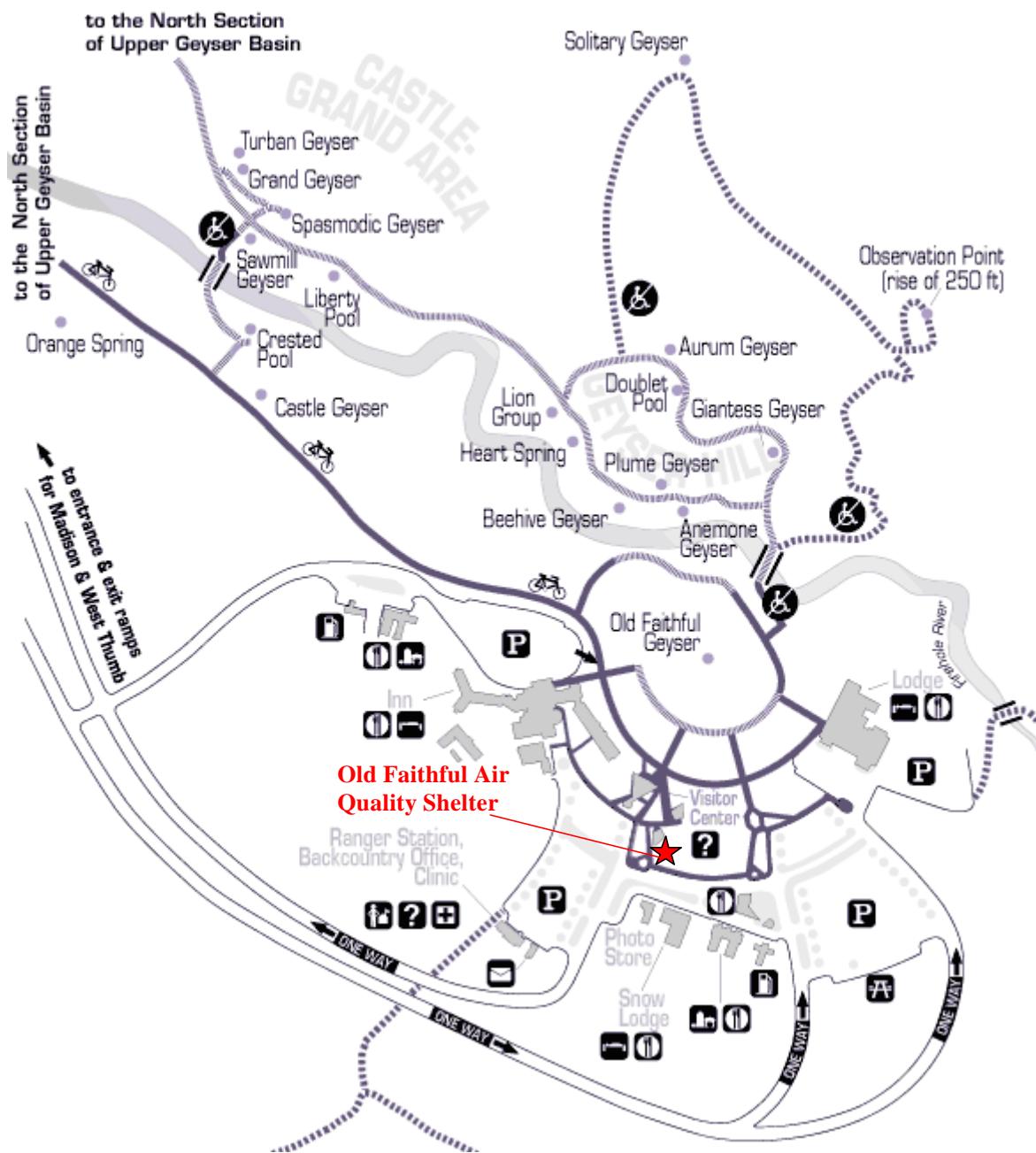


Figure 2-6. Yellowstone – Old Faithful Area Map

Table 2-1
 Grand Teton and Yellowstone National Parks
 Winter Use Air Quality Monitoring Study
 December 15, 2002 - March 15, 2003

Site Name	Sampler	Sampler Type	Sampler Model No.	Averaging Period	Sample Frequency
Flagg Ranch	Particulate	BAM PM _{2.5} (ThermoAndersen)	FH 62 C14	1-hour	Continuous
	Gaseous	CO Analyzer (Thermo Environmental)	TEI 48C	1-hour	Continuous
	Meteorologica 1	Wind Speed and Wind Direction (R.M. Young)	05305	1-hour	Continuous
	Meteorologica 1	Ambient Temperature and Relative Humidity (Rotronics)	MP101A-C4	1-hour	Continuous
	Photographic	Digital Camera (Kodak)	RDCS-100	--	1/daylight hour
West Entrance	Particulate	BAM PM _{2.5} (ThermoAndersen)	FH 62 C14	1-hour	Continuous
	Gaseous	CO Analyzer (API)	300	1-hour	Continuous
	Meteorologica 1	Wind Speed and Wind Direction (Climatronics)	102263, 102286, 102299	1-hour	Continuous
	Meteorologica 1	Ambient Temperature (Custom)	*	1-hour	Continuous
	Photographic	Digital Camera (Kodak)	HRDC-1	--	1/daylight hour
Old Faithful	Particulate	BAM PM _{2.5} (ThermoAndersen)	FH 62 C14	1-hour	Continuous
	Gaseous	CO Analyzer (Thermo Environmental)	TEI 48C	1-hour	Continuous
	Meteorologica 1	Wind Speed and Wind Direction (R.M. Young)	05305	1-hour	Continuous
	Meteorologica 1	Primary Ambient Temperature and Relative Humidity (Rotronics)	MP101A-C4	1-hour	Continuous
	Meteorologica 1	Secondary Ambient Temperature and Relative Humidity (Rotronics)	MP101A-C4	5-min	Continuous
	Photographic	Digital Camera (Kodak)	HRDC-1	--	1/daylight hour

Optical	Nephelometer (Optec)	NGN-2	2-min (every 5-min)	Continuous
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* Contact the State of Montana for more details.

3.0 DATA COLLECTION, VALIDATION AND QUALITY ASSURANCE

This section describes the instrumentation, data acquisition, validation, and quality assurance of particulate, gaseous, optical, meteorological and photographic monitoring data collected during the study .

3.1 SUMMARY OF AIR QUALITY AND METEOROLOGICAL MONITORING

Continuous carbon monoxide and PM_{2.5} analyzers were operated during the study to help assess the impact of human-caused pollutants during periods of winter activity. Meteorological sensors were operated during the study to better characterize the overall meteorology of the region. All continuous gaseous, particulate and meteorological data were collected with the site ESC8816 data loggers. The data loggers sampled the measurement channels at a frequency of once per second and averages were calculated and reported at 1-hr intervals. The data loggers were connected to telephone modems, allowing remote access of the data. The data were downloaded nightly.

3.1.1 Air Quality and Meteorological Monitoring System

The air quality and meteorological monitoring system at Flagg Ranch and Old Faithful, consisted of the following instruments:

- Thermo Environmental (TEI) 48C CO analyzer
- ThermoAndersen Model FH 62 C14 Beta Attenuation Monitor (BAM) with a PM_{2.5} size cut.
- Rotronics MP-101A Air Temperature/Relative Humidity (AT/RH) sensor
- R.M. Young Model #05305 Wind Sensor

The air quality and meteorological monitoring system at West Entrance consisted of the following instruments:

- API 300 CO analyzer
- ThermoAndersen Model FH 62 C14 BAM with a PM_{2.5} size cut.
- Custom Built Temperature sensor
- Climatronics (P/N 102263, P/N 102286, P/N 102299) Sonic Anemometer Wind Sensor

3.1.2 Air Quality and Meteorological Data Collection and Validation

Gaseous, particulate and meteorological data collection and validation steps included:

- Raw hourly carbon monoxide, PM_{2.5}, and meteorological data collected nightly via modem and uploaded to the Air Quality Database (AQDB).

- Raw and daily calibration (zero and span) data were plotted and reviewed weekly to identify operational problems and initiate corrective procedures as soon as possible.
- Information from communications with the operators were used to identify inconsistencies and errors in the data.
- Recorded and reviewed comments on raw data stackplots, and entered validation codes and adjusted values in the AQDB as needed.
- Reviewed validated stackplots, resolving all inconsistencies and labeling the data as final validated.

3.1.3 Air Quality and Meteorological Sensor Uncertainty

The sensors were calibrated immediately after installation, during maintenance activities, and at project takedown. Calibration and maintenance results are presented in Appendix A.

The gaseous and meteorological instrumentation at the West Entrance site are run by the State of Montana. Any calibration information on this instrumentation may be obtained by contacting the State of Montana.

The detection limit for the ThermoAnderson Beta Attenuation Monitor (BAM) is approximately 6 ug/m³ for 1-hr averages.

3.2 SUMMARY OF OPTICAL MONITORING

An ambient nephelometer collected continuous measurements of the ambient atmospheric particle scattering coefficient (bsp) at the Old Faithful site. An ambient temperature/relative humidity (AT/RH) sensor was collocated with the nephelometer for data validation and interpretation purposes. Data was collected with a datalogger and downloaded via telephone modem daily. The data were then validated in three stages according to IMPROVE protocol (Level-A, Level-0, and Level-1) as described below. Standard Operating Procedures (SOPs) and Technical Instructions (TIs) that fully describe the applied acquisition and reduction procedures include:

- SOP 4300 Collection of Optical Monitoring Data (IMPROVE Protocol)
- TI 4300-4002 Nephelometer Data Collection via Telephone Modem (IMPROVE Protocol)
- TI 4300-4006 Nephelometer Data Collection via Campbell Scientific Data Storage Module (IMPROVE Protocol)
- TI 4400-5010 Nephelometer Data Reduction and Validation (IMPROVE Protocol)

3.2.1 NEPHELOMETER MONITORING SYSTEM

The nephelometer system was configured with the following instrumentation:

- Optec NGN-2 Ambient Nephelometer
- Rotronic MP-101A Air Temperature/Relative Humidity (AT/RH) sensor with motor aspirated shield
- Serial/Analog Data Acquisition System, including:
 - Campbell Scientific 21X datalogger
 - Serial data interface
 - Solid state storage module (SM 192)
- Manual span gas system (SUVA 134a span gas, gas regulator, and supply hoses)
- Nephelometer hood
- Mounting tower and hardware

Sensor and sampling specifications are summarized in Table 3-1.

Table 3-1
NGN-2 Ambient Nephelometer and AT/RH Sensor
Station Sensor and Sampling Specifications

Parameter	Sensor	Units	Sample Frequency	Notes
Nephelometer Raw readings	Optec NGN-2 Nephelometer	mVDC and Counts	2-minute average samples every 5 minutes	Optec NGN-2 Serial Output Logged
Nephelometer clean air calibration readings	Optec NGN-2 Nephelometer	mVDC and Counts	10-minute average at approximately 6-hour intervals	Start time drifts as controlled by Optec NGN-2 software
Nephelometer span calibrations (SUVA 134a)	Optec NGN-2 Nephelometer	mVDC and Counts	10-minute average performed manually at approximately 7-14 day intervals	Operator initiated during site visits
Nephelometer operating mode code	Optec NGN-2 Nephelometer	Unit less	1 code per nephelometer raw reading	Optec NGN-2 Serial Output Logged
Chamber temperature	Solid State Sensor	C	Concurrent with nephelometer reading	Available on serial data stream only
Ambient temperature	Rotronic MP-101A solid-state AT/RH	C (-30 to +50C)	Concurrent with nephelometer reading (5-minute averages of 10-second samples)	Sensor in forced air radiation shield
Ambient relative humidity	Rotronic MP-101A solid-state AT/RH	%RH (0 to 100%)	Concurrent with nephelometer	Sensor in forced air radiation shield

reading
(5-minute averages
of
10-second samples)

3.2.2 ON-SITE DATALOGGING

The Campbell 21X datalogger collected and time-tagged the following data:

- Nephelometer RS232 serial data, including:
 - Status (ambient, clean air, span, lamp out, rain, chopper failure)
 - Raw scattered light value (counts)
 - Raw lamp brightness value (counts)
 - Normalized scattered light value (counts)
 - Integration time (minutes)
 - Chamber temperature (C)
 - Date: year - month - day (over range on the CR10)
 - Time: hour - minute (CST)
- Nephelometer analog data, including:
 - Analog line 1: normalized scattered light value (mV)
 - Analog line 2: status (mV)
- Ambient temperature (°C) - 5-minute averages of ten-second samples
- Relative humidity (%) - 5-minute averages of ten-second samples

The nephelometer was operated on Mountain Standard Time in a 5-minute cycled mode, as described in Table 3-1. Clean air calibrations were automatically performed at approximately 6-hour intervals. Manual clean air and span gas calibrations were performed at approximately 7-14 day intervals.

3.2.3 NEPHELOMETER DATA COLLECTION AND VALIDATION

The three levels of IMPROVE protocol data validation are described in the following subsections.

3.2.3.1 Level-A Nephelometer Data Validation

Raw nephelometer data collected daily from the site were reformatted and undergo Level-A validation. The procedures include:

- Nephelometer, ambient temperature, and relative humidity data are extracted from the raw data and appended to site-specific Level-A validated data files. Nephelometer and datalogger-generated status codes are appended along with the data. Data too large or too small to occupy the data fields in the Level-A data files are set to -99.

- Zero and span calibrations recorded by the datalogger are extracted from the raw data and entered into the QA calibration database. Calibration information is used during Level-1 validation.

Data at this point are at Level-A validation. Level-A data are visually reviewed daily to identify operational problems and initiate corrective procedures as soon as possible. Level-A validated data are plotted weekly, and comments regarding the operation of the nephelometer are noted on the plots. Data from operator log sheets are checked against data collected via telephone modem to identify inconsistencies and errors. Data from the log sheets are entered into the Quality Assurance (QA) Database.

3.2.3.2 Level-0 Nephelometer Data Validation

Level-0 validation of nephelometer data was performed after all study data were collected. During Level-0 validation ARS staff scientists review Level-A data to identify periods of invalid data caused by the following:

- Burned out lamp
- Power failures
- Water contamination in nephelometer chamber
- Meteorological sensor failures (out of range values)
- Other problems

Periods identified as invalid are entered into the QA database.

3.2.3.3 Level-1 Nephelometer Data Validation

Level-1 validation of nephelometer data are generated from Level-0 data, and includes:

- Conversion of raw nephelometer and meteorological data to engineering units
- Checks for out of range values
- Identification of nephelometer bsp data affected by meteorology
- Estimation of uncertainty

Each of these steps is detailed below:

Conversion of Raw Nephelometer and Meteorological Data to Engineering Units

- Meteorological data (ambient temperature, relative humidity, and chamber temperature) are already in engineering units.
- The nephelometer scattering coefficient (bsp) is calculated by determining a calibration line for each data point, based on the interpolated current zero value and the difference between the original span and zero.

Level-1 Range Checks

Level-1 5-minute and hourly average data are checked as follows:

- Data invalid at Level-0 is invalid at Level-1
- Calculated bscat data (bsp plus Rayleigh scattering) less than 80% Rayleigh scattering are invalid at Level-1 (Rayleigh scattering of 10 Mm^{-1} , was used at the Old Faithful site.)
- Meteorological data valid at Level-0 are valid at Level-1

Identification of Nephelometer bsp Data Affected by Meteorology

Nephelometer measurements can be greatly influenced during periods of:

- Fog
- Heavy rain
- High relative humidity ($> 90\%$)
- Blowing snow
- Other extreme meteorological conditions

Under these conditions nephelometer readings will no longer correspond to the optical properties of particulates in the atmosphere. Periods of meteorological interference identified during Level-1 are labeled "Weather Affected". Data not so labeled are called "Filtered". The following filters were used to identify these periods:

- Maximum: hourly bsp data exceeding 5000 Mm^{-1} was coded as weather-affected.
- Relative Humidity: hourly bsp data when the relative humidity exceeded 90% was coded as weather-affected.

Standard IMPROVE protocol for nephelometer data validation allows for other tests based on the rate of change of measured scattering from one hour to the next, but it was decided not to use those tests on data collected at Old Faithful due to the high variability in the data due to influences in the area.

Figure 3-1 is a format key that summarizes a Level-1 validated nephelometer data file.

ARS DATA V5.0j: 08/03/2000 09-01-2000 05:09:36-----
 LEVEL-0: 04-13-2001 17:22:42 NGN_SEAS V6.0 04/09/2001 EXE DATE:04/10/2001 10:51-----
 LEVEL-0: INPUT FILE: c:\Neph_Reprocessing\Level_A\More_Level_A\GRSM1_N.003 09/12/2000 21:19-----
 LEVEL-1: 04-13-2001 17:25:32 NGN_SEAS V6.0 04/09/2001 EXE DATE:04/10/2001 10:51-----
 LEVEL-1: Rayleigh= 10.636 Span Mult= 7.1 QA Search Flags:1 1-----
 LEVEL-1: NEPHCOMMON LIBRARY VERSION:04/09/2001-----
 LEVEL-1: INPUT FILE: c:\Neph_Reprocessing\Level_0\FINAL_LEVEL_0\More_FINAL_LEVEL_0\GRSM1_N.003 04/13/2001 17:25-----

SITE	YEARMMDD	JD	HHMM	INS	BSP	PREC	V	A	RAW-M	RAW-SD	#	N/A	SD/M	DEL	MAX	RH	0123456789mPMOT	YINTER	SLOPE	AT	AT-SD	#	AT-PR	CT	CT-SD	#	CT-PR	RH	RH-SD	#	RH-PR	N/A
GRSM1	20000601	153	0000	025	58	0.150	0		238.84	7.10	11	-99.0	10.0	50	5000	90	0B1000000000000012	-154.0	0.93	20.18	0.35	12	1.00	20.15	0.32	10	1.00	75.35	1.99	12	2.00XXXX	
GRSM1	20000601	153	0100	025	64	0.150	0		245.45	3.36	11	-99.0	10.0	50	5000	90	0B1000000000000011	-154.7	0.93	19.59	0.25	12	1.00	19.81	0.26	11	1.00	78.02	1.29	12	2.00XXXX	
GRSM1	20000601	153	0200	025	58	0.150	0		239.87	5.27	12	-99.0	10.0	50	5000	90	0C0000000000000000	-154.9	0.93	19.58	0.37	12	1.00	19.59	0.25	12	1.00	77.39	2.31	12	2.00XXXX	
GRSM1	20000601	153	0300	025	59	0.150	0		240.88	11.88	12	-99.0	10.0	50	5000	90	0C0000000000000000	-155.2	0.93	19.44	0.65	12	1.00	19.73	0.43	12	1.00	78.33	4.10	12	2.00XXXX	
GRSM1	20000601	153	0400	025	55	0.150	0		236.96	7.97	12	-99.0	10.0	50	5000	90	0C0000000000000000	-155.4	0.93	19.16	0.38	12	1.00	19.20	0.26	12	1.00	78.90	2.43	12	2.00XXXX	
GRSM1	20000601	153	0500	025	54	0.150	0		235.65	1.57	12	-99.0	10.0	50	5000	90	0C0000000000000000	-155.7	0.93	19.42	0.10	12	1.00	19.47	0.08	12	1.00	77.63	0.47	12	2.00XXXX	
GRSM1	20000601	153	0600	025	53	0.150	0		235.24	3.15	12	-99.0	10.0	50	5000	90	0C0000000000000000	-155.9	0.93	19.96	0.37	12	1.00	20.28	0.49	12	1.00	76.43	1.02	12	2.00XXXX	
GRSM1	20000601	153	0700	025	53	0.150	0		235.33	2.39	10	-99.0	10.0	50	5000	90	0A20000000000023	-156.1	0.93	21.56	0.52	12	1.00	21.88	0.35	9	1.00	72.19	0.91	12	2.00XXXX	
GRSM1	20000601	153	0800	025	54	0.150	0		236.68	3.25	12	-99.0	10.0	50	5000	90	0C0000000000000000	-156.0	0.93	22.36	0.18	12	1.00	22.14	0.08	12	1.00	71.68	0.96	12	2.00XXXX	
GRSM1	20000601	153	0900	025	53	0.150	0		234.82	6.44	12	-99.0	10.0	50	5000	90	0C0000000000000000	-155.7	0.93	22.73	0.40	12	1.00	22.16	0.22	12	1.00	72.21	2.60	12	2.00XXXX	

Field	Description
SITE	Site Abbreviation
YYYYMMDD	Date (4-digit year/month/day)
JD	Julian Date
HHMM	Time using a 24-hour clock in hour/minute format
INS	Nephelometer Serial Number
BSP	b _{sp} (Mm ⁻¹)
PREC	b _{sp} Estimated Precision (%/100)
V	b _{sp} Validity Code (0 = valid, 1 = interference, 2 = invalid, 9 = suspect)
A	b _{sp} Interference Code ¹
RAW-M	Raw Nephelometer Hourly Average (Counts)
RAW-SD	Standard Deviation of Raw Nephelometer Average (Counts)
#	Number of Data Points in Hourly Nephelometer Average
N/A	(Not Used)
SD/M	Standard Deviation/Mean Interference Threshold
DEL	b _{sp} Rate of Change Interference Threshold
MAX	Maximum b _{sp} Interference Threshold
RH	Relative Humidity Interference Threshold
0123456789mPMOT	Composite Nephelometer Code Summary ²
YINTER	Y-intercept of Calibration Line Used to Calculate b _{sp}
SLOPE	Slope of Calibration Line Used to Calculate b _{sp}
AT	Average Ambient Temperature (°C)
AT-SD	Standard Deviation of Hourly AT Average
#	Number of Data Points in Hourly AT Average
AT-PR	Estimated Precision of Ambient Temperature
CT	Average Nephelometer Chamber Temperature (°C)
CD-SD	Standard Deviation of Hourly CT Average
#	Number of Data Points in Hourly CT Average
CT-PR	Estimated Precision of Chamber Temperature
RH	Average Relative Humidity (%)
RH-SD	Standard Deviation of Hourly RH Average
#	Number of Data Points in Hourly RH Average
RH-PR	Estimated Precision of Relative Humidity
N/A	(Not Used)

¹b_{sp} Interference Code:

Condition	Letter Code													
	A	B	C	D	E	F	G	H	I	J	K	L	M	N
RH > RH threshold	x		x		x		x		x		x		x	x
b _{sp} > maximum b _{sp} threshold	x	x		x	x		x	x		x	x		x	x
SD/M > uncertainty threshold	x	x	x	x					x	x	x	x		
Δb _{sp} > delta threshold	x	x	x	x	x	x	x	x	x	x	x	x	x	x

Z Weather observation between two other weather observations.

Threshold values may be different for each site.

²Composite Nephelometer Code Summary:

0123456789	Nephelometer diagnostic code (internal use)
m	Number of missing data points
P	Number of power failure codes
M	Number of manual QA invalidation codes
O	Number of Level0 invalidated data points
T	Number of times non-serial data were used

Figure 3-1. Level-1 Validated Nephelometer Data File Format Key.

Nephelometer Measurement Uncertainty

The measurement uncertainty of the Optec NGN-2 ambient nephelometer is calculated from the distribution of calibration slopes determined during manual span/zero calibrations. The reported uncertainty is the 95% confidence limit of a two-tailed t-distribution.

Important elements of Optec NGN-2 nephelometer calibration are:

- The nephelometer output consists of unit less values (counts).
- The nephelometer has no adjustable parameters.
- The unit less clean air (zero) and SUVA 134a (span) calibration values correspond to nephelometer-detector response to scattering by Rayleigh air and SUVA 134a, respectively.
- After a period of time, the nephelometer chamber will tend to accumulate dust and other matter, increasing the background scattering. The value (in counts) of clean air and SUVA 134a calibrations, therefore, will increase over time.
- Rayleigh scattering of air is a function of temperature and pressure, but can be reasonable approximated based on site altitude.
- The scattering for SUVA 134a is assumed to be equal to 7.1 times that of Rayleigh air.

The overall uncertainty for the nephelometer for the study period was 17%.

Air Temperature/Relative Humidity Sensor Uncertainty

The AT/RH sensor collocated with the nephelometer was calibrated prior to installation and shown to perform within the manufacturer's specifications during the reporting period.

3.3 SUMMARY OF PHOTOGRAPHIC MONITORING

Routine photographic monitoring was conducted at all three sites. Routine photographic monitoring consisted of 13 photographs per day (top of the hour during daylight hours) of the same scenes to document weather conditions, type and intensity of activity, and the presence of haze or exhaust.

3.3.1 Photographic Data Collection

The West Entrance and Old Faithful sites were equipped with a High Resolution Digital Image Acquisition System (HRDC-1). The HRDC-1 is weatherproof camera enclosure supported by a desktop image capture computer.

The Flagg Ranch site was equipped with a Remote High-Resolution Digital Camera System (RDCS-100). The RDCS-100 is a high resolution digital camera in a lockable

environmental enclosure with a custom designed controller, a personal digital assistant (PDA) palm computer interface and a battery backed power system.

The digital images at all three sites were stored on flashcards and the site operator sent the flashcards to ARS every two weeks, for archiving.

3.3.2 Photographic Data Analysis

Each of the digital images was visually reviewed and assigned a four-digit slide condition code. These codes identify sky conditions, activity type, activity intensity, haze type, and unusable or missing observations. Criteria used to assign the four-digit code for each slide for Flagg Ranch, West Entrance and Old Faithful are presented in Tables 3-2 and 3-3.

Table 3-2
Scene Condition Code Key
Customized for Flag-Ranch & West Entrance
2002-2003 Yellowstone Study

SCENE CONDITION CODE KEY

Digit	Observed Condition Code	Description
1	SKY CONDITIONS	SKY CONDITIONS VIEWED AS CHARACTERISTIC OF THE PERIOD.
0	No clouds or fog	No clouds or fog visible anywhere in the sky.
1	Scattered clouds < half of sky	Less than one-half of the sky has clouds present. Any fog present is light.
2	Overcast > half of sky	More than one-half of the sky has clouds present. Any fog present dominates the scene.
3	Haze concealing scene	Atmospheric haze conditions are such that determination of the sky value is impossible.
5	Weather dominates scene	Clouds, fog, or precipitation are such that determination of the sky value is impossible.
8	Observation cannot be determined	Observation cannot be determined due to extreme exposure inconsistencies, lens (or window) condensation, misalignment, or view obstructed by a foreign object.
9	No observation	No observation taken.
2	ACTIVITY TYPE	FORM OF EXHAUST-RELATED ACTIVITY OBSERVED DURING THE PERIOD.
0	No activity	No exhaust-related activity is perceptible in view.
1	Snowmobiles present	Only snowmobile activity is perceptible in view.
2	Other vehicles present	Activity other than snowmobiles (e.g. MatTrack, Bus, Vans/Cars/Trucks) is perceptible in view.
3	Multiple activity types present	Multiple forms of exhaust-related activity are perceptible, including snowmobiles and other vehicles in view.
5	Weather dominates scene	Clouds, fog, or precipitation are such that determination of the level of activity type is impossible.
8	Observation cannot be determined	Observation cannot be determined due to extreme exposure inconsistencies, lens (or window) condensation, misalignment, or view obstructed by a foreign object.
9	No observation or cannot be determined	To be used with sky condition of 9 or if the activity type cannot be determined due to reasons other than weather.
3	ACTIVITY INTENSITY	MAXIMUM LEVEL OF ACTIVITY INTENSITY OBSERVED AT FLAG RANCH/WEST YELLOWSTONE DURING THE PERIOD.
0	No activity	To be used with activity type condition of 0.
1	Low activity intensity	Activity is perceptible at a low level, less than (<) 4 vehicles/snowmobiles present in view.
2	Medium activity intensity	Activity is perceptible at a medium level of intensity, 4 to 10 vehicles/snowmobiles present in view.
3	High activity intensity	Activity is perceptible at a high level of intensity, greater than (>) 10 vehicles/snowmobiles present in view.
5	Weather dominates scene	Clouds, fog, or precipitation are such that determination of the level of activity intensity is impossible.
8	Observation cannot be determined	Observation cannot be determined due to extreme exposure inconsistencies, lens (or window) condensation, misalignment, or view obstructed by a foreign object.
9	No observation or cannot be determined	To be used with sky condition of 9 or if the level of activity intensity cannot be determined due to reasons other than weather.
4	HAZE TYPE	FORM OF HAZE OR EXHAUST OBSERVED DURING THE PERIOD.
0	No haze	No haze is perceptible in view.
1	Vehicle exhaust	Perception of vehicle exhaust is clearly discernable in view.
2	Residence smoke plume	Perception of residential smoke plume(s) clearly discernable in view.
3	Multiple forms of haze	Multiple forms of haze or exhaust are discernable in view.
5	Weather dominates scene	Clouds, fog, or precipitation are such that determination of the presence of haze is impossible.
8	Observation cannot be determined	Observation cannot be determined due to extreme exposure inconsistencies, lens (or window) condensation, misalignment, or view obstructed by a foreign object.
9	No observation or cannot be determined	To be used with sky condition of 9 or if the haze intensity cannot be determined due to reasons other than weather.

Table 3-3
Scene Condition Code Key
Customized for Old Faithful
2002-2003 Yellowstone Study

SCENE CONDITION CODE KEY

Digit	Observed Condition Code	Description	
1	SKY CONDITIONS	SKY CONDITIONS VIEWED AS CHARACTERISTIC OF THE PERIOD. 0 No clouds or fog 1 Scattered clouds < half of sky 2 Overcast > half of sky 3 Haze concealing scene 5 Weather dominates scene 8 Observation cannot be determined 9 No observation	No clouds or fog visible anywhere in the sky. Less than one-half of the sky has clouds present. Any fog present is light. More than one-half of the sky has clouds present. Any fog present dominates the scene. Atmospheric haze conditions are such that determination of the sky value is impossible. Clouds, fog, or precipitation are such that determination of the sky value is impossible. Observation cannot be determined due to extreme exposure inconsistencies, lens (or window) condensation, misalignment, or view obstructed by a foreign object. No observation taken.
2	ACTIVITY TYPE	FORM OF EXHAUST-RELATED ACTIVITY OBSERVED DURING THE PERIOD. 0 No activity 1 Snowmobiles present 2 Other vehicles present 3 Multiple activity types present 5 Weather dominates scene 8 Observation cannot be determined 9 No observation or cannot be determined	No exhaust-related activity is perceptible in view. Only snowmobile activity is perceptible in view. Activity other than snowmobiles (e.g. MatTrack, Bus, Vans/Cars/Trucks) is perceptible in view. Multiple forms of exhaust-related activity are perceptible, including snowmobiles and other vehicles in clouds, fog, or precipitation are such that determination of the level of activity type is impossible. Observation cannot be determined due to extreme exposure inconsistencies, lens (or window) condensation, misalignment, or view obstructed by a foreign object. To be used with sky condition of 9 or if the activity type cannot be determined due to reasons other than weather.
3	ACTIVITY INTENSITY	MAXIMUM LEVEL OF ACTIVITY INTENSITY OBSERVED AT OLD FAITHFUL DURING THE PERIOD. 0 No activity 1 Low activity intensity 2 Medium activity intensity 3 High activity intensity 5 Weather dominates scene 8 Observation cannot be determined 9 No observation or cannot be determined	To be used with activity type condition of 0. Activity is perceptible at a low level, less than (<) 20 vehicles/snowmobiles present in view. Activity is perceptible at a medium level of intensity, 20 to 75 vehicles/snowmobiles present in view. Activity is perceptible at a high level of intensity, greater than (>) 75 vehicles/snowmobiles present in view. Clouds, fog, or precipitation are such that determination of the level of activity intensity is impossible. Observation cannot be determined due to extreme exposure inconsistencies, lens (or window) condensation, misalignment, or view obstructed by a foreign object. To be used with sky condition of 9 or if the level of activity intensity cannot be determined due to reasons other than weather.
4	HAZE TYPE	FORM OF HAZE OR EXHAUST OBSERVED DURING THE PERIOD. 0 No haze 1 Vehicle exhaust 2 Residence smoke plume 3 Multiple forms of haze 5 Weather dominates scene 8 Observation cannot be determined 9 No observation or cannot be determined	No haze is perceptible in view. (This condition code does not consider steam or geyser plumes as a haze form). Perception of vehicle exhaust is clearly discernable in view. Perception of residential smoke plume(s) clearly discernable in view. Multiple forms of haze or exhaust are discernable in view. Clouds, fog, or precipitation are such that determination of the presence of haze is impossible. Observation cannot be determined due to extreme exposure inconsistencies, lens (or window) condensation, misalignment, or view obstructed by a foreign object. To be used with sky condition of 9 or if the haze intensity cannot be determined due to reasons other than weather.

4.0 DATA SUMMARIES

This section presents a summary of all of the data collected by ARS during the monitoring period, December 15, 2002, through March 15, 2003. Vehicle count data and Old Faithful eruption interval data, obtained from the National Park Service is presented, as well. Tabular data is available in Appendix C.

4.1 DATA COLLECTION AND VALIDATION STATISTICS

Table 4-1 lists the data collection statistics for the sample period. The data recovery for meteorological parameters during the period exceeded the project goals of 90%. Particulate and carbon monoxide data recovery exceeded the study goal of 80%.

4.1.1 Flagg Ranch

The CO analyzer at the Flagg Ranch site experienced a significant amount of zero drift over the study period. The raw ambient data was zero adjusted when the daily zero calibration check was greater than 1% of the instruments full scale value (0.2 ppm). From 12/24/02 through 2/22/03, there were periods where there was either unreliable daily zero calibrations or no zero calibrations. In the absence of a reliable daily zero calibration check, the lowest value of the day was used to zero-adjust the data.

On 12/29/02 (0300), the circuit breaker servicing the BAM tripped. The circuit breaker was reset on 1/2/03 (1200). BAM data was lost for this period.

During periods of extreme cold ambient temperatures (12/25/02 (0400-0800), 2/7/03 (0100-0800), 2/23/03 2200–2/24/03 0800, 2/24/03 2100-2/25/03 0800, 2/26/03 (0400-0700)), the BAM malfunctioned and data were invalidated.

A maintenance visit was conducted at the Flagg Ranch site on February 22-23, 2003. The main purpose of this visit was to replace a zero-air bottle and calibrate the CO analyzer and the BAM.

4.1.2 West Entrance

During periods of extreme cold ambient temperatures (2/23/03 2300-2/24/03 0800 and 2/25/03 (0100-0700)), the BAM malfunctioned and data were invalidated.

Throughout the sampling period, the BAM reported an error related to the heater. Data with this error code were invalidated. The most significant period of data loss occurred daily from approximately 1000 – 1900 for the period, 3/9/03 – 3/15/03.

A maintenance visit was conducted at the West Entrance site on February 24, 2003. The main purpose of this visit was to calibrate the BAM.

4.1.3 Old Faithful

Within the first week of installation, the primary ambient temperature/relative humidity (AT/RH) began to malfunction at the Old Faithful site. There were two AT/RH sensors at the Old Faithful site. The primary AT/RH sensor collected 1-hour averages and the secondary AT/RH sensor collected 5-minute averages for use in validation of the nephelometer data. Primary AT/RH data for the period, 12/19/02 – 2/25/03, was replaced with the AT/RH data that was collected as part of the nephelometer system. A new primary AT/RH sensor was installed during a maintenance visit on February 25, 2003.

The CO analyzer at the Old Faithful site experienced a significant amount of zero drift over the study period. The raw ambient data was zero adjusted when the daily zero calibration check was greater than 1% of the instruments full scale value (0.2 ppm). From 12/19/02 through 12/22/02, there were no zero calibrations available and the lowest value of the day was used to zero-adjust the data.

During periods of extreme cold ambient temperatures (2/23/03 2300-2/24/03 0700 and 2/25/03 (0100-0700)), the BAM malfunctioned and data were invalidated.

All parameters were invalidated from 0700 through 1100 on 2/24/03, due to a power failure.

All parameters lost data for the period 0000 through 1200 on 2/25/03, due to a problem with the datalogger program.

A maintenance visit was conducted at the Old Faithful site February 23 -25, 2003. The main purpose of this visit was to calibrate the CO analyzer and the BAM and to replace the primary AT/RH sensor.

4.2 DATA TIME SERIES

Time series plots for the gaseous, particulate, meteorological, and optical parameters can be found in Figures 4-1 through 4-9.

Table 4-1

Data Collection Statistics Grand Teton and Yellowstone National Parks Winter Use Air Quality Monitoring Study							
Parameter	Interval	Par Code	Data Recovery			Valid Data	
			No. Possible	No. Collected	% Collected	No. Valid	% Valid
Flagg Ranch							
Carbon Monoxide	hourly	CO	2064	1985	96.2	1985	96.2
PM _{2.5}	hourly	PM25B	2064	2061	99.9	1868	90.5
Relative Humidity	hourly	RH	2064	2063	100.0	2063	100.0
Standard Deviation for Wind Direction	hourly	SDWD	2064	2063	100.0	2063	100.0
Station Temperature	hourly	STP	2064	2063	100.0	2063	100.0
Scalar Wind Speed	hourly	SWS	2064	2063	100.0	2011	97.4
Ambient Temperature (aspirated)	hourly	TMP	2064	2063	100.0	2063	100.0
Unit Vector Wind Direction	hourly	VWD	2064	2063	100.0	2063	100.0
Digital Images	1/daylight hour		1183	1173	99.2	1173	99.2
West Entrance							
Carbon Monoxide	hourly	CO	2136	2032	95.1	2032	95.1
PM _{2.5}	hourly	PM25B	2121	2118	99.9	1821	85.9
Standard Deviation for Wind Direction	hourly	SDWD	2136	2134	99.9	2134	99.9
Station Temperature	hourly	STP	2136	2134	99.9	2134	99.9
Scalar Wind Speed	hourly	SWS	2136	2134	99.9	2134	99.9
Ambient Temperature (aspirated)	hourly	TMP	2136	2134	99.9	2134	99.9
Unit Vector Wind Direction	hourly	VWD	2136	2134	99.9	2134	99.9
Digital Images	1/daylight hour		1053	838	79.6	838	79.6
Old Faithful							
Carbon Monoxide	hourly	CO	2088	1984	95.0	1984	95.0
PM _{2.5}	hourly	PM25B	2088	2068	99.0	2011	96.3
Relative Humidity	hourly	RH	2088	2068	99.0	2056	98.5
Standard Deviation for Wind Direction	hourly	SDWD	2088	2068	99.0	2056	98.5
Station Temperature	hourly	STP	2088	2068	99.0	2068	99.0
Scalar Wind Speed	hourly	SWS	2088	2068	99.0	2056	98.5
Ambient Temperature (aspirated)	hourly	TMP	2088	2068	99.0	2056	98.5
Unit Vector Wind Direction	hourly	VWD	2088	2068	99.0	2056	98.5
Digital Images	1/daylight hour		1131	1117	98.7	1117	98.7
Particle Scattering	Hourly		2184	2166	99.2	2164	99.1

Notes: The percent valid is calculated against the number possible.
Automatic zeros and spans are performed daily on most ambient gas analyzers, therefore, no ambient data can be collected during this time. As a result the maximum percent valid for ambient gas data typically cannot be greater than 95.8

Figure 4-1. Grand Teton National Park - Flagg Ranch

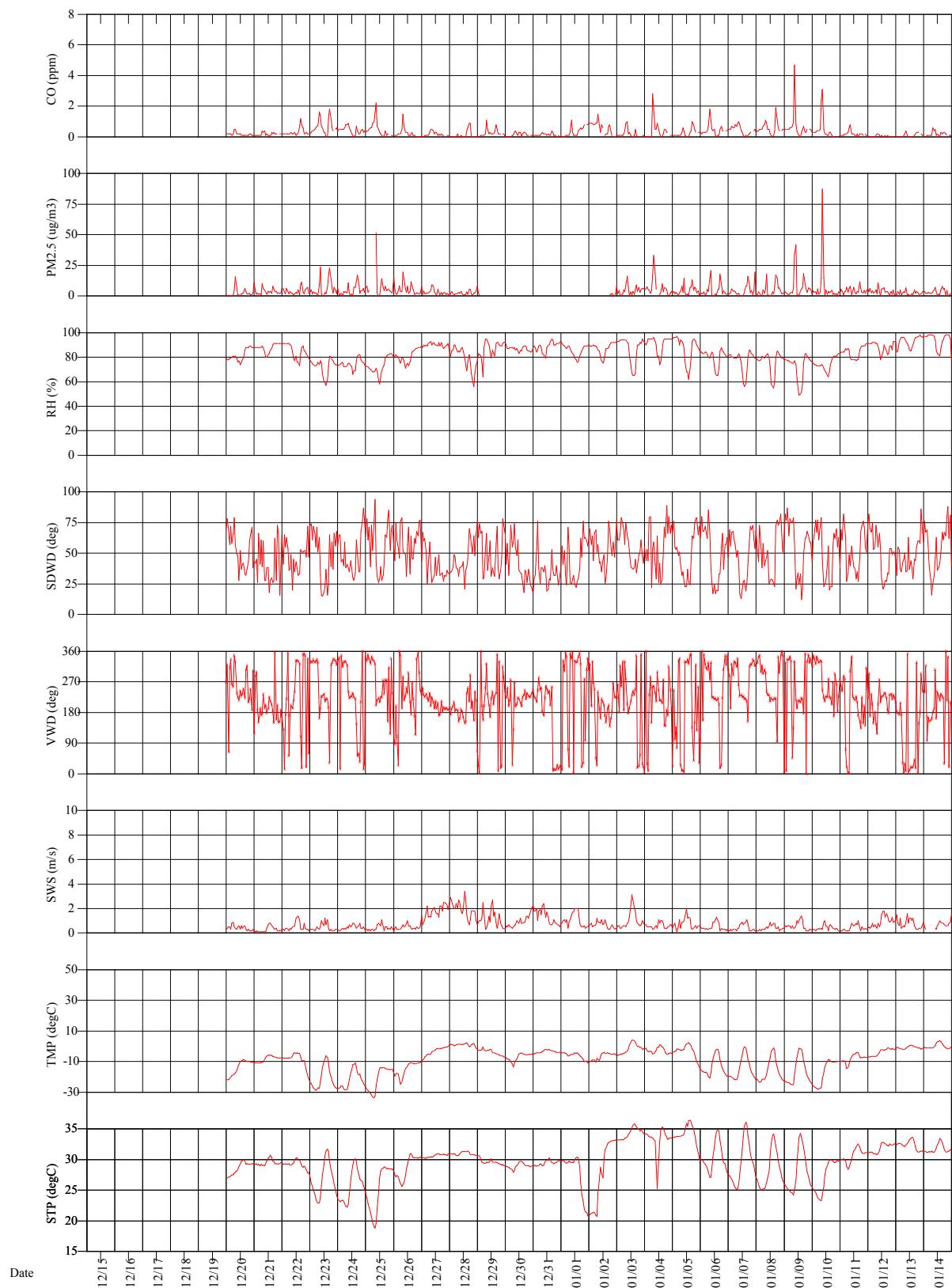


Figure 4-2. Grand Teton National Park - Flagg Ranch

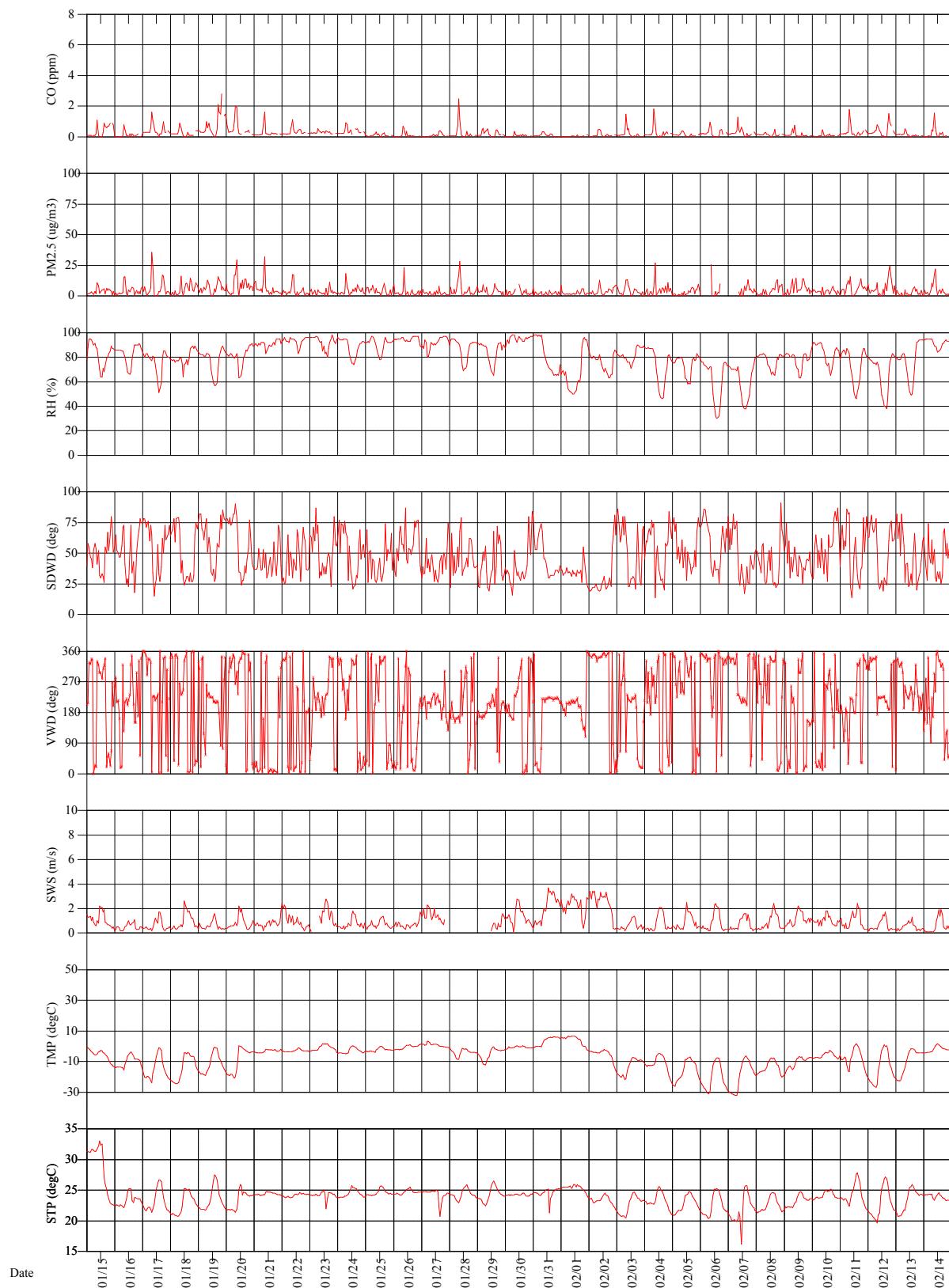


Figure 4-3. Grand Teton National Park - Flagg Ranch

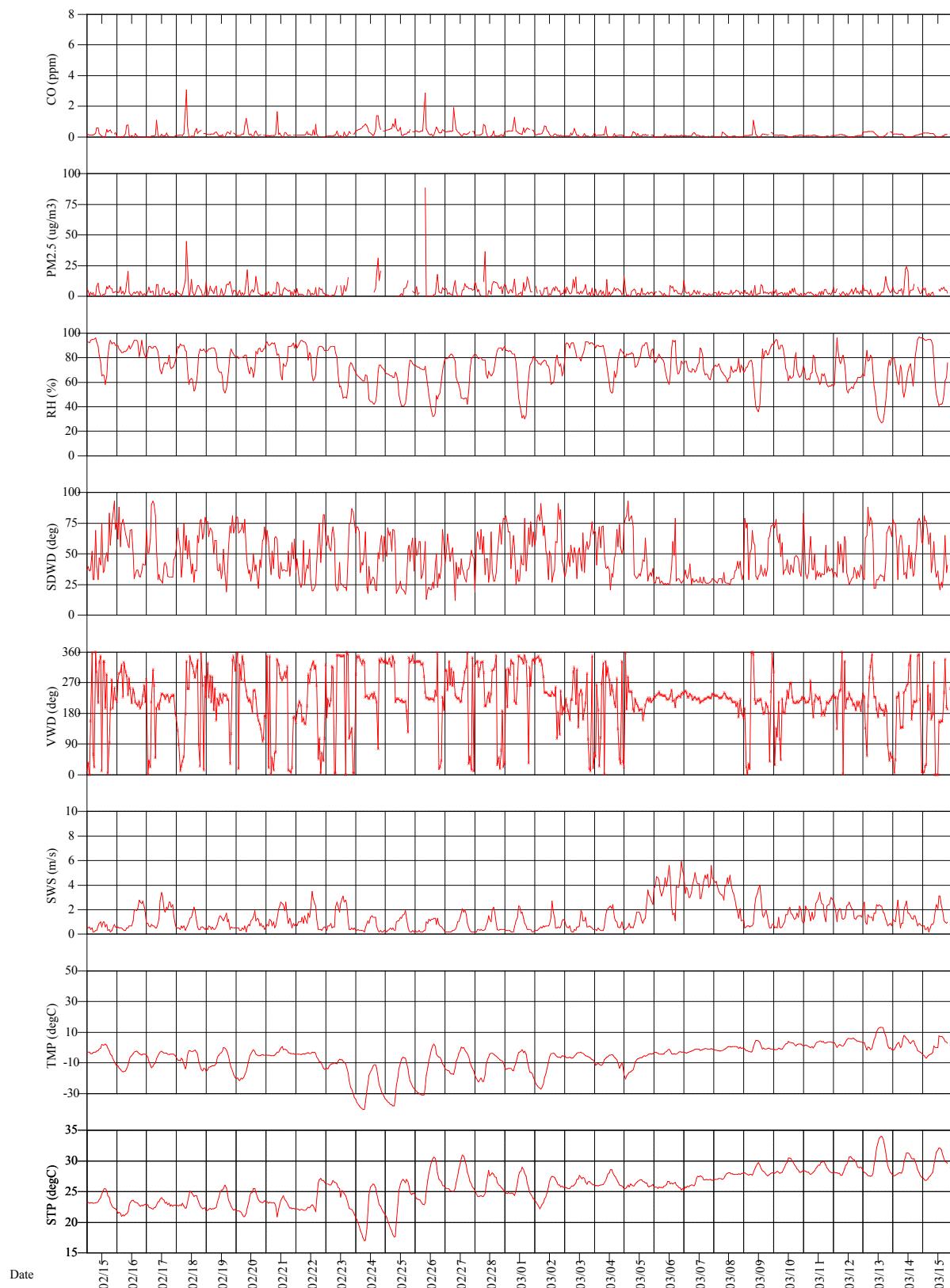


Figure 4-4. Yellowstone National Park - West Entrance

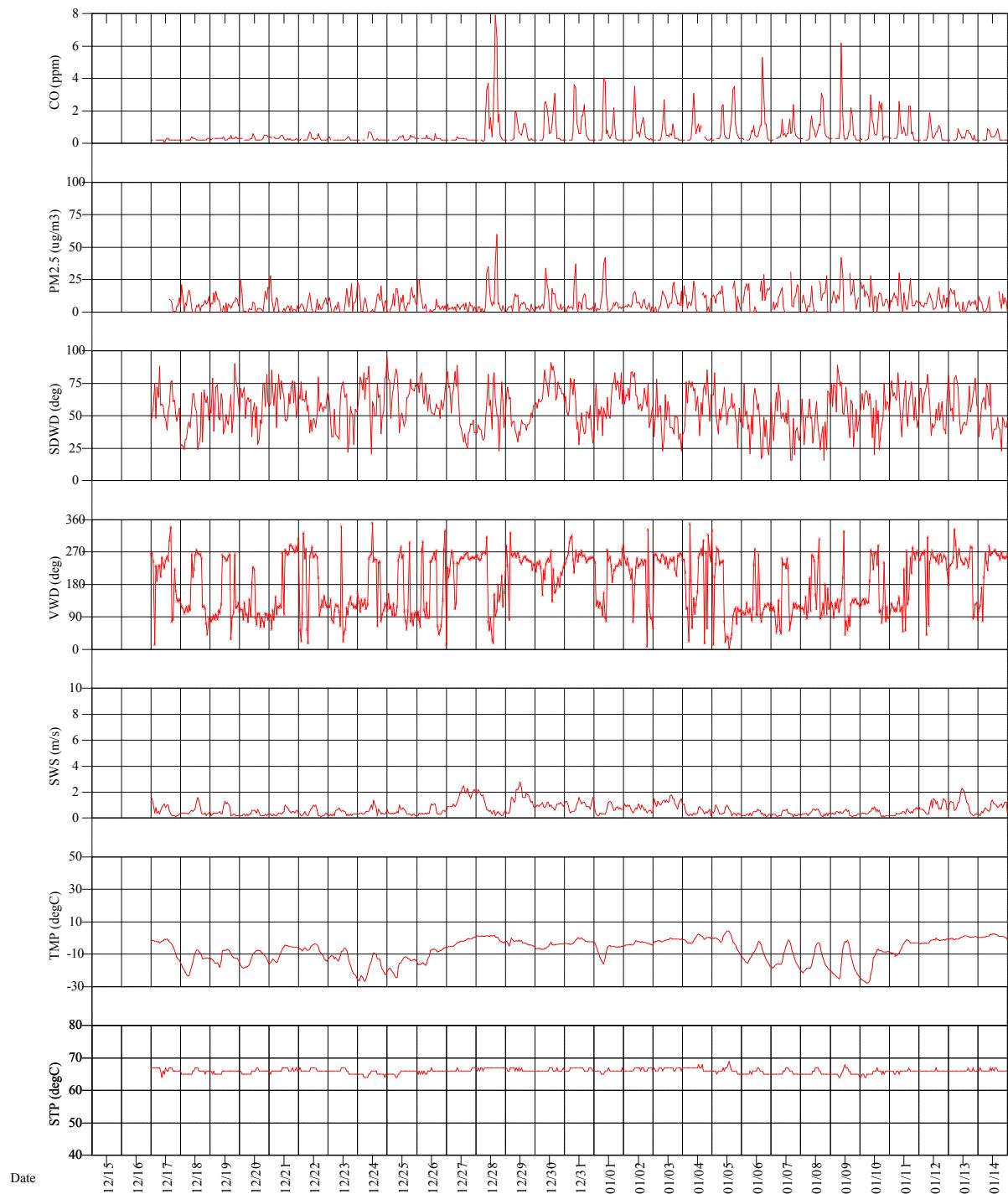


Figure 4-5. Yellowstone National Park - West Entrance

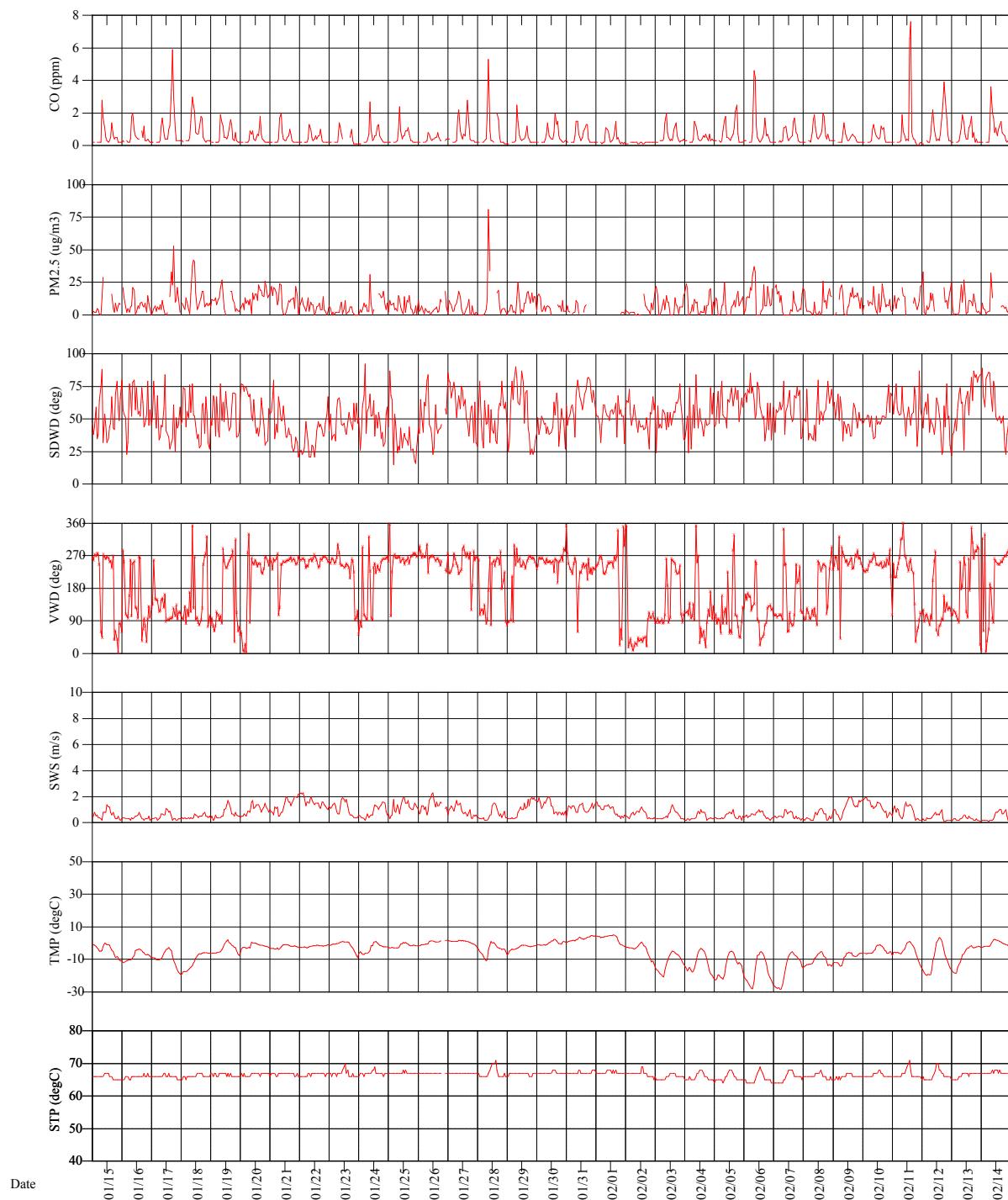


Figure 4-6. Yellowstone National Park - West Entrance

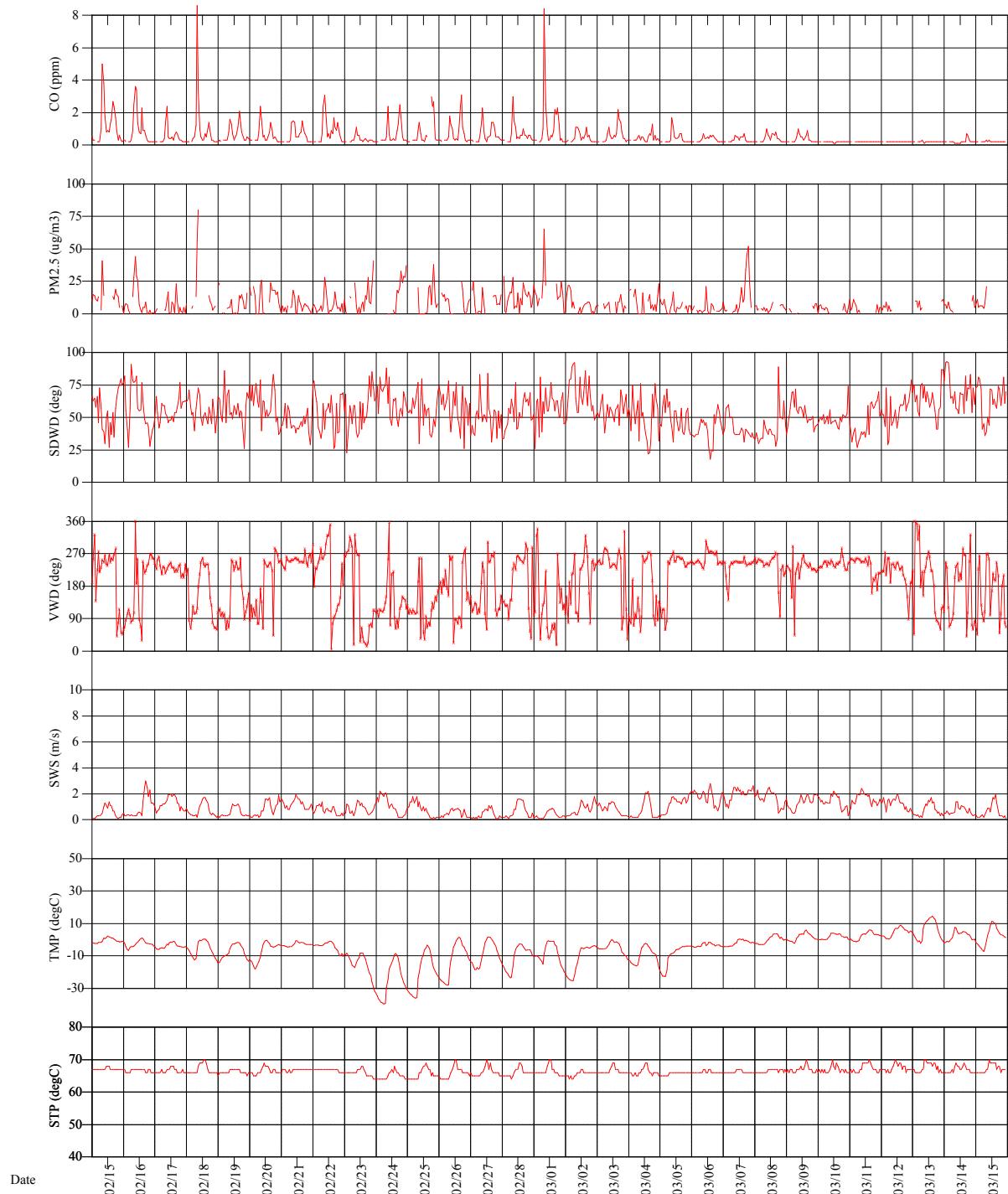


Figure 4-7. Yellowstone National Park - Old Faithful

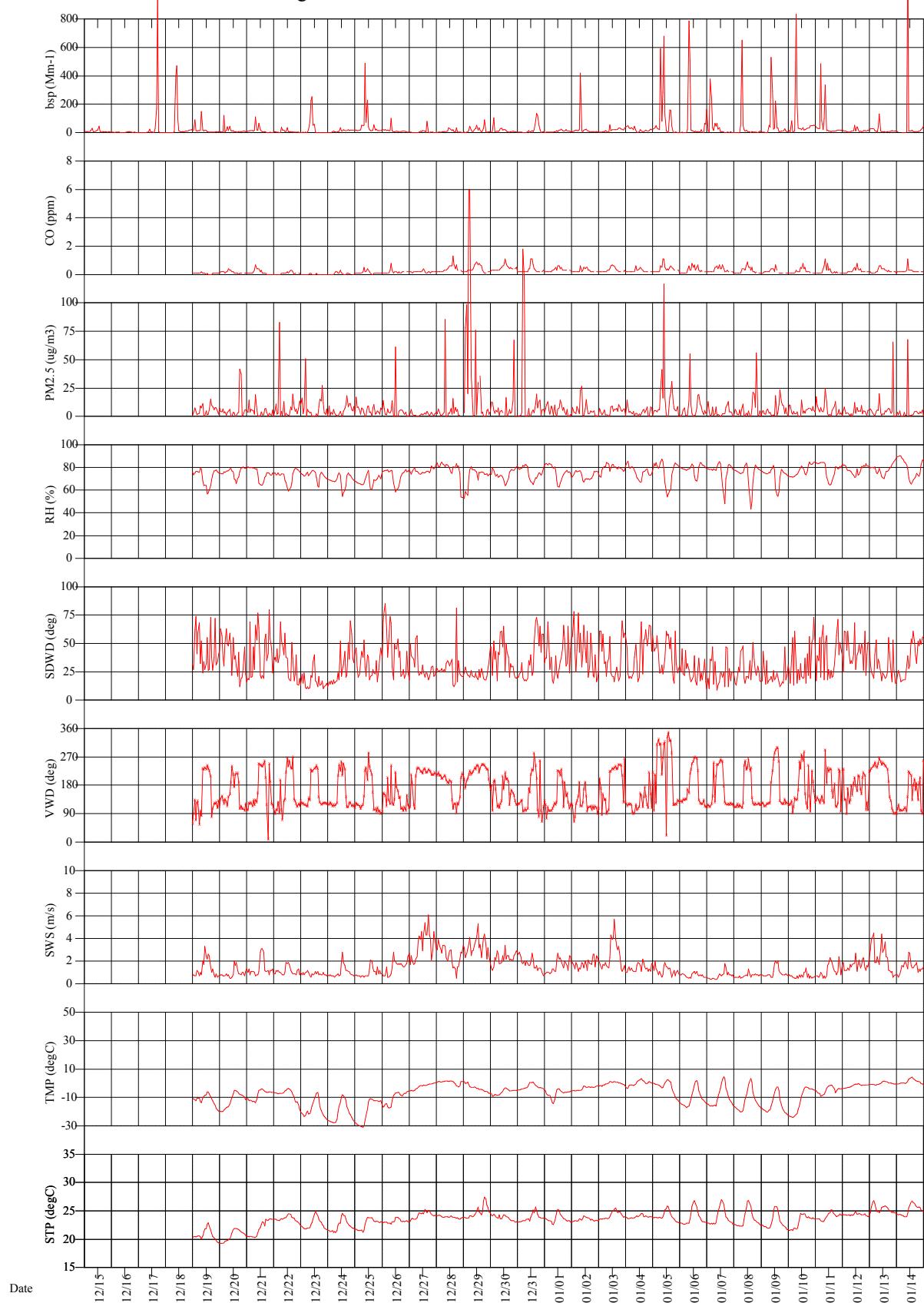


Figure 4-8. Yellowstone National Park - Old Faithful

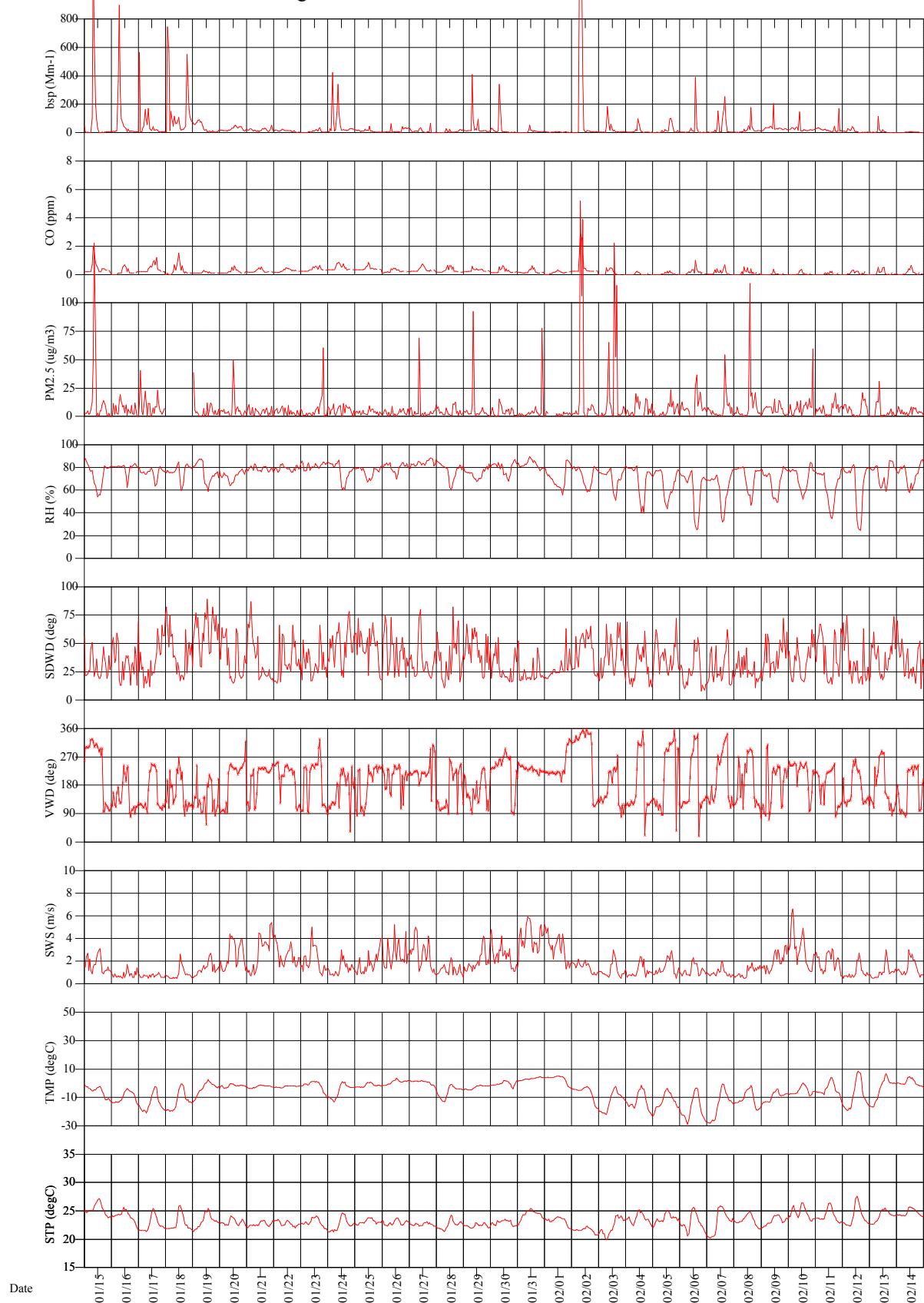
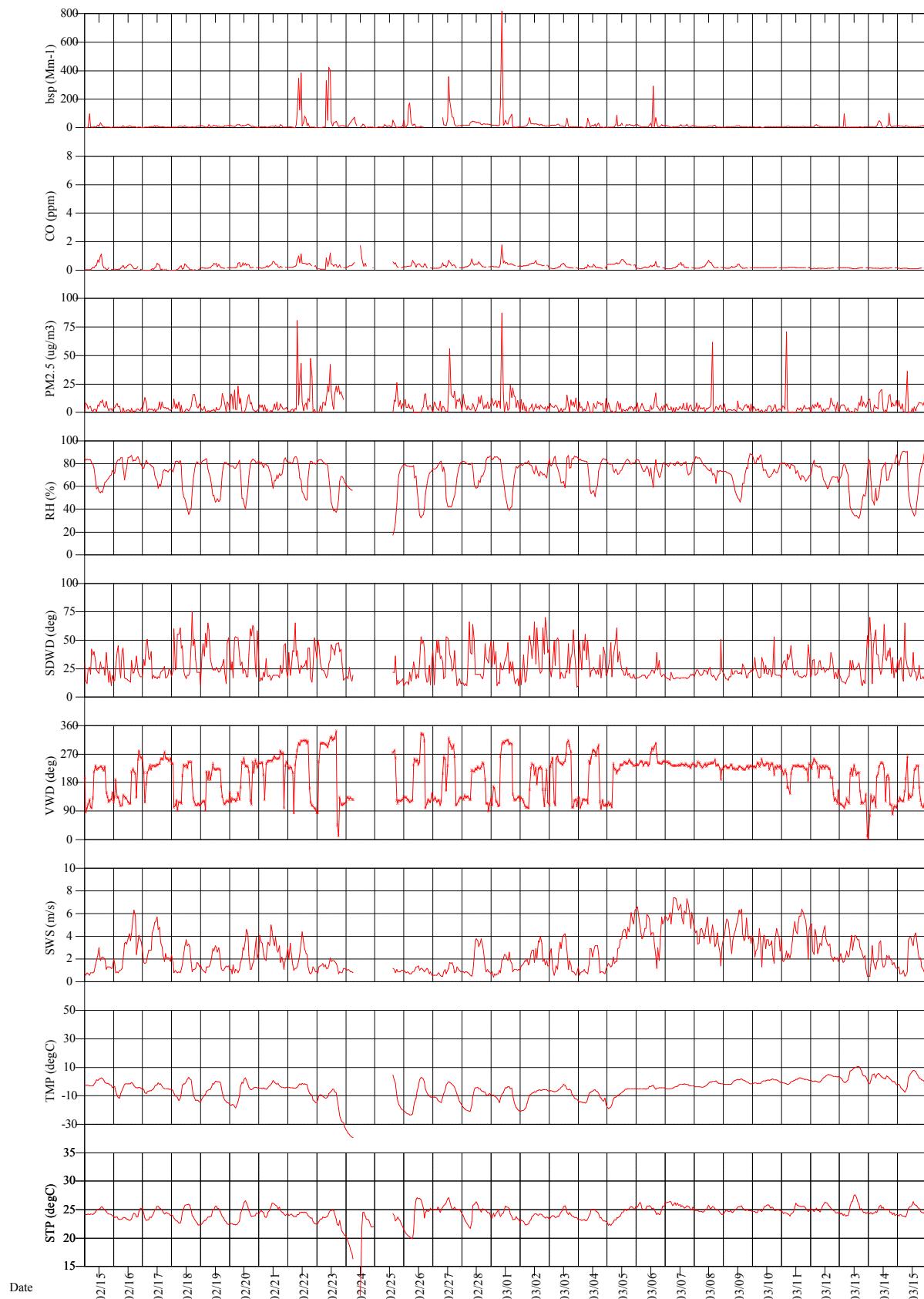


Figure 4-9. Yellowstone National Park - Old Faithful



4.3 METEOROLOGICAL DATA

Table 4-2 presents meteorological summary statistics for the monitoring period.

For the study period, the following observations can be made regarding airflow at the three sites:

- Winds at the Flagg Ranch site favored the southwest to south-southwest direction (the direction of the private parking lot).
- Winds at the West Entrance site are primarily from the west to southwest.
- Winds at the Old Faithful site were mixed with directions predominantly out of the west-southwest to southwest and east-southeast to southeast equally. The highest winds speeds were seen when the winds were coming from the west-southwest to the southwest.

Wind Roses are presented in Figures 4-10 through 4-12.

Table 4-2

Summary of Selected Meteorological Data
 Grand Teton and Yellowstone National Parks
 Winter Use Air Quality Monitoring Study

Parameter	Value	Units	Number	Std Dev
Flagg Ranch				
<i>Scalar Wind Speed</i>				
Average	1.1	m/s		
Maximum	5.9	m/s		
Percent calm = 28.34				
<i>Ambient Temperature</i>				
Average	-7.7	degC		
Maximum	13.2	degC		
Minimum	-40.4	degC		
<i>Relative Humidity</i>				
Average	79	percent		
Maximum	98	percent		
Minimum	27	percent		
West Entrance				
<i>Scalar Wind Speed</i>				
Average	0.8	m/s		
Maximum	3.0	m/s		
Percent calm = 35.38				
<i>Ambient Temperature</i>				
Average	-6.2	degC		
Maximum	14.6	degC		
Minimum	-39.6	degC		
Old Faithful				
<i>Scalar Wind Speed</i>				
Average	1.9	m/s		
Maximum	7.4	m/s		
Percent calm = 0.29				
<i>Ambient Temperature</i>				
Average	-6.3	degC		
Maximum	10.7	degC		
Minimum	-39.4	degC		
<i>Relative Humidity</i>				
Average	73	percent		
Maximum	92	percent		
Minimum	17	percent		

Note: Calms are included in the average scalar wind speed and are defined as winds less than 0.5 m/s.

Figure 4-10

Grand Teton National
Park
Flagg Ranch

Wind Rose

12/19/2002 - 03/15/2003

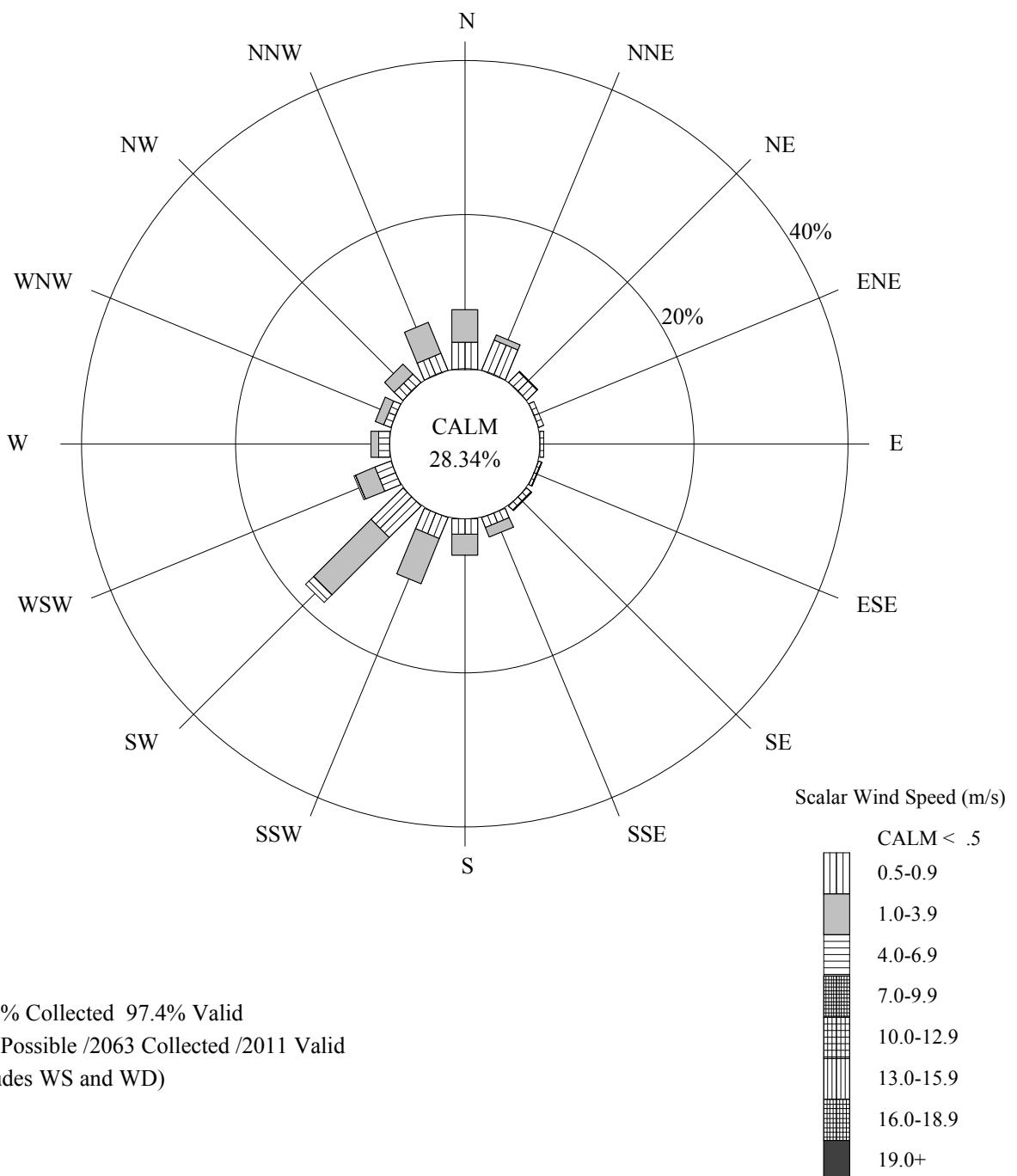


Figure 4-11

Yellowstone National Park
West Entrance

Wind Rose

12/17/2002 - 03/15/2003

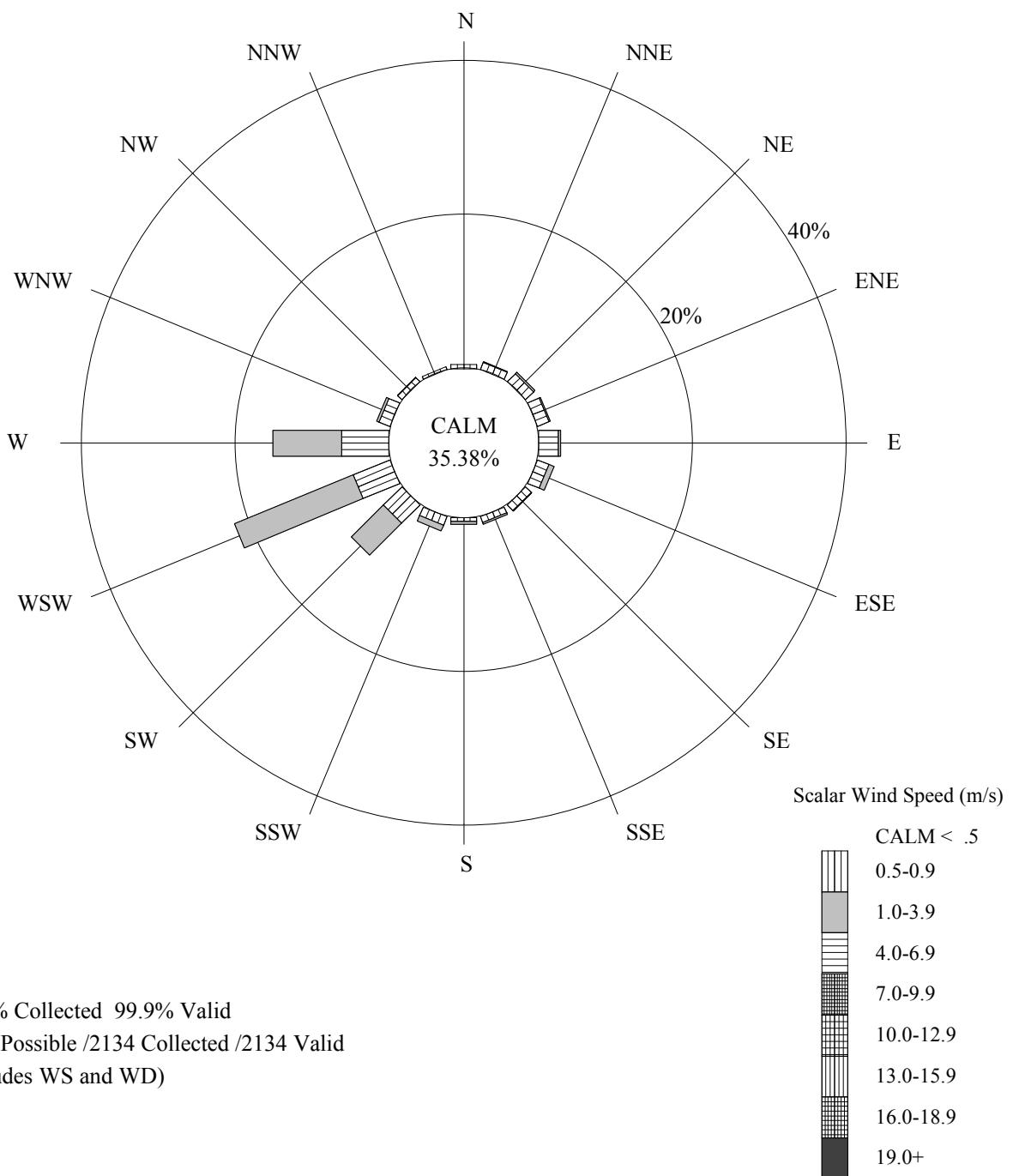
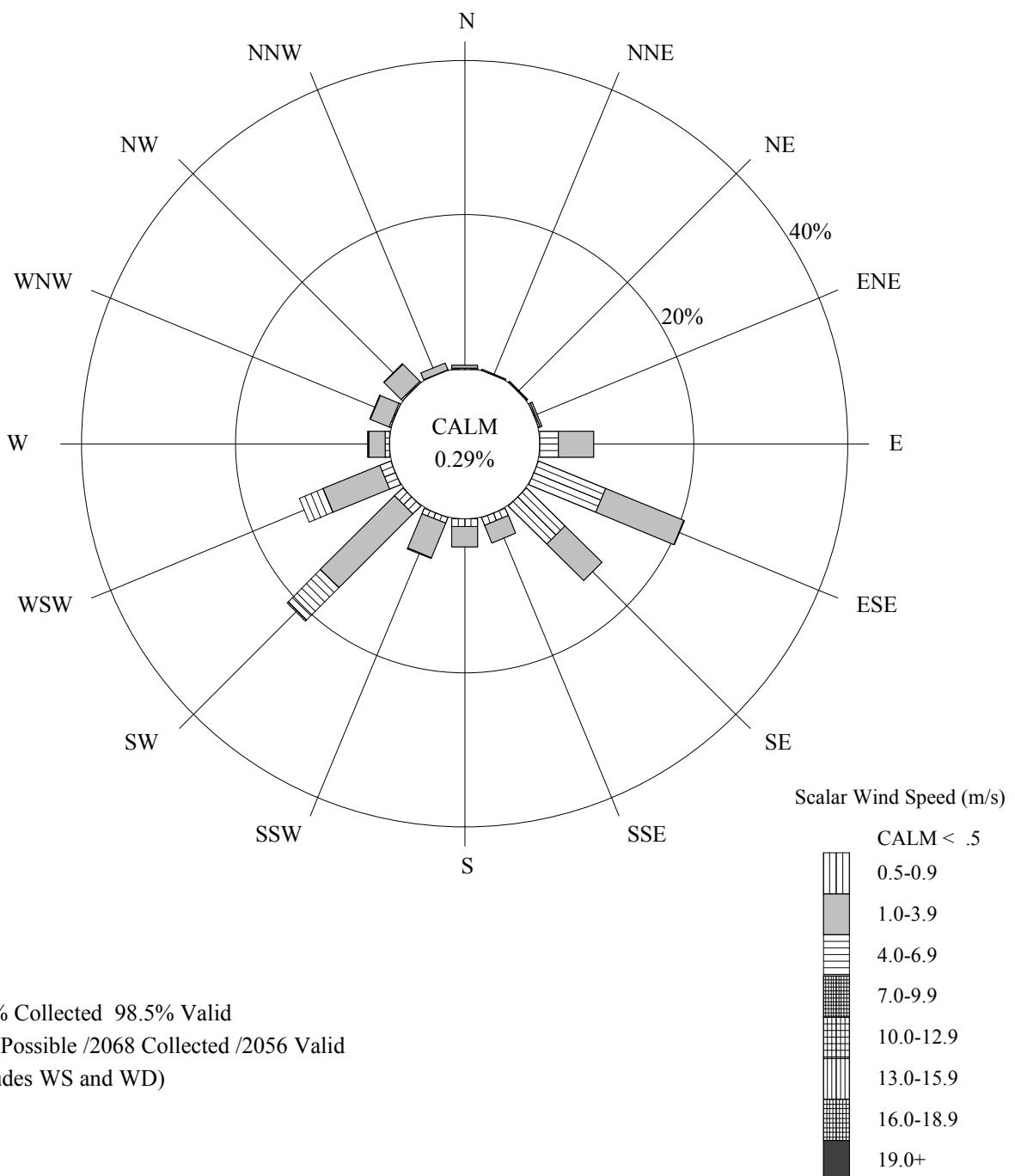


Figure 4-12

Yellowstone National
Park
Old Faithful

Wind Rose

12/19/2002 - 03/15/2003



4.4 AIR QUALITY DATA

4.4.1 Pollutant Roses

Carbon monoxide (CO) and PM_{2.5} pollutant roses can be found in Figures 4-13 through 4-18.

4.4.2 Comparison with National Ambient Air Quality Standards

The results of the CO and PM_{2.5} sampling can be compared to the following National Ambient Air Quality Standards (NAAQS):

Pollutant	Standard Value	Standard Type
Carbon Monoxide (CO)	8-hour Average 9 ppm	Primary
	1-hour Average 35 ppm	Primary
Particulate (PM _{2.5})	Annual Arithmetic Mean 15 ug/m ³	Primary & Secondary
	24-hour Average 65 ug/m ³	Primary & Secondary

Tables 4-3 and 4-4 list the five highest 1-hr average daily maximums and non-overlapping 8-hr running averages for carbon monoxide for each site. The highest hourly carbon monoxide values at Flagg Ranch, West Entrance and Old Faithful are 13%, 25%, and 8% of the NAAQS 1-hr standard for carbon monoxide, respectively. The highest 8-hr carbon monoxide running average at Flagg Ranch, West Entrance and Old Faithful are 19%, 37%, and 13% of the NAAQS 8-hr standard for carbon monoxide respectively.

Table 4-5 lists the five highest 24-hr averages for PM_{2.5} for each site. Valid 24-hr averages must have 75% of the hourly data. The highest 24-hr averages for PM_{2.5} at Flagg Ranch, West Entrance, and Old Faithful are 13%, 23%, and 57% of the NAAQS 24-hour standard for PM_{2.5}, respectively.

4.4.3 Nephelometer Data

The nephelometer consists of a sampling chamber and a light source confined to a small volume so that the instrument may directly measure the light scattered by aerosols and gases at a fixed point. Nephelometers provide continuous, five-minute measurements of particle scattering (b_{sp}). The atmospheric scattering coefficient, b_{scat} , can be directly estimated from this measurement by adding rayleigh scattering (b_{ray}). An estimated rayleigh scattering of 10 Mm⁻¹, was used at the Old Faithful site. A more detailed description of the nephelometer system and data reduction and validation procedures used can be found in Section 3.0

Measurements of nephelometer b_{scat} can be combined with measurements of aerosol absorption (b_{abs}) to calculate the total light extinction (b_{ext}). Standard visual range (in kilometers) can then be calculated using the following equation:

$$\text{Standard Visual Range} = 3912/b_{\text{ext}}$$

Aerosol absorption was not measured at the Old Faithful site, but visual range can be approximated by substituting b_{scat} with b_{ext} in the above equation. This will result in an overestimation of visual range. Nephelometer visibility metric data for the monitoring period, is represented below as particle scattering (b_{sp}) and approximate visual range.

Visibility Metric	b_{sp} (Mm-1)	Visual Range (km)
Mean of Cleanest 20%	2.1	< 323
Mean of All Data	28.8	< 101
Mean of Dirtiest 20%	111.2	< 32

Table 4-3
 Carbon Monoxide
 Five Highest 1-Hour Average Daily Maximums
 Grand Teton and Yellowstone National Parks
 Winter Use Air Quality Monitoring Study

Value	Date	Hour	Concentration (ppm)
Flagg Ranch			
1	1/9/03	0900	4.7
2	1/10/03	0900	3.1
3	2/18/03	0800	3.1
4	2/26/03	0800	2.9
5	1/4/03	0700	2.8
West Entrance			
1	2/18/03	0800	8.6
2	3/1/03	0800	8.4
3	12/28/02	1600	7.9
4	2/11/03	1500	7.6
5	1/9/03	0900	6.2
Old Faithful			
1	2/2/03	0800	2.9
2	1/15/03	0800	2.0
3	3/1/03	0900	1.8
4	2/24/03	1200	1.7
5	1/18/03	1200	1.5

Table 4-4
Carbon Monoxide
Five Highest Non-overlapping 8-Hour Running Averages
Grand Teton and Yellowstone National Parks
Winter Use Air Quality Monitoring Study

Value	Date	Hour Ending	Concentration (ppm)
Flagg Ranch			
1	1/20/03	0000	1.7
2	1/9/03	1000	1.2
3	12/25/02	0900	1.0
4	1/2/03	0800	1.0
5	1/10/03	0900	1.0
West Entrance			
1	12/28/02	1700	3.3
2	2/11/03	1500	2.3
3	2/18/03	1000	2.2
4	1/17/03	1900	2.1
5	2/15/03	1500	2.0
Old Faithful			
1	2/2/03	1100	1.2
2	1/15/03	1100	0.8
3	12/28/02	1800	0.7
4	12/29/02	1500	0.7
5	1/17/03	1600	0.7

Table 4-5
PM_{2.5}
 Five Highest *24-Hour Averages
 Grand Teton and Yellowstone National Parks
 Winter Use Air Quality Monitoring Study

Value	Date	Concentration (ug/m³)
Flagg Ranch		
1	1/20/03	8.4
2	2/26/03	8.0
3	2/28/03	7.9
4	12/25/02	7.5
5	1/09/03	7.3
West Entrance		
1	1/9/03	14.9
2	1/18/03	13.4
3	1/20/03	13.2
4	3/7/03	13.1
5	2/6/03	12.6
Old Faithful		
1	12/29/02	37.2
2	2/2/03	23.0
3	2/3/03	19.3
4	12/31/02	15.7
5	1/15/03	14.9

*24-Hour Averages must include 75% of the hourly data

Figure 4-13

Grand Teton National
Park
Flagg Ranch

Carbon Monoxide Pollutant Rose

12/19/2002 - 03/15/2003

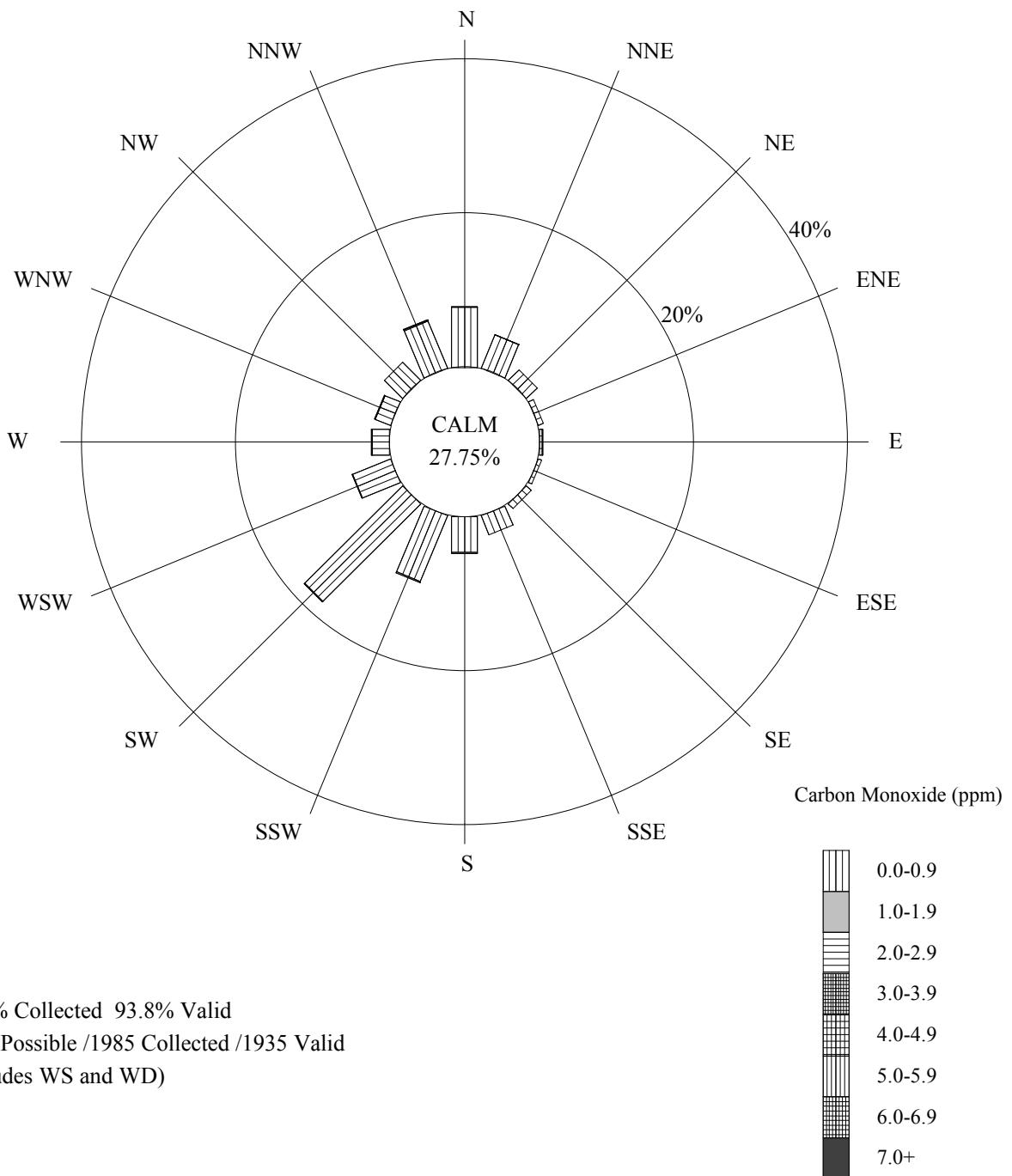


Figure 4-14

Grand Teton National
Park
Flagg Ranch

PM2.5B Pollutant Rose

12/19/2002 - 03/15/2003

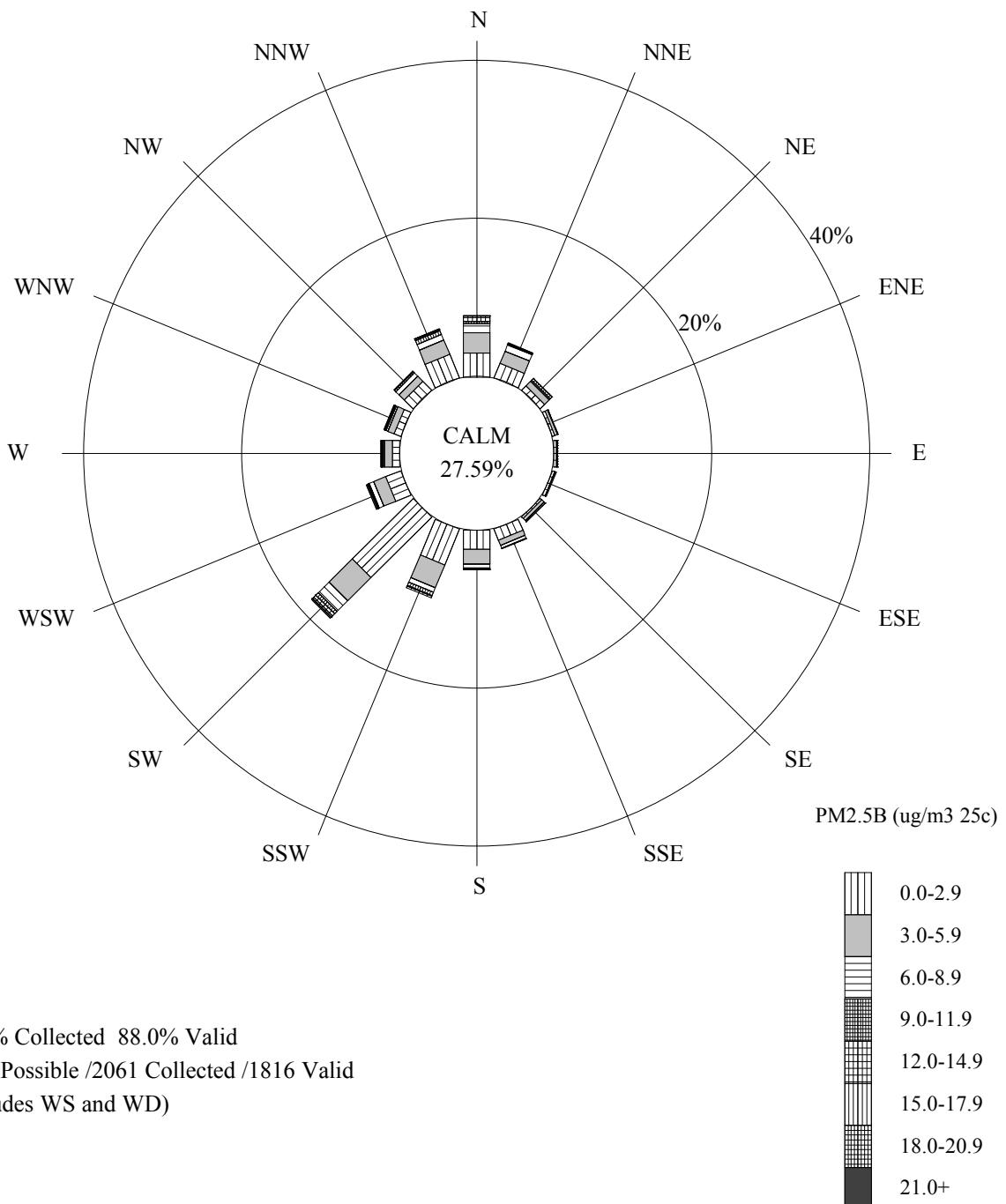


Figure 4-15

Yellowstone National Park
West Entrance

Carbon Monoxide
Pollutant Rose

12/17/2002 - 03/15/2003

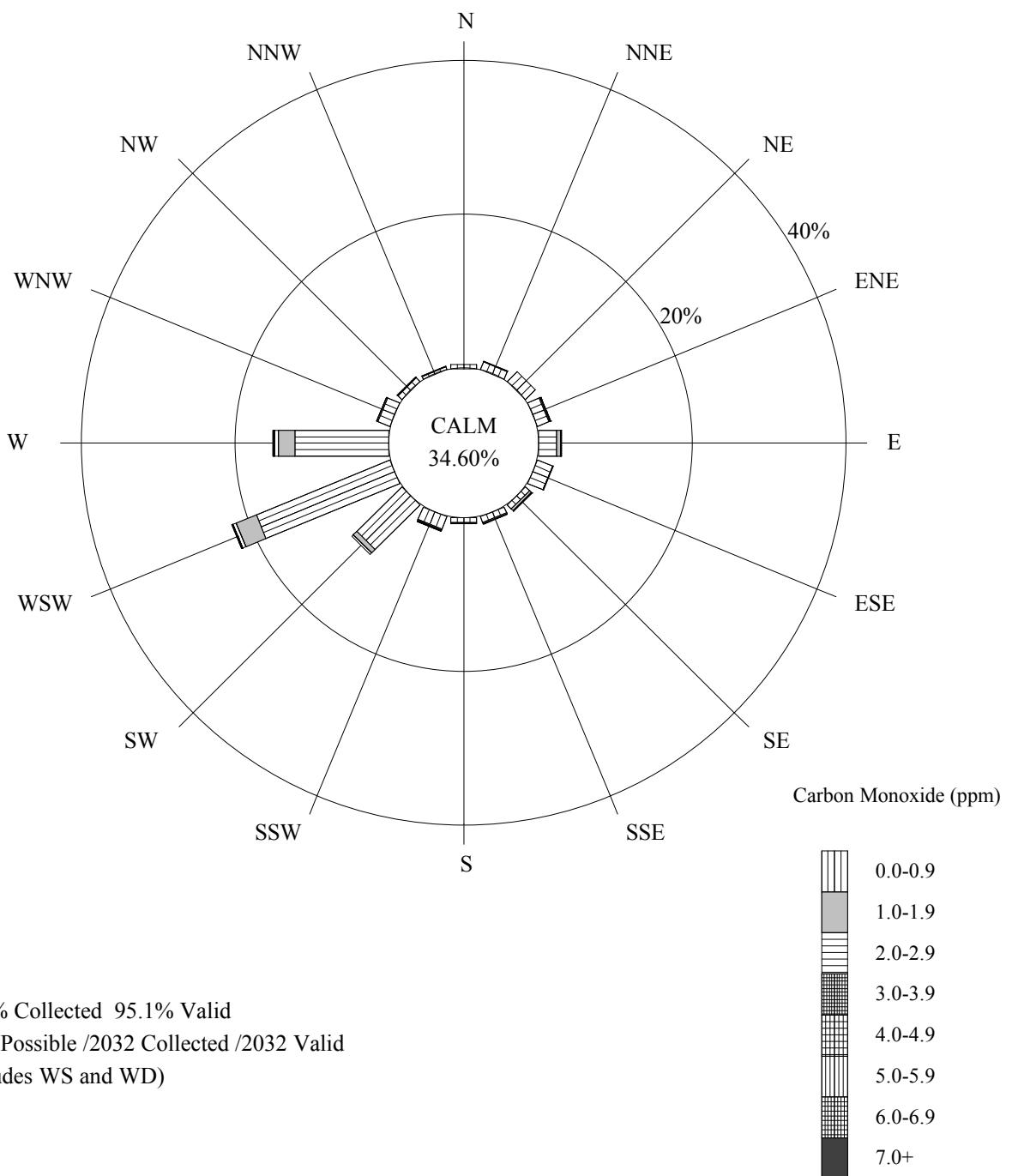


Figure 4-16

Yellowstone National Park
West Entrance

PM2.5 BAM
Pollutant Rose

12/17/2002 - 03/15/2003

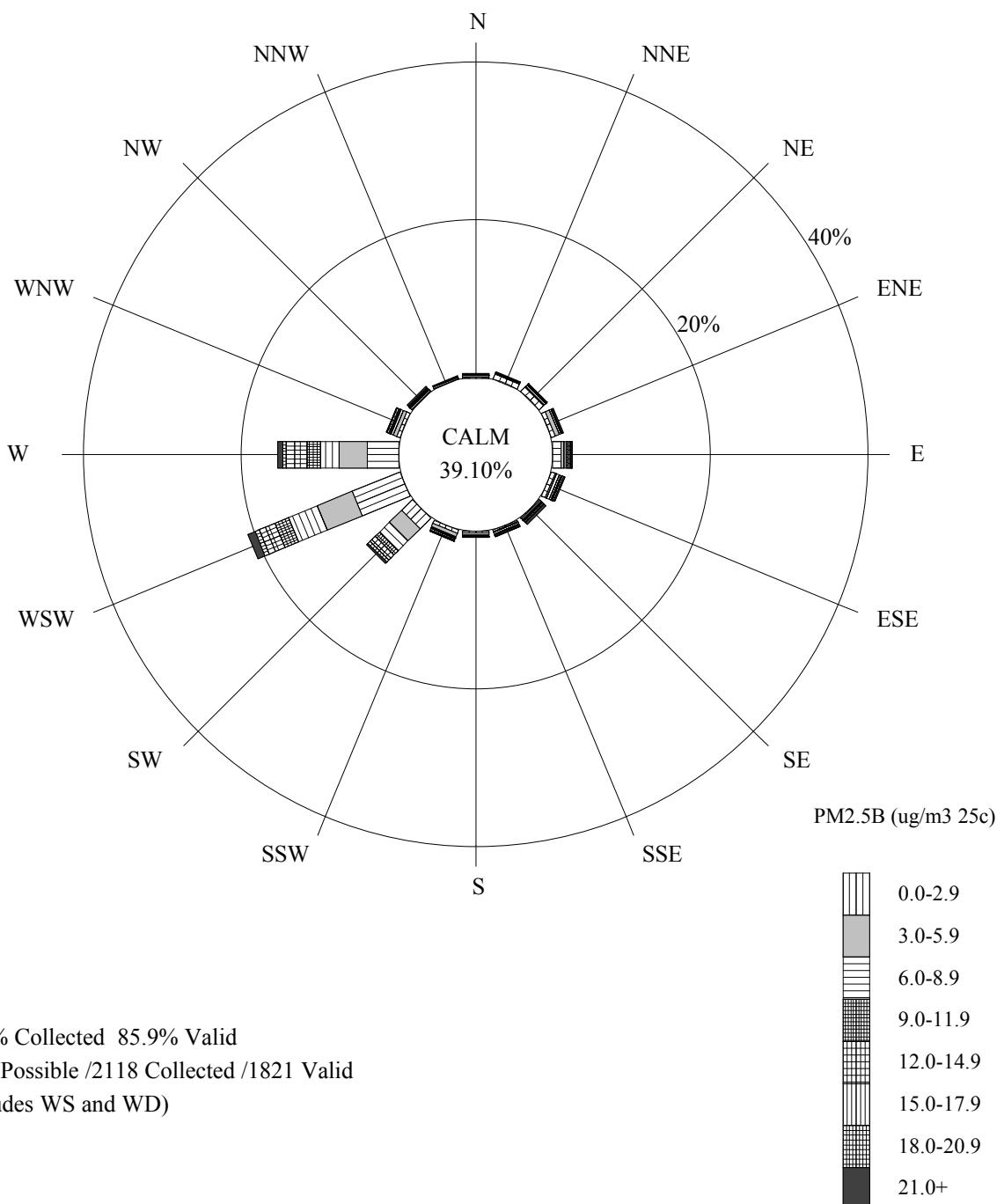


Figure 4-17

Yellowstone National
Park
Old Faithful

Carbon Monoxide Pollutant Rose

12/19/2002 - 03/15/2003

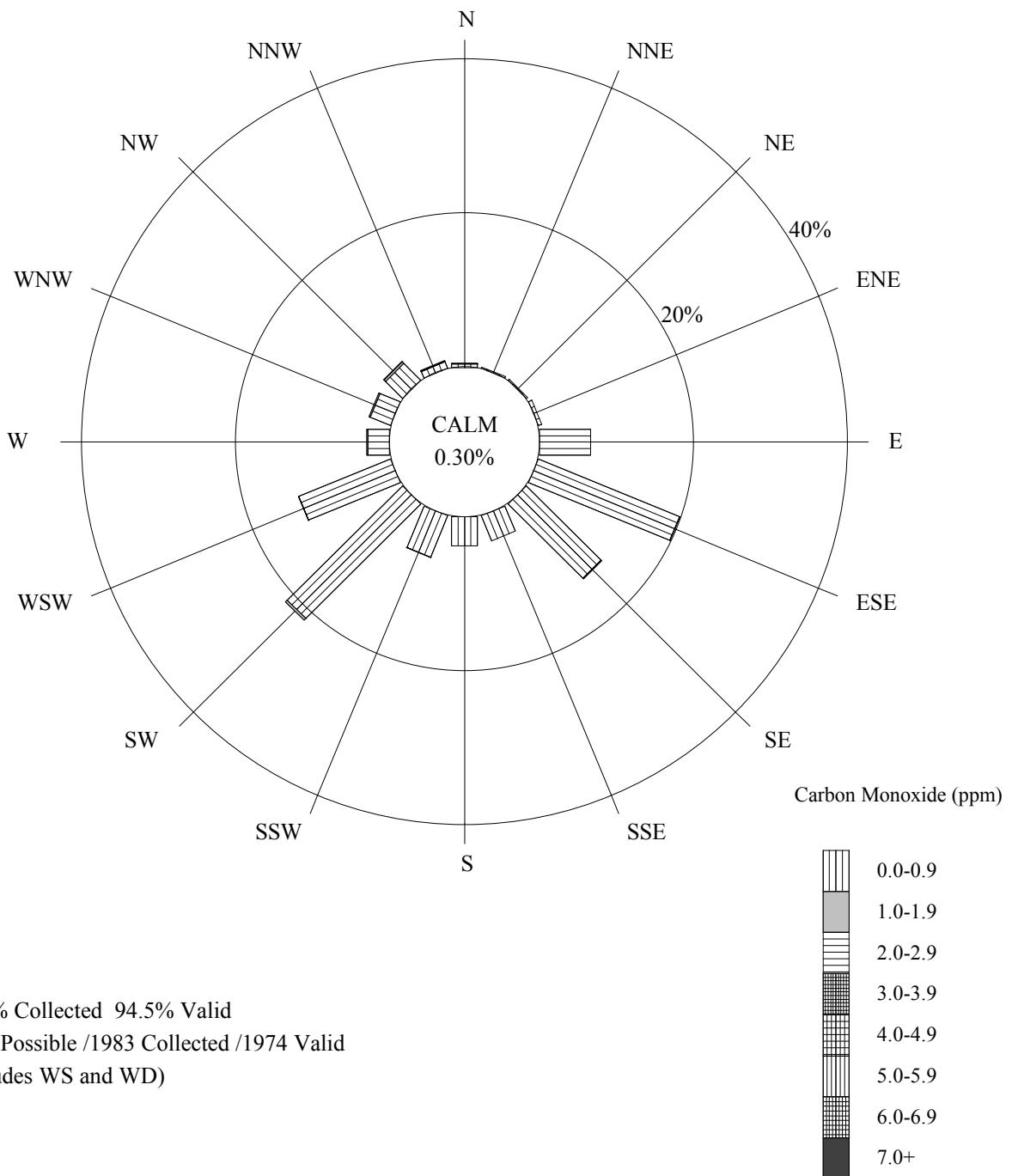
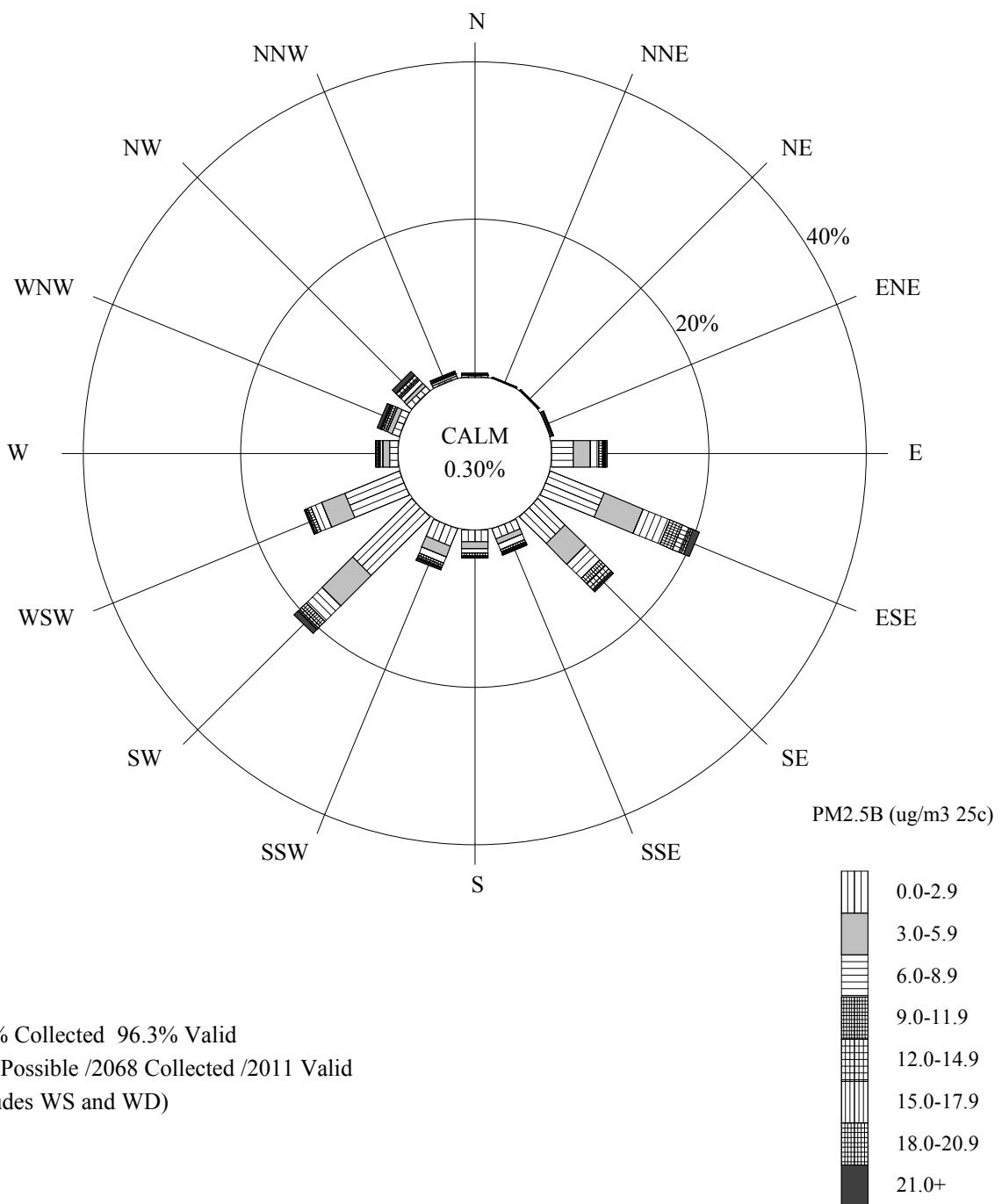


Figure 4-18

Yellowstone National
Park
Old Faithful

PM2.5B Pollutant Rose

12/19/2002 - 03/15/2003



4.5 PHOTOGRAPHIC DATA

Routine photographic monitoring was conducted at all three sites. Photographs at Flagg Ranch (GTFR) were taken at the top of the hour between 7AM and 7PM, while photographs at West Entrance (YEWE) and Old Faithful (YEOF) were taken at the top of the hour between 6AM and 6PM.

Table 4-7 summarizes the sky conditions, activity type, activity intensity, and haze types documented with routine photographic monitoring. The criteria used for coding the photographs at all three sites is described in Section 3.0.

Figures 4-19 through 4-21 were chosen to provide a feel for the range of conditions observed during the monitoring period.

Table 4-7
Scene Condition Summary
Grand Teton and Yellowstone National Parks
Winter Use Air Quality Monitoring Study
12/15/02 – 3/15/03

Sky Conditions											
Site	Total Valid Obs.	No Clouds		Scattered Clouds		Overcast		Haze Concealing		Weather Dominated	Cannot Be Determined
GTFR	1173	70	6%	79	7%	822	70%	0	0%	0	0%
YEWE	838	52	6%	96	11%	553	66%	0	0%	0	0%
YEOF	1117	74	7%	57	5%	650	58%	0	0%	42	4%
Activity Type											
Site	Total Valid Obs.	No Activity		Snow-mobiles		Other Vehicles		Multiple		Weather Dominated	Cannot Be Determined
GTFR	1173	140	12%	13	1%	620	53%	206	18%	0	0%
YEWE	838	388	46%	267	32%	35	4%	23	3%	0	0%
YEOF	1117	92	8%	428	38%	56	5%	249	22%	0	0%
Activity Intensity											
Site	Total Valid Obs.	No Activity		Low Activity		Medium Activity		High Activity		Weather Dominated	Cannot Be Determined
GTFR	1173	140	12%	167	14%	416	35%	255	22%	0	0%
YEWE	838	387	46%	214	26%	97	12%	15	2%	0	0%
YEOF	1117	92	8%	293	26%	385	34%	55	5%	0	0%
Haze Type											
Site	Total Valid Obs.	No haze		Vehicle Exhaust		Smoke Plume		Multiple		Weather Dominated	Cannot Be Determined
GTFR	1173	898	76%	61	5%	0	0%	11	1%	1	0%
YEWE	838	699	83%	4	1%	0	0%	0	0%	0	0%
YEOF	1117	718	64%	34	3%	60	5%	10	1%	3	0%

Flagg Ranch
01/07/03 1700

Scene Condition Code “0000”

No Clouds
No Activity
No Haze



Flagg Ranch
01/14/03 1100

Scene Condition Code “2220”

Overcast
Other Vehicles Present
Medium Activity Intensity
No Haze



Flagg Ranch
02/24/03 0900

Scene Condition Code “0331”

No Clouds,
Multiple Activity Types
High Activity Intensity
Vehicle Exhaust



Figure 4-19. Photographs illustrating the conditions of the Flagg Ranch Commercial parking lot

West Entrance
01/07/03 1200

Scene Condition Code “0000”

No Clouds
No Activity
No Haze



West Entrance
02/07/03 1000

Scene Condition Code “1121”

Scattered Clouds
Snowmobiles Present
Medium Activity Intensity
Vehicle Exhaust



West Entrance
01/13/03 0900

Scene Condition Code “2130”

Overcast
Snowmobiles Present
High Activity Intensity
No Haze



Figure 4-20. Photographs illustrating the conditions of the West Entrance

Old Faithful
3/13/03 1500

Scene Condition Code “0000”

No Clouds
No Activity
No Haze



Old Faithful
01/28/03 1200

Scene Condition Code “1320”

Scattered Clouds
Multiple Activity Types
Medium Activity Intensity
No Haze



Old Faithful
12/29/02 1100

Scene Condition Code “2130”

Overcast
Snowmobiles Present
High Activity Intensity
No Haze



Figure 4-21. Photographs illustrating the conditions of the Old Faithful Parking Lot

4.6 VEHICLE COUNT DATA

Vehicle counts were recorded by park rangers at the South, West and East entrances to Yellowstone National Park on an hourly basis from 7AM to 5PM at the West entrance and 7AM to 4PM at the South and East entrances. Vehicle counts were divided into two categories (1) snow coaches and (2) snowmobiles. Vehicle counts were recorded at the South entrance from 12/30/02 through 3/09/03, the West entrance from 12/28/02 through 3/09/03, and the East entrance from 12/31/02 through 3/06/03.

On days when the entrances were understaffed, the vehicle counts may be inaccurate or unavailable.

On average, 453 snowmobiles and 16 snow coaches entered the park on a daily basis. Table 4-8 lists ten dates with the highest vehicle counts.

Table 4-8

Ten Highest Vehicle Counts
Grand Teton and Yellowstone National Parks
Winter Use Air Quality Monitoring Study

Value	Date	Snow Mobiles	Snow Coaches	Total
1	2/20/2003	757	22	779
2	12/30/2002	749	30	779
3	1/2/2003	733	19	752
4	1/3/2003	669	68	737
5	1/1/2003	688	27	715
6	2/17/2003	687	20	707
7	2/28/2003	674	12	686
8	1/18/2003	633	19	652
9	3/8/2003	635	12	647
10	2/21/2003	623	20	643

Figure 4-22 graphically depicts the vehicle counts recorded at the West, South and East entrances. On average, 68% of the vehicles counted entered through the west entrance, 29% entered through the south entrance and 3% entered through the east entrance

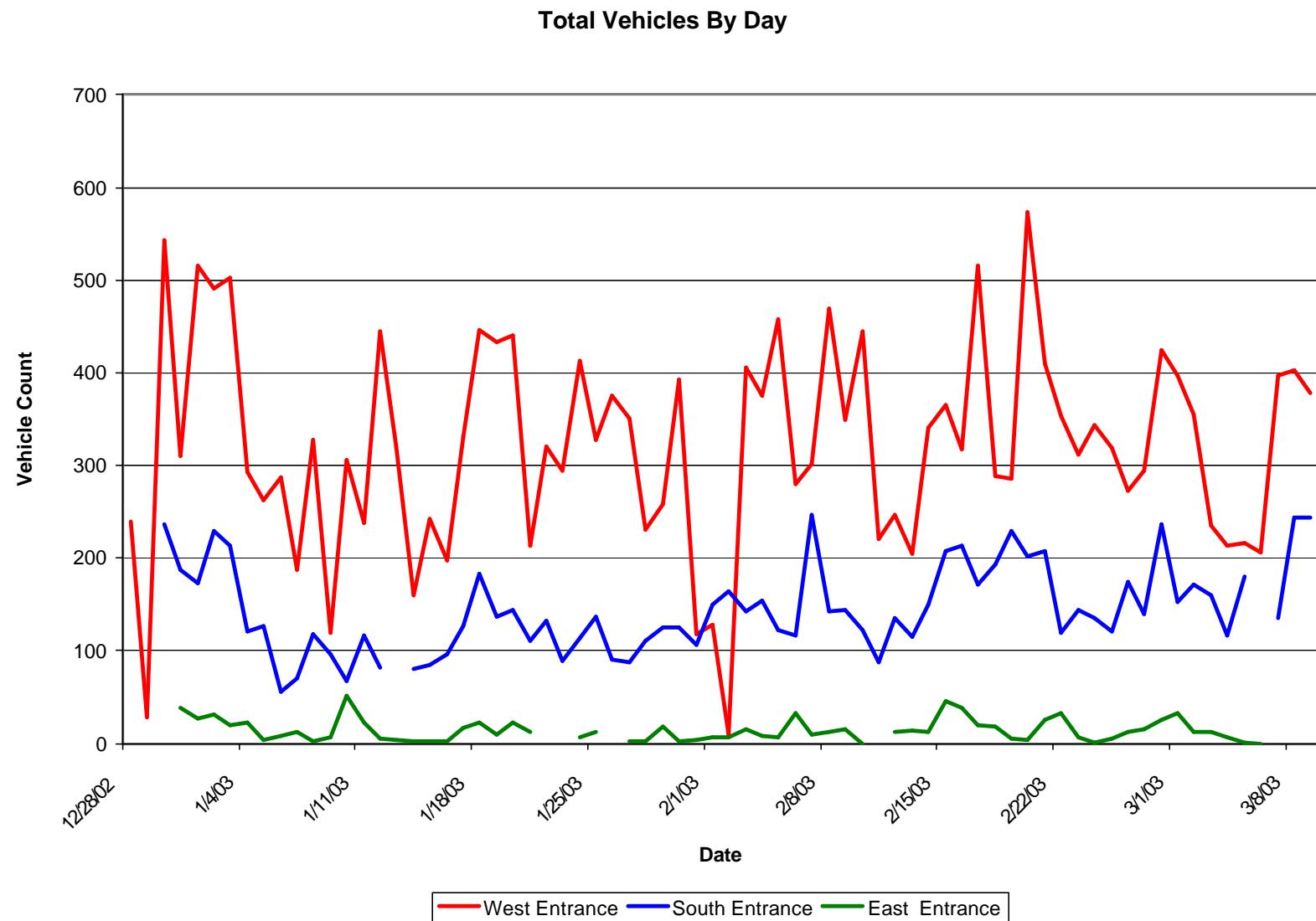


Figure 4-22. Vehicle Counts from the West Entrance, South Entrance and East Entrance

4.6 OLD FAITHFUL ERUPTION DATA

Old Faithful eruption intervals were recorded by the National Park Service. Old Faithful erupts on average, every 90 minutes. Old Faithful eruption times for January 1, 2003, through March 15, 2003, can be found in Appendix D.

5.0 DATA ANALYSIS

This section presents diurnal analyses and relationships between the air quality parameters.

5.1 DIURNAL “WINTER USE” PATTERNS

Figures 5-1 through 5-3 demonstrate differences seen in average CO and PM_{2.5} throughout the day, during winter use and pre or post-winter use, for all three sites. The “winter use” period is defined as the period between the date the west entrance to Yellowstone National Park opened to the public and the date that it was closed to the public (12/28/02 – 3/9/03). Pre-winter use data is only available at the West Entrance site because there was some winter use activity at Flagg Ranch and Old Faithful during the period, 12/18/02 - 12/27/02. Post-winter use data is not available at the West Entrance site due to the malfunction of the BAM during this period. The diurnal plots were obtained by averaging all of the validated CO and PM_{2.5} data for a specific hour of the day and time period.

Before winter use at the West Entrance site, average CO levels remained low and constant throughout the day (0.2 – 0.4 ppm) and PM_{2.5} was variable throughout the day with the lowest average concentrations between hours 10 and 14. During winter use, the average CO and PM_{2.5}, show two diurnal peaks, hours 08 to 10 and hours 14 to 18, during the times that the majority of the vehicles enter and exit the park. The magnitude of the morning peak is higher and shorter in duration than the afternoon peak.

During winter use at Flagg Ranch, the average CO and PM_{2.5}, show two diurnal peaks. The first peak occurs between hours 07 and 10 and the second peak occurs between hours 15 and 19. After the park was closed to winter use, both the average CO and PM_{2.5} remained low and constant throughout the day.

During winter use at Old Faithful, the average CO is slightly elevated during the period between seven in the morning and five in the afternoon, while the average PM_{2.5} remains variable throughout the day. After the park was closed to winter use, the CO levels remained low and constant and the PM_{2.5} levels remained highly variable.

Figure 5-4 demonstrates the diurnal cycle of particle scattering (bsp) seen at Old Faithful during winter use and post-winter use. During winter use, a particle scattering peak is seen between hours 07 and 10.

Figures 5-5 and 5-6 demonstrate the type of activity and the level of activity observed in the digital images at Flagg Ranch and Old Faithful during winter use, 12/28/02 – 3/9/03. A bar graph for West Entrance has not been included since the digital images were taken of an entrance path and would not be representative of the actual type and level of intensity seen during each hour of the day. Tables listing the type and level of activity seen during this period can be found in Appendix B.

At Flagg Ranch, the dominant activity type seen in the photographs is vehicles other than snowmobiles. The vehicles seen are commercial vehicles that transport snowmobiles for use in guided tours. Activity occurs from 9 to 10AM when the commercial vehicles arrive, snowmobiles are unloaded, warmed up and visitors depart the lot for the park. The commercial vehicles remain parked in the lot during the day, but are not active. Visitors return to the lot, load snowmobiles and depart from the lot between 3 and 5PM each day.

At Old Faithful, the dominant activity type seen in the photographs is snowmobiles. From 12 – 2PM, both snowmobiles and commercial tour vehicles can often be seen in the photographs. Activity intensity is highest from 11AM to 3PM.

Figures 5-7 and 5-8 demonstrate the diurnal cycle of vehicle traffic through the West, South, and East entrances coming into Yellowstone National Park. The West entrance sees a peak of activity from 8 to 11AM. The South entrance sees a peak of activity from 9 to 10AM which corresponds to the arrival of commercial vehicles in the Flagg Ranch commercial parking lot that is seen in the digital images. The east entrance has significantly less volume than the other two entrances, but a slight peak is seen from 9 to 10AM.

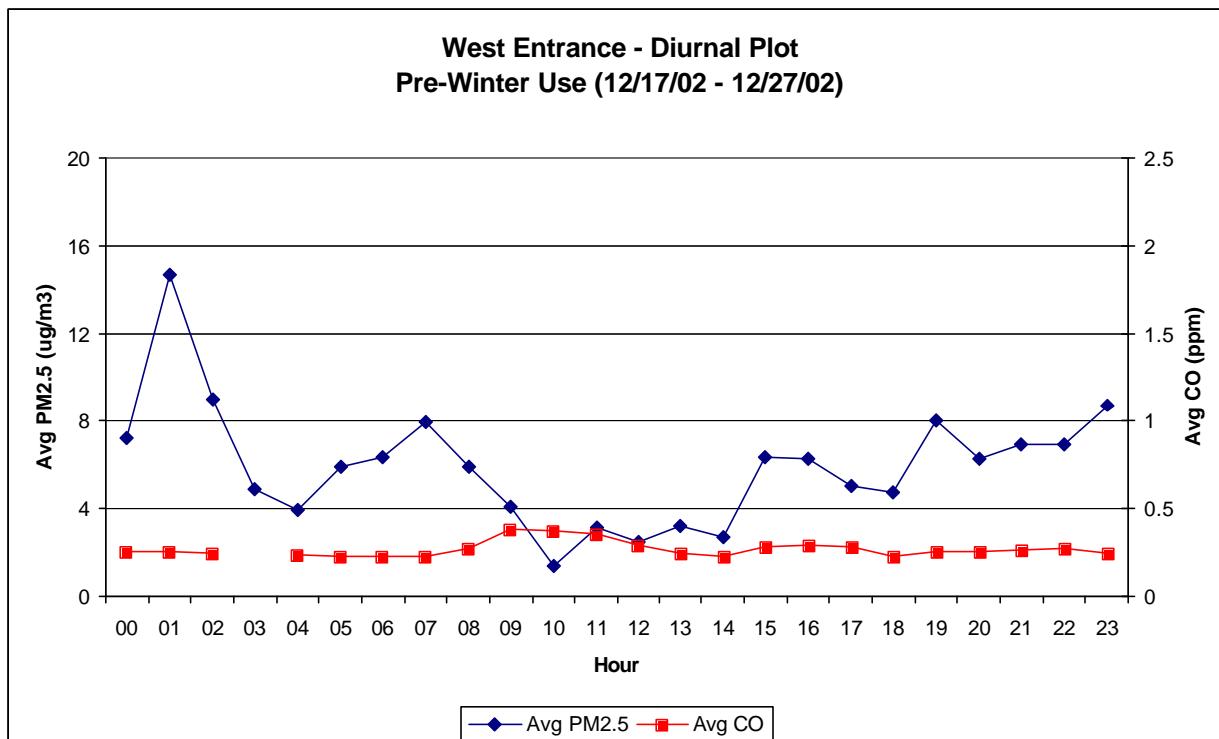
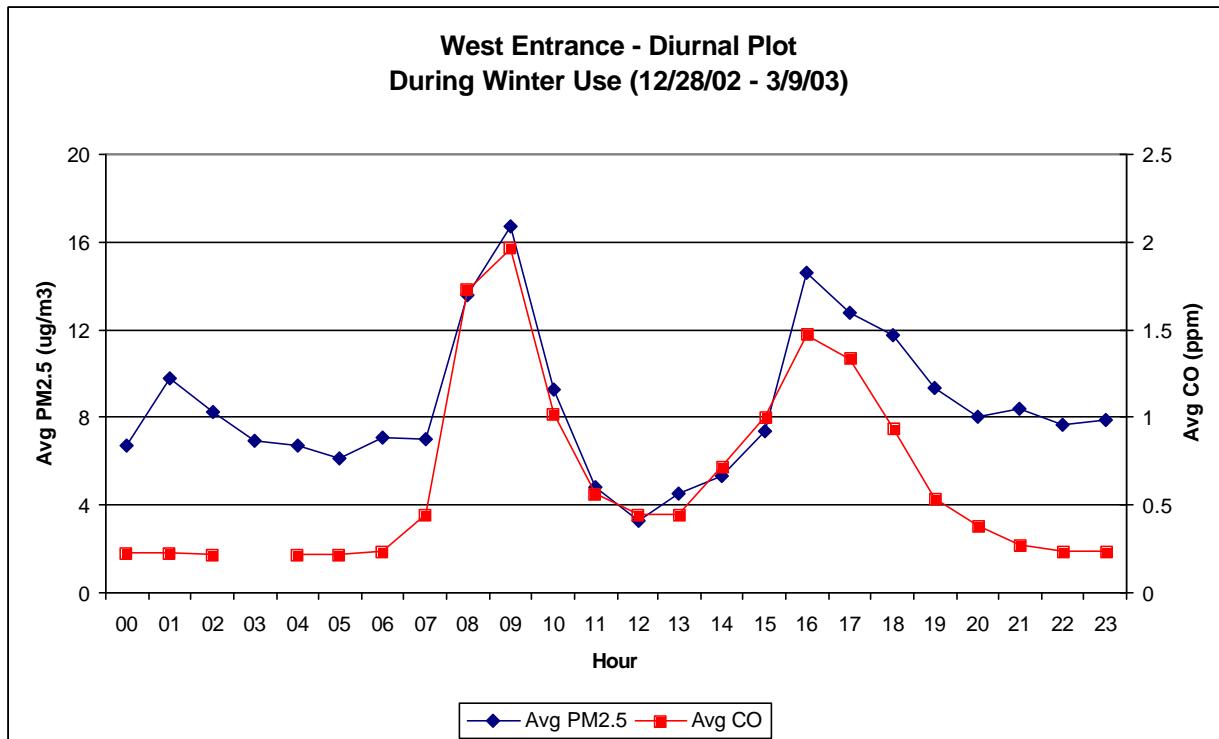


Figure 5-1. West Entrance, CO and PM_{2.5} Diurnal Plots, During Winter Use and Pre-Winter Use

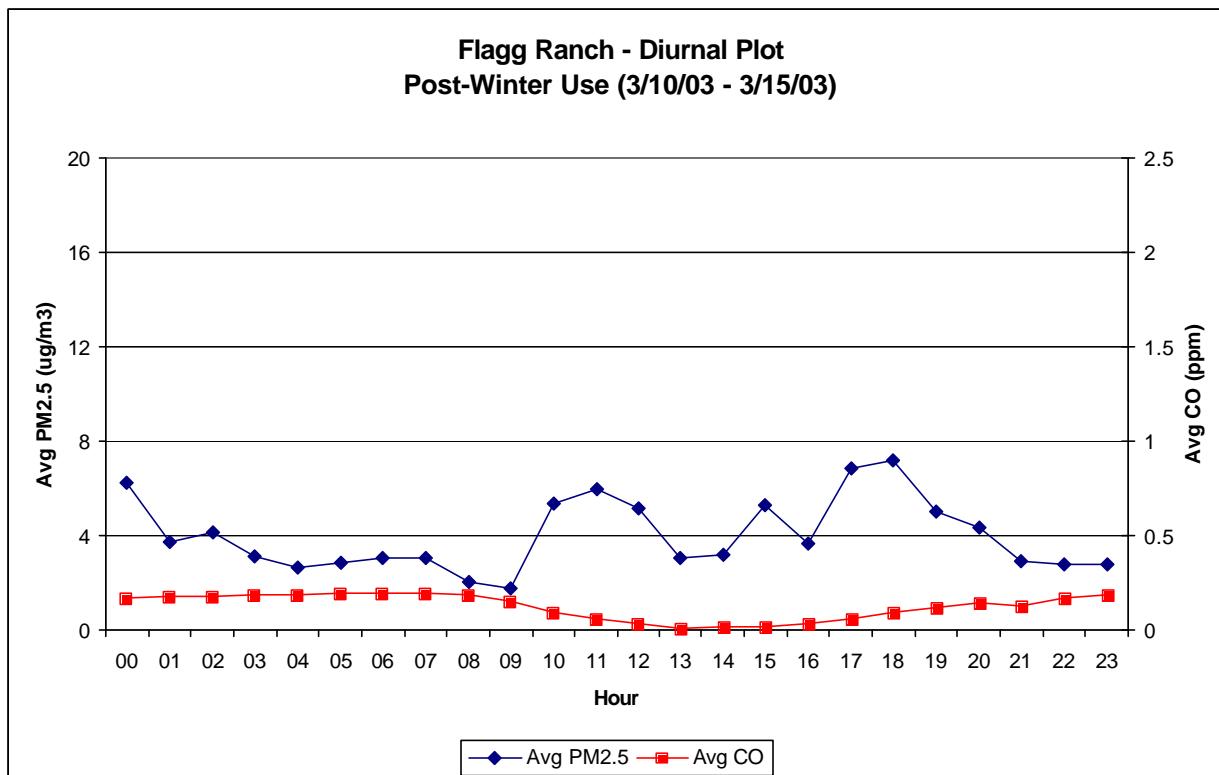
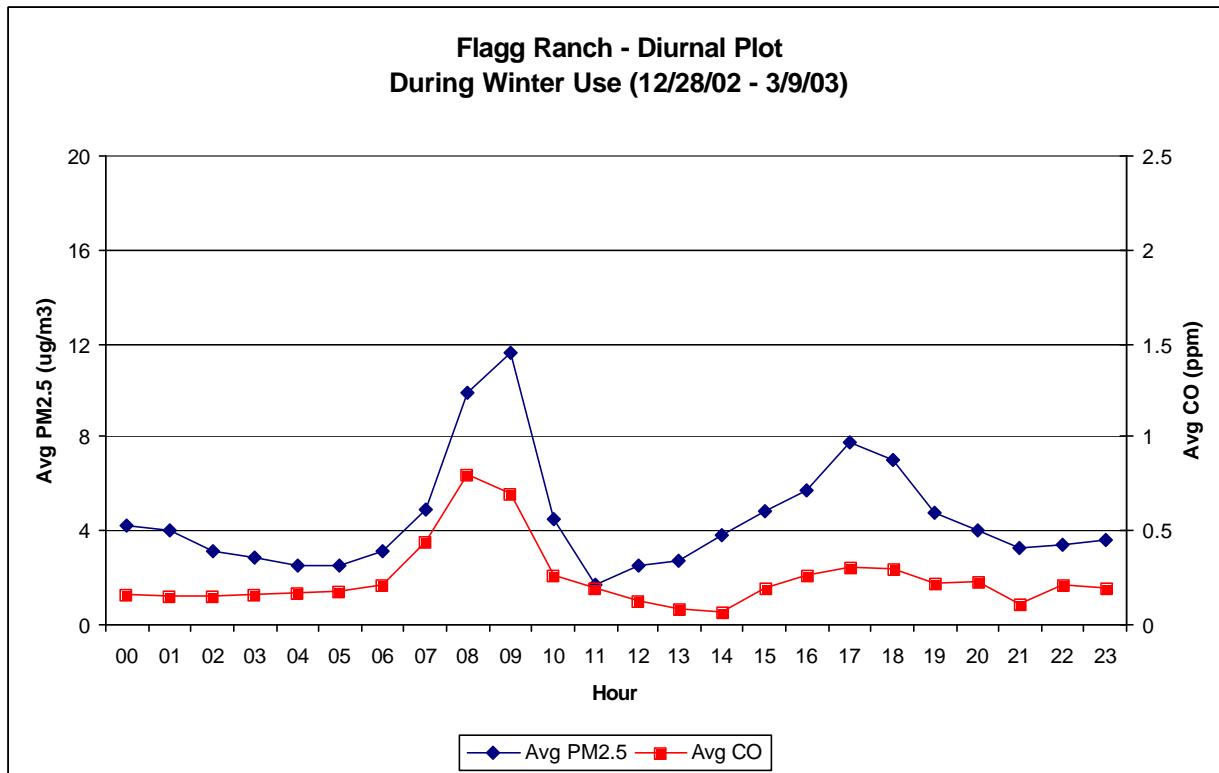


Figure 5-2. Flagg Ranch, CO and PM2.5 Diurnal Plots, During Winter Use and Pre-Winter Use

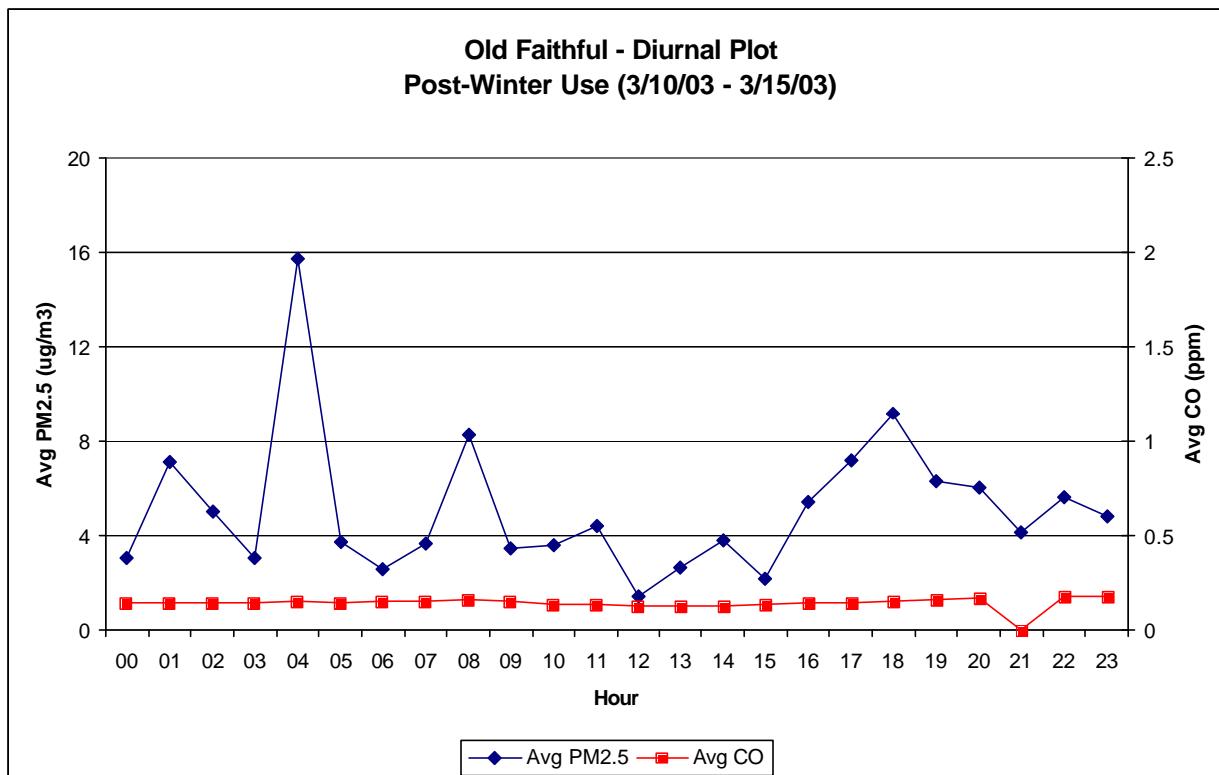
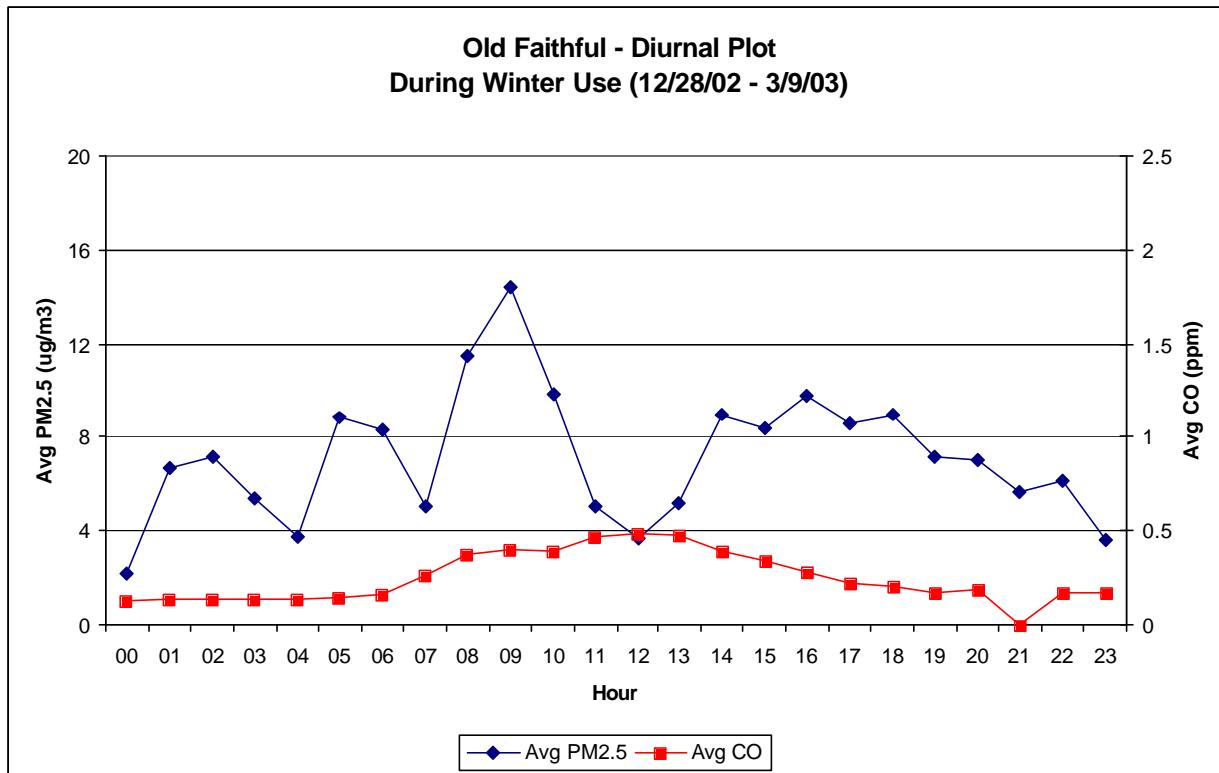


Figure 5-3. Old Faithful, CO and PM2.5 Diurnal Plots, During Winter Use and Pre-Winter Use

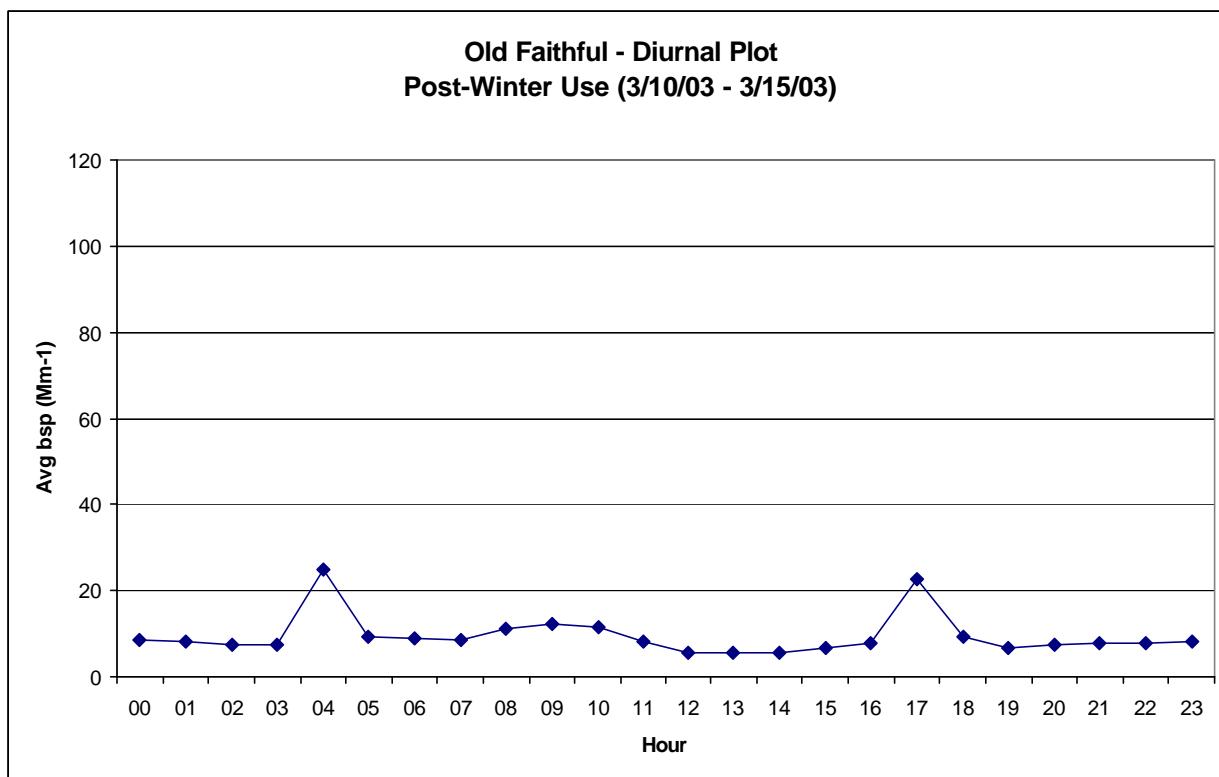
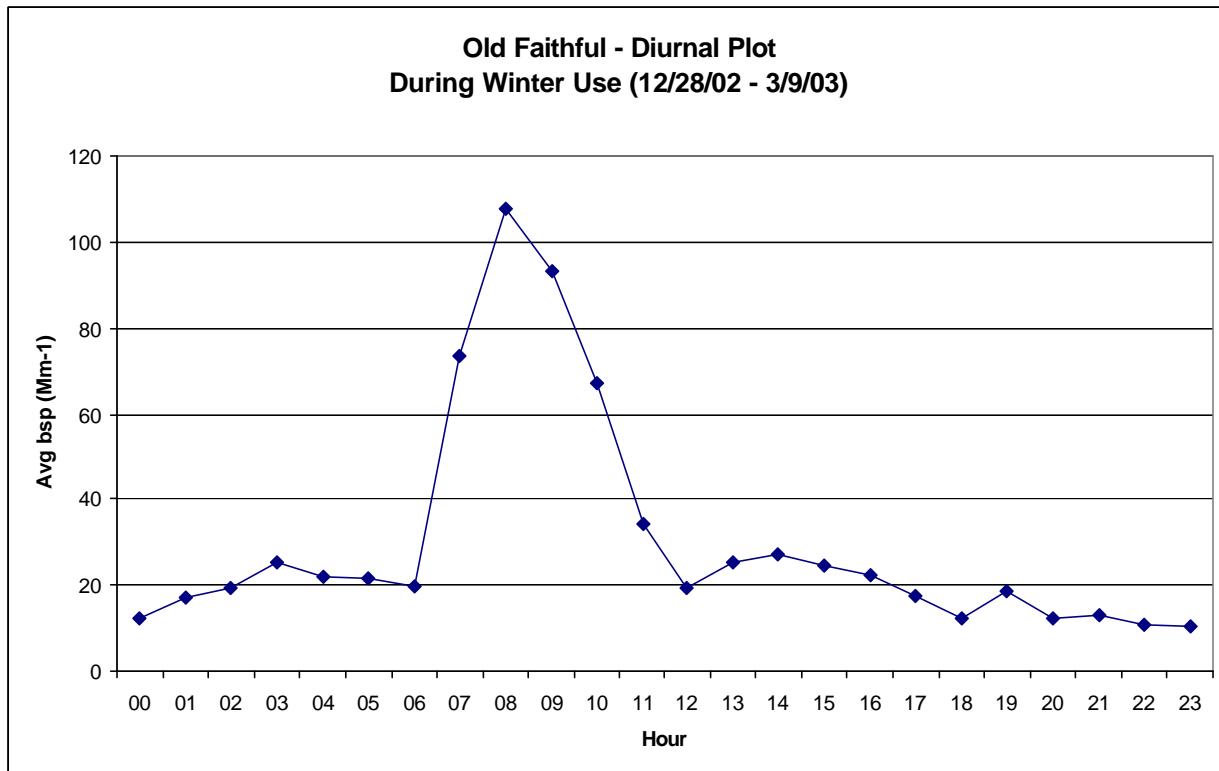
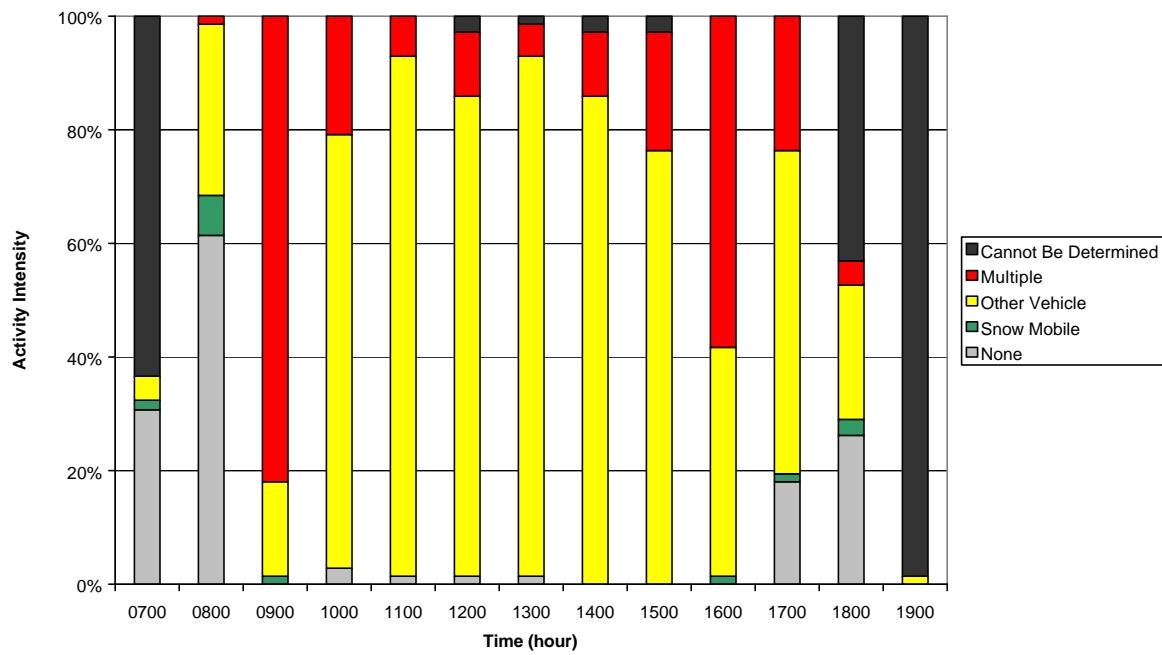


Figure 5-4. Old Faithful, bsp Diurnal Plots, During Winter Use and Pre-Winter Use

Flagg Ranch
Digital Images - Activity Type
12/28/02 - 03/09/03



Flagg Ranch
Digital Images - Activity Intensity
12/28/02 - 03/09/03

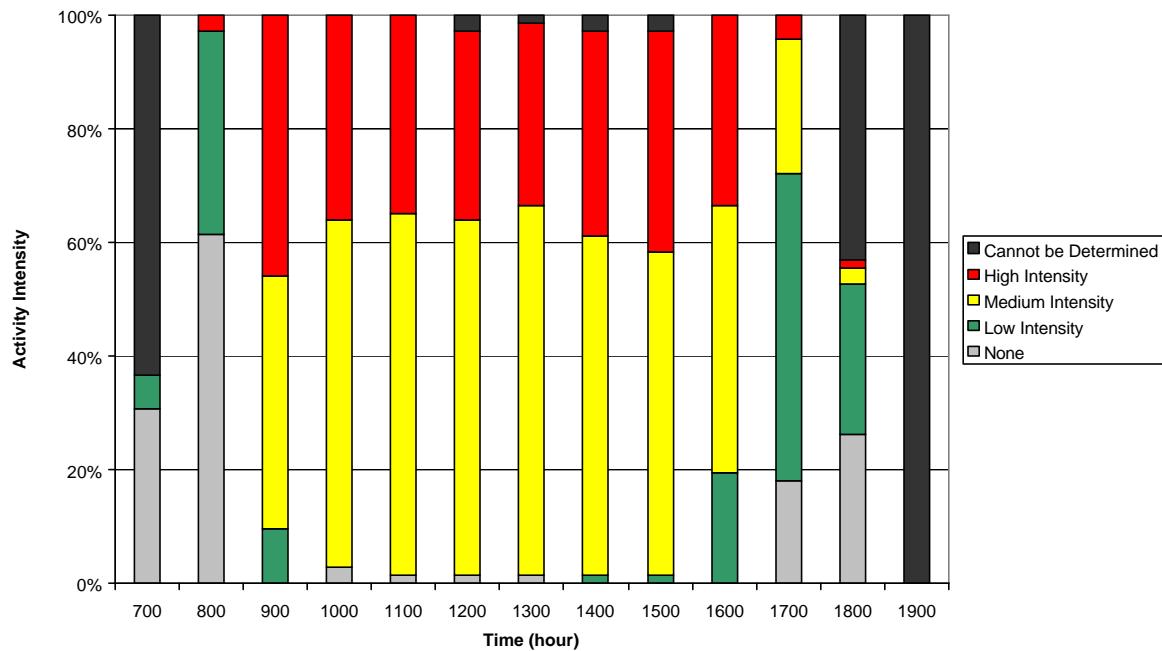
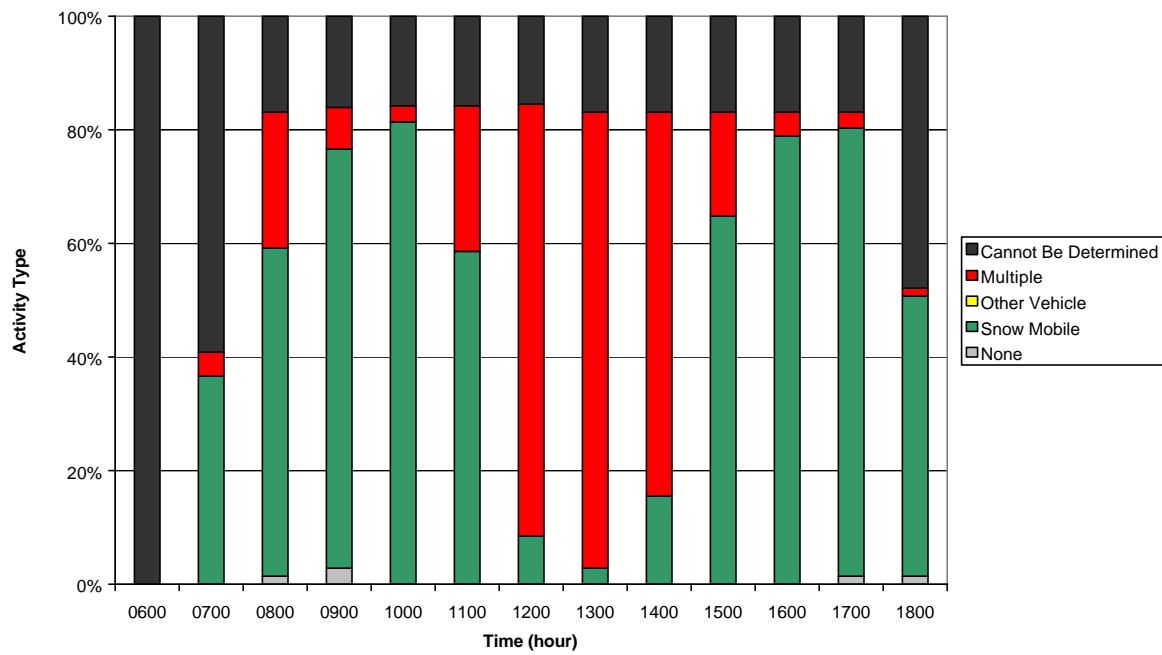


Figure 5-5 Flagg Ranch, Activity Type and Intensity, 12/28/02 – 3/9/03

Old Faithful
Digital Images - Activity Type
12/28/02 - 03/09/03



Old Faithful
Digital Images - Activity Intensity
12/28/02 - 03/09/03

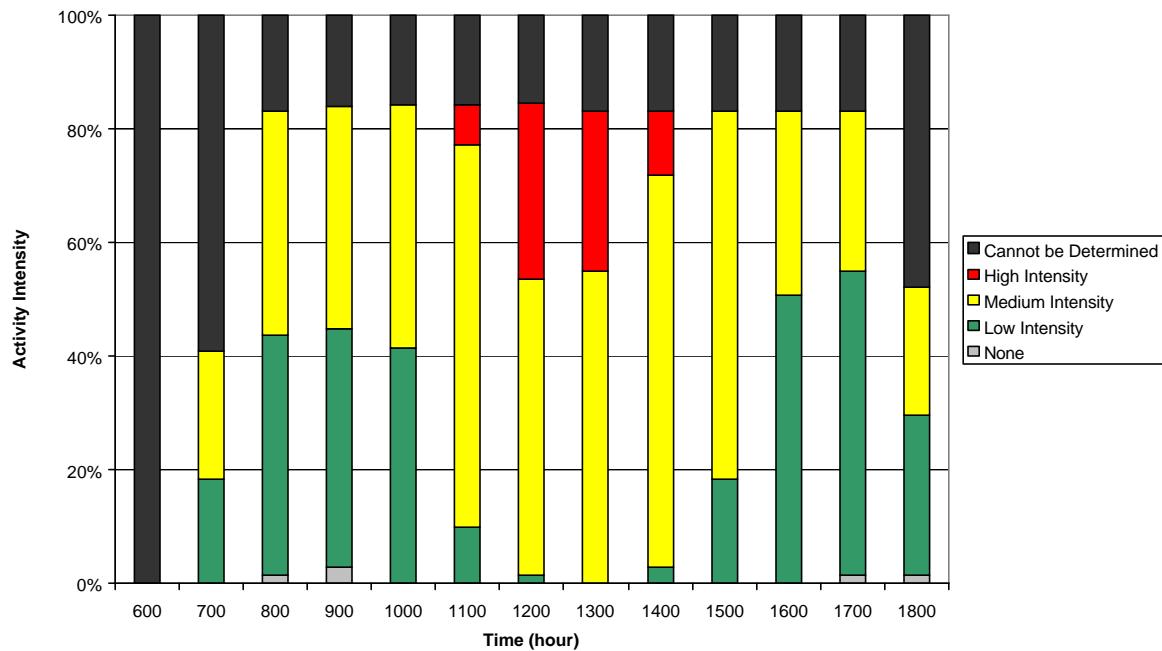
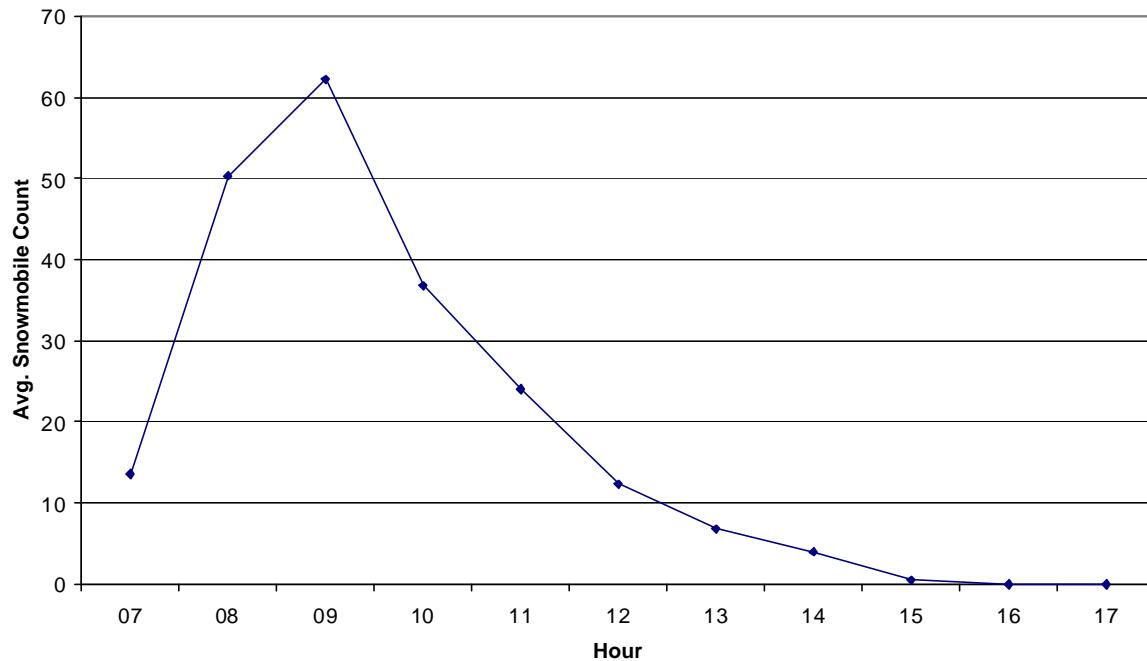


Figure 5-6 Old Faithful, Activity Type and Intensity, 12/28/02 – 3/9/03

**Diurnal Plot
West Entrance - Snowmobile Counts**



**Diurnal Plot
South Entrance - Snowmobile Counts**

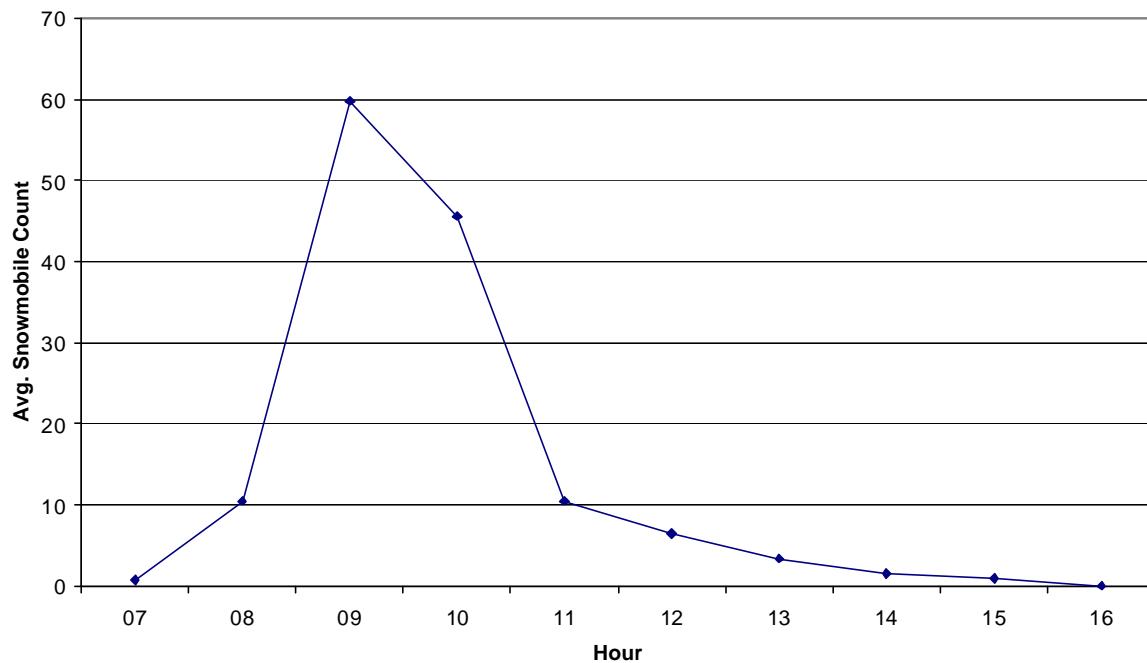


Figure 5-7. West and South Entrances, Vehicle Counts

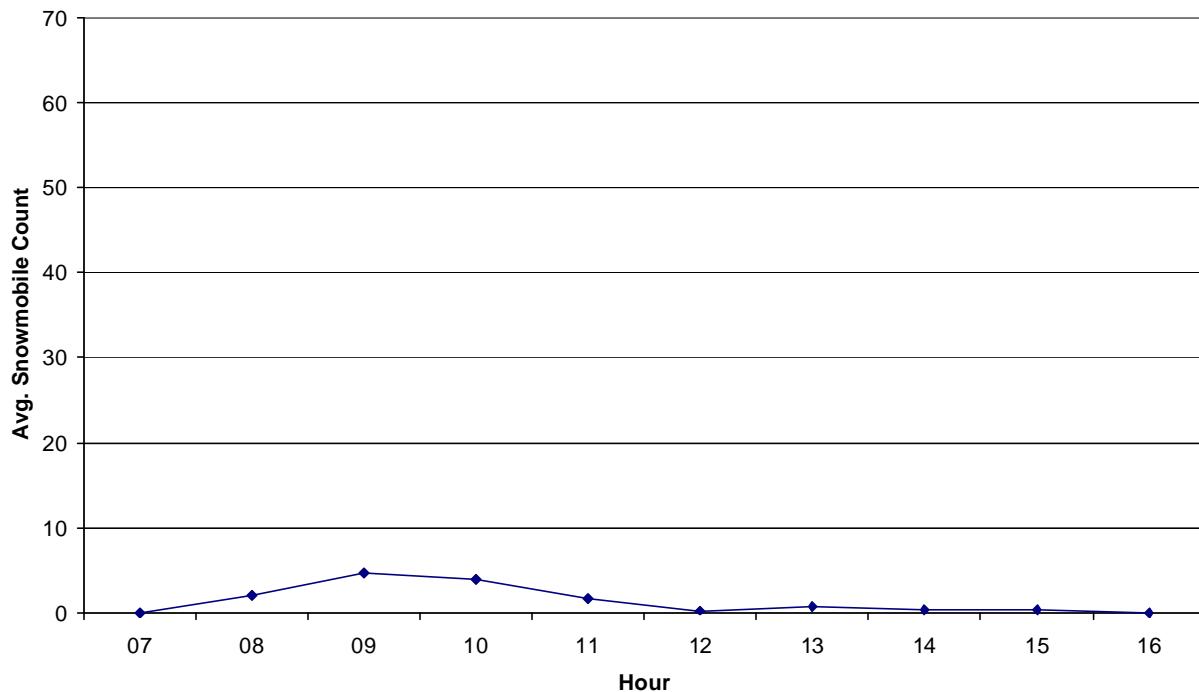


Figure 5-8. East Entrance, Vehicle Counts

5.2 RELATIONSHIPS BETWEEN AIR QUALITY PARAMETERS

Scatter plots summarizing the relationship between air quality parameters can be found in Figure 5-9 and 5-10. These plots represent data collected between 12/28/02 and 3/09/03 during peak vehicle activity hours, 7AM to 7PM.

There is a weak correlation between CO and PM_{2.5} at the West Entrance and Flagg Ranch ($R^2 = 0.43, 0.40$) and essentially no correlation at Old Faithful ($R^2=0.16$).

There is a weak correlation between PM_{2.5} and b_{sp} at the Old Faithful site. Three reasons that these two parameters may not correlate well at this site are:

- Instruments operated under different RH conditions
- Differences in instrument measurements
- Weather affects

Different components of PM_{2.5} have different light scattering efficiencies and the nephelometer and BAM operated under different RH conditions. The nephelometer operated under ambient RH conditions, outside of the shelter while the BAM was operated inside of the heated shelter, which most likely led to drier conditions.

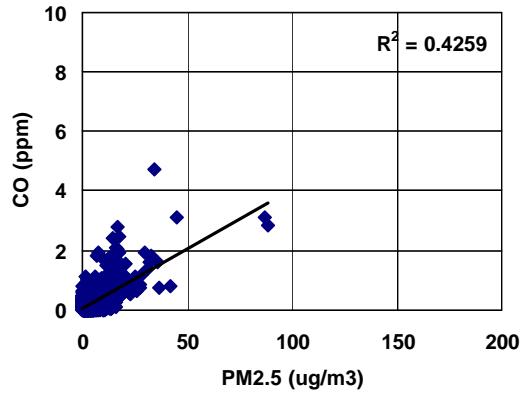
One of the differences between the two measurements is that the PM_{2.5} measurement includes elemental carbon, which will pass through the nephelometer undetected. Elemental carbon particles are smaller than most other particles and tend to absorb rather than scatter light. These particles are emitted directly into the air from virtually all combustion activities, but are especially prevalent in diesel exhaust and smoke from wood burning.

Nephelometer measurements can be greatly influenced by meteorology. During periods of fog, heavy rain, high relative humidity (>90%), blowing snow, and other extreme meteorological conditions, nephelometer reading will no longer correspond to optical properties of particulates in the atmosphere. Typically, ARS filters the data for weather or other interferences using the following filters:

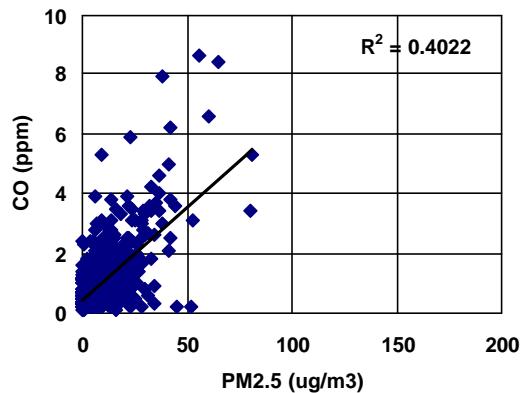
- Maximum: hourly b_{sp} data exceeding 5000 Mm⁻¹ are coded as weather-affected.
- Relative Humidity: hourly b_{sp} data when the relative humidity exceeds 90% is coded as weather-affected.
- Rate of change: hourly b_{sp} data when the rate of change between consecutive hourly scattering values exceeds 50 Mm⁻¹, both values are coded as weather-affected.
- Standard deviation divided by the mean: hourly b_{sp} data when the standard deviation divided by the mean of the valid 5-minute scattering readings exceed 10% are coded as weather-affected.

For this study, the only filters that were applied were the maximum and the relative humidity filters. The rate of change and standard deviation divided by the mean filters were not applied due to the high variability in the data due to local influences.

Flagg Ranch
During Winter Use (12/28/02 - 3/09/03)
7AM - 7PM



West Entrance
During Winter Use (12/28/02 - 3/09/03)
7AM - 7PM



Old Faithful
During Winter Use (12/28/02 - 3/09/03)
7AM - 7PM

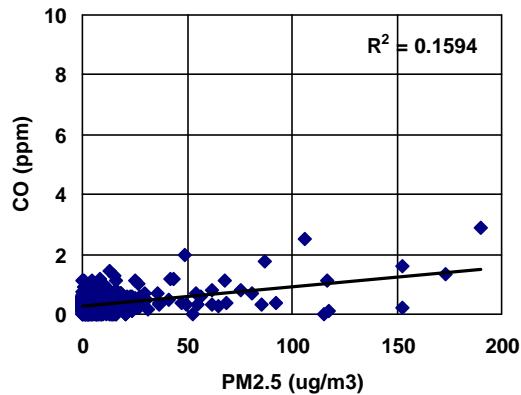


Figure 5-9. CO vs. PM2.5 Scatterplots, 12/28/02 - 03/09/03, 7AM - 7PM

Old Faithful
During Winter Use (12/28/02 - 3/09/03)
7AM - 7PM

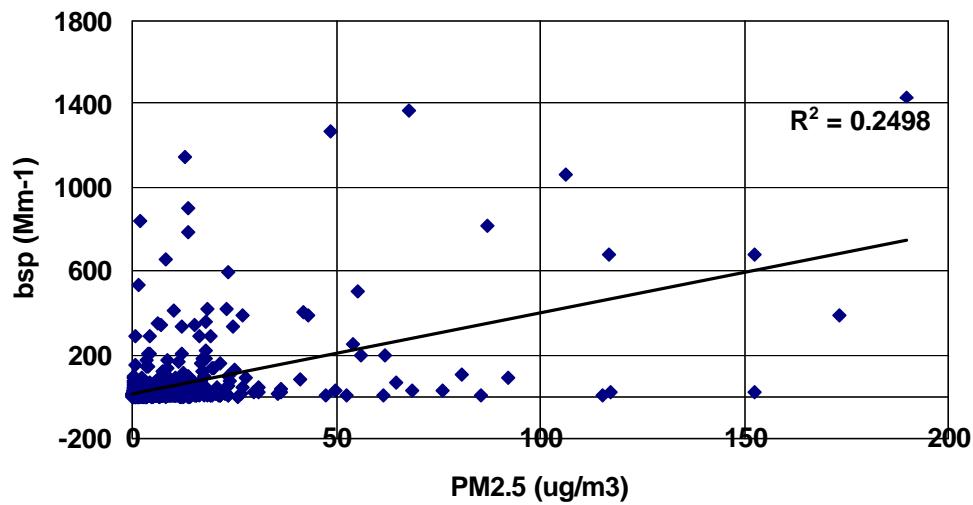


Figure 5-10. bsp vs. PM2.5 Scatterplots, 12/28/02 -03/09/03, 7AM - 7PM

Appendix A

Maintenance and Calibration

Table 1-1
Calibration Summary

Network: NPS Winter Snowmobile	Park: Yellowstone	Site: Old Faithful
Date: 12/08/02	Last Site Visit:	Field Specialist: Faust, John

Parameter	Criteria	Accuracy Goal	Calibration Results					
			Pre-Maintenance			Post Maintenance		
			Mfg, Model # & Serial #	Value	Pass/Fail	Mfg, Model # & Serial #	Value	Pass/Fail
CO Analyzer	Average Difference	average error	<= ± 5.0%				3.6%	PASS
	Maximum Difference	max error	<= ± 5.0%				4.2%	PASS
	Correlation	actual	r > 0.9950				0.9993	PASS
	Intercept	actual	<= ± 3.0 ppm				-0.3	PASS
	Slope	actual	0.950 <= m <= 1.050				1.049	PASS
Mass Flow Correlation	Low Cell (Dilution Air)	correlation coefficient	r >= 0.9995	Thermo Environmental 146C-76431-383	N/A	N/A	Thermo Environmental 146C-76431-383	1.0000
	High Cell (Gas)	correlation coefficient	r >= 0.9995	Thermo Environmental 146C-76431-383	N/A	N/A	Thermo Environmental 146C-76431-383	1.0000
Barometric Pressure		max error	<= ± 1.5 mmhg					
CASTnet Flow	Flow Rate	max error	<= ± 5.0%					
	Leak Check	max error	<= ± 0.03					
Precipitation		max error	<= ± 5.0%					
Relative Humidity	PRE Sensor ID# 56095	max error	<= ± 5.0%	Rotronics ATRH MP101A-C4 56095			Rotronics ATRH MP101A-C4 56095	2.4% PASS
Solar Radiation		average error	<= ± 5%					
Delta Temperature		max error	Climatronics <= ± 0.1° C; RM Young <= ± 0.2° C	Rotronics ATRH MP101A-C4 56095			Rotronics ATRH MP101A-C4 56095	
Temperature		max error	Climatronics <= ± 0.2° C; RM Young <= ± 0.5° C; Rotronics <= ± 1.0° C					0.1° PASS
Wetness	Dry	response	about 0 VDC dry about 1 VDC wet					
	Wet	response						
Wind Direction	Alignment	max error	<= ± 5°	RM Young AQ 05305 19676			RM Young AQ 05305 19676	3° PASS
	Linearity	max error	<= ± 3°					0° PASS
	Starting Threshold	max error	Climatronics <= 6 g-cm; RM Young AQ <= 9 g-cm; RM Young MA <= 30 g-cm					9° PASS
Wind Speed	max Wind Speed <5	max error	<= ± 0.2 m/s	RM Young AQ 05305 19676			RM Young AQ 05305 19676	N/A N/A
	max Wind Speed >= 5	max error	<= ± 5%					2.3% PASS
	Starting Threshold	max error	Climatronics <= 0.2 g-cm; RM Young AQ <= 0.3 g-cm; RM Young MA <= 2.9 g-cm					0.3 PASS

Field Specialist: Faust, John
Operator:
Network: NPS Winter Snowmobile Study
Park: Yellowstone
Site: Old Faithful
Date: 12/8/2002
Last Site Visit:

Parameter	Device	Manufacturer	Model	S/N	Calibration Date
Voltage	DVM	Fluke	8060A	test1	test1
	Voltage Source	Calib. Inc.	DVC-350A	test2	test2
Ozone	Transfer Standard	TECO	49PS	test3	test3
Gas Dilution	Mass flow	ERT	Gas Dil	test4	test4
Barometric Pressure		AIRS		test5	test5
Flow	Dry cal	BIOS	DC2	H2186 L961	test6
Precipitation	PPT Calibrator	Novalynx	260-2595	test7	test7
	Volume (ml):	936		test8	test8
Relative Humidity	RH Sensor	Rotronics	MP601	test9	test9
Solar Radiation	Thermopile	LiCor	Pyranometer	test10	test10
	Multiplier	95.64		test11	test11
Temperature	Electronic Thermometer	Vaisala	HM34C	X3220002	09/11/02
Wind Direction	Torque Gauge	RM Young	18331	test13	test13
	Linearity Jig	RM Young	18212	test14	test14
	Compass	Brunton	5006LM	test15	test15
Wind Speed	Torque Disk	RM Young	18310	test16	test16
	Anemometer Drive	RM Young	18801	test17	test17

Comments:

GAS DILUTION CALIBRATOR CALIBRATION FORM

Network: NPS Winter Snow	Park: Yellowstone	Site: Old Faithful	Date: 12/08/02	Date of Last Site Visit:
				Field Specialist: Faust, John

Flow Standard Reference: BIOS, DC2	Flow Standard Reference S/N: H2186 L961	Calibration Date: test6
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Mass Flow Device (Dilution Air)		
Mfg: Thermo Environmental	S/N: 146C-76431-383	Range: 0-10000 cc
Calibration Gas: air	This primary standard automatically corrects to standard flow.	

FLOW METER DATA

Calibration Point	Display (y)	Flow SCCPM (x)
1	500	502
2	1498	1504
3	1800	1807
4	2003	2011
5	2504	2518
6	2998	3025

Linear Regression		
Parameter	Analyzer	Pass/Fail
Slope (m)	0.990887	N/A
Y Intercept (b)	6.598359	N/A
Correlation Coefficient (r)	0.999989	PASS

Display Volts = (Flow SCCPM * m) + b

Flow SCCPM = (Display Volts - b) / m

Mass Flow Device (Gas 1)

Mfg: Thermo Environmental	S/N: 146C-76431-383	Range: 0-100 cc
Calibration Gas: air	This primary standard automatically corrects to standard flow.	

FLOW METER DATA

Calibration Point	Display (y)	Flow SCCPM (x)
1	8.68	8.582
2	10.44	10.27
3	35.24	35.9
4		
5		
6		

Linear Regression		
Parameter	Analyzer	Pass/Fail
Slope (m)	0.970229	N/A
Y Intercept (b)	0.412671	N/A
Correlation Coefficient (r)	0.999992	PASS

Display Volts = (Flow SCCPM * m) + b

Flow SCCPM = (Display Volts - b) / m

MFC/MFM Comments:	
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GAS DILUTION

CALIBRATION FORM FOR CARBON MONOXIDE ANALYZER

Network: NPS Winter Snow	Park: Yellowstone	Site: Old Faithful	Date: 12/08/02	Date of Last Site Visit:
				Field Specialist: Faust, John

EQUIPMENT IDENTIFICATION

	Transfer Standard	Analyzer	Station Reference
Mfg.		ThermoEnvironmental	ThermoEnvironmental
Model #		48C	146C
Serial #		48C-76069-381	146C-76431-383

REFERENCE GAS

Tank S/N	JJ8524
Calibration Date	12/2/2002
Pressure Tank / Del.	700/20
Tank Conc. (ppb)	1025

FLOW METER DATA

	Dilution Air	Gas
Slope (m)	0.991	0.970
Y Intercept (b)	6.6	0.4
Correlation Coefficient (r)	1.0000	1.0000

Flow SCCPM = (Display Volts - b) / m

STATION TUBING

		CALCULATED FLOW		FLOW METER		PRE-MAINTENANCE					
		Dil. Air (cc/min)	Gas (cc/min)	Dil. Air (L/min)	Gas (cc/min)	DVM (volts)	DAS (ppm)	Recorder (%)	Difference (ppm)	% Difference	Pass/Fail
Calibration Point	Conc. (ppm)	Dil. Air (cc/min)	Gas (cc/min)	Dil. Air (L/min)	Gas (cc/min)	DVM (volts)	DAS (ppm)	Recorder (%)	Difference (ppm)	% Difference	Pass/Fail
ZERO	0.000	2000	0.000	1988.600	0.000						
1	18.000	1967	35.160	1955.897	34.505						
2	16.000	1973	31.286	1961.843	30.747						
3	8.900	1990	17.430	1978.690	17.307						
4	5.942	1988	11.592	1976.708	11.644						
5	3.570	2984	10.429	2963.744	10.516						
ZERO	0.000	2000	0.000	1988.600	0.000						
Average ABS % Difference:											
Maximum ABS % Difference:											

STATION TUBING

	POST MAINTENANCE					
	Zero Pot. =	Span Pot. =	Recorder (%)	Difference (ppm)	% Difference	Pass/Fail
Calibration Point	DVM (volts)	DAS (ppm)	Recorder (%)	Difference (ppm)	% Difference	Pass/Fail
ZERO	0.000	0.007				
1	9.480	18.750		0.750	4.2%	PASS
2	8.500	16.600		0.600	3.8%	PASS
3	4.300	8.590		-0.310	-3.5%	PASS
4	2.860	5.720		-0.222	-3.7%	PASS
5	1.714	3.470		-0.100	-2.8%	PASS
ZERO	0.000					
Average ABS % Difference:				3.6%	PASS	
Maximum ABS % Difference:				4.2%	PASS	

CALIBRATION TIME

From:		To:	
-------	--	-----	--

EVENT RESPONSE

		Calculated Flow		Flow Meter		Analyzer Response				
Calibration Point	Conc. (ppm)	Dil. Air (cc/min)	Gas (cc/min)	Dil. Air (cc/min)	Gas (cc/min)	DVM (volts)	DAS (ppm)	Recorder (%)	Difference (ppm)	% Difference

RESULTS

Linear Regression					
	PRE		POST		
Parameter	Analyzer	Pass/Fail	Analyzer	Pass/Fail	
Slope			1.049	PASS	
Y Intercept			-0.3	PASS	
Correlation Coefficient			0.9993	PASS	

ZERO	0.000							N/A
Precision								
Span								

Pre-Maint Carbon Monoxide Comments:	
Post Maint Carbon Monoxide Comments:	

TEMPERATURE, DELTA TEMPERATURE AND RELATIVE HUMIDITY CALIBRATION FORM

Network: NPS Winter Snow	Park: Yellowstone	Site: Old Faithful	Date: 12/08/02	Date of Last Site Visit:
				Field Specialist: Faust, John

Reference Thermometer S/N: X3220002	Calibration Date: 09/11/02
Relative Humidity Reference S/N: test9	Calibration Date: test9

TEMPERATURE / DELTA TEMPERATURE

SENSOR IDENTIFICATION

	Pre-Maintenance	Post Maintenance
Mfg.	Rotronics ATRH	Rotronics ATRH
Model #	MP101A-C4	MP101A-C4
Serial #	56095	56095
Translator Serial #		

PRE-MAINTENANCE SENSOR RESPONSE

BATH TEMP (° C)	TEMPERATURE		Difference (° C)	Pass/Fail	D TEMPERATURE		Difference (° C)	Pass/Fail
	DVM (volts)	DAS (° C)			DVM (volts)	DAS (° C)		
	Maximum Difference:				Maximum Difference:			

PRE- TRANSLATOR CARD RESPONSE

SETTING	TEMPERATURE		D TEMPERATURE	
	DVM (volts)	DAS (° C)	DVM (volts)	DAS (° C)
Zero				
Span				

POST MAINTENANCE SENSOR RESPONSE

BATH TEMP (° C)	TEMPERATURE		Difference (° C)	Pass/Fail	D TEMPERATURE		Difference (° C)	Pass/Fail
	DVM (volts)	DAS (° C)			DVM (volts)	DAS (° C)		
-3.2		-3.1	0.1	PASS				
	Maximum Difference:		0.1	PASS	Maximum Difference:			

POST TRANSLATOR CARD RESPONSE

SETTING	TEMPERATURE		D TEMPERATURE	
	DVM (volts)	DAS (° C)	DVM (volts)	DAS (° C)
Zero				
Span				

Pre-Maint Temperature Comments:

Post Maint Temperature Comments:

RELATIVE HUMIDITY

SENSOR IDENTIFICATION

	Pre-Maintenance	Post Maintenance
Mfg.	Rotronics ATRH	Rotronics ATRH
Model #	MP101A-C4	MP101A-C4
Serial #	56095	56095

PRE-MAINTENANCE SENSOR RESPONSE

HOUR	DAS	T.STD	% Difference	Pass/Fail
10:00				
11:00				
12:00				
13:00				
14:00				
15:00				
Average ABS % Difference:				

POST MAINTENANCE SENSOR RESPONSE

HOUR	DAS	T.STD	% Difference	Pass/Fail
10:00	62.0	59.6	2.4%	PASS
11:00				
12:00				
13:00				
14:00				
15:00				
Average ABS % Difference:		2.4%		PASS

Maximum % Difference:		
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Maximum % Difference:	2.4%	PASS
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Pre-Maint Relative Humidity Comments:	
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Post Maint Relative Humidity Comments:	
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WIND DIRECTION CALIBRATION FORM

Network: NPS Winter Snow	Park: Yellowstone	Site: Old Faithful	Date: 12/08/02	Date of Last Site Visit:
				Field Specialist: Faust, John

To Landmark #1: 304 Degrees True	From Landmark #1: 126	LM Description: Boiler Stack
To Landmark #2: 237 Degrees True	From Landmark #2: 57	LM Description: Camera
Declination: Degrees		
Wind Direction Reference S/N: test15		Calibration Date: test15

WIND DIRECTION

SENSOR IDENTIFICATION

	PRE-MAINTENANCE	POST MAINTENANCE
Mfg.	RM Young AQ	RM Young AQ
Model #	05305	05305
Serial #	19676	19676
Translator Serial #		

WIND DIRECTION ALIGNMENT

Land Mark Reference	PRE-MAINTENANCE				POST MAINTENANCE			
	DVM (volts)	DAS (degrees)	Degrees Difference	Pass/Fail	DVM (volts)	DAS (degrees)	Degrees Difference	Pass/Fail
To 1					0.843	303	-1	PASS
From 1					0.346	125	-1	PASS
To 2					0.657	237	0	PASS
From 2					0.167	60	3	PASS
	Average Difference:				Average Difference:		1	PASS
	Maximum Difference:				Maximum Difference:		3	PASS

WIND DIRECTION TRANSLATOR CARD

Card Setting	PRE		POST	
	DVM (volts)	DAS (m/s)	DVM (volts)	DAS (m/s)
Zero				
Span				
360				
Oscillator Frequency (Hz) =		Data Logger Should Read		

WIND DIRECTION LINEARITY

Check Point	PRE-MAINTENANCE				POST MAINTENANCE			
	DVM (volts)	DAS (degrees)	Degrees Difference	Pass/Fail	DVM (volts)	DAS (degrees)	Degrees Difference	Pass/Fail
1						45	0	PASS
2						90	0	PASS
3						135	0	PASS
4						180	0	PASS
5						225	0	PASS
6						270	0	PASS
7						315	0	PASS
8						360	0	PASS
	Average Difference:				Average Difference:		0	PASS
	Maximum Difference:				Maximum Difference:		0	PASS

Pre-Maint Wind Direction Comments:	
Post Maint Wind Direction Comments:	

WIND SPEED CALIBRATION FORM

Network: NPS Winter Snow	Park: Yellowstone	Site: Old Faithful	Date: 12/08/02	Date of Last Site Visit:
				Field Specialist: Faust, John

Wind Speed Reference S/N: test17	Calibration Date: test17
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WIND SPEED

SENSOR IDENTIFICATION

	PRE-MAINTENANCE	POST MAINTENANCE
Mfg.	RM Young AQ	RM Young AQ
Model #	05305	05305
Serial #	19676	19676
Translator Serial #	NA	NA

WIND SPEED TRANSLATOR CARD

Card Setting	PRE		POST	
	DVM (volts)	DAS (m/s)	DVM (volts)	DAS (m/s)
Zero				
Span				
Oscillator Frequency (Hz) =				Data Logger Should Read

WIND SPEED STARTING THRESHOLD

PRE		POST	
Torque gm-cm	Pass/Fail	Torque gm-cm	Pass/Fail
		0.3	PASS

Wind speed starting threshold accuracy goal:
RM Young AQ <= 0.3 g·cm

Motor Speed (rpm)	WIND SPEED PRE-MAINTENANCE						WIND SPEED POST MAINTENANCE					
	Climatronics (m/s)	RM Young (m/s)	DVM (volts)	DAS (m/s)	Difference (m/s)	% Difference	Pass/Fail	DVM (volts)	DAS (m/s)	Difference (m/s)	% Difference	Pass/Fail
100	2.574	0.510										
300	7.274	1.540						0.033	1.579	0.039		PASS
600	14.324	3.070										
900	21.375	4.610						4.690	0.080			PASS
1200	28.425	6.140										
1800	42.526	9.220						9.310	0.090	1.0%		PASS
4000	N/A	20.480						20.600	0.120	0.6%		PASS
7000	N/A	35.840						35.000	-0.840	-2.3%		PASS
Maximum ABS Difference (use if Wind Speed <5):								0.840				
Maximum ABS % Difference (use if Wind Speed >=5):									2.3%			PASS

Pre-Maint Wind Speed Comments:	
Post Maint Wind Speed Comments:	

Table 1-1
Calibration Summary

Network:	Park: Grand Teton National P	Site: Flagg Ranch
Date: 12/12/02	Last Site Visit:	Field Specialist: Faust, John

Parameter	Criteria	Accuracy Goal	Calibration Results						
			Pre-Maintenance			Post Maintenance			
Mfg, Model # & Serial #	Value	Pass/Fail	Mfg, Model # & Serial #	Value	Pass/Fail				
CO Analyzer	Average Difference	average error	<= ± 5.0%	ThermoEnvironmental			ThermoEnvironmental	1.2%	PASS
	Maximum Difference	max error	<= ± 5.0%					2.8%	PASS
	Correlation	actual	r > 0.9950					1.0000	PASS
	Intercept	actual	<= ± 3.0 ppm					0.0	PASS
	Slope	actual	0.950 <= m <= 1.050					1.003	PASS
Mass Flow Correlation	Low Cell (Dilution Air)	correlation coefficient	r >= 0.9995	Thermo Electron 146C-77091-385	N/A	N/A	Thermo Electron 146C-77091-385	1.0000	PASS
	High Cell (Gas)	correlation coefficient	r >= 0.9995	ThermoEnvironmental 146C-77091-385	N/A	N/A	ThermoEnvironmental 146C-77091-385	1.0000	PASS
Barometric Pressure		max error	<= ± 1.5 mmhg						
CASTnet Flow	Flow Rate	max error	<= ± 5.0%						
	Leak Check	max error	<= ± 0.03						
Precipitation		max error	<= ± 5.0%						
Relative Humidity	PRE Sensor ID# 75278	max error	<= ± 5.0%	Rotronics ATRH MP101A-C4 75278			Rotronics ATRH MP101A-C4 75278	2.2%	PASS
Solar Radiation		average error	<= ± 5%						
Delta Temperature		max error	Climatronics <= ± 0.1° C; RM Young <= ± 0.2° C	Rotronics ATRH MP101A-C4			Rotronics ATRH MP101A-C4		
Temperature		max error	Climatronics <= ± 0.2° C; RM Young <= ± 0.5° C; Rotronics <= ± 1.0° C					0.9°	PASS
Wetness	Dry	response	about 0 VDC dry about 1 VDC wet						
	Wet	response							
Wind Direction	Alignment	max error	<= ± 5°	RM Young AQ 05305 19677			RM Young AQ 05305 19677	3°	PASS
	Linearity	max error	<= ± 3°						
	Starting Threshold	max error	Climatronics <= 6 g-cm; RM Young AQ <= 9 g-cm; RM Young MA <= 30 g-cm					9	PASS
Wind Speed	max Wind Speed <5	max error	<= ± 0.2 m/s	RM Young AQ 05305 19677			RM Young AQ 05305 19677	N/A	N/A
	max Wind Speed >= 5	max error	<= ± 5%					1.4%	PASS
	Starting Threshold	max error	Climatronics <= 0.2 g-cm; RM Young AQ <= 0.3 g-cm; RM Young MA <= 2.9 g-cm					0.3	PASS

Field Specialist: Faust, John
Operator:
Network:
Park: Grand Teton National Park
Site: Flagg Ranch
Date: 12/12/2002
Last Site Visit:

Parameter	Device	Manufacturer	Model	S/N	Calibration Date
Voltage	DVM	Fluke	8060A	test1	test1
	Voltage Source	Calib. Inc.	DVC-350A	test2	test2
Ozone	Transfer Standard	TECO	49PS	test3	test3
Gas Dilution	Mass flow	ERT	Gas Dil	test4	test4
Barometric Pressure		AIRS		test5	test5
Flow	Dry cal	BIOS	DC2	H 740 L1304	01/09/03
Precipitation	PPT Calibrator	Novalynx	260-2595	test7	test7
	Volume (ml):	936		test8	test8
Relative Humidity	RH Sensor	Vaisala	HMP45C	X3220002	09/11/02
Solar Radiation	Thermopile	LiCor	Pyranometer	test10	test10
	Multiplier	95.64		test11	test11
Temperature	Digital Thermometer	Vaisala	HM34C	X3220002	09/11/02
Wind Direction	Torque Gauge	RM Young	18331	test13	test13
	Linearity Jig	RM Young	18212	test14	test14
	Compass	Brunton	5006LM	test15	test15
Wind Speed	Torque Disk	RM Young	18310	test16	test16
	Anemometer Drive	RM Young	18801	test17	test17

Comments:

GAS DILUTION CALIBRATOR CALIBRATION FORM

Network:	Park: Grand Teton National	Site: Flagg Ranch	Date: 12/12/02	Date of Last Site Visit:
				Field Specialist: Faust, John

Flow Standard Reference: BIOS, DC2	Flow Standard Reference S/N: H 740 L1304	Calibration Date: 01/09/03
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Mass Flow Device (Dilution Air)		
Mfg: Thermo Electron	S/N: 146C-77091-385	Range: 0-10 liters
Calibration Gas: AIR	This primary standard automatically corrects to standard flow.	

FLOW METER DATA

Calibration Point	Display (y)	Flow SCCPM (x)
1	498	498
2	798	796
3	997	988
4	1196	1186
5	1496	1480
6	1998	1973

Linear Regression		
Parameter	Analyzer	Pass/Fail
Slope (m)	1.017471	N/A
Y Intercept (b)	-9.819075	N/A
Correlation Coefficient (r)	0.999997	PASS

Display Volts = (Flow SCCPM * m) + b

Flow SCCPM = (Display Volts - b) / m

Mass Flow Device (Gas 1)

Mfg: ThermoEnvironmental	S/N: 146C-77091-385	Range: 0-100 cc
Calibration Gas: CO in AIR	This primary standard automatically corrects to standard flow.	

FLOW METER DATA

Calibration Point	Display (y)	Flow SCCPM (x)
1	9.98	9.3
2	15.99	15.62
3	25.01	24.67
4	39.99	39.4
5	50	49.31
6	60	59.33

Linear Regression		
Parameter	Analyzer	Pass/Fail
Slope (m)	1.003878	N/A
Y Intercept (b)	0.428922	N/A
Correlation Coefficient (r)	0.999974	PASS

Display Volts = (Flow SCCPM * m) + b

Flow SCCPM = (Display Volts - b) / m

MFC/MFM Comments:	
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GAS DILUTION

CALIBRATION FORM FOR CARBON MONOXIDE ANALYZER

Network:	Park: Grand Teton National	Site: Flagg Ranch	Date: 12/12/02	Date of Last Site Visit:
				Field Specialist: Faust, John

EQUIPMENT IDENTIFICATION

	Transfer Standard	Analyzer	Station Reference
Mfg.		ThermoEnvironmental	TECO
Model #		48C	146C
Serial #		48C-76071-381	146C-77091-385

REFERENCE GAS

Tank S/N	JJ14145
Calibration Date	10/29/2002
Pressure Tank / Del.	1400/20
Tank Conc. (ppb)	510

FLOW METER DATA

	Dilution Air	Gas
Slope (m)	0.98300	1.08100
Y Intercept (b)	11.20000	-1.70000
Correlation Coefficient (r)	1.00000	0.99960

Flow SCCPM = (Display Volts - b) / m

STATION TUBING

		CALCULATED FLOW		FLOW METER		PRE-MAINTENANCE					
Calibration Point	Conc. (ppm)	Dil. Air (cc/min)	Gas (cc/min)	Dil. Air (L/min)	Gas (cc/min)	DVM (volts)	DAS (ppm)	Recorder (%)	Difference (ppm)	% Difference	Pass/Fail
ZERO	0.000	1500	0.000	1485.700	0.000						
1	18.000	1500	54.878	1485.700	57.623						
2	16.010	1500	48.614	1485.700	50.852						
3	9.010	1500	26.977	1485.700	27.462						
4	6.000	1500	17.857	1485.700	17.603						
5	3.600	2000	14.218	1977.200	13.670						
ZERO	0.000	1500	0.000	1485.700	0.000						
Average ABS % Difference:											
Maximum ABS % Difference:											

STATION TUBING

	POST MAINTENANCE					
	Zero Pot. =	2.309	Span Pot. =	1.082		
Calibration Point	DVM (volts)	DAS (ppm)	Recorder (%)	Difference (ppm)	% Difference	Pass/Fail
ZERO	0.000	0.000				PASS
1	0.905	18.100		0.100	0.6%	PASS
2	0.805	16.100		0.090	0.6%	PASS
3	0.450	9.000		-0.010	-0.1%	PASS
4	0.305	6.100		0.100	1.7%	PASS
5	0.185	3.700		0.100	2.8%	PASS
ZERO	0.010	0.200				
Average ABS % Difference:				1.2%	PASS	
Maximum ABS % Difference:				2.8%	PASS	

CALIBRATION TIME

From:		To:	
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EVENT RESPONSE

		Calculated Flow		Flow Meter		Analyzer Response					
Calibration Point	Conc. (ppm)	Dil. Air (cc/min)	Gas (cc/min)	Dil. Air (cc/min)	Gas (cc/min)	DVM (volts)	DAS (ppm)	Recorder (%)	Difference (ppm)	% Difference	

RESULTS

Linear Regression					
	PRE		POST		
Parameter	Analyzer	Pass/Fail	Analyzer	Pass/Fail	
Slope			1.003	PASS	
Y Intercept			0.0	PASS	
Correlation Coefficient			1.0000	PASS	

ZERO							N/A
Precision							
Span							

Pre-Maint Carbon Monoxide Comments:	
Post Maint Carbon Monoxide Comments:	

TEMPERATURE, DELTA TEMPERATURE AND RELATIVE HUMIDITY CALIBRATION FORM

Network:	Park: Grand Teton National	Site: Flagg Ranch	Date: 12/12/02	Date of Last Site Visit:
				Field Specialist: Faust, John

Reference Thermometer S/N: X3220002	Calibration Date: 09/11/02
Relative Humidity Reference S/N: X3220002	Calibration Date: 09/11/02

TEMPERATURE / DELTA TEMPERATURE

SENSOR IDENTIFICATION

	Pre-Maintenance	Post Maintenance
Mfg.	Rotronics ATRH	Rotronics ATRH
Model #	MP101A-C4	MP101A-C4
Serial #		
Translator Serial #		

PRE-MAINTENANCE SENSOR RESPONSE

BATH TEMP (° C)	TEMPERATURE		Difference (° C)	Pass/Fail	D TEMPERATURE		Difference (° C)	Pass/Fail
	DVM (volts)	DAS (° C)			DVM (volts)	DAS (° C)		
	Maximum Difference:				Maximum Difference:			

PRE- TRANSLATOR CARD RESPONSE

SETTING	TEMPERATURE		D TEMPERATURE	
	DVM (volts)	DAS (° C)	DVM (volts)	DAS (° C)
Zero				
Span				

POST MAINTENANCE SENSOR RESPONSE

BATH TEMP (° C)	TEMPERATURE		Difference (° C)	Pass/Fail	D TEMPERATURE		Difference (° C)	Pass/Fail
	DVM (volts)	DAS (° C)			DVM (volts)	DAS (° C)		
-3.2		-4.1	-0.9	PASS				
	Maximum Difference:		0.9	PASS	Maximum Difference:			

POST TRANSLATOR CARD RESPONSE

SETTING	TEMPERATURE		D TEMPERATURE	
	DVM (volts)	DAS (° C)	DVM (volts)	DAS (° C)
Zero				
Span				

Pre-Maint Temperature Comments:

Post Maint Temperature Comments:

RELATIVE HUMIDITY

SENSOR IDENTIFICATION

	Pre-Maintenance	Post Maintenance
Mfg.	Rotronics ATRH	Rotronics ATRH
Model #	MP101A-C4	MP101A-C4
Serial #	75278	75278

PRE-MAINTENANCE SENSOR RESPONSE

HOUR	DAS	T.STD	% Difference	Pass/Fail
12:00				
13:00				
14:00				
15:00				
16:00				
17:00				
Average ABS % Difference:				

POST MAINTENANCE SENSOR RESPONSE

HOUR	DAS	T.STD	% Difference	Pass/Fail
10:00	74.8	77.0	-2.2%	PASS
11:00				
12:00				
13:00				
14:00				
15:00				
Average ABS % Difference:		2.2%		PASS

Maximum % Difference:		
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Maximum % Difference:	2.2%	PASS
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Pre-Maint Relative Humidity Comments:	
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Post Maint Relative Humidity Comments:	
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WIND DIRECTION CALIBRATION FORM

Network:	Park: Grand Teton National	Site: Flagg Ranch	Date: 12/12/02	Date of Last Site Visit:
				Field Specialist: Faust, John

To Landmark #1: 355 Degrees True	From Landmark #1: 175	LM Description: Light Pole to North
To Landmark #2: 152 Degrees True	From Landmark #2: 332	LM Description: Stop Sign
Declination: Degrees		
Wind Direction Reference S/N: test15		Calibration Date: test15

WIND DIRECTION

SENSOR IDENTIFICATION

	PRE-MAINTENANCE	POST MAINTENANCE
Mfg.	RM Young AQ	RM Young AQ
Model #	05305	05305
Serial #	19677	19677
Translator Serial #		

WIND DIRECTION ALIGNMENT

Land Mark Reference	PRE-MAINTENANCE				POST MAINTENANCE			
	DVM (volts)	DAS (degrees)	Degrees Difference	Pass/Fail	DVM (volts)	DAS (degrees)	Degrees Difference	Pass/Fail
To 1						353	-2	PASS
From 1						176	1	PASS
To 2						155	3	PASS
From 2						332	0	PASS
	Average Difference:				Average Difference:		2	PASS
	Maximum Difference:				Maximum Difference:		3	PASS

WIND DIRECTION TRANSLATOR CARD

Card Setting	PRE		POST	
	DVM (volts)	DAS (m/s)	DVM (volts)	DAS (m/s)
Zero				
Span				
360				
Oscillator Frequency (Hz) =		Data Logger Should Read		

WIND DIRECTION LINEARITY

Check Point	PRE-MAINTENANCE				POST MAINTENANCE			
	DVM (volts)	DAS (degrees)	Degrees Difference	Pass/Fail	DVM (volts)	DAS (degrees)	Degrees Difference	Pass/Fail
1								
2								
3								
4								
5								
6								
7								
8								
	Average Difference:				Average Difference:			
	Maximum Difference:				Maximum Difference:			

WIND DIRECTION STARTING THRESHOLD

PRE		POST	
Torque gm-cm	Pass/Fail	Torque gm-cm	Pass/Fail
		9	PASS

Wind direction starting threshold accuracy goal:

RM Young AQ <= 9 g-cm

Pre-Maint Wind Direction Comments:	
Post Maint Wind Direction Comments:	

WIND SPEED CALIBRATION FORM

Network:	Park: Grand Teton National	Site: Flagg Ranch	Date: 12/12/02	Date of Last Site Visit:
				Field Specialist: Faust, John

Wind Speed Reference S/N: test17	Calibration Date: test17
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WIND SPEED

SENSOR IDENTIFICATION

	PRE-MAINTENANCE	POST MAINTENANCE
Mfg.	RM Young AQ	RM Young AQ
Model #	05305	05305
Serial #	19677	19677
Translator Serial #		

WIND SPEED TRANSLATOR CARD

Card Setting	PRE		POST	
	DVM (volts)	DAS (m/s)	DVM (volts)	DAS (m/s)
Zero				
Span				
Oscillator Frequency (Hz) =				Data Logger Should Read

WIND SPEED STARTING THRESHOLD

PRE		POST	
Torque gm-cm	Pass/Fail	Torque gm-cm	Pass/Fail
		0.3	PASS

Wind speed starting threshold accuracy goal:

RM Young AQ <= 0.3 g·cm

Motor Speed (rpm)	WIND SPEED PRE-MAINTENANCE						WIND SPEED POST MAINTENANCE					
	Climatronics (m/s)	RM Young (m/s)	DVM (volts)	DAS (m/s)	Difference (m/s)	% Difference	Pass/Fail	DVM (volts)	DAS (m/s)	Difference (m/s)	% Difference	Pass/Fail
100	2.574	0.510										
300	7.274	1.540						1.648	0.108			PASS
600	14.324	3.070										
900	21.375	4.610						4.724	0.114			PASS
1200	28.425	6.140										
1800	42.526	9.220						9.348	0.128	1.4%		PASS
4000	N/A	20.480						20.630	0.150	0.7%		PASS
7000	N/A	35.840						36.030	0.190	0.5%		PASS
Maximum ABS Difference (use if Wind Speed <5):								0.190				
Maximum ABS % Difference (use if Wind Speed >=5):									1.4%			PASS

Pre-Maint Wind Speed Comments:	
Post Maint Wind Speed Comments:	

Table 1-1
Calibration Summary

Network:	Park: Grand Teton National P	Site: Flagg Ranch
Date: 02/22/03	Last Site Visit:	Field Specialist: Faust, John

Parameter	Criteria	Accuracy Goal	Calibration Results						
			Pre-Maintenance			Post Maintenance			
Mfg, Model # & Serial #	Value	Pass/Fail	Mfg, Model # & Serial #	Value	Pass/Fail				
CO Analyzer	Average Difference	average error	<= ± 5.0%	ThermoEnvironmental	8.5%	FAIL	ThermoEnvironmental	2.5%	PASS
	Maximum Difference	max error	<= ± 5.0%		13.3%	FAIL		5.0%	PASS
	Correlation	actual	r > 0.9950		0.9990	PASS		0.9999	PASS
	Intercept	actual	<= ± 3.0 ppm		0.7	PASS		-0.1	PASS
	Slope	actual	0.950 <= m <= 1.050		1.017	PASS		1.002	PASS
Mass Flow Correlation	Low Cell (Dilution Air)	correlation coefficient	r >= 0.9995	Thermo Electron 146C-77091-385	N/A	N/A	Thermo Electron 146C-77091-385	1.0000	PASS
	High Cell (Gas)	correlation coefficient	r >= 0.9995	ThermoEnvironmental 146C-77091-385	N/A	N/A	ThermoEnvironmental 146C-77091-385	1.0000	PASS
Barometric Pressure		max error	<= ± 1.5 mmhg						
CASTnet Flow	Flow Rate	max error	<= ± 5.0%						
	Leak Check	max error	<= ± 0.03						
Precipitation		max error	<= ± 5.0%						
Relative Humidity	PRE Sensor ID# 75278	max error	<= ± 5.0%	Rotronics ATRH MP101A-C4 75278	2.2%	PASS	Rotronics ATRH MP101A-C4 75278		
Solar Radiation		average error	<= ± 5%						
Delta Temperature		max error	Climatronics <= ± 0.1° C; RM Young <= ± 0.2° C	Rotronics ATRH MP101A-C4			Rotronics ATRH MP101A-C4		
Temperature		max error	Climatronics <= ± 0.2° C; RM Young <= ± 0.5° C; Rotronics <= ± 1.0° C		0.9°	PASS			
Wetness	Dry	response	about 0 VDC dry about 1 VDC wet						
	Wet	response							
Wind Direction	Alignment	max error	<= ± 5°	RM Young AQ 05305 19677	3°	PASS	RM Young AQ 05305 19677		
	Linearity	max error	<= ± 3°						
	Starting Threshold	max error	Climatronics <= 6 g-cm; RM Young AQ <= 9 g-cm; RM Young MA <= 30 g-cm						
Wind Speed	max Wind Speed <5	max error	<= ± 0.2 m/s	RM Young AQ 05305 19677	N/A	N/A	RM Young AQ 05305 19677		
	max Wind Speed >= 5	max error	<= ± 5%		1.4%	PASS			
	Starting Threshold	max error	Climatronics <= 0.2 g-cm; RM Young AQ <= 0.3 g-cm; RM Young MA <= 2.9 g-cm						

Field Specialist: Faust, John
Operator:
Network:
Park: Grand Teton National Park
Site: Flagg Ranch
Date: 2/22/2003
Last Site Visit:

Parameter	Device	Manufacturer	Model	S/N	Calibration Date
Voltage	DVM	Fluke	8060A	test1	test1
	Voltage Source	Calib. Inc.	DVC-350A	test2	test2
Ozone	Transfer Standard	TECO	49PS	test3	test3
Gas Dilution	Mass flow	ERT	Gas Dil	test4	test4
Barometric Pressure		AIRS		test5	test5
Flow	Dry cal	BIOS	DC2	H 740 L1304	01/09/03
Precipitation	PPT Calibrator	Novalynx	260-2595	test7	test7
	Volume (ml):	936		test8	test8
Relative Humidity	RH Sensor	Vaisala	HMP45C	X3220002	09/11/02
Solar Radiation	Thermopile	LiCor	Pyranometer	test10	test10
	Multiplier	95.64		test11	test11
Temperature	Digital Thermometer	Vaisala	HM34C	X3220002	09/11/02
Wind Direction	Torque Gauge	RM Young	18331	test13	test13
	Linearity Jig	RM Young	18212	test14	test14
	Compass	Brunton	5006LM	test15	test15
Wind Speed	Torque Disk	RM Young	18310	test16	test16
	Anemometer Drive	RM Young	18801	test17	test17

Comments:

GAS DILUTION CALIBRATOR CALIBRATION FORM

Network:	Park: Grand Teton National	Site: Flagg Ranch	Date: 02/22/03	Date of Last Site Visit:
				Field Specialist: Faust, John

Flow Standard Reference: BIOS, DC2	Flow Standard Reference S/N: H 740 L1304	Calibration Date: 01/09/03
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Mass Flow Device (Dilution Air)		
Mfg: Thermo Electron	S/N: 146C-77091-385	Range: 0-10 liters
Calibration Gas: AIR	This primary standard automatically corrects to standard flow.	

FLOW METER DATA

Calibration Point	Display (y)	Flow SCCPM (x)
1	498	498
2	798	796
3	997	988
4	1196	1186
5	1496	1480
6	1998	1973

Linear Regression		
Parameter	Analyzer	Pass/Fail
Slope (m)	1.017471	N/A
Y Intercept (b)	-9.819075	N/A
Correlation Coefficient (r)	0.999997	PASS

Display Volts = (Flow SCCPM * m) + b

Flow SCCPM = (Display Volts - b) / m

Mass Flow Device (Gas 1)

Mfg: ThermoEnvironmental	S/N: 146C-77091-385	Range: 0-100 cc
Calibration Gas: CO in AIR	This primary standard automatically corrects to standard flow.	

FLOW METER DATA

Calibration Point	Display (y)	Flow SCCPM (x)
1	9.98	9.3
2	15.99	15.62
3	25.01	24.67
4	39.99	39.4
5	50	49.31
6	60	59.33

Linear Regression		
Parameter	Analyzer	Pass/Fail
Slope (m)	1.003878	N/A
Y Intercept (b)	0.428922	N/A
Correlation Coefficient (r)	0.999974	PASS

Display Volts = (Flow SCCPM * m) + b

Flow SCCPM = (Display Volts - b) / m

MFC/MFM Comments:	
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GAS DILUTION

CALIBRATION FORM FOR CARBON MONOXIDE ANALYZER

Network:	Park: Grand Teton National	Site: Flagg Ranch	Date: 02/22/03	Date of Last Site Visit:
				Field Specialist: Faust, John

EQUIPMENT IDENTIFICATION

	Transfer Standard	Analyzer	Station Reference
Mfg.		ThermoEnvironmental	TECO
Model #		48C	146C
Serial #		48C-76071-381	146C-77091-385

REFERENCE GAS

Tank S/N	JJ14145
Calibration Date	10/29/2002
Pressure Tank / Del.	1400/20
Tank Conc. (ppb)	510

FLOW METER DATA

	Dilution Air	Gas
Slope (m)	0.98300	1.08100
Y Intercept (b)	11.20000	-1.70000
Correlation Coefficient (r)	1.00000	0.99960

Flow SCCPM = (Display Volts - b) / m

STATION TUBING

		CALCULATED FLOW		FLOW METER		PRE-MAINTENANCE						
Calibration Point	Conc. (ppm)	Dil. Air (cc/min)	Gas (cc/min)	Dil. Air (L/min)	Gas (cc/min)	DVM (volts)	DAS (ppm)	Recorder (%)	Difference (ppm)	% Difference	Pass/Fail	
ZERO	0.000	1500	0.000	1485.700	0.000	0.057	1.214		1.210	6.7%	FAIL	
1	18.000	1500	54.878	1485.700	57.623	0.961	19.210		1.020	6.4%	FAIL	
2	16.010	1500	48.614	1485.700	50.852	0.852	17.030		0.664	7.4%	FAIL	
3	9.010	1500	26.977	1485.700	27.462	0.487	9.674		0.530	8.8%	FAIL	
4	6.000	1500	17.857	1485.700	17.603	0.327	6.530		0.477	13.3%	FAIL	
5	3.600	2000	14.218	1977.200	13.670	0.205	4.077					
ZERO	0.000	1500	0.000	1485.700	0.000	0.057	1.200					
Average ABS % Difference:									8.5%	FAIL		
Maximum ABS % Difference:									13.3%	FAIL		

STATION TUBING

		POST MAINTENANCE					
Calibration Point	DVM (volts)	DAS (ppm)	Recorder (%)	Difference (ppm)	% Difference	Pass/Fail	
ZERO	0.000	0.000		-0.050	-0.3%	PASS	
1	0.901	17.950		-0.080	-0.5%	PASS	
2	0.796	15.930		-0.260	-2.9%	PASS	
3	0.437	8.750		-0.220	-3.7%	PASS	
4	0.288	5.780		-0.180	-5.0%	PASS	
5	0.170	3.420					
ZERO	0.033	0.668					
Average ABS % Difference:				2.5%	PASS		
Maximum ABS % Difference:				5.0%	PASS		

CALIBRATION TIME

From:	To:
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EVENT RESPONSE

		Calculated Flow		Flow Meter		Analyzer Response						
Calibration Point	Conc. (ppm)	Dil. Air (cc/min)	Gas (cc/min)	Dil. Air (cc/min)	Gas (cc/min)	DVM (volts)	DAS (ppm)	Recorder (%)	Difference (ppm)	% Difference		

RESULTS

Linear Regression					
	PRE		POST		
Parameter	Analyzer	Pass/Fail	Analyzer	Pass/Fail	
Slope	1.017	PASS	1.002	PASS	
Y Intercept	0.7	PASS	-0.1	PASS	
Correlation Coefficient	0.9990	PASS	0.9999	PASS	

TEMPERATURE, DELTA TEMPERATURE AND RELATIVE HUMIDITY CALIBRATION FORM

Network:	Park: Grand Teton National	Site: Flagg Ranch	Date: 02/22/03	Date of Last Site Visit:
				Field Specialist: Faust, John

Reference Thermometer S/N: X3220002	Calibration Date: 09/11/02
Relative Humidity Reference S/N: X3220002	Calibration Date: 09/11/02

TEMPERATURE / DELTA TEMPERATURE

SENSOR IDENTIFICATION

	Pre-Maintenance	Post Maintenance
Mfg.	Rotronics ATRH	Rotronics ATRH
Model #	MP101A-C4	MP101A-C4
Serial #		
Translator Serial #		

PRE-MAINTENANCE SENSOR RESPONSE

BATH TEMP (° C)	TEMPERATURE		Difference (° C)	Pass/Fail	D TEMPERATURE		Difference (° C)	Pass/Fail
	DVM (volts)	DAS (° C)			DVM (volts)	DAS (° C)		
-3.2		-4.1	-0.9	PASS				
Maximum Difference:		0.9	PASS	Maximum Difference:				

PRE- TRANSLATOR CARD RESPONSE

SETTING	TEMPERATURE		D TEMPERATURE	
	DVM (volts)	DAS (° C)	DVM (volts)	DAS (° C)
Zero				
Span				

POST MAINTENANCE SENSOR RESPONSE

BATH TEMP (° C)	TEMPERATURE		Difference (° C)	Pass/Fail	D TEMPERATURE		Difference (° C)	Pass/Fail
	DVM (volts)	DAS (° C)			DVM (volts)	DAS (° C)		
Maximum Difference:				Maximum Difference:				

POST TRANSLATOR CARD RESPONSE

SETTING	TEMPERATURE		D TEMPERATURE	
	DVM (volts)	DAS (° C)	DVM (volts)	DAS (° C)
Zero				
Span				

Pre-Maint Temperature Comments:

Post Maint Temperature Comments:

RELATIVE HUMIDITY

SENSOR IDENTIFICATION

	Pre-Maintenance	Post Maintenance
Mfg.	Rotronics ATRH	Rotronics ATRH
Model #	MP101A-C4	MP101A-C4
Serial #	75278	75278

PRE-MAINTENANCE SENSOR RESPONSE

HOUR	DAS	T.STD	% Difference	Pass/Fail
12:00	74.8	77.0	-2.2%	PASS
13:00				
14:00				
15:00				
16:00				
17:00				
Average ABS % Difference:		2.2%	PASS	

POST MAINTENANCE SENSOR RESPONSE

HOUR	DAS	T.STD	% Difference	Pass/Fail
10:00				
11:00				
12:00				
13:00				
14:00				
15:00				
Average ABS % Difference:				

Maximum % Difference:	2.2%	PASS
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Maximum % Difference:		
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Pre-Maint Relative Humidity Comments:	
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Post Maint Relative Humidity Comments:	
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ZERO	0.000					0.120		N/A
Precision						3.514		
Span						18.210		

Pre-Maint Carbon Monoxide Comments:	Pre Cal check done with contaminated zero air bottle. CO conc in bottle was likely .7ppm
Post Maint Carbon Monoxide Comments:	

WIND DIRECTION CALIBRATION FORM

Network:	Park: Grand Teton National	Site: Flagg Ranch	Date: 02/22/03	Date of Last Site Visit:
				Field Specialist: Faust, John

To Landmark #1: 355 Degrees True	From Landmark #1: 175	LM Description: Light Pole to North
To Landmark #2: 152 Degrees True	From Landmark #2: 332	LM Description: Stop Sign
Declination: Degrees		
Wind Direction Reference S/N: test15		Calibration Date: test15

WIND DIRECTION

SENSOR IDENTIFICATION

	PRE-MAINTENANCE	POST MAINTENANCE
Mfg.	RM Young AQ	RM Young AQ
Model #	05305	05305
Serial #	19677	19677
Translator Serial #		

WIND DIRECTION ALIGNMENT

Land Mark Reference	PRE-MAINTENANCE				POST MAINTENANCE			
	DVM (volts)	DAS (degrees)	Degrees Difference	Pass/Fail	DVM (volts)	DAS (degrees)	Degrees Difference	Pass/Fail
To 1		353	-2	PASS				
From 1		176	1	PASS				
To 2		155	3	PASS				
From 2		332	0	PASS				
	Average Difference:	2	PASS	Average Difference:				
	Maximum Difference:	3	PASS	Maximum Difference:				

WIND DIRECTION TRANSLATOR CARD

Card Setting	PRE		POST	
	DVM (volts)	DAS (m/s)	DVM (volts)	DAS (m/s)
Zero				
Span				
360				
Oscillator Frequency (Hz) =		Data Logger Should Read		

WIND DIRECTION LINEARITY

Check Point	PRE-MAINTENANCE				POST MAINTENANCE			
	DVM (volts)	DAS (degrees)	Degrees Difference	Pass/Fail	DVM (volts)	DAS (degrees)	Degrees Difference	Pass/Fail
1								
2								
3								
4								
5								
6								
7								
8								
	Average Difference:			Average Difference:				
	Maximum Difference:			Maximum Difference:				

WIND DIRECTION STARTING THRESHOLD

PRE		POST	
Torque gm-cm	Pass/Fail	Torque gm-cm	Pass/Fail

Wind direction starting threshold accuracy goal:

RM Young AQ <= 9 g-cm

Pre-Maint Wind Direction Comments:	
Post Maint Wind Direction Comments:	

WIND SPEED CALIBRATION FORM

Network:	Park: Grand Teton National	Site: Flagg Ranch	Date: 02/22/03	Date of Last Site Visit:
				Field Specialist: Faust, John

Wind Speed Reference S/N: test17	Calibration Date: test17
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WIND SPEED

SENSOR IDENTIFICATION

	PRE-MAINTENANCE	POST MAINTENANCE
Mfg.	RM Young AQ	RM Young AQ
Model #	05305	05305
Serial #	19677	19677
Translator Serial #		

WIND SPEED TRANSLATOR CARD

Card Setting	PRE		POST	
	DVM (volts)	DAS (m/s)	DVM (volts)	DAS (m/s)
Zero				
Span				
Oscillator Frequency (Hz) =				Data Logger Should Read

WIND SPEED STARTING THRESHOLD

PRE		POST	
Torque gm-cm	Pass/Fail	Torque gm-cm	Pass/Fail

Wind speed starting threshold accuracy goal:

RM Young AQ <= 0.3 g·cm

Motor Speed (rpm)	WIND SPEED PRE-MAINTENANCE						WIND SPEED POST MAINTENANCE					
	Climatronics (m/s)	RM Young (m/s)	DVM (volts)	DAS (m/s)	Difference (m/s)	% Difference	Pass/Fail	DVM (volts)	DAS (m/s)	Difference (m/s)	% Difference	Pass/Fail
100	2.574	0.510										
300	7.274	1.540		1.648	0.108		PASS					
600	14.324	3.070										
900	21.375	4.610		4.724	0.114		PASS					
1200	28.425	6.140										
1800	42.526	9.220		9.348	0.128	1.4%	PASS					
4000	N/A	20.480		20.630	0.150	0.7%	PASS					
7000	N/A	35.840		36.030	0.190	0.5%	PASS					
Maximum ABS Difference (use if Wind Speed <5):				0.190								
Maximum ABS % Difference (use if Wind Speed >=5):					1.4%	PASS						

Pre-Maint Wind Speed Comments:		
Post Maint Wind Speed Comments:		

Table 1-1
Calibration Summary

Network: NPS Winter Snowmobile	Park: Yellowstone	Site: Old Faithful
Date: 02/24/03	Last Site Visit:	Field Specialist: Faust, John

Parameter	Criteria	Accuracy Goal	Calibration Results						
			Pre-Maintenance			Post Maintenance			
Mfg, Model # & Serial #	Value	Pass/Fail	Mfg, Model # & Serial #	Value	Pass/Fail				
CO Analyzer	Average Difference	average error	<= ± 5.0%	ThermoEnvironmental	29.5%	FAIL	ThermoEnvironmental	2.7%	PASS
	Maximum Difference	max error	<= ± 5.0%		42.2%	FAIL		4.8%	PASS
	Correlation	actual	r > 0.9950		0.9994	PASS		0.9999	PASS
	Intercept	actual	<= ± 3.0 ppm		0.9	PASS		-0.1	PASS
	Slope	actual	0.950 <= m <= 1.050		1.196	FAIL		0.998	PASS
Mass Flow Correlation	Low Cell (Dilution Air)	correlation coefficient	r >= 0.9995	Thermo Environmental 146C-76431-383	N/A	N/A	Thermo Environmental 146C-76431-383	1.0000	PASS
	High Cell (Gas)	correlation coefficient	r >= 0.9995	Thermo Environmental 146C-76431-383	N/A	N/A	Thermo Environmental 146C-76431-383	0.9999	PASS
Barometric Pressure		max error	<= ± 1.5 mmhg						
CASTnet Flow	Flow Rate	max error	<= ± 5.0%						
	Leak Check	max error	<= ± 0.03						
Precipitation		max error	<= ± 5.0%						
Relative Humidity	PRE Sensor ID# 56095	max error	<= ± 5.0%	Rotronics ATRH MP101A-C4 56095			Rotronics ATRH MP101A-C4 56095		
Solar Radiation		average error	<= ± 5%						
Delta Temperature		max error	Climatronics <= ± 0.1° C; RM Young <= ± 0.2° C	Rotronics ATRH MP101A-C4 56095			Rotronics ATRH MP101A-C4 56095		
Temperature		max error	Climatronics <= ± 0.2° C; RM Young <= ± 0.5° C; Rotronics <= ± 1.0° C						
Wetness	Dry	response	about 0 VDC dry about 1 VDC wet						
	Wet	response							
Wind Direction	Alignment	max error	<= ± 5°	RM Young AQ 05305 19676			RM Young AQ 05305 19676		
	Linearity	max error	<= ± 3°						
	Starting Threshold	max error	Climatronics <= 6 g-cm; RM Young AQ <= 9 g-cm; RM Young MA <= 30 g-cm						
Wind Speed	max Wind Speed <5	max error	<= ± 0.2 m/s	RM Young AQ 05305 19676			RM Young AQ 05305 19676		
	max Wind Speed >= 5	max error	<= ± 5%						
	Starting Threshold	max error	Climatronics <= 0.2 g-cm; RM Young AQ <= 0.3 g-cm; RM Young MA <= 2.9 g-cm						

Calibration Standards

Field Specialist: Faust, John
Operator:
Network: NPS Winter Snowmobile Study
Park: Yellowstone
Site: Old Faithful
Date: 2/24/2003
Last Site Visit:

Parameter	Device	Manufacturer	Model	S/N	Calibration Date
Voltage	DVM	Fluke	8060A	test1	test1
	Voltage Source	Calib. Inc.	DVC-350A	test2	test2
Ozone	Transfer Standard	TECO	49PS	test3	test3
Gas Dilution	Mass flow	ERT	Gas Dil	test4	test4
Barometric Pressure		AIRS		test5	test5
Flow	Dry cal	BIOS	DC2	H740 L1304	test6
Precipitation	PPT Calibrator	Novalynx	260-2595	test7	test7
	Volume (ml):	936		test8	test8
Relative Humidity	RH Sensor	Rotronics	MP601	test9	test9
Solar Radiation	Thermopile	LiCor	Pyranometer	test10	test10
	Multiplier	95.64		test11	test11
Temperature	Electronic Thermometer	Vaisala	HM34C	X3220002	09/11/02
Wind Direction	Torque Gauge	RM Young	18331	test13	test13
	Linearity Jig	RM Young	18212	test14	test14
	Compass	Brunton	5006LM	test15	test15
Wind Speed	Torque Disk	RM Young	18310	test16	test16
	Anemometer Drive	RM Young	18801	test17	test17

Comments:

GAS DILUTION CALIBRATOR CALIBRATION FORM

Network: NPS Winter Snow	Park: Yellowstone	Site: Old Faithful	Date: 02/24/03	Date of Last Site Visit:
				Field Specialist: Faust, John

Flow Standard Reference: BIOS, DC2	Flow Standard Reference S/N: H740 L1304	Calibration Date: test6
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Mass Flow Device (Dilution Air)		
Mfg: Thermo Environmental	S/N: 146C-76431-383	Range: 0-10000 cc
Calibration Gas: air	This primary standard automatically corrects to standard flow.	

FLOW METER DATA

Calibration Point	Display (y)	Flow SCCPM (x)
1	500	505
2	997	1008
3	1498	1514
4	2001	2019
5	2501	2529
6	2998	3031

Linear Regression		
Parameter	Analyzer	Pass/Fail
Slope (m)	0.989093	N/A
Y Intercept (b)	0.779469	N/A
Correlation Coefficient (r)	0.999998	PASS

Display Volts = (Flow SCCPM * m) + b

Flow SCCPM = (Display Volts - b) / m

Mass Flow Device (Gas 1)

Mfg: Thermo Environmental	S/N: 146C-76431-383	Range: 0-100 cc
Calibration Gas: air	This primary standard automatically corrects to standard flow.	

FLOW METER DATA

Calibration Point	Display (y)	Flow SCCPM (x)
1	9.98	10.12
2	20.01	20.34
3	29.97	30.35
4	40.03	40.45
5	49.94	50.04
6	70	69.54

Linear Regression		
Parameter	Analyzer	Pass/Fail
Slope (m)	1.010428	N/A
Y Intercept (b)	-0.535498	N/A
Correlation Coefficient (r)	0.999939	PASS

Display Volts = (Flow SCCPM * m) + b

Flow SCCPM = (Display Volts - b) / m

MFC/MFM Comments:	
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GAS DILUTION

CALIBRATION FORM FOR CARBON MONOXIDE ANALYZER

Network: NPS Winter Snow	Park: Yellowstone	Site: Old Faithful	Date: 02/24/03	Date of Last Site Visit:
				Field Specialist: Faust, John

EQUIPMENT IDENTIFICATION

	Transfer Standard	Analyzer	Station Reference
Mfg.		ThermoEnvironmental	ThermoEnvironmental
Model #		48C	146C
Serial #		48C-76069-381	146C-76431-383

REFERENCE GAS

Tank S/N	JJ8524
Calibration Date	12/2/2002
Pressure Tank / Del.	700/20
Tank Conc. (ppb)	1025

FLOW METER DATA

	Dilution Air	Gas
Slope (m)	0.989	0.101
Y Intercept (b)	0.8	-0.5
Correlation Coefficient (r)	1.0000	1.0000

Flow SCCPM = (Display Volts - b) / m

STATION TUBING

		CALCULATED FLOW		FLOW METER		PRE-MAINTENANCE						
Calibration Point	Conc. (ppm)	Dil. Air (cc/min)	Gas (cc/min)	Dil. Air (L/min)	Gas (cc/min)	DVM (volts)	DAS (ppm)	Recorder (%)	Difference (ppm)	% Difference	Pass/Fail	
ZERO	0.000	2000	0.000	1978.800	0.000	0.642	1.273					
1	17.920	1476	26.264	1460.564	2.153		22.500		4.580	25.6%	FAIL	
2	15.950	1479	23.378	1463.531	1.861	9.995	20.000		4.050	25.4%	FAIL	
3	8.962	1484	13.090	1468.476	0.822	5.667	11.340		2.378	26.5%	FAIL	
4	5.977	1485	8.710	1469.465	0.380	3.831	7.650		1.673	28.0%	FAIL	
5	3.572	2491	8.711	2464.399	0.380	2.541	5.080		1.508	42.2%	FAIL	
ZERO	0.000	2000	0.000	1978.800	0.000	0.642	1.291					
Average ABS % Difference:									29.5%	FAIL		
Maximum ABS % Difference:									42.2%	FAIL		

STATION TUBING

		POST MAINTENANCE					
Calibration Point	DVM (volts)	DAS (ppm)	Recorder (%)	Difference (ppm)	% Difference	Pass/Fail	
ZERO	0.002	0.000					
1	8.936	17.880		-0.040	-0.2%	PASS	
2	7.989	15.750		-0.200	-1.3%	PASS	
3	4.281	8.650		-0.312	-3.5%	PASS	
4	2.771	5.770		-0.207	-3.5%	PASS	
5	1.651	3.400		-0.172	-4.8%	PASS	
ZERO	0.000	0.020					
Average ABS % Difference:				2.7%	PASS		
Maximum ABS % Difference:				4.8%	PASS		

CALIBRATION TIME

From:		To:	
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EVENT RESPONSE

		Calculated Flow		Flow Meter		Analyzer Response						
Calibration Point	Conc. (ppm)	Dil. Air (cc/min)	Gas (cc/min)	Dil. Air (cc/min)	Gas (cc/min)	DVM (volts)	DAS (ppm)	Recorder (%)	Difference (ppm)	% Difference		

RESULTS

Linear Regression					
	PRE		POST		
Parameter	Analyzer	Pass/Fail	Analyzer	Pass/Fail	
Slope	1.196	FAIL	0.998	PASS	
Y Intercept	0.9	PASS	-0.1	PASS	
Correlation Coefficient	0.9994	PASS	0.9999	PASS	

ZERO	0.000							N/A
Precision								
Span								

Pre-Maint Carbon Monoxide Comments:	
Post Maint Carbon Monoxide Comments:	

Table 1-1
Calibration Summary

Network:	Park:	Site: Flagg Ranch, YELL		
Date: 03/25/03	Last Site Visit:	Field Specialist: Slate, Mike		

Parameter	Criteria	Accuracy Goal	Calibration Results					
			Pre-Maintenance			Post Maintenance		
Mfg, Model # & Serial #	Value	Pass/Fail	Mfg, Model # & Serial #	Value	Pass/Fail			
CO Analyzer	Average Difference	average error	<= ± 5.0%	TECO	12.3%	FAIL	TECO	
	Maximum Difference	max error	<= ± 5.0%		18.9%	FAIL		
	Correlation	actual	r > 0.9950		1.0000	PASS		
	Intercept	actual	<= ± 3.0 ppm		0.6	PASS		
	Slope	actual	0.950 <= m <= 1.050		1.057	FAIL		
Mass Flow Correlation	Low Cell (Dilution Air)	correlation coefficient	r >= 0.9995		N/A	N/A		
	High Cell (Gas)	correlation coefficient	r >= 0.9995		N/A	N/A		
Barometric Pressure		max error	<= ± 1.5 mmhg					
CASTnet Flow	Flow Rate	max error	<= ± 5.0%					
	Leak Check	max error	<= ± 0.03					
Precipitation		max error	<= ± 5.0%					
Relative Humidity	PRE Sensor ID# 75278	max error	<= ± 5.0%	Rotronics ATRH MP101A-C4 75278	3.5%	PASS	Rotronics ATRH MP101A-C4 75278	
Solar Radiation		average error	<= ± 5%					
Delta Temperature		max error	Climatronics <= ± 0.1° C; RM Young <= ± 0.2° C	Rotronics ATRH MP101A-C4 75278			Rotronics ATRH MP101A-C4 75278	
Temperature		max error	Climatronics <= ± 0.2° C; RM Young <= ± 0.5° C; Rotronics <= ± 1.0° C		0.4°	PASS		
Wetness	Dry	response	about 0 VDC dry about 1 VDC wet					
	Wet	response						
Wind Direction	Alignment	max error	<= ± 5°	RM Young AQ 05305 19677	3°	PASS	RM Young AQ 05305 19677	
	Linearity	max error	<= ± 3°					
	Starting Threshold	max error	Climatronics <= 6 g-cm; RM Young AQ <= 9 g-cm; RM Young MA <= 30 g-cm					
Wind Speed	max Wind Speed <5	max error	<= ± 0.2 m/s	RM Young AQ 05305 19677	0.120	PASS	RM Young AQ 05305 19677	
	max Wind Speed >= 5	max error	<= ± 5%		1.0%	PASS		
	Starting Threshold	max error	Climatronics <= 0.2 g-cm; RM Young AQ <= 0.3 g-cm; RM Young MA <= 2.9 g-cm					

Field Specialist: _____
Operator: _____
Network: _____
Park: _____
Site: Flagg Ranch, YELL
Date: 3/25/2003
Last Site Visit: _____

Parameter	Device	Manufacturer	Model	S/N	Calibration Date
Voltage	DVM	Fluke	8060A	test1	test1
	Voltage Source	Calib. Inc.	DVC-350A	test2	test2
Ozone	Transfer Standard	TECO	49PS	test3	test3
Gas Dilution	Mass flow	ERT	Gas Dil	test4	test4
Barometric Pressure		AIRS		test5	test5
Flow	Dry cal	BIOS	DC2	test6	test6
Precipitation	PPT Calibrator	Novalynx	260-2595	test7	test7
	Volume (ml):	936		test8	test8
Relative Humidity	RH Sensor	Rotronics	MP601	test9	test9
Solar Radiation	Thermopile	LiCor	Pyranometer	test10	test10
	Multiplier	95.64		test11	test11
Temperature				test12	test12
Wind Direction	Torque Gauge	RM Young	18331	test13	test13
	Linearity Jig	RM Young	18212	test14	test14
	Compass	Brunton	5006LM	test15	test15
Wind Speed	Torque Disk	RM Young	18310	test16	test16
	Anemometer Drive	RM Young	18801	test17	test17

Comments:

GAS DILUTION CALIBRATOR CALIBRATION FORM

Network:	Park:	Site: Flagg Ranch, YELL	Date: 03/25/03
		Date of Last Site Visit:	
		Field Specialist: Slate, Mike	

Flow Standard Reference: BIOS, DC2	Flow Standard Reference S/N: test6	Calibration Date: test6
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Mass Flow Device (Dilution Air)		
Mfg:	S/N:	Range:
Calibration Gas:	This primary standard automatically corrects to standard flow.	

FLOW METER DATA

Calibration Point	Display (y)	Flow SCCPM (x)
1		
2		
3		
4		
5		
6		

Linear Regression		
Parameter	Analyzer	Pass/Fail
Slope (m)		N/A
Y Intercept (b)		N/A
Correlation Coefficient (r)		

Display Volts = (Flow SCCPM * m) + b

Flow SCCPM = (Display Volts - b) / m

Mass Flow Device (Gas 1)

Mfg:	S/N:	Range:
Calibration Gas:	This primary standard automatically corrects to standard flow.	

FLOW METER DATA

Calibration Point	Display (y)	Flow SCCPM (x)
1		
2		
3		
4		
5		
6		

Linear Regression		
Parameter	Analyzer	Pass/Fail
Slope (m)		N/A
Y Intercept (b)		N/A
Correlation Coefficient (r)		

Display Volts = (Flow SCCPM * m) + b

Flow SCCPM = (Display Volts - b) / m

MFC/MFM Comments:	
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GAS DILUTION

CALIBRATION FORM FOR CARBON MONOXIDE ANALYZER

Network:	Park:	Site: Flagg Ranch, YELL	Date: 03/25/03	Date of Last Site Visit:
				Field Specialist: Slate, Mike

EQUIPMENT IDENTIFICATION

	Transfer Standard	Analyzer	Station Reference
Mfg.		TECO	TECO
Model #		48C	146C
Serial #		76069-381	76431-383

REFERENCE GAS

Tank S/N	
Calibration Date	
Pressure Tank / Del.	
Tank Conc. (ppb)	

FLOW METER DATA

	Dilution Air	Gas
Slope (m)		
Y Intercept (b)		
Correlation Coefficient (r)		

Flow SCCPM = (Display Volts - b) / m

STATION TUBING

		CALCULATED FLOW		FLOW METER		PRE-MAINTENANCE					
		Dil. Air (cc/min)	Gas (cc/min)	Dil. Air (L/min)	Gas (cc/min)	DVM (volts)	DAS (ppm)	Recorder (%)	Difference (ppm)	% Difference	Pass/Fail
Calibration Point	Conc. (ppm)				0.000		0.671				
ZERO	0.000				0.000		4.284		0.680	18.9%	FAIL
1	3.604						11.110		1.130	11.3%	FAIL
2	9.980						16.470		1.490	9.9%	FAIL
3	14.980						19.650		1.610	8.9%	FAIL
4	18.040										
5											
ZERO	0.000				0.000						
						Average ABS % Difference:			12.3%	FAIL	
						Maximum ABS % Difference:			18.9%	FAIL	

STATION TUBING

	POST MAINTENANCE					
	Zero Pot. =	Span Pot. =	Recorder (%)	Difference (ppm)	% Difference	Pass/Fail
Calibration Point	DVM (volts)	DAS (ppm)				
ZERO	0.000					
1						
2						
3						
4						
5						
ZERO	0.000					
Average ABS % Difference:						
Maximum ABS % Difference:						

RESULTS

Linear Regression				
	PRE		POST	
Parameter	Analyzer	Pass/Fail	Analyzer	Pass/Fail
Slope	1.057	FAIL		
Y Intercept	0.6	PASS		
Correlation Coefficient	1.0000	PASS		

CALIBRATION TIME

From:		To:	
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EVENT RESPONSE

		Calculated Flow		Flow Meter		Analyzer Response				
Calibration Point	Conc. (ppm)	Dil. Air (cc/min)	Gas (cc/min)	Dil. Air (cc/min)	Gas (cc/min)	DVM (volts)	DAS (ppm)	Recorder (%)	Difference (ppm)	% Difference

ZERO	0.000							N/A
Precision								
Span								

Pre-Maint Carbon Monoxide Comments:	
Post Maint Carbon Monoxide Comments:	

TEMPERATURE, DELTA TEMPERATURE AND RELATIVE HUMIDITY CALIBRATION FORM

Network:	Park:	Site: Flagg Ranch, YELL	Date: 03/25/03	Date of Last Site Visit:
				Field Specialist: Slate, Mike

Reference Thermometer S/N: test12	Calibration Date: test12
Relative Humidity Reference S/N: test9	Calibration Date: test9

TEMPERATURE / DELTA TEMPERATURE

SENSOR IDENTIFICATION

	Pre-Maintenance	Post Maintenance
Mfg.	Rotronics ATRH	Rotronics ATRH
Model #	MP101A-C4	MP101A-C4
Serial #	75278	75278
Translator Serial #		

PRE-MAINTENANCE SENSOR RESPONSE

BATH TEMP (° C)	TEMPERATURE		Difference (° C)	Pass/Fail	D TEMPERATURE		Difference (° C)	Pass/Fail
	DVM (volts)	DAS (° C)			DVM (volts)	DAS (° C)		
-1.3		-0.9	0.4	PASS				
-1.1		-1.0	0.1	PASS				
	Maximum Difference:		0.4	PASS	Maximum Difference:			

PRE- TRANSLATOR CARD RESPONSE

SETTING	TEMPERATURE		D TEMPERATURE	
	DVM (volts)	DAS (° C)	DVM (volts)	DAS (° C)
Zero				
Span				

POST MAINTENANCE SENSOR RESPONSE

BATH TEMP (° C)	TEMPERATURE		Difference (° C)	Pass/Fail	D TEMPERATURE		Difference (° C)	Pass/Fail
	DVM (volts)	DAS (° C)			DVM (volts)	DAS (° C)		
	Maximum Difference:				Maximum Difference:			

POST TRANSLATOR CARD RESPONSE

SETTING	TEMPERATURE		D TEMPERATURE	
	DVM (volts)	DAS (° C)	DVM (volts)	DAS (° C)
Zero				
Span				

Pre-Maint Temperature Comments:

Post Maint Temperature Comments:

RELATIVE HUMIDITY

SENSOR IDENTIFICATION

	Pre-Maintenance	Post Maintenance
Mfg.	Rotronics ATRH	Rotronics ATRH
Model #	MP101A-C4	MP101A-C4
Serial #	75278	75278

PRE-MAINTENANCE SENSOR RESPONSE

HOUR	DAS	T.STD	Difference	Pass/Fail
10:00	49.0	45.5	3.5%	PASS
11:00				
12:00				
13:00				
14:00				
15:00				
Average ABS % Difference:			3.5%	PASS

POST MAINTENANCE SENSOR RESPONSE

HOUR	DAS	T.STD	Difference	Pass/Fail
10:00				
11:00				
12:00				
13:00				
14:00				
15:00				
Average ABS % Difference:				

WIND DIRECTION CALIBRATION FORM

Network:	Park:	Site: Flagg Ranch, YELL	Date: 03/25/03	Date of Last Site Visit:
				Field Specialist: Slate, Mike

To Landmark #1: 5 Degrees True	From Landmark #1: 185	LM Description:
To Landmark #2: 287 Degrees True	From Landmark #2: 107	LM Description:
Declination: Degrees		
Wind Direction Reference S/N: test15		Calibration Date: test15

WIND DIRECTION

SENSOR IDENTIFICATION

	PRE-MAINTENANCE	POST MAINTENANCE
Mfg.	RM Young AQ	RM Young AQ
Model #	05305	05305
Serial #	19677	19677
Translator Serial #		

WIND DIRECTION ALIGNMENT

Land Mark Reference	PRE-MAINTENANCE				POST MAINTENANCE			
	DVM (volts)	DAS (degrees)	Degrees Difference	Pass/Fail	DVM (volts)	DAS (degrees)	Degrees Difference	Pass/Fail
To 1		4	-1	PASS				
From 1		187	2	PASS				
To 2		284	-3	PASS				
From 2		107	0	PASS				
	Average Difference:	2	PASS	Average Difference:				
	Maximum Difference:	3	PASS	Maximum Difference:				

WIND DIRECTION TRANSLATOR CARD

Card Setting	PRE		POST	
	DVM (volts)	DAS (m/s)	DVM (volts)	DAS (m/s)
Zero				
Span				
360				
Oscillator Frequency (Hz) =		Data Logger Should Read		

WIND DIRECTION LINEARITY

Check Point	PRE-MAINTENANCE				POST MAINTENANCE			
	DVM (volts)	DAS (degrees)	Degrees Difference	Pass/Fail	DVM (volts)	DAS (degrees)	Degrees Difference	Pass/Fail
1								
2								
3								
4								
5								
6								
7								
8								
	Average Difference:			Average Difference:				
	Maximum Difference:			Maximum Difference:				

WIND DIRECTION STARTING THRESHOLD

PRE		POST	
Torque gm-cm	Pass/Fail	Torque gm-cm	Pass/Fail

Wind direction starting threshold accuracy goal:

RM Young AQ <= 9 g-cm

Pre-Maint Wind Direction Comments:	
Post Maint Wind Direction Comments:	

Maximum % Difference:	3.5%	PASS
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Maximum % Difference:		
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Pre-Maint Relative Humidity Comments:	
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Post Maint Relative Humidity Comments:	
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WIND SPEED CALIBRATION FORM

Network:	Park:	Site: Flagg Ranch, YELL	Date: 03/25/03	Date of Last Site Visit:
				Field Specialist: Slate, Mike

Wind Speed Reference S/N: test17	Calibration Date: test17
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WIND SPEED

SENSOR IDENTIFICATION

	PRE-MAINTENANCE	POST MAINTENANCE
Mfg.	RM Young AQ	RM Young AQ
Model #	05305	05305
Serial #	19677	19677
Translator Serial #		

WIND SPEED TRANSLATOR CARD

Card Setting	PRE		POST	
	DVM (volts)	DAS (m/s)	DVM (volts)	DAS (m/s)
Zero				
Span				
Oscillator Frequency (Hz) =				Data Logger Should Read

WIND SPEED STARTING THRESHOLD

PRE		POST	
Torque gm-cm	Pass/Fail	Torque gm-cm	Pass/Fail

Wind speed starting threshold accuracy goal:
RM Young AQ <= 0.3 g·cm

Motor Speed (rpm)	WIND SPEED PRE-MAINTENANCE						WIND SPEED POST MAINTENANCE					
	Climatronics (m/s)	RM Young (m/s)	DVM (volts)	DAS (m/s)	Difference (m/s)	% Difference	Pass/Fail	DVM (volts)	DAS (m/s)	Difference (m/s)	% Difference	Pass/Fail
100	2.574	0.510										
300	7.274	1.540										
600	14.324	3.070										
900	21.375	4.610		4.730	0.120		PASS					
1200	28.425	6.140										
1800	42.526	9.220		9.310	0.090	1.0%	PASS					
3600	N/A	18.430		18.480	0.050	0.3%	PASS					
7200	N/A	36.860		36.890	0.030	0.1%	PASS					
Maximum ABS Difference (use if Wind Speed <5):				0.120			PASS					
Maximum ABS % Difference (use if Wind Speed >=5):					1.0%		PASS					

Pre-Maint Wind Speed Comments:	Prop serial number is 61464.
Post Maint Wind Speed Comments:	

ZERO	0.000							N/A
Precision								
Span								

Pre-Maint Carbon Monoxide Comments:	
Post Maint Carbon Monoxide Comments:	

Table 1-1
Calibration Summary

Network:	Park:	Site: Old Faithful, YELL		
Date: 03/24/03	Last Site Visit:	Field Specialist: Slate, Mike		

Parameter	Criteria	Accuracy Goal	Calibration Results					
			Pre-Maintenance			Post Maintenance		
Mfg, Model # & Serial #	Value	Pass/Fail	Mfg, Model # & Serial #	Value	Pass/Fail			
CO Analyzer	Average Difference	average error	<= ± 5.0%	TECO	9.0%	FAIL	TECO	
	Maximum Difference	max error	<= ± 5.0%		16.5%	FAIL		
	Correlation	actual	r > 0.9950		0.9997	PASS		
	Intercept	actual	<= ± 3.0 ppm		0.6	PASS		
	Slope	actual	0.950 <= m <= 1.050		1.028	PASS		
Mass Flow Correlation	Low Cell (Dilution Air)	correlation coefficient	r >= 0.9995		N/A	N/A		
	High Cell (Gas)	correlation coefficient	r >= 0.9995		N/A	N/A		
Barometric Pressure		max error	<= ± 1.5 mmhg					
CASTnet Flow	Flow Rate	max error	<= ± 5.0%					
	Leak Check	max error	<= ± 0.03					
Precipitation		max error	<= ± 5.0%					
Relative Humidity		max error	<= ± 5.0%	Rotronics ATRH MP101A-C4	7.7%	FAIL	Rotronics ATRH MP101A-C4	
Solar Radiation		average error	<= ± 5%					
Delta Temperature		max error	Climatronics <= ± 0.1° C; RM Young <= ± 0.2° C	Rotronics ATRH MP101A-C4			Rotronics ATRH MP101A-C4	
Temperature		max error	Climatronics <= ± 0.2° C; RM Young <= ± 0.5° C; Rotronics <= ± 1.0° C		0.4°	PASS		
Wetness	Dry	response	about 0 VDC dry about 1 VDC wet					
	Wet	response						
Wind Direction	Alignment	max error	<= ± 5°	RM Young AQ 05305	2°	PASS	RM Young AQ 05305	
	Linearity	max error	<= ± 3°					
	Starting Threshold	max error	Climatronics <= 6 g-cm; RM Young AQ <= 9 g-cm; RM Young MA <= 30 g-cm					
Wind Speed	max Wind Speed <5	max error	<= ± 0.2 m/s	RM Young AQ 05305	0.090	PASS	RM Young AQ 05305	
	max Wind Speed >= 5	max error	<= ± 5%		0.9%	PASS		
	Starting Threshold	max error	Climatronics <= 0.2 g-cm; RM Young AQ <= 0.3 g-cm; RM Young MA <= 2.9 g-cm					

Field Specialist: _____
Operator: _____
Network: _____
Park: _____
Site: Old Faithful, YELL
Date: 3/24/2003
Last Site Visit: _____

Parameter	Device	Manufacturer	Model	S/N	Calibration Date
Voltage	DVM	Fluke	8060A	test1	test1
	Voltage Source	Calib. Inc.	DVC-350A	test2	test2
Ozone	Transfer Standard	TECO	49PS	test3	test3
Gas Dilution	Mass flow	ERT	Gas Dil	test4	test4
Barometric Pressure		AIRS		test5	test5
Flow	Dry cal	BIOS	DC2	test6	test6
Precipitation	PPT Calibrator	Novalynx	260-2595	test7	test7
	Volume (ml):	936		test8	test8
Relative Humidity	RH Sensor	Rotronics	MP601	test9	test9
Solar Radiation	Thermopile	LiCor	Pyranometer	test10	test10
	Multiplier	95.64		test11	test11
Temperature				test12	test12
Wind Direction	Torque Gauge	RM Young	18331	test13	test13
	Linearity Jig	RM Young	18212	test14	test14
	Compass	Brunton	5006LM	test15	test15
Wind Speed	Torque Disk	RM Young	18310	test16	test16
	Anemometer Drive	RM Young	18801	test17	test17

Comments:

GAS DILUTION CALIBRATOR CALIBRATION FORM

Network:	Park:	Site: Old Faithful, YELL	Date: 03/24/03
		Date of Last Site Visit:	
Field Specialist: Slate, Mike			

Flow Standard Reference: BIOS, DC2	Flow Standard Reference S/N: test6	Calibration Date: test6
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Mass Flow Device (Dilution Air)		
Mfg:	S/N:	Range:
Calibration Gas:		This primary standard automatically corrects to standard flow.

FLOW METER DATA

Calibration Point	Display (y)	Flow SCCPM (x)
1		
2		
3		
4		
5		
6		

Linear Regression		
Parameter	Analyzer	Pass/Fail
Slope (m)		N/A
Y Intercept (b)		N/A
Correlation Coefficient (r)		

Display Volts = (Flow SCCPM * m) + b

Flow SCCPM = (Display Volts - b) / m

Mass Flow Device (Gas 1)

Mfg:	S/N:	Range:
Calibration Gas:		This primary standard automatically corrects to standard flow.

FLOW METER DATA

Calibration Point	Display (y)	Flow SCCPM (x)
1		
2		
3		
4		
5		
6		

Linear Regression		
Parameter	Analyzer	Pass/Fail
Slope (m)		N/A
Y Intercept (b)		N/A
Correlation Coefficient (r)		

Display Volts = (Flow SCCPM * m) + b

Flow SCCPM = (Display Volts - b) / m

MFC/MFM Comments:	
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GAS DILUTION

CALIBRATION FORM FOR CARBON MONOXIDE ANALYZER

Network:	Park:	Site: Old Faithful, YELL	Date: 03/24/03	Date of Last Site Visit:
				Field Specialist: Slate, Mike

EQUIPMENT IDENTIFICATION

	Transfer Standard	Analyzer	Station Reference
Mfg.		TECO	TECO
Model #		48C	146C
Serial #		76069-381	76431-383

REFERENCE GAS

Tank S/N	
Calibration Date	
Pressure Tank / Del.	
Tank Conc. (ppb)	

FLOW METER DATA

	Dilution Air	Gas
Slope (m)		
Y Intercept (b)		
Correlation Coefficient (r)		

Flow SCCPM = (Display Volts - b) / m

STATION TUBING

		CALCULATED FLOW		FLOW METER		PRE-MAINTENANCE					
		Dil. Air (cc/min)	Gas (cc/min)	Dil. Air (L/min)	Gas (cc/min)	DVM (volts)	DAS (ppm)	Recorder (%)	Difference (ppm)	% Difference	Pass/Fail
Calibration Point	Conc. (ppm)				0.000		0.730				
ZERO	0.000				0.000		4.160		0.590	16.5%	FAIL
1	3.570						10.530		0.620	6.3%	FAIL
2	9.910						15.890		0.910	6.1%	FAIL
3	14.980						19.200		1.260	7.0%	FAIL
4	17.940										
5											
ZERO	0.000				0.000						
						Average ABS % Difference:			9.0%	FAIL	
						Maximum ABS % Difference:			16.5%	FAIL	

STATION TUBING

	POST MAINTENANCE					
	Zero Pot. =	Span Pot. =	Recorder (%)	Difference (ppm)	% Difference	Pass/Fail
Calibration Point	DVM (volts)	DAS (ppm)				
ZERO	0.000					
1						
2						
3						
4						
5						
ZERO	0.000					
Average ABS % Difference:						
Maximum ABS % Difference:						

RESULTS

Linear Regression				
	PRE		POST	
Parameter	Analyzer	Pass/Fail	Analyzer	Pass/Fail
Slope	1.028	PASS		
Y Intercept	0.6	PASS		
Correlation Coefficient	0.9997	PASS		

CALIBRATION TIME

From:		To:	
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EVENT RESPONSE

		Calculated Flow		Flow Meter		Analyzer Response				
Calibration Point	Conc. (ppm)	Dil. Air (cc/min)	Gas (cc/min)	Dil. Air (cc/min)	Gas (cc/min)	DVM (volts)	DAS (ppm)	Recorder (%)	Difference (ppm)	% Difference

ZERO	0.000							N/A
Precision								
Span								

Pre-Maint Carbon Monoxide Comments:	
Post Maint Carbon Monoxide Comments:	

**TEMPERATURE, DELTA TEMPERATURE AND
RELATIVE HUMIDITY CALIBRATION FORM**

Network:	Park:	Site: Old Faithful, YELL	Date: 03/24/03	Date of Last Site Visit:
				Field Specialist: Slate, Mike

Reference Thermometer S/N: test12	Calibration Date: test12
Relative Humidity Reference S/N: test9	Calibration Date: test9

TEMPERATURE / DELTA TEMPERATURE

SENSOR IDENTIFICATION

	Pre-Maintenance	Post Maintenance
Mfg.	Rotronics ATRH	Rotronics ATRH
Model #	MP101A-C4	MP101A-C4
Serial #		
Translator Serial #		

PRE-MAINTENANCE SENSOR RESPONSE

BATH TEMP (° C)	TEMPERATURE		Difference (° C)	Pass/Fail	D TEMPERATURE		Difference (° C)	Pass/Fail
	DVM (volts)	DAS (° C)			DVM (volts)	DAS (° C)		
-4.3		-4.7	-0.4	PASS				
	Maximum Difference:	0.4	PASS	Maximum Difference:				

PRE- TRANSLATOR CARD RESPONSE

SETTING	TEMPERATURE		D TEMPERATURE	
	DVM (volts)	DAS (° C)	DVM (volts)	DAS (° C)
Zero				
Span				

POST MAINTENANCE SENSOR RESPONSE

BATH TEMP (° C)	TEMPERATURE		Difference (° C)	Pass/Fail	D TEMPERATURE		Difference (° C)	Pass/Fail
	DVM (volts)	DAS (° C)			DVM (volts)	DAS (° C)		
	Maximum Difference:			Maximum Difference:				

POST TRANSLATOR CARD RESPONSE

SETTING	TEMPERATURE		D TEMPERATURE	
	DVM (volts)	DAS (° C)	DVM (volts)	DAS (° C)
Zero				
Span				

Pre-Maint Temperature Comments:

Post Maint Temperature Comments:

RELATIVE HUMIDITY

SENSOR IDENTIFICATION

	Pre-Maintenance	Post Maintenance
Mfg.	Rotronics ATRH	Rotronics ATRH
Model #	MP101A-C4	MP101A-C4
Serial #		

PRE-MAINTENANCE SENSOR RESPONSE

HOUR	DAS	T.STD	Difference	Pass/Fail
10:00	60.5	52.8	7.7%	FAIL
11:00	55.5	48.7	6.8%	FAIL
12:00				
13:00				
14:00				
15:00				
Average ABS % Difference:		7.3%	FAIL	

POST MAINTENANCE SENSOR RESPONSE

HOUR	DAS	T.STD	Difference	Pass/Fail
10:00				
11:00				
12:00				
13:00				
14:00				
15:00				
Average ABS % Difference:				

Maximum % Difference:	7.7%	FAIL
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Maximum % Difference:		
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Pre-Maint Relative Humidity Comments:	
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Post Maint Relative Humidity Comments:	
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WIND DIRECTION CALIBRATION FORM

Network:	Park:	Site: Old Faithful, YELL	Date: 03/24/03	Date of Last Site Visit:
				Field Specialist: Slate, Mike

To Landmark #1: 304 Degrees True	From Landmark #1: 124	LM Description:
To Landmark #2: 237 Degrees True	From Landmark #2: 57	LM Description:
Declination: Degrees		
Wind Direction Reference S/N: test15		Calibration Date: test15

WIND DIRECTION

SENSOR IDENTIFICATION

	PRE-MAINTENANCE	POST MAINTENANCE
Mfg.	RM Young AQ	RM Young AQ
Model #	05305	05305
Serial #		
Translator Serial #		

WIND DIRECTION TRANSLATOR CARD

Card Setting	PRE		POST	
	DVM (volts)	DAS (m/s)	DVM (volts)	DAS (m/s)
Zero				
Span				
360				
Oscillator Frequency (Hz) =	Data Logger Should Read			

WIND DIRECTION STARTING THRESHOLD

PRE		POST	
Torque gm-cm	Pass/Fail	Torque gm-cm	Pass/Fail

Wind direction starting threshold accuracy goal:
RM Young AQ <= 9 g-cm

Land Mark Reference	PRE-MAINTENANCE				POST MAINTENANCE			
	DVM (volts)	DAS (degrees)	Degrees Difference	Pass/Fail	DVM (volts)	DAS (degrees)	Degrees Difference	Pass/Fail
To 1		303	-1	PASS				
From 1		124	0	PASS				
To 2		236	-1	PASS				
From 2		59	2	PASS				
	Average Difference:	1	PASS	Average Difference:				
	Maximum Difference:	2	PASS	Maximum Difference:				

WIND DIRECTION LINEARITY

Check Point	PRE-MAINTENANCE				POST MAINTENANCE			
	DVM (volts)	DAS (degrees)	Degrees Difference	Pass/Fail	DVM (volts)	DAS (degrees)	Degrees Difference	Pass/Fail
1								
2								
3								
4								
5								
6								
7								
8								
	Average Difference:			Average Difference:				
	Maximum Difference:			Maximum Difference:				

Pre-Maint Wind Direction Comments:	
Post Maint Wind Direction Comments:	

WIND SPEED CALIBRATION FORM

Network:	Park:	Site: Old Faithful, YELL	Date: 03/24/03	Date of Last Site Visit:
				Field Specialist: Slate, Mike

Wind Speed Reference S/N: test17	Calibration Date: test17
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WIND SPEED

SENSOR IDENTIFICATION

	PRE-MAINTENANCE	POST MAINTENANCE
Mfg.	RM Young AQ	RM Young AQ
Model #	05305	05305
Serial #		
Translator Serial #		

WIND SPEED TRANSLATOR CARD

Card Setting	PRE		POST	
	DVM (volts)	DAS (m/s)	DVM (volts)	DAS (m/s)
Zero				
Span				
Oscillator Frequency (Hz) =				Data Logger Should Read

WIND SPEED STARTING THRESHOLD

PRE		POST	
Torque gm-cm	Pass/Fail	Torque gm-cm	Pass/Fail

Wind speed starting threshold accuracy goal:

RM Young AQ <= 0.3 g·cm

Motor Speed (rpm)	WIND SPEED PRE-MAINTENANCE						WIND SPEED POST MAINTENANCE					
	Climatronics (m/s)	RM Young (m/s)	DVM (volts)	DAS (m/s)	Difference (m/s)	% Difference	Pass/Fail	DVM (volts)	DAS (m/s)	Difference (m/s)	% Difference	Pass/Fail
100	2.574	0.510										
300	7.274	1.540										
600	14.324	3.070										
900	21.375	4.610		4.700	0.090		PASS					
1200	28.425	6.140										
1800	42.526	9.220		9.300	0.080	0.9%	PASS					
3600	N/A	18.430		18.500	0.070	0.4%	PASS					
7000	N/A	35.840										
Maximum ABS Difference (use if Wind Speed <5):				0.090		PASS						
Maximum ABS % Difference (use if Wind Speed >=5):					0.9%	PASS						

Pre-Maint Wind Speed Comments:	Prop serial number is 61464.
Post Maint Wind Speed Comments:	

Appendix B
Digital Image Tables
Activity Type and Activity Intensity

Grand Teton - Flagg Ranch

Period: 12/28/02 - 03/09/03		Activity Intensity								
Time	Activity Type	None	Low Intensity	Medium Intensity	High Intensity	Cannot be Determined		Total Observations Collected		
0700	None	21	29%	0	0%	0	0%	0	0%	21 29%
	Snowmobiles	0	0%	1	1%	0	0%	0	0%	1 1%
	Other Vehicles	0	0%	3	4%	0	0%	0	0%	3 4%
	Multiple	0	0%	0	0%	0	0%	0	0%	0 0%
	Cannot be Determined	0	0%	0	0%	0	0%	43	60%	43 60%
	Total	21	29%	4	6%	0	0%	43	60%	68 94%
0800	None	43	60%	0	0%	0	0%	0	0%	43 60%
	Snowmobiles	0	0%	3	4%	0	0%	2	3%	5 7%
	Other Vehicles	0	0%	21	29%	0	0%	0	0%	21 29%
	Multiple	0	0%	1	1%	0	0%	0	0%	1 1%
	Cannot be Determined	0	0%	0	0%	0	0%	0	0%	0 0%
	Total	43	60%	25	35%	0	0%	2	3%	70 97%
0900	None	0	0%	0	0%	0	0%	0	0%	0 0%
	Snowmobiles	0	0%	1	1%	0	0%	0	0%	1 1%
	Other Vehicles	0	0%	4	6%	7	10%	1	1%	12 17%
	Multiple	0	0%	2	3%	25	35%	32	44%	59 82%
	Cannot be Determined	0	0%	0	0%	0	0%	0	0%	0 0%
	Total	0	0%	7	10%	32	44%	33	46%	0 0%
1000	None	2	3%	0	0%	0	0%	0	0%	2 3%
	Snowmobiles	0	0%	0	0%	0	0%	0	0%	0 0%
	Other Vehicles	0	0%	0	0%	38	53%	17	24%	0 0%
	Multiple	0	0%	0	0%	6	8%	9	13%	0 0%
	Cannot be Determined	0	0%	0	0%	0	0%	0	0%	0 0%
	Total	2	3%	0	0%	44	61%	26	36%	0 0%
1100	None	1	1%	0	0%	0	0%	0	0%	1 1%
	Snowmobiles	0	0%	0	0%	0	0%	0	0%	0 0%
	Other Vehicles	0	0%	0	0%	44	61%	22	31%	66 92%
	Multiple	0	0%	0	0%	2	3%	3	4%	0 0%
	Cannot be Determined	0	0%	0	0%	0	0%	0	0%	0 0%
	Total	1	1%	0	0%	46	64%	25	35%	0 0%
1200	None	1	1%	0	0%	0	0%	0	0%	1 1%
	Snowmobiles	0	0%	0	0%	0	0%	0	0%	0 0%
	Other Vehicles	0	0%	0	0%	40	56%	21	29%	61 85%
	Multiple	0	0%	0	0%	5	7%	3	4%	0 0%
	Cannot be Determined	0	0%	0	0%	0	0%	0	0%	2 3%
	Total	1	1%	0	0%	45	63%	24	33%	2 3%
1300	None	1	1%	0	0%	0	0%	0	0%	1 1%
	Snowmobiles	0	0%	0	0%	0	0%	0	0%	0 0%
	Other Vehicles	0	0%	0	0%	45	63%	21	29%	66 92%
	Multiple	0	0%	0	0%	2	3%	2	3%	0 0%
	Cannot be Determined	0	0%	0	0%	0	0%	1	1%	1 1%
	Total	1	1%	0	0%	47	65%	23	32%	1 1%
1400	None	0	0%	0	0%	0	0%	0	0%	0 0%
	Snowmobiles	0	0%	0	0%	0	0%	0	0%	0 0%
	Other Vehicles	0	0%	1	1%	40	56%	21	29%	62 86%
	Multiple	0	0%	0	0%	3	4%	5	7%	0 0%
	Cannot be Determined	0	0%	0	0%	0	0%	0	0%	2 3%
	Total	0	0%	1	1%	43	60%	26	36%	2 3%
1500	None	0	0%	0	0%	0	0%	0	0%	0 0%
	Snowmobiles	0	0%	0	0%	0	0%	0	0%	0 0%
	Other Vehicles	0	0%	1	1%	35	49%	19	26%	0 0%
	Multiple	0	0%	0	0%	6	8%	9	13%	0 0%
	Cannot be Determined	0	0%	0	0%	0	0%	2	3%	2 3%
	Total	0	0%	1	1%	41	57%	28	39%	2 3%
1600	None	0	0%	0	0%	0	0%	0	0%	0 0%
	Snowmobiles	0	0%	1	1%	0	0%	0	0%	0 0%
	Other Vehicles	0	0%	12	17%	14	19%	3	4%	29 40%
	Multiple	0	0%	1	1%	20	28%	21	29%	0 0%
	Cannot be Determined	0	0%	0	0%	0	0%	0	0%	42 58%
	Total	0	0%	14	19%	34	47%	24	33%	0 0%
1700	None	13	18%	0	0%	0	0%	0	0%	13 18%
	Snowmobiles	0	0%	1	1%	0	0%	0	0%	1 1%
	Other Vehicles	0	0%	36	50%	4	6%	1	1%	41 57%
	Multiple	0	0%	2	3%	13	18%	2	3%	17 24%
	Cannot be Determined	0	0%	0	0%	0	0%	0	0%	0 0%
	Total	13	18%	39	54%	17	24%	3	4%	72 100%
1800	None	19	26%	0	0%	0	0%	0	0%	19 26%
	Snowmobiles	0	0%	2	3%	0	0%	0	0%	2 3%
	Other Vehicles	0	0%	16	22%	1	1%	0	0%	17 24%
	Multiple	0	0%	1	1%	1	1%	1	1%	3 4%
	Cannot be Determined	0	0%	0	0%	0	0%	31	43%	31 43%
	Total	19	26%	19	26%	2	3%	1	1%	31 43%
1900	None	0	0%	0	0%	0	0%	0	0%	0 0%
	Snowmobiles	0	0%	0	0%	0	0%	0	0%	0 0%
	Other Vehicles	0	0%	0	0%	0	0%	0	0%	1 1%
	Multiple	0	0%	0	0%	0	0%	0	0%	0 0%
	Cannot be Determined	0	0%	0	0%	0	0%	71	99%	71 99%
	Total	0	0%	0	0%	0	0%	0	0%	72 100%

Yellowstone - Old Faithful

Period: 12/28/02 - 03/09/03		Activity Intensity							
Time	Activity Type	None	Low Intensity	Medium Intensity	High Intensity	Cannot be Determined	Total Observations		
0600	None	0	0%	0	0%	0	0%	0	0%
	Snowmobiles	0	0%	0	0%	0	0%	0	0%
	Other Vehicles	0	0%	0	0%	0	0%	0	0%
	Multiple	0	0%	0	0%	0	0%	0	0%
	Cannot be Determined	0	0%	0	0%	0	0%	66	92%
	Total	0	0%	0	0%	0	0%	66	92%
0700	None	0	0%	0	0%	0	0%	0	0%
	Snowmobiles	0	0%	13	18%	13	18%	0	0%
	Other Vehicles	0	0%	0	0%	0	0%	0	0%
	Multiple	0	0%	0	3	4%	0	0%	3
	Cannot be Determined	0	0%	0	0%	0	0%	42	58%
	Total	0	0%	13	18%	16	22%	0	0%
0800	None	1	1%	0	0%	0	0%	0	0%
	Snowmobiles	0	0%	21	29%	20	28%	0	0%
	Other Vehicles	0	0%	0	0%	0	0%	0	0%
	Multiple	0	0%	9	13%	8	11%	0	0%
	Cannot be Determined	0	0%	0	0%	0	0%	12	17%
	Total	1	1%	30	42%	28	39%	0	0%
0900	None	2	3%	0	0%	0	0%	0	0%
	Snowmobiles	0	0%	28	39%	23	32%	0	0%
	Other Vehicles	0	0%	0	0%	0	0%	0	0%
	Multiple	0	0%	1	1%	4	6%	0	0%
	Cannot be Determined	0	0%	0	0%	0	0%	11	15%
	Total	2	3%	29	40%	27	38%	0	0%
1000	None	0	0%	0	0%	0	0%	0	0%
	Snowmobiles	0	0%	28	39%	29	40%	0	0%
	Other Vehicles	0	0%	0	0%	0	0%	0	0%
	Multiple	0	0%	1	1%	1	1%	0	0%
	Cannot be Determined	0	0%	0	0%	0	0%	11	15%
	Total	0	0%	29	40%	30	42%	0	0%
1100	None	0	0%	0	0%	0	0%	0	0%
	Snowmobiles	0	0%	6	8%	32	44%	3	4%
	Other Vehicles	0	0%	0	0%	0	0%	0	0%
	Multiple	0	0%	1	1%	15	21%	2	3%
	Cannot be Determined	0	0%	0	0%	0	0%	11	15%
	Total	0	0%	7	10%	47	65%	5	7%
1200	None	0	0%	0	0%	0	0%	0	0%
	Snowmobiles	0	0%	0	0%	5	7%	1	1%
	Other Vehicles	0	0%	0	0%	0	0%	0	0%
	Multiple	0	0%	1	1%	32	44%	21	29%
	Cannot be Determined	0	0%	0	0%	0	0%	11	15%
	Total	0	0%	1	1%	37	51%	22	31%
1300	None	0	0%	0	0%	0	0%	0	0%
	Snowmobiles	0	0%	0	0%	2	3%	0	0%
	Other Vehicles	0	0%	0	0%	0	0%	0	0%
	Multiple	0	0%	0	0%	37	51%	20	28%
	Cannot be Determined	0	0%	0	0%	0	0%	12	17%
	Total	0	0%	0	0%	39	54%	20	28%
1400	None	0	0%	0	0%	0	0%	0	0%
	Snowmobiles	0	0%	1	1%	10	14%	0	0%
	Other Vehicles	0	0%	0	0%	0	0%	0	0%
	Multiple	0	0%	1	1%	39	54%	8	11%
	Cannot be Determined	0	0%	0	0%	0	0%	12	17%
	Total	0	0%	2	3%	49	68%	8	11%
1500	None	0	0%	0	0%	0	0%	0	0%
	Snowmobiles	0	0%	13	18%	33	46%	0	0%
	Other Vehicles	0	0%	0	0%	0	0%	0	0%
	Multiple	0	0%	0	0%	13	18%	0	0%
	Cannot be Determined	0	0%	0	0%	0	0%	12	17%
	Total	0	0%	13	18%	46	64%	0	0%
1600	None	0	0%	0	0%	0	0%	0	0%
	Snowmobiles	0	0%	34	47%	22	31%	0	0%
	Other Vehicles	0	0%	0	0%	0	0%	0	0%
	Multiple	0	0%	2	3%	1	1%	0	0%
	Cannot be Determined	0	0%	0	0%	0	0%	12	17%
	Total	0	0%	36	50%	23	32%	0	0%
1700	None	1	1%	0	0%	0	0%	0	0%
	Snowmobiles	0	0%	37	51%	19	26%	0	0%
	Other Vehicles	0	0%	0	0%	0	0%	0	0%
	Multiple	0	0%	1	1%	1	1%	0	0%
	Cannot be Determined	0	0%	0	0%	0	0%	12	17%
	Total	1	1%	38	53%	20	28%	0	0%
1800	None	1	1%	0	0%	0	0%	0	0%
	Snowmobiles	0	0%	20	28%	15	21%	0	0%
	Other Vehicles	0	0%	0	0%	0	0%	0	0%
	Multiple	0	0%	0	0%	1	1%	0	0%
	Cannot be Determined	0	0%	0	0%	0	0%	34	47%
	Total	1	1%	20	28%	16	22%	0	0%

Appendix C

Tabular Data

Grand Teton National Park

Flag Ranch

Carbon Monoxide hourly averages (ppm)

12/01/2002 - 12/31/2002

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
19	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	0					
20	0.200	0.200	0.200	0.200	0.200	0.100	0.200	0.500	0.500	0.200	0.200	0.200	0.200	0.100	0.100	0.100	0.100	0.100	0.100	0.200	0.200	0.100	0.100	0.109	24					
21	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.400	0.300	0.400	0.100	0.200	0.100	0.100	0.000	0.300	0.200	0.300	0.200	0.200	0.200	0.200	ZS	0.200	0.200	0.000	0.400	0.178	0.104	23
22	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.300	0.200	0.200	0.300	0.100	0.200	0.200	0.700	1.200	0.800	0.600	0.200	0.200	0.300	0.200	0.200	0.100	1.200	0.313	0.256	24	
23	0.200	0.300	0.400	0.400	0.500	0.600	0.700	0.700	1.600	1.400	0.700	0.600	0.300	0.300	0.000	0.000	1.200	1.800	1.200	0.600	0.400	ZS	0.500	0.600	0.000	1.800	0.652	0.479	23	
24	0.400	0.500	0.500	0.500	0.500	0.500	0.600	0.800	0.800	0.900	0.600	0.400	0.200	0.100	0.000	0.100	0.700	0.400	0.200	0.200	0.400	0.500	0.300	0.400	0.000	0.900	0.438	0.232	24	
25	0.300	0.400	0.400	0.500	0.600	0.600	0.900	1.000	1.600	2.200	0.700	0.500	0.300	0.200	0.100	0.000	0.100	0.400	0.100	0.200	0.200	ZS	0.100	0.100	0.000	2.200	0.500	0.522	23	
26	0.100	0.100	0.100	0.100	0.200	0.200	0.200	0.500	1.500	0.700	0.300	0.300	0.300	0.100	0.100	0.200	0.300	0.100	0.100	0.000	0.000	0.000	0.000	0.000	1.500	0.229	0.318	24		
27	0.000	0.000	0.000	0.100	0.100	0.100	0.100	0.300	0.500	0.500	0.400	0.200	0.300	0.300	0.100	0.200	0.100	0.200	0.100	0.100	0.100	ZS	0.100	0.100	0.000	0.500	0.174	0.145	23	
28	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.200	0.000	0.100	0.000	0.000	0.000	0.000	0.000	0.400	0.600	0.900	0.900	0.000	0.000	0.000	0.000	0.000	0.900	0.129	0.279	24		
29	0.000	0.000	0.000	0.100	0.100	0.100	0.100	0.200	1.100	0.500	0.200	0.300	0.200	0.200	0.200	0.800	0.500	0.200	0.200	0.200	ZS	0.200	0.200	0.000	1.100	0.257	0.257	23		
30	0.000	0.000	0.000	0.000	0.000	0.000	0.100	0.100	0.300	0.400	0.200	0.100	0.300	0.300	0.000	0.200	0.300	0.300	0.200	0.100	0.100	ZS	0.100	0.100	0.000	0.400	0.139	0.127	23	
31	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.200	0.300	0.200	0.200	0.200	0.100	0.100	0.100	0.400	0.300	0.100	0.100	0.000	ZS	0.100	0.000	0.000	0.400	0.143	0.095	23		
HR MIN	0.000	0.000	0.000	0.000	0.000	0.000	0.100	0.000	0.000	0.100	0.000	0.000	0.000	0.000	0.000	0.100	0.100	0.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		
HR MAX	0.400	0.500	0.500	0.500	0.600	0.600	0.900	1.000	1.600	2.200	0.700	0.600	0.300	0.300	0.200	0.700	1.200	1.800	1.200	0.600	0.400	0.500	0.500	0.600	2.200					
HR AVG	0.133	0.158	0.167	0.192	0.217	0.217	0.275	0.425	0.733	0.633	0.325	0.275	0.200	0.175	0.075	0.217	0.500	0.508	0.333	0.167	0.167	0.200	0.158	0.167	0.278					
HR STD	0.130	0.168	0.178	0.178	0.204	0.221	0.290	0.283	0.574	0.620	0.222	0.166	0.104	0.097	0.075	0.195	0.402	0.476	0.368	0.156	0.137	0.212	0.138	0.178	0.317					
n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	5	12	12	281			

Grand Teton National Park

Flag Ranch

Carbon Monoxide hourly averages (ppm)

01/01/2003 - 01/31/2003

Date	HOUR (LOCAL STANDARD TIME)																							DAY MIN	DAY MAX	DAY AVG	DAY STD n	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
1	0.000	0.000	0.000	0.000	0.100	0.100	0.100	0.300	1.100	0.300	0.100	0.100	0.100	0.100	0.400	0.500	0.600	0.500	0.600	0.800	ZS	0.800	0.800	0.000	1.100	0.326	0.325 23	
2	0.900	0.900	0.900	0.900	0.800	0.800	0.900	0.900	1.500	0.700	0.300	0.800	0.600	ZS	0.100	0.200	0.200	0.700	0.800	0.300	0.000	ZS	0.000	0.000	0.000	1.500	0.600	0.400 22
3	0.100	0.100	0.100	0.100	0.100	0.200	0.400	0.900	1.000	0.200	0.300	0.100	0.000	0.000	0.100	0.500	0.100	0.000	0.000	0.000	ZS	0.100	0.100	0.000	0.000	1.000	0.200 0.268 23	
4	0.000	0.000	0.000	0.000	0.000	0.100	2.800	1.800	0.500	0.500	0.900	0.500	0.200	0.000	0.000	0.200	0.500	0.500	0.300	0.300	ZS	0.100	0.100	0.000	0.000	2.800	0.404 0.663 23	
5	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.300	0.600	0.400	0.100	0.000	0.000	0.000	0.300	0.400	1.000	0.800	0.500	0.300	ZS	0.300	0.300	0.000	0.000	1.000	0.265 0.260 23	
6	0.300	0.200	0.300	0.300	0.300	0.400	0.700	1.800	1.100	0.500	0.400	0.500	0.100	0.000	0.100	0.100	0.500	0.700	0.400	0.400	ZS	0.400	0.400	0.000	0.000	1.800	0.443 0.378 23	
7	0.500	0.500	0.500	0.700	0.600	0.600	0.800	0.700	0.900	1.000	0.800	0.400	0.300	0.100	0.000	0.100	0.000	0.100	0.200	0.300	0.300	ZS	0.400	0.500	0.000	0.000	1.000	0.448 0.289 23
8	0.300	0.400	0.400	0.500	0.500	0.500	0.700	0.800	1.100	0.900	0.500	0.500	0.200	0.100	0.000	0.100	0.400	1.900	1.100	0.600	0.400	ZS	0.400	0.500	0.000	0.000	1.900	0.557 0.408 23
9	0.500	0.500	0.500	0.500	0.500	0.600	0.600	0.700	1.000	4.700	0.800	0.400	0.200	0.100	0.000	0.300	0.500	0.700	0.300	0.300	ZS	0.500	0.500	0.000	0.000	4.700	0.661 0.907 23	
10	0.300	0.300	0.300	0.300	0.400	0.400	0.400	0.500	2.400	3.100	0.500	0.200	0.200	0.100	0.100	0.300	0.300	0.100	0.000	0.000	ZS	0.000	0.000	0.000	0.000	3.100	0.443 0.753 23	
11	0.100	0.100	0.100	0.100	0.200	0.200	0.200	0.300	0.600	0.800	0.200	0.200	0.200	0.100	0.000	0.200	0.000	0.200	0.200	0.100	ZS	0.200	0.100	0.000	0.000	0.800	0.200 0.176 23	
12	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.100	0.200	0.200	0.100	0.000	0.100	0.000	0.000	0.100	0.000	0.100	0.000	0.000	ZS	0.000	0.000	0.000	0.000	0.200	0.039 0.066 23	
13	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.100	0.200	0.400	0.100	0.000	0.000	0.000	0.000	0.100	0.200	0.300	0.300	0.300	ZS	0.200	0.100	0.000	0.000	0.400	0.100 0.128 23	
14	0.000	0.000	0.000	0.100	0.100	0.100	0.100	0.600	0.400	0.500	0.100	0.200	0.100	0.000	0.300	0.200	0.300	0.300	0.200	0.100	ZS	0.100	0.100	0.000	0.000	0.600	0.174 0.160 23	
15	0.100	0.100	0.100	0.100	0.100	0.000	0.100	0.100	0.200	1.100	0.100	0.000	0.000	0.300	0.900	0.700	0.600	0.700	0.700	0.900	ZS	0.900	0.800	0.000	0.000	1.100	0.374 0.376 23	
16	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.100	0.800	0.500	0.100	0.100	0.000	0.200	0.000	0.100	0.100	0.000	0.100	0.200	ZS	0.000	0.000	0.000	0.000	0.800	0.109 0.190 23	
17	0.200	0.300	0.300	0.300	0.300	0.300	0.300	0.600	1.600	1.100	0.600	0.300	0.300	0.200	0.000	0.200	0.200	0.500	1.000	0.300	0.300	ZS	0.400	0.300	0.000	0.000	1.600	0.430 0.356 23
18	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.400	0.900	0.600	0.300	0.100	0.000	0.000	0.100	0.300	0.100	0.100	0.100	0.100	ZS	0.400	0.400	0.000	0.000	0.900	0.235 0.204 23	
19	0.400	0.400	0.300	0.300	0.300	0.400	1.000	0.600	0.900	0.500	0.400	0.200	0.100	0.000	0.500	2.100	1.600	1.500	2.800	ZS	1.400	1.500	0.000	0.000	2.800	0.761 0.728 23		
20	1.170	0.700	0.310	0.320	0.340	0.320	0.420	0.980	2.010	1.910	0.650	0.220	0.160	0.190	MT	MT	0.290	0.320	0.320	0.430	0.270	ZS	0.140	0.150	0.140	0.2010	0.553	0.538 21
21	0.130	0.140	0.120	0.130	0.130	0.140	0.150	0.170	0.750	1.630	0.220	0.200	0.160	0.140	0.140	0.250	0.240	0.210	0.240	0.180	ZS	0.180	0.150	0.120	0.1630	0.260	0.325 23	
22	0.180	0.180	0.190	0.200	0.170	0.190	0.210	0.210	0.590	1.120	0.490	0.290	0.220	0.300	0.430	0.510	0.470	0.230	0.240	0.300	0.260	ZS	0.220	0.220	0.170	0.1120	0.323	0.213 23
23	0.220	0.260	0.230	0.250	0.250	0.240	0.250	0.540	0.370	0.340	0.270	0.330	0.340	0.220	0.390	0.320	0.290	0.320	0.200	0.200	ZS	0.220	0.220	0.200	0.200	0.540	0.281 0.080 23	
24	0.240	0.230	0.220	0.220	0.230	0.350	0.930	0.790	0.270	0.280	0.450	0.170	MT	MT	0.540	0.500	0.540	0.280	0.270	0.280	ZS	0.320	0.310	0.170	0.930	0.364	0.198 21	
25	0.060	0.050	0.040	0.040	0.050	0.060	0.060	0.160	0.180	0.330	0.120	0.180	0.020	0.000	0.120	0.220	0.260	0.060	0.070	0.080	ZS	0.100	0.100	0.000	0.000	0.330	0.106 0.082 23	
26	0.000	0.000	0.000	0.000	0.000	0.010	0.020	0.090	0.690	0.560	0.090	0.370	0.010	0.080	0.110	0.020	0.050	0.070	0.030	0.040	ZS	0.050	0.030	0.000	0.000	0.690	0.102 0.183 23	
27	0.020	0.010	0.000	0.010	0.020	0.000	0.000	0.050	0.030	0.070	0.170	0.100	0.060	0.140	0.080	0.360	0.390	0.300	0.160	0.100	0.070	ZS	0.050	0.040	0.000	0.000	0.390	0.097 0.112 23
28	0.050	0.050	0.050	0.050	0.050	0.050	0.090	0.720	2.460	1.170	0.130	0.080	0.000	0.000	0.060	0.350	0.110	0.060	0.190	0.070	0.080	ZS	0.100	0.110	0.000	0.000	2.460	0.264 0.547 23
29	0.110	0.110	0.110	0.100	0.420	0.570	0.220	0.360	0.430	0.520	0.120	0.100	0.000	0.040	0.030	0.030	0.460	0.420	0.280	0.120	0.130	ZS	0.130	0.130	0.000	0.000	0.570	0.215 0.176 23
30	0.000	0.000	0.010	0.010	0.020	0.010	0.020	0.080	0.350	0.150	0.060	0.090	0.050	0.120	0.030	0.150	0.050	0.120	0.100	0.020	0.040	ZS	0.050	0.020	0.000	0.000	0.350	0.067 0.077 23
31	0.070	0.060	0.060	0.060	0.060	0.130	0.120	0.320	0.330	0.240	0.130	0.110	0.050	0.090	0.190	0.160	0.050	0.050	0.020	0.000	ZS	0.000	0.000	0.000	0.000	0.330	0.101 0.094 23	
HR MIN	0.000	0.000	0.000	0.000	0.000	0.050	0.030	0.070	0.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
HR MAX	1.170	0.900	0.900	0.900	0.800	0.800	0.900	2.800	2.460	4.700	0.800	0.900	0.600	0.300	0.430	0.900	0.700	2.100	1.600	1.500	2.800	1.400	1.500	4.700	4.700	4.700		
HR AVG	0.202	0.190	0.175	0.190	0.204	0.209	0.243	0.481	0.860	0.939	0.327	0.253	0.161	0.096	0.075	0.235	0.267	0.419	0.365	0.275	0.304	0.263	0.257	0.305	0.305	0.305		
HR STD	0.268	0.223	0.202	0.217	0.202	0.240	0.535	0.670	0.922	0.214	0.214	0.160	0.081	0.115	0.191	0.188	0.487	0.377	0.296	0.511	0.306	0.319	0.415	0.415	0.415			
n	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	0	31	31	708		

Grand Teton National Park

Flag Ranch

Carbon Monoxide hourly averages (ppm)

02/01/2003 - 02/28/2003

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
1	0.020	0.020	0.010	0.000	0.000	0.000	0.000	0.010	0.050	0.060	0.050	0.030	0.020	0.120	0.040	0.040	0.020	0.030	0.070	0.060	ZS	0.120	0.120	0.039	0.039	23			
2	0.020	0.030	0.030	0.040	0.050	0.060	0.060	0.060	0.470	0.490	0.430	0.120	0.040	0.000	0.050	0.090	0.160	0.030	0.050	0.080	0.070	ZS	0.130	0.140	0.000	0.490	0.117	0.143	23
3	0.070	0.090	0.100	0.100	0.140	0.120	0.140	0.200	1.470	0.470	0.550	0.190	0.050	0.020	0.020	0.050	0.000	0.100	0.200	0.050	0.010	ZS	0.020	0.030	0.000	1.470	0.182	0.312	23
4	0.130	0.130	0.140	0.140	0.130	0.140	0.170	0.360	1.830	0.830	0.210	0.030	0.000	0.050	0.010	0.140	0.320	0.090	0.230	0.330	0.210	ZS	0.230	0.240	0.000	1.830	0.265	0.381	23
5	0.150	0.140	0.130	0.130	0.120	0.110	0.130	0.230	0.380	0.350	0.270	0.110	0.030	0.020	0.000	0.110	0.190	0.040	0.050	0.070	0.080	ZS	0.140	0.160	0.000	0.380	0.137	0.097	23
6	0.220	0.210	0.230	0.200	0.200	0.210	0.290	0.280	0.960	0.660	0.140	0.060	0.000	0.030	0.010	0.030	0.070	0.420	0.480	0.180	0.200	ZS	0.310	0.190	0.000	0.960	0.243	0.221	23
7	0.170	0.170	0.190	0.220	0.240	0.230	0.230	0.410	1.270	0.470	0.290	0.620	0.450	0.250	0.010	0.000	0.230	0.070	0.080	0.130	0.170	ZS	0.320	0.240	0.000	1.270	0.281	0.261	23
8	0.140	0.160	0.150	0.140	0.130	0.130	0.130	0.260	0.280	0.150	0.150	0.090	0.030	0.000	0.140	0.220	0.500	0.080	0.070	0.080	0.170	ZS	0.170	0.170	0.000	0.500	0.154	0.099	23
9	0.120	0.100	0.100	0.110	0.100	0.110	0.140	0.530	0.250	0.770	0.100	0.080	0.040	0.060	0.000	0.270	0.090	0.080	0.050	0.110	0.050	ZS	0.050	0.060	0.000	0.770	0.147	0.174	23
10	0.050	0.060	0.040	0.030	0.030	0.050	0.060	0.060	0.450	0.120	0.000	0.050	0.130	0.090	0.190	0.060	0.050	0.090	0.060	0.050	ZS	0.060	0.060	0.000	0.450	0.081	0.089	23	
11	0.190	0.180	0.190	0.200	0.220	0.200	0.270	0.310	1.780	1.130	0.180	0.160	0.180	0.030	0.000	0.230	0.290	0.100	0.210	0.210	0.380	ZS	0.460	0.340	0.000	1.780	0.323	0.384	23
12	0.210	0.220	0.220	0.220	0.270	0.250	0.410	0.430	0.780	0.660	0.380	0.310	0.070	0.070	0.040	0.000	0.030	0.790	1.530	0.930	0.710	ZS	0.390	0.270	0.000	1.530	0.400	0.361	23
13	0.140	0.140	0.150	0.150	0.130	0.130	0.150	0.190	0.520	0.380	0.100	0.120	0.040	0.000	0.110	0.110	0.050	0.130	0.040	0.060	ZS	0.060	0.050	0.000	0.520	0.132	0.113	23	
14	0.000	0.000	0.000	0.000	0.050	0.050	0.040	0.460	0.370	1.540	0.590	0.220	0.010	0.060	0.250	0.160	0.290	0.030	0.020	0.050	0.080	ZS	0.070	0.080	0.000	1.540	0.192	0.335	23
15	0.130	0.150	0.130	0.130	0.140	0.150	0.250	0.590	0.580	0.230	0.140	0.080	0.030	0.000	0.040	0.480	0.330	0.440	0.460	0.270	ZS	0.200	0.280	0.000	0.590	0.233	0.172	23	
16	0.040	0.030	0.010	0.030	0.040	0.040	0.070	0.230	0.770	0.790	0.140	0.010	0.090	0.040	0.000	0.240	0.100	0.020	0.040	0.020	ZS	0.020	0.000	0.000	0.790	0.121	0.218	23	
17	0.000	0.010	0.020	0.010	0.060	0.050	0.050	0.130	1.090	0.140	0.030	0.040	0.190	0.040	0.100	0.070	0.250	0.110	0.040	0.020	0.020	ZS	0.040	0.050	0.000	1.090	0.111	0.222	23
18	0.120	0.110	0.120	0.120	0.130	0.110	0.240	1.790	3.080	0.750	0.040	0.000	0.080	0.060	0.040	0.350	0.560	0.240	0.340	0.380	0.440	ZS	0.240	0.220	0.000	3.080	0.416	0.690	23
19	0.180	0.170	0.160	0.150	0.200	0.190	0.180	0.280	0.320	0.240	0.080	0.100	0.050	0.160	0.000	0.010	0.230	0.330	0.290	0.210	0.410	ZS	0.260	0.180	0.000	0.410	0.190	0.101	23
20	0.110	0.090	0.090	0.090	0.120	0.190	0.200	0.710	1.220	0.790	0.180	0.130	0.210	0.080	0.000	0.330	0.380	0.150	0.100	0.130	0.160	ZS	0.140	0.130	0.000	1.220	0.249	0.284	23
21	0.080	0.090	0.090	0.080	0.090	0.090	0.090	0.110	0.200	1.660	0.150	0.260	0.140	0.020	0.000	0.310	0.310	0.120	0.100	0.130	0.110	ZS	0.130	0.120	0.000	1.660	0.195	0.329	23
22	0.120	0.130	0.130	0.130	0.130	0.140	0.130	0.160	0.370	0.170	0.190	0.120	0.120	0.450	0.140	0.810	0.180	0.030	MT	MT	ZS	0.020	0.000	0.000	0.810	0.181	0.175	21	
23	0.060	0.070	0.060	0.070	0.080	0.070	0.070	0.120	0.140	0.390	0.150	0.010	0.090	0.010	0.000	0.330	0.100	0.050	0.160	0.360	0.220	ZS	0.200	0.190	0.000	0.390	0.130	0.109	23
24	0.400	0.420	0.450	0.490	0.540	0.580	0.680	0.750	0.860	0.720	0.570	0.320	0.270	0.170	0.110	0.150	0.450	1.390	1.400	0.830	0.510	ZS	0.380	0.390	0.110	1.400	0.558	0.333	23
25	0.390	0.450	0.450	0.480	0.540	0.550	0.850	0.660	1.190	0.600	0.390	0.420	0.640	0.140	0.090	0.150	0.210	0.210	0.320	0.290	0.490	ZS	0.350	0.320	0.090	1.190	0.443	0.247	23
26	0.380	0.380	0.350	0.340	0.370	0.380	0.400	1.930	2.860	0.540	0.340	0.200	0.120	0.210	0.060	0.140	0.420	0.660	0.530	0.300	0.260	ZS	0.280	0.500	0.060	2.860	0.514	0.611	24
27	0.350	0.340	0.360	0.360	0.380	0.360	0.410	1.910	0.960	0.510	0.320	0.290	0.150	0.100	0.080	0.220	0.200	0.170	0.210	0.260	0.360	ZS	0.370	0.350	0.080	1.910	0.392	0.374	23
28	0.100	0.130	0.130	0.140	0.140	0.160	0.220	0.840	0.730	0.330	0.020	0.000	0.020	0.120	0.410	0.070	0.080	0.060	0.070	0.100	0.150	ZS	0.110	0.070	0.000	0.840	0.177	0.209	24
HR MIN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010	0.050	0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.020	0.020	0.020	0.010	0.150	0.020	0.000	0.000	0.000	0.000	0.000		
HR MAX	0.400	0.450	0.450	0.490	0.540	0.580	0.850	1.930	3.080	1.660	0.590	0.620	0.640	0.250	0.450	0.410	0.810	1.390	1.530	0.930	0.710	0.280	0.500	0.390	0.000	3.080	0.236	0.236	
HR AVG	0.146	0.151	0.151	0.154	0.171	0.172	0.213	0.486	0.879	0.600	0.228	0.153	0.117	0.070	0.068	0.162	0.246	0.217	0.257	0.217	0.210	0.215	0.196	0.173	0.317	0.317	0.236	0.236	
HR STD	0.114	0.119	0.123	0.129	0.139	0.143	0.192	0.536	0.775	0.370	0.164	0.144	0.141	0.066	0.096	0.116	0.193	0.296	0.371	0.227	0.182	0.092	0.142	0.117	0.000	644	644	644	644

Grand Teton National Park

Flag Ranch

Carbon Monoxide hourly averages (ppm)

03/01/2003 - 03/31/2003

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
1	0.370	0.370	0.370	0.380	0.390	0.400	0.380	0.810	1.270	0.400	0.320	0.250	0.220	0.200	0.150	0.590	0.310	0.480	0.590	0.520	0.500	ZS	0.460	0.440	0.150	1.270	0.442	0.230	23
2	0.230	0.140	0.150	0.180	0.200	0.180	0.240	0.440	0.740	0.700	0.440	0.340	0.150	0.050	0.000	0.140	0.190	0.180	0.100	0.120	0.080	0.130	0.070	0.070	0.000	0.740	0.219	0.188	24
3	0.060	0.070	0.080	0.070	0.080	0.270	0.140	0.310	0.570	0.260	0.090	0.120	0.000	0.030	0.010	0.060	0.220	0.060	0.080	0.050	0.030	ZS	0.050	0.070	0.000	0.570	0.121	0.129	23
4	0.310	0.110	0.110	0.130	0.140	0.120	0.120	0.170	0.140	0.700	0.200	0.020	0.030	0.010	0.000	0.040	0.230	0.070	0.100	0.100	0.130	0.120	0.120	0.110	0.000	0.700	0.139	0.138	24
5	0.040	0.030	0.030	0.000	0.030	0.020	0.080	0.370	0.290	0.270	0.050	0.220	0.060	0.060	0.060	0.150	0.130	0.160	0.100	0.120	0.130	ZS	0.120	0.120	0.000	0.370	0.115	0.095	23
6	0.010	0.000	0.020	0.040	0.040	0.040	0.040	0.030	0.080	0.200	0.030	0.050	0.030	0.090	0.050	0.050	0.050	0.030	0.100	0.060	0.080	0.060	0.120	0.050	0.000	0.200	0.056	0.041	24
7	0.100	0.090	0.080	0.070	0.060	0.060	0.070	0.190	0.300	0.240	0.110	0.120	0.090	0.070	0.040	0.070	0.050	0.040	0.000	0.040	0.060	ZS	0.050	0.060	0.000	0.300	0.090	0.068	23
8	0.030	0.030	0.030	0.040	0.020	0.030	0.040	0.320	0.260	0.180	0.090	0.070	0.000	0.030	0.010	0.070	0.080	0.050	0.040	0.010	0.020	0.010	0.000	0.000	0.320	0.062	0.080	24	
9	0.110	0.110	0.110	0.110	0.110	0.120	0.140	0.130	1.100	0.550	0.150	0.070	0.000	0.040	0.080	0.190	0.210	0.150	0.160	0.140	0.150	ZS	0.290	0.300	0.000	1.100	0.197	0.225	23
10	0.120	0.120	0.120	0.120	0.110	0.120	0.130	0.140	0.140	0.110	0.070	0.050	0.010	0.000	0.010	0.030	0.060	0.070	0.100	0.110	0.120	0.140	0.130	0.000	0.140	0.093	0.044	24	
11	0.070	0.080	0.080	0.090	0.090	0.090	0.110	0.110	0.120	0.120	0.090	0.070	0.050	0.030	0.020	0.020	0.000	0.020	0.040	0.060	0.070	ZS	0.090	0.100	0.000	0.120	0.070	0.035	23
12	0.100	0.100	0.110	0.120	0.130	0.150	0.150	0.160	0.140	0.120	0.070	0.050	0.030	0.010	0.010	0.000	0.020	0.020	0.050	0.070	0.090	0.100	0.110	0.000	0.160	0.083	0.049	24	
13	0.310	0.320	0.330	0.340	0.350	0.360	0.370	0.360	0.350	0.290	0.210	0.130	0.060	0.010	0.010	0.000	0.020	0.060	0.140	0.200	0.290	ZS	0.320	0.340	0.000	0.370	0.225	0.138	23
14	0.170	0.180	0.180	0.180	0.170	0.170	0.180	0.180	0.160	0.080	0.030	0.000	0.020	0.000	0.030	0.040	0.040	0.050	0.090	0.120	0.140	0.170	0.180	0.190	0.000	0.190	0.115	0.070	24
15	0.250	0.250	0.260	0.260	0.260	0.240	0.230	0.220	0.190	0.080	0.040	0.010	0.000	0.000	0.020	0.060	0.110	0.150	0.160	0.170	ZS	0.200	0.220	0.000	0.260	0.158	0.096	23	
16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
23	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
26	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
27	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
28	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
HR MIN	0.010	0.000	0.020	0.000	0.020	0.040	0.030	0.080	0.080	0.030	0.000	0.000	0.000	0.000	0.000	0.000	0.020	0.000	0.010	0.020	0.020	0.010	0.000	0.000	0.000	0.000	0.000		
HR MAX	0.370	0.370	0.370	0.380	0.390	0.400	0.380	0.810	1.270	0.700	0.440	0.340	0.220	0.200	0.150	0.590	0.310	0.480	0.590	0.520	0.500	0.170	0.460	0.440	1.270	1.270	0.145		
HR AVG	0.152	0.133	0.137	0.142	0.146	0.159	0.161	0.263	0.392	0.294	0.135	0.107	0.051	0.042	0.032	0.098	0.111	0.103	0.123	0.125	0.137	0.101	0.155	0.154	0.145	0.145	0.145		
HR STD	0.115	0.106	0.106	0.110	0.112	0.117	0.105	0.189	0.369	0.204	0.115	0.095	0.062	0.052	0.041	0.147	0.096	0.116	0.136	0.120	0.120	0.049	0.120	0.122	0.155	0.155	0.155		
n	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	352		

Grand Teton National Park

Flag Ranch

PM2.5 Bam hourly averages (ug/m3 25c)

12/01/2002 - 12/31/2002

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n		
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23							
1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0				
2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0				
3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0				
4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0				
5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0				
6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0				
7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0				
8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0				
9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0				
10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0				
11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0				
12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0				
13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0				
14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0				
15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0				
16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0				
17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0				
18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0				
19	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	0	0	0				
20	0.0	0.4	0.5	0.2	0.4	0.2	1.2	5.3	15.8	6.3	0.2	1.1	0.0	1.7	2.2	2.6	6.4	3.9	1.9	1.7	2.2	1.2	1.3	2.7	0.0	15.8	2.5	3.4	24		
21	11.1	3.5	1.4	2.5	1.3	2.0	1.0	9.9	6.2	4.7	3.6	1.6	3.7	2.9	4.0	2.4	8.2	6.0	3.7	3.9	2.4	2.8	2.1	2.1	1.0	11.1	3.9	2.7	24		
22	6.2	6.0	3.0	1.9	6.3	3.5	1.8	4.1	2.6	2.1	0.5	1.8	3.2	2.2	5.1	1.1	9.7	11.5	2.9	1.8	5.0	6.0	7.4	2.1	0.5	11.5	4.1	2.8	24		
23	2.7	5.2	1.7	3.5	2.2	2.6	1.6	0.7	9.1	23.5	2.0	0.0	0.3	2.9	1.8	7.0	16.6	22.8	14.4	6.7	2.3	7.1	4.7	1.9	0.0	23.5	6.0	6.7	24		
24	6.7	1.1	1.6	2.3	0.2	4.0	2.9	3.6	2.6	11.0	2.1	0.4	2.0	0.3	7.0	7.2	12.0	17.0	10.0	2.3	4.3	4.7	6.4	3.1	0.2	17.0	4.8	4.2	24		
25	6.2	7.9	3.2	4.6	IM	IM	IM	IM	IM	51.6	2.4	0.0	0.0	7.4	14.3	7.4	4.2	7.9	4.3	5.6	5.4	3.7	3.0	2.6	0.0	51.6	7.5	11.2	19		
26	14.9	5.6	1.9	1.3	4.7	8.6	4.1	3.3	19.6	14.2	6.1	3.2	8.0	2.3	3.4	11.6	8.1	5.4	1.4	1.7	2.5	2.4	1.8	2.1	1.3	19.6	5.8	4.9	24		
27	7.6	1.3	4.4	1.7	2.3	2.8	2.8	3.5	4.6	9.4	8.4	3.3	2.4	0.1	5.4	2.9	1.1	3.2	1.1	2.5	3.2	1.4	2.1	1.4	0.1	9.4	3.3	2.4	24		
28	0.1	1.8	3.9	1.9	0.5	1.9	1.7	2.2	3.0	2.3	4.1	1.9	1.0	1.2	1.5	3.5	1.4	5.4	5.4	1.9	0.8	2.2	2.8	3.8	0.1	5.4	2.3	1.4	24		
29	8.4	2.5	0.5	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	0.5	8.4	3.8	4.1	3		
30	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	0	0	0	0	0		
31	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	0	0	0	0	0		
HR MIN	0.0	0.4	0.5	0.2	0.2	0.2	1.0	0.7	2.6	2.1	0.2	0.0	0.0	0.1	1.5	1.1	1.1	3.2	1.1	1.7	0.8	1.2	1.3	1.4	0.0						
HR MAX	14.9	7.9	4.4	4.6	6.3	8.6	4.1	9.9	19.6	51.6	8.4	3.3	8.0	7.4	14.3	11.6	16.6	22.8	14.4	6.7	5.4	7.1	7.4	3.8		51.6					
HR AVG	6.4	3.5	2.2	2.2	3.2	2.1	4.1	7.9	13.9	3.3	1.5	2.3	2.3	5.0	5.1	7.5	9.2	5.0	3.1	3.1	3.5	3.5	2.4			4.4					
HR STD	4.6	2.5	1.4	1.3	2.2	2.5	1.0	2.7	6.5	15.6	2.6	1.2	2.5	2.2	3.9	3.4	5.0	6.7	4.4	1.9	1.5	2.1	2.2	0.7				5.1			
n	10	10	10	9	8	8	8	8	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	214						

Grand Teton National Park

Flag Ranch

PM2.5 Bam hourly averages (ug/m3 25c)

01/01/2003 - 01/31/2003

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
1	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	0	0	0	0	0	
2	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	1.6	1.6	2.1	0.5	0.1	2.8	0.1	2.8	1.5	1.0	6
3	8.0	1.7	4.7	0.7	0.5	2.0	5.2	3.3	9.0	16.3	7.6	0.6	3.3	0.4	3.9	1.5	5.4	9.2	3.9	7.1	3.1	5.0	6.4	6.0	0.4	16.3	4.8	3.7	24	
4	5.5	5.9	7.5	5.4	4.8	2.2	4.6	16.9	33.0	18.6	5.4	IM	0.0	1.3	3.2	10.2	3.4	6.7	6.9	5.0	0.5	0.4	2.4	3.7	0.0	33.0	6.7	7.4	23	
5	2.1	3.9	1.8	3.0	2.1	0.6	2.7	4.0	8.0	2.9	14.5	2.1	0.5	1.7	0.4	7.0	7.0	13.2	4.9	7.4	6.2	2.6	4.5	0.8	0.4	14.5	4.3	3.7	24	
6	2.4	2.2	1.8	3.3	1.0	1.8	5.5	4.1	15.2	20.9	0.0	0.0	0.3	1.8	1.2	5.4	5.4	18.0	9.2	1.9	4.5	2.5	1.6	1.5	0.0	20.9	4.6	5.6	24	
7	2.4	1.9	3.0	5.8	4.0	4.4	3.6	1.3	1.9	2.4	0.2	0.1	0.0	0.3	3.1	7.9	7.9	16.2	10.1	2.8	4.8	1.2	4.8	19.6	0.0	19.6	4.6	4.9	24	
8	0.0	1.5	3.6	2.3	0.7	0.1	5.1	2.4	6.0	17.8	0.9	0.0	0.5	0.2	3.6	2.0	8.2	17.3	14.6	6.4	6.8	3.9	1.7	2.2	0.0	17.8	4.5	5.2	24	
9	2.5	3.6	2.3	2.0	0.9	2.4	2.9	2.7	6.7	34.1	41.7	0.0	0.9	0.7	4.2	6.1	6.6	18.2	9.9	5.4	2.9	6.7	6.0	5.5	0.0	41.7	7.3	10.2	24	
10	1.6	4.2	2.9	3.5	1.4	6.1	1.5	3.0	14.7	87.2	14.8	0.0	5.3	1.5	3.9	2.8	3.6	4.6	1.4	2.4	1.3	2.0	0.1	3.6	0.0	87.2	7.2	17.4	24	
11	2.3	5.5	4.3	1.1	3.6	4.0	7.2	3.0	6.3	8.2	1.2	3.7	7.3	2.3	1.9	3.7	3.2	11.9	5.8	3.0	2.8	4.9	2.3	4.2	1.1	11.9	4.3	2.5	24	
12	6.1	3.6	6.3	2.7	4.3	2.5	3.3	5.3	1.9	10.9	3.1	0.0	5.8	5.9	6.6	3.2	3.9	3.4	1.7	1.2	4.0	1.4	5.2	1.5	0.0	10.9	3.9	2.3	24	
13	0.8	0.8	4.0	1.5	5.3	1.0	2.6	3.6	2.9	6.6	0.8	1.6	0.8	0.7	2.4	1.2	5.0	2.2	3.8	2.7	1.3	1.5	1.8	3.5	0.7	6.6	2.4	1.6	24	
14	4.1	3.7	2.3	2.3	2.9	2.5	2.4	2.3	3.4	5.0	7.2	3.5	0.6	1.9	1.2	5.1	8.2	5.6	6.3	0.7	4.8	0.7	0.8	1.8	0.6	8.2	3.3	2.1	24	
15	1.5	1.7	2.2	2.7	3.5	2.3	1.3	3.9	1.9	10.9	8.3	2.1	3.6	5.3	5.1	6.1	1.8	6.4	4.8	5.8	4.8	3.8	0.5	4.0	0.5	10.9	3.9	2.4	24	
16	0.8	2.5	1.2	1.7	2.6	1.7	2.2	3.2	15.6	16.0	1.7	0.4	5.1	3.4	5.6	7.1	6.2	1.0	2.8	4.6	1.7	4.1	1.8	6.5	0.4	16.0	4.1	4.1	24	
17	7.7	3.7	7.5	1.9	0.5	2.3	4.0	6.9	35.5	24.9	0.4	0.0	0.0	1.1	3.7	3.4	7.8	17.0	16.4	6.1	1.6	3.3	4.0	2.7	0.0	35.5	6.8	8.6	24	
18	0.5	1.5	3.0	0.7	4.3	1.4	1.2	2.0	2.6	16.3	4.1	0.0	3.8	9.9	10.5	7.5	4.2	14.5	12.1	4.9	4.1	7.0	10.8	9.0	0.0	16.3	5.7	4.7	24	
19	5.4	3.0	6.4	2.6	4.7	7.2	5.3	8.1	13.1	9.7	4.5	0.1	0.0	1.8	6.0	3.4	10.0	16.0	13.4	11.5	5.2	7.6	4.6	4.2	0.0	16.0	6.4	4.2	24	
20	9.7	4.6	2.5	2.2	0.7	2.3	2.1	17.3	17.1	29.5	6.6	0.0	10.3	6.5	13.0	6.3	13.7	13.9	6.9	10.4	5.4	7.9	7.6	4.5	0.0	29.5	8.4	6.7	24	
21	10.6	12.2	5.6	5.5	5.3	4.2	6.1	3.1	11.8	32.0	6.6	3.7	4.2	1.6	3.0	1.4	6.8	2.7	4.1	3.9	3.9	3.1	2.2	2.5	1.4	32.0	6.1	6.3	24	
22	0.3	4.9	3.2	3.6	1.2	2.7	3.3	2.2	5.1	17.5	17.3	3.3	0.3	3.5	0.6	2.8	2.9	4.2	6.6	1.8	0.8	2.2	2.2	0.6	0.3	17.5	3.9	4.5	24	
23	3.0	5.5	1.6	2.2	4.6	1.6	0.4	5.0	3.1	3.1	2.4	2.0	2.6	0.6	6.5	0.3	4.1	11.3	3.2	4.6	2.4	3.3	2.6	1.8	0.3	11.3	3.2	2.3	24	
24	3.1	1.8	1.6	3.1	2.7	1.5	2.4	18.4	6.7	5.0	0.0	3.1	2.7	5.6	3.7	6.6	3.4	9.1	6.2	4.7	3.6	6.9	2.6	1.8	0.0	18.4	4.4	3.7	24	
25	3.7	7.0	6.8	2.5	5.9	5.1	8.8	4.4	2.2	6.4	3.0	2.9	2.8	0.6	2.3	7.7	10.3	5.6	1.2	1.1	0.5	5.0	0.7	4.7	0.5	10.3	4.2	2.7	24	
26	9.5	1.7	2.2	2.7	2.8	0.8	1.5	1.5	4.1	23.2	1.1	2.0	3.4	1.0	0.2	3.6	5.1	1.7	1.2	1.5	1.5	4.4	0.6	4.4	0.2	23.2	3.4	4.7	24	
27	1.2	5.6	3.0	2.1	3.1	2.4	1.0	4.1	1.6	1.5	1.3	3.3	0.9	4.4	1.9	8.0	2.9	0.0	1.7	2.4	3.0	1.6	1.1	1.0	0.0	8.0	2.5	1.7	24	
28	0.8	7.4	2.4	2.0	5.4	2.0	3.8	12.6	17.3	28.2	6.2	0.0	0.7	3.5	2.3	3.0	4.7	7.7	1.5	2.7	1.6	1.6	3.0	4.9	0.0	28.2	5.2	6.3	24	
29	8.0	3.6	3.1	4.3	3.4	9.2	5.1	3.2	7.1	1.8	0.0	0.1	0.4	1.8	4.2	10.0	6.3	5.5	3.7	3.4	1.2	3.5	1.1	0.0	10.0	3.9	2.7	24		
30	0.3	5.1	0.3	3.4	3.9	0.7	1.5	2.3	3.8	6.1	IM	IM	9.6	5.0	1.3	1.2	4.3	2.7	5.4	1.3	2.2	0.3	2.4	2.1	0.3	9.6	3.0	2.3	22	
31	7.2	0.5	3.5	2.1	0.1	1.7	2.6	3.7	0.2	1.6	1.6	3.4	1.8	0.3	4.8	3.2	0.9	2.2	2.4	4.1	2.1	0.7	3.6	1.2	0.1	7.2	2.3	1.7	24	
HR MIN	0.0	0.5	0.3	0.7	0.1	0.1	0.4	1.3	0.2	1.5	0.0	0.0	0.0	0.2	0.2	0.3	0.9	0.0	1.2	0.7	0.5	0.3	0.1	0.6	0.0					
HR MAX	10.6	12.2	7.5	5.8	5.9	9.2	8.8	18.4	35.5	87.2	41.7	3.7	10.3	9.9	13.0	10.2	13.7	18.2	16.4	11.5	6.8	7.9	10.8	19.6		87.2				
HR AVG	3.8	3.8	3.5	2.7	3.0	2.7	3.4	5.3	8.9	16.0	5.8	1.4	2.7	2.6	3.8	4.7	5.6	8.6	5.8	4.1	3.1	3.2	3.1	3.8			4.6			
HR STD	3.2	2.4	1.9	1.3	1.8	2.0	2.0	4.8	8.7	16.9	8.5	1.5	2.9	2.4	2.8	2.7	2.8	5.9	4.2	2.6	1.7	2.3	2.4	3.6			5.8			
n	29	29	29	29	29	29	29	29	29	29	28	27	29	29	29	29	29	29	29	30	30	30	30	30	30			699		

Grand Teton National Park

Flag Ranch

PM2.5 Bam hourly averages (ug/m3 25c)

02/01/2003 - 02/28/2003

Date	HOUR (LOCAL STANDARD TIME)																							DAY MIN	DAY MAX	DAY AVG	DAY STD n		
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
1	8.7	3.6	2.4	1.5	1.5	1.9	1.6	1.7	1.5	1.6	1.8	2.1	1.4	1.8	4.7	2.9	1.3	3.0	5.8	6.0	2.4	0.6	2.1	2.3	0.6	8.7	2.7	1.9 24	
2	2.0	3.2	2.0	4.4	2.2	1.0	2.0	1.9	4.1	12.9	6.8	2.4	0.7	1.3	2.5	4.0	3.1	6.0	5.6	4.6	2.1	6.8	8.0	9.0	0.7	12.9	4.1	2.9 24	
3	8.8	6.5	2.3	1.7	2.1	0.2	3.7	6.2	12.9	13.2	8.4	6.2	0.0	0.4	1.3	6.1	5.2	5.3	3.2	2.8	2.5	1.0	3.4	0.6	0.0	13.2	4.3	3.7 24	
4	0.1	3.7	6.0	0.3	0.9	3.8	2.4	0.2	6.6	27.2	0.7	1.7	4.2	6.0	2.2	6.6	6.1	2.9	8.1	2.6	11.1	3.9	6.2	3.4	0.1	27.2	4.9	5.5 24	
5	0.1	1.9	1.7	0.0	0.0	1.5	1.2	0.7	2.5	1.1	3.8	0.4	1.8	1.9	4.4	3.1	6.3	7.4	5.9	1.7	5.2	5.2	9.8	5.8	0.0	9.8	3.1	2.6 24	
6	0.8	IM	IM	25.8	0.4	0.0	0.6	4.1	0.4	3.0	2.8	10.1	IM	IM	IM	IM	IM	IM	0.0	25.8	4.8	8.0 10							
7	1.1	IM	IM	3.6	0.0	5.8	0.0	0.7	8.1	4.3	8.2	13.5	5.2	6.0	4.3	2.5	6.0	3.5	0.0	13.5	4.6	3.5 16							
8	4.4	0.7	1.1	1.1	2.2	0.4	5.7	1.4	5.2	1.5	0.1	0.0	3.0	3.7	6.2	6.0	5.1	11.0	13.3	3.2	8.3	8.0	9.6	1.1	0.0	13.3	4.3	3.7 24	
9	0.3	2.5	1.0	5.5	1.1	2.4	7.0	14.0	2.7	9.1	14.6	2.9	5.2	4.6	5.2	7.4	14.2	13.9	7.7	6.8	4.0	6.7	1.7	4.6	0.3	14.6	6.0	4.4 24	
10	2.6	5.1	5.3	3.2	3.0	3.7	3.7	3.8	0.9	7.4	0.3	2.2	4.3	5.3	4.4	1.4	3.1	6.9	7.9	4.7	4.0	1.1	4.3	2.9	0.3	7.9	3.8	1.9 24	
11	0.2	3.5	5.5	5.7	1.1	3.6	9.1	12.7	9.5	15.8	0.0	0.7	0.5	1.9	3.5	5.5	7.1	10.7	14.1	8.0	5.8	7.7	6.3	4.3	0.0	15.8	6.0	4.4 24	
12	9.8	5.0	2.1	4.8	4.2	4.0	5.0	5.5	11.1	0.0	2.2	0.0	0.2	5.6	1.2	10.6	4.5	13.1	20.5	24.6	13.8	7.6	2.2	8.4	0.0	24.6	6.9	6.3 24	
13	0.3	4.7	2.5	0.9	0.3	2.5	0.0	0.1	5.3	1.3	2.1	0.2	1.1	1.0	4.0	5.8	7.7	4.1	5.5	1.4	2.3	1.0	4.6	0.6	0.0	7.7	2.5	2.2 24	
14	0.0	4.7	2.0	3.0	1.5	1.0	4.7	10.3	7.7	18.1	22.1	7.4	0.9	4.5	5.0	2.3	6.0	3.1	2.6	0.9	1.8	0.9	1.9	0.8	0.0	22.1	4.7	5.4 24	
15	5.5	4.6	0.5	3.6	1.6	3.1	0.8	0.9	8.0	10.8	3.9	1.0	0.0	2.0	1.6	2.1	8.1	6.5	8.8	6.6	6.2	3.2	3.5	4.1	0.0	10.8	4.0	3.0 24	
16	4.5	3.2	3.6	8.2	2.1	4.5	1.6	3.9	10.6	20.5	3.4	1.8	0.8	2.7	3.4	2.2	3.9	4.1	0.4	4.4	2.1	0.9	2.3	1.5	0.4	20.5	4.0	4.2 24	
17	1.4	4.5	7.6	3.1	3.8	4.3	0.6	0.5	9.5	9.8	1.5	1.2	0.1	5.3	7.3	2.6	2.2	2.7	4.4	0.8	1.7	2.5	0.7	1.4	0.1	9.8	3.3	2.8 24	
18	5.6	3.2	2.5	1.7	0.5	2.4	7.1	13.0	44.9	27.8	0.0	2.3	13.6	3.8	1.1	1.8	5.5	9.0	8.7	6.1	5.2	0.1	0.0	4.0	0.0	44.9	7.1	10.1 24	
19	11.2	0.3	2.5	8.4	5.2	4.8	2.1	5.8	8.3	0.1	0.0	0.5	6.3	3.0	0.5	2.8	9.1	10.2	9.5	12.0	8.1	1.4	4.8	4.6	0.0	12.0	5.1	3.8 24	
20	3.6	1.2	3.5	5.3	0.4	3.1	1.2	2.5	13.0	21.5	1.3	1.1	3.9	5.6	3.3	6.3	16.2	8.5	2.8	2.0	1.2	1.6	0.8	0.9	0.4	21.5	4.6	5.3 24	
21	4.1	1.5	4.0	1.6	1.6	1.1	3.3	2.3	2.4	11.8	9.9	1.0	2.0	0.9	5.6	7.3	5.9	5.2	4.4	5.0	1.0	3.7	0.5	5.7	0.5	11.8	3.8	2.9 24	
22	1.7	6.5	1.0	2.0	1.4	1.8	0.9	0.1	IM	0.9	5.5	4.3	0.9	2.8	1.6	2.1	7.2	1.1	0.1	7.2	5.7	5.9	2.7	2.8	0.1	7.2	2.9	2.3 23	
23	0.0	1.3	1.4	0.1	0.0	1.0	1.1	1.6	3.3	8.9	MT	MT	8.9	0.4	2.1	9.0	4.2	6.5	15.5	IM	IM	IM	IM	IM	0.0	15.5	3.8	4.4 17	
24	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	3.4	6.3	17.9	31.1	13.0	20.7	IM	IM	IM	3.4	31.1	15.4	10.1 6
25	IM	IM	IM	IM	IM	IM	IM	IM	IM	0.0	0.0	0.2	1.5	2.3	1.1	6.2	6.7	8.2	13.0	IM	IM	IM	4.2	3.1	0.0	13.0	3.9	4.0 12	
26	2.6	8.1	1.4	3.2	IM	IM	IM	IM	88.4	0.4	0.0	0.3	0.5	0.3	0.4	1.3	2.0	10.5	18.0	3.8	3.0	2.8	7.0	5.6	0.0	88.4	8.0	19.4 20	
27	6.7	6.0	1.8	3.2	1.8	1.7	0.9	7.4	12.9	3.7	0.0	0.4	0.4	0.0	5.3	5.6	10.5	7.8	8.2	6.3	6.3	5.3	5.5	0.0	12.9	4.8	3.4 24		
28	12.3	8.6	3.9	5.5	1.6	1.1	IM	12.3	36.6	0.1	0.1	4.9	4.5	1.7	9.8	12.3	11.6	11.4	11.0	7.0	6.4	7.9	2.3	7.2	0.1	36.6	7.8	7.5 23	
HR MIN	0.0	0.3	0.5	0.0	0.0	0.2	0.0	0.1	0.9	0.0	0.0	0.0	0.0	0.0	0.4	1.3	1.3	1.1	0.1	0.8	1.0	0.1	0.0	0.6	0.0				
HR MAX	12.3	8.6	7.6	8.4	5.2	4.8	9.1	14.0	88.4	27.8	22.1	7.4	13.6	6.0	9.8	12.3	16.2	17.9	31.1	24.6	20.7	8.0	9.8	9.0		88.4			
HR AVG	3.8	3.9	2.8	3.3	1.7	2.4	3.0	4.7	13.4	9.4	3.4	2.0	2.5	2.7	3.6	4.8	6.4	7.9	8.9	5.9	5.4	3.7	4.0	3.7		4.8			
HR STD n	3.8	2.2	1.8	2.3	1.3	1.4	2.5	4.7	19.4	9.1	5.3	2.1	3.2	1.9	2.5	2.8	3.5	4.0	6.7	5.0	4.5	2.8	2.7	2.4		5.9			
n	26	24	24	24	23	23	22	23	23	27	26	26	27	27	27	28	28	28	27	25	25	24	25	25	607				

Grand Teton National Park

Flag Ranch

PM2.5 Bam hourly averages (ug/m3 25c)

03/01/2003 - 03/31/2003

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n		
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23							
1	9.9	8.9	4.0	2.3	5.0	5.6	3.1	8.4	14.4	0.4	0.0	2.1	2.3	3.3	0.2	11.3	4.6	8.2	15.9	12.2	7.3	3.7	3.7	IM	0.0	15.9	5.9	4.5	23		
2	IM	8.6	2.6	IM	5.2	2.3	0.5	2.8	6.8	6.5	7.5	0.1	2.4	1.5	4.6	7.3	4.8	8.2	6.7	4.3	4.8	1.2	2.5	2.3	0.1	8.6	4.3	2.6	22		
3	7.1	2.8	7.5	4.7	2.1	2.4	3.5	13.7	7.2	16.0	2.7	3.4	1.8	4.2	2.3	4.0	5.9	9.5	2.4	1.4	3.5	0.7	6.9	0.9	0.7	16.0	4.9	3.9	24		
4	2.3	5.9	1.9	1.0	3.4	5.2	1.3	4.4	0.0	1.7	14.0	0.1	3.3	1.0	2.8	3.6	7.3	4.6	6.5	6.4	4.7	4.7	1.3	2.8	0.0	14.0	3.8	3.0	24		
5	16.6	5.7	0.5	1.4	0.0	1.2	4.3	5.1	5.9	5.3	0.8	2.7	2.4	0.6	6.9	1.8	2.4	1.4	2.7	3.6	2.0	3.0	3.4	2.6	0.0	16.6	3.4	3.4	24		
6	0.0	4.1	3.4	IM	4.2	3.7	2.7	0.2	2.8	1.4	0.4	0.6	0.2	8.7	7.2	8.1	4.0	5.2	5.3	2.8	2.2	2.4	1.5	4.4	0.0	8.7	3.3	2.5	23		
7	13.0	4.0	2.5	2.7	3.3	0.1	2.0	1.8	5.0	3.5	2.0	4.6	1.8	4.4	IM	0.0	2.6	1.7	1.4	1.2	2.3	1.3	1.5	1.3	0.0	13.0	2.8	2.6	23		
8	3.2	2.9	2.9	0.1	4.3	0.5	3.0	3.6	1.8	2.8	2.1	2.4	2.0	2.3	5.1	1.6	3.1	3.3	5.0	4.3	4.5	1.6	3.6	2.9	0.1	5.1	2.9	1.3	24		
9	1.9	5.0	2.4	3.2	1.5	1.5	4.9	0.6	1.3	8.7	1.6	1.6	2.5	2.3	9.8	8.5	2.5	3.9	2.8	3.1	1.8	3.1	3.3	1.2	0.6	9.8	3.3	2.5	24		
10	5.5	2.8	5.4	0.5	2.7	2.2	3.1	3.1	0.9	2.9	0.9	2.9	0.1	4.8	2.3	6.2	3.5	6.8	2.2	2.2	1.4	1.2	2.5	0.4	0.1	6.8	2.8	1.8	24		
11	0.6	2.7	1.4	3.0	3.6	2.7	3.4	2.2	2.0	0.1	1.8	0.1	1.7	3.7	1.1	4.3	1.6	5.4	5.6	3.3	2.0	2.5	1.5	3.2	0.1	5.6	2.5	1.4	24		
12	7.1	3.0	2.9	6.4	IM	2.8	0.3	3.1	4.0	1.7	1.0	2.6	0.6	2.3	4.1	6.1	2.0	4.3	7.0	3.1	4.4	1.9	4.9	2.2	0.3	7.1	3.4	1.9	23		
13	9.3	4.9	5.1	4.9	3.4	1.5	5.7	1.1	0.8	0.0	0.7	0.1	3.0	0.2	1.9	3.3	3.3	6.8	16.1	11.1	7.7	4.7	2.9	4.5	0.0	16.1	4.3	3.8	24		
14	7.5	3.8	2.9	2.2	2.8	5.0	4.9	6.3	1.0	5.7	22.4	24.1	20.3	1.2	5.2	5.0	5.4	9.9	IM	IM	7.8	4.3	2.1	2.9	1.0	24.1	6.9	6.6	22		
15	7.1	5.1	6.9	1.7	0.6	2.7	0.7	2.5	3.6	0.1	IM	IM	IM	6.0	4.5	6.8	6.1	7.6	5.0	5.3	2.8	RF	2.9	3.4	0.1	7.6	4.1	2.3	20		
16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0	
17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0	
18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0	
19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0	
20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0	
21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0	
22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0	
23	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0	
24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0	
25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0	
26	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0	
27	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0	
28	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0	
29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0	
30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0	
31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0	
HR MIN	0.0	2.7	0.5	0.1	0.0	0.1	0.3	0.2	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.0	1.6	1.4	1.4	1.2	1.4	0.7	1.3	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HR MAX	16.6	8.9	7.5	6.4	5.2	5.6	5.7	13.7	14.4	16.0	22.4	24.1	20.3	8.7	9.8	11.3	7.3	9.9	16.1	12.2	7.8	4.7	6.9	4.5	24.1	24.1	24.1	24.1	24.1		
HR AVG	6.5	4.7	3.5	2.6	3.0	2.6	2.9	3.9	3.8	3.8	4.1	3.4	3.2	3.1	4.1	5.2	3.9	5.8	6.0	4.6	4.0	2.6	3.0	2.5	3.9	3.9	3.9	3.9	3.9	3.9	
HR STD	4.8	2.0	2.0	1.8	1.5	1.7	1.7	3.5	3.7	4.3	6.4	6.1	5.0	2.3	2.6	3.0	1.7	2.6	4.6	3.3	2.2	1.4	1.5	1.2	3.4	3.4	3.4	3.4	3.4		
n	14	15	15	13	14	15	15	15	15	14	14	14	14	15	14	15	15	15	15	14	14	15	14	15	14	14	14	14	14	14	14

Grand Teton National Park

Flag Ranch

Ambient Temperature (aspirated) hourly averages (degC)

12/01/2002 - 12/31/2002

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
19	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	0					
20	-21.7	-21.8	-21.8	-20.9	-20.0	-19.2	-18.5	-18.1	-17.6	-15.7	-13.4	-12.0	-9.8	-9.5	-9.2	-8.5	-9.3	-9.7	-9.9	-9.9	-10.0	-10.1	-10.3	-10.5	-21.8	-8.5	-14.1	5.0	24	
21	-10.6	-11.0	-11.0	-10.8	-10.9	-10.7	-10.6	-10.5	-10.1	-8.5	-7.2	-6.3	-5.9	-5.6	-5.9	-6.0	-6.6	-6.8	-6.9	-7.1	-7.4	-7.7	-7.6	-7.5	-11.0	-5.6	-8.3	2.0	24	
22	-7.6	-7.7	-8.0	-7.9	-7.7	-7.8	-7.5	-7.6	-7.6	-6.1	-4.7	-4.2	-4.6	-4.3	-4.7	-4.7	-6.9	-9.3	-9.5	-9.3	-12.0	-15.6	-19.2	-21.2	-21.2	-4.2	-8.6	4.4	24	
23	-23.1	-24.4	-25.8	-26.9	-27.9	-28.6	-28.1	-27.1	-27.3	-22.7	-18.9	-13.9	-9.9	-8.1	-6.3	-7.3	-10.6	-16.5	-19.9	-22.3	-24.1	-25.6	-27.0	-27.5	-28.6	-6.3	-20.8	7.5	24	
24	-27.7	-27.5	-26.6	-25.8	-26.1	-27.8	-28.4	-28.5	-28.1	-25.4	-21.8	-17.2	-15.2	-11.9	-11.7	-10.8	-13.4	-17.3	-18.7	-18.0	-20.7	-22.8	-24.2	-25.3	-28.5	-10.8	-21.7	6.0	24	
25	-26.5	-28.0	-28.7	-29.7	-30.7	-31.9	-33.0	-33.5	-32.2	-25.9	-21.8	-17.2	-14.4	-14.0	-14.2	-13.9	-14.0	-14.6	-14.8	-14.9	-15.0	-15.1	-15.0	-14.8	-33.5	-13.9	-21.4	7.8	24	
26	-17.6	-19.3	-18.0	-17.4	-18.2	-21.6	-24.6	-23.0	-20.3	-17.5	-14.6	-13.8	-12.9	-11.4	-10.9	-10.7	-10.9	-11.3	-11.3	-11.2	-11.1	-10.9	-10.7	-10.5	-24.6	-10.5	-15.0	4.5	24	
27	-9.5	-8.4	-8.4	-7.0	-6.3	-5.2	-5.1	-5.1	-4.8	-3.6	-3.0	-2.8	-2.3	-1.6	-1.7	-1.7	-1.3	-1.7	-1.1	-0.8	-0.6	-0.6	-0.5	0.1	-9.5	0.1	-3.5	2.8	24	
28	0.6	1.3	1.1	1.0	0.5	0.4	1.0	1.3	1.4	1.3	1.2	1.1	1.3	1.6	2.0	2.2	1.2	-0.2	0.0	1.0	1.4	2.0	0.4	-0.8	-0.8	2.2	1.0	0.7	24	
29	-1.8	-2.6	-2.5	-2.5	-1.9	-0.3	-2.3	-2.9	-2.8	-2.5	-2.7	-2.1	-2.1	-4.1	-4.1	-4.1	-4.8	-5.0	-5.1	-5.5	-6.1	-6.3	-6.4	-7.0	-7.0	-0.3	-3.6	1.8	24	
30	-7.0	-7.6	-8.3	-8.4	-8.9	-10.3	-11.4	-13.4	-11.2	-9.4	-8.2	-6.6	-5.0	-4.6	-4.4	-4.7	-5.2	-5.4	-5.6	-5.5	-5.3	-5.2	-5.1	-5.0	-13.4	-4.4	-7.2	2.5	24	
31	-5.1	-4.9	-4.7	-4.3	-4.3	-4.3	-4.2	-4.0	-3.4	-3.0	-1.9	-1.8	-2.4	-2.4	-1.9	-2.5	-2.8	-3.0	-3.4	-3.6	-3.8	-3.8	-3.9	-4.0	-5.1	-1.8	-3.5	1.0	24	
HR MIN	-27.7	-28.0	-28.7	-29.7	-30.7	-31.9	-33.0	-33.5	-32.2	-25.9	-21.8	-17.2	-15.2	-14.0	-14.2	-13.9	-14.0	-17.3	-19.9	-22.3	-24.1	-25.6	-27.0	-27.5	-33.5					
HR MAX	0.6	1.3	1.1	1.0	0.5	0.4	1.0	1.3	1.4	1.3	1.2	1.1	1.3	1.6	2.0	2.2	1.2	-0.2	0.0	1.0	1.4	2.0	0.4	0.1			2.2			
HR AVG	-13.1	-13.5	-13.6	-13.4	-13.5	-13.9	-14.4	-14.4	-13.7	-11.6	-9.8	-8.1	-6.9	-6.3	-6.1	-7.1	-8.4	-8.9	-8.9	-9.6	-10.1	-10.8	-11.2			-10.5				
HR STD	9.8	10.2	10.2	10.4	10.7	11.4	11.7	11.5	11.2	9.5	8.1	6.4	5.4	4.7	4.7	4.5	4.8	5.7	6.5	6.9	7.6	8.4	8.9	9.2			8.7			
n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	288					

Grand Teton National Park

Flag Ranch

Ambient Temperature (aspirated) hourly averages (degC)

01/01/2003 - 01/31/2003

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n		
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23							
1	-4.2	-4.2	-4.1	-4.3	-4.7	-4.9	-6.1	-6.1	-5.7	-5.4	-5.1	-4.9	-4.2	-4.6	-4.3	-4.9	-6.0	-6.7	-7.2	-8.7	-9.9	-9.8	-9.6	-10.9	-10.9	-4.1	-6.1	2.1	24		
2	-10.5	-9.8	-9.4	-9.0	-8.9	-8.8	-10.2	-7.9	-8.7	-9.3	-6.9	-4.9	-4.2	-4.0	-4.6	-4.6	-4.3	-4.5	-4.7	-5.1	-5.2	-5.0	-5.0	-5.3	-10.5	-4.0	-6.7	2.3	24		
3	-6.3	-5.8	-5.5	-5.2	-5.0	-4.8	-4.5	-4.3	-3.8	-2.8	-1.8	1.1	2.8	3.9	3.9	3.7	2.8	1.0	-0.1	-0.2	-0.5	-0.6	-2.0	-1.7	-6.3	3.9	-1.5	3.4	24		
4	-1.7	-1.4	-2.5	-3.7	-3.3	-3.4	-3.7	-4.8	-5.0	-3.7	-2.7	-0.5	-0.5	1.0	0.6	-0.2	-1.1	-2.1	-4.0	-5.3	-5.3	-4.7	-4.2	-4.6	-5.3	1.0	-2.8	1.9	24		
5	-4.4	-3.7	-3.3	-2.8	-1.7	-2.0	-2.1	-2.5	-2.6	-2.4	-1.8	0.2	1.7	1.6	2.5	1.3	0.5	-1.9	-2.9	-5.2	-7.9	-10.0	-11.9	-13.5	-13.5	2.5	-3.1	4.1	24		
6	-15.0	-15.7	-16.5	-16.9	-17.1	-16.9	-17.9	-19.9	-20.8	-17.5	-11.9	-8.7	-4.9	-2.8	-2.0	-2.1	-4.2	-9.0	-12.4	-14.4	-16.3	-17.7	-18.9	-19.5	-20.8	-2.0	-13.3	6.1	24		
7	-19.4	-19.3	-19.6	-20.0	-20.7	-21.4	-21.7	-21.6	-20.1	-16.9	-13.3	-8.6	-5.5	-2.1	-0.4	-0.8	-3.9	-8.2	-11.6	-14.7	-16.7	-18.5	-19.7	-20.9	-21.7	-0.4	-14.4	7.3	24		
8	-21.7	-21.9	-22.9	-23.5	-23.1	-21.5	-21.3	-21.5	-20.4	-18.2	-14.8	-10.2	-7.4	-3.2	-1.8	-1.0	-2.7	-9.4	-13.4	-16.2	-18.2	-19.8	-21.1	-22.0	-23.5	-1.0	-15.7	7.6	24		
9	-22.3	-22.9	-23.3	-23.5	-23.6	-24.2	-24.6	-25.1	-25.1	-18.7	-11.4	-7.1	-3.8	-1.4	-1.6	-2.0	-4.5	-9.5	-13.6	-16.8	-19.2	-21.1	-22.4	-23.5	-25.1	-1.4	-16.3	8.7	24		
10	-24.6	-25.7	-26.4	-26.9	-27.5	-27.9	-27.7	-27.3	-26.9	-21.5	-17.3	-13.6	-11.4	-10.0	-8.7	-8.8	-9.6	-10.1	-10.3	-10.3	-10.1	-9.9	-9.9	-27.9	-8.7	-17.2	8.1	24			
11	-9.8	-9.8	-9.6	-9.5	-9.7	-11.2	-14.4	-13.9	-11.5	-8.9	-7.0	-5.7	-5.3	-5.0	-4.2	-3.9	-4.1	-6.8	-7.6	-7.3	-7.2	-6.9	-7.1	-7.2	-14.4	-3.9	-8.1	2.9	24		
12	-7.1	-7.0	-6.9	-6.7	-6.7	-6.6	-6.6	-6.6	-6.3	-5.4	-3.9	-2.3	-2.4	-2.2	-2.5	-2.2	-1.8	-1.1	-0.8	-1.6	-1.8	-1.2	-1.8	-1.8	-7.1	-0.8	-3.9	2.4	24		
13	-1.8	-0.7	-0.6	-1.4	-1.5	-1.6	-1.8	-2.0	-1.9	-1.3	-0.7	-0.1	0.3	0.6	0.6	0.3	-0.2	-0.4	-0.6	-0.9	-1.1	-1.2	-1.8	-1.2	-2.0	0.6	-0.9	0.8	24		
14	-1.1	-0.7	-0.9	-1.0	-1.0	-1.0	-1.0	-1.0	-0.8	-0.4	0.5	2.1	2.9	3.3	3.6	2.9	1.7	0.7	-0.2	-0.9	-1.2	-1.7	-1.6	-1.0	-1.7	3.6	0.1	1.7	24		
15	-0.2	-1.0	-1.7	-2.6	-3.5	-4.0	-4.9	-5.6	-5.5	-5.4	-3.7	-3.5	-2.6	-2.8	-4.1	-4.1	-5.1	-6.4	-7.2	-8.8	-10.8	-11.8	-12.1	-13.2	-13.2	-0.2	-5.4	3.6	24		
16	-13.5	-13.9	-13.5	-13.5	-13.5	-13.5	-13.8	-14.1	-15.6	-12.0	-9.2	-6.7	-5.6	-4.3	-3.6	-4.6	-6.2	-8.2	-8.3	-8.2	-8.6	-8.9	-9.7	-12.4	-15.6	-3.6	-10.1	3.7	24		
17	-15.2	-18.0	-20.0	-20.6	-19.3	-19.8	-20.9	-22.5	-23.6	-17.4	-14.0	-10.1	-6.5	-3.1	-1.0	-1.2	-2.5	-9.5	-13.3	-16.0	-17.8	-19.2	-20.6	-21.3	-23.6	-1.0	-14.7	7.2	24		
18	-22.2	-22.5	-23.2	-23.6	-24.1	-24.5	-24.2	-23.7	-21.0	-18.2	-15.2	-8.4	-4.3	-4.4	-4.8	-3.9	-4.7	-6.4	-6.6	-6.6	-6.5	-8.9	-13.0	-15.0	-24.5	-3.9	-14.0	8.2	24		
19	-16.0	-16.8	-18.1	-17.8	-18.1	-18.4	-19.2	-17.2	-15.7	-13.9	-11.9	-7.4	-4.0	-1.4	-0.6	-0.8	-1.3	-4.7	-7.4	-9.2	-11.2	-12.9	-14.8	-16.2	-19.2	-0.6	-11.5	6.4	24		
20	-17.4	-18.3	-18.8	-19.0	-18.1	-18.2	-19.8	-20.9	-19.9	-14.5	-8.0	0.2	0.0	-0.2	-0.8	-1.7	-2.4	-3.0	-3.2	-3.8	-4.1	-4.0	-3.5	-3.7	-20.9	0.2	-9.3	8.2	24		
21	-3.7	-3.9	-4.1	-4.2	-4.3	-4.1	-4.2	-4.2	-4.0	-3.4	-2.0	-1.9	-2.3	-2.4	-2.2	-2.2	-2.5	-2.5	-2.0	-2.9	-3.2	-3.2	-2.7	-2.0	-4.3	-1.9	-3.1	0.9	24		
22	-3.1	-3.3	-3.6	-3.7	-3.7	-3.6	-3.6	-3.7	-3.6	-3.4	-3.1	-2.8	-2.4	-1.9	-1.1	-1.3	-2.0	-2.7	-3.0	-3.1	-3.0	-3.0	-3.1	-3.2	-3.7	-1.1	-3.0	0.7	24		
23	-2.9	-2.8	-2.7	-2.7	-2.7	-2.6	-2.6	-2.3	-0.4	0.1	0.4	1.6	1.2	1.8	1.5	1.8	0.8	-0.1	-0.7	-1.1	-1.1	-1.5	-2.4	-3.8	-3.8	1.8	-1.0	1.8	24		
24	-4.5	-4.2	-4.2	-4.4	-4.6	-4.7	-4.7	-4.9	-4.7	-4.1	-1.9	-0.2	0.1	0.2	0.0	-0.6	-1.0	-2.1	-2.6	-3.0	-3.4	-4.2	-4.3	-3.7	-4.9	0.2	-3.0	1.8	24		
25	-3.3	-3.3	-3.6	-3.2	-3.1	-3.2	-3.3	-3.7	-3.8	-2.4	-1.8	-0.9	-0.2	-0.1	-0.1	-0.9	-1.7	-2.2	-2.1	-2.2	-2.3	-2.4	-2.5	-2.5	-3.8	-0.1	-2.3	1.1	24		
26	-2.4	-2.3	-2.1	-2.1	-2.1	-2.2	-2.0	-1.9	-1.7	-0.9	0.0	0.6	0.8	0.8	0.9	0.3	-0.1	-0.2	0.0	-0.1	-0.1	0.2	1.1	1.4	-2.4	1.4	-0.6	1.3	24		
27	1.3	1.3	1.5	0.6	1.0	3.2	3.3	2.3	0.9	1.1	1.5	1.3	1.5	1.4	1.0	0.5	0.0	0.0	0.1	-0.2	-0.3	-0.5	-0.5	-0.7	-0.7	3.3	0.9	1.1	24		
28	-1.4	-2.1	-2.8	-3.5	-4.7	-5.8	-7.8	-8.6	-8.5	-5.5	-3.1	-1.2	-1.5	-1.9	-1.6	-2.0	-3.0	-3.7	-3.9	-3.8	-3.8	-3.9	-4.0	-4.1	-8.6	-1.2	-3.8	2.1	24		
29	-4.4	-5.4	-6.3	-7.4	-9.4	-11.5	-11.8	-12.1	-9.8	-8.0	-6.8	-4.4	-2.0	-0.7	-0.2	-1.7	-1.9	-2.4	-2.7	-2.7	-2.9	-2.6	-2.7	-2.6	-12.1	-0.2	-5.1	3.7	24		
30	-2.0	-2.0	-1.6	-0.3	-1.0	-1.1	-0.9	-0.8	-0.5	0.1	0.2	0.0	-0.3	-0.3	-0.3	0.3	0.0	-0.4	-0.8	-1.1	-1.1	-1.0	-1.0	-0.9	-2.0	0.3	-0.7	0.6	24		
31	-0.8	-0.6	-0.4	-0.1	-0.1	0.1	0.0	-0.2	1.3	3.8	4.4	4.6	5.1	5.7	5.8	6.0	5.8	5.9	6.2	6.0	6.0	6.1	5.1	-0.8	6.2	3.4	2.8	24			
HR MIN	-24.6	-25.7	-26.4	-26.9	-27.5	-27.9	-27.7	-27.3	-26.9	-21.5	-17.3	-13.6	-11.4	-10.0	-8.7	-8.8	-9.6	-10.1	-13.6	-16.8	-19.2	-21.1	-22.4	-23.5	-27.9						
HR MAX	1.3	1.3	1.5	0.6	1.0	3.2	3.3	2.3	1.3	3.8	4.4	4.6	5.1	5.7	5.8	6.0	5.8	5.9	6.2	6.0	6.0	6.1	5.1		6.2						
HR AVG	-8.4	-8.6	-8.9	-9.1	-9.2	-9.4	-9.8	-10.0	-9.5	-7.6	-5.6	-3.3	-2.1	-1.2	-1.0	-1.2	-2.1	-3.8	-4.7	-5.6	-6.3	-6.8	-7.3	-7.8		-6.2					
HR STD	7.9	8.2	8.5	8.6	8.6	8.7	8.9	8.9	8.7	7.2	5.7	4.4	3.5	3.1	2.9	2.8	3.0	3.9	4.9	5.6	6.3	6.9	7.4	7.9		7.3					
n	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	744

Grand Teton National Park

Flag Ranch

Ambient Temperature (aspirated) hourly averages (degC)

02/01/2003 - 02/28/2003

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n			
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23								
1	5.9	5.8	5.4	5.7	4.9	5.8	6.5	6.3	6.4	6.6	6.7	6.6	6.5	6.1	5.3	4.7	4.5	3.5	1.1	0.0	-0.1	0.0	-2.2	-2.7	-2.7	6.7	4.1	3.0	24			
2	-2.8	-3.3	-3.4	-3.6	-3.8	-4.0	-4.0	-4.1	-4.1	-4.1	-3.7	-3.1	-2.8	-2.1	-2.5	-2.6	-3.3	-4.0	-5.2	-6.3	-7.4	-11.2	-14.1	-15.8	-15.8	-2.1	-5.1	3.6	24			
3	-17.0	-18.2	-19.1	-19.8	-20.2	-18.4	-20.2	-21.6	-21.0	-15.4	-13.4	-11.8	-9.1	-7.5	-7.1	-7.4	-7.8	-8.4	-9.1	-9.3	-8.8	-8.9	-9.4	-10.1	-21.6	-7.1	-13.3	5.3	24			
4	-11.3	-12.6	-13.2	-12.2	-12.5	-12.6	-12.4	-12.1	-12.2	-10.4	-6.5	-5.5	-4.5	-4.7	-5.3	-5.7	-6.5	-7.9	-10.5	-12.9	-16.5	-19.4	-21.8	-23.5	-23.5	-4.5	-11.4	5.2	24			
5	-24.9	-25.8	-26.0	-23.9	-22.4	-21.4	-20.9	-20.0	-18.9	-16.4	-13.4	-8.6	-8.6	-7.7	-7.4	-6.9	-8.6	-9.6	-10.3	-10.9	-11.7	-15.5	-19.0	-21.3	-26.0	-6.9	-15.8	6.6	24			
6	-22.9	-24.7	-25.8	-27.1	-28.1	-29.2	-30.2	-31.0	-29.8	-21.3	-17.1	-12.1	-9.7	-8.6	-7.7	-7.5	-7.9	-10.6	-16.8	-21.2	-23.7	-25.3	-26.8	-28.2	-31.0	-7.5	-20.6	8.3	24			
7	-29.1	-30.0	-30.5	-31.1	-31.3	-31.6	-32.0	-32.0	-29.1	-22.1	-17.4	-13.4	-10.5	-8.7	-7.1	-6.4	-7.3	-8.2	-9.7	-12.2	-13.7	-15.6	-17.4	-18.6	-32.0	-6.4	-19.4	9.8	24			
8	-19.3	-17.9	-17.4	-16.8	-16.4	-16.3	-16.1	-15.8	-14.7	-13.7	-11.0	-9.4	-8.3	-7.7	-8.1	-7.7	-8.7	-10.4	-12.1	-12.5	-15.0	-19.0	-20.1	-19.5	-20.1	-7.7	-13.9	4.2	24			
9	-18.7	-17.6	-15.6	-14.5	-13.2	-12.7	-13.9	-15.0	-14.4	-12.8	-9.3	-8.0	-7.4	-6.7	-7.1	-7.0	-8.3	-8.9	-9.2	-8.8	-7.8	-7.5	-7.3	-7.3	-18.7	-6.7	-10.8	3.8	24			
10	-7.4	-7.9	-7.5	-7.3	-7.2	-7.3	-7.4	-7.4	-7.1	-6.0	-5.0	-4.1	-4.0	-4.3	-4.1	-2.6	-2.8	-3.9	-4.7	-5.8	-6.6	-7.2	-8.3	-7.9	-8.3	-2.6	-6.0	1.8	24			
11	-5.5	-8.6	-8.9	-7.8	-6.9	-7.5	-12.1	-16.1	-16.6	-9.0	-6.4	-3.9	-0.3	1.0	1.6	0.6	-0.4	-2.8	-5.3	-7.9	-11.4	-14.1	-16.8	-18.8	-18.8	1.6	-7.7	6.0	24			
12	-20.5	-21.9	-23.0	-23.8	-24.8	-25.7	-26.5	-26.8	-24.9	-16.1	-11.3	-6.0	-2.5	-0.7	1.0	-0.1	0.5	-2.0	-7.8	-11.7	-14.3	-16.9	-18.7	-20.0	-26.8	1.0	-14.4	9.9	24			
13	-21.2	-22.0	-22.3	-22.5	-22.3	-20.5	-17.5	-15.7	-13.8	-11.0	-7.0	-4.5	-2.8	-1.5	-1.5	-1.6	-2.4	-3.5	-4.1	-4.2	-4.3	-4.3	-4.3	-22.5	-1.5	-10.0	8.2	24				
14	-4.3	-4.2	-4.1	-4.0	-3.9	-3.8	-3.7	-3.5	-2.6	-0.8	0.3	1.0	1.8	0.9	0.4	-0.2	-1.2	-1.5	-1.7	-2.1	-2.2	-2.3	-2.4	-2.6	-4.3	1.8	-1.9	1.9	24			
15	-2.8	-2.8	-3.0	-3.8	-3.8	-3.2	-3.0	-3.0	-2.2	-1.8	-0.8	-0.2	2.0	1.7	1.6	2.4	1.2	-0.2	-2.2	-4.2	-5.1	-7.1	-9.3	-10.4	-10.4	2.4	-2.5	3.3	24			
16	-12.1	-12.0	-13.3	-14.2	-15.3	-15.9	-15.4	-15.3	-14.0	-11.3	-8.5	-6.4	-5.4	-3.8	-3.1	-2.5	-2.2	-2.9	-3.8	-4.3	-4.8	-4.3	-4.2	-4.4	-15.9	-2.2	-8.3	5.1	24			
17	-4.9	-6.4	-9.0	-11.6	-13.1	-12.3	-11.0	-9.9	-7.2	-5.4	-4.0	-3.0	-2.2	-2.9	-3.7	-3.6	-3.7	-4.1	-4.5	-4.2	-4.1	-4.2	-4.4	-5.1	-13.1	-2.2	-6.0	3.3	24			
18	-6.2	-8.2	-8.3	-8.4	-6.8	-7.6	-10.8	-13.9	-11.6	-5.0	-1.8	-2.0	-2.7	-2.5	-1.9	-1.7	-2.8	-4.4	-8.4	-11.7	-14.3	-15.2	-13.4	-13.8	-15.2	-1.7	-7.6	4.6	24			
19	-15.4	-14.6	-12.9	-12.5	-12.1	-11.8	-11.7	-11.5	-10.3	-6.2	-5.0	-4.0	-3.3	-2.3	-0.1	-0.2	-1.6	-3.4	-5.7	-10.1	-12.7	-15.0	-17.4	-19.4	-19.4	-0.1	-9.1	5.7	24			
20	-20.2	-19.7	-21.2	-21.4	-19.7	-20.5	-19.5	-17.9	-15.6	-12.4	-8.1	-5.4	-4.2	-2.4	-1.2	-2.6	-4.4	-4.8	-5.4	-5.4	-4.8	-4.7	-4.8	-4.8	-21.4	-1.2	-10.5	7.5	24			
21	-4.9	-5.0	-4.9	-4.9	-5.2	-5.4	-5.1	-5.0	-4.2	-2.9	-2.8	-1.6	-0.4	0.7	-1.4	-1.0	-1.2	-2.1	-3.2	-3.6	-3.9	-4.0	-4.0	-4.2	-5.4	0.7	-3.3	1.7	24			
22	-4.4	-4.3	-4.2	-4.4	-4.5	-4.3	-4.0	-4.1	-3.8	-3.5	-3.3	-3.9	-3.9	-3.1	-3.3	-3.0	-3.9	-6.2	-7.6	-9.1	-9.2	-11.0	-13.1	-14.3	-14.3	-3.0	-5.7	3.3	24			
23	-13.8	-13.5	-13.8	-11.7	-10.7	-10.6	-10.4	-9.8	-10.2	-10.5	-8.9	-7.4	-7.8	-7.9	-8.9	-9.7	-10.5	-12.9	-16.4	-21.7	-25.9	-27.0	-29.9	-32.2	-32.2	-7.4	-14.3	7.4	24			
24	-33.8	-35.7	-36.7	-37.8	-38.8	-39.6	-40.2	-40.4	-35.7	-27.8	-23.3	-18.2	-15.9	-13.9	-12.2	-11.2	-11.3	-13.1	-19.3	-24.1	-26.8	-29.0	-30.7	-32.1	-40.4	-11.2	-27.0	10.4	24			
25	-33.3	-34.4	-35.3	-36.0	-36.8	-37.4	-37.8	-37.8	-32.4	-24.8	-19.6	-13.7	-10.1	-7.5	-6.2	-6.6	-6.9	-9.9	-14.0	-18.7	-21.8	-23.9	-25.5	-26.8	-37.8	-6.2	-23.2	11.6	24			
26	-27.8	-28.5	-29.2	-29.8	-30.4	-30.7	-31.0	-30.7	-25.5	-18.2	-12.8	-8.6	-4.5	-1.3	1.5	2.2	0.8	-4.3	-5.1	-6.2	-6.4	-8.2	-10.5	-11.9	-31.0	2.2	-14.9	12.3	24			
27	-14.0	-14.4	-14.7	-15.3	-16.5	-17.2	-17.0	-17.5	-13.1	-9.0	-6.7	-3.9	-2.0	0.2	-0.2	-0.1	-1.5	-2.9	-4.0	-6.2	-9.2	-12.1	-13.6	-15.5	-17.5	0.2	-9.4	6.3	24			
28	-18.1	-20.0	-21.3	-22.3	-20.7	-19.8	-22.2	-22.2	-17.7	-11.1	-7.7	-6.1	-4.4	-3.6	-3.7	-4.3	-5.0	-5.7	-6.2	-7.1	-7.9	-8.7	-8.6	-9.9	-22.3	-3.6	-11.8	7.1	24			
HR MIN	-33.8	-35.7	-36.7	-37.8	-38.8	-39.6	-40.2	-40.4	-35.7	-27.8	-23.3	-18.2	-15.9	-13.9	-12.2	-11.2	-11.3	-13.1	-19.3	-24.1	-26.8	-29.0	-30.7	-32.2	-40.4							
HR MAX	5.9	5.8	5.4	5.7	4.9	5.8	6.5	6.3	6.4	6.6	6.7	6.6	6.5	6.1	5.3	4.7	4.5	3.5	1.1	0.0	-0.1	0.0	-2.2	-2.6	6.7							
HR AVG	-14.7	-15.3	-15.7	-15.8	-15.8	-15.8	-16.1	-16.2	-14.5	-10.8	-8.1	-6.0	-4.5	-3.6	-3.3	-3.3	-4.0	-5.5	-7.5	-9.4	-10.7	-12.2	-13.5	-14.5	-10.7							
HR STD	10.1	10.3	10.5	10.7	10.9	11.1	11.2	11.2	10.1	7.8	6.5	5.0	4.6	4.2	4.0	3.9	3.9	4.8	6.0	7.1	7.8	8.4	8.9	9.3								
n	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	672			

Grand Teton National Park

Flag Ranch

Ambient Temperature (aspirated) hourly averages (degC)

03/01/2003 - 03/31/2003

Date	HOUR (LOCAL STANDARD TIME)																							DAY MIN	DAY MAX	DAY AVG	DAY STD n		
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
1	-12.7	-14.1	-13.7	-13.6	-13.4	-13.5	-14.8	-15.1	-12.5	-9.9	-5.7	-3.4	-3.1	-2.3	-1.3	-3.2	-2.2	-4.1	-8.1	-13.0	-15.9	-16.0	-16.9	-19.1	-19.1	-1.3	-10.3	5.6 24	
2	-21.5	-23.3	-24.6	-25.8	-26.3	-27.0	-25.9	-23.7	-19.8	-16.9	-13.8	-9.5	-6.3	-4.0	-3.9	-3.7	-4.0	-5.0	-5.9	-6.3	-6.2	-6.6	-5.4	-5.7	-27.0	-3.7	-13.4	9.2 24	
3	-5.4	-6.3	-6.6	-6.6	-6.2	-6.5	-6.8	-6.6	-5.7	-4.6	-3.7	-3.3	-3.3	-2.9	-3.6	-3.6	-4.6	-5.3	-5.6	-6.0	-6.1	-6.8	-7.8	-7.9	-7.9	-2.9	-5.5	1.5 24	
4	-9.7	-11.5	-11.0	-10.3	-10.7	-11.5	-11.6	-10.2	-7.9	-6.9	-6.3	-5.8	-5.0	-4.9	-4.6	-5.0	-6.4	-7.0	-7.9	-9.9	-13.4	-12.0	-9.8	-12.9	-13.4	-4.6	-8.8	2.8 24	
5	-17.8	-20.5	-18.6	-17.2	-16.3	-15.7	-15.2	-14.5	-12.1	-9.7	-7.9	-7.1	-7.0	-6.6	-6.6	-5.9	-5.4	-5.5	-5.2	-4.7	-4.3	-4.0	-4.1	-4.0	-20.5	-4.0	-9.8	5.6 24	
6	-3.4	-3.1	-3.3	-3.6	-4.1	-4.2	-4.2	-4.1	-3.8	-3.1	-2.5	-1.7	-0.9	-1.9	-3.9	-4.2	-4.0	-4.3	-4.1	-3.5	-2.8	-2.7	-3.0	-2.9	-4.3	-0.9	-3.3	0.9 24	
7	-2.9	-3.3	-3.6	-3.3	-3.0	-2.7	-2.3	-2.0	-1.6	-1.1	-1.0	-0.9	-1.0	-1.8	-1.7	-1.3	-0.9	-0.6	-0.7	-0.9	-1.1	-1.0	-0.7	-1.0	-3.6	-0.6	-1.7	1.0 24	
8	-1.2	-1.6	-1.7	-1.8	-2.0	-2.2	-2.0	-1.9	-1.3	-0.8	-0.2	0.5	0.6	0.8	0.2	0.6	0.8	0.8	0.7	0.4	-0.6	0.3	-0.5	-0.4	-2.2	0.8	-0.5	1.1 24	
9	-0.2	-0.9	-1.8	-2.1	-2.6	-2.6	-3.1	-2.2	0.2	3.3	4.5	4.8	4.2	3.3	1.2	-1.1	-0.4	-0.8	-1.0	-0.5	-0.3	-0.6	-0.9	-1.1	-3.1	4.8	-0.0	2.3 24	
10	-1.0	-1.3	-1.3	-1.2	-0.4	-0.6	-1.0	-0.9	0.1	1.7	2.5	2.8	4.0	3.2	3.2	3.0	3.1	1.9	0.9	1.9	2.2	2.4	2.2	1.8	-1.3	4.0	1.2	1.8 24	
11	1.1	1.2	1.6	1.3	0.8	0.5	0.0	0.8	-0.2	1.0	2.7	3.5	3.5	4.2	4.4	3.7	3.9	3.0	2.9	3.4	3.5	3.5	3.6	3.3	-0.2	4.4	2.4	1.4 24	
12	3.3	3.2	2.0	-0.1	1.0	1.9	1.8	1.1	1.1	2.2	3.5	4.9	6.0	5.9	5.7	5.8	6.2	5.5	4.9	4.4	4.2	4.1	3.8	3.6	-0.1	6.2	3.6	1.9 24	
13	3.1	3.3	1.1	-1.5	0.3	0.1	-1.2	-0.6	2.3	4.9	7.2	10.2	12.2	13.0	13.2	13.2	12.9	10.4	7.5	4.9	1.3	-0.7	0.1	-1.2	-1.5	13.2	4.8	5.4 24	
14	-1.5	-1.2	0.1	1.9	2.9	3.4	-0.0	0.8	5.5	7.8	7.0	6.1	5.0	3.7	2.8	3.5	4.7	3.9	1.8	0.1	-2.1	-2.7	-3.1	-3.6	-3.6	7.8	2.0	3.3 24	
15	-4.5	-5.2	-6.3	-6.8	-5.5	-4.8	-4.3	-4.2	-3.0	0.9	0.0	0.0	0.0	0.0	7.6	7.4	7.2	6.8	5.7	4.0	3.8	2.7	RF	1.6	1.3	-6.8	7.6	0.2	4.8 23
16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
23	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
26	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
27	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
28	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
HR MIN	-21.5	-23.3	-24.6	-25.8	-26.3	-27.0	-25.9	-23.7	-19.8	-16.9	-13.8	-9.5	-7.0	-6.6	-6.6	-5.9	-6.4	-7.0	-8.1	-13.0	-15.9	-16.0	-16.9	-19.1	-27.0				
HR MAX	3.3	3.3	2.0	1.9	2.9	3.4	1.8	1.1	5.5	7.8	7.2	10.2	12.2	13.0	13.2	13.2	12.9	10.4	7.5	4.9	4.2	4.1	3.8	3.6		13.2			
HR AVG	-5.0	-5.6	-5.8	-6.0	-5.7	-5.7	-6.0	-5.5	-3.9	-2.1	-0.9	0.1	0.6	1.2	0.8	0.6	0.7	-0.1	-1.1	-1.7	-2.6	-3.1	-2.7	-3.3		-2.6			
HR STD	7.4	8.2	7.9	7.7	7.9	8.1	7.6	7.3	6.7	6.5	5.9	5.4	5.3	5.3	5.4	5.4	5.5	5.1	4.9	5.4	5.9	5.7	5.6	6.2		6.7			
n	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	359			

Grand Teton National Park

Flag Ranch

Relative Humidity hourly averages (percent)

12/01/2002 - 12/31/2002

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
19	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	0				
20	79.0	78.0	78.0	79.0	79.0	80.0	81.0	81.0	81.0	79.0	76.0	77.0	74.0	76.0	78.0	79.0	86.0	88.0	88.0	88.0	89.0	89.0	88.0	88.0	74.0	89.0	81.6	4.9	24
21	88.0	88.0	88.0	88.0	88.0	88.0	88.0	89.0	88.0	88.0	84.0	80.0	80.0	82.0	83.0	86.0	87.0	90.0	91.0	91.0	91.0	91.0	91.0	91.0	80.0	91.0	87.6	3.5	24
22	91.0	91.0	91.0	91.0	91.0	91.0	91.0	90.0	90.0	84.0	79.0	77.0	81.0	76.0	76.0	73.0	83.0	88.0	89.0	85.0	85.0	83.0	81.0	79.0	73.0	91.0	84.8	5.9	24
23	78.0	76.0	75.0	74.0	73.0	73.0	74.0	76.0	74.0	77.0	75.0	67.0	60.0	60.0	57.0	62.0	72.0	81.0	80.0	78.0	77.0	75.0	74.0	74.0	57.0	81.0	72.6	6.5	24
24	73.0	74.0	74.0	75.0	76.0	72.0	72.0	72.0	73.0	75.0	73.0	72.0	66.0	69.0	69.0	72.0	74.0	79.0	81.0	82.0	82.0	78.0	76.0	76.0	64.0	82.0	74.4	3.9	24
25	73.0	72.0	72.0	71.0	70.0	69.0	68.0	68.0	69.0	71.0	69.0	61.0	58.0	64.0	69.0	72.0	74.0	79.0	81.0	82.0	82.0	83.0	83.0	82.0	58.0	83.0	72.6	7.0	24
26	80.0	81.0	82.0	81.0	80.0	77.0	75.0	79.0	79.0	77.0	71.0	74.0	75.0	73.0	76.0	80.0	85.0	86.0	87.0	87.0	88.0	88.0	88.0	71.0	88.0	80.5	5.2	24	
27	89.0	88.0	90.0	89.0	90.0	89.0	91.0	92.0	93.0	90.0	92.0	91.0	90.0	90.0	89.0	92.0	89.0	87.0	88.0	89.0	90.0	91.0	90.0	91.0	87.0	93.0	90.0	1.5	24
28	85.0	81.0	85.0	86.0	90.0	90.0	87.0	84.0	85.0	84.0	87.0	88.0	85.0	80.0	73.0	69.0	76.0	82.0	76.0	67.0	62.0	56.0	67.0	73.0	56.0	90.0	79.1	9.3	24
29	77.0	83.0	82.0	81.0	75.0	64.0	88.0	95.0	95.0	93.0	90.0	85.0	79.0	86.0	83.0	81.0	91.0	92.0	90.0	89.0	89.0	91.0	92.0	64.0	95.0	86.0	7.4	24	
30	92.0	90.0	87.0	87.0	88.0	88.0	88.0	87.0	88.0	86.0	87.0	85.0	83.0	86.0	85.0	88.0	89.0	89.0	86.0	85.0	85.0	84.0	85.0	83.0	92.0	87.0	2.1	24	
31	88.0	89.0	88.0	84.0	86.0	89.0	90.0	88.0	83.0	82.0	80.0	79.0	88.0	90.0	90.0	93.0	95.0	94.0	90.0	90.0	91.0	91.0	92.0	79.0	95.0	88.4	4.2	24	
HR MIN	73.0	72.0	72.0	71.0	70.0	64.0	68.0	68.0	69.0	71.0	69.0	61.0	58.0	60.0	57.0	62.0	72.0	79.0	76.0	67.0	62.0	56.0	67.0	73.0	56.0				
HR MAX	92.0	91.0	91.0	91.0	91.0	91.0	95.0	95.0	93.0	92.0	91.0	90.0	90.0	93.0	95.0	94.0	92.0	91.0	91.0	91.0	91.0	92.0	92.0	95.0					
HR AVG	82.8	82.6	82.7	82.2	82.2	80.8	82.8	83.4	83.2	81.8	80.1	78.1	77.3	77.5	77.6	78.8	83.8	86.8	86.1	84.4	83.7	82.9	83.7	84.1		82.0			
HR STD	6.9	6.6	6.6	6.4	7.5	9.5	8.3	8.3	8.2	6.3	7.5	8.7	10.1	10.2	9.7	9.9	7.5	5.1	5.1	6.7	8.2	10.0	7.8	7.4		8.1			
n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	288				

Grand Teton National Park

Flag Ranch

Relative Humidity hourly averages (percent)

01/01/2003 - 01/31/2003

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n			
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23								
1	93.0	91.0	90.0	89.0	88.0	87.0	89.0	89.0	87.0	84.0	83.0	82.0	79.0	78.0	76.0	76.0	81.0	83.0	85.0	88.0	89.0	89.0	89.0	76.0	93.0	85.6	4.8	24				
2	90.0	89.0	89.0	89.0	90.0	89.0	89.0	88.0	86.0	85.0	80.0	77.0	75.0	77.0	83.0	87.0	87.0	88.0	90.0	92.0	92.0	92.0	92.0	75.0	92.0	87.0	5.1	24				
3	93.0	93.0	93.0	94.0	94.0	94.0	94.0	94.0	94.0	92.0	91.0	82.0	74.0	67.0	65.0	65.0	67.0	82.0	90.0	90.0	92.0	91.0	95.0	93.0	65.0	95.0	86.6	10.6	24			
4	92.0	90.0	92.0	95.0	95.0	95.0	95.0	95.0	96.0	93.0	90.0	81.0	81.0	74.0	76.0	86.0	93.0	95.0	95.0	95.0	95.0	95.0	95.0	74.0	96.0	91.0	6.5	24				
5	95.0	96.0	96.0	96.0	97.0	95.0	90.0	94.0	93.0	91.0	87.0	76.0	68.0	68.0	62.0	71.0	80.0	93.0	95.0	94.0	93.0	90.0	88.0	86.0	62.0	97.0	87.3	10.5	24			
6	84.0	84.0	83.0	83.0	84.0	84.0	82.0	80.0	79.0	82.0	84.0	83.0	72.0	67.0	65.0	65.0	71.0	85.0	88.0	85.0	84.0	82.0	81.0	81.0	65.0	88.0	79.9	6.6	24			
7	81.0	82.0	82.0	80.0	80.0	79.0	79.0	79.0	81.0	83.0	81.0	75.0	68.0	59.0	56.0	58.0	67.0	80.0	86.0	85.0	83.0	82.0	80.0	79.0	56.0	86.0	76.9	8.6	24			
8	79.0	78.0	77.0	77.0	78.0	81.0	80.0	79.0	81.0	82.0	83.0	79.0	72.0	58.0	56.0	55.0	61.0	79.0	85.0	84.0	82.0	81.0	79.0	79.0	55.0	85.0	76.0	8.9	24			
9	78.0	78.0	78.0	77.0	77.0	76.0	76.0	75.0	75.0	77.0	74.0	63.0	55.0	49.0	50.0	52.0	58.0	75.0	83.0	83.0	81.0	79.0	78.0	77.0	49.0	83.0	71.8	10.7	24			
10	76.0	75.0	74.0	74.0	73.0	73.0	73.0	73.0	74.0	74.0	71.0	69.0	68.0	65.0	64.0	68.0	74.0	78.0	80.0	81.0	81.0	82.0	83.0	64.0	83.0	74.3	5.3	24				
11	83.0	84.0	84.0	84.0	85.0	87.0	86.0	87.0	86.0	79.0	78.0	78.0	78.0	77.0	78.0	78.0	86.0	88.0	89.0	89.0	90.0	91.0	91.0	77.0	91.0	83.8	4.7	24				
12	91.0	91.0	91.0	91.0	92.0	92.0	92.0	91.0	91.0	89.0	84.0	78.0	81.0	84.0	90.0	88.0	85.0	82.0	83.0	89.0	89.0	86.0	93.0	78.0	93.0	88.2	4.2	24				
13	92.0	84.0	85.0	93.0	95.0	96.0	96.0	96.0	98.0	98.0	98.0	97.0	94.0	86.0	83.0	82.0	81.0	87.0	93.0	94.0	97.0	97.0	98.0	96.0	84.0	98.0	92.7	4.4	24			
14	97.0	97.0	97.0	97.0	98.0	98.0	98.0	98.0	97.0	94.0	74.0	71.0	69.0	68.0	65.0	64.0	68.0	74.0	78.0	80.0	81.0	81.0	82.0	83.0	81.0	98.0	94.1	5.7	24			
15	78.0	88.0	95.0	95.0	94.0	92.0	90.0	91.0	88.0	87.0	77.0	70.0	64.0	64.0	71.0	68.0	73.0	79.0	80.0	83.0	85.0	89.0	87.0	64.0	95.0	82.3	9.7	24				
16	86.0	86.0	86.0	86.0	86.0	85.0	85.0	85.0	83.0	80.0	74.0	68.0	67.0	66.0	68.0	78.0	86.0	90.0	90.0	90.0	91.0	90.0	87.0	66.0	91.0	82.7	8.1	24				
17	84.0	82.0	80.0	83.0	83.0	81.0	79.0	78.0	77.0	81.0	79.0	74.0	68.0	59.0	51.0	54.0	59.0	78.0	85.0	85.0	83.0	81.0	80.0	80.0	51.0	85.0	76.0	10.0	24			
18	78.0	78.0	77.0	78.0	76.0	77.0	77.0	77.0	79.0	79.0	75.0	64.0	74.0	75.0	78.0	74.0	79.0	87.0	88.0	89.0	87.0	89.0	88.0	85.0	64.0	89.0	79.5	6.1	24			
19	84.0	83.0	82.0	82.0	82.0	81.0	81.0	83.0	83.0	82.0	80.0	70.0	63.0	59.0	57.0	57.0	59.0	71.0	80.0	85.0	88.0	89.0	86.0	84.0	57.0	89.0	77.1	10.4	24			
20	83.0	82.0	81.0	82.0	83.0	82.0	80.0	79.0	80.0	83.0	78.0	63.0	64.0	66.0	71.0	79.0	82.0	86.0	85.0	88.0	90.0	90.0	91.0	63.0	91.0	80.7	7.8	24				
21	89.0	91.0	90.0	89.0	91.0	90.0	92.0	92.0	92.0	91.0	83.0	85.0	88.0	90.0	89.0	91.0	92.0	90.0	95.0	95.0	95.0	95.0	95.0	91.0	83.0	95.0	90.6	2.9	24			
22	93.0	94.0	96.0	94.0	93.0	93.0	92.0	96.0	95.0	95.0	94.0	93.0	89.0	83.0	86.0	90.0	93.0	94.0	95.0	96.0	96.0	96.0	96.0	93.0	93.0	96.0	93.2	3.3	24			
23	96.0	96.0	96.0	96.0	96.0	97.0	97.0	96.0	96.0	93.0	92.0	93.0	85.0	89.0	83.0	84.0	80.0	87.0	92.0	95.0	98.0	96.0	93.0	80.0	98.0	92.3	5.0	24				
24	96.0	95.0	94.0	94.0	94.0	95.0	95.0	95.0	94.0	90.0	83.0	78.0	75.0	75.0	74.0	78.0	80.0	86.0	89.0	91.0	91.0	93.0	92.0	74.0	96.0	88.3	7.6	24				
25	92.0	92.0	93.0	92.0	95.0	97.0	97.0	95.0	92.0	89.0	85.0	81.0	78.0	78.0	80.0	87.0	93.0	96.0	92.0	92.0	92.0	93.0	93.0	78.0	97.0	90.3	5.7	24				
26	94.0	95.0	94.0	95.0	95.0	95.0	96.0	96.0	94.0	93.0	94.0	93.0	93.0	93.0	95.0	96.0	97.0	97.0	97.0	97.0	97.0	97.0	97.0	89.0	97.0	94.7	1.9	24				
27	88.0	89.0	87.0	94.0	92.0	81.0	80.0	86.0	92.0	91.0	90.0	91.0	90.0	91.0	93.0	94.0	96.0	96.0	97.0	97.0	97.0	96.0	94.0	80.0	97.0	91.6	4.7	24				
28	90.0	94.0	95.0	95.0	95.0	94.0	93.0	92.0	91.0	89.0	82.0	73.0	69.0	71.0	71.0	73.0	82.0	89.0	91.0	91.0	92.0	92.0	92.0	69.0	95.0	87.0	8.8	24				
29	91.0	91.0	90.0	91.0	90.0	90.0	89.0	89.0	88.0	82.0	77.0	73.0	69.0	67.0	65.0	74.0	81.0	88.0	91.0	91.0	92.0	92.0	92.0	65.0	92.0	84.3	8.6	24				
30	87.0	91.0	94.0	91.0	96.0	97.0	98.0	98.0	98.0	95.0	92.0	95.0	97.0	95.0	95.0	93.0	93.0	95.0	96.0	96.0	96.0	97.0	97.0	87.0	98.0	94.9	2.6	24				
31	97.0	98.0	98.0	98.0	97.0	98.0	97.0	98.0	94.0	84.0	81.0	78.0	75.0	72.0	71.0	70.0	69.0	67.0	65.0	66.0	65.0	65.0	74.0	65.0	98.0	81.0	13.7	24				
HR MIN	76.0	75.0	74.0	74.0	73.0	73.0	73.0	73.0	74.0	74.0	71.0	63.0	55.0	49.0	50.0	52.0	58.0	67.0	65.0	66.0	65.0	66.0	65.0	74.0	49.0							
HR MAX	97.0	98.0	98.0	98.0	98.0	98.0	98.0	98.0	98.0	97.0	95.0	95.0	97.0	95.0	95.0	96.0	97.0	97.0	98.0	98.0	98.0	98.0	97.0		98.0							
HR AVG	88.1	88.3	88.4	88.8	89.2	88.8	88.3	88.5	88.1	86.6	83.5	78.5	76.0	73.7	73.6	76.0	80.2	86.4	88.6	89.6	89.6	89.2	89.0	88.5		85.2						
HR STD	6.3	6.4	6.9	6.9	7.2	7.4	7.6	7.7	7.1	6.1	6.6	8.9	10.2	11.6	12.7	12.5	11.7	7.9	6.8	6.6	6.9	7.0	7.3	6.2			9.8					
n	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	744

Grand Teton National Park

Flag Ranch

Ambient Temperature (aspirated) hourly averages (degC)

02/01/2003 - 02/28/2003

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n			
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23								
1	5.9	5.8	5.4	5.7	4.9	5.8	6.5	6.3	6.4	6.6	6.7	6.6	6.5	6.1	5.3	4.7	4.5	3.5	1.1	0.0	-0.1	0.0	-2.2	-2.7	-2.7	6.7	4.1	3.0	24			
2	-2.8	-3.3	-3.4	-3.6	-3.8	-4.0	-4.0	-4.1	-4.1	-4.1	-3.7	-3.1	-2.8	-2.1	-2.5	-2.6	-3.3	-4.0	-5.2	-6.3	-7.4	-11.2	-14.1	-15.8	-15.8	-2.1	-5.1	3.6	24			
3	-17.0	-18.2	-19.1	-19.8	-20.2	-18.4	-20.2	-21.6	-21.0	-15.4	-13.4	-11.8	-9.1	-7.5	-7.1	-7.4	-7.8	-8.4	-9.1	-9.3	-8.8	-8.9	-9.4	-10.1	-21.6	-7.1	-13.3	5.3	24			
4	-11.3	-12.6	-13.2	-12.2	-12.5	-12.6	-12.4	-12.1	-12.2	-10.4	-6.5	-5.5	-4.5	-4.7	-5.3	-5.7	-6.5	-7.9	-10.5	-12.9	-16.5	-19.4	-21.8	-23.5	-23.5	-4.5	-11.4	5.2	24			
5	-24.9	-25.8	-26.0	-23.9	-22.4	-21.4	-20.9	-20.0	-18.9	-16.4	-13.4	-8.6	-8.6	-7.7	-7.4	-6.9	-8.6	-9.6	-10.3	-10.9	-11.7	-15.5	-19.0	-21.3	-26.0	-6.9	-15.8	6.6	24			
6	-22.9	-24.7	-25.8	-27.1	-28.1	-29.2	-30.2	-31.0	-29.8	-21.3	-17.1	-12.1	-9.7	-8.6	-7.7	-7.5	-7.9	-10.6	-16.8	-21.2	-23.7	-25.3	-26.8	-28.2	-31.0	-7.5	-20.6	8.3	24			
7	-29.1	-30.0	-30.5	-31.1	-31.3	-31.6	-32.0	-32.0	-29.1	-22.1	-17.4	-13.4	-10.5	-8.7	-7.1	-6.4	-7.3	-8.2	-9.7	-12.2	-13.7	-15.6	-17.4	-18.6	-32.0	-6.4	-19.4	9.8	24			
8	-19.3	-17.9	-17.4	-16.8	-16.4	-16.3	-16.1	-15.8	-14.7	-13.7	-11.0	-9.4	-8.3	-7.7	-8.1	-7.7	-8.7	-10.4	-12.1	-12.5	-15.0	-19.0	-20.1	-19.5	-20.1	-7.7	-13.9	4.2	24			
9	-18.7	-17.6	-15.6	-14.5	-13.2	-12.7	-13.9	-15.0	-14.4	-12.8	-9.3	-8.0	-7.4	-6.7	-7.1	-7.0	-8.3	-8.9	-9.2	-8.8	-7.8	-7.5	-7.3	-7.3	-18.7	-6.7	-10.8	3.8	24			
10	-7.4	-7.9	-7.5	-7.3	-7.2	-7.3	-7.4	-7.4	-7.1	-6.0	-5.0	-4.1	-4.0	-4.3	-4.1	-2.6	-2.8	-3.9	-4.7	-5.8	-6.6	-7.2	-8.3	-7.9	-8.3	-2.6	-6.0	1.8	24			
11	-5.5	-8.6	-8.9	-7.8	-6.9	-7.5	-12.1	-16.1	-16.6	-9.0	-6.4	-3.9	-0.3	1.0	1.6	0.6	-0.4	-2.8	-5.3	-7.9	-11.4	-14.1	-16.8	-18.8	-18.8	1.6	-7.7	6.0	24			
12	-20.5	-21.9	-23.0	-23.8	-24.8	-25.7	-26.5	-26.8	-24.9	-16.1	-11.3	-6.0	-2.5	-0.7	1.0	-0.1	0.5	-2.0	-7.8	-11.7	-14.3	-16.9	-18.7	-20.0	-26.8	1.0	-14.4	9.9	24			
13	-21.2	-22.0	-22.3	-22.5	-22.3	-20.5	-17.5	-15.7	-13.8	-11.0	-7.0	-4.5	-2.8	-1.5	-1.5	-1.6	-2.4	-3.5	-4.1	-4.2	-4.3	-4.3	-4.3	-22.5	-1.5	-10.0	8.2	24				
14	-4.3	-4.2	-4.1	-4.0	-3.9	-3.8	-3.7	-3.5	-2.6	-0.8	0.3	1.0	1.8	0.9	0.4	-0.2	-1.2	-1.5	-1.7	-2.1	-2.2	-2.3	-2.4	-2.6	-4.3	1.8	-1.9	1.9	24			
15	-2.8	-2.8	-3.0	-3.8	-3.8	-3.2	-3.0	-3.0	-2.2	-1.8	-0.8	-0.2	2.0	1.7	1.6	2.4	1.2	-0.2	-2.2	-4.2	-5.1	-7.1	-9.3	-10.4	-10.4	2.4	-2.5	3.3	24			
16	-12.1	-12.0	-13.3	-14.2	-15.3	-15.9	-15.4	-15.3	-14.0	-11.3	-8.5	-6.4	-5.4	-3.8	-3.1	-2.5	-2.2	-2.9	-3.8	-4.3	-4.8	-4.3	-4.2	-4.4	-15.9	-2.2	-8.3	5.1	24			
17	-4.9	-6.4	-9.0	-11.6	-13.1	-12.3	-11.0	-9.9	-7.2	-5.4	-4.0	-3.0	-2.2	-2.9	-3.7	-3.6	-3.7	-4.1	-4.5	-4.2	-4.1	-4.2	-4.4	-5.1	-13.1	-2.2	-6.0	3.3	24			
18	-6.2	-8.2	-8.3	-8.4	-6.8	-7.6	-10.8	-13.9	-11.6	-5.0	-1.8	-2.0	-2.7	-2.5	-1.9	-1.7	-2.8	-4.4	-8.4	-11.7	-14.3	-15.2	-13.4	-13.8	-15.2	-1.7	-7.6	4.6	24			
19	-15.4	-14.6	-12.9	-12.5	-12.1	-11.8	-11.7	-11.5	-10.3	-6.2	-5.0	-4.0	-3.3	-2.3	-0.1	-0.2	-1.6	-3.4	-5.7	-10.1	-12.7	-15.0	-17.4	-19.4	-19.4	-0.1	-9.1	5.7	24			
20	-20.2	-19.7	-21.2	-21.4	-19.7	-20.5	-19.5	-17.9	-15.6	-12.4	-8.1	-5.4	-4.2	-2.4	-1.2	-2.6	-4.4	-4.8	-5.4	-5.4	-4.8	-4.7	-4.8	-4.8	-21.4	-1.2	-10.5	7.5	24			
21	-4.9	-5.0	-4.9	-4.9	-5.2	-5.4	-5.1	-5.0	-4.2	-2.9	-2.8	-1.6	-0.4	0.7	-1.4	-1.0	-1.2	-2.1	-3.2	-3.6	-3.9	-4.0	-4.0	-4.2	-5.4	0.7	-3.3	1.7	24			
22	-4.4	-4.3	-4.2	-4.4	-4.5	-4.3	-4.0	-4.1	-3.8	-3.5	-3.3	-3.9	-3.9	-3.1	-3.3	-3.0	-3.9	-6.2	-7.6	-9.1	-9.2	-11.0	-13.1	-14.3	-14.3	-3.0	-5.7	3.3	24			
23	-13.8	-13.5	-13.8	-11.7	-10.7	-10.6	-10.4	-9.8	-10.2	-10.5	-8.9	-7.4	-7.8	-7.9	-8.9	-9.7	-10.5	-12.9	-16.4	-21.7	-25.9	-27.0	-29.9	-32.2	-32.2	-7.4	-14.3	7.4	24			
24	-33.8	-35.7	-36.7	-37.8	-38.8	-39.6	-40.2	-40.4	-35.7	-27.8	-23.3	-18.2	-15.9	-13.9	-12.2	-11.2	-11.3	-13.1	-19.3	-24.1	-26.8	-29.0	-30.7	-32.1	-40.4	-11.2	-27.0	10.4	24			
25	-33.3	-34.4	-35.3	-36.0	-36.8	-37.4	-37.8	-37.8	-32.4	-24.8	-19.6	-13.7	-10.1	-7.5	-6.2	-6.6	-6.9	-9.9	-14.0	-18.7	-21.8	-23.9	-25.5	-26.8	-37.8	-6.2	-23.2	11.6	24			
26	-27.8	-28.5	-29.2	-29.8	-30.4	-30.7	-31.0	-30.7	-25.5	-18.2	-12.8	-8.6	-4.5	-1.3	1.5	2.2	0.8	-4.3	-5.1	-6.2	-6.4	-8.2	-10.5	-11.9	-31.0	2.2	-14.9	12.3	24			
27	-14.0	-14.4	-14.7	-15.3	-16.5	-17.2	-17.0	-17.5	-13.1	-9.0	-6.7	-3.9	-2.0	0.2	-0.2	-0.1	-1.5	-2.9	-4.0	-6.2	-9.2	-12.1	-13.6	-15.5	-17.5	0.2	-9.4	6.3	24			
28	-18.1	-20.0	-21.3	-22.3	-20.7	-19.8	-22.2	-22.2	-17.7	-11.1	-7.7	-6.1	-4.4	-3.6	-3.7	-4.3	-5.0	-5.7	-6.2	-7.1	-7.9	-8.7	-8.6	-9.9	-22.3	-3.6	-11.8	7.1	24			
HR MIN	-33.8	-35.7	-36.7	-37.8	-38.8	-39.6	-40.2	-40.4	-35.7	-27.8	-23.3	-18.2	-15.9	-13.9	-12.2	-11.2	-11.3	-13.1	-19.3	-24.1	-26.8	-29.0	-30.7	-32.2	-40.4							
HR MAX	5.9	5.8	5.4	5.7	4.9	5.8	6.5	6.3	6.4	6.6	6.7	6.6	6.5	6.1	5.3	4.7	4.5	3.5	1.1	0.0	-0.1	0.0	-2.2	-2.6	6.7							
HR AVG	-14.7	-15.3	-15.7	-15.8	-15.8	-15.8	-16.1	-16.2	-14.5	-10.8	-8.1	-6.0	-4.5	-3.6	-3.3	-3.3	-4.0	-5.5	-7.5	-9.4	-10.7	-12.2	-13.5	-14.5	-10.7							
HR STD	10.1	10.3	10.5	10.7	10.9	11.1	11.2	11.2	10.1	7.8	6.5	5.0	4.6	4.2	4.0	3.9	3.9	4.8	6.0	7.1	7.8	8.4	8.9	9.3								
n	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	672			

Final Validation

5/12/2003

Grand Teton National Park

Flag Ranch

Ambient Temperature (aspirated) hourly averages (degC)

03/01/2003 - 03/31/2003

Date	HOUR (LOCAL STANDARD TIME)																							DAY MIN	DAY MAX	DAY AVG	DAY STD n		
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
1	-12.7	-14.1	-13.7	-13.6	-13.4	-13.5	-14.8	-15.1	-12.5	-9.9	-5.7	-3.4	-3.1	-2.3	-1.3	-3.2	-2.2	-4.1	-8.1	-13.0	-15.9	-16.0	-16.9	-19.1	-19.1	-1.3	-10.3	5.6 24	
2	-21.5	-23.3	-24.6	-25.8	-26.3	-27.0	-25.9	-23.7	-19.8	-16.9	-13.8	-9.5	-6.3	-4.0	-3.9	-3.7	-4.0	-5.0	-5.9	-6.3	-6.2	-6.6	-5.4	-5.7	-27.0	-3.7	-13.4	9.2 24	
3	-5.4	-6.3	-6.6	-6.6	-6.2	-6.5	-6.8	-6.6	-5.7	-4.6	-3.7	-3.3	-3.3	-2.9	-3.6	-3.6	-4.6	-5.3	-5.6	-6.0	-6.1	-6.8	-7.8	-7.9	-7.9	-2.9	-5.5	1.5 24	
4	-9.7	-11.5	-11.0	-10.3	-10.7	-11.5	-11.6	-10.2	-7.9	-6.9	-6.3	-5.8	-5.0	-4.9	-4.6	-5.0	-6.4	-7.0	-7.9	-9.9	-13.4	-12.0	-9.8	-12.9	-13.4	-4.6	-8.8	2.8 24	
5	-17.8	-20.5	-18.6	-17.2	-16.3	-15.7	-15.2	-14.5	-12.1	-9.7	-7.9	-7.1	-7.0	-6.6	-6.6	-5.9	-5.4	-5.5	-5.2	-4.7	-4.3	-4.0	-4.1	-4.0	-20.5	-4.0	-9.8	5.6 24	
6	-3.4	-3.1	-3.3	-3.6	-4.1	-4.2	-4.2	-4.1	-3.8	-3.1	-2.5	-1.7	-0.9	-1.9	-3.9	-4.2	-4.0	-4.3	-4.1	-3.5	-2.8	-2.7	-3.0	-2.9	-4.3	-0.9	-3.3	0.9 24	
7	-2.9	-3.3	-3.6	-3.3	-3.0	-2.7	-2.3	-2.0	-1.6	-1.1	-1.0	-0.9	-1.0	-1.8	-1.7	-1.3	-0.9	-0.6	-0.7	-0.9	-1.1	-1.0	-0.7	-1.0	-3.6	-0.6	-1.7	1.0 24	
8	-1.2	-1.6	-1.7	-1.8	-2.0	-2.2	-2.0	-1.9	-1.3	-0.8	-0.2	0.5	0.6	0.8	0.2	0.6	0.8	0.8	0.7	0.4	-0.6	0.3	-0.5	-0.4	-2.2	0.8	-0.5	1.1 24	
9	-0.2	-0.9	-1.8	-2.1	-2.6	-2.6	-3.1	-2.2	0.2	3.3	4.5	4.8	4.2	3.3	1.2	-1.1	-0.4	-0.8	-1.0	-0.5	-0.3	-0.6	-0.9	-1.1	-3.1	4.8	-0.0	2.3 24	
10	-1.0	-1.3	-1.3	-1.2	-0.4	-0.6	-1.0	-0.9	0.1	1.7	2.5	2.8	4.0	3.2	3.2	3.0	3.1	1.9	0.9	1.9	2.2	2.4	2.2	1.8	-1.3	4.0	1.2	1.8 24	
11	1.1	1.2	1.6	1.3	0.8	0.5	0.0	0.8	-0.2	1.0	2.7	3.5	3.5	4.2	4.4	3.7	3.9	3.0	2.9	3.4	3.5	3.5	3.6	3.3	-0.2	4.4	2.4	1.4 24	
12	3.3	3.2	2.0	-0.1	1.0	1.9	1.8	1.1	1.1	2.2	3.5	4.9	6.0	5.9	5.7	5.8	6.2	5.5	4.9	4.4	4.2	4.1	3.8	3.6	-0.1	6.2	3.6	1.9 24	
13	3.1	3.3	1.1	-1.5	0.3	0.1	-1.2	-0.6	2.3	4.9	7.2	10.2	12.2	13.0	13.2	13.2	12.9	10.4	7.5	4.9	1.3	-0.7	0.1	-1.2	-1.5	13.2	4.8	5.4 24	
14	-1.5	-1.2	0.1	1.9	2.9	3.4	-0.0	0.8	5.5	7.8	7.0	6.1	5.0	3.7	2.8	3.5	4.7	3.9	1.8	0.1	-2.1	-2.7	-3.1	-3.6	-3.6	7.8	2.0	3.3 24	
15	-4.5	-5.2	-6.3	-6.8	-5.5	-4.8	-4.3	-4.2	-3.0	0.9	0.0	0.0	0.0	0.0	7.6	7.4	7.2	6.8	5.7	4.0	3.8	2.7	RF	1.6	1.3	-6.8	7.6	0.2	4.8 23
16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
23	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
26	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
27	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
28	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
HR MIN	-21.5	-23.3	-24.6	-25.8	-26.3	-27.0	-25.9	-23.7	-19.8	-16.9	-13.8	-9.5	-7.0	-6.6	-6.6	-5.9	-6.4	-7.0	-8.1	-13.0	-15.9	-16.0	-16.9	-19.1	-27.0				
HR MAX	3.3	3.3	2.0	1.9	2.9	3.4	1.8	1.1	5.5	7.8	7.2	10.2	12.2	13.0	13.2	13.2	12.9	10.4	7.5	4.9	4.2	4.1	3.8	3.6		13.2			
HR AVG	-5.0	-5.6	-5.8	-6.0	-5.7	-5.7	-6.0	-5.5	-3.9	-2.1	-0.9	0.1	0.6	1.2	0.8	0.6	0.7	-0.1	-1.1	-1.7	-2.6	-3.1	-2.7	-3.3		-2.6			
HR STD	7.4	8.2	7.9	7.7	7.9	8.1	7.6	7.3	6.7	6.5	5.9	5.4	5.3	5.3	5.4	5.4	5.5	5.1	4.9	5.4	5.9	5.7	5.6	6.2		6.7			
n	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	359			

Grand Teton National Park

Flag Ranch

Station Temperature hourly averages (degC)

12/01/2002 - 12/31/2002

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
19	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	0				
20	26.9	27.0	27.2	27.2	27.3	27.5	27.5	27.8	27.9	28.2	28.4	28.8	29.3	29.7	29.8	30.0	29.8	29.2	29.3	29.2	29.2	29.3	29.3	26.9	30.0	28.5	1.0	24	
21	29.3	29.2	29.3	29.1	29.2	29.0	29.2	29.1	29.1	29.0	29.4	29.7	30.2	30.4	30.7	30.4	29.7	29.7	29.3	29.3	29.3	29.2	29.4	29.5	29.0	30.7	29.5	0.5	24
22	29.5	29.2	29.2	29.3	29.2	29.2	29.3	29.1	29.1	29.3	29.4	30.0	30.2	30.3	30.0	29.9	29.5	29.0	28.7	28.9	28.7	28.3	27.8	27.8	30.3	29.2	0.6	24	
23	27.4	26.1	25.7	25.1	24.4	23.6	23.1	22.9	23.0	23.9	25.8	27.5	29.1	30.6	31.4	31.7	31.3	29.7	28.3	27.7	26.9	26.0	25.0	24.2	22.9	31.7	26.7	2.8	24
24	23.6	23.3	23.1	23.3	23.4	23.2	22.8	22.4	22.2	22.6	24.3	26.7	28.1	29.1	30.0	30.1	29.7	28.5	27.5	26.8	26.6	26.4	25.8	25.2	22.2	30.1	25.6	2.7	24
25	24.5	23.7	22.9	22.2	21.4	20.6	19.8	19.0	18.8	19.6	21.9	24.8	27.1	28.1	28.5	28.6	28.8	28.7	28.5	28.6	28.5	28.5	28.4	28.5	18.8	28.8	25.0	3.8	24
26	28.1	27.5	27.2	27.4	27.2	26.5	26.1	25.6	25.9	26.3	27.3	28.5	29.2	29.9	30.9	31.0	30.6	30.3	30.3	30.3	30.2	30.3	30.4	25.6	31.0	28.6	1.8	24	
27	30.3	30.3	30.3	30.2	30.2	30.3	30.4	30.4	30.5	30.4	30.5	30.7	30.7	30.9	31.0	31.0	30.8	30.8	30.8	30.9	30.8	30.6	30.9	30.2	31.0	30.6	0.3	24	
28	31.0	31.0	31.0	30.9	31.0	30.9	30.6	30.6	30.7	30.9	31.2	31.3	31.3	31.3	31.3	31.4	31.2	30.8	30.8	30.8	30.8	30.7	30.7	30.6	31.4	31.0	0.3	24	
29	30.6	30.6	30.6	30.0	29.6	29.5	29.4	29.4	29.6	29.5	29.6	29.8	30.1	29.6	29.6	29.6	29.5	29.4	29.3	29.2	29.1	29.2	29.0	29.0	30.6	30.6	29.6	0.4	24
30	29.0	28.9	28.8	28.7	28.6	28.5	28.3	27.9	28.2	28.8	29.0	29.2	29.6	29.7	29.7	29.6	29.3	29.1	29.0	29.0	28.9	28.8	29.0	27.9	29.7	28.9	0.5	24	
31	28.9	29.0	29.1	28.9	29.0	29.0	29.3	29.2	29.0	29.1	29.6	29.8	29.9	29.9	30.3	29.9	29.5	29.5	29.3	29.5	29.5	29.7	29.8	28.9	30.3	29.4	0.4	24	
HR MIN	23.6	23.3	22.9	22.2	21.4	20.6	19.8	19.0	18.8	19.6	21.9	24.8	27.1	28.1	28.5	28.6	28.8	28.5	27.5	26.8	26.6	26.0	25.0	24.2	18.8				
HR MAX	31.0	31.0	31.0	30.9	31.0	30.9	30.6	30.6	30.7	30.9	31.2	31.3	31.3	31.4	31.7	31.4	31.2	30.8	30.9	30.8	30.8	30.7	30.9	31.7					
HR AVG	28.3	28.0	27.9	27.7	27.5	27.3	27.2	27.0	27.0	27.3	28.0	28.9	29.6	30.0	30.3	30.3	30.0	29.6	29.3	29.2	29.1	28.9	28.8	28.7		28.6			
HR STD	2.3	2.5	2.7	2.8	3.0	3.2	3.5	3.7	3.8	3.5	2.7	1.8	1.1	0.8	0.8	0.9	0.8	0.8	1.0	1.2	1.3	1.5	1.8	2.1			2.5		
n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	288				

Grand Teton National Park

Flag Ranch

Station Temperature hourly averages (degC)

01/01/2003 - 01/31/2003

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
1	29.7	29.8	29.8	29.7	29.5	29.4	29.6	29.7	29.6	29.6	29.5	29.6	30.0	30.3	30.4	30.3	28.8	26.1	24.4	23.1	22.0	21.5	21.4	20.8	20.8	30.4	27.7	3.4	24	
2	20.8	21.0	21.2	21.3	21.4	21.4	20.9	20.7	24.5	26.8	28.7	27.8	27.0	30.1	31.6	31.9	32.5	32.8	32.9	33.0	33.0	33.1	33.1	33.2	20.7	33.2	27.5	5.2	24	
3	33.2	33.2	33.2	33.2	33.3	33.2	33.3	33.4	33.5	33.7	34.1	34.3	34.8	35.2	35.6	35.8	35.6	35.3	35.1	35.0	34.7	34.8	34.6	34.3	33.2	35.8	34.3	0.9	24	
4	34.1	34.2	34.2	33.9	33.7	33.7	33.6	33.5	33.3	33.0	29.1	25.3	30.0	33.0	34.8	35.3	35.1	34.7	34.1	33.6	33.3	33.4	33.5	33.5	25.3	35.3	33.2	2.2	24	
5	33.5	33.6	33.7	33.7	33.8	33.8	33.8	33.8	33.9	33.9	34.2	34.9	35.9	35.4	36.3	36.4	36.2	35.5	35.0	34.1	33.2	32.1	31.1	30.3	30.3	36.4	34.1	1.5	24	
6	29.8	30.0	29.9	29.5	29.2	29.0	28.6	27.9	27.1	27.1	28.6	30.4	32.1	33.6	34.5	34.9	34.6	33.1	31.6	30.1	29.5	29.3	28.6	27.9	27.1	34.9	30.3	2.4	24	
7	27.6	27.3	27.1	26.8	26.3	25.8	25.4	25.1	25.3	26.0	27.7	30.0	31.7	33.8	35.4	36.1	35.8	34.0	32.4	31.0	30.1	29.6	28.9	28.0	25.1	36.1	29.5	3.6	24	
8	27.2	26.6	26.0	25.4	25.0	25.1	25.2	25.3	25.6	26.3	27.0	28.1	30.6	32.6	33.9	34.2	33.3	32.3	31.0	29.8	28.9	28.0	27.1	26.5	25.0	34.2	28.4	3.1	24	
9	26.1	25.8	25.6	25.3	25.0	24.9	24.6	24.5	24.2	25.1	26.7	29.3	31.6	33.6	34.3	33.6	32.9	32.0	30.5	29.1	28.0	27.2	26.4	25.8	24.2	34.3	28.0	3.4	24	
10	25.6	25.1	25.0	24.6	24.2	23.8	23.5	23.4	23.3	24.2	25.6	27.4	28.4	29.0	29.5	30.0	30.0	29.9	29.7	29.6	29.5	29.7	29.8	29.7	23.3	30.0	27.1	2.7	24	
11	29.9	30.0	30.0	30.1	29.9	29.8	28.9	28.4	28.7	29.3	30.0	30.9	31.4	31.7	32.1	32.4	32.5	32.0	31.5	31.1	31.0	31.0	31.1	31.1	28.4	32.5	30.6	1.2	24	
12	31.1	31.1	31.2	31.2	31.1	31.0	31.0	30.9	30.8	31.0	31.5	32.2	32.8	32.8	32.7	32.6	32.4	32.3	32.5	32.4	32.4	32.4	32.5	30.8	32.8	31.8	0.7	24		
13	32.5	32.4	32.6	32.6	32.6	32.5	32.3	32.2	32.1	32.4	32.6	32.9	33.2	33.4	33.6	33.6	32.8	32.0	31.5	31.2	31.2	31.3	31.4	31.4	31.2	33.6	32.3	0.7	24	
14	31.4	31.4	31.3	31.1	31.2	31.3	31.2	31.4	31.2	31.2	31.5	31.9	32.4	32.9	33.4	33.3	32.8	32.2	31.6	31.2	31.2	31.3	31.4	31.6	31.1	33.4	31.7	0.7	24	
15	31.4	31.3	31.2	31.2	31.6	31.7	31.5	31.3	31.4	31.7	32.2	33.0	32.4	32.5	29.9	27.0	26.0	25.1	24.2	23.6	22.9	22.8	22.6	22.6	22.6	33.0	28.8	3.9	24	
16	22.5	22.5	22.6	22.5	22.4	22.6	22.5	22.3	22.1	22.6	23.5	24.6	25.2	25.3	25.2	23.4	23.0	23.8	23.8	23.7	23.5	23.6	23.5	23.1	22.1	25.3	23.3	1.0	24	
17	22.7	22.3	21.9	21.6	22.0	22.2	22.2	21.9	21.4	21.9	22.8	24.0	25.2	26.2	26.7	26.7	26.4	25.2	23.9	22.8	22.2	21.8	21.7	21.5	21.4	26.7	23.2	1.8	24	
18	21.2	21.0	21.2	21.1	20.9	20.9	20.7	20.8	21.1	21.5	22.3	23.9	25.3	25.3	25.0	25.0	25.2	24.5	24.0	23.7	23.6	23.2	22.8	22.5	20.7	25.3	22.8	1.7	24	
19	22.2	22.1	21.9	21.9	21.9	21.7	22.0	22.3	22.6	23.1	23.9	25.6	26.7	27.5	27.3	26.7	25.5	24.3	23.6	23.1	22.8	22.3	22.0	21.7	27.5	23.5	1.9	24		
20	21.9	21.8	21.9	21.8	21.8	21.9	21.7	21.6	21.4	21.9	23.1	25.1	25.9	25.7	24.2	24.7	24.6	24.5	24.3	24.1	24.0	24.1	24.2	21.4	25.9	23.3	1.5	24		
21	24.2	24.3	24.3	24.3	24.4	24.1	24.2	24.2	24.3	24.3	24.7	24.8	24.7	24.7	24.7	24.6	24.5	24.5	24.4	24.3	24.3	24.3	24.2	24.1	24.8	24.4	0.2	24		
22	24.0	24.0	23.9	23.8	23.9	24.0	23.9	23.8	23.8	23.9	24.1	24.3	24.4	24.3	24.3	24.6	24.5	24.4	24.4	24.4	24.3	24.4	24.3	23.8	24.6	24.2	0.3	24		
23	24.3	24.2	24.1	24.2	24.2	24.4	24.2	24.1	24.1	24.4	24.7	24.7	25.0	24.4	22.0	23.7	24.6	24.5	24.5	24.3	24.4	24.0	23.8	22.0	25.0	24.2	0.6	24		
24	23.8	23.8	23.9	23.9	23.9	24.0	24.0	24.2	24.4	24.7	25.3	25.8	25.4	25.4	25.3	25.3	24.9	24.6	24.4	24.3	24.1	23.9	23.9	23.8	25.8	24.5	0.6	24		
25	24.1	24.3	24.3	24.2	24.2	24.1	24.2	24.2	24.3	24.4	24.6	24.9	25.5	25.7	25.7	25.4	25.1	24.8	24.6	24.5	24.4	24.4	24.4	24.1	25.7	24.6	0.5	24		
26	24.4	24.4	24.4	24.5	24.4	24.3	24.2	24.3	24.5	24.7	24.9	25.1	25.2	25.3	25.5	25.1	25.0	24.7	24.6	24.6	24.6	24.7	24.7	24.2	25.5	24.7	0.3	24		
27	24.7	24.7	24.8	24.8	24.8	24.7	24.7	24.8	24.9	24.9	24.8	24.9	25.0	24.8	22.2	20.7	22.8	23.7	24.1	24.1	24.3	24.5	24.5	20.7	25.0	24.3	1.0	24		
28	24.4	24.3	24.3	24.2	24.1	23.7	23.4	23.1	23.0	23.4	24.1	24.9	25.3	25.5	25.7	25.9	25.4	25.0	24.5	24.4	24.2	24.2	24.1	23.8	23.0	25.9	24.4	0.8	24	
29	23.7	23.7	23.6	23.5	23.2	22.8	22.7	22.5	22.8	23.3	24.0	24.8	25.7	26.3	26.5	26.2	25.6	25.2	24.9	24.6	24.4	24.3	24.1	24.0	22.5	26.5	24.3	1.2	24	
30	24.0	24.2	24.2	24.3	24.1	24.3	24.2	24.2	24.3	24.4	24.4	24.3	24.2	24.2	24.4	24.5	24.5	24.3	24.0	24.0	24.1	24.4	24.4	24.0	24.5	24.2	0.2	24		
31	24.6	24.6	24.6	24.5	24.5	24.3	24.1	24.3	24.5	24.6	24.9	25.0	25.1	25.2	21.3	23.6	24.2	24.8	24.9	25.0	25.2	25.3	25.3	21.3	25.3	24.6	0.8	24		
HR MIN	20.8	21.0	21.2	21.1	20.9	20.9	20.7	20.7	21.1	21.5	22.3	23.9	24.2	24.2	21.3	22.2	20.7	22.8	23.7	22.8	22.0	21.5	21.4	20.8	20.7					
HR MAX	34.1	34.2	34.2	33.9	33.8	33.8	33.8	33.8	33.9	33.9	34.2	34.9	35.9	35.4	36.3	36.4	36.2	35.5	35.1	35.0	34.7	34.8	34.6	34.3	36.4					
HR AVG	26.5	26.4	26.4	26.3	26.2	26.1	26.0	25.9	26.0	26.4	26.9	27.5	28.3	28.9	28.9	28.6	28.2	27.7	27.3	27.0	26.8	26.6	26.4	27.1						
HR STD	4.0	4.0	4.0	4.0	4.1	4.0	4.1	4.1	3.9	3.8	3.6	3.5	3.6	4.0	4.6	4.7	4.6	4.3	4.1	4.0	4.0	4.0	3.9	4.0		4.1				
n	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	744		

Grand Teton National Park

Flag Ranch

Station Temperature hourly averages (degC)

02/01/2003 - 02/28/2003

Date	HOUR (LOCAL STANDARD TIME)																							DAY MIN	DAY MAX	DAY AVG	DAY STD	n		
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
1	25.2	25.4	25.5	25.5	25.5	25.5	25.5	25.6	25.7	25.3	25.6	25.9	25.9	25.5	25.9	25.7	25.7	25.5	25.3	25.1	24.9	24.7	24.2	23.9	23.9	25.9	25.4	0.5 24		
2	23.8	23.5	23.7	23.3	23.0	23.0	23.2	23.3	23.3	23.3	23.4	23.7	24.1	24.4	24.5	24.2	24.1	23.8	23.3	23.0	22.8	22.5	22.1	21.8	21.8	24.5	23.4	0.7 24		
3	21.7	21.3	21.0	20.9	20.7	20.8	20.8	20.6	20.5	21.5	22.4	23.2	23.7	24.3	24.6	24.7	24.3	24.1	23.7	23.6	23.4	23.2	23.3	23.4	20.5	24.7	22.6	1.5 24		
4	23.2	23.1	22.7	22.8	22.9	23.0	22.8	22.8	23.1	24.0	25.0	25.6	25.5	25.0	24.8	24.4	23.8	23.3	22.9	22.4	21.7	21.4	21.1	21.1	25.6	23.3	1.2 24			
5	21.0	20.9	21.0	21.2	21.5	21.7	21.7	21.6	21.9	22.5	23.2	24.1	24.3	24.4	24.8	24.7	24.5	24.0	23.7	23.4	23.1	22.8	22.2	21.9	20.9	24.8	22.8	1.3 24		
6	21.5	21.3	21.1	21.1	21.0	20.9	20.6	20.4	20.6	21.5	23.0	24.2	25.2	25.1	25.3	25.1	24.9	24.2	23.3	22.4	22.0	21.7	21.5	21.6	20.4	25.3	22.5	1.7 24		
7	21.2	20.8	20.6	20.1	20.0	20.2	20.0	19.9	20.2	21.5	20.7	16.2	20.0	23.9	25.5	25.8	25.8	24.6	23.8	22.9	22.6	22.2	21.1	21.6	16.2	25.8	21.8	2.3 24		
8	21.6	21.3	21.5	21.5	21.7	21.9	21.7	21.8	22.0	22.5	23.0	23.7	24.3	24.5	24.6	24.5	24.5	23.9	23.0	22.7	22.5	21.8	21.5	21.6	21.3	24.6	22.7	1.2 24		
9	21.7	22.3	22.1	22.3	22.3	22.2	22.3	22.1	22.5	22.9	23.1	23.8	24.2	24.6	24.8	24.6	24.3	23.8	23.6	23.5	23.4	23.4	23.6	23.6	21.7	24.8	23.2	0.9 24		
10	23.6	23.4	23.5	23.8	23.9	23.8	23.7	23.8	23.8	23.9	24.6	24.9	25.0	24.8	24.9	24.9	25.2	25.0	24.4	24.2	23.9	23.8	23.7	23.7	23.4	25.2	24.2	0.6 24		
11	23.7	23.8	23.6	23.4	23.6	23.6	23.3	22.7	22.4	23.3	24.6	24.8	25.5	26.7	27.7	27.8	27.2	26.3	24.9	23.8	23.1	22.6	22.1	21.9	21.9	27.8	24.3	1.7 24		
12	21.6	21.4	21.2	21.1	20.7	20.6	20.2	20.1	19.7	21.0	21.3	24.0	25.3	26.1	26.8	27.2	26.8	26.1	24.7	23.6	22.9	22.4	21.9	21.7	19.7	27.2	22.9	2.4 24		
13	21.6	21.2	20.7	20.8	20.8	21.0	21.5	21.8	21.7	22.7	23.7	24.8	25.4	25.6	25.9	25.7	25.1	24.8	24.6	24.4	24.1	24.4	24.2	20.7	25.9	23.4	1.8 24			
14	24.1	24.2	24.3	24.3	24.3	24.4	24.3	24.4	23.7	23.4	23.8	24.0	24.3	24.6	24.2	24.1	23.8	23.7	23.6	23.3	23.4	23.4	23.2	24.6	23.9	0.4 24				
15	23.3	23.3	23.1	23.2	23.2	23.1	23.1	23.2	23.2	23.4	23.7	24.0	24.6	25.2	25.5	25.5	25.1	24.4	24.0	23.3	22.7	22.5	22.3	22.2	22.2	25.5	23.6	1.0 24		
16	21.9	21.5	21.6	21.5	21.0	21.2	21.1	21.3	21.4	21.7	22.7	23.2	23.5	23.6	23.4	23.3	23.2	23.1	22.8	22.6	22.8	22.7	22.9	23.0	21.0	23.6	22.4	0.9 24		
17	22.8	22.9	22.5	22.4	22.3	22.1	22.4	22.5	22.8	23.4	23.4	23.8	24.0	23.8	23.6	23.1	23.3	22.9	23.1	22.6	22.6	22.8	22.8	22.1	24.0	23.0	0.5 24			
18	22.9	22.7	22.7	22.9	22.7	23.1	22.6	22.3	22.4	23.2	24.4	25.1	24.9	24.6	24.2	24.4	24.4	23.9	23.4	22.7	22.5	22.2	22.3	22.4	22.2	25.1	23.3	0.9 24		
19	21.8	22.0	22.1	22.3	22.1	22.2	22.2	22.3	22.5	23.3	24.0	24.8	25.3	25.3	25.5	26.1	25.6	24.7	23.6	23.1	22.6	22.2	22.0	21.8	26.1	23.3	1.4 24			
20	21.8	21.9	21.9	21.8	21.6	21.3	20.9	21.0	21.5	22.4	23.3	24.3	24.8	24.9	25.5	25.5	24.9	24.1	23.7	23.4	23.3	23.2	23.3	23.5	20.9	25.5	23.1	1.4 24		
21	23.4	23.4	23.1	23.3	23.2	23.2	23.1	22.7	22.7	20.9	22.2	22.9	23.5	24.0	24.4	23.7	23.5	23.1	22.7	22.3	22.4	22.2	22.3	22.2	20.9	24.4	23.0	0.7 24		
22	22.2	22.2	22.1	22.0	22.1	22.1	22.0	22.0	22.0	22.3	22.5	22.4	22.6	22.9	22.7	22.1	21.7	23.8	26.4	26.9	27.2	26.8	26.6	21.7	27.2	23.4	2.0 24			
23	26.3	26.3	26.3	26.1	26.1	26.4	26.8	26.5	26.5	26.3	25.7	25.5	24.1	25.2	25.0	24.7	24.4	23.9	23.0	22.3	22.1	21.7	21.3	21.3	26.8	24.8	1.8 24			
24	20.8	20.5	20.0	19.3	18.7	18.1	17.5	17.0	17.1	19.1	21.9	24.5	25.8	26.0	26.3	26.2	25.7	24.8	23.7	22.9	22.6	22.2	21.7	21.5	17.0	26.3	21.8	3.1 24		
25	21.3	20.8	20.2	19.6	19.1	18.6	18.0	17.6	17.8	20.1	23.0	25.2	26.2	26.7	27.0	26.8	26.4	27.0	26.6	25.9	24.9	24.5	24.7	24.8	17.6	27.0	23.0	3.4 24		
26	24.3	23.9	23.8	23.7	23.6	23.3	23.0	22.9	23.2	25.1	26.9	27.9	29.1	29.8	30.4	30.6	30.4	29.6	28.1	27.1	26.8	26.6	26.0	25.9	22.9	30.6	26.3	2.7 24		
27	25.7	25.5	25.5	25.4	25.2	25.1	25.0	25.0	25.5	26.5	27.6	28.6	29.6	30.4	31.0	30.8	30.2	29.2	28.2	27.4	26.7	26.3	25.8	25.5	25.0	31.0	27.2	2.1 24		
28	25.2	24.6	24.3	24.2	24.3	24.4	24.2	24.3	24.7	26.0	27.5	28.5	27.6	27.8	28.1	27.8	27.4	27.3	26.5	26.1	26.0	25.7	25.5	25.3	24.2	28.5	26.0	1.5 24		
HR MIN	20.8	20.5	20.0	19.3	18.7	18.1	17.5	17.0	17.1	19.1	20.7	16.2	20.0	22.9	22.7	22.1	21.7	22.9	22.7	22.3	22.0	21.7	21.4	21.1	16.2					
HR MAX	26.3	26.3	26.3	26.1	26.1	26.4	26.8	26.5	26.5	26.5	27.6	28.6	29.6	30.4	31.0	30.8	30.4	29.6	28.2	27.4	27.2	26.8	26.6		31.0					
HR AVG	22.8	22.7	22.6	22.5	22.4	22.4	22.3	22.2	22.3	22.9	23.8	24.4	24.9	25.4	25.6	25.5	25.2	24.8	24.3	23.8	23.6	23.3	23.1	23.0		23.6				
HR STD	1.5	1.6	1.7	1.7	1.8	1.9	2.0	2.1	2.1	1.8	1.7	2.2	1.8	1.7	1.9	2.0	1.9	1.7	1.5	1.5	1.5	1.5	1.5	1.5		2.1				
n	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	672		

Final Validation

5/12/2003

Grand Teton National Park

Flag Ranch

Station Temperature hourly averages (degC)

03/01/2003 - 03/31/2003

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
1	25.1	24.8	24.7	24.9	24.7	24.8	24.8	24.6	24.4	25.2	26.5	27.6	28.2	28.4	29.0	28.6	28.0	27.5	26.4	25.6	24.9	24.6	24.2	23.9	23.9	29.0	25.9	1.6	24
2	23.6	23.4	23.0	22.7	22.2	22.5	22.9	23.2	23.8	24.2	24.8	25.8	26.7	27.3	27.5	27.4	27.3	27.0	26.5	26.1	26.1	25.8	25.9	25.7	22.2	27.5	25.1	1.8	24
3	25.8	25.7	25.6	25.5	25.5	25.8	25.9	25.9	26.1	26.4	27.0	27.1	27.7	27.3	27.1	27.3	27.2	26.6	26.2	26.6	26.7	26.4	26.3	26.1	25.5	27.7	26.4	0.6	24
4	26.2	25.9	26.0	25.9	26.0	26.1	26.1	26.2	26.4	26.8	27.3	27.8	28.1	28.6	28.6	28.1	27.6	27.4	26.9	26.6	26.1	26.0	25.9	25.8	25.8	28.6	26.8	0.9	24
5	25.4	25.5	25.7	26.1	25.8	26.3	26.1	25.9	25.9	26.3	26.5	26.7	26.8	26.9	26.9	26.7	26.6	26.4	25.9	25.8	25.9	25.9	26.2	25.4	26.9	26.2	0.4	24	
6	25.8	25.8	25.8	25.5	25.8	25.7	25.7	25.7	25.9	25.9	26.2	26.7	26.7	26.3	26.4	26.3	26.4	26.5	26.1	25.9	25.7	25.6	25.3	25.5	25.3	26.7	26.0	0.4	24
7	25.3	25.8	25.7	25.9	25.8	26.0	26.1	26.1	25.9	26.2	27.2	27.5	27.4	27.6	27.5	27.3	26.9	26.9	27.0	26.9	26.9	27.0	26.9	26.8	25.3	27.6	26.6	0.7	24
8	26.9	27.0	27.0	27.0	27.2	27.2	27.1	27.0	27.2	27.5	27.9	28.0	28.1	28.1	27.9	27.9	27.8	27.8	27.8	27.9	27.9	27.9	28.0	26.9	28.1	27.6	0.4	24	
9	28.0	28.1	27.9	27.8	27.7	27.8	27.8	27.7	28.1	28.7	29.1	29.6	29.7	29.3	28.8	28.4	28.3	28.1	27.8	27.6	27.7	27.8	28.0	27.6	29.7	28.2	0.6	24	
10	28.1	28.0	28.2	28.3	28.2	28.0	28.1	28.2	28.6	29.1	29.5	29.8	30.5	30.5	30.4	30.0	29.7	29.4	29.1	28.7	28.5	28.2	28.3	28.0	30.5	28.9	0.9	24	
11	28.4	28.4	28.3	28.2	28.2	27.9	27.8	28.0	28.2	28.4	28.7	29.1	29.3	29.3	29.7	29.8	29.9	29.8	29.3	28.9	28.6	28.3	28.2	28.1	27.8	29.9	28.7	0.7	24
12	28.1	28.2	28.1	28.1	28.0	28.0	27.7	27.7	28.1	28.7	29.3	29.4	30.0	30.6	30.7	30.5	30.2	30.2	29.9	29.4	29.0	28.9	29.0	28.8	27.7	30.7	29.0	1.0	24
13	28.5	28.1	28.1	27.8	27.6	27.6	27.5	27.6	28.0	29.3	30.7	32.1	33.0	33.7	33.9	34.0	33.6	32.9	31.5	30.3	29.2	28.6	28.2	27.9	27.5	34.0	30.0	2.4	24
14	27.7	27.6	27.7	27.8	27.9	28.1	28.1	28.0	28.6	29.8	30.7	31.3	31.3	31.2	30.8	30.4	30.3	30.4	30.0	29.2	28.6	28.1	27.7	27.3	27.3	31.3	29.1	1.4	24
15	27.3	27.0	26.8	26.8	27.1	27.3	27.6	27.8	28.2	29.3	30.6	31.5	31.8	32.1	32.1	31.8	31.1	30.4	29.9	29.8	29.6	RF	28.9	28.9	26.8	32.1	29.3	1.9	23
16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
23	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
26	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
27	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
28	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
HR MIN	23.6	23.4	23.0	22.7	22.2	22.5	22.9	23.2	23.8	24.2	24.8	25.8	26.7	26.3	26.4	26.3	26.4	26.1	25.6	24.9	24.6	24.2	23.9	22.2					
HR MAX	28.5	28.4	28.3	28.3	28.2	28.1	28.1	28.2	28.6	29.8	30.7	32.1	33.0	33.7	33.9	34.0	33.6	32.9	31.5	30.3	29.6	28.9	29.0	28.9	34.0				
HR AVG	26.7	26.6	26.6	26.6	26.5	26.6	26.6	26.9	27.5	28.1	28.7	29.0	29.1	29.2	29.0	28.7	28.5	28.1	27.7	27.4	27.1	27.1	27.0	27.6					
HR STD	1.5	1.5	1.5	1.6	1.6	1.5	1.4	1.4	1.5	1.7	1.8	1.9	2.0	2.1	2.1	2.0	1.9	1.7	1.6	1.5	1.3	1.4	1.4	1.9					
n	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	359			

Grand Teton National Park

Flag Ranch

Scalar Wind Speed hourly averages (m/s)

12/01/2002 - 12/31/2002

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
19	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	0					
20	0.3	0.4	0.5	0.5	0.3	0.8	0.9	0.5	0.4	0.3	0.5	0.6	0.3	0.6	0.4	0.5	0.6	0.3	0.2	0.3	0.2	0.2	0.2	0.3	0.2	0.9	0.4	0.2	24	
21	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.4	0.7	0.8	0.8	0.8	0.6	0.5	0.4	0.3	0.4	0.2	0.2	0.2	0.2	0.1	0.8	0.3	0.2	24
22	0.3	0.3	0.2	0.4	0.4	0.3	0.2	0.4	0.3	0.5	0.5	0.6	1.2	1.3	1.4	1.1	0.3	0.3	0.8	0.4	0.3	0.3	0.2	0.2	0.2	0.2	1.4	0.5	0.4	24
23	0.3	0.3	0.3	0.3	0.2	0.3	0.5	0.4	0.3	0.5	1.0	0.8	0.6	1.2	0.7	1.1	0.4	0.2	0.3	0.2	0.2	0.2	0.3	0.3	0.2	0.2	1.2	0.5	0.3	24
24	0.3	0.2	0.2	0.3	0.4	0.3	0.4	0.3	0.5	0.4	0.7	0.5	0.6	0.8	0.8	0.6	0.4	0.5	0.6	0.8	0.4	0.4	0.5	0.3	0.2	0.2	0.8	0.5	0.2	24
25	0.3	0.3	0.2	0.3	0.2	0.3	0.3	0.2	0.3	0.3	0.7	0.8	0.7	0.6	1.1	0.5	0.2	0.5	0.5	0.3	0.4	0.3	0.5	0.4	0.2	0.2	1.1	0.4	0.2	24
26	0.2	0.4	0.5	0.3	0.3	0.3	0.5	0.7	0.5	0.6	0.8	1.0	0.6	0.6	0.4	0.3	0.4	0.4	0.3	0.5	0.4	0.4	0.5	0.5	0.2	0.2	1.0	0.5	0.2	24
27	1.4	0.7	0.9	1.1	1.7	2.2	1.3	1.4	1.3	1.8	2.0	2.1	1.8	1.6	1.6	1.3	2.2	2.2	1.8	2.5	2.5	2.4	2.3	1.9	0.7	2.5	1.8	0.5	24	
28	2.5	2.9	2.6	2.2	2.0	2.0	2.4	2.0	2.7	2.5	1.8	1.6	1.9	3.4	2.7	1.5	1.0	0.7	1.1	1.8	1.8	1.8	1.8	1.1	0.7	3.4	2.0	0.7	24	
29	0.7	0.9	1.0	1.0	1.3	2.5	1.6	0.3	0.4	0.7	1.4	0.9	2.2	2.7	1.4	1.7	0.8	0.4	0.8	1.6	0.8	0.6	0.4	0.4	0.3	2.7	1.1	0.7	24	
30	0.3	0.6	0.5	0.7	0.5	0.5	0.4	0.5	0.6	0.7	1.0	0.9	0.8	1.2	0.8	0.8	0.9	0.9	1.3	1.4	1.2	1.5	1.8	2.1	0.3	2.1	0.9	0.5	24	
31	2.3	1.8	1.8	2.0	1.0	1.8	1.9	1.5	2.2	2.4	1.7	1.3	1.7	1.3	0.8	0.7	0.7	0.8	1.1	0.8	0.8	0.7	0.5	0.5	0.5	2.4	1.3	0.6	24	
HR MIN	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.4	0.3	0.6	0.4	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1					
HR MAX	2.5	2.9	2.6	2.2	2.0	2.5	2.4	2.0	2.7	2.5	2.0	2.1	2.2	3.4	2.7	1.7	2.2	2.2	1.8	2.5	2.5	2.4	2.3	2.1		3.4				
HR AVG	0.8	0.7	0.7	0.8	0.7	1.0	0.9	0.7	0.8	0.9	1.0	0.9	1.1	1.3	1.1	0.9	0.7	0.6	0.7	0.9	0.8	0.8	0.8	0.7		0.8				
HR STD	0.8	0.8	0.8	0.7	0.6	0.9	0.8	0.6	0.8	0.8	0.6	0.5	0.6	0.9	0.6	0.4	0.5	0.5	0.5	0.7	0.7	0.7	0.7	0.7		0.7				
n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	288					

Grand Teton National Park

Flag Ranch

Scalar Wind Speed hourly averages (m/s)

01/01/2003 - 01/31/2003

Date	HOUR (LOCAL STANDARD TIME)																							DAY MIN	DAY MAX	DAY AVG	DAY STD n		
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
1	0.8	0.8	1.0	1.1	0.9	1.1	0.4	0.9	1.1	1.5	1.7	1.7	2.0	2.0	2.0	2.0	0.8	0.6	0.5	0.5	0.6	0.4	0.5	0.5	0.4	2.0	1.1	0.6 24	
2	0.6	0.7	0.8	0.5	0.6	0.6	0.7	1.2	0.9	0.9	0.8	1.1	0.7	0.8	1.1	0.8	0.4	0.3	0.3	0.5	0.7	0.5	0.3	0.4	0.3	1.2	0.7	0.3 24	
3	0.4	0.6	0.6	0.4	0.4	0.6	0.6	0.5	0.8	0.9	1.3	2.3	3.1	2.7	2.1	1.7	1.0	0.8	0.7	0.6	0.7	1.0	0.8	0.4	0.4	3.1	1.1	0.8 24	
4	0.7	0.7	0.5	0.5	0.5	0.5	0.3	0.3	0.5	0.6	0.4	1.1	0.8	1.0	1.0	1.0	0.8	0.4	0.4	0.4	0.5	0.5	0.7	0.7	0.3	1.1	0.6	0.2 24	
5	0.4	0.7	0.8	0.4	0.1	0.6	1.1	0.4	0.9	0.9	1.0	1.4	2.0	1.2	1.3	1.2	0.4	0.3	0.4	0.5	0.6	0.4	0.6	0.6	0.1	2.0	0.8	0.4 24	
6	0.5	0.4	0.4	0.4	0.3	0.4	0.3	0.3	0.4	0.4	0.4	0.9	0.9	1.1	1.3	1.0	0.8	0.2	0.4	0.3	0.3	0.3	0.2	0.3	0.2	1.3	0.5	0.3 24	
7	0.2	0.2	0.3	0.2	0.3	0.3	0.3	0.2	0.4	0.4	0.7	0.8	0.9	0.7	0.8	0.9	1.1	0.8	0.2	0.2	0.2	0.3	0.3	0.2	0.2	1.1	0.5	0.3 24	
8	0.2	0.2	0.2	0.3	0.2	0.3	0.3	0.3	0.4	0.5	0.4	0.6	0.9	0.6	0.7	0.8	0.8	0.4	0.4	0.5	0.2	0.3	0.3	0.4	0.2	0.9	0.4	0.2 24	
9	0.4	0.6	0.5	0.6	0.6	0.6	0.4	0.6	0.4	0.4	0.6	1.0	0.8	1.0	1.3	1.4	1.1	0.4	0.4	0.2	0.2	0.3	0.3	0.3	0.2	1.4	0.6	0.3 24	
10	0.2	0.3	0.3	0.2	0.3	0.3	0.4	0.3	0.4	0.3	0.9	1.0	0.6	0.5	0.2	0.6	0.7	0.5	0.4	0.4	0.3	0.4	0.3	0.2	0.2	1.0	0.4	0.2 24	
11	0.1	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.4	0.8	0.7	0.6	0.7	0.8	0.7	1.0	0.4	0.2	0.5	0.3	0.3	0.4	0.3	0.1	1.0	0.4	0.2 24	
12	0.4	0.5	0.4	0.5	0.8	0.5	0.7	0.5	0.4	0.8	0.5	0.8	1.5	1.8	1.8	1.3	1.6	1.4	1.0	0.9	1.0	1.3	0.9	0.9	0.4	1.8	0.9	0.5 24	
13	1.1	1.5	0.8	0.6	1.2	0.4	0.5	0.6	0.5	0.9	1.6	0.8	1.2	1.2	1.0	1.2	0.6	0.4	0.3	0.4	0.4	0.4	0.7	0.3	1.6	0.8	0.4 24		
14	0.9	0.5	0.3	IM	0.4	0.3	0.6	0.8	1.0	0.9	0.8	0.8	0.7	0.6	0.6	0.6	0.8	0.9	0.3	1.0	0.7	0.2 17							
15	1.5	1.3	1.3	1.4	1.0	1.3	0.9	0.7	0.6	1.0	0.8	2.2	2.1	2.1	1.7	1.9	0.9	0.8	0.7	0.7	0.6	0.5	0.4	0.5	0.4	2.2	1.1	0.6 24	
16	0.2	0.3	0.5	0.5	0.4	0.2	0.2	0.2	0.3	0.5	0.6	0.8	1.0	0.7	0.7	0.8	0.9	1.1	0.4	0.3	0.3	0.3	0.5	0.5	0.2	1.1	0.5	0.3 24	
17	0.4	0.4	0.4	0.5	0.4	0.3	0.3	0.4	0.2	0.4	0.9	1.2	1.0	0.8	1.7	1.7	1.2	0.6	0.3	0.2	0.3	0.4	0.4	0.5	0.2	1.7	0.6	0.4 24	
18	0.4	0.3	0.4	0.6	0.4	0.3	0.4	0.5	0.5	0.7	0.5	0.8	2.6	2.2	2.0	1.7	1.8	1.5	1.2	1.2	0.9	0.5	0.6	0.5	0.3	2.6	0.9	0.7 24	
19	0.3	0.8	0.5	0.4	0.4	0.4	0.3	0.5	0.6	0.5	0.5	0.8	1.0	1.4	1.6	1.2	0.6	0.3	0.5	0.4	0.3	0.4	0.4	0.3	0.3	1.6	0.6	0.4 24	
20	0.4	0.4	0.5	0.5	0.6	0.6	0.6	0.7	0.9	0.6	0.9	2.2	1.7	2.0	1.5	1.1	0.8	0.6	0.3	0.3	0.4	0.5	0.8	1.0	0.3	2.2	0.8	0.5 24	
21	0.8	0.6	0.8	0.8	0.6	0.7	0.6	0.6	0.2	0.6	0.5	0.8	0.9	1.0	0.6	0.9	1.1	0.9	1.0	0.8	0.6	0.7	0.9	1.8	0.2	1.8	0.8	0.3 24	
22	2.4	2.0	2.3	2.1	1.2	0.8	1.5	1.3	0.9	1.4	0.7	0.8	0.9	1.3	0.9	0.7	0.9	0.5	0.4	0.2	0.3	0.5	0.6	0.7	0.2	2.4	1.1	0.6 24	
23	0.4	0.1	IM	IM	IM	IM	IM	IM	1.4	1.1	0.8	1.8	1.7	2.4	2.8	2.5	1.8	1.1	1.8	1.6	0.8	0.6	0.8	0.5	0.1	2.8	1.3	0.8 18	
24	0.5	0.5	0.5	0.4	0.4	0.6	0.3	0.5	0.5	0.8	0.7	0.6	1.5	1.8	1.6	1.5	1.0	0.7	0.7	0.5	0.8	0.5	0.4	0.8	0.3	1.8	0.8	0.4 24	
25	0.5	0.3	0.5	0.6	0.7	1.0	0.7	0.5	0.6	0.4	0.6	0.7	1.1	1.2	1.3	1.4	1.0	0.7	0.8	0.6	0.5	0.4	0.4	0.5	0.3	1.4	0.7	0.3 24	
26	0.5	0.7	0.9	0.5	0.9	0.8	0.5	0.6	0.5	0.4	0.3	0.7	0.7	0.6	0.4	0.6	0.6	0.7	0.8	0.5	0.8	0.5	0.8	1.1	0.3	1.7	0.7	0.3 24	
27	1.4	1.5	2.0	1.2	1.2	2.3	2.2	2.0	1.4	1.1	1.5	2.0	1.3	1.3	1.5	1.1	1.2	0.9	0.8	0.7	1.1	IM	IM	0.7	2.3	1.4	0.5 21		
28	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	0				
29	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	0.2	1.6	0.8	0.5 12	
30	1.1	1.3	1.2	1.5	1.2	0.9	0.8	0.1	0.6	1.8	2.8	2.7	2.7	1.8	1.7	1.8	1.4	1.2	0.8	1.0	1.1	0.9	0.8	0.5	0.1	2.8	1.3	0.7 24	
31	0.4	0.7	1.0	0.7	0.8	0.9	1.0	0.6	1.2	2.0	1.8	1.8	2.5	3.7	3.3	3.4	3.1	3.4	3.3	2.7	2.5	2.8	2.6	2.2	0.4	3.7	2.0	1.1 24	
HR MIN	0.1	0.1	0.2	0.2	0.1	0.2	0.2	0.1	0.2	0.3	0.3	0.3	0.2	0.5	0.2	0.6	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1				
HR MAX	2.4	2.0	2.3	2.1	1.2	2.3	2.2	2.0	1.4	2.0	2.8	2.7	2.7	3.7	3.3	3.4	3.1	3.4	3.3	2.7	2.5	2.8	2.6	2.2		3.7			
HR AVG	0.6	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.8	0.9	1.1	1.3	1.4	1.4	1.3	1.0	0.8	0.7	0.6	0.6	0.6	0.7	0.7		0.8				
HR STD	0.5	0.5	0.5	0.4	0.3	0.4	0.4	0.3	0.4	0.5	0.6	0.7	0.8	0.7	0.6	0.5	0.6	0.6	0.5	0.5	0.5	0.5	0.5		0.6				
n	29	29	28	27	27	27	27	27	28	28	29	29	30	30	30	30	30	30	30	30	30	30	29	29	29	29	692		

Grand Teton National Park

Flag Ranch

Scalar Wind Speed hourly averages (m/s)

02/01/2003 - 02/28/2003

Date	HOUR (LOCAL STANDARD TIME)																							DAY MIN	DAY MAX	DAY AVG	DAY STD n			
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
1	2.7	2.3	1.7	2.1	1.6	2.3	2.6	2.3	2.5	3.2	2.9	3.0	2.7	2.7	2.5	2.0	2.3	2.7	1.0	0.4	0.8	1.3	2.9	2.8	0.4	3.2	2.2	0.7 24		
2	2.8	3.4	2.8	3.4	3.3	3.4	2.5	2.0	2.8	2.7	3.3	3.0	2.9	3.0	2.9	3.3	3.3	2.7	2.4	2.3	1.9	1.5	0.4	0.3	0.3	3.4	2.5	1.0 24		
3	0.3	0.4	0.3	0.3	0.5	0.4	0.4	0.2	0.3	0.6	0.7	0.8	1.0	1.3	1.3	1.4	1.1	0.6	0.3	0.5	0.5	0.7	0.3	0.5	0.2	1.4	0.6	0.4 24		
4	0.4	0.3	0.4	0.4	0.2	0.4	0.3	0.2	0.2	0.4	1.0	1.4	2.0	2.1	2.1	2.0	1.7	1.1	0.4	0.3	0.5	0.4	0.4	0.4	0.2	2.1	0.8	0.7 24		
5	0.6	0.5	0.4	0.3	0.7	0.5	0.4	0.3	0.4	0.3	0.7	1.3	2.5	1.8	1.7	1.7	1.5	1.3	0.9	0.6	0.9	0.4	0.5	0.5	0.3	2.5	0.9	0.6 24		
6	0.5	0.4	0.6	0.4	0.4	0.3	0.4	0.2	0.2	0.8	1.0	1.1	2.3	2.4	2.2	2.1	2.0	1.1	0.4	0.3	0.2	0.3	0.3	0.3	0.2	2.4	0.8	0.8 24		
7	0.3	0.3	0.5	0.3	0.4	0.3	0.4	0.4	0.3	0.7	1.1	1.2	1.2	1.5	1.6	1.6	1.0	1.5	1.0	0.4	0.4	0.2	0.3	0.3	0.3	0.2	1.6	0.7	0.5 24	
8	0.4	0.3	0.4	0.3	0.3	0.5	0.4	0.6	0.7	0.8	0.4	0.9	1.4	1.3	2.1	2.4	1.9	1.6	1.5	1.3	0.5	0.4	0.4	0.4	0.3	2.4	0.9	0.6 24		
9	0.4	0.6	0.6	0.8	0.8	1.1	0.9	0.5	0.6	0.7	1.4	1.8	2.2	2.1	1.8	1.8	1.7	1.0	1.0	0.8	1.0	1.2	0.9	1.2	0.4	2.2	1.1	0.5 24		
10	1.0	1.0	0.9	0.9	0.9	1.1	0.6	1.0	0.6	1.1	1.3	1.0	1.8	1.8	1.3	1.4	1.2	0.8	0.7	0.7	0.6	0.6	1.0	0.9	0.6	1.8	1.0	0.3 24		
11	1.1	1.2	0.6	0.7	0.4	0.8	0.4	0.4	0.5	1.0	1.5	1.8	1.3	1.3	1.6	2.4	2.1	2.0	0.7	0.7	0.4	0.3	0.3	0.3	0.3	2.4	1.0	0.6 24		
12	0.3	0.2	0.4	0.4	0.4	0.3	0.4	0.4	0.3	0.6	0.9	1.0	1.1	1.5	1.4	1.7	1.1	0.4	0.2	0.3	0.4	0.3	0.3	0.3	0.2	1.7	0.6	0.4 24		
13	0.3	0.2	0.4	0.2	0.3	0.3	0.6	0.6	0.7	0.7	0.8	1.0	0.8	0.9	1.3	0.7	0.6	0.5	0.2	0.3	0.3	0.2	0.3	0.4	0.2	1.3	0.5	0.3 24		
14	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.4	1.0	1.3	1.9	1.4	1.9	1.5	0.5	0.4	0.3	0.6	0.4	0.6	0.5	0.1	1.9	0.6	0.6 24			
15	0.6	0.5	0.6	0.4	0.5	0.2	0.2	0.3	0.3	0.7	0.9	1.0	0.6	1.0	1.0	0.6	0.8	0.3	0.4	0.2	0.3	0.5	0.8	0.6	0.2	1.0	0.6	0.3 24		
16	0.5	0.6	0.5	0.5	0.5	0.4	0.3	0.3	0.5	0.5	0.7	0.7	0.7	1.1	1.9	2.0	1.9	2.1	2.8	2.6	2.5	2.7	2.2	1.7	0.3	2.8	1.3	0.9 24		
17	0.9	0.9	0.7	0.6	0.8	0.7	0.7	0.5	0.5	0.9	1.3	2.7	3.4	3.1	2.0	1.8	2.2	2.0	2.6	2.6	2.2	2.4	1.5	0.8	0.5	3.4	1.6	0.9 24		
18	0.5	0.5	0.5	0.4	0.7	0.5	0.7	0.3	0.5	0.7	1.0	1.3	1.4	1.7	2.2	1.9	1.1	0.6	0.4	0.4	0.6	0.6	0.5	0.4	0.3	2.2	0.8	0.5 24		
19	0.5	0.4	0.7	0.6	0.4	0.6	0.4	0.4	0.6	0.8	1.3	1.5	1.4	1.2	1.1	1.4	1.7	1.0	1.2	0.4	0.6	0.5	0.5	0.5	0.4	1.7	0.8	0.4 24		
20	0.5	0.5	0.5	0.3	0.3	0.5	0.4	0.7	0.2	0.6	0.8	0.7	1.1	1.2	1.4	1.9	1.1	1.3	1.2	0.7	0.9	0.6	0.7	0.4	0.2	1.9	0.8	0.4 24		
21	0.6	0.8	0.7	1.2	1.1	0.7	1.0	0.5	0.7	1.3	2.1	2.3	2.6	2.5	2.4	1.9	2.6	1.4	0.9	1.3	1.0	0.5	0.9	0.7	0.5	2.6	1.3	0.7 24		
22	0.9	0.7	1.0	1.0	1.0	1.4	0.9	1.5	1.2	0.9	1.7	1.4	2.1	3.5	2.9	2.5	2.3	1.2	0.4	0.4	0.4	0.3	0.5	0.6	0.3	3.5	1.3	0.8 24		
23	0.5	0.3	0.7	0.7	0.9	0.5	0.6	0.6	2.2	2.6	2.3	1.8	2.5	2.9	3.1	2.6	2.8	2.5	1.1	0.4	0.4	0.5	0.4	0.5	0.3	3.1	1.4	1.0 24		
24	0.3	0.3	0.4	0.3	0.3	0.3	0.2	0.5	0.9	1.1	0.9	1.4	1.5	1.4	1.4	1.4	1.4	0.7	0.3	0.2	0.3	0.2	0.2	0.3	0.2	1.5	0.6	0.5 24		
25	0.3	0.2	0.3	0.4	0.5	0.4	0.5	0.3	0.3	1.0	1.1	1.1	1.4	1.3	1.6	1.6	1.9	1.3	0.6	0.3	0.2	0.2	0.3	0.2	0.2	1.9	0.7	0.5 24		
26	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.3	0.3	1.0	0.9	1.2	1.1	1.2	1.2	1.3	1.3	0.8	1.3	0.8	0.7	0.6	0.5	0.3	0.2	1.3	0.7	0.4 24		
27	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.5	1.0	1.0	1.4	1.7	2.1	1.8	2.0	1.6	0.9	0.5	0.3	0.2	0.2	0.2	0.2	2.1	0.7	0.7 24		
28	0.2	0.2	0.4	0.4	0.3	0.4	0.3	0.3	0.4	0.7	1.0	1.5	1.2	1.0	2.0	2.2	1.8	0.9	0.4	0.3	0.4	0.4	0.4	0.4	0.2	2.2	0.7	0.6 24		
HR MIN	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.4	0.7	0.6	0.9	1.0	0.6	0.6	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1						
HR MAX	2.8	3.4	2.8	3.4	3.3	3.4	2.6	2.3	2.8	3.2	3.3	3.0	3.4	3.5	3.1	3.3	2.8	2.7	2.8	2.6	2.5	2.7	2.9	2.8		3.5				
HR AVG	0.7	0.6	0.6	0.6	0.6	0.7	0.6	0.6	0.7	1.0	1.2	1.4	1.7	1.8	1.8	1.8	1.7	1.3	0.9	0.7	0.7	0.6	0.7	0.6		1.0				
HR STD n	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	672		

Final Validation

5/12/2003

Grand Teton National Park

Flag Ranch

Scalar Wind Speed hourly averages (m/s)

03/01/2003 - 03/31/2003

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
1	0.4	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.6	1.1	1.4	2.3	2.3	1.7	1.8	1.3	0.9	0.7	0.4	0.4	0.4	0.2	0.2	0.2	0.2	2.3	0.8	0.7	24	
2	0.3	0.3	0.3	0.4	0.5	0.6	0.5	0.7	0.6	0.7	0.7	0.7	0.8	1.4	2.7	1.7	1.4	0.5	0.5	0.6	0.5	0.6	1.1	1.2	0.3	2.7	0.8	0.6	24	
3	1.1	0.8	0.6	0.5	0.7	0.3	0.2	0.4	0.3	0.6	0.6	0.7	1.9	1.8	1.1	1.1	1.4	0.6	0.6	0.7	0.6	0.5	0.4	0.4	0.2	1.9	0.7	0.5	24	
4	0.4	0.4	0.3	0.5	0.4	0.3	0.3	0.3	0.6	1.6	1.9	2.1	2.2	2.3	2.1	2.4	1.4	1.1	1.0	0.6	0.5	0.6	1.0	0.5	0.3	2.4	1.0	0.8	24	
5	0.4	0.4	0.5	0.6	0.9	0.5	0.6	0.5	0.8	1.1	1.8	1.8	1.8	1.6	1.1	0.9	1.2	1.3	2.7	3.6	3.2	3.0	2.7	2.4	0.4	3.6	1.5	1.0	24	
6	3.7	4.0	4.7	4.6	4.4	3.6	3.1	3.5	3.9	4.6	3.9	4.5	5.6	4.7	2.2	1.6	1.7	1.1	3.9	3.8	3.8	4.9	5.9	5.1	1.1	5.9	3.9	1.2	24	
7	4.8	3.3	3.8	3.7	3.0	3.0	3.4	4.0	4.5	5.0	4.3	4.1	4.1	2.9	2.9	3.7	4.3	4.8	4.5	4.9	3.8	4.1	5.6	4.6	2.9	5.6	4.0	0.7	24	
8	4.4	4.2	4.3	3.9	3.5	3.3	3.2	3.2	2.8	3.9	4.0	4.6	4.1	4.8	4.1	3.5	3.3	2.8	2.3	1.8	1.3	2.1	1.1	1.1	1.1	4.8	3.2	1.1	24	
9	1.2	0.5	0.6	0.7	0.7	0.6	0.7	0.7	0.9	2.4	3.0	3.3	3.7	4.0	3.1	1.6	1.4	1.7	2.0	1.4	0.9	0.5	0.5	0.8	0.5	4.0	1.5	1.1	24	
10	0.8	0.5	0.6	0.5	1.4	0.6	0.5	0.6	0.8	1.0	1.6	1.6	1.9	2.2	1.7	1.6	1.4	1.2	1.3	1.7	1.4	2.3	2.0	1.1	0.5	2.3	1.3	0.6	24	
11	0.9	1.1	2.3	2.0	2.0	1.5	1.1	1.8	1.2	1.5	2.5	2.7	2.9	3.4	2.8	2.5	2.4	1.5	1.0	2.3	2.4	2.4	3.0	2.9	0.9	3.4	2.1	0.7	24	
12	2.7	2.4	2.0	1.0	1.8	2.1	2.1	1.3	1.2	1.3	1.6	2.3	2.4	2.6	2.3	2.1	2.0	1.3	1.2	1.4	1.5	1.5	1.4	1.0	2.7	1.8	0.5	24		
13	2.0	2.6	1.0	0.8	1.6	1.4	1.4	1.1	1.7	1.7	2.4	2.3	2.4	2.3	2.3	1.8	1.7	1.2	1.0	0.7	0.8	0.9	0.7	0.7	2.6	1.5	0.6	24		
14	1.2	1.1	1.0	2.1	2.8	1.8	0.5	0.9	0.9	2.0	2.4	2.7	1.7	1.7	1.5	1.3	1.2	1.5	1.5	1.0	0.7	0.9	0.8	0.7	0.5	2.8	1.4	0.6	24	
15	0.7	0.7	0.4	0.4	0.6	0.2	0.5	0.8	0.8	1.0	2.0	2.4	2.1	3.1	3.1	2.3	2.0	1.1	1.0	0.9	1.0	RF	0.8	0.7	0.2	3.1	1.2	0.9	23	
16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	
17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	
18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	
19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	
20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	
21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	
22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	
23	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	
24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	
25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	
26	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	
27	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	
28	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	
29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	
30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	
31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	
HR MIN	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.4	0.3	0.6	0.6	0.7	1.4	1.1	0.9	0.9	0.5	0.4	0.4	0.4	0.4	0.2	0.2	0.2	0.2	5.9	5.9		
HR MAX	4.8	4.2	4.7	4.6	4.4	3.6	3.4	4.0	4.5	5.0	4.3	4.6	5.6	4.8	4.1	3.7	4.3	4.8	4.5	4.9	3.8	4.9	5.9	5.1	5.1	5.9				
HR AVG	1.7	1.5	1.5	1.5	1.6	1.3	1.2	1.3	1.4	1.9	2.2	2.5	2.6	2.7	2.4	2.0	1.8	1.6	1.7	1.7	1.5	1.8	1.8	1.6	1.8	1.8	1.8	1.8	1.8	
HR STD	1.5	1.4	1.6	1.5	1.3	1.2	1.2	1.2	1.3	1.4	1.1	1.2	1.3	1.1	0.8	0.8	0.9	1.0	1.2	1.4	1.2	1.4	1.8	1.5	1.5	1.3	1.3	1.3	1.3	
n	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	359	

Grand Teton National Park

Flag Ranch

Vector Wind Direction hourly averages (deg)

12/01/2002 - 12/31/2002

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0	
2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0
3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0
4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0
5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0
6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0
7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0
8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0
9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0
10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0
11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0
12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0
13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0
14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0
15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0
16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0
17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0
18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0
19	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	0	0	0	0
20	269	320	64	312	334	263	256	346	328	237	224	217	244	228	235	250	223	306	317	210	220	249	185	303	64	346	256	61 24	
21	121	286	298	186	152	191	172	177	233	193	202	178	193	226	214	204	184	150	356	159	200	151	153	185	121	356	199	52 24	
22	169	130	14	174	218	355	54	171	201	192	217	240	332	333	333	322	109	16	349	353	346	20	337	59	14	355	210	121 24	
23	327	329	326	334	326	330	336	325	164	191	227	229	234	213	220	218	196	33	321	325	334	334	321	321	33	336	272	78 24	
24	331	341	15	346	314	326	330	330	318	240	221	227	227	237	225	219	145	52	60	36	211	359	14	30	14	359	215	120 24	
25	342	332	349	337	324	345	334	331	324	201	217	223	209	226	225	273	234	274	274	154	312	118	337	237	118	349	272	66 24	
26	98	87	198	110	25	360	347	193	284	216	228	251	237	296	211	175	268	219	168	114	335	356	296	245	25	360	222	90 24	
27	233	253	231	225	235	222	214	238	199	225	210	191	212	192	208	171	175	213	182	196	188	193	191	187	171	253	208	22 24	
28	193	173	191	197	209	184	189	186	154	164	188	182	167	148	154	237	251	212	290	193	212	156	240	217	148	290	195	34 24	
29	68	25	1	358	197	158	198	252	324	235	200	167	222	241	203	228	238	350	8	330	16	23	314	281	1	358	193	114 24	
30	225	224	253	199	215	276	27	131	271	197	204	222	222	208	197	226	230	245	218	238	228	225	229	238	27	276	215	49 24	
31	245	229	223	211	247	280	246	253	182	171	222	258	249	236	243	200	255	9	15	10	15	26	13	24	9	280	169	103 24	
HR MIN	68	25	1	110	25	158	27	131	154	164	188	167	167	148	154	171	109	9	8	10	15	20	13	24	1				
HR MAX	342	341	349	358	334	360	347	346	328	240	228	258	332	333	333	322	268	350	356	353	346	359	337	321		360			
HR AVG	218	227	180	249	233	274	225	244	249	205	213	215	229	232	222	227	209	173	213	193	218	184	220	194		219			
HR STD	92	104	126	83	88	71	107	74	67	25	13	29	40	47	41	42	48	119	127	109	111	125	116	103		87			
n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	288				

Grand Teton National Park

Flag Ranch

Vector Wind Direction hourly averages (deg)

01/01/2003 - 01/31/2003

Date	HOUR (LOCAL STANDARD TIME)																							DAY MIN	DAY MAX	DAY AVG	DAY STD n		
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
1	21	12	333	301	357	345	71	21	353	339	357	2	332	327	329	343	355	324	19	33	278	98	305	339	2	357	233	146 24	
2	305	323	198	330	266	250	48	25	239	190	164	219	211	202	171	152	191	200	140	163	182	267	226	224	25	330	204	73 24	
3	224	261	181	316	257	328	186	328	278	203	177	193	214	230	242	231	249	346	18	22	57	350	30	20	18	350	206	106 24	
4	4	360	28	9	231	283	150	255	258	238	212	298	245	216	217	206	276	142	141	187	172	313	245	189	4	360	203	91 24	
5	23	245	101	136	75	331	338	27	9	10	4	330	326	336	324	346	352	137	38	151	319	128	256	31	4	352	182	136 24	
6	101	359	156	350	322	310	306	325	276	326	224	225	218	222	216	221	204	17	26	223	306	346	320	346	17	359	248	97 24	
7	304	287	191	322	290	329	326	314	337	261	228	231	226	227	220	220	214	154	315	322	320	334	331	318	154	337	276	55 24	
8	318	326	344	347	298	318	293	306	295	239	232	230	212	223	215	220	222	219	94	343	295	348	359	347	94	359	277	65 24	
9	1	326	8	336	334	344	331	48	134	330	217	192	214	216	209	222	219	176	353	0	330	349	325	337	0	353	231	119 24	
10	313	347	338	323	345	335	325	333	329	247	223	213	227	226	277	225	223	204	269	170	292	261	182	228	170	347	269	57 24	
11	274	257	242	286	278	70	21	1	3	302	345	227	220	217	227	211	172	154	134	224	149	198	143	310	1	345	194	96 24	
12	223	292	169	233	204	148	181	145	117	205	276	210	227	229	236	236	221	186	178	231	235	218	231	224	117	292	211	40 24	
13	211	184	176	173	208	173	33	2	30	7	352	4	10	20	18	19	42	17	327	2	149	179	292	242	2	352	120	115 24	
14	241	239	317	97	167	154	156	163	179	190	304	164	240	228	216	235	228	222	29	358	216	343	19	210	19	358	205	83 24	
15	205	207	327	323	334	336	0	25	20	329	321	297	297	279	309	318	338	19	49	59	23	69	269	199	0	338	206	132 24	
16	258	282	209	215	162	16	21	320	125	209	219	202	217	230	319	346	203	152	150	297	170	331	53	337	16	346	210	94 24	
17	358	360	357	346	289	337	335	325	4	227	229	216	222	233	1	360	2	210	337	343	52	306	9	219	1	360	237	129 24	
18	342	352	342	37	347	351	342	26	266	232	236	245	332	344	359	6	4	8	356	3	359	25	38	36	3	359	208	153 24	
19	328	307	20	335	343	118	56	262	227	238	225	224	225	209	214	206	213	209	177	82	344	73	276	341	20	344	219	94 24	
20	26	1	299	341	311	329	351	342	263	300	233	323	327	337	337	359	353	352	6	11	350	303	326	28	15	1	359	246	140 24
21	31	20	35	7	6	13	357	5	162	18	326	346	1	8	14	10	1	10	8	6	3	280	165	310	1	357	89	131 24	
22	326	336	332	337	357	19	3	343	14	355	7	16	20	254	248	4	4	32	360	212	4	182	179	192	3	360	172	148 24	
23	42	82	184	281	224	186	219	238	212	185	166	226	175	220	231	234	274	345	337	313	339	12	15	8	8	345	198	102 24	
24	342	319	339	331	246	275	233	160	245	186	286	276	334	332	320	322	347	5	36	63	11	18	51	25	5	347	213	129 24	
25	30	38	356	23	337	352	1	179	205	319	269	214	344	323	333	333	342	344	13	33	85	84	41	18	1	356	192	143 24	
26	34	21	15	30	338	171	15	150	197	182	315	360	19	311	289	34	43	12	9	21	72	151	200	222	9	360	134	122 24	
27	196	204	220	227	164	207	208	208	196	219	233	233	203	223	230	211	213	160	190	197	302	168	152	127	127	302	204	34 24	
28	183	164	209	169	162	152	164	164	170	152	303	172	227	282	314	297	2	41	86	342	214	354	15	149	2	354	187	95 24	
29	176	184	166	168	164	172	166	176	180	205	206	196	210	232	212	197	250	64	341	35	181	205	210	211	35	341	188	57 24	
30	179	201	181	202	171	169	159	159	230	227	239	251	282	311	334	5	0	9	26	6	341	169	336	325	0	341	188	111 24	
31	211	351	25	33	10	11	1	72	219	220	209	220	220	223	224	223	221	217	218	221	220	224	219	206	1	351	176	94 24	
HR MIN	1	1	8	7	6	11	0	1	3	7	4	2	1	8	1	4	0	5	8	0	3	12	9	8	0	0	0	0	0
HR MAX	358	360	357	350	357	352	357	343	353	355	357	360	344	344	359	360	355	346	360	358	359	354	359	347		360			
HR AVG	188	234	206	225	245	224	174	176	186	222	237	218	219	241	240	211	193	140	154	162	204	216	178	203		204			
HR STD	122	118	117	122	98	116	130	123	103	89	81	86	94	76	92	113	120	112	131	129	117	113	117	117		113			
n	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	744	

Grand Teton National Park

Flag Ranch

Vector Wind Direction hourly averages (deg)

02/01/2003 - 02/28/2003

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
1	209	200	185	189	171	206	205	211	204	216	208	216	206	215	221	197	196	198	157	131	137	108	359	355	108	359	204	55	24	
2	349	347	342	348	349	351	345	330	340	341	343	343	352	356	349	344	354	356	2	3	356	88	1	37	1	356	280	134	24	
3	7	54	349	66	260	287	357	274	65	231	218	215	210	223	219	221	230	196	45	23	21	16	17	153	7	357	165	112	24	
4	216	331	208	297	226	173	310	258	288	207	228	330	346	10	3	1	356	347	351	94	49	23	354	32	1	356	210	130	24	
5	356	343	343	260	224	303	328	237	271	242	235	357	337	298	285	308	344	2	9	325	0	74	56	54	0	357	233	125	24	
6	347	354	347	344	338	350	329	338	338	225	167	196	342	351	6	360	355	342	53	339	320	336	324	341	6	360	298	97	24	
7	348	339	326	337	339	322	323	352	230	232	223	206	222	210	219	211	202	346	353	23	53	338	352	309	23	353	267	92	24	
8	345	208	348	263	263	41	224	338	260	208	319	204	345	334	329	330	331	358	10	7	18	32	224	334	7	358	236	123	24	
9	324	325	80	6	37	17	257	208	223	176	1	3	334	296	295	333	355	8	24	20	158	153	143	146	1	355	163	129	24	
10	160	154	357	32	19	19	39	18	59	11	353	19	262	249	289	304	264	190	167	75	349	187	247	180	11	357	167	121	24	
11	181	201	181	94	126	191	181	28	100	222	220	213	180	178	232	324	317	334	33	33	349	334	333	308	28	349	204	101	24	
12	328	305	341	328	334	338	336	344	175	225	223	221	225	224	229	211	212	196	187	190	322	20	328	333	20	344	257	80	24	
13	10	332	339	313	321	326	296	192	259	239	224	220	232	255	236	185	237	319	272	227	180	224	188	233	10	339	244	70	24	
14	128	161	279	149	342	191	90	222	167	294	240	349	360	331	331	314	324	305	40	118	127	48	54	90	40	360	211	109	24	
15	12	35	0	157	357	60	22	359	302	211	329	348	12	332	333	196	294	5	95	192	279	194	254	221	0	359	192	130	24	
16	215	274	296	301	323	229	329	302	289	233	282	251	209	251	240	213	206	202	216	195	206	232	261	212	195	329	249	41	24	
17	277	2	42	22	213	308	261	49	194	208	192	217	236	238	232	221	232	235	212	225	230	230	234	179	2	308	195	81	24	
18	167	130	89	12	27	38	53	176	333	251	251	347	326	319	300	283	314	335	89	25	357	262	15	288	12	357	199	127	24	
19	229	327	227	290	213	287	188	253	160	223	203	238	218	211	236	230	233	220	219	32	121	336	346	305	32	346	231	68	24	
20	331	356	18	324	277	348	327	274	245	227	215	221	212	184	246	249	225	174	159	147	133	98	107	174	18	356	220	86	24	
21	168	347	21	346	3	49	13	64	67	339	324	296	284	276	284	302	285	316	14	10	6	19	166	171	3	347	174	137	24	
22	155	183	204	215	203	156	165	152	149	202	292	270	308	324	333	310	319	260	47	105	5	64	40	105	5	333	190	98	24	
23	323	168	222	200	219	316	313	4	5	350	350	350	346	347	348	350	0	358	352	106	125	136	6	4	0	358	221	139	24	
24	293	347	345	346	336	324	336	329	227	232	226	221	232	237	224	239	226	214	76	337	330	340	331	329	76	347	278	68	24	
25	339	326	325	342	327	317	348	329	212	221	222	215	220	214	212	215	187	125	343	330	334	349	329	125	349	275	68	24		
26	328	332	333	332	333	322	325	286	241	225	225	220	223	223	221	217	247	232	355	17	24	42	228	189	17	355	238	96	24	
27	304	306	248	333	264	311	260	301	233	227	223	225	214	216	251	270	303	315	356	32	53	15	343	11	11	356	234	103	24	
28	320	331	332	286	310	330	331	300	200	202	228	241	213	237	304	309	317	349	28	51	18	70	187	24	18	349	230	112	24	
HR MIN	7	2	0	6	3	17	13	4	5	11	1	3	12	10	3	1	0	2	2	3	0	15	1	4	0					
HR MAX	356	356	357	348	357	351	357	359	340	350	353	357	360	356	349	360	356	358	356	343	357	340	359	355		360				
HR AVG	242	254	240	233	241	233	246	233	208	229	242	241	257	255	250	259	268	246	145	122	166	155	209	195		224				
HR STD	109	108	120	119	110	118	111	110	88	60	70	86	77	73	83	75	76	107	124	113	132	121	127	116		109				
n	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	672

Grand Teton National Park

Flag Ranch

Vector Wind Direction hourly averages (deg)

03/01/2003 - 03/31/2003

Date	HOUR (LOCAL STANDARD TIME)																							DAY MIN	DAY MAX	DAY AVG	DAY STD	n		
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
1	36	308	198	310	292	335	326	325	217	206	281	348	346	341	337	325	351	333	261	34	314	260	334	339	34	351	282	88	24	
2	327	340	343	347	331	338	324	286	240	240	240	233	232	230	243	233	232	257	107	182	118	246	177	199	107	347	252	68	24	
3	183	222	203	186	161	218	220	303	314	206	308	139	234	250	237	162	190	209	296	104	17	12	348	19	12	348	198	91	24	
4	61	54	263	188	25	110	268	326	2	333	291	314	277	233	264	247	210	198	280	133	48	33	333	37	2	333	189	114	24	
5	24	356	192	286	244	243	242	192	184	223	206	202	187	192	192	160	181	204	220	224	216	224	212	220	24	356	209	56	24	
6	227	228	233	236	242	234	235	230	231	231	223	220	223	230	249	215	218	197	226	227	231	227	238	240	197	249	229	10	24	
7	238	246	240	229	229	237	230	219	225	228	220	221	224	209	216	217	219	223	223	228	227	224	225	237	209	246	226	9	24	
8	235	232	231	231	226	225	225	229	239	237	229	226	222	226	222	212	212	214	200	210	169	219	189	177	169	239	218	18	24	
9	167	195	22	2	31	17	357	359	352	220	207	218	215	218	222	195	178	183	211	197	181	38	244	355	2	359	191	106	24	
10	301	28	137	112	214	104	43	223	182	179	208	247	224	268	271	227	214	209	209	215	211	215	219	229	28	301	195	67	24	
11	221	226	211	212	214	223	274	207	168	217	233	225	220	228	209	175	185	173	192	214	208	215	218	228	168	274	212	22	24	
12	236	226	228	133	225	246	249	358	1	333	195	221	221	239	223	220	205	207	188	214	202	214	186	215	1	358	216	64	24	
13	237	228	136	56	200	285	318	353	281	228	229	191	169	208	196	190	188	173	203	185	87	41	66	51	41	353	187	83	24	
14	51	6	45	228	229	240	137	140	138	240	249	260	268	324	351	162	200	217	213	217	349	353	219	8	6	353	202	101	24	
15	5	8	26	28	262	190	237	164	176	329	0	0	0	156	153	157	156	239	339	197	191	RF	251	271	0	339	154	110	23	
16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	
17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	
18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	
19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	
20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	
21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	
22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	
23	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	
24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	
25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	
26	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	
27	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	
28	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	
29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	
30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	
31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	
HR MIN	5	6	22	2	25	17	43	140	1	179	0	0	0	156	153	157	156	173	107	34	17	12	66	8	0					
HR MAX	327	356	343	347	331	338	357	359	352	333	308	348	346	341	351	325	351	333	339	228	349	353	348	355		359				
HR AVG	170	193	181	186	208	216	246	261	197	243	221	218	217	237	239	206	209	216	225	185	185	180	231	188		211				
HR STD	106	116	92	101	83	85	78	73	97	48	69	77	73	47	52	44	44	39	54	55	89	104	71	110		80				
n	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	359		

Grand Teton National Park

Flag Ranch

Standard Deviation for Wind Direction hourly averages (deg)

12/01/2002 - 12/31/2002

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
19	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	0				
20	70	78	68	57	72	58	66	79	57	49	48	28	52	37	41	42	33	32	37	43	59	65	71	38	28	79	53	15 24	
21	43	42	45	26	66	41	61	39	60	28	28	38	38	18	28	30	26	27	62	28	73	67	16	40	16	73	40	16 24	
22	64	41	65	55	63	54	36	37	49	20	45	35	43	38	32	33	53	51	51	52	52	47	72	47	20	72	47	12 24	
23	72	74	61	72	67	55	71	51	63	32	16	15	18	23	37	16	24	65	39	59	37	66	56	68	15	74	48	21 24	
24	56	65	65	43	45	40	59	38	41	38	35	44	37	30	28	34	61	50	35	35	68	76	87	77	28	87	49	17 24	
25	64	78	61	71	39	73	52	76	94	44	31	26	29	39	28	32	42	65	63	78	85	52	69	73	26	94	57	20 24	
26	56	44	75	61	54	46	76	79	52	50	49	31	57	71	33	64	46	45	62	58	68	64	76	77	31	79	58	14 24	
27	44	67	60	62	50	25	40	59	39	26	30	32	47	32	42	49	32	33	34	27	32	31	36	34	25	67	40	12 24	
28	33	35	35	39	49	47	38	37	31	38	39	40	43	21	36	39	45	70	65	57	50	64	48	64	21	70	44	12 24	
29	76	63	74	66	68	29	30	54	66	36	48	60	31	38	34	31	58	72	38	29	36	47	78	73	29	78	51	18 24	
30	65	41	58	32	50	73	55	59	74	55	48	61	36	34	33	27	18	36	35	26	37	31	24	21	18	74	43	16 24	
31	17	29	32	53	76	38	25	38	38	35	40	35	19	21	29	28	53	37	32	32	40	31	24	32	17	76	35	12 24	
HR MIN	17	29	32	26	39	25	25	37	31	20	16	15	18	18	28	16	18	27	32	26	32	31	16	21	15				
HR MAX	76	78	75	72	76	73	76	79	94	55	49	61	57	71	42	64	61	72	65	78	85	76	87	77		94			
HR AVG	55	55	58	53	58	48	51	54	55	38	38	37	38	34	33	35	41	49	46	44	53	53	55	54		47			
HR STD	18	18	14	15	12	15	17	17	18	10	10	13	12	14	5	12	14	16	13	17	17	16	24	20		17			
n	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	288				

Grand Teton National Park

Flag Ranch

Standard Deviation for Wind Direction hourly averages (deg)

01/01/2003 - 01/31/2003

Date	HOUR (LOCAL STANDARD TIME)																							DAY MIN	DAY MAX	DAY AVG	DAY STD n	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
1	40	56	41	52	32	24	71	56	26	25	29	32	25	22	27	29	37	62	47	76	62	63	60	56	22	76	44	17 24
2	61	70	57	64	44	66	69	51	57	42	43	35	45	49	25	30	48	76	70	54	48	59	47	63	25	76	53	13 24
3	76	61	61	66	79	74	69	57	75	64	61	52	39	38	37	38	45	34	40	49	51	61	47	42	34	79	55	14 24
4	55	44	53	44	79	80	22	54	59	41	29	64	26	42	25	29	50	71	63	89	66	80	66	73	22	89	54	20 24
5	66	76	55	53	55	48	51	41	32	35	26	23	23	37	27	24	44	64	62	74	78	79	65	72	23	79	50	19 24
6	63	80	68	68	72	66	62	85	66	38	26	17	24	17	20	19	33	33	56	66	37	57	57	63	17	85	50	22 24
7	47	69	56	67	68	61	57	47	52	43	17	13	21	27	28	19	25	40	60	72	69	73	61	54	13	73	48	19 24
8	69	52	43	73	55	38	58	40	44	47	52	25	28	29	28	25	23	72	77	73	75	82	65	51	23	82	51	19 24
9	66	82	77	87	64	78	76	75	79	59	21	29	34	25	33	12	21	49	62	63	68	64	59	59	12	87	56	22 24
10	43	59	65	77	67	77	61	73	79	45	23	25	27	41	56	20	23	23	56	66	62	70	55	63	20	79	52	20 24
11	38	69	61	82	74	62	27	34	49	40	56	47	39	37	29	35	27	47	68	72	76	71	55	51	27	82	52	17 24
12	75	82	70	67	75	53	55	73	65	55	66	53	29	21	23	28	27	34	33	54	54	49	51	51	21	82	52	18 24
13	45	32	55	53	37	35	43	45	50	35	36	63	37	44	38	29	45	44	55	60	60	58	86	67	29	86	48	13 24
14	59	76	67	69	56	40	29	16	25	32	46	63	36	38	42	50	67	61	67	64	80	88	62	81	16	88	55	19 24
15	40	58	55	47	45	38	52	58	54	41	52	32	30	33	31	26	55	50	67	52	65	80	71	51	26	80	49	14 24
16	55	65	52	50	47	47	56	71	73	41	25	29	23	53	73	34	43	18	27	50	64	69	78	75	18	78	51	18 24
17	75	78	78	71	74	76	60	73	65	34	15	25	29	57	33	27	39	62	50	73	61	63	65	73	15	78	57	20 24
18	64	67	69	78	59	78	79	79	70	34	44	30	24	28	31	31	27	34	27	27	32	65	75	70	24	79	51	21 24
19	76	82	82	70	68	61	73	78	51	63	55	35	32	37	27	30	58	56	55	81	70	85	78	77	27	85	62	18 24
20	78	78	74	79	73	74	82	82	90	79	62	35	34	24	28	28	40	34	45	54	77	65	42	39	24	90	58	22 24
21	37	37	37	39	54	43	36	37	53	38	50	30	34	42	47	31	38	59	46	32	45	73	67	40	30	73	44	11 24
22	26	30	25	26	42	65	32	51	49	30	45	42	36	69	64	44	27	48	71	63	60	37	36	38	25	71	44	15 24
23	65	63	51	71	60	87	66	73	30	35	32	42	33	39	33	47	50	47	23	45	57	80	57	56	23	87	52	17 24
24	62	77	50	74	73	66	76	67	63	28	56	35	30	21	23	24	32	30	58	69	45	55	57	47	21	77	51	19 24
25	54	69	26	51	52	29	45	43	28	26	29	40	46	31	27	34	43	74	44	53	50	51	66	36	26	74	44	14 24
26	49	35	31	54	44	67	72	57	57	51	87	45	42	54	53	49	53	56	76	71	76	77	56	40	31	87	56	14 24
27	30	39	33	34	62	38	45	35	45	49	36	27	36	30	26	32	44	48	33	50	49	37	53	75	26	75	41	12 24
28	60	22	66	32	48	34	36	55	39	68	79	32	36	39	42	46	39	62	62	61	50	39	38	39	22	79	47	14 24
29	40	23	22	36	41	51	44	56	35	22	19	27	33	37	68	25	39	72	58	65	58	32	28	31	19	72	40	16 24
30	38	33	36	33	26	25	16	29	52	42	32	35	31	28	33	35	29	31	35	40	80	64	49	84	16	84	39	16 24
31	80	64	53	53	61	66	72	74	68	46	45	43	38	30	30	32	32	32	36	36	36	34	40	30	80	47	16 24	
HR MIN	26	22	22	26	26	24	16	16	25	22	15	13	21	17	20	12	21	18	23	27	32	32	28	31	12			
HR MAX	80	82	82	87	79	87	82	85	90	79	87	64	46	69	73	50	67	76	77	89	80	88	86	84		90		
HR AVG	56	59	54	59	58	56	55	57	54	43	42	36	32	36	36	31	39	49	52	60	60	63	58	57		50		
HR STD	15	19	16	17	14	18	18	17	13	18	13	6	12	14	9	11	16	15	15	13	16	13	15		18			
n	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	744			

Grand Teton National Park

Flag Ranch

Standard Deviation for Wind Direction hourly averages (deg)

02/01/2003 - 02/28/2003

Date	HOUR (LOCAL STANDARD TIME)																							DAY MIN	DAY MAX	DAY AVG	DAY STD n	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
1	37	36	32	34	34	38	34	35	34	31	36	33	34	31	36	34	34	36	26	55	45	37	25	22	22	55	35	6 24
2	21	19	20	22	22	25	22	20	19	20	24	28	31	25	21	23	26	30	23	55	64	81	65	19	81	30	17 24	
3	80	86	71	59	64	80	65	80	68	50	23	23	29	29	31	29	21	44	74	39	27	24	69	72	21	86	52	23 24
4	45	60	59	66	70	65	77	71	74	14	46	56	37	33	28	29	24	20	58	56	59	84	71	62	14	84	53	20 24
5	73	79	68	74	45	55	42	49	61	38	48	55	28	51	46	41	33	38	39	52	39	67	79	72	28	79	53	15 24
6	71	74	80	86	85	77	73	69	64	38	35	31	44	36	37	37	25	39	62	72	65	51	70	63	25	86	58	19 24
7	80	53	70	57	82	70	70	76	49	29	24	41	34	28	17	26	39	26	25	48	42	37	40	51	17	82	46	20 24
8	53	50	45	41	34	56	58	28	25	27	43	52	36	55	27	24	26	22	24	25	46	91	69	64	22	91	43	18 24
9	52	57	75	42	60	30	47	35	44	55	45	32	31	48	44	39	25	38	36	44	45	44	51	35	25	75	44	11 24
10	30	29	51	65	56	38	52	38	62	51	33	53	48	27	65	55	55	56	60	79	84	76	87	73	27	87	55	17 24
11	39	62	73	53	60	56	86	82	83	24	14	23	47	63	47	32	25	21	37	39	79	51	65	80	14	86	52	22 24
12	63	63	74	81	70	67	72	78	53	27	21	24	28	19	30	27	24	41	60	72	76	60	60	62	19	81	52	21 24
13	74	82	62	75	48	82	67	56	26	41	42	23	24	33	24	46	66	48	20	28	32	35	44	60	20	82	47	20 24
14	63	51	40	28	74	48	42	61	41	53	30	27	35	29	35	25	32	67	70	48	58	46	53	52	25	74	46	14 24
15	37	40	36	37	52	29	29	69	40	29	47	41	75	35	36	46	51	44	83	57	75	81	93	70	29	93	51	19 24
16	77	62	88	56	74	78	74	66	63	57	55	69	70	50	30	33	37	37	32	31	36	42	41	41	30	88	54	18 24
17	70	51	51	62	90	93	91	81	54	29	33	29	28	26	41	43	40	32	31	31	31	45	48	26	93	48	22 24	
18	55	71	63	54	31	40	75	53	65	46	61	49	34	42	27	37	36	65	59	77	78	62	66	80	27	80	55	16 24
19	76	76	64	71	70	68	50	61	61	37	36	42	30	36	54	34	19	35	55	73	67	81	67	72	19	81	56	18 24
20	80	80	67	68	70	75	67	78	52	41	34	37	28	37	50	36	41	30	22	45	39	61	62	72	22	80	53	18 24
21	58	69	60	46	33	52	38	63	64	62	32	30	43	36	37	37	36	36	52	32	42	59	46	62	30	69	47	12 24
22	35	46	34	27	23	26	61	25	34	41	38	54	29	20	20	23	25	43	64	75	43	57	82	82	20	82	42	19 24
23	62	57	65	55	52	67	72	62	25	20	21	43	26	25	24	23	23	20	50	74	76	87	84	76	20	87	50	23 24
24	67	72	72	68	35	43	41	52	68	23	18	40	25	29	31	30	21	20	51	46	61	65	44	64	18	72	45	18 24
25	56	48	71	65	68	52	70	69	54	18	21	22	28	22	21	20	17	26	54	57	44	58	63	36	17	71	44	20 24
26	63	49	50	60	60	30	33	46	60	13	21	23	21	21	27	22	42	50	23	34	30	41	70	56	13	70	39	17 24
27	42	53	66	54	44	50	55	40	12	43	30	39	33	46	38	34	30	27	37	38	43	53	49	46	12	66	42	11 24
28	19	60	68	64	54	70	50	64	33	46	46	27	34	68	37	28	28	35	49	62	74	58	71	79	19	79	51	17 24
HR MIN	19	19	20	22	22	25	22	12	13	14	22	21	19	17	20	17	20	20	23	27	24	25	22	12				
HR MAX	80	86	88	86	90	93	91	82	83	62	61	69	75	68	65	55	66	67	83	79	84	91	93	82		93		
HR AVG	56	58	60	56	56	58	57	50	36	34	37	35	36	34	33	32	37	46	50	53	57	62	61		48			
HR STD n	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	19	672		

Final Validation

5/12/2003

Grand Teton National Park

Flag Ranch

Standard Deviation for Wind Direction hourly averages (deg)

03/01/2003 - 03/31/2003

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
1	78	81	74	68	68	38	55	65	56	25	37	28	28	49	42	41	79	36	48	71	58	76	56	68	25	81	55	18	24
2	57	62	80	82	77	91	80	65	73	52	49	29	52	48	27	34	37	60	59	91	78	86	44	41	27	91	61	20	24
3	31	34	40	51	40	57	52	43	55	49	30	52	55	42	36	67	35	53	60	54	57	65	76	66	30	76	50	12	24
4	69	67	41	63	72	55	72	73	52	39	38	40	37	21	34	31	46	50	70	56	74	56	50	54	21	74	53	15	24
5	74	79	81	93	77	80	81	72	33	32	30	31	34	32	38	45	44	63	44	28	32	35	32	38	28	93	51	22	24
6	27	26	31	30	31	26	28	26	25	26	25	26	25	28	40	60	49	79	28	30	30	28	26	28	25	79	32	13	24
7	29	37	32	30	35	42	25	30	27	28	29	27	27	31	27	26	31	27	26	26	26	27	28	30	25	42	29	4	24
8	29	28	27	26	30	30	30	26	35	27	26	26	26	25	29	30	30	36	37	44	38	44	34	29	25	44	31	5	24
9	35	79	71	75	29	50	54	69	60	57	32	29	32	34	41	34	32	38	32	38	63	64	73	73	29	79	50	18	24
10	75	71	78	65	59	66	48	59	33	37	37	45	36	33	41	37	35	47	49	48	46	36	32	46	32	78	48	14	24
11	83	60	34	30	35	53	64	38	37	50	29	36	32	35	31	34	33	33	57	35	40	36	37	38	29	83	41	13	24
12	31	35	35	31	60	42	58	49	35	64	60	35	30	25	28	30	31	39	35	30	36	31	41	38	25	64	39	11	24
13	32	29	63	65	88	73	80	76	61	22	22	29	29	31	33	32	32	28	42	67	69	73	70	64	22	88	50	22	24
14	78	75	75	56	29	55	65	65	51	33	35	30	46	57	38	51	32	33	46	57	76	79	76	60	29	79	54	17	24
15	58	81	77	77	66	58	67	35	47	60	36	31	36	26	21	27	23	42	65	35	41	RF	45	44	21	81	48	18	23
16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0
17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0
18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0
19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0
20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0
21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0
22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0
23	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0
24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0
25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0
26	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0
27	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0
28	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0
29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0
30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0
31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0
HR MIN	27	26	27	26	29	26	25	26	25	22	22	26	25	21	21	26	23	27	26	26	27	26	28	21					
HR MAX	83	81	81	93	88	91	81	76	73	64	60	52	55	57	42	67	79	79	70	91	78	86	76	73	93				
HR AVG	52	56	56	56	53	54	57	53	45	40	34	33	35	34	34	39	38	44	47	47	51	53	48	48	46				
HR STD	22	22	22	22	21	18	18	18	14	14	10	8	9	10	6	12	13	14	14	19	18	21	18	15	18				
n	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	359	

Yellowstone National Park

Old Faithful

Carbon Monoxide hourly averages (ppm)

12/01/2002 - 12/31/2002

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
17	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	0				
18	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	0				
19	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.200	0.100	0.100	0.100	0.000	0.100	0.000	0.000	0.000	0.100	0.100	0.100	0.100	0.100	0.100	0.048	24				
20	0.100	0.200	0.200	0.200	0.200	0.100	0.200	0.200	0.400	0.300	0.300	0.200	0.200	0.100	0.100	0.100	0.100	0.000	0.100	0.100	0.100	0.100	0.100	0.040	23				
21	0.100	0.100	0.100	0.100	0.100	0.100	0.200	0.300	0.700	0.400	0.400	0.400	0.200	0.300	0.100	0.100	0.100	0.100	0.000	0.000	0.000	0.000	0.000	0.070	0.163	24			
22	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.100	0.100	0.100	0.100	0.100	0.200	0.100	0.200	0.300	0.300	0.200	0.000	0.100	0.100	0.100	0.100	0.300	0.096	23			
23	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.100	0.100	0.000	0.000	0.000	0.000	0.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.100	0.013	24			
24	0.000	0.000	0.000	0.000	0.000	0.000	0.100	0.200	0.200	0.100	0.100	0.300	0.100	0.100	0.000	0.000	0.000	0.000	0.100	0.100	0.100	0.100	0.100	0.300	0.065	23			
25	0.100	0.100	0.100	0.100	0.100	0.100	0.200	0.500	0.200	0.200	0.400	0.300	0.200	0.100	0.000	0.000	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.500	0.146	24			
26	0.100	0.100	0.100	0.100	0.100	0.100	0.300	0.800	0.300	0.100	0.200	0.200	0.200	0.100	0.200	0.100	0.100	0.200	0.200	0.200	0.200	0.200	0.200	0.100	0.800	0.187	23		
27	0.200	0.200	0.200	0.100	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.300	0.400	0.200	0.200	0.100	0.200	0.200	0.100	0.200	0.200	0.200	0.100	0.400	0.196	24		
28	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.300	0.300	0.300	0.400	0.500	0.600	0.600	0.600	1.300	0.700	0.400	0.700	0.300	0.300	0.200	0.200	0.200	0.200	0.300	0.261	23	
29	0.200	0.200	0.200	0.200	0.300	0.300	0.300	0.300	0.300	0.400	0.700	0.800	0.900	0.700	0.800	0.700	0.600	0.300	0.200	0.100	0.100	0.100	0.100	0.200	0.200	0.900	0.391	252	
30	0.200	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.400	0.500	0.600	0.600	1.100	0.800	0.600	0.500	0.400	0.500	0.400	0.400	0.400	0.400	0.400	0.200	1.100	0.448	200	
31	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.400	0.400	1.100	1.100	0.700	0.400	0.300	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.335	0.269	23	
HR MIN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.100	0.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
HR MAX	0.200	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.800	0.400	0.700	0.800	1.100	1.100	0.800	1.300	0.700	0.400	0.700	0.400	0.400	0.200	0.400	0.500	1.300				
HR AVG	0.115	0.131	0.131	0.123	0.138	0.131	0.154	0.208	0.331	0.238	0.269	0.323	0.362	0.385	0.292	0.292	0.215	0.162	0.185	0.131	0.146	0.080	0.146	0.154	0.205				
HR STD	0.080	0.095	0.095	0.093	0.104	0.103	0.097	0.095	0.218	0.119	0.202	0.224	0.340	0.378	0.309	0.382	0.244	0.139	0.203	0.118	0.113	0.084	0.120	0.139	0.208				
n	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	5	13	13	304			

Yellowstone National Park

Old Faithful

Carbon Monoxide hourly averages (ppm)

01/01/2003 - 01/31/2003

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
1	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.300	0.300	0.400	0.500	0.300	0.600	0.600	0.400	0.500	0.300	0.300	0.300	0.300	ZS	0.300	0.300	0.200	0.600	0.322	0.124	23	
2	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.600	0.200	0.300	0.500	0.400	0.500	0.500	0.300	0.300	0.200	0.200	0.200	ZS	0.200	0.200	0.200	0.600	0.278	0.128	23	
3	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.300	0.300	0.400	0.600	0.700	0.600	0.600	0.400	0.300	0.300	0.200	0.200	0.200	ZS	0.200	0.300	0.200	0.700	0.313	0.160	23
4	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.600	0.300	0.300	0.400	0.500	0.400	0.300	0.200	0.200	0.200	0.200	ZS	0.200	0.200	0.200	0.600	0.261	0.112	23	
5	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.600	0.500	1.100	1.100	0.500	0.300	0.400	0.300	0.500	0.600	0.500	0.400	0.300	0.300	ZS	0.300	0.300	0.200	1.100	0.409	0.256	23
6	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.300	0.600	0.300	0.300	0.800	0.500	0.700	0.300	0.500	0.700	0.300	0.200	0.300	0.200	ZS	0.200	0.200	0.200	0.800	0.309	0.219	23
7	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.500	0.500	0.600	0.400	0.700	0.400	0.400	0.700	0.400	0.200	0.200	0.300	0.200	0.200	ZS	0.200	0.200	0.200	0.700	0.326	0.171	23
8	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.400	0.400	0.400	0.300	0.700	0.900	0.500	0.500	0.300	0.500	0.200	0.200	0.100	0.200	ZS	0.100	0.100	0.100	0.900	0.283	0.223	23
9	0.100	0.100	0.100	0.200	0.200	0.200	0.200	0.200	0.300	0.400	0.400	0.400	0.200	0.700	0.300	MT	0.100	0.100	0.100	0.100	0.100	ZS	0.100	0.100	0.100	0.700	0.214	0.152	22
10	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.300	0.200	0.200	0.200	0.500	0.400	0.800	0.400	0.500	0.200	0.200	0.200	0.100	0.100	ZS	0.100	0.100	0.100	0.800	0.230	0.179	23
11	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.400	0.600	1.100	0.300	0.800	0.300	0.400	0.200	0.100	0.100	0.200	0.100	0.100	ZS	0.100	0.100	0.100	1.100	0.252	0.261	23	
12	0.100	0.100	0.100	0.100	0.100	0.200	0.200	0.200	0.200	0.200	0.400	0.500	0.300	0.800	0.400	0.300	0.400	0.200	0.200	0.200	ZS	0.200	0.200	0.200	0.800	0.252	0.162	23	
13	0.200	0.200	0.100	0.100	0.100	0.200	0.200	0.200	0.400	0.600	0.600	0.400	0.400	0.400	0.300	0.300	0.200	0.300	0.200	0.200	ZS	0.200	0.200	0.200	0.600	0.265	0.143	23	
14	0.100	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.300	1.100	0.300	0.300	0.300	0.300	0.300	0.200	0.200	0.200	0.200	0.200	ZS	0.200	0.200	0.200	1.100	0.257	0.190	23	
15	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.700	2.000	1.600	0.800	0.600	0.500	0.200	0.200	0.400	0.400	0.400	0.300	0.300	ZS	0.300	0.200	0.200	2.000	0.457	0.462	23	
16	0.000	0.000	0.000	0.000	0.000	0.000	0.100	0.100	0.100	0.100	0.500	0.600	0.700	0.500	0.200	0.400	0.100	0.100	0.100	0.100	ZS	0.100	0.200	0.100	0.700	0.178	0.209	23	
17	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.400	0.500	0.600	0.500	0.900	1.000	0.700	1.200	0.400	0.300	0.300	0.200	ZS	0.200	0.200	0.200	1.200	0.400	0.294	23
18	0.000	0.000	0.100	0.000	0.000	0.100	0.200	0.700	0.300	0.600	1.000	1.500	0.700	0.300	0.600	0.200	0.100	0.200	0.100	0.100	ZS	0.100	0.100	0.100	1.500	0.304	0.381	23	
19	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.200	0.300	0.200	0.200	0.200	0.100	0.200	0.100	0.100	0.100	0.100	ZS	0.100	0.100	0.100	0.300	0.130	0.056	23	
20	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.200	0.200	0.200	0.500	0.300	0.500	0.300	0.200	0.200	0.100	0.100	ZS	0.100	0.200	0.100	0.600	0.209	0.147	23	
21	0.190	0.180	0.170	0.170	0.170	0.170	0.170	0.190	0.250	0.340	0.380	0.480	0.370	0.540	0.360	0.250	0.170	0.180	0.180	0.190	ZS	0.190	0.160	0.160	0.540	0.246	0.110	23	
22	0.160	0.150	0.150	0.140	0.150	0.190	0.240	0.250	0.360	0.330	0.470	0.450	0.390	0.420	0.320	0.270	0.290	0.280	0.290	0.280	ZS	0.250	0.250	0.250	0.470	0.271	0.100	23	
23	0.250	0.250	0.250	0.230	0.240	0.250	0.280	0.320	0.320	0.350	0.530	0.460	0.590	0.590	0.370	0.500	0.640	0.380	0.320	0.290	ZS	0.300	0.300	0.300	0.640	0.359	0.128	23	
24	0.330	0.340	0.340	0.340	0.350	0.340	0.340	0.500	0.800	0.810	0.870	0.700	0.500	0.590	0.750	0.430	0.490	0.310	0.370	0.360	ZS	0.340	0.340	0.340	0.870	0.474	0.184	23	
25	0.330	0.340	0.340	0.350	0.340	0.330	0.340	0.350	0.380	0.410	0.560	0.600	0.840	0.680	0.410	0.440	0.430	0.370	0.390	0.380	ZS	0.360	0.360	0.360	0.840	0.422	0.129	23	
26	0.110	0.110	0.140	0.160	0.170	0.190	0.180	0.180	0.410	0.350	0.440	0.410	0.450	0.310	0.320	0.290	0.200	0.210	0.230	0.220	ZS	0.190	0.190	0.190	0.450	0.247	0.104	23	
27	0.200	0.210	0.220	0.220	0.230	0.230	0.220	0.250	0.290	0.400	0.520	0.660	0.740	0.650	0.470	0.350	0.260	0.280	0.230	0.340	ZS	0.320	0.270	0.270	0.740	0.339	0.160	23	
28	0.160	0.170	0.170	0.170	0.170	0.190	0.280	0.270	0.380	0.660	0.320	0.630	0.600	0.370	0.530	0.230	0.230	0.220	0.210	0.200	ZS	0.170	0.180	0.180	0.660	0.290	0.162	23	
29	0.190	0.200	0.210	0.210	0.210	0.230	0.230	0.230	0.580	0.390	0.330	0.340	0.420	0.310	0.340	0.330	0.380	0.320	0.230	0.220	ZS	0.260	0.270	0.270	0.580	0.290	0.093	23	
30	0.150	0.130	0.120	0.130	0.140	0.120	0.150	0.540	0.350	0.400	0.600	0.590	0.240	0.400	0.230	0.290	0.210	0.180	0.140	0.160	ZS	0.180	0.190	0.190	0.600	0.251	0.154	23	
31	0.180	0.180	0.170	0.140	0.120	0.100	0.120	0.140	0.130	0.280	0.380	0.350	0.610	0.370	0.470	0.160	0.170	0.110	0.110	0.110	ZS	0.140	0.160	0.160	0.610	0.209	0.136	23	
HR MIN	0.000	0.000	0.000	0.000	0.000	0.100	0.100	0.100	0.200	0.200	0.200	0.200	0.200	0.100	0.100	0.100	0.100	0.100	0.100	0.100	ZS	0.000							
HR MAX	0.330	0.340	0.340	0.350	0.350	0.340	0.340	0.700	2.000	1.600	1.100	1.000	1.500	0.900	1.000	0.700	1.200	0.640	0.400	0.380	0.380	ZS	0.360	0.360			2.000		
HR AVG	0.160	0.163	0.164	0.164	0.163	0.167	0.178	0.270	0.414	0.443	0.472	0.525	0.503	0.523	0.410	0.367	0.322	0.255	0.229	0.215	0.203	ZS	0.200	0.205			0.292		
HR STD	0.075	0.077	0.072	0.077	0.076	0.065	0.145	0.346	0.320	0.230	0.176	0.254	0.181	0.179	0.133	0.222	0.119	0.089	0.085	0.079	0.080	ZS	0.080	0.073			0.207		
n	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	0	31	31		712		

Yellowstone National Park

Old Faithful

Carbon Monoxide hourly averages (ppm)

02/01/2003 - 02/28/2003

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n				
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23									
1	0.000	0.000	0.000	0.000	0.000	0.060	0.070	0.110	0.150	0.160	0.210	0.240	0.340	0.230	0.220	0.150	0.140	0.110	0.130	0.170	0.170	ZS	0.210	0.210	0.000	0.340	0.134	0.093	23				
2	0.220	0.220	0.240	0.240	0.240	0.240	0.250	1.430	2.910	2.540	1.320	0.440	0.440	0.310	0.270	0.260	0.230	0.230	0.230	0.240	0.220	ZS	0.260	0.250	0.220	2.910	0.575	0.754	23				
3	0.000	0.000	0.000	0.000	0.000	0.030	0.460	0.230	0.290	0.430	0.490	0.410	0.210	0.220	0.010	0.020	0.000	0.000	0.000	0.000	0.000	ZS	0.000	0.000	0.000	0.490	0.122	0.178	23				
4	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.040	0.160	0.220	0.180	0.140	0.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.100	ZS	0.000	0.000	0.000	0.220	0.039	0.069	23				
5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.060	0.010	0.000	0.170	0.110	0.240	0.110	0.280	0.140	0.130	0.050	0.000	0.110	0.030	ZS	0.030	0.000	0.000	0.280	0.063	0.084	23				
6	0.000	0.000	0.000	0.000	0.000	0.050	0.080	0.210	0.140	0.190	0.350	0.340	0.080	1.010	0.360	0.240	0.170	0.200	0.050	0.150	0.060	ZS	0.060	0.070	0.000	1.010	0.163	0.219	23				
7	0.010	0.020	0.040	0.040	0.030	0.060	0.340	0.130	0.400	0.190	0.140	0.290	0.090	0.160	0.520	0.690	0.250	0.030	0.000	0.080	0.000	ZS	0.000	0.000	0.000	0.690	0.154	0.184	23				
8	0.000	0.000	0.000	0.000	0.000	0.000	0.200	0.000	0.540	0.260	0.190	0.460	0.170	0.110	0.390	0.060	0.150	0.000	0.000	0.170	ZS	0.060	0.040	0.000	0.540	0.122	0.159	23					
9	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.030	0.080	0.370	0.180	0.030	0.020	0.050	0.000	0.000	0.000	0.000	0.110	ZS	0.000	0.000	0.000	0.370	0.038	0.085	23						
10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.020	0.000	0.270	0.310	0.380	0.070	0.110	0.000	0.030	0.000	0.000	0.000	0.110	ZS	0.000	0.000	0.000	0.380	0.057	0.111	23					
11	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010	0.130	0.010	0.120	0.000	0.250	0.130	0.240	0.000	0.000	0.000	0.000	0.080	ZS	0.000	0.000	0.000	0.250	0.042	0.078	23					
12	0.000	0.000	0.000	0.000	0.000	0.050	0.020	0.110	0.200	0.300	0.290	0.090	0.200	0.250	0.250	0.070	0.000	0.020	0.100	0.000	0.250	ZS	0.000	0.000	0.000	0.300	0.096	0.111	23				
13	0.000	0.000	0.000	0.000	0.000	0.040	0.220	0.520	0.180	0.170	0.240	0.490	0.520	0.060	0.030	0.000	0.010	0.000	0.000	0.120	ZS	0.010	0.010	0.000	0.520	0.114	0.175	23					
14	0.010	0.010	0.000	0.000	0.000	0.010	0.020	0.040	0.170	0.220	0.400	0.320	0.660	0.430	0.180	0.120	0.070	0.020	0.000	0.140	ZS	0.050	0.040	0.000	0.660	0.127	0.175	23					
15	0.040	0.030	0.030	0.030	0.030	0.080	0.210	0.170	0.310	0.330	0.730	0.540	1.010	1.140	0.410	0.160	0.160	0.070	0.020	0.160	ZS	0.060	0.040	0.000	1.140	0.252	0.319	23					
16	0.050	0.060	0.050	0.040	0.050	0.050	0.140	0.240	0.340	0.140	0.180	0.220	0.350	0.400	0.420	0.340	0.190	0.100	0.110	0.110	0.260	ZS	0.060	0.030	0.000	0.420	0.171	0.127	23				
17	0.000	0.000	0.000	0.000	0.000	0.000	0.010	0.080	0.060	0.150	0.210	0.470	0.400	0.340	0.040	0.050	0.000	0.030	0.000	0.090	ZS	0.000	0.000	0.000	0.470	0.084	0.139	23					
18	0.000	0.000	0.000	0.000	0.010	0.010	0.140	0.260	0.300	0.070	0.130	0.440	0.340	0.240	0.170	0.030	0.040	0.000	0.020	0.010	ZS	0.040	0.070	0.000	0.440	0.103	0.129	23					
19	0.150	0.160	0.150	0.140	0.140	0.140	0.180	0.180	0.280	0.320	0.460	0.410	0.470	0.250	0.390	0.220	0.150	0.160	0.130	0.140	ZS	0.170	0.180	0.130	0.470	0.222	0.111	23					
20	0.180	0.160	0.170	0.170	0.170	0.180	0.200	0.460	0.550	0.240	0.310	0.510	0.320	0.470	0.330	0.390	0.380	0.160	0.170	0.210	0.200	ZS	0.150	0.150	0.150	0.550	0.271	0.130	23				
21	0.170	0.160	0.140	0.140	0.150	0.180	0.230	0.300	0.200	0.310	0.370	0.450	0.600	0.540	0.400	0.410	0.250	0.180	0.260	0.190	0.190	ZS	0.210	0.200	0.140	0.600	0.271	0.131	23				
22	0.200	0.200	0.200	0.210	0.220	0.260	0.340	0.680	1.000	0.520	1.150	0.480	0.470	0.490	0.450	0.360	0.450	0.460	0.360	0.300	ZS	0.280	0.290	0.200	1.150	0.416	0.246	23					
23	0.080	0.090	0.090	0.070	0.070	0.060	0.060	0.060	0.860	0.260	0.520	1.200	0.450	0.360	0.270	0.370	0.360	0.190	0.250	0.360	0.180	ZS	0.170	0.180	0.060	1.200	0.285	0.277	23				
24	0.190	0.200	0.230	0.300	0.300	0.330	0.420	0.560	PF	ZS	ZS	0.570	0.430	0.520	0.260	0.210	0.200	ZS	0.180	0.200	0.160	0.160	0.417	0.379	17								
25	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	ZS	ZS	0.570	0.430	0.520	0.260	0.210	0.200	ZS	0.180	0.200	0.160	0.160	0.570	0.321	160				
26	0.220	0.230	0.250	0.260	0.270	0.280	0.290	0.680	0.550	0.490	0.200	0.380	0.450	0.430	0.280	0.240	0.250	0.440	0.410	0.170	0.170	ZS	0.150	0.140	0.140	0.680	0.314	0.140	23				
27	0.140	0.130	0.130	0.140	0.120	0.120	0.210	0.190	0.500	0.310	0.340	0.210	0.370	0.700	0.590	0.430	0.310	0.370	0.320	0.170	0.160	ZS	0.160	0.160	0.120	0.700	0.273	0.162	23				
28	0.170	0.180	0.200	0.220	0.240	0.260	0.340	0.410	0.790	0.520	0.350	0.450	0.410	0.450	0.580	0.430	0.330	0.250	0.220	0.210	0.220	ZS	0.220	0.230	0.170	0.790	0.334	0.154	23				
HR MIN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.090	0.000	0.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000					
HR MAX	0.220	0.230	0.250	0.300	0.300	0.330	0.420	1.430	2.910	2.540	1.320	1.200	1.720	1.010	1.140	0.570	0.690	0.520	0.460	0.360	0.300	0.280	0.290	0.220	0.290	0.290	0.290	0.290	0.290	0.290			
HR AVG	0.068	0.069	0.071	0.074	0.076	0.083	0.113	0.254	0.374	0.348	0.292	0.390	0.408	0.368	0.328	0.261	0.195	0.158	0.129	0.097	0.152	0.096	0.095	0.095	0.095	0.095	0.095	0.095	0.095	0.095			
HR STD	0.086	0.086	0.091	0.099	0.101	0.105	0.121	0.300	0.576	0.495	0.247	0.275	0.295	0.242	0.270	0.176	0.175	0.149	0.135	0.116	0.069	0.093	0.096	0.096	0.096	0.096	0.096	0.096	0.096	0.096			
n	27	27	27	27	27	27	27	27	26	26	26	26	26	27	27	27	28	28	28	27	28	0	28	28	28	28	28	28	28	28	28		

Yellowstone National Park

Old Faithful

Carbon Monoxide hourly averages (ppm)

03/01/2003 - 03/31/2003

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
1	0.250	0.260	0.250	0.250	0.240	0.220	0.200	0.250	0.450	1.750	0.500	0.650	0.480	0.560	0.420	0.420	0.430	0.440	0.360	0.320	0.300	ZS	0.280	0.270	0.200	1.750	0.415	0.315	23
2	0.290	0.280	0.280	0.290	0.310	0.310	0.320	0.350	0.450	0.450	0.480	0.480	0.520	0.680	0.450	0.420	0.370	0.360	0.320	0.310	0.320	ZS	0.320	0.330	0.280	0.680	0.378	0.099	23
3	0.130	0.130	0.120	0.110	0.110	0.120	0.140	0.160	0.250	0.220	0.370	0.430	0.470	0.350	0.240	0.240	0.190	0.150	0.160	0.160	0.140	ZS	0.170	0.150	0.110	0.470	0.205	0.104	23
4	0.110	0.110	0.110	0.110	0.110	0.110	0.210	0.140	0.370	0.250	0.220	0.240	0.250	0.390	0.260	0.180	0.210	0.180	0.170	0.130	0.130	ZS	0.160	0.140	0.110	0.390	0.187	0.080	23
5	0.380	0.390	0.400	0.410	0.410	0.410	0.410	0.480	0.500	0.450	0.460	0.570	0.760	0.770	0.600	0.540	0.410	0.400	0.390	0.360	0.350	ZS	0.350	0.360	0.350	0.770	0.459	0.118	23
6	0.120	0.120	0.120	0.100	0.100	0.120	0.150	0.220	0.200	0.180	0.210	0.240	0.330	0.240	0.320	0.290	0.600	0.270	0.250	0.230	0.220	ZS	0.160	0.160	0.100	0.600	0.215	0.108	23
7	0.100	0.110	0.100	0.100	0.090	0.090	0.120	0.170	0.170	0.220	0.260	0.400	0.410	0.540	0.340	0.380	0.190	0.200	0.150	0.160	0.150	ZS	0.170	0.170	0.090	0.540	0.208	0.123	23
8	0.120	0.130	0.140	0.140	0.150	0.160	0.220	0.240	0.310	0.460	0.560	0.700	0.520	0.550	0.330	0.240	0.160	0.180	0.200	0.170	ZS	0.190	0.200	0.120	0.700	0.270	0.168	23	
9	0.160	0.150	0.140	0.130	0.140	0.140	0.160	0.280	0.200	0.190	0.220	0.270	0.390	0.390	0.280	0.210	0.140	0.120	0.140	0.150	0.140	ZS	0.150	0.150	0.120	0.390	0.193	0.078	23
10	0.150	0.150	0.150	0.160	0.160	0.150	0.150	0.160	0.180	0.160	0.160	0.160	0.160	0.160	0.150	0.170	0.170	0.170	0.180	0.190	ZS	0.180	0.180	0.150	0.190	0.165	0.013	23	
11	0.160	0.170	0.180	0.170	0.180	0.180	0.190	0.190	0.200	0.200	0.200	0.190	0.160	0.160	0.160	0.160	0.180	0.170	0.170	0.160	0.170	ZS	0.180	0.190	0.160	0.200	0.177	0.014	23
12	0.100	0.100	0.110	0.130	0.120	0.110	0.120	0.130	0.140	0.140	0.120	0.120	0.110	0.110	0.130	0.130	0.130	0.140	0.150	0.160	0.170	ZS	0.180	0.180	0.100	0.180	0.132	0.023	23
13	0.170	0.170	0.170	0.170	0.170	0.180	0.180	0.180	0.170	0.140	0.120	0.110	0.100	0.090	0.100	0.120	0.130	0.150	0.150	0.160	0.170	ZS	0.180	0.180	0.090	0.180	0.150	0.030	23
14	0.140	0.150	0.150	0.140	0.140	0.140	0.130	0.130	0.130	0.110	0.120	0.130	0.140	0.150	0.140	0.140	0.140	0.150	0.160	0.160	ZS	0.170	0.170	0.110	0.170	0.142	0.014	23	
15	0.130	0.130	0.120	0.110	0.120	0.120	0.130	0.140	0.110	0.100	0.100	0.100	0.090	0.080	0.080	0.090	0.100	0.120	0.140	0.150	ZS	0.160	0.170	0.080	0.170	0.119	0.025	23	
16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
23	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
26	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
27	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
28	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
HR MIN	0.100	0.100	0.100	0.100	0.090	0.090	0.120	0.130	0.130	0.110	0.100	0.100	0.100	0.090	0.080	0.080	0.090	0.100	0.120	0.130	0.130	0.150	0.140	0.080					
HR MAX	0.380	0.390	0.400	0.410	0.410	0.410	0.480	0.500	1.750	0.500	0.650	0.760	0.770	0.600	0.540	0.600	0.440	0.390	0.360	0.350	0.350	0.360		1.750					
HR AVG	0.167	0.170	0.169	0.168	0.169	0.170	0.185	0.213	0.251	0.328	0.266	0.309	0.338	0.346	0.282	0.254	0.241	0.210	0.203	0.199	0.195	0.200	0.200		0.228				
HR STD	0.079	0.080	0.082	0.086	0.088	0.086	0.080	0.096	0.126	0.407	0.147	0.189	0.218	0.227	0.163	0.136	0.145	0.107	0.086	0.073	0.070	0.063	0.066		0.154				
n	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	0	15	15	345		

Yellowstone National Park

Old Faithful

PM2.5 Bam hourly averages (ug/m3 25c)

12/01/2002 - 12/31/2002

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n				
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23									
1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0					
2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0				
3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0				
4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0				
5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0				
6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0				
7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0				
8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0				
9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0				
10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0				
11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0				
12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0				
13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0				
14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0				
15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0				
16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0				
17	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	0	0	0	0				
18	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	0	0	0	0				
19	0.4	3.2	7.6	4.4	1.6	2.3	2.6	9.1	7.4	11.5	0.4	0.6	4.7	1.3	1.8	5.7	15.1	9.8	8.9	5.7	8.1	7.4	4.6	1.7	0.4	15.1	5.2	3.9	24				
20	7.6	4.5	4.1	6.4	3.1	4.2	0.8	3.5	4.4	6.0	0.2	0.2	3.5	3.3	0.2	0.7	3.2	3.5	41.9	37.5	0.2	0.8	5.2	5.9	0.2	41.9	6.3	10.5	24				
21	5.5	3.6	14.2	3.6	6.2	5.1	4.8	1.9	19.2	5.6	0.2	0.7	0.7	3.9	1.6	1.5	6.4	7.1	3.4	0.3	2.8	1.9	1.0	5.7	0.2	19.2	4.5	4.4	24				
22	0.3	5.2	11.1	1.7	2.5	83.0	0.2	4.6	1.0	13.2	0.2	2.7	1.3	0.9	1.0	8.2	5.9	19.4	8.0	4.6	6.5	2.2	7.6	13.7	0.2	83.0	8.5	16.6	24				
23	10.2	16.0	2.4	6.4	50.8	0.3	6.0	4.5	3.0	3.4	0.1	0.5	0.2	0.1	2.3	0.4	8.2	15.2	13.6	27.3	12.0	3.3	2.0	6.6	0.1	50.8	8.1	11.3	24				
24	0.2	9.0	0.8	3.4	1.9	6.1	3.2	1.2	1.1	0.2	1.9	4.5	1.6	0.2	4.3	7.2	10.1	18.5	8.5	11.0	11.3	5.8	5.0	8.8	0.2	18.5	5.2	4.6	24				
25	2.0	17.0	8.1	8.4	5.2	1.9	7.6	6.1	2.5	0.2	0.4	8.7	9.0	3.5	3.9	0.5	7.5	10.4	1.9	2.7	5.0	3.4	2.0	7.4	0.2	17.0	5.2	4.0	24				
26	5.1	14.1	7.2	1.9	1.3	6.7	3.4	3.0	5.0	14.0	0.2	0.2	61.2	0.2	0.2	4.3	5.4	5.6	5.2	3.5	2.0	3.5	0.2	0.6	0.2	61.2	6.4	12.3	24				
27	0.2	3.2	6.1	2.4	0.6	0.8	0.9	0.3	0.2	0.4	1.3	2.2	1.4	1.8	3.3	1.9	4.6	2.4	0.4	2.0	3.5	1.5	0.6	2.1	0.2	6.1	1.8	1.5	24				
28	3.4	2.4	6.7	3.3	0.5	1.1	1.8	3.4	85.3	0.1	0.1	3.0	2.5	7.0	1.9	15.6	2.9	7.8	4.3	6.0	0.5	1.3	IM	0.1	85.3	7.3	17.8	22					
29	IM	3.1	78.2	98.3	19.9	199.9	199.3	36.6	17.8	0.6	1.0	75.9	1.3	29.8	IM	35.7	2.7	3.8	0.5	0.2	0.2	5.4	6.0	1.9	0.2	199.9	37.2	59.8	22				
30	4.6	12.5	12.6	5.4	2.5	5.4	3.9	7.6	1.1	4.3	5.3	3.0	IM	0.2	16.4	0.2	2.1	6.3	2.6	3.5	13.5	67.4	0.2	0.2	0.2	67.4	7.9	13.8	23				
31	0.2	0.6	0.5	1.0	3.5	147.4	121.1	0.2	0.5	0.4	7.1	0.6	0.7	4.5	5.8	3.1	10.8	19.8	7.4	13.1	14.6	0.9	5.7	6.1	0.2	147.4	15.7	37.1	24				
HR MIN	0.2	0.6	0.5	1.0	0.5	0.3	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.1	0.2	0.2	0.2	2.1	2.4	0.4	0.2	0.2	0.8	0.2	0.2	0.1							
HR MAX	10.2	17.0	78.2	98.3	50.8	199.9	199.3	36.6	85.3	14.0	7.1	75.9	61.2	29.8	16.4	35.7	15.1	19.8	41.9	37.5	14.6	67.4	7.6	13.7			199.9						
HR AVG	3.3	7.3	12.3	11.3	7.7	35.7	27.4	6.3	11.4	4.6	1.4	7.9	7.3	4.4	3.6	6.5	6.5	10.0	8.2	9.0	6.2	8.1	3.3	5.1			9.0						
HR STD	3.4	5.7	20.2	26.2	13.9	65.9	61.1	9.5	23.1	5.2	2.2	20.6	17.1	7.9	4.4	9.8	3.8	6.2	10.8	11.2	5.2	17.9	2.6	4.0			22.6						
n	12	13	13	13	13	13	13	13	13	13	13	13	13	13	12	13	13	13	13	13	13	13	12	12	12	12	12	12	12	307			

Yellowstone National Park

Old Faithful

PM2.5 Bam hourly averages (ug/m3 25c)

01/01/2003 - 01/31/2003

Date	HOUR (LOCAL STANDARD TIME)																							DAY MIN	DAY MAX	DAY AVG	DAY STD n		
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
1	3.5	6.0	9.9	13.0	5.2	1.7	9.4	6.7	0.9	10.1	2.2	0.2	6.4	7.4	14.6	11.8	5.4	7.9	3.8	1.3	6.3	0.2	0.5	1.7	0.2	14.6	5.7	4.2 24	
2	0.6	8.1	3.5	3.4	2.2	8.7	5.3	2.3	23.1	26.7	1.0	0.6	6.7	14.7	7.0	2.2	2.9	5.0	3.9	3.8	5.0	0.5	0.6	0.2	0.2	26.7	5.8	6.8 24	
3	0.4	6.9	3.2	1.4	2.8	5.9	1.3	1.5	1.5	0.2	1.6	8.3	9.4	4.6	6.2	6.0	7.0	4.3	10.7	8.1	5.2	4.3	6.4	6.7	0.2	10.7	4.7	3.0 24	
4	0.6	14.3	8.5	3.6	4.4	3.3	2.1	4.6	0.4	2.7	2.5	0.1	2.3	0.8	2.3	5.1	6.3	3.1	4.7	8.3	0.6	0.3	8.5	7.4	0.1	14.3	4.0	3.5 24	
5	0.9	4.9	5.4	4.9	4.1	6.1	5.9	23.5	41.1	16.3	116.7	17.1	0.1	0.1	1.5	16.8	21.4	30.9	11.9	6.5	5.3	4.8	8.6	0.2	0.1	116.7	14.8	24.1 24	
6	0.8	0.1	1.7	5.6	7.3	0.8	0.7	1.5	13.8	55.3	10.5	2.5	0.2	0.9	1.2	7.5	18.6	19.1	10.6	8.7	4.6	1.2	5.2	2.7	0.1	55.3	7.5	11.6 24	
7	3.3	13.1	4.7	0.2	2.0	8.5	1.0	2.4	8.4	0.4	1.9	0.8	0.3	0.5	2.2	2.2	2.3	8.1	10.5	13.1	4.1	4.0	3.2	0.2	0.2	13.1	4.1	4.0 24	
8	0.2	6.0	4.9	1.7	1.4	5.7	1.1	8.1	10.9	0.3	0.8	2.5	1.1	4.9	0.2	0.2	6.8	21.4	19.7	7.7	55.8	1.4	0.4	5.0	0.2	55.8	7.0	11.8 24	
9	0.4	4.0	5.1	2.4	2.0	5.2	6.6	2.8	3.4	1.4	0.6	1.4	0.2	18.2	0.6	3.5	10.6	23.5	13.3	10.2	9.7	2.4	7.3	2.6	0.2	23.5	5.7	5.9 24	
10	0.3	10.1	9.7	3.3	1.7	4.5	2.2	2.1	4.0	0.5	0.2	0.3	14.2	2.8	4.8	2.5	5.7	6.2	7.0	6.9	7.1	4.8	8.8	5.3	0.2	14.2	4.8	3.6 24	
11	3.5	17.4	9.7	5.9	3.8	7.9	4.7	4.1	8.1	24.9	12.9	2.3	1.1	1.7	0.2	5.1	6.8	9.4	13.0	1.1	2.3	6.2	1.9	3.1	0.2	24.9	6.5	5.8 24	
12	0.7	5.3	8.3	2.3	3.3	3.0	1.3	0.8	2.2	0.3	3.5	12.1	2.8	7.7	4.4	4.8	4.4	9.5	2.1	4.9	4.5	2.1	1.1	5.2	0.3	12.1	4.0	3.0 24	
13	5.7	6.4	5.5	2.6	1.3	0.7	4.5	5.8	5.2	20.1	3.1	1.1	2.1	1.9	4.8	4.0	6.0	6.9	6.8	2.5	4.2	65.4	0.2	0.2	0.2	65.4	7.0	13.1 24	
14	0.2	3.5	1.3	4.9	0.6	0.2	0.6	3.4	0.9	1.0	67.7	1.3	0.4	0.8	1.6	1.6	4.6	4.3	4.6	2.6	2.2	4.0	2.6	5.9	0.2	67.7	5.0	13.5 24	
15	0.6	2.9	2.7	5.0	1.7	2.2	5.3	12.5	48.7	152.5	61.9	0.2	2.5	0.7	5.0	4.7	10.0	14.0	11.9	9.1	0.9	0.2	2.9	0.2	0.2	152.5	14.9	32.9 24	
16	0.2	0.2	11.4	1.8	9.8	2.6	1.7	13.7	19.2	13.6	8.2	9.6	3.2	9.9	1.1	6.3	3.8	2.8	9.7	2.4	1.8	11.8	5.9	0.7	0.2	19.2	6.3	5.2 24	
17	0.2	11.6	40.2	4.4	1.2	8.9	22.3	10.5	0.2	11.3	11.4	0.3	1.1	7.3	2.8	8.2	8.2	22.9	11.8	4.3	4.0	1.8	3.7	6.9	0.2	40.2	8.6	9.1 24	
18	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	0	
19	IM	38.8	5.2	3.1	4.2	2.9	0.3	0.2	0.2	1.2	7.1	0.2	2.0	11.6	0.2	4.7	11.8	10.5	4.4	2.0	5.4	2.0	1.7	6.2	0.2	38.8	5.5	8.1 23	
20	0.6	5.0	5.1	3.8	6.2	2.5	3.3	3.2	4.5	0.2	0.4	1.8	49.7	27.1	2.0	6.1	8.2	4.4	5.1	2.0	0.5	0.2	5.0	3.4	0.2	49.7	6.3	10.7 24	
21	1.2	8.4	10.5	1.9	1.2	7.7	1.2	0.6	7.2	5.0	4.4	2.6	0.2	2.5	5.4	6.0	2.7	6.3	7.3	0.7	3.1	1.6	8.7	0.8	0.2	10.5	4.1	3.1 24	
22	0.2	5.5	5.9	7.1	2.5	3.4	5.4	7.7	9.1	0.8	7.4	3.5	0.7	9.7	1.3	5.3	1.9	3.5	2.6	0.9	0.5	5.4	1.7	0.5	0.2	9.7	3.9	2.9 24	
23	7.0	4.3	0.4	1.0	1.1	2.8	1.0	2.7	2.6	1.3	0.2	3.5	1.5	5.3	6.4	8.2	2.4	10.6	15.1	19.1	60.3	0.2	1.5	0.6	0.2	60.3	6.6	12.4 24	
24	8.6	7.2	1.5	5.9	6.7	10.8	2.3	0.9	3.8	6.9	8.6	9.8	0.2	0.4	11.2	3.2	10.0	8.5	7.2	8.2	6.7	2.9	0.7	4.8	0.2	11.2	5.7	3.5 24	
25	0.5	4.4	4.3	2.8	5.0	1.3	1.7	5.1	2.2	2.2	1.9	1.2	5.1	9.0	4.4	6.5	6.5	3.6	4.4	2.1	3.9	0.5	3.8	2.5	0.5	9.0	3.5	2.1 24	
26	0.9	2.3	4.7	6.2	2.5	0.3	3.6	0.4	2.9	8.8	0.3	2.4	1.5	0.3	2.1	3.5	6.4	3.7	5.6	7.2	3.3	1.8	1.6	6.6	0.3	8.8	3.3	2.4 24	
27	2.0	6.5	7.8	1.3	0.5	4.3	1.9	2.7	2.1	68.8	0.2	1.5	2.8	0.8	3.7	0.2	1.4	2.0	1.4	4.4	2.9	2.1	4.8	5.0	0.2	68.8	5.5	13.6 24	
28	10.2	7.2	8.4	2.7	4.2	3.5	1.7	1.6	1.7	7.6	3.7	1.6	1.7	0.4	0.9	10.9	10.6	12.6	2.8	4.5	1.0	5.3	2.1	1.6	0.4	12.6	4.5	3.7 24	
29	3.4	4.6	3.5	5.2	3.1	2.0	2.4	2.2	10.2	92.3	4.3	0.2	2.4	2.3	1.3	3.2	4.9	7.7	4.5	2.5	3.2	1.7	0.8	1.1	0.2	92.3	7.0	18.3 24	
30	0.2	3.8	7.8	2.0	0.8	0.2	0.7	0.5	15.3	12.3	8.6	2.5	2.6	1.9	5.6	4.5	6.6	1.6	3.0	7.5	5.6	1.0	0.9	0.9	0.2	15.3	4.0	4.0 24	
31	0.2	0.4	2.7	0.9	2.2	1.3	0.2	1.1	1.3	2.1	3.5	2.0	2.9	5.0	3.3	3.3	8.9	4.0	3.3	1.1	1.5	2.8	77.8	0.2	0.2	77.8	5.5	15.5 24	
HR MIN	0.2	0.1	0.4	0.2	0.5	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	1.4	1.6	1.4	0.7	0.5	0.2	0.2	0.2	0.1				
HR MAX	10.2	38.8	40.2	13.0	9.8	10.8	22.3	23.5	48.7	152.5	116.7	17.1	49.7	27.1	14.6	16.8	21.4	30.9	19.7	19.1	60.3	65.4	77.8	7.4		152.5			
HR AVG	2.0	7.3	6.8	3.7	3.2	4.0	3.4	4.5	8.5	18.2	11.9	3.1	4.2	5.4	3.6	5.3	7.1	9.3	7.4	5.5	7.4	4.8	6.0	2.9		6.1			
HR STD	2.7	7.2	7.0	2.5	2.2	3.0	4.2	5.1	11.5	33.4	25.3	4.1	9.1	6.2	3.3	3.5	4.5	7.4	4.5	4.2	14.0	11.7	13.9	2.5		11.3			
n	29	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	719		

Yellowstone National Park

Old Faithful

PM2.5 Bam hourly averages (ug/m3 25c)

02/01/2003 - 02/28/2003

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
1	0.2	0.5	4.4	2.7	IM	IM	IM	IM	IM	0.5	2.4	0.5	2.1	0.9	1.7	0.2	4.0	2.1	2.6	3.2	1.4	3.1	1.8	0.2	4.4	1.9	1.3	18		
2	0.8	2.0	2.8	2.2	4.8	2.2	1.8	13.0	190.0	106.3	173.4	3.5	0.2	0.2	1.1	7.2	5.2	5.6	10.5	8.6	5.7	2.6	2.1	0.5	0.2	190.0	23.0	53.3	24	
3	0.2	0.5	0.2	3.0	0.2	1.8	2.0	6.2	17.2	64.9	11.6	9.8	0.8	0.2	152.6	52.6	115.4	0.2	2.0	1.1	2.0	2.5	8.8	7.2	0.2	152.6	19.3	39.2	24	
4	0.7	5.8	4.4	0.8	0.6	3.1	3.4	0.3	1.8	20.0	12.3	17.6	6.7	12.9	IM	0.2	0.4	5.4	15.7	14.6	1.2	6.8	3.2	11.0	0.2	20.0	6.5	6.2	23	
5	1.5	4.9	0.7	0.3	0.3	0.7	1.0	2.1	1.6	3.8	1.3	0.2	2.1	4.6	11.2	8.7	23.4	8.5	13.1	2.0	4.2	8.2	11.2	3.0	0.2	23.4	4.9	5.5	24	
6	0.7	9.2	12.6	6.8	5.4	6.0	7.2	7.2	4.5	0.2	0.2	0.2	0.2	26.9	36.6	9.0	12.5	21.4	12.3	4.7	6.5	8.0	5.6	0.2	36.6	8.5	8.9	24		
7	3.9	7.9	5.9	5.2	1.5	4.7	2.8	1.3	2.2	1.4	0.9	1.3	1.3	0.3	0.2	8.6	54.1	27.8	10.3	9.3	12.0	2.7	7.9	1.4	0.2	54.1	7.3	11.6	24	
8	0.6	3.3	2.6	8.2	3.2	1.7	1.6	2.1	0.7	0.3	0.8	0.6	1.8	5.7	117.3	18.0	20.8	7.5	14.8	20.7	9.7	3.4	2.9	3.2	0.3	117.3	10.5	23.6	24	
9	0.2	2.1	4.8	6.7	8.0	8.8	8.0	8.3	8.2	8.2	2.9	4.2	15.2	4.2	3.4	3.4	14.0	12.9	6.6	7.2	2.5	1.0	1.4	1.4	0.2	15.2	6.0	4.1	24	
10	2.1	3.0	10.5	1.9	0.4	1.0	5.4	6.4	12.9	7.4	3.7	14.0	0.3	5.5	9.7	9.5	12.8	6.5	10.2	15.5	8.5	7.9	59.3	0.2	59.3	8.9	11.7	24		
11	0.4	6.5	4.6	6.2	8.0	5.0	2.8	9.5	6.0	0.4	1.7	0.3	1.4	1.5	0.6	11.4	7.3	14.7	20.4	7.1	10.7	3.6	8.0	8.4	0.3	20.4	6.1	5.0	24	
12	9.5	6.7	10.6	10.2	5.8	3.2	8.6	6.6	5.8	0.5	1.7	0.2	0.2	1.0	0.2	0.6	2.8	11.8	21.1	13.9	15.1	9.7	8.9	1.6	0.2	21.1	6.5	5.6	24	
13	0.6	0.4	0.2	0.2	0.2	0.2	12.7	13.1	12.6	31.0	0.2	1.0	0.4	1.2	1.0	0.3	3.2	1.6	3.0	6.6	0.8	4.2	1.6	0.8	0.2	31.0	4.0	7.1	24	
14	1.9	4.1	8.6	4.7	2.4	5.8	2.0	3.7	1.5	3.7	0.2	1.8	3.5	8.4	1.2	8.1	6.6	7.5	4.4	2.8	4.3	3.6	4.2	2.8	0.2	8.6	4.1	2.4	24	
15	0.8	8.5	6.5	3.0	5.1	5.4	2.0	0.9	2.8	2.7	0.7	6.4	5.2	9.7	8.7	10.8	5.8	4.5	9.8	4.9	1.3	3.1	1.5	0.7	10.8	4.7	3.1	24		
16	4.3	3.9	6.2	7.8	4.9	5.1	0.6	0.2	4.1	0.2	0.2	1.8	2.4	1.7	0.2	3.4	0.2	1.2	0.4	2.8	3.1	2.4	1.6	3.9	0.2	7.8	2.6	2.1	24	
17	2.1	8.3	12.9	8.9	0.5	3.0	2.5	2.6	2.5	1.2	3.2	0.2	2.5	2.5	9.1	2.5	9.3	4.8	3.8	4.3	3.1	3.8	2.2	1.7	0.2	12.9	4.1	3.2	24	
18	2.5	4.7	11.6	3.5	7.5	3.4	9.1	0.4	6.0	0.5	0.2	1.0	3.1	2.9	1.6	2.7	5.5	11.3	15.7	15.7	10.6	4.7	4.0	7.6	0.2	15.7	5.7	4.6	24	
19	4.9	1.7	2.4	5.1	1.5	0.3	1.3	1.5	0.7	1.9	1.8	2.9	0.7	4.4	2.3	2.2	4.5	6.0	16.6	11.8	8.1	0.2	9.3	7.1	0.2	16.6	4.1	4.0	24	
20	2.3	16.0	14.1	3.0	19.4	2.6	2.8	22.9	8.1	12.1	0.2	0.2	0.2	2.1	6.0	13.7	15.5	7.4	8.6	2.8	1.7	1.1	0.8	2.0	0.2	22.9	6.9	6.8	24	
21	3.1	6.6	4.3	6.5	1.6	6.5	0.9	3.2	0.2	0.5	1.8	0.4	2.9	7.4	2.8	9.1	1.8	3.2	7.4	4.9	3.2	2.9	3.4	4.5	0.2	9.1	3.7	2.5	24	
22	2.0	0.6	0.8	2.2	3.1	0.4	3.6	2.8	80.9	6.4	25.1	43.2	9.1	1.5	6.3	8.2	2.7	12.4	9.7	47.3	31.6	0.5	2.8	0.4	0.4	80.9	12.7	19.8	24	
23	0.2	0.2	0.3	5.6	1.0	8.9	8.8	6.2	12.0	23.7	18.5	42.0	18.1	6.0	2.5	16.3	23.1	18.0	23.5	16.0	18.3	14.9	11.4	IM	0.2	42.0	12.8	10.1	23	
24	IM	IM	IM	IM	IM	IM	PF	PF	PF	PF	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	0						
25	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	0.2	25.9	9.5	7.3	9	
26	5.4	11.3	4.3	4.3	7.5	4.2	3.1	6.3	0.3	0.2	0.2	0.2	0.2	0.2	2.7	5.2	15.4	16.5	5.5	2.4	5.8	6.3	2.5	0.2	16.5	4.6	4.5	24		
27	0.3	9.0	7.3	3.5	2.5	1.8	9.9	1.1	5.3	4.9	1.8	0.5	0.9	18.2	56.2	17.1	14.2	13.3	18.6	3.5	11.0	9.5	12.4	6.8	0.3	56.2	9.6	11.5	24	
28	1.6	15.8	7.9	6.3	2.1	5.9	3.2	2.4	3.0	7.7	4.2	0.9	2.1	6.8	13.7	7.9	14.9	7.8	3.2	6.8	4.1	9.2	3.7	4.2	0.9	15.8	6.1	4.1	24	
HR MIN	0.2	0.2	0.2	0.2	0.2	0.6	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4	1.1	0.8	0.2	0.8	0.2	0.2					
HR MAX	9.5	16.0	14.1	10.2	19.4	8.9	12.7	22.9	190.0	106.3	173.4	43.2	18.1	18.2	152.6	52.6	115.4	27.8	25.9	47.3	31.6	14.9	59.3	11.0		190.0				
HR AVG	2.0	5.5	5.8	4.6	3.9	3.7	4.3	5.2	15.6	12.4	10.4	6.0	3.2	4.3	17.4	9.8	14.4	8.9	11.7	9.7	7.0	4.9	7.2	3.8		7.6				
HR STD	2.2	4.4	4.2	2.7	4.2	2.5	3.4	5.2	39.6	24.2	33.8	11.6	4.5	4.4	37.6	11.6	23.0	5.9	7.3	9.2	6.7	3.6	11.0	3.0		15.9				
n	26	26	26	26	25	25	25	25	25	26	26	26	26	25	27	27	27	27	27	27	27	27	27	27	26		625			

Yellowstone National Park

Old Faithful

PM2.5 Bam hourly averages (ug/m3 25c)

03/01/2003 - 03/31/2003

Date	HOUR (LOCAL STANDARD TIME)																							DAY MIN	DAY MAX	DAY AVG	DAY STD n		
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
1	7.7	12.1	6.3	8.4	10.5	4.6	10.1	9.8	3.6	87.2	16.8	0.2	5.4	9.0	1.7	3.4	24.1	12.9	21.5	14.5	13.6	4.4	10.3	5.6	0.2	87.2	12.7	16.9 24	
2	1.1	11.5	2.2	8.2	1.3	5.5	0.2	0.2	3.7	4.6	7.4	0.8	3.1	7.4	3.8	5.1	2.7	6.7	5.0	4.2	3.2	4.7	1.0	5.1	0.2	11.5	4.1	2.8 24	
3	2.7	7.7	5.9	4.8	4.6	6.1	6.1	3.9	1.1	1.5	3.6	0.2	2.8	2.7	4.8	15.3	6.3	0.4	10.8	6.0	9.4	4.9	12.7	4.2	0.2	15.3	5.4	3.7 24	
4	0.2	9.4	4.5	4.9	0.7	3.1	1.4	3.8	9.6	4.1	0.5	0.2	0.7	7.9	3.9	3.4	9.8	7.7	8.2	6.7	7.7	0.7	1.3	12.2	0.2	12.2	4.7	3.7 24	
5	2.4	8.5	4.7	1.1	1.5	0.3	0.6	0.9	7.1	9.8	2.5	8.0	0.3	2.5	1.9	1.3	2.8	1.6	4.9	3.3	5.4	4.1	1.3	5.0	0.3	9.8	3.4	2.7 24	
6	2.6	8.4	0.7	3.2	5.1	7.8	4.5	1.8	1.3	1.5	1.8	0.9	6.3	2.9	4.2	9.4	16.9	5.4	4.9	2.4	1.5	5.5	1.9	6.0	0.7	16.9	4.5	3.6 24	
7	3.9	7.6	5.8	2.6	2.3	4.9	0.6	3.9	0.3	4.4	2.1	2.4	5.3	4.0	2.8	7.7	2.6	2.1	8.3	1.4	5.2	6.6	2.6	1.3	0.3	8.3	3.8	2.3 24	
8	3.3	4.2	8.2	0.9	6.1	3.1	3.8	3.0	4.5	0.5	3.7	3.1	4.2	4.7	7.5	61.6	0.2	2.2	5.3	4.2	2.3	6.2	6.2	2.7	0.2	61.6	6.3	11.9 24	
9	3.8	7.3	1.2	0.5	2.9	2.4	2.3	1.7	1.8	2.9	2.0	0.8	10.1	3.5	3.9	2.3	2.0	4.4	6.1	6.9	4.0	5.7	1.0	7.3	0.5	10.1	3.6	2.5 24	
10	0.2	5.3	3.5	2.0	2.2	3.1	0.6	1.5	2.2	0.2	0.4	2.1	1.2	5.4	5.7	5.1	0.8	1.9	4.7	7.1	0.7	2.0	3.0	2.5	0.2	7.1	2.6	2.0 24	
11	1.9	5.9	5.3	2.6	70.7	3.2	0.2	0.3	0.2	0.5	0.2	0.2	0.3	3.9	3.2	2.1	3.9	0.5	3.7	6.1	3.0	3.7	3.0	4.6	0.2	70.7	5.4	14.0 24	
12	0.2	3.0	6.7	3.7	7.1	5.0	8.7	3.8	6.5	2.5	0.4	3.2	0.7	2.5	3.7	2.6	5.1	12.7	8.2	5.7	6.6	1.0	8.8	1.8	0.2	12.7	4.6	3.1 24	
13	1.0	5.7	6.7	6.7	6.7	3.2	1.6	4.1	1.3	0.2	1.0	0.5	0.2	3.4	2.7	1.5	8.8	6.0	14.4	5.4	9.0	6.0	4.3	8.2	0.2	14.4	4.5	3.5 24	
14	10.8	11.8	2.2	0.2	0.4	6.8	4.1	4.6	3.1	17.1	19.1	20.2	2.7	0.2	2.4	0.2	9.4	14.9	15.6	4.8	8.3	5.9	6.0	10.5	0.2	20.2	7.6	6.2 24	
15	4.0	10.7	5.7	3.2	7.3	1.1	0.2	7.5	36.2	0.2	0.4	0.2	3.4	0.4	5.0	1.5	4.5	7.0	8.7	8.5	8.3	6.0	8.6	1.0	0.2	36.2	5.8	7.3 24	
16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
23	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
26	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
27	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
28	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
HR MIN	0.2	3.0	0.7	0.2	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	1.7	0.2	0.2	0.4	3.7	1.4	0.7	0.7	1.0	1.0	0.2				
HR MAX	10.8	12.1	8.2	8.4	70.7	7.8	10.1	9.8	36.2	87.2	19.1	20.2	10.1	9.0	7.5	61.6	24.1	14.9	21.5	14.5	13.6	6.6	12.7	12.2		87.2			
HR AVG	3.1	7.9	4.6	3.5	8.6	4.0	3.0	3.4	5.5	9.1	4.1	2.9	3.1	4.0	3.8	8.2	6.7	5.8	8.7	5.8	5.9	4.5	4.8	5.2		5.3			
HR STD	2.9	2.8	2.2	2.6	17.4	2.1	3.2	2.6	8.9	22.1	5.9	5.2	2.8	2.5	1.5	15.3	6.5	4.7	5.0	3.1	3.5	1.9	3.8	3.3		7.6			
n	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	360			

Yellowstone National Park

Old Faithful

Ambient Temperature (aspirated) hourly averages (degC)

12/01/2002 - 12/31/2002

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
17	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	0				
18	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	0				
19	-11.4	-11.0	-11.8	-12.4	-10.7	-10.6	-10.7	-12.9	-13.6	-10.1	-9.2	-8.7	-8.2	-6.0	-6.2	-7.4	-9.5	-10.9	-12.5	-14.4	-15.6	-17.5	-18.8	-19.5	-19.5	-6.0	-11.6	3.6 24	
20	-19.7	-19.8	-19.9	-19.9	-19.1	-18.1	-17.3	-16.7	-16.5	-14.6	-12.4	-10.1	-7.6	-5.0	-4.9	-5.3	-6.2	-7.0	-7.7	-8.2	-8.5	-8.9	-9.9	-11.6	-19.9	-4.9	-12.3	5.5 24	
21	-10.8	-11.1	-12.4	-12.1	-12.0	-13.1	-12.7	-13.1	-13.6	-11.2	-7.5	-5.2	-4.6	-4.1	-4.1	-5.1	-5.8	-6.1	-6.4	-6.4	-6.2	-6.2	-6.3	-6.4	-13.6	-4.1	-8.4	3.4 24	
22	-6.5	-6.7	-6.9	-7.3	-7.5	-7.1	-7.0	-7.3	-7.0	-6.4	-5.5	-5.1	-4.2	-3.8	-4.1	-4.9	-6.0	-7.8	-9.9	-13.2	-13.4	-12.9	-15.5	-18.5	-18.5	-3.8	-8.1	3.8 24	
23	-20.2	-21.2	-22.2	-23.4	-22.7	-20.6	-19.7	-21.8	-21.3	-18.8	-16.3	-14.0	-10.8	-9.3	-7.3	-6.5	-10.3	-16.5	-19.2	-21.0	-22.3	-23.4	-24.5	-25.4	-25.4	-6.5	-18.3	5.6 24	
24	-26.2	-26.6	-26.8	-27.3	-27.7	-28.0	-28.1	-27.6	-25.5	-20.4	-16.5	-13.5	-9.6	-8.3	-9.0	-10.3	-11.9	-16.4	-19.0	-21.3	-22.2	-24.0	-25.5	-26.6	-28.1	-8.3	-20.8	7.0 24	
25	-27.6	-28.3	-28.9	-29.6	-30.0	-30.5	-30.8	-30.9	-30.1	-26.2	-22.8	-18.1	-12.9	-11.3	-10.9	-11.3	-11.8	-12.3	-12.2	-12.2	-12.2	-13.0	-12.7	-12.5	-30.9	-10.9	-20.0	8.5 24	
26	-15.3	-16.8	-16.0	-14.7	-14.5	-16.6	-17.6	-17.2	-16.8	-12.4	-8.7	-7.8	-6.7	-6.8	-6.6	-6.5	-7.7	-8.4	-8.8	-7.7	-7.2	-7.1	-6.2	-5.8	-17.6	-5.8	-10.8	4.4 24	
27	-5.5	-5.3	-5.2	-5.3	-5.4	-5.0	-4.1	-3.6	-2.9	-2.2	-1.7	-1.7	-1.8	-1.4	-1.5	-1.6	-1.4	-0.9	-0.7	-0.5	-0.6	-0.3	0.0	0.2	-5.5	0.2	-2.4	2.0 24	
28	0.4	0.7	1.1	1.1	0.9	0.7	1.0	1.3	1.5	1.4	1.5	1.3	1.4	1.6	1.6	1.3	0.6	-0.7	-2.1	-1.9	-2.6	-2.0	1.1	1.2	-2.6	1.6	0.5	1.3 24	
29	1.2	1.3	-0.1	0.3	0.7	-0.9	-2.2	-2.9	-2.9	-2.8	-3.0	-3.6	-3.6	-3.6	-4.5	-4.3	-4.5	-4.8	-5.2	-5.6	-5.6	-5.6	-6.3	-7.0	-7.0	1.3	-3.1	2.4 24	
30	-7.1	-7.3	-9.3	-9.0	-7.7	-8.1	-8.4	-8.5	-8.2	-7.5	-6.6	-5.6	-4.4	-3.2	-3.4	-3.9	-4.8	-5.3	-5.3	-5.1	-5.1	-5.1	-5.0	-9.3	-3.2	-6.2	1.8 24		
31	-4.8	-4.6	-4.6	-4.4	-4.0	-3.9	-3.6	-3.5	-3.2	-2.5	-0.9	0.4	0.4	0.6	0.7	-0.2	-1.7	-2.1	-2.7	-3.2	-3.1	-3.2	-3.5	-4.1	-4.8	0.7	-2.6	1.8 24	
HR MIN	-27.6	-28.3	-28.9	-29.6	-30.0	-30.5	-30.8	-30.9	-30.1	-26.2	-22.8	-18.1	-12.9	-11.3	-10.9	-11.3	-11.9	-16.5	-19.2	-21.3	-22.3	-24.0	-25.5	-26.6	-30.9				
HR MAX	1.2	1.3	1.1	1.1	0.9	0.7	1.0	1.3	1.5	1.4	1.5	1.3	1.4	1.6	1.6	1.3	0.6	-0.7	-0.7	-0.5	-0.6	-0.3	1.1	1.2		1.6			
HR AVG	-11.8	-12.0	-12.5	-12.6	-12.3	-12.4	-12.4	-12.7	-12.3	-10.3	-8.4	-7.0	-5.6	-4.7	-4.6	-5.1	-6.2	-7.6	-8.6	-9.3	-9.6	-9.9	-10.2	-10.9		-9.5			
HR STD	9.4	9.7	9.7	10.0	10.1	9.9	9.9	9.9	9.6	8.1	7.0	5.8	4.2	3.7	3.6	3.6	4.0	5.2	5.9	6.7	7.1	7.8	8.6	9.2		8.0			
n	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	312			

Yellowstone National Park

Old Faithful

Ambient Temperature (aspirated) hourly averages (degC)

01/01/2003 - 01/31/2003

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n				
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23									
1	-4.6	-5.5	-7.4	-8.6	-8.6	-8.7	-11.7	-13.8	-14.3	-11.5	-7.9	-4.8	-4.1	-3.9	-5.0	-5.7	-6.5	-6.9	-6.5	-6.4	-6.4	-6.2	-6.2	-5.9	-14.3	-3.9	-7.4	2.9	24				
2	-5.3	-5.3	-5.2	-5.3	-5.3	-5.1	-5.1	-5.2	-5.1	-4.6	-3.2	-2.0	-2.2	-2.9	-3.0	-2.8	-2.7	-2.9	-2.7	-2.9	-3.0	-2.6	-2.1	-1.8	-5.3	-1.8	-3.7	1.3	24				
3	-1.7	-1.8	-1.5	-2.2	-1.4	-1.1	-0.6	-0.7	-0.2	0.3	1.3	1.1	0.6	0.7	1.0	0.7	0.8	0.8	0.3	0.1	-0.3	-0.5	-1.0	-1.4	-2.2	1.3	-0.3	1.0	24				
4	-2.5	-3.6	-3.3	-1.6	-1.3	-1.3	-1.4	-1.7	-1.3	-0.4	0.9	1.4	2.2	2.7	3.4	1.8	1.4	0.8	-0.1	-0.3	0.5	1.0	0.4	0.2	-3.6	3.4	-0.1	1.8	24				
5	0.2	-0.3	-0.5	-0.8	-0.9	-1.4	-1.6	-2.2	-3.5	-2.9	-1.1	0.1	1.6	2.6	2.3	1.1	0.8	-3.2	-6.3	-7.5	-9.7	-11.1	-11.8	-12.8	-12.8	2.6	-2.9	4.6	24				
6	-13.7	-14.3	-15.0	-15.1	-15.8	-16.5	-17.1	-16.6	-16.0	-13.7	-11.4	-8.1	-4.5	-1.2	1.1	2.0	-0.1	-5.4	-8.3	-10.0	-11.3	-12.0	-12.9	-13.8	-17.1	2.0	-10.4	6.0	24				
7	-14.5	-14.9	-15.6	-16.0	-15.7	-16.2	-15.8	-15.5	-16.3	-12.2	-9.6	-6.0	-3.6	-0.3	2.7	4.5	3.4	-3.4	-6.6	-9.3	-11.3	-12.6	-13.8	-15.0	-16.3	4.5	-9.7	6.9	24				
8	-16.0	-16.8	-17.4	-18.1	-18.9	-19.6	-20.3	-19.8	-19.4	-15.0	-11.3	-8.1	-4.9	-1.1	1.7	3.3	0.8	-6.3	-10.0	-11.9	-13.1	-14.6	-15.7	-16.4	-20.3	3.3	-12.0	7.4	24				
9	-17.4	-17.8	-18.6	-19.1	-19.7	-20.3	-20.4	-19.1	-18.8	-16.0	-12.7	-9.5	-6.9	-4.5	-2.5	-2.7	-5.1	-11.6	-15.2	-17.5	-19.1	-20.5	-21.0	-21.6	-21.6	-2.5	-14.9	6.3	24				
10	-22.7	-23.1	-23.6	-23.8	-24.3	-23.9	-23.2	-22.2	-21.2	-18.6	-15.3	-12.0	-8.8	-6.1	-4.1	-3.1	-2.6	-3.0	-3.5	-3.9	-3.9	-4.0	-4.3	-4.7	-24.3	-2.6	-12.7	9.1	24				
11	-5.1	-5.4	-6.3	-7.0	-7.3	-9.1	-9.0	-8.1	-7.9	-6.4	-3.7	-2.8	-1.8	-1.5	-1.4	-1.5	-2.5	-4.2	-6.8	-5.4	-4.2	-3.7	-3.9	-4.0	-9.1	-1.4	-5.0	2.4	24				
12	-3.8	-3.8	-3.6	-3.5	-3.3	-3.0	-2.9	-2.6	-2.2	-1.8	-1.2	-0.8	-0.4	-1.0	-0.1	-0.7	-1.3	-1.5	-1.4	-1.4	-1.2	-1.4	-1.3	-1.1	-3.8	-0.1	-1.9	1.1	24				
13	-0.9	-0.8	-0.8	-0.8	-0.8	-1.1	-1.1	-0.9	-0.8	-0.7	-0.2	0.5	1.0	1.4	1.2	1.0	0.8	0.3	0.3	0.2	-0.1	-0.2	-0.5	-0.5	-1.1	1.4	-0.1	0.8	24				
14	-0.5	-0.4	-0.4	-0.2	0.0	0.1	0.2	-0.0	-0.1	0.6	1.6	2.8	3.3	4.0	4.2	3.2	2.5	1.8	1.4	1.3	1.1	0.9	-0.1	-0.7	-0.7	4.2	1.1	1.5	24				
15	-1.0	-1.9	-2.2	-2.8	-3.6	-3.6	-4.4	-5.3	-5.4	-4.7	-4.6	-3.8	-3.0	-2.6	-2.4	-3.2	-5.3	-7.6	-9.8	-11.6	-11.5	-11.0	-10.8	-12.2	-12.2	-1.0	-5.6	3.6	24				
16	-13.2	-13.8	-13.7	-13.8	-13.2	-13.5	-13.5	-12.9	-12.5	-12.1	-10.0	-7.9	-6.0	-4.6	-3.8	-4.3	-5.4	-5.9	-6.0	-6.5	-7.4	-9.4	-12.4	-14.5	-14.5	-3.8	-9.8	3.8	24				
17	-15.3	-15.8	-17.7	-19.3	-20.1	-18.9	-19.5	-21.1	-19.5	-16.7	-14.6	-12.1	-8.8	-5.6	-3.8	-2.3	-2.9	-9.4	-13.1	-14.5	-16.2	-17.2	-18.0	-19.0	-21.1	-2.3	-14.2	5.8	24				
18	-18.8	-19.4	-18.7	-18.8	-19.8	-19.4	-19.6	-18.8	-18.7	-16.6	-12.6	-9.0	-4.8	-1.8	-0.4	-0.7	-2.3	-6.9	-11.0	-11.9	-11.8	-13.3	-13.1	-13.8	-19.8	-0.4	-12.6	6.7	24				
19	-13.8	-12.7	-12.1	-10.3	-8.9	-7.5	-5.3	-5.0	-4.6	-3.6	-1.9	-0.1	0.3	1.3	2.7	1.3	0.4	-0.5	-0.8	-1.1	-2.0	-2.8	-3.4	-2.2	-13.8	2.7	-3.9	4.7	24				
20	-3.7	-2.4	-1.7	-2.8	-3.6	-3.3	-3.2	-3.1	-2.5	-0.6	-0.2	-0.6	-0.7	-1.2	-1.7	-1.8	-1.7	-1.8	-1.7	-1.4	-1.6	-1.9	-2.3	-3.7	-0.2	-2.0	1.0	24					
21	-2.8	-3.3	-3.7	-3.6	-3.6	-3.7	-3.0	-3.2	-3.0	-2.4	-1.8	-1.5	-1.2	-1.4	-1.5	-1.7	-2.0	-1.9	-1.9	-1.9	-2.0	-2.0	-2.5	-2.7	-3.7	-1.2	-2.4	0.8	24				
22	-2.9	-3.1	-2.8	-2.9	-2.9	-3.1	-3.4	-3.3	-3.3	-2.5	-2.1	-2.0	-1.8	-1.8	-2.1	-1.9	-2.0	-2.1	-2.1	-2.0	-2.3	-2.3	-2.0	-1.8	-3.4	-1.8	-2.4	0.5	24				
23	-1.9	-2.0	-1.5	-0.7	-0.5	-0.5	-1.1	-1.2	0.4	0.8	1.1	1.0	1.3	0.7	1.0	0.8	0.5	-1.0	-2.2	-3.6	-6.5	-7.0	-8.3	-10.1	-10.1	1.3	-1.7	3.2	24				
24	-9.6	-10.0	-10.3	-10.8	-11.6	-12.9	-13.2	-11.0	-10.0	-7.9	-5.1	-1.4	-0.0	1.1	0.1	0.9	-1.2	-1.9	-2.3	-2.7	-2.9	-3.1	-3.0	-2.9	-13.2	1.1	-5.5	4.8	24				
25	-2.9	-2.8	-2.8	-2.7	-2.7	-2.9	-2.7	-2.9	-2.8	-1.9	-0.7	0.5	0.4	0.0	0.7	0.2	-0.6	-1.6	-1.7	-1.8	-1.6	-1.4	-1.7	-1.9	-2.9	0.7	-1.6	1.2	24				
26	-1.7	-1.7	-1.7	-1.5	-1.2	-0.8	-0.5	-0.4	0.3	1.0	1.8	2.0	2.1	3.5	2.7	1.5	1.2	0.9	0.9	1.0	1.4	1.6	1.3	1.7	-1.7	3.5	0.6	1.5	24				
27	1.7	1.7	1.3	1.0	1.0	1.4	1.6	1.4	1.1	1.3	1.5	1.8	1.4	1.3	1.3	1.1	0.7	0.7	0.7	-0.5	-1.2	-1.5	-2.7	-2.7	-2.7	1.8	0.7	1.2	24				
28	-4.7	-7.0	-8.4	-9.8	-10.9	-11.9	-12.7	-13.2	-12.6	-9.8	-7.1	-3.8	-1.6	-0.9	-1.0	-2.3	-2.6	-3.7	-3.9	-3.9	-3.9	-4.1	-4.1	-4.3	-13.2	-0.9	-6.2	4.0	24				
29	-4.7	-4.4	-4.2	-4.5	-4.6	-4.6	-4.8	-4.8	-4.4	-3.7	-2.9	-2.5	-1.9	-1.9	-2.0	-1.1	-1.6	-2.1	-2.0	-1.8	-1.9	-2.1	-1.8	-2.0	-4.8	-1.1	-3.0	1.3	24				
30	-1.5	-1.4	-1.4	-1.4	-1.3	-1.1	-0.7	-0.9	-0.9	-0.3	-0.2	0.5	2.0	1.9	1.4	1.4	0.8	-0.1	-0.4	-2.7	-4.0	-4.0	-1.9	-0.7	1.5	-4.0	2.0	-0.5	1.5	24			
31	1.7	1.5	1.7	1.8	1.8	2.3	2.7	2.8	2.9	2.8	2.7	2.8	3.1	3.3	3.4	3.3	3.5	3.8	4.1	4.3	4.5	4.3	3.9	3.8	1.5	4.5	3.0	0.9	24				
HR MIN	-22.7	-23.1	-23.6	-23.8	-24.3	-23.9	-23.2	-22.2	-21.2	-18.6	-15.3	-12.1	-8.8	-6.1	-5.0	-5.7	-6.5	-11.6	-15.2	-17.5	-19.1	-20.5	-21.0	-21.6	-24.3								
HR MAX	1.7	1.7	1.7	1.8	1.8	2.3	2.7	2.8	2.9	2.8	2.7	2.8	3.3	4.0	4.2	4.5	3.5	3.8	4.1	4.3	4.5	4.3	3.9	3.8	4.5								
HR AVG	-6.6	-6.8	-7.1	-7.2	-7.4	-7.5	-7.5	-7.2	-5.8	-4.2	-2.7	-1.5	-0.6	-0.1	-0.3	-1.0	-2.8	-3.8	-4.4	-4.9	-5.2	-5.6	-6.0				-4.7						
HR STD	6.8	6.9	7.1	7.3	7.5	7.6	7.8	7.6	7.5	6.5	5.5	4.3	3.3	2.7	2.5	2.5	2.5	3.5	4.6	5.1	5.6	6.1	6.3	6.8				6.3					
n	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	744

Yellowstone National Park

Old Faithful

Ambient Temperature (aspirated) hourly averages (degC)

02/01/2003 - 02/28/2003

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
1	3.8	3.9	4.1	4.4	4.1	4.0	4.1	4.0	4.1	4.6	4.7	5.0	5.1	4.9	4.7	4.5	4.5	3.8	3.2	1.0	-0.9	-2.3	-2.9	-3.5	-3.5	5.1	3.0	2.6	24	
2	-3.8	-4.0	-4.3	-4.3	-4.4	-4.6	-4.9	-5.1	-5.1	-4.7	-4.2	-3.5	-3.0	-2.5	-2.3	-3.1	-4.1	-5.5	-7.1	-10.5	-13.8	-16.0	-17.4	-17.7	-17.7	-2.3	-6.5	4.8	24	
3	-18.2	-19.8	-20.0	-20.6	-21.0	-21.1	-21.8	-21.9	-19.6	-15.1	-12.8	-9.2	-6.9	-4.9	-3.5	-2.3	-4.7	-7.2	-8.0	-8.3	-8.9	-9.9	-10.6	-11.8	-21.9	-2.3	-12.8	6.7	24	
4	-12.8	-13.7	-15.4	-16.4	-15.3	-14.7	-15.1	-17.0	-17.7	-14.5	-10.8	-6.9	-4.4	-4.3	-1.7	-4.1	-3.9	-6.2	-11.2	-15.3	-18.5	-20.1	-21.1	-22.3	-22.3	-1.7	-12.6	6.0	24	
5	-23.4	-22.0	-19.4	-17.0	-16.4	-16.6	-16.3	-15.5	-13.6	-11.5	-8.8	-6.2	-4.4	-3.6	-5.3	-6.7	-7.3	-9.5	-11.4	-12.7	-12.6	-15.0	-17.2	-17.0	-23.4	-3.6	-12.9	5.5	24	
6	-18.6	-21.6	-22.5	-22.3	-23.1	-24.8	-27.3	-29.1	-25.3	-21.2	-16.1	-13.3	-9.3	-5.4	-3.8	-3.3	-4.5	-9.9	-16.6	-20.4	-22.5	-24.1	-25.7	-26.8	-29.1	-3.3	-18.2	8.1	24	
7	-27.3	-27.9	-28.0	-28.3	-26.9	-26.0	-26.6	-25.8	-22.9	-18.4	-14.6	-11.6	-6.5	-2.7	-0.4	-0.9	-3.9	-6.7	-8.6	-10.9	-12.5	-12.4	-13.3	-14.2	-28.3	-0.4	-15.7	9.7	24	
8	-14.6	-13.8	-13.9	-13.8	-13.3	-12.5	-12.6	-12.5	-11.7	-10.1	-6.9	-5.0	-4.3	-4.0	-3.3	-1.5	-3.1	-7.5	-13.4	-16.8	-18.8	-18.9	-18.2	-17.9	-18.9	-1.5	-11.2	5.4	24	
9	-16.0	-14.4	-13.8	-13.4	-13.2	-13.2	-13.1	-13.4	-12.9	-10.9	-7.8	-6.5	-6.3	-5.8	-4.1	-4.0	-7.0	-8.7	-8.8	-8.6	-8.6	-8.0	-7.6	-7.5	-16.0	-4.0	-9.7	3.5	24	
10	-7.5	-7.7	-7.6	-7.6	-7.6	-7.5	-7.4	-7.3	-6.7	-5.3	-4.0	-2.5	-1.3	0.3	-0.7	-1.3	-2.3	-4.2	-6.4	-9.0	-9.0	-7.7	-5.7	-5.9	-9.0	0.3	-5.5	2.8	24	
11	-5.9	-6.2	-6.3	-6.3	-6.4	-6.5	-6.8	-7.3	-8.3	-4.5	-3.4	-2.8	-0.3	2.6	4.1	3.8	2.0	-1.7	-5.1	-6.2	-6.5	-6.8	-8.0	-11.4	-11.4	4.1	-4.3	4.1	24	
12	-14.8	-16.1	-17.0	-18.4	-19.0	-19.2	-17.5	-18.3	-16.9	-12.0	-7.1	-4.2	1.3	7.0	8.4	7.8	7.2	2.5	-5.7	-9.3	-11.0	-12.5	-13.8	-14.9	-19.2	8.4	-8.9	9.6	24	
13	-16.0	-16.3	-16.5	-16.9	-16.5	-14.1	-12.0	-11.3	-9.0	-5.5	-2.2	-0.8	0.8	1.9	5.6	6.6	4.3	2.0	0.6	0.3	0.0	-0.1	0.2	-0.1	-16.9	6.6	-4.8	8.0	24	
14	-0.2	0.0	0.1	-0.2	-0.6	-0.5	-0.5	-0.8	-0.1	1.8	4.0	4.4	4.6	3.2	3.9	2.5	1.4	-0.2	-0.8	-1.1	-1.5	-1.8	-2.1	-2.4	-2.4	4.6	0.5	2.1	24	
15	-2.8	-2.7	-2.8	-2.8	-3.0	-3.0	-3.0	-3.0	-2.1	-0.5	1.2	0.9	1.4	2.3	2.5	2.3	0.7	-0.6	-1.2	-1.2	-1.6	-2.2	-2.8	-4.4	-4.4	2.5	-1.2	2.0	24	
16	-3.4	-3.6	-6.9	-9.9	-11.4	-11.7	-8.6	-6.2	-4.4	-1.9	-1.7	-1.5	-1.7	-1.7	-1.6	-0.6	-1.6	-2.9	-4.0	-4.4	-4.4	-4.1	-4.3	-4.9	-11.7	-0.6	-4.5	3.2	24	
17	-4.8	-5.9	-7.8	-8.5	-7.0	-6.7	-6.6	-6.5	-5.9	-5.0	-3.5	-2.7	-2.2	-0.8	-1.8	-1.6	-3.4	-4.4	-4.9	-4.9	-5.2	-5.2	-5.4	-5.4	-8.5	-0.8	-4.8	2.0	24	
18	-5.5	-6.5	-8.1	-10.2	-9.9	-11.4	-13.5	-11.7	-8.2	-2.8	-1.5	-1.5	-0.1	1.5	2.8	1.8	1.0	-4.2	-9.1	-11.6	-13.4	-13.1	-13.4	-14.4	-14.4	2.8	-6.8	5.7	24	
19	-14.4	-12.1	-10.8	-9.7	-8.9	-6.9	-6.1	-5.9	-5.4	-3.9	-1.4	-1.8	0.3	0.1	-0.3	-0.1	-0.6	-3.6	-8.0	-11.4	-13.1	-14.1	-14.9	-15.2	-15.2	0.3	-7.0	5.4	24	
20	-16.1	-16.7	-16.0	-16.2	-17.7	-18.6	-16.0	-14.2	-9.8	-3.5	-0.5	-1.2	1.5	2.7	0.9	-2.1	-4.2	-5.4	-5.6	-5.2	-4.5	-4.1	-4.2	-4.5	-18.6	2.7	-7.5	6.9	24	
21	-4.8	-4.6	-4.7	-4.9	-4.5	-5.0	-5.5	-5.0	-4.2	-3.0	-2.0	-0.8	0.9	-0.4	-1.1	-2.1	-1.4	-3.0	-3.6	-4.0	-4.1	-4.3	-4.4	-4.2	-5.5	0.9	-3.4	1.7	24	
22	-4.2	-4.2	-4.4	-4.3	-4.3	-4.6	-4.6	-4.4	-3.9	-2.7	-1.6	-2.4	-1.2	-1.8	-1.5	-1.8	-2.2	-5.4	-8.3	-8.8	-9.6	-12.9	-13.8	-14.7	-14.7	-1.2	-5.3	4.0	24	
23	-14.6	-12.4	-9.9	-9.3	-9.4	-10.1	-10.9	-11.8	-11.8	-10.6	-8.7	-7.6	-6.9	-5.4	-5.4	-7.0	-7.9	-11.9	-18.8	-23.7	-27.4	-28.3	-29.0	-31.8	-31.8	-5.4	-13.8	8.1	24	
24	-33.8	-34.8	-36.1	-37.3	-38.5	-39.2	-39.4	PF	PF	PF	PF	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	-39.4	-33.8	-37.0	2.2	7	
25	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	4.7	0.7	-1.4	-9.8	-14.2	-16.2	-17.9	-19.3	-19.9	-19.9	4.7	-10.4	9.4	9	
26	-20.5	-21.3	-21.9	-22.6	-22.8	-23.3	-23.5	-22.6	-18.0	-14.3	-11.5	-6.9	-2.9	1.3	2.8	2.4	1.5	-0.7	-5.3	-7.8	-9.1	-10.0	-10.8	-10.8	-23.5	2.8	-11.6	9.3	24	
27	-11.1	-10.8	-11.0	-11.6	-13.2	-13.8	-14.4	-14.6	-10.8	-8.6	-6.0	-2.7	-1.0	-0.3	-0.7	-1.2	-1.9	-2.9	-4.0	-6.7	-8.9	-11.8	-14.0	-15.6	-15.6	-0.3	-8.2	5.2	24	
28	-16.8	-18.1	-18.8	-19.5	-20.3	-20.4	-21.1	-20.8	-16.6	-10.7	-5.8	-4.4	-4.3	-4.1	-5.0	-5.2	-6.3	-6.8	-7.2	-7.6	-9.2	-10.0	-8.9	-8.6	-21.1	-4.1	-11.5	6.4	24	
HR MIN	-33.8	-34.8	-36.1	-37.3	-38.5	-39.2	-39.4	-29.1	-25.3	-21.2	-16.1	-13.3	-9.3	-5.8	-5.4	-7.0	-7.9	-11.9	-18.8	-23.7	-27.4	-28.3	-29.0	-31.8	-39.4					
HR MAX	3.8	3.9	4.1	4.4	4.1	4.0	4.1	4.1	4.6	4.7	5.0	5.1	7.0	8.4	7.8	7.2	3.8	3.2	1.0	0.0	-0.1	0.2	-0.1		8.4					
HR AVG	-12.1	-12.3	-12.6	-12.9	-13.0	-13.0	-13.0	-11.8	-10.3	-7.5	-5.1	-3.7	-2.0	-0.8	-0.3	-0.5	-1.7	-4.2	-7.0	-8.9	-10.1	-10.9	-11.4	-12.1		-8.2				
HR STD	8.7	8.9	8.9	9.0	9.1	9.2	9.4	8.1	7.1	6.2	5.3	4.2	3.6	3.4	3.6	3.8	3.8	3.9	4.8	5.9	6.7	7.1	7.5	7.8		8.1				
n	27	27	27	27	27	27	27	26	26	26	26	26	26	26	26	27	27	27	27	27	27	27	27	27	27	640				

Final Validation

5/12/2003

Yellowstone National Park

Old Faithful

Ambient Temperature (aspirated) hourly averages (degC)

03/01/2003 - 03/31/2003

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n		
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23							
1	-9.3	-9.5	-9.7	-10.1	-11.0	-11.8	-13.5	-14.7	-11.9	-9.0	-7.9	-5.8	-4.4	-4.4	-3.6	-3.8	-5.2	-4.8	-9.8	-14.3	-16.7	-18.1	-19.6	-20.3	-20.3	-3.6	-10.4	5.0	24		
2	-21.0	-20.6	-20.4	-20.2	-19.1	-18.4	-15.5	-11.8	-9.7	-8.9	-8.3	-7.7	-7.1	-7.4	-6.6	-6.0	-5.7	-6.0	-6.0	-5.8	-5.9	-5.7	-5.7	-6.3	-21.0	-5.7	-10.7	5.9	24		
3	-6.9	-6.5	-6.5	-6.8	-7.1	-7.2	-6.8	-6.6	-5.6	-4.9	-4.2	-3.2	-1.9	-2.8	-3.7	-5.5	-5.9	-5.3	-6.1	-8.8	-9.9	-11.5	-12.3	-12.2	-12.3	-1.9	-6.6	2.8	24		
4	-13.6	-14.5	-14.0	-14.4	-14.7	-14.8	-15.1	-14.5	-11.9	-8.2	-7.7	-7.1	-6.7	-6.1	-5.8	-6.7	-7.0	-8.3	-10.8	-11.7	-13.4	-13.6	-11.7	-15.9	-15.9	-5.8	-11.2	3.5	24		
5	-18.0	-19.0	-18.5	-18.0	-16.3	-12.3	-11.3	-11.0	-10.2	-9.5	-9.2	-8.7	-8.0	-7.3	-6.3	-5.5	-5.3	-5.1	-5.0	-4.9	-5.0	-5.1	-5.0	-4.9	-19.0	-4.9	-9.6	5.0	24		
6	-4.9	-4.9	-5.0	-4.9	-4.9	-5.0	-5.1	-5.2	-5.3	-5.1	-4.7	-3.3	-3.6	-3.1	-2.7	-4.1	-5.5	-4.8	-4.6	-4.3	-4.5	-4.5	-4.5	-4.4	-5.5	-2.7	-4.5	0.7	24		
7	-4.6	-4.9	-5.0	-5.1	-5.2	-5.0	-4.8	-4.4	-3.8	-3.6	-3.3	-2.8	-2.1	-1.8	-1.8	-1.8	-1.7	-2.1	-2.0	-2.3	-2.9	-3.1	-3.0	-3.1	-5.2	-1.7	-3.3	1.3	24		
8	-3.2	-3.6	-3.6	-3.6	-3.7	-3.8	-4.0	-3.9	-3.6	-3.2	-2.7	-1.9	-1.1	-0.3	-0.4	0.3	0.0	0.1	0.4	-0.7	-1.1	-1.4	-1.6	-1.5	-4.0	0.4	-2.0	1.6	24		
9	-1.7	-1.8	-2.0	-2.1	-2.0	-1.9	-1.8	-1.5	-0.7	0.4	0.9	1.3	1.4	1.2	1.5	1.8	1.1	0.7	0.4	-0.1	-0.3	-1.0	-1.6	-1.6	-2.1	1.8	-0.4	1.4	24		
10	-1.5	-1.1	-0.9	-1.0	-1.5	-1.1	-1.2	-1.1	-0.2	0.6	0.4	0.4	0.9	1.0	0.8	1.0	1.5	1.7	1.3	1.2	1.0	0.7	0.2	-0.4	-1.5	1.7	0.1	1.0	24		
11	-0.6	-0.8	-1.0	-1.2	-1.7	-1.8	-1.8	-1.2	-0.2	0.3	0.5	0.7	1.5	1.5	2.1	2.5	2.7	2.2	1.9	1.6	1.6	1.4	1.1	0.9	-1.8	2.7	0.5	1.5	24		
12	0.8	0.6	0.0	0.0	0.5	0.1	-0.1	-0.4	-0.1	0.8	1.7	2.7	3.2	3.9	4.8	5.0	4.8	4.7	4.0	3.7	3.6	3.5	3.3	3.6	-0.4	5.0	2.3	1.9	24		
13	3.1	2.7	1.9	0.1	-0.6	-0.5	0.2	1.0	4.4	7.3	7.9	8.6	9.4	9.9	10.2	10.6	10.7	9.5	7.5	5.5	3.9	4.0	3.2	0.7	-0.6	10.7	5.1	3.9	24		
14	-0.9	-1.6	0.9	4.5	4.9	5.4	2.6	4.8	5.6	5.2	4.0	3.1	2.6	2.3	2.0	3.9	3.2	2.7	1.9	0.8	-0.1	0.3	-0.4	-2.2	-2.2	5.6	2.3	2.3	24		
15	-2.1	-1.9	-3.0	-4.4	-5.3	-6.2	-7.5	-6.5	-3.6	2.5	4.7	5.8	7.0	7.6	7.6	7.1	5.6	4.1	2.7	1.7	1.3	0.9	0.0	0.5	-7.5	7.6	0.8	4.8	24		
16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0	
17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0	
18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0	
19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0	
20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0	
21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0	
22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0	
23	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0	
24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0	
25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0	
26	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0	
27	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0	
28	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0	
29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0	
30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0	
31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0	
HR MIN	-21.0	-20.6	-20.4	-20.2	-19.1	-18.4	-15.5	-14.7	-11.9	-9.5	-9.2	-8.7	-8.0	-7.4	-6.6	-6.7	-7.0	-8.3	-10.8	-14.3	-16.7	-18.1	-19.6	-20.3	-21.0						
HR MAX	3.1	2.7	1.9	4.5	4.9	5.4	2.6	4.8	5.6	7.3	7.9	8.6	9.4	9.9	10.2	10.6	10.7	9.5	7.5	5.5	3.9	4.0	3.3	3.6		10.7					
HR AVG	-5.6	-5.8	-5.8	-5.8	-5.6	-5.7	-5.1	-3.8	-2.4	-1.9	-1.2	-0.6	-0.4	-0.1	-0.1	-0.4	-0.7	-1.6	-2.6	-3.2	-3.5	-3.8	-4.5			-3.2					
HR STD	7.0	7.1	6.9	7.0	6.7	6.4	5.8	5.8	5.5	5.3	5.2	5.1	5.0	5.1	5.0	5.3	5.0	5.2	5.7	6.1	6.4	6.4	6.7			6.1					
n	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	360		

Yellowstone National Park

Old Faithful

Relative Humidity hourly averages (percent)

12/01/2002 - 12/31/2002

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0					
17	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	0					
18	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	0					
19	76.1	73.6	75.1	76.7	76.8	76.0	75.8	79.3	78.9	68.0	64.0	64.3	64.1	56.5	57.5	60.1	64.2	69.3	73.7	77.2	77.2	77.9	76.1	75.4	56.5	79.3	71.4	7.2 24		
20	75.0	74.7	74.6	74.3	76.0	75.9	76.8	76.9	77.0	78.7	79.3	77.1	76.3	69.7	69.4	65.9	70.6	71.3	76.3	79.5	79.8	80.6	79.4	79.6	65.9	80.6	75.6	3.8 24		
21	79.4	80.5	80.2	79.8	80.2	79.5	79.5	79.3	78.8	78.8	74.2	66.3	65.1	64.4	64.4	67.5	71.6	72.3	75.1	75.1	75.0	73.7	73.0	75.1	64.4	80.5	74.5	5.5 24		
22	74.5	75.3	73.7	73.5	75.3	73.0	73.1	74.3	74.5	74.0	69.0	67.2	62.0	59.2	60.4	62.5	66.2	74.3	77.8	79.4	79.3	78.2	77.5	76.1	59.2	79.4	72.1	6.0 24		
23	75.2	73.9	73.5	72.1	73.3	75.0	75.8	72.7	74.3	75.7	77.1	77.5	76.6	75.7	71.3	63.6	62.7	73.3	75.7	74.9	73.5	72.2	71.1	70.3	62.7	77.5	73.2	3.6 24		
24	69.7	69.3	69.0	68.4	68.1	68.0	67.6	68.1	69.9	73.5	75.2	73.3	62.4	54.5	57.7	60.3	63.5	72.5	75.5	73.6	73.1	70.8	69.8	68.6	54.5	75.5	68.4	5.4 24		
25	67.9	67.4	66.8	66.2	65.9	65.3	65.1	65.0	66.0	69.1	71.8	75.8	77.6	67.5	60.5	60.8	63.9	69.4	68.5	69.4	70.1	73.2	72.0	70.0	60.5	77.6	68.1	4.1 24		
26	76.3	76.8	76.9	77.4	77.3	78.0	76.3	76.7	77.6	77.0	66.0	62.8	58.4	60.6	61.4	63.7	68.2	72.3	75.0	75.2	76.0	78.5	76.2	76.5	58.4	78.5	72.5	6.6 24		
27	77.7	76.3	73.9	76.6	78.7	79.5	76.5	76.6	75.7	74.4	73.9	75.0	75.9	75.1	75.3	76.1	76.6	76.7	77.2	81.5	79.8	78.8	80.0	73.9	81.5	76.8	2.0 24			
28	82.9	84.1	80.8	80.6	83.4	84.9	83.1	82.3	80.7	82.6	82.2	81.1	79.1	75.1	75.0	80.5	80.5	79.7	83.7	80.5	81.5	74.5	54.1	53.7	53.7	84.9	78.6	8.1 24		
29	53.8	52.8	58.9	56.8	55.3	70.6	78.1	80.9	78.5	77.8	77.8	76.5	76.2	68.9	75.9	75.1	76.2	75.9	75.7	73.8	74.1	74.6	72.6	73.4	52.8	80.9	71.3	8.7 24		
30	75.0	74.2	79.8	77.4	74.3	72.4	73.8	71.4	71.8	73.3	72.7	71.3	69.3	64.2	65.1	67.4	70.4	76.0	76.9	78.2	77.3	77.4	78.6	80.7	64.2	80.7	73.7	4.4 24		
31	80.9	79.3	78.4	79.4	79.1	81.6	81.1	82.7	82.3	80.6	72.2	69.6	67.4	66.6	65.1	67.4	70.9	70.7	72.7	75.2	74.9	73.1	74.5	79.5	65.1	82.7	75.2	5.6 24		
HR MIN	53.8	52.8	58.9	56.8	55.3	65.3	65.1	65.0	66.0	68.0	64.0	62.8	58.4	54.5	57.5	60.1	62.7	69.3	68.5	69.4	70.1	70.8	54.1	53.7	52.8					
HR MAX	82.9	84.1	80.8	80.6	83.4	84.9	83.1	82.7	82.3	82.6	82.2	81.1	79.1	75.7	75.9	80.5	80.5	79.7	83.7	80.5	81.5	80.6	79.4	80.7		84.9				
HR AVG	74.2	73.7	74.0	73.8	74.1	75.4	75.6	75.9	75.8	75.6	73.5	72.1	70.0	66.0	66.1	67.0	69.6	73.4	75.5	76.1	76.4	75.7	73.4	73.8		73.2				
HR STD	7.3	7.6	6.2	6.7	7.3	5.5	4.9	5.4	4.6	4.2	5.1	5.7	7.2	7.0	6.7	6.5	5.6	3.0	3.4	3.0	3.4	3.1	6.6	7.2		6.3				
n	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	312		

Yellowstone National Park

Old Faithful

Relative Humidity hourly averages (percent)

01/01/2003 - 01/31/2003

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n				
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23									
1	82.2	83.2	83.4	82.4	83.6	82.9	82.7	80.3	79.4	80.7	77.2	68.3	63.1	62.9	66.4	68.5	72.4	74.2	75.4	76.4	77.3	75.6	76.1	74.9	62.9	83.6	76.2	6.4	24				
2	71.3	72.0	74.0	76.0	77.3	76.0	76.4	76.9	77.0	73.4	68.5	67.1	69.7	70.2	69.5	70.1	69.3	69.9	70.5	73.2	76.4	76.2	76.5	76.8	67.1	77.3	73.1	3.3	24				
3	75.0	72.2	71.5	78.1	79.5	81.0	79.9	84.5	84.0	83.0	76.7	79.5	82.8	82.8	80.0	80.5	79.0	78.6	80.3	79.4	79.0	78.4	76.7	77.4	71.5	84.5	79.2	3.3	24				
4	81.2	84.4	85.5	80.5	79.4	80.3	80.4	79.8	77.3	74.5	71.1	70.2	68.0	67.0	67.1	75.8	76.6	76.4	78.0	78.7	75.1	73.1	73.3	74.4	67.0	85.5	76.2	5.0	24				
5	77.5	83.6	81.4	84.5	81.5	79.1	81.4	85.0	87.3	85.1	77.6	66.6	58.3	54.2	56.5	59.6	60.4	73.6	78.8	82.4	83.9	83.2	82.2	81.1	54.2	87.3	76.0	10.5	24				
6	80.3	79.7	79.0	78.6	78.3	77.7	77.6	78.3	78.6	79.3	81.1	83.2	81.4	72.9	68.7	68.1	72.0	80.3	84.6	84.1	82.3	81.6	80.8	79.7	68.1	84.6	78.7	4.3	24				
7	79.3	78.9	78.4	78.3	78.4	77.4	78.9	77.9	77.6	80.3	82.9	85.1	83.5	74.9	64.6	54.4	48.1	70.1	76.3	82.3	82.8	81.3	80.0	78.8	48.1	85.1	76.3	8.9	24				
8	78.1	77.5	76.9	76.4	75.7	75.1	74.4	75.3	75.1	78.5	82.0	83.8	80.1	66.4	52.3	43.3	49.7	66.9	78.5	82.4	81.0	79.3	78.5	77.9	43.3	83.8	73.5	10.6	24				
9	76.9	76.6	75.7	75.5	75.0	74.3	74.5	75.7	75.5	78.0	79.5	81.9	78.0	60.9	55.6	54.6	58.6	70.8	78.3	77.6	75.9	74.8	74.3	73.4	54.6	81.9	73.0	7.5	24				
10	72.3	72.1	71.7	71.8	71.2	71.8	72.3	73.5	73.8	75.4	78.2	79.6	81.3	79.2	78.0	74.3	73.7	77.0	82.3	85.0	83.1	82.6	83.7	84.9	71.2	85.0	77.0	4.8	24				
11	84.9	84.1	83.7	83.4	84.0	84.5	84.3	84.4	84.5	83.3	71.5	69.3	65.9	64.6	65.3	67.8	71.0	74.3	80.4	80.6	78.6	79.4	80.8	79.7	64.6	84.9	77.9	7.1	24				
12	83.0	82.0	82.1	81.3	78.4	77.4	77.5	77.0	76.2	74.6	73.2	71.4	71.2	78.6	73.0	73.9	77.0	80.9	79.8	81.6	81.0	83.6	81.4	81.5	71.2	83.6	78.2	3.8	24				
13	80.3	79.8	80.0	79.9	79.8	80.6	75.8	74.3	76.1	79.1	75.4	71.8	70.8	70.1	73.7	76.4	76.7	77.5	79.0	80.7	82.6	84.0	85.3	87.0	70.1	87.0	78.2	4.3	24				
14	88.5	89.4	89.8	90.3	90.1	88.2	87.2	84.8	84.4	82.3	78.8	71.4	67.4	65.5	66.8	68.9	70.7	72.0	74.8	73.2	72.3	75.0	82.4	86.7	65.5	90.3	79.2	8.6	24				
15	86.3	87.9	85.7	82.7	81.2	78.1	76.6	77.3	71.7	66.4	64.2	58.8	53.9	56.3	55.8	59.5	65.3	75.4	81.2	80.5	79.2	79.7	79.5	80.6	53.9	87.9	73.5	10.6	24				
16	80.9	81.1	80.4	80.4	80.6	80.5	81.4	81.1	80.8	80.5	81.5	81.6	81.1	72.6	62.1	67.3	78.6	81.3	79.7	81.3	82.7	83.7	82.1	80.8	62.1	83.7	79.3	5.0	24				
17	79.7	79.6	75.6	75.1	75.1	76.3	74.1	73.9	75.8	76.5	76.6	78.6	79.2	75.2	70.0	63.5	65.2	70.5	77.8	80.9	79.2	78.0	77.1	76.1	63.5	80.9	75.4	4.3	24				
18	76.7	75.4	77.4	75.7	75.1	75.6	75.4	75.8	75.9	77.8	80.7	83.2	84.9	67.2	59.9	61.2	66.9	78.4	81.6	83.1	81.9	80.2	80.5	79.4	59.9	84.9	76.2	6.5	24				
19	80.0	80.9	81.5	83.2	84.3	85.5	87.5	87.2	87.5	85.5	73.0	65.8	64.7	62.6	59.0	65.9	68.8	71.1	72.5	72.3	74.3	74.7	76.1	71.0	59.0	87.5	75.6	8.6	24				
20	76.4	73.0	70.8	72.9	75.5	73.6	72.8	72.5	69.7	64.0	64.4	66.1	66.7	69.2	72.5	73.5	73.6	75.2	76.7	77.6	78.6	76.6	74.0	77.6	64.0	78.6	72.6	4.1	24				
21	78.9	77.0	79.3	80.2	81.2	79.7	77.5	82.9	82.8	79.1	77.1	76.9	77.5	76.3	78.7	80.9	80.6	81.0	79.7	76.2	76.0	77.6	80.2	78.0	76.0	82.9	79.0	2.0	24				
22	75.7	79.2	79.6	78.1	75.8	77.5	82.7	82.3	83.4	80.4	80.0	79.9	78.8	78.6	79.3	76.4	75.7	76.2	79.2	77.2	81.6	81.6	78.6	78.8	75.7	83.4	79.0	2.2	24				
23	83.2	85.5	83.2	77.1	76.9	77.3	82.3	83.9	77.5	79.3	80.5	80.6	79.9	83.4	82.1	80.6	79.1	80.4	82.5	83.0	85.0	84.2	82.7	83.9	76.9	85.5	81.4	2.6	24				
24	84.9	83.8	83.5	83.0	83.2	80.6	80.6	83.1	83.5	85.1	86.5	74.0	63.0	60.0	62.1	60.9	66.6	70.8	72.7	76.2	76.7	77.1	78.7	79.2	60.0	86.5	76.5	8.4	24				
25	79.3	78.7	79.6	79.1	80.1	79.6	77.5	79.0	77.2	74.3	71.3	67.0	68.2	70.4	68.5	70.5	73.3	79.3	78.7	78.8	77.3	76.0	78.2	81.1	67.0	81.1	76.0	4.3	24				
26	81.1	79.5	82.6	82.4	84.0	82.1	82.3	84.4	78.7	77.8	75.8	76.8	74.6	69.6	74.0	80.0	81.1	82.1	84.2	83.9	81.3	81.3	83.4	80.3	69.6	84.4	80.1	3.7	24				
27	79.7	79.3	83.0	82.8	83.2	81.3	81.3	82.6	85.2	85.2	84.0	82.3	83.4	83.7	81.6	84.0	86.3	86.0	87.3	88.3	88.3	86.9	81.2	82.3	79.3	88.3	83.7	2.5	24				
28	87.2	85.2	84.8	83.6	82.9	81.8	81.3	80.5	80.1	79.5	78.9	72.5	62.6	60.6	62.3	67.0	70.0	73.1	78.3	79.5	79.3	82.2	80.8	78.1	60.6	87.2	77.2	7.6	24				
29	82.0	77.5	76.3	75.8	75.5	75.9	74.7	75.3	75.3	71.8	69.9	69.7	67.3	68.9	70.4	69.9	71.1	75.8	78.2	76.5	79.6	81.0	78.2	83.3	67.3	83.3	75.0	4.3	24				
30	79.7	82.0	82.6	83.3	82.9	83.1	80.3	84.2	82.0	78.6	83.0	80.5	73.4	73.9	74.7	70.7	67.8	72.0	73.8	81.9	84.0	86.1	86.8	83.4	67.8	86.8	79.6	5.2	24				
31	82.6	84.0	81.0	80.7	81.5	81.3	82.0	82.9	84.7	87.8	89.7	88.3	86.6	84.5	86.0	84.3	82.2	80.8	79.1	77.0	78.5	79.4	79.5	77.0	89.7	82.8	3.2	24					
HR MIN	71.3	72.0	70.8	71.8	71.2	71.8	72.3	72.5	69.7	64.0	64.2	58.8	53.9	54.2	52.3	43.3	48.1	66.9	70.5	72.3	72.3	73.1	73.3	71.0	43.3								
HR MAX	88.5	89.4	89.8	90.3	90.1	88.2	87.5	87.2	87.5	85.5	87.8	89.7	88.3	86.6	84.5	86.0	86.3	86.0	87.3	88.3	88.3	86.9	86.8	87.0		90.3							
HR AVG	80.2	80.2	80.0	79.8	79.7	79.2	79.1	79.9	79.2	78.5	77.1	75.3	73.2	70.5	68.9	69.5	71.3	75.9	78.8	79.8	79.8	79.7	79.6			77.3							
HR STD	4.0	4.5	4.5	3.9	3.9	3.7	3.9	4.1	4.5	5.1	5.8	7.3	8.7	8.3	8.6	9.5	8.8	4.6	3.6	3.7	3.6	3.6	3.2	3.6			6.6						
n	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	744	

Yellowstone National Park

Old Faithful

Relative Humidity hourly averages (percent)

02/01/2003 - 02/28/2003

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n		
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23							
1	79.6	78.6	75.3	72.6	73.5	71.9	70.1	69.6	67.7	65.1	65.4	63.8	63.2	62.8	62.4	61.0	55.8	61.4	65.1	86.0	86.5	86.1	84.4	82.8	55.8	86.5	71.3	9.2	24		
2	80.8	78.7	80.8	79.0	77.1	78.1	80.4	79.1	77.5	74.3	70.7	66.2	63.5	60.5	58.4	59.8	58.7	63.4	66.7	77.0	80.9	79.9	78.3	77.4	58.4	80.9	72.8	8.2	24		
3	76.4	75.3	75.4	74.6	74.5	74.2	73.8	73.7	75.8	76.8	78.6	79.3	67.6	58.0	55.1	51.0	58.5	67.9	69.8	68.8	70.2	74.7	77.1	79.4	51.0	79.4	71.1	7.9	24		
4	81.2	79.9	79.6	79.2	79.6	79.1	78.8	76.9	77.3	80.4	81.2	71.9	55.3	49.1	40.8	45.8	39.9	52.5	69.6	76.0	76.1	76.0	74.4	73.1	39.9	81.2	69.7	13.9	24		
5	72.0	74.1	75.9	77.5	77.2	76.9	77.5	77.7	75.7	67.5	56.4	49.9	45.7	43.8	50.3	55.9	58.7	57.7	61.6	67.7	68.1	73.8	78.1	77.6	43.8	78.1	66.5	11.5	24		
6	75.1	73.0	72.9	72.7	71.7	69.8	67.7	66.8	71.2	73.7	76.2	77.6	57.1	34.3	28.7	25.1	26.1	35.5	55.7	67.3	70.3	71.4	70.2	69.3	25.1	77.6	61.6	17.4	24		
7	69.0	68.7	68.6	68.2	70.2	69.8	69.2	70.1	72.6	73.2	67.7	62.7	49.8	36.8	31.8	33.9	42.3	53.0	57.2	62.1	67.4	72.9	75.5	77.8	31.8	77.8	62.1	13.6	24		
8	78.1	78.6	78.5	78.7	79.0	80.1	79.7	80.2	80.6	79.7	72.4	64.3	58.7	55.8	55.9	46.9	48.8	57.4	71.0	77.6	76.4	77.3	77.1	77.2	46.9	80.6	71.2	11.0	24		
9	78.4	78.0	74.2	72.7	73.6	71.9	73.2	74.7	73.6	67.2	54.5	52.2	53.2	52.7	49.2	49.3	59.3	68.1	72.3	76.8	81.0	79.2	78.3	77.3	49.2	81.0	68.4	10.8	24		
10	77.0	78.0	76.3	77.5	78.5	77.6	76.9	77.5	74.5	68.0	63.2	60.9	56.7	51.9	56.2	58.1	59.8	66.2	73.0	80.2	84.4	83.7	77.6	77.0	51.9	84.4	71.3	9.6	24		
11	76.7	75.2	74.6	74.9	74.1	74.3	73.6	73.5	75.3	63.4	58.4	55.9	47.6	39.6	36.0	35.1	39.4	51.2	61.1	63.9	69.7	70.2	70.7	77.4	35.1	77.4	63.0	14.2	24		
12	79.7	79.5	76.9	75.6	75.2	75.4	76.9	75.4	77.5	80.4	82.5	80.7	59.3	33.1	27.4	25.6	24.7	33.8	54.6	67.3	74.6	77.3	79.1	79.5	24.7	82.5	65.5	20.3	24		
13	79.7	79.0	78.2	77.6	78.1	80.1	81.3	81.2	74.0	65.7	61.9	62.4	65.6	70.8	62.6	59.0	66.5	76.9	86.0	85.5	85.9	84.8	80.1	79.5	59.0	86.0	75.1	8.5	24		
14	77.6	75.6	74.8	77.7	80.4	78.9	80.3	81.6	79.0	69.8	62.2	58.7	57.8	66.4	60.3	63.1	66.5	72.7	73.8	74.8	79.5	82.8	85.9	87.0	57.8	87.0	73.6	8.6	24		
15	84.7	83.0	83.8	83.7	83.5	83.5	80.8	79.3	76.2	66.1	58.1	59.1	55.9	54.5	55.8	54.9	59.9	63.4	64.5	65.7	67.5	69.3	70.1	73.9	54.5	84.7	69.9	10.9	24		
16	72.8	71.4	78.3	82.3	83.4	83.2	85.3	85.1	76.3	65.9	72.1	75.8	85.2	85.5	86.3	87.5	82.3	83.0	82.5	84.7	86.3	84.0	79.8	79.2	65.9	87.5	80.7	5.7	24		
17	76.3	76.0	79.0	83.3	80.9	80.0	79.5	78.5	77.5	76.7	69.9	67.1	64.7	58.6	61.7	60.2	67.1	73.0	74.7	73.7	74.2	72.9	73.9	75.3	58.6	83.3	73.1	6.7	24		
18	75.1	72.7	75.7	81.6	82.4	82.1	81.0	82.7	77.9	57.4	50.4	49.5	44.2	40.7	35.6	37.8	41.2	55.0	65.5	74.8	79.5	81.9	80.6	79.6	35.6	82.7	66.0	17.1	24		
19	79.7	81.7	82.5	83.3	84.0	84.6	75.4	71.7	67.5	61.7	51.9	52.5	46.3	47.3	49.5	46.6	48.3	58.8	71.5	79.6	81.4	81.0	79.7	79.3	46.3	84.6	68.6	14.5	24		
20	77.8	77.7	78.1	78.1	75.9	76.1	78.9	79.9	83.3	73.6	49.7	49.4	44.9	40.2	46.5	57.3	68.9	79.5	82.4	83.9	83.6	82.1	80.2	81.5	40.2	83.9	71.2	14.3	24		
21	82.1	79.7	81.2	79.4	76.4	79.9	79.3	78.4	77.8	73.4	70.3	63.6	58.4	65.3	64.7	70.0	66.9	71.6	69.7	70.5	75.4	83.3	85.4	82.8	58.4	85.4	74.4	7.2	24		
22	80.9	81.2	81.2	80.0	80.9	84.4	86.0	86.2	84.0	77.2	67.6	65.3	55.3	53.0	50.8	47.8	48.2	67.4	79.7	82.3	81.9	80.2	80.5	79.8	47.8	86.2	73.4	13.0	24		
23	80.6	82.3	83.6	83.5	83.2	81.7	80.8	79.8	80.2	77.8	68.7	55.9	46.0	41.3	38.6	39.4	37.2	39.9	49.2	64.6	69.0	68.6	66.5	63.5	37.2	83.6	65.1	17.2	24		
24	62.1	60.7	59.7	58.4	57.4	56.8	PF	PF	PF	PF	IM	56.7	62.1	58.8	2.1	7															
25	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	17.1	22.3	28.4	44.5	61.3	70.0	74.8	76.1	78.2	17.1	78.2	52.5	24.8	9
26	79.3	79.0	78.4	78.0	78.0	77.6	77.6	78.2	67.5	69.3	57.6	45.0	34.9	32.4	34.2	35.4	41.5	53.8	62.0	66.9	71.3	72.9	73.7	32.4	79.3	63.4	17.0	24			
27	75.8	75.4	75.1	76.6	78.5	79.5	81.6	82.2	73.3	77.0	70.0	49.3	42.9	41.8	42.7	41.9	43.7	49.3	51.3	60.1	68.2	74.8	78.2	81.5	41.8	82.2	65.4	15.4	24		
28	81.2	82.2	81.9	81.3	80.1	79.8	79.1	79.1	80.7	77.1	62.0	59.9	58.2	59.3	65.2	63.8	69.4	69.1	71.6	75.4	82.9	85.8	85.2	86.4	58.2	86.4	74.9	9.2	24		
HR MIN	62.1	60.7	59.7	58.4	57.4	56.8	56.7	66.8	67.5	57.4	49.7	49.3	42.9	33.1	27.4	17.1	22.3	28.4	44.5	60.1	66.9	68.6	66.5	63.5	17.1						
HR MAX	84.7	83.0	83.8	83.7	84.0	84.6	86.0	86.2	84.0	80.4	82.5	80.7	85.2	85.5	86.3	87.5	82.3	83.0	86.0	86.5	86.1	85.9	87.0	87.5							
HR AVG	77.4	76.9	77.1	77.3	77.3	77.1	77.6	76.4	71.4	65.8	62.0	55.7	51.5	50.2	49.2	51.7	59.2	66.6	72.9	76.2	77.8	77.6	78.0	69.2							
HR STD	4.5	4.8	4.9	5.4	5.4	5.8	6.0	4.7	4.0	6.3	9.0	9.3	9.5	12.8	13.9	15.4	15.3	14.3	10.6	8.1	6.7	5.4	4.9	4.8	13.5						
n	27	27	27	27	27	27	27	26	26	26	26	26	26	26	26	27	27	27	27	27	27	27	27	27	27	640					

Yellowstone National Park

Old Faithful

Relative Humidity hourly averages (percent)

03/01/2003 - 03/31/2003

Date	HOUR (LOCAL STANDARD TIME)																							DAY MIN	DAY MAX	DAY AVG	DAY STD n		
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
1	86.5	83.5	84.2	86.0	85.8	86.0	84.7	83.7	83.9	73.6	65.1	59.5	51.4	45.7	41.2	39.1	41.1	42.5	55.5	68.4	73.3	77.3	76.0	77.7	39.1	86.5	68.8	17.2 24	
2	78.9	79.0	78.5	79.6	81.1	80.4	80.7	82.6	79.2	78.6	77.3	73.2	70.8	78.3	74.8	70.1	69.1	73.1	72.0	70.1	71.0	69.3	67.3	76.0	67.3	82.6	75.5	4.6 24	
3	84.4	79.1	77.7	80.4	85.3	86.7	79.7	76.2	73.0	68.4	63.2	63.7	64.3	58.8	69.2	85.2	87.5	76.2	76.8	84.2	84.6	86.6	85.9	86.0	58.8	87.5	77.6	8.8 24	
4	84.5	83.2	83.9	82.8	82.6	82.3	82.1	81.9	79.5	65.4	56.6	53.6	55.8	56.4	51.0	58.0	60.6	73.7	77.5	81.2	83.9	84.6	84.1	83.4	51.0	84.6	73.7	12.4 24	
5	81.6	80.0	79.6	79.6	80.2	74.2	72.3	75.2	73.2	70.7	71.3	73.7	74.5	77.2	79.1	81.2	83.7	84.1	82.2	80.6	79.5	80.3	80.7	81.1	70.7	84.1	78.2	4.0 24	
6	83.6	83.5	83.5	80.2	78.6	76.1	73.3	73.5	75.8	78.0	74.9	69.4	76.0	67.7	59.4	72.5	83.4	75.3	73.7	68.1	68.9	74.4	80.0	80.9	59.4	83.6	75.4	6.0 24	
7	79.2	79.6	78.3	77.3	80.8	80.0	80.1	79.3	78.2	80.7	81.6	81.2	79.1	78.5	78.7	80.8	80.3	81.6	75.5	70.3	70.9	72.0	76.4	81.3	70.3	81.6	78.4	3.2 24	
8	81.8	86.0	85.8	85.0	85.1	84.3	82.4	80.0	78.5	78.5	76.1	75.1	74.4	73.7	76.2	69.9	71.6	69.7	62.9	74.1	72.8	74.0	73.7	73.1	62.9	86.0	76.9	6.0 24	
9	73.2	73.0	73.2	72.4	72.0	71.6	70.4	69.8	65.7	60.1	55.7	52.5	50.2	48.6	46.2	50.9	62.7	62.8	71.0	76.5	75.6	83.2	88.9	88.4	46.2	88.9	67.3	12.0 24	
10	87.9	84.6	79.9	80.3	85.2	83.4	85.9	87.7	83.7	73.9	74.6	74.5	71.4	68.4	68.1	68.9	70.7	71.2	75.2	73.1	71.8	72.8	76.5	80.0	68.1	87.9	77.1	6.5 24	
11	79.9	80.3	80.3	80.5	78.1	79.8	78.2	75.8	79.5	78.8	78.6	77.2	71.4	73.9	71.8	68.9	65.9	69.5	69.0	67.3	64.4	65.6	67.3	69.3	64.4	80.5	73.8	5.7 24	
12	70.5	73.5	79.2	82.9	77.9	78.2	77.4	76.4	77.7	75.1	70.9	65.9	64.2	61.7	58.0	59.0	63.6	65.9	68.5	68.5	68.3	68.0	68.3	63.8	58.0	82.9	70.1	6.8 24	
13	66.4	68.3	70.8	78.4	80.1	77.6	73.6	70.3	55.5	42.1	39.1	37.2	35.0	34.1	34.6	33.4	32.1	34.8	42.1	48.9	52.7	51.3	54.3	72.4	32.1	80.1	53.5	17.1 24	
14	83.8	82.3	66.7	48.1	46.7	43.6	58.6	47.6	50.6	56.3	65.3	74.6	77.5	79.0	81.1	65.3	65.6	68.4	73.2	76.9	80.1	80.2	81.0	87.8	43.6	87.8	68.3	13.6 24	
15	84.0	78.4	82.4	87.5	90.4	91.1	90.7	89.9	91.0	57.5	46.9	42.5	38.3	36.6	34.3	36.4	45.1	55.1	67.0	75.0	77.7	82.0	88.2	91.5	34.3	91.5	69.1	21.5 24	
16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
23	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
26	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
27	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
28	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
HR MIN	66.4	68.3	66.7	48.1	46.7	43.6	58.6	47.6	50.6	42.1	39.1	37.2	35.0	34.1	34.3	33.4	32.1	34.8	42.1	48.9	52.7	51.3	54.3	63.8	32.1				
HR MAX	87.9	86.0	85.8	87.5	90.4	91.1	90.7	89.9	91.0	80.7	81.6	81.2	79.1	79.0	81.1	85.2	87.5	84.1	82.2	84.2	84.6	86.6	88.9	91.5		91.5			
HR AVG	80.4	79.6	78.9	78.7	79.3	78.4	78.0	76.7	75.0	69.2	66.5	64.9	63.6	62.6	61.6	62.6	65.5	66.9	69.5	72.2	73.0	74.8	76.6	79.5		72.3			
HR STD	6.1	4.8	5.3	9.2	10.0	10.9	7.7	9.9	10.6	11.0	12.3	13.2	14.3	15.4	16.5	16.4	16.0	13.6	9.9	8.3	8.1	9.1	9.4	7.6		12.6			
n	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	360			

Yellowstone National Park

Old Faithful

Station Temperature hourly averages (degC)

12/01/2002 - 12/31/2002

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n			
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23								
1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0							
2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0							
3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0							
4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0							
5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0							
6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0							
7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0							
8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0							
9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0							
10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0							
11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0							
12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0							
13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0							
14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0							
15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0							
16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0							
17	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	0							
18	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	0							
19	20.3	20.4	20.5	20.4	20.5	20.6	20.6	20.4	20.1	20.6	21.3	21.8	21.9	22.7	22.9	22.3	21.6	21.0	20.5	20.2	20.1	19.8	19.5	19.4	19.4	22.9	20.8	0.9	24			
20	19.3	19.3	19.3	19.3	19.4	19.6	19.7	19.8	19.9	20.1	20.5	21.1	21.7	21.9	21.9	21.9	21.8	21.7	21.5	21.3	21.2	21.1	20.9	20.7	19.3	21.9	20.6	1.0	24			
21	20.5	20.5	20.4	20.5	20.5	20.4	20.4	20.3	20.3	20.6	21.2	21.7	22.1	22.6	23.1	22.9	22.3	23.5	23.4	23.4	23.5	23.6	23.5	23.5	20.3	23.6	21.9	1.4	24			
22	23.5	23.5	23.5	23.4	23.4	23.3	23.5	23.6	23.5	23.7	23.8	23.8	24.2	24.5	24.5	24.4	23.9	23.8	23.7	23.3	23.3	23.1	22.9	22.7	22.7	24.5	23.6	0.5	24			
23	22.4	22.2	22.1	21.9	21.8	21.9	22.0	22.0	22.1	22.6	22.9	23.5	24.4	24.9	24.6	24.1	23.5	23.2	23.0	22.6	22.4	22.0	21.8	21.7	21.7	24.9	22.7	1.0	24			
24	21.6	21.5	21.4	21.4	21.5	21.2	21.4	21.2	21.5	22.5	22.8	22.8	24.2	24.6	24.2	24.1	23.6	23.0	22.7	22.4	22.3	22.1	22.0	22.0	21.2	24.6	22.4	1.1	24			
25	21.6	21.8	21.6	21.5	21.5	21.5	21.6	21.2	21.6	22.6	23.3	23.9	23.8	23.8	23.8	23.5	23.2	23.1	23.2	23.2	23.0	22.9	23.1	21.2	23.9	22.7	0.9	24				
26	23.0	22.9	23.0	23.0	23.0	22.8	22.8	22.7	23.1	23.1	23.1	23.1	23.9	23.9	23.9	23.6	23.6	23.2	23.1	23.2	23.1	23.2	23.3	23.1	22.7	23.9	23.2	0.4	24			
27	23.1	23.2	23.5	23.7	23.5	23.5	23.8	24.3	24.3	24.7	24.6	24.5	24.7	24.5	25.3	25.0	24.7	25.1	25.0	24.7	24.4	24.2	24.1	24.2	23.1	25.3	24.2	0.6	24			
28	24.1	24.1	24.2	24.2	24.1	24.0	23.9	23.9	24.0	24.0	24.0	23.9	23.9	24.1	24.0	23.9	23.9	23.8	23.7	23.8	23.6	23.5	23.7	23.8	23.5	24.2	23.9	0.2	24			
29	23.9	23.9	23.8	23.7	23.7	23.8	24.1	24.1	24.0	24.0	24.3	24.6	24.9	25.7	24.8	24.7	24.3	24.8	26.7	27.4	27.1	26.0	25.6	24.8	23.7	27.4	24.8	1.1	24			
30	24.7	24.2	24.1	24.4	24.2	24.0	23.8	23.7	24.3	23.6	23.6	24.0	24.3	24.2	24.0	24.0	23.8	23.5	23.4	23.3	23.3	23.3	23.0	23.1	23.0	24.7	23.8	0.4	24			
31	23.0	23.0	23.1	23.1	23.2	23.3	23.3	23.3	23.5	23.5	23.6	23.2	23.9	24.5	25.2	24.7	25.7	25.1	24.4	23.9	23.9	23.7	23.7	23.7	23.0	25.7	23.8	0.8	24			
HR MIN	19.3	19.3	19.3	19.3	19.4	19.6	19.7	19.8	19.9	20.1	20.5	21.1	21.7	21.9	21.9	21.9	21.6	21.0	20.5	20.2	20.1	19.8	19.5	19.4	19.3							
HR MAX	24.7	24.2	24.2	24.4	24.2	24.0	24.1	24.1	24.3	24.7	24.6	24.6	24.9	25.7	25.3	25.0	25.7	25.1	26.7	27.4	27.1	26.0	25.6	24.8		27.4						
HR AVG	22.4	22.3	22.3	22.3	22.3	22.3	22.4	22.3	22.4	22.7	23.0	23.2	23.7	24.0	24.0	23.8	23.6	23.5	23.4	23.3	23.2	23.0	22.8	22.8		23.0						
HR STD	1.6	1.6	1.6	1.6	1.6	1.5	1.5	1.6	1.6	1.5	1.3	1.1	1.1	1.0	1.0	0.9	1.1	1.2	1.5	1.7	1.6	1.5	1.5	1.5		1.5						
n	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	312			

Yellowstone National Park

Old Faithful

Station Temperature hourly averages (degC)

01/01/2003 - 01/31/2003

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
1	23.7	23.7	23.5	23.4	23.3	23.3	23.2	22.7	22.6	23.2	24.0	24.8	25.3	25.1	24.4	24.2	23.9	23.6	23.6	23.4	23.2	23.3	23.3	23.0	22.6	25.3	23.7	0.7	24	
2	23.1	23.1	23.2	23.3	23.3	23.2	23.3	23.6	23.5	23.4	23.7	24.1	24.0	23.9	23.8	23.8	23.6	23.4	23.5	23.4	23.2	23.3	23.4	23.3	23.1	24.1	23.5	0.3	24	
3	23.3	23.5	23.6	23.5	23.6	23.6	23.7	23.7	23.6	23.7	24.0	24.4	24.9	24.9	25.3	25.5	24.9	24.7	24.8	24.8	24.5	24.2	23.9	24.0	23.3	25.5	24.2	0.6	24	
4	24.0	23.8	23.6	23.6	23.7	23.8	23.7	23.7	23.8	24.0	24.1	24.0	24.1	24.3	24.6	24.5	24.0	24.0	24.1	24.0	23.9	24.0	24.0	24.0	23.6	24.6	24.0	0.2	24	
5	23.9	23.8	23.9	23.9	23.8	23.8	23.9	23.8	23.7	24.0	24.5	25.2	25.4	25.9	25.7	24.8	24.4	24.0	23.7	23.5	23.3	23.1	23.0	22.9	22.9	25.9	24.1	0.8	24	
6	22.9	22.8	22.8	22.7	22.7	22.7	22.8	22.8	22.8	23.5	24.5	25.8	26.6	26.8	26.3	25.7	24.8	24.1	23.8	23.4	23.1	23.1	23.0	23.0	22.7	22.7	26.8	23.9	1.4	24
7	22.9	22.8	22.8	22.7	22.8	22.7	22.8	22.7	22.9	23.9	24.8	25.7	26.4	27.0	26.7	26.1	24.9	24.0	23.7	23.4	23.2	23.0	23.0	22.7	22.7	27.0	23.9	1.5	24	
8	22.7	22.6	22.5	22.4	22.4	22.3	22.3	22.4	23.5	24.5	25.6	26.7	26.8	26.2	25.8	24.6	23.9	23.4	23.4	23.1	22.9	22.8	22.6	22.3	22.3	26.8	23.7	1.5	24	
9	22.4	22.5	22.4	22.2	22.2	22.1	22.0	22.0	22.1	22.6	23.5	24.8	25.8	25.8	25.7	25.1	24.1	23.2	22.8	22.6	22.4	22.2	22.1	21.7	21.7	25.8	23.1	1.3	24	
10	21.7	21.5	21.6	21.7	21.5	21.9	22.0	21.8	21.8	22.4	23.7	24.6	24.4	24.4	24.5	24.5	24.0	23.8	24.0	23.8	23.7	23.6	23.8	23.6	21.5	24.6	23.1	1.2	24	
11	23.6	23.6	23.6	23.6	23.5	23.3	23.2	23.1	23.3	23.6	24.0	24.2	24.6	24.7	25.2	25.2	24.7	24.4	24.2	24.0	24.1	24.2	24.5	24.2	23.1	25.2	24.0	0.6	24	
12	24.4	24.3	24.3	24.3	24.2	24.2	24.3	24.1	24.3	24.2	24.3	24.7	24.9	24.4	24.4	24.6	24.4	24.3	24.3	24.3	24.5	24.1	24.0	24.0	24.0	24.9	24.3	0.2	24	
13	24.2	24.7	25.7	26.6	26.8	26.3	25.2	24.8	25.0	24.7	25.1	25.6	25.7	25.8	25.9	25.8	25.5	25.3	24.9	24.9	24.7	24.7	24.7	24.2	24.2	26.8	25.3	0.7	24	
14	24.4	24.4	24.3	24.4	24.3	24.2	24.1	24.0	24.0	24.0	24.6	25.5	26.0	26.6	26.7	26.5	26.3	26.0	25.7	25.6	25.2	25.0	24.0	24.0	26.7	25.1	0.9	24		
15	24.8	25.1	24.7	24.8	25.1	25.1	25.1	25.0	25.2	25.8	26.3	26.6	26.9	27.2	26.9	26.3	25.6	25.1	24.8	24.3	24.1	23.8	23.9	24.0	23.8	27.2	25.3	1.0	24	
16	23.8	24.1	24.0	24.1	24.2	24.2	24.4	24.3	24.3	24.4	25.1	25.6	25.3	25.3	25.0	24.5	24.2	23.8	23.7	23.6	23.4	23.0	22.5	22.1	22.1	25.6	24.1	0.8	24	
17	21.6	21.6	21.5	21.5	21.5	21.5	21.5	21.4	21.5	21.9	22.8	23.7	24.8	25.4	25.2	24.6	23.9	23.1	22.7	22.3	22.3	22.3	22.2	22.0	21.4	25.4	22.6	1.3	24	
18	21.9	21.9	21.9	21.9	21.9	22.0	22.0	22.0	22.1	22.1	22.9	24.4	25.8	26.0	25.4	24.8	23.9	22.8	22.5	22.5	22.0	22.0	22.0	21.7	21.7	26.0	22.9	1.4	24	
19	21.5	21.4	21.7	21.8	21.8	22.2	22.2	22.6	23.0	23.2	23.7	24.8	24.9	24.8	25.4	25.1	24.0	23.5	23.5	23.3	23.2	23.3	23.0	22.9	21.4	25.4	23.2	1.2	24	
20	23.0	22.8	22.9	22.8	22.8	22.5	22.6	22.5	22.5	23.5	24.1	24.0	23.8	23.6	23.4	22.8	22.5	22.4	22.8	23.1	23.5	23.4	22.8	22.4	22.4	24.1	23.0	0.5	24	
21	22.0	22.1	22.3	22.5	22.5	22.4	22.6	22.4	22.4	22.6	22.4	22.6	23.1	23.3	23.2	23.4	23.3	22.8	22.8	22.3	22.2	22.6	22.8	23.3	22.0	23.4	22.7	0.4	24	
22	23.2	23.3	23.4	23.3	23.5	23.2	22.8	22.4	22.4	22.5	22.6	23.0	23.4	23.2	23.0	22.7	22.7	22.2	22.3	22.0	22.3	22.4	22.7	22.0	23.5	22.8	0.4	24		
23	22.7	22.8	22.7	22.7	23.1	22.9	22.7	22.6	22.9	23.2	23.9	23.8	23.8	23.9	24.1	23.9	23.5	23.0	22.6	22.4	22.3	21.9	21.8	21.8	21.8	24.1	23.0	0.7	24	
24	21.4	21.3	21.4	21.5	21.6	21.3	21.7	21.5	21.5	22.1	22.6	23.6	24.4	24.7	24.5	24.4	23.7	23.1	22.7	22.5	22.3	22.4	22.6	22.8	21.3	24.7	22.6	1.1	24	
25	22.8	22.6	22.5	22.5	22.9	22.9	22.9	22.9	22.8	23.1	23.3	23.7	23.8	23.8	23.7	23.8	23.4	23.3	22.7	22.9	23.0	23.0	22.9	22.5	22.5	23.8	23.1	0.4	24	
26	23.4	23.2	22.6	22.5	22.4	22.3	22.7	22.9	22.7	22.5	22.8	23.3	23.5	23.7	23.7	23.4	23.1	22.6	22.5	22.6	22.8	23.2	23.3	23.1	22.3	23.7	23.0	0.4	24	
27	23.0	22.7	22.6	22.5	22.4	22.5	22.8	22.7	22.7	22.3	22.4	22.4	22.4	22.8	22.9	22.9	23.1	22.7	22.9	22.7	22.7	22.5	22.3	22.3	22.3	23.1	22.6	0.2	24	
28	22.2	22.0	22.0	21.9	21.8	21.8	21.6	21.4	21.5	22.0	22.3	22.8	23.5	24.2	24.1	23.2	22.9	22.6	22.5	22.7	23.0	23.1	22.8	21.4	24.2	22.5	0.8	24		
29	22.6	22.4	22.4	22.4	22.2	22.1	22.0	22.0	22.1	22.3	22.9	22.8	22.6	22.4	22.5	22.5	22.8	22.9	22.6	22.4	22.2	22.1	22.0	22.0	22.0	22.9	22.4	0.3	24	
30	22.2	22.8	22.9	22.6	22.5	22.4	23.3	23.1	23.0	23.0	23.3	23.3	23.5	23.3	23.4	23.2	23.2	23.4	22.7	22.2	22.3	22.3	22.4	22.2	23.5	22.9	0.4	24		
31	22.5	22.5	22.9	23.4	23.9	24.3	24.3	24.8	25.0	25.0	25.2	25.4	25.3	24.8	24.8	24.7	24.7	24.6	24.6	24.6	24.3	23.9	23.6	22.5	22.5	25.4	24.3	0.8	24	
HR MIN	21.4	21.3	21.4	21.5	21.5	21.3	21.5	21.4	21.5	21.9	22.3	22.4	22.4	22.6	22.4	22.5	22.4	22.2	22.3	22.0	22.0	21.9	21.7	21.3						
HR MAX	24.8	25.1	25.7	26.6	26.8	26.3	25.2	25.0	25.2	25.8	26.3	26.6	26.9	27.2	26.9	26.5	26.3	26.0	25.7	25.6	25.7	25.6	25.2	25.0	27.2					
HR AVG	23.0	23.0	23.0	23.0	23.0	23.0	23.0	22.9	23.0	23.3	23.8	24.3	24.7	24.8	24.7	24.5	24.0	23.6	23.5	23.3	23.2	23.2	23.1	23.0	23.5					
HR STD	0.9	1.0	1.0	1.1	1.2	1.1	1.0	1.0	1.0	1.0	1.1	1.2	1.3	1.2	1.1	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.8	0.9	0.9	1.2				
n	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	744	

Yellowstone National Park

Old Faithful

Station Temperature hourly averages (degC)

02/01/2003 - 02/28/2003

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
1	23.7	23.6	23.4	23.4	23.5	23.1	23.1	23.3	23.3	23.6	23.7	23.9	24.0	23.9	23.9	23.7	23.6	23.6	23.5	23.0	22.5	22.1	21.9	21.9	21.9	24.0	23.3	0.6	24	
2	21.7	21.7	21.5	21.5	21.6	21.7	21.5	21.5	21.5	21.6	21.8	21.9	21.9	22.2	22.3	22.1	22.0	21.8	21.7	21.4	21.2	20.8	20.8	20.8	20.8	22.3	21.6	0.4	24	
3	20.8	21.2	21.7	21.7	21.0	20.9	20.1	19.9	20.0	20.9	21.2	21.5	21.6	22.3	22.7	24.1	24.1	24.3	23.7	23.9	24.1	23.8	23.3	23.4	23.4	24.3	22.2	1.5	24	
4	23.5	23.5	23.7	24.0	23.4	22.8	22.6	22.4	22.9	23.8	24.1	25.1	25.2	24.7	24.9	24.5	24.1	23.6	23.4	23.5	23.5	23.2	22.7	22.4	22.4	25.2	23.6	0.8	24	
5	22.0	22.3	22.8	23.2	23.6	23.2	23.1	23.2	23.3	23.1	23.5	24.5	24.9	25.1	24.9	24.6	23.9	23.7	24.0	23.8	23.9	23.8	23.3	23.6	22.0	25.1	23.6	0.8	24	
6	23.0	22.4	22.3	22.6	22.5	22.1	21.5	20.6	21.0	22.5	24.1	25.3	25.6	25.5	24.9	24.3	23.7	23.1	22.8	22.4	22.3	21.8	21.4	21.0	20.6	25.6	22.9	1.4	24	
7	20.8	20.4	20.3	20.2	20.4	20.5	20.5	20.8	21.7	23.4	25.5	25.7	25.9	25.8	25.7	25.3	24.7	24.3	23.9	23.7	23.4	23.2	23.1	23.7	20.2	25.9	23.0	2.1	24	
8	23.4	23.1	22.9	22.9	22.9	23.1	23.1	23.2	23.5	23.6	23.9	24.2	24.5	24.7	24.8	24.7	24.2	23.7	23.3	22.6	22.4	22.1	21.9	21.8	21.8	24.8	23.4	0.9	24	
9	21.9	22.1	22.1	22.3	22.3	22.6	22.8	22.8	22.8	22.9	23.6	24.0	24.2	24.1	24.2	24.3	24.3	24.0	23.5	22.9	23.0	23.2	23.6	23.7	21.9	24.3	23.2	0.8	24	
10	23.5	24.1	24.0	25.1	25.7	26.0	25.0	24.7	24.2	23.8	24.5	25.6	26.4	26.4	26.0	25.4	24.9	24.4	24.1	23.6	23.3	23.2	23.6	23.6	23.2	26.4	24.6	1.0	24	
11	23.7	23.7	23.7	23.7	23.5	23.5	23.6	23.5	23.6	24.3	24.9	25.6	26.3	26.4	26.1	25.5	24.7	24.1	23.9	23.4	23.1	22.9	22.8	23.1	22.8	26.4	24.2	1.1	24	
12	22.9	22.9	22.8	22.6	22.5	22.5	22.4	22.3	22.6	23.4	24.2	25.8	27.2	27.6	27.1	26.3	25.3	24.5	24.1	23.8	23.3	23.3	23.0	22.8	22.3	27.6	24.0	1.7	24	
13	22.7	22.7	22.7	22.7	22.7	22.9	23.2	23.3	23.6	24.0	24.9	25.1	25.3	25.3	25.5	25.1	25.0	24.8	24.5	24.3	24.2	24.1	24.2	22.7	25.5	24.0	1.0	24		
14	24.1	24.3	24.2	24.3	24.2	24.1	24.2	24.1	24.1	24.5	25.1	25.6	25.7	25.6	25.5	25.4	25.3	25.1	24.8	24.7	24.4	24.3	24.1	24.0	24.0	25.7	24.7	0.6	24	
15	24.1	24.1	24.1	24.2	24.1	24.2	24.2	24.1	24.3	24.6	24.9	25.0	25.1	25.3	25.5	25.4	25.1	24.9	24.7	24.4	24.2	24.2	24.1	24.0	24.0	25.5	24.5	0.5	24	
16	23.8	23.6	23.7	23.7	23.4	23.3	23.4	23.6	23.6	23.5	23.4	23.3	23.1	23.2	23.4	24.1	24.4	24.2	23.7	23.8	24.7	25.3	25.2	23.1	25.3	23.8	0.6	24		
17	25.3	24.3	23.5	23.1	23.2	23.3	23.7	23.6	23.9	24.4	24.9	25.0	25.6	25.6	25.3	25.2	24.9	24.6	24.2	24.4	24.5	24.3	24.0	23.1	25.6	24.4	0.7	24		
18	24.1	23.9	23.5	23.2	23.0	23.0	22.7	22.7	23.2	24.5	25.3	25.7	25.9	25.9	26.0	25.8	24.9	24.0	23.8	23.3	23.0	22.7	22.3	22.3	22.3	26.0	23.9	1.3	24	
19	22.3	22.5	22.8	23.1	23.1	23.4	23.7	23.7	23.8	23.9	25.0	25.0	25.6	25.6	25.3	25.2	24.7	24.2	23.8	23.5	23.1	22.8	22.5	22.4	22.3	25.6	23.8	1.1	24	
20	22.4	22.6	22.6	22.4	22.4	22.3	22.4	22.7	23.0	24.3	25.0	25.5	26.2	26.6	26.2	25.5	24.8	24.2	23.8	23.9	23.9	24.0	24.4	22.3	26.6	24.0	1.4	24		
21	24.2	24.6	24.8	24.7	24.5	23.8	23.6	24.0	24.6	24.8	25.5	26.1	26.1	26.0	25.8	25.6	25.2	25.4	24.8	24.6	24.5	24.2	24.0	24.1	23.6	26.1	24.8	0.7	24	
22	24.3	24.0	24.1	24.2	24.0	23.8	23.8	23.8	24.1	24.1	24.5	24.5	24.6	24.5	24.6	24.5	24.3	24.0	23.7	23.5	23.5	22.9	22.6	22.5	22.5	24.6	23.9	0.6	24	
23	22.5	22.6	22.9	23.4	23.4	23.7	23.6	23.6	23.7	23.9	24.4	24.8	24.8	24.9	24.8	24.2	23.4	22.4	22.2	23.1	21.7	21.2	20.8	20.5	20.5	24.9	23.2	1.3	24	
24	20.4	19.9	19.4	18.7	18.0	17.3	16.3	PF	9.9	21.8	24.5	24.6	23.9	23.4	23.3	22.4	22.0	22.1	9.9	24.6	20.7	3.6	19							
25	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	22.0	24.3	23.2	0.7	9	
26	21.5	21.1	20.8	20.5	20.3	20.2	20.0	19.9	21.3	24.8	26.7	27.1	26.9	27.0	26.7	26.2	25.2	23.5	24.5	24.9	24.7	24.8	25.3	24.9	19.9	27.1	23.7	2.6	24	
27	24.9	25.1	25.0	24.9	25.4	25.3	24.5	25.0	25.4	25.7	26.0	26.2	26.9	27.1	26.6	25.5	25.1	25.2	25.4	25.0	25.1	24.9	25.0	24.7	24.5	27.1	25.4	0.7	24	
28	24.3	23.9	23.4	23.0	22.6	22.3	21.9	21.7	22.9	25.7	26.0	26.1	26.4	25.9	25.2	24.9	24.6	25.2	25.1	25.0	24.8	24.5	24.4	21.7	26.4	24.3	1.4	24		
HR MIN	20.4	19.9	19.4	18.7	18.0	17.3	16.3	19.9	20.0	20.9	21.2	21.5	9.9	21.8	22.3	22.1	22.0	21.8	21.7	21.4	21.2	20.8	20.8	20.5	9.9					
HR MAX	25.3	25.1	25.0	25.1	25.7	26.0	25.0	25.0	25.4	25.7	26.7	27.1	27.2	27.6	27.1	26.3	25.3	25.4	25.4	25.0	25.1	24.9	25.3	25.2	27.6					
HR AVG	23.0	23.0	22.9	22.9	22.9	22.8	22.6	22.8	23.2	23.8	24.5	24.9	24.7	25.1	25.1	24.8	24.4	24.1	23.9	23.7	23.5	23.3	23.2	23.1	23.7					
HR STD	1.3	1.3	1.3	1.5	1.6	1.7	1.8	1.4	1.2	1.1	1.2	1.2	3.3	1.5	1.2	0.9	0.7	0.8	0.8	0.8	1.0	1.1	1.2	1.3	1.6					
n	27	27	27	27	27	27	27	26	26	26	26	26	27	27	27	28	28	28	28	28	28	28	28	28	28	652				

Yellowstone National Park

Old Faithful

Station Temperature hourly averages (degC)

03/01/2003 - 03/31/2003

Date	HOUR (LOCAL STANDARD TIME)																							DAY MIN	DAY MAX	DAY AVG	DAY STD	n	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
1	23.6	23.5	24.4	23.8	24.3	24.6	25.0	24.2	23.8	24.2	24.4	25.0	25.6	25.4	25.4	25.2	24.2	23.8	23.3	23.3	23.4	23.4	23.4	23.3	25.6	24.2	0.7	24	
2	22.7	23.2	23.0	22.9	22.4	22.3	22.4	22.5	22.9	23.3	23.8	24.0	24.2	24.3	24.1	24.0	24.2	24.2	24.1	23.9	23.7	23.5	23.7	23.6	22.3	24.3	23.5	0.7	24
3	23.4	23.5	23.8	24.0	23.9	23.6	23.6	23.9	23.8	24.3	24.6	24.9	25.5	25.7	25.3	24.5	24.1	24.5	24.1	23.9	23.8	23.6	23.6	23.6	23.4	25.7	24.1	0.6	24
4	23.2	23.3	23.3	23.1	23.2	23.3	23.1	23.1	23.4	24.0	24.3	25.0	25.1	25.1	25.0	24.7	24.6	24.3	23.5	23.6	23.2	23.0	23.0	22.9	25.1	23.8	0.8	24	
5	22.8	22.2	22.5	22.2	22.5	22.8	23.2	23.2	23.6	23.5	23.8	23.9	24.5	24.5	24.8	25.1	24.8	25.0	25.2	25.4	25.5	25.4	25.1	25.2	22.2	25.5	24.0	1.1	24
6	25.6	25.4	25.9	26.3	26.0	25.2	25.0	25.0	25.2	25.6	25.6	25.7	25.5	25.2	25.3	25.0	24.5	24.1	24.4	24.1	24.2	25.0	25.6	25.5	24.1	26.3	25.2	0.6	24
7	26.2	26.2	26.3	26.3	26.5	26.3	25.7	25.9	26.2	25.8	26.1	25.8	25.9	25.5	25.7	25.5	25.3	25.4	25.7	25.5	25.4	25.0	25.4	24.9	24.9	26.5	25.8	0.4	24
8	25.1	24.8	24.9	24.8	24.7	24.7	24.7	24.6	24.7	25.0	25.0	25.4	25.8	25.3	25.2	25.5	25.5	25.2	24.9	24.9	24.9	24.5	24.3	24.1	24.1	25.8	24.9	0.4	24
9	24.2	24.5	24.8	24.9	24.7	24.7	24.8	24.6	24.5	24.8	25.0	25.2	25.4	25.5	25.5	25.7	25.3	25.1	24.8	24.9	25.0	24.8	24.8	24.2	25.7	24.9	0.4	24	
10	24.7	24.7	24.7	24.5	24.5	24.9	24.9	24.8	24.7	25.1	25.5	25.6	25.8	25.9	25.7	25.3	25.4	25.4	24.9	24.8	24.9	24.9	24.8	24.5	25.9	25.1	0.4	24	
11	24.8	24.6	24.3	24.5	24.4	24.2	24.2	23.9	24.2	24.4	24.6	25.4	26.1	25.8	25.7	25.6	25.5	25.6	25.5	25.5	25.3	25.0	24.7	24.8	23.9	26.1	24.9	0.6	24
12	25.3	25.1	24.9	24.7	25.0	25.3	24.8	24.8	24.6	25.1	25.6	25.9	26.3	26.2	26.1	25.8	25.5	25.3	25.0	24.8	24.4	24.5	24.4	24.4	24.4	26.3	25.2	0.6	24
13	24.6	24.2	24.4	24.0	24.2	23.9	24.0	24.0	24.6	25.6	26.4	26.5	27.5	27.6	27.2	26.5	26.0	25.1	25.2	24.9	24.5	24.6	24.3	24.5	23.9	27.6	25.2	1.2	24
14	24.4	24.3	24.5	24.2	24.4	24.4	24.7	24.5	25.0	25.5	25.8	25.3	25.4	25.1	24.9	25.1	25.0	25.0	24.5	24.5	24.1	24.0	24.1	24.0	25.8	24.7	0.5	24	
15	24.1	23.9	24.1	24.1	23.9	23.9	23.8	23.7	24.6	25.2	25.5	25.5	25.9	26.4	26.0	25.8	25.7	25.3	25.3	24.7	24.6	24.4	24.5	24.1	23.7	26.4	24.8	0.8	24
16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
23	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
26	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
27	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
28	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
HR MIN	22.7	22.2	22.5	22.2	22.4	22.3	22.4	22.5	22.9	23.3	23.8	23.9	24.2	24.3	24.1	24.0	24.1	23.8	23.3	23.3	23.2	23.0	22.9	22.2					
HR MAX	26.2	26.2	26.3	26.3	26.5	26.3	25.7	25.9	26.2	25.8	26.4	26.5	27.5	27.6	27.2	26.5	26.0	25.5	25.7	25.5	25.5	25.4	25.6	25.5	27.6				
HR AVG	24.3	24.2	24.4	24.3	24.3	24.3	24.2	24.4	24.8	25.1	25.3	25.6	25.6	25.5	25.3	25.0	24.9	24.7	24.6	24.5	24.4	24.4	24.3	24.7					
HR STD	1.0	1.0	1.0	1.1	1.1	1.0	0.9	0.9	0.8	0.8	0.8	0.7	0.8	0.8	0.7	0.6	0.6	0.5	0.7	0.7	0.7	0.7	0.7	0.8	0.9				
n	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	360				

Yellowstone National Park

Old Faithful

Scalar Wind Speed hourly averages (m/s)

12/01/2002 - 12/31/2002

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
17	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	0				
18	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	0				
19	0.7	0.8	0.7	0.7	1.2	1.1	0.7	1.0	0.8	2.0	1.7	3.3	2.4	2.2	2.6	2.5	1.5	1.0	1.3	0.8	0.6	0.9	0.6	0.7	0.6	3.3	1.3	0.8	24
20	0.7	0.8	0.8	0.7	0.7	0.7	0.9	0.7	0.8	0.5	0.5	0.6	0.8	2.0	1.6	1.9	1.2	0.9	0.9	0.8	1.0	1.0	0.7	1.1	0.5	2.0	0.9	0.4	24
21	1.3	1.0	1.3	0.8	1.1	1.1	1.1	1.0	0.7	0.8	0.8	1.1	2.8	3.1	3.1	2.8	1.2	1.1	1.1	1.2	0.8	1.2	1.2	1.3	0.7	3.1	1.4	0.7	24
22	0.9	0.9	1.2	1.1	1.2	1.0	1.0	0.9	0.8	0.8	1.0	1.9	1.8	1.9	1.7	1.2	1.0	0.9	0.9	0.9	0.8	1.2	1.3	0.8	0.8	1.9	1.1	0.4	24
23	1.0	0.8	1.0	0.8	1.0	1.0	1.2	1.0	0.7	0.6	0.9	0.8	0.9	1.1	0.9	1.1	0.8	0.9	0.8	0.8	1.0	0.8	0.8	0.7	0.6	1.2	0.9	0.1	24
24	0.8	0.7	0.8	0.7	0.7	0.7	0.6	0.7	0.8	0.9	0.7	0.8	2.0	2.8	1.9	1.6	1.2	1.2	1.1	1.1	0.9	0.8	0.8	0.7	0.6	2.8	1.0	0.5	24
25	0.7	0.8	0.7	0.7	0.7	0.6	0.7	0.7	0.6	0.7	0.7	0.7	1.3	2.1	2.0	1.4	1.1	1.1	0.8	1.5	0.9	1.2	0.9	0.6	2.1	1.0	0.4	24	
26	0.9	0.7	0.7	0.7	1.5	0.6	0.6	0.7	0.9	1.4	2.8	2.0	2.0	1.8	1.7	1.8	1.6	1.5	1.5	1.7	1.8	2.4	0.6	2.8	1.5	0.6	24		
27	2.7	1.7	2.5	2.0	1.7	1.8	2.2	2.4	3.7	4.2	3.9	4.6	2.9	4.3	5.4	4.3	4.3	6.1	4.3	4.0	2.1	3.0	4.6	3.9	1.7	6.1	3.4	1.2	24
28	3.1	3.0	3.9	3.3	3.1	2.7	3.4	3.4	3.3	2.3	2.0	2.5	2.9	3.0	1.9	1.4	1.5	1.3	0.5	1.5	1.5	2.2	2.8	2.7	0.5	3.9	2.5	0.9	24
29	3.4	3.2	2.3	2.7	3.1	3.5	4.1	2.5	2.9	2.9	3.5	3.8	4.1	5.3	3.2	3.5	2.3	3.3	4.1	4.4	3.4	2.2	3.2	2.5	2.2	5.3	3.3	0.7	24
30	1.8	1.4	1.2	1.5	2.3	2.1	2.9	2.6	1.8	1.8	1.9	2.5	2.0	3.4	2.2	2.5	2.5	2.1	2.2	2.1	2.5	2.6	2.9	1.2	3.4	2.2	0.5	24	
31	2.7	2.6	2.8	2.4	1.9	1.8	2.0	1.6	2.0	1.8	1.6	1.6	1.9	2.7	2.2	1.4	1.4	1.6	1.2	1.4	1.4	1.3	1.0	0.7	0.7	2.8	1.8	0.6	24
HR MIN	0.7	0.7	0.7	0.7	0.7	0.6	0.6	0.7	0.6	0.5	0.5	0.6	0.7	1.1	0.9	1.1	0.8	0.9	0.5	0.8	0.6	0.8	0.6	0.7	0.5				
HR MAX	3.4	3.2	3.9	3.3	3.1	3.5	4.1	3.4	3.7	4.2	3.9	4.6	4.1	5.3	5.4	4.3	4.3	6.1	4.3	4.4	3.4	3.0	4.6	3.9		6.1			
HR AVG	1.6	1.4	1.5	1.4	1.6	1.4	1.6	1.5	1.6	1.7	2.0	2.1	2.7	2.3	2.2	1.7	1.8	1.6	1.6	1.4	1.5	1.7	1.6			1.7			
HR STD	1.0	0.9	1.0	0.9	0.8	0.9	1.2	0.9	1.1	1.1	1.3	1.0	1.2	1.1	0.9	0.9	1.5	1.2	1.2	0.8	0.7	1.2	1.1			1.1			
n	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	312				

Yellowstone National Park

Old Faithful

Scalar Wind Speed hourly averages (m/s)

01/01/2003 - 01/31/2003

Date	HOUR (LOCAL STANDARD TIME)																							DAY MIN	DAY MAX	DAY AVG	DAY STD n	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
1	0.9	0.9	1.0	1.0	1.0	0.9	1.0	1.3	1.3	1.1	1.1	2.1	2.7	2.2	2.3	2.0	1.6	1.4	2.0	1.8	1.6	1.2	2.5	2.4	0.9	2.7	1.6	0.6 24
2	1.8	1.9	1.6	1.3	1.9	1.7	1.1	1.4	1.3	1.9	1.8	1.4	2.0	1.7	1.2	2.1	1.8	1.8	1.7	2.6	2.6	1.5	2.5	2.3	1.1	2.6	1.8	0.4 24
3	2.0	1.9	1.5	1.3	1.7	1.6	1.9	1.6	1.5	1.4	2.3	4.3	3.9	4.1	5.7	3.9	3.3	3.0	3.3	2.3	1.3	1.1	1.4	1.6	1.1	5.7	2.4	1.2 24
4	1.0	1.0	1.3	1.5	1.2	1.4	1.2	1.1	1.1	1.6	1.9	1.8	1.6	1.1	2.2	1.9	1.5	1.3	1.4	1.1	1.3	1.1	1.8	1.0	2.2	1.4	0.3 24	
5	1.7	1.2	2.0	1.3	1.2	0.8	1.1	0.9	0.6	0.8	1.6	1.9	1.5	1.5	1.3	1.4	1.0	0.6	1.0	1.2	0.7	1.0	1.2	0.9	0.6	2.0	1.2	0.4 24
6	0.8	0.8	0.9	0.9	0.8	0.7	0.6	0.6	0.5	0.6	0.5	0.9	1.0	1.1	0.9	1.1	0.8	0.7	0.8	0.7	0.8	0.6	0.6	0.6	0.5	1.1	0.8	0.2 24
7	0.6	0.5	0.5	0.4	0.4	0.5	0.5	0.4	0.4	0.4	0.6	0.9	0.8	0.7	0.8	0.9	1.8	1.5	0.8	1.0	0.8	0.8	0.7	0.8	0.4	1.8	0.7	0.3 24
8	0.6	0.6	0.6	0.6	0.6	0.7	0.5	0.6	0.6	0.7	0.7	0.8	0.7	1.3	0.8	0.6	0.8	0.8	0.9	0.8	0.8	0.7	0.8	0.5	1.3	0.7	0.2 24	
9	0.8	0.8	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.6	0.6	1.1	1.8	2.0	1.8	2.0	1.2	1.0	0.9	0.8	0.8	0.9	0.8	0.6	0.6	2.0	1.0	0.4 24
10	0.7	0.8	0.7	0.7	0.6	0.6	0.5	0.5	0.7	0.5	0.8	0.6	0.8	0.6	1.0	1.0	1.4	0.6	0.9	0.5	0.7	0.5	0.6	0.6	0.5	1.4	0.7	0.2 24
11	0.7	0.7	0.7	0.6	0.7	1.0	0.9	0.5	0.7	0.5	0.7	1.6	1.8	2.3	2.1	1.9	1.5	1.1	1.1	0.8	1.1	2.4	1.8	0.8	0.5	2.4	1.2	0.6 24
12	1.7	1.9	1.2	1.2	1.4	1.2	1.7	1.5	1.7	1.8	1.8	2.7	1.1	1.7	2.1	1.4	1.6	2.2	2.3	1.4	1.2	1.6	1.5	1.1	2.7	1.6	0.4 24	
13	2.4	3.0	3.9	4.2	4.5	1.9	1.9	2.4	2.0	1.7	3.1	4.4	2.8	3.1	3.7	2.4	2.3	1.2	1.2	1.0	1.1	0.6	0.7	0.8	0.6	4.5	2.3	1.2 24
14	0.8	0.8	0.6	0.9	1.2	1.6	1.5	1.8	2.0	1.6	1.3	2.8	2.7	1.6	1.4	1.4	1.6	1.7	1.9	1.0	1.3	1.1	1.3	1.3	0.6	2.8	1.5	0.5 24
15	1.5	1.5	2.4	2.7	1.2	2.2	1.2	0.9	1.5	1.7	1.7	2.3	2.7	3.0	3.1	2.2	1.0	0.9	1.1	1.2	1.2	1.5	1.2	1.2	0.9	3.1	1.7	0.7 24
16	1.0	0.8	0.6	0.9	0.7	0.6	0.7	0.6	0.7	0.6	0.5	1.0	0.6	0.9	1.7	1.3	0.7	0.9	0.9	0.6	0.6	1.1	0.8	1.4	0.5	1.7	0.8	0.3 24
17	0.9	0.8	0.6	0.6	0.6	0.8	0.7	0.7	0.7	0.5	0.8	0.6	0.8	0.9	0.6	0.7	0.8	1.0	0.8	0.6	0.6	0.6	0.6	0.6	0.5	1.0	0.7	0.1 24
18	0.8	0.7	0.7	0.6	0.5	0.5	0.6	0.5	0.6	0.5	0.7	0.9	2.6	2.0	1.7	1.3	1.0	0.8	0.9	0.8	0.8	0.8	0.6	0.6	0.5	2.6	0.9	0.5 24
19	0.5	0.6	0.7	0.7	0.8	1.1	1.2	1.2	1.0	1.4	1.6	1.3	1.5	1.5	2.0	2.5	2.7	2.3	1.1	1.7	1.0	1.2	1.3	1.5	0.5	2.7	1.4	0.6 24
20	1.2	2.0	1.3	1.1	1.1	1.2	1.6	2.0	1.8	4.4	4.1	4.2	3.9	3.9	3.4	1.5	1.8	3.1	3.4	3.9	3.9	2.9	1.8	1.2	1.1	4.4	2.5	1.2 24
21	1.5	1.0	1.2	0.8	0.7	1.2	1.7	0.8	1.0	1.5	2.1	4.5	4.4	3.9	3.3	3.4	3.7	3.7	3.5	3.4	2.9	5.2	5.4	4.3	0.7	5.4	2.7	1.5 24
22	4.0	4.3	3.8	3.6	2.9	1.5	2.5	2.1	1.7	1.5	2.0	2.4	2.7	2.9	2.9	3.7	3.2	1.9	2.4	1.6	1.5	1.7	2.3	2.3	1.5	4.3	2.6	0.9 24
23	1.5	1.6	1.1	2.4	2.5	1.6	1.6	1.4	1.9	3.9	5.0	3.3	3.4	3.4	3.3	2.3	1.7	1.0	0.9	0.7	1.2	1.6	1.2	1.3	0.7	5.0	2.1	1.1 24
24	1.4	1.2	0.8	0.8	0.9	0.7	0.8	1.1	0.9	0.7	0.9	1.8	3.0	2.1	2.5	1.8	1.5	1.8	1.0	1.4	1.2	1.7	1.5	1.3	0.7	3.0	1.4	0.6 24
25	1.2	1.0	0.8	1.5	2.3	1.0	0.9	1.1	0.9	1.5	1.1	1.6	2.9	1.6	2.0	1.6	1.1	1.4	2.2	2.6	2.0	2.9	3.4	4.0	0.8	4.0	1.8	0.9 24
26	4.0	2.1	1.5	1.4	1.4	4.0	3.1	1.9	1.3	1.9	3.0	5.2	2.9	2.1	3.6	4.0	2.5	2.0	2.2	2.1	1.9	4.6	1.8	2.6	1.3	5.2	2.6	1.1 24
27	2.6	3.0	2.6	3.1	3.0	4.7	5.0	4.7	2.5	1.1	1.5	1.9	2.9	3.5	3.1	2.0	2.3	4.2	3.3	1.6	1.3	1.0	1.3	0.9	0.9	5.0	2.6	1.2 24
28	0.8	0.9	0.9	1.1	1.3	1.4	1.4	1.7	1.4	1.0	1.0	0.8	1.6	2.3	2.1	0.8	1.5	1.2	0.8	0.8	1.2	1.7	1.0	0.9	0.8	2.3	1.2	0.4 24
29	0.6	1.5	1.2	1.1	1.4	1.8	1.6	1.5	1.1	1.6	1.3	1.6	1.7	2.0	1.6	2.5	2.6	3.8	4.2	4.0	1.7	1.7	2.1	1.8	0.6	4.2	1.9	0.9 24
30	4.2	4.8	3.3	2.2	1.8	2.3	2.7	1.9	3.0	2.9	4.2	2.5	2.5	2.9	2.2	2.7	2.4	3.1	1.9	1.3	1.4	1.1	1.1	1.7	1.1	4.8	2.5	1.0 24
31	1.4	2.0	4.2	4.9	3.3	3.8	3.2	3.9	5.2	5.9	5.8	5.8	5.4	3.3	2.8	3.7	3.5	3.6	2.7	2.9	4.9	5.2	4.2	4.3	1.4	5.9	4.0	1.2 24
HR MIN	0.5	0.5	0.5	0.4	0.4	0.5	0.4	0.4	0.4	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.6	0.8	0.5	0.6	0.6	0.6	0.4				
HR MAX	4.2	4.8	4.2	4.9	4.5	4.7	5.0	4.7	5.2	5.9	5.8	5.8	5.4	4.1	5.7	4.0	3.7	4.2	4.2	4.0	4.9	5.2	5.4	4.3	5.9			
HR AVG	1.5	1.5	1.4	1.5	1.4	1.5	1.5	1.4	1.4	1.5	1.8	2.2	2.3	2.2	2.2	2.0	1.8	1.8	1.7	1.6	1.5	1.7	1.6	1.6		1.7		
HR STD	1.0	1.0	1.1	1.1	1.0	1.0	1.0	0.9	1.2	1.4	1.4	1.2	1.0	1.1	0.9	0.8	1.1	1.0	1.0	1.0	1.3	1.1	1.0	1.0		1.1		
n	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	744

Yellowstone National Park

Old Faithful

Scalar Wind Speed hourly averages (m/s)

02/01/2003 - 02/28/2003

Date	HOUR (LOCAL STANDARD TIME)																							DAY MIN	DAY MAX	DAY AVG	DAY STD n		
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
1	5.2	5.0	4.5	4.9	3.6	3.4	3.0	3.4	2.2	3.2	3.4	3.7	4.1	4.4	3.1	2.7	4.4	3.7	2.6	1.3	1.6	2.0	1.4	1.8	1.3	5.2	3.3	1.2 24	
2	1.9	1.9	1.8	1.7	1.4	1.6	2.2	1.8	1.6	1.5	1.5	1.8	2.1	1.6	1.7	1.8	1.5	1.2	0.9	0.8	1.0	0.8	0.8	1.0	0.8	2.2	1.5	0.4 24	
3	1.0	1.1	1.1	1.0	0.9	0.9	0.8	0.8	0.7	0.6	0.8	1.7	1.8	3.0	2.7	2.2	1.5	1.0	0.8	0.6	0.5	0.9	0.9	1.0	0.5	3.0	1.2	0.7 24	
4	1.3	0.6	0.7	0.8	0.8	0.7	0.9	0.8	0.7	0.7	1.0	1.3	2.0	2.4	2.4	1.5	2.2	1.1	0.6	1.2	0.9	1.1	1.0	1.0	0.6	2.4	1.2	0.6 24	
5	0.9	0.8	0.9	1.2	0.9	1.1	1.4	1.0	1.1	1.1	1.3	1.5	2.0	2.5	2.4	2.1	2.7	2.9	1.9	0.9	0.9	0.5	1.0	1.4	0.5	2.9	1.4	0.7 24	
6	1.0	0.9	0.7	0.9	1.2	1.2	0.8	0.8	0.8	0.7	1.1	2.0	2.3	1.8	1.8	1.8	1.3	0.7	0.8	1.2	1.4	1.2	1.1	0.9	0.7	2.3	1.2	0.5 24	
7	1.0	0.9	0.8	0.7	0.9	0.9	1.0	0.8	0.7	1.0	1.3	1.0	1.1	1.9	2.0	1.2	1.0	1.0	0.7	0.7	0.9	0.6	0.7	0.8	0.6	2.0	1.0	0.3 24	
8	0.7	0.6	0.7	0.7	0.9	0.9	0.6	0.8	0.6	0.5	0.5	0.6	1.6	1.2	1.5	1.4	1.9	1.4	1.1	1.4	1.2	1.5	1.3	1.6	0.5	1.9	1.1	0.4 24	
9	1.3	1.5	1.4	1.6	0.9	1.6	1.3	0.9	1.1	1.2	1.6	2.1	2.8	3.0	2.2	3.0	2.7	1.8	1.8	2.3	2.0	3.3	3.4	2.6	0.9	3.4	2.0	0.8 24	
10	3.5	3.0	3.5	6.2	6.6	5.6	3.1	3.3	1.7	2.5	2.9	3.5	4.0	4.9	4.1	2.9	1.9	1.6	1.3	1.2	1.1	1.1	1.9	2.6	1.1	6.6	3.1	1.6 24	
11	2.5	2.8	2.3	2.4	1.6	1.2	1.3	0.9	1.2	1.1	2.7	2.8	2.9	2.7	2.2	3.1	3.0	1.2	1.4	2.0	2.3	2.1	1.4	0.7	0.7	3.1	2.0	0.7 24	
12	0.7	0.5	0.7	0.7	0.7	0.6	0.9	0.6	0.6	0.8	0.6	0.7	0.9	2.1	2.1	2.7	2.0	1.2	1.2	0.9	0.8	0.7	1.0	0.8	0.5	2.7	1.0	0.6 24	
13	0.8	0.8	0.6	0.5	0.5	0.6	0.6	0.6	1.0	1.0	0.8	1.0	1.0	2.2	3.0	2.1	1.3	0.9	1.0	1.1	1.1	1.0	1.3	0.5	3.0	1.1	0.6 24		
14	1.1	1.2	1.3	1.1	1.0	0.8	0.9	1.1	0.8	1.0	1.4	3.0	2.6	2.3	2.6	2.1	2.1	1.8	1.5	1.0	0.9	0.6	0.8	0.8	0.6	3.0	1.4	0.7 24	
15	0.8	0.6	0.8	0.7	0.6	0.8	0.8	0.8	0.9	1.5	1.9	2.4	3.0	1.9	2.1	2.2	2.1	2.0	1.1	1.3	1.3	1.3	1.2	1.2	0.6	3.0	1.4	0.7 24	
16	2.0	1.6	0.8	0.9	0.8	1.0	1.0	1.2	2.0	3.4	3.5	3.3	3.8	4.2	3.6	4.2	5.6	6.3	5.8	2.4	3.4	4.1	3.7	3.5	0.8	6.3	3.0	1.6 24	
17	2.8	1.7	1.6	1.7	2.2	2.8	2.8	2.8	4.3	4.7	5.2	5.3	5.7	4.6	4.8	3.5	3.1	2.3	1.8	2.5	2.1	2.1	1.8	1.6	1.6	5.7	3.1	1.3 24	
18	2.4	1.7	0.8	1.0	0.9	0.8	0.9	0.8	1.1	1.5	2.5	3.1	3.7	3.2	3.3	3.1	1.7	0.9	1.1	1.1	1.2	1.7	1.6	1.3	0.8	3.7	1.7	0.9 24	
19	1.5	1.1	1.0	0.9	0.8	1.3	1.3	1.3	1.6	2.0	2.9	2.7	3.2	3.0	2.6	3.0	2.1	1.2	1.0	1.0	1.2	1.4	1.3	1.4	0.8	3.2	1.7	0.8 24	
20	1.1	1.1	0.7	1.5	0.8	1.1	1.0	0.8	1.1	1.7	2.1	3.0	2.8	3.7	4.6	4.2	2.3	1.1	1.1	1.6	1.8	3.1	3.9	2.1	0.7	4.6	2.0	1.2 24	
21	2.6	4.1	3.5	3.4	2.4	2.0	1.9	3.1	3.5	3.2	5.0	4.5	3.7	3.2	3.9	2.8	2.6	3.2	1.7	2.2	1.8	1.1	2.0	2.2	1.1	5.0	2.9	1.0 24	
22	3.0	2.0	3.4	2.5	1.5	1.0	1.2	1.2	1.3	1.9	2.4	3.5	4.4	3.5	2.9	2.5	2.4	1.3	0.8	0.7	0.9	1.3	1.1	0.9	0.7	4.4	2.0	1.0 24	
23	0.9	0.8	1.3	1.4	1.5	1.6	1.3	1.5	1.2	1.2	1.4	2.1	1.8	1.9	1.9	1.8	1.6	1.4	0.7	0.9	0.8	1.2	1.2	0.7	0.7	2.1	1.3	0.4 24	
24	1.1	1.0	1.1	1.0	0.9	0.9	0.8	PF	PF	PF	PF	IM	0.8	1.1	1.0	0.1 7													
25	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	1.2	1.1	0.8	1.1	0.9	0.9	0.9	1.0	1.0	0.8	1.2	1.0	0.1 9
26	1.0	0.9	0.8	0.9	0.8	0.7	0.7	0.9	0.9	1.0	1.3	1.3	1.4	1.0	1.2	1.2	1.0	0.9	1.0	1.2	1.1	0.7	0.9	0.6	0.6	1.4	1.0	0.2 24	
27	0.6	0.6	0.6	0.6	0.7	0.8	0.6	0.5	0.5	0.9	1.1	0.7	1.0	1.2	1.7	1.6	1.7	1.3	0.8	0.9	1.3	1.1	1.0	0.9	0.5	1.7	0.9	0.4 24	
28	0.9	0.9	0.8	0.9	0.9	0.8	0.7	0.6	0.5	0.8	2.3	3.6	3.8	3.6	3.1	3.4	3.8	3.2	2.6	1.3	0.9	1.1	0.9	0.9	0.5	3.8	1.8	1.2 24	
HR MIN	0.6	0.5	0.6	0.5	0.5	0.6	0.5	0.5	0.5	0.5	0.6	0.9	1.0	1.2	1.2	1.0	0.7	0.6	0.6	0.5	0.5	0.7	0.6	0.5	0.5	0.5	0.5	0.5	
HR MAX	5.2	5.0	4.5	6.2	6.6	5.6	3.1	3.4	4.3	4.7	5.2	5.3	5.7	4.9	4.8	4.2	5.6	6.3	5.8	2.5	3.4	4.1	3.9	3.5	6.6				
HR AVG	1.6	1.5	1.4	1.5	1.4	1.4	1.3	1.3	1.6	2.0	2.4	2.7	2.7	2.6	2.5	2.3	1.8	1.4	1.3	1.3	1.4	1.5	1.4		1.7				
HR STD n	1.1	1.1	1.1	1.3	1.2	1.1	0.7	0.9	0.9	1.0	1.2	1.2	1.1	0.9	0.9	1.0	1.2	1.0	0.5	0.6	0.9	0.9	0.7		1.1				
n	27	27	27	27	27	27	27	26	26	26	26	26	26	26	26	27	27	27	27	27	27	27	27	27	27	27	27	640	

Yellowstone National Park

Old Faithful

Scalar Wind Speed hourly averages (m/s)

03/01/2003 - 03/31/2003

Date	HOUR (LOCAL STANDARD TIME)																							DAY MIN	DAY MAX	DAY AVG	DAY STD n	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
1	0.7	0.9	0.4	0.7	0.6	0.7	0.7	1.0	0.8	1.9	2.0	2.4	2.4	2.1	1.9	2.6	1.9	1.6	0.9	1.1	1.1	1.1	1.0	1.1	0.4	2.6	1.3	0.7 24
2	1.0	1.4	1.5	1.6	1.9	1.8	2.0	1.5	1.7	2.5	2.8	2.8	1.7	2.9	2.1	3.6	3.5	4.0	3.4	1.8	2.0	1.5	1.9	1.4	1.0	4.0	2.2	0.8 24
3	1.4	2.6	2.9	1.2	0.6	0.9	1.4	1.1	2.5	3.5	2.9	3.9	4.1	4.2	3.6	2.7	1.1	1.9	1.5	0.9	0.9	0.8	0.6	0.8	0.6	4.2	2.0	1.2 24
4	1.3	0.6	0.8	0.9	0.9	1.1	0.9	0.8	0.7	1.6	2.9	2.9	2.2	2.7	3.2	3.2	3.2	2.5	0.8	0.9	0.9	0.8	0.7	1.1	0.6	3.2	1.6	1.0 24
5	1.3	1.6	1.5	1.3	1.4	2.2	1.6	1.8	1.8	2.9	3.0	3.7	3.8	4.4	4.6	4.6	3.8	4.8	4.4	5.2	6.1	5.4	5.1	6.3	1.3	6.3	3.4	1.7 24
6	6.4	6.6	5.9	4.9	4.3	3.8	4.0	4.7	4.7	5.9	5.8	5.5	4.1	4.3	4.3	3.4	2.3	1.2	3.0	1.9	3.7	5.7	5.1	5.4	1.2	6.6	4.5	1.4 24
7	5.8	5.6	5.4	5.5	6.1	5.1	6.4	7.4	7.4	7.3	6.7	6.3	6.7	6.8	5.6	5.1	6.2	6.0	7.3	6.8	6.2	4.7	6.1	5.5	4.7	7.4	6.2	0.8 24
8	4.7	4.3	4.5	3.3	3.4	4.6	4.7	4.4	3.8	4.2	5.2	5.7	4.3	3.4	4.0	5.0	4.4	3.1	3.3	4.3	3.3	2.6	1.4	3.0	1.4	5.7	4.0	0.9 24
9	3.8	4.0	5.1	5.5	5.3	4.5	3.2	2.5	3.6	4.2	4.5	5.1	5.4	6.3	6.0	6.4	4.2	3.6	3.8	5.6	4.5	3.8	4.0	3.4	2.5	6.4	4.5	1.0 24
10	4.1	3.6	2.2	2.7	2.9	3.4	4.7	3.3	1.3	4.0	4.1	2.9	3.7	3.7	3.2	3.3	3.6	2.4	1.6	3.8	4.7	4.3	3.9	2.7	1.3	4.7	3.3	0.9 24
11	3.8	1.9	1.8	2.0	2.7	2.1	2.5	2.1	2.5	3.6	4.5	5.3	4.5	4.2	5.2	5.8	5.8	6.4	6.1	5.7	5.4	4.5	2.0	4.6	1.8	6.4	4.0	1.6 24
12	5.0	5.1	2.7	2.4	4.6	3.9	2.5	2.9	3.4	3.2	3.9	4.5	4.9	3.8	3.3	3.2	3.3	2.3	2.1	1.8	2.2	2.0	2.1	1.8	1.8	5.1	3.2	1.1 24
13	2.0	2.5	2.1	1.7	1.8	2.2	2.7	2.2	2.3	3.0	4.1	2.8	3.6	4.1	3.9	3.7	3.7	3.0	2.7	2.4	2.1	2.3	1.2	0.5	0.5	4.1	2.6	0.9 24
14	0.5	0.5	1.5	3.2	1.9	1.5	1.1	1.7	2.0	3.4	3.6	2.0	1.3	1.3	1.6	2.3	2.1	2.3	2.0	1.9	1.5	1.7	1.4	1.2	0.5	3.6	1.8	0.8 24
15	1.2	1.3	0.7	0.8	1.0	0.5	0.6	0.9	3.6	3.9	3.9	3.4	3.2	4.0	4.3	3.7	2.6	2.0	2.1	1.3	1.1	0.9	0.9	0.5	0.5	4.3	2.0	1.3 24
16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
23	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
26	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
27	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
28	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
HR MIN	0.5	0.5	0.4	0.7	0.6	0.7	0.5	0.6	0.7	1.6	2.0	2.0	1.3	1.3	1.6	2.3	1.1	1.2	0.8	0.9	0.9	0.8	0.6	0.5	0.4			
HR MAX	6.4	6.6	5.9	5.5	6.1	5.1	6.4	7.4	7.4	7.3	6.7	6.3	6.7	6.8	6.0	6.4	6.2	6.4	7.3	6.8	6.2	5.7	6.1	6.3		7.4		
HR AVG	2.9	2.8	2.6	2.5	2.6	2.6	2.5	2.6	3.7	4.0	4.0	3.7	3.8	3.8	3.9	3.5	3.2	3.0	3.1	3.1	2.8	2.5	2.6		3.1			
HR STD	2.0	1.9	1.8	1.7	1.8	1.5	1.7	1.8	1.8	1.4	1.2	1.4	1.4	1.4	1.3	1.2	1.4	1.5	1.8	2.0	1.9	1.7	1.8	2.0		1.7		
n	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	360		

Yellowstone National Park

Old Faithful

Vector Wind Direction hourly averages (deg)

12/01/2002 - 12/31/2002

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
17	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	0				
18	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	0				
19	59	91	134	70	124	129	56	98	82	232	229	237	231	243	234	226	209	80	104	123	122	126	108	131	56	243	145	65 24	
20	115	137	147	133	121	136	128	115	142	151	189	240	213	175	213	216	217	189	104	115	105	106	99	121	99	240	151	44 24	
21	103	102	124	120	126	113	133	116	134	126	154	249	245	242	239	248	257	206	116	8	248	191	122	118	8	257	160	67 24	
22	109	88	103	102	127	94	197	103	72	131	137	221	266	240	258	235	232	269	136	129	121	112	122	115	72	269	155	64 24	
23	129	122	124	118	116	113	115	138	132	230	223	228	234	236	242	234	142	126	119	122	123	124	124	122	113	242	156	51 24	
24	120	119	126	120	113	117	115	117	124	211	244	226	255	212	249	231	141	110	111	124	126	114	118	114	110	255	152	54 24	
25	109	125	118	117	115	105	115	117	145	228	237	196	284	239	228	215	159	101	104	97	109	96	100	91	91	284	148	59 24	
26	97	154	151	150	115	204	134	120	241	123	116	137	222	175	161	138	142	105	107	98	111	99	149	118	97	241	140	38 24	
27	107	112	214	186	117	104	209	232	236	234	225	223	217	231	232	222	220	231	227	223	213	213	219	104	236	203	44 24		
28	212	214	220	210	212	201	202	210	209	196	190	186	197	191	134	105	122	121	93	124	119	142	204	217	93	220	176	42 24	
29	212	199	171	195	203	215	226	215	218	224	236	230	243	243	220	233	245	246	242	236	231	229	198	171	246	223	19 24		
30	166	180	99	191	196	168	111	116	108	122	129	207	169	219	198	202	191	117	152	165	156	150	130	118	99	219	157	36 24	
31	119	122	121	129	134	96	100	105	100	106	172	157	213	231	227	282	242	202	101	81	259	99	63	110	63	282	149	63 24	
HR MIN	59	88	99	70	113	94	56	98	72	106	116	137	169	175	134	105	122	80	93	8	105	96	63	91	8				
HR MAX	212	214	220	210	212	215	226	232	241	234	244	249	284	243	258	282	257	269	246	242	259	231	229	219		284			
HR AVG	127	136	142	142	140	138	142	139	149	178	191	211	230	221	218	214	194	162	132	127	158	139	137	138		163			
HR STD	44	40	38	42	37	44	51	47	58	51	45	33	30	25	35	46	47	64	49	59	59	45	49	43		56			
n	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13		312			

Yellowstone National Park

Old Faithful

Vector Wind Direction hourly averages (deg)

01/01/2003 - 01/31/2003

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
1	130	119	74	111	98	99	99	105	114	125	118	128	228	225	211	230	188	111	190	145	154	126	106	118	74	230	140	46	24	
2	120	116	64	81	120	129	147	190	115	113	126	168	190	145	96	111	112	114	102	113	104	113	107	89	64	190	120	30	24	
3	104	201	172	86	151	133	137	90	97	103	224	225	234	231	236	240	230	233	246	244	241	211	126	264	86	264	186	61	24	
4	128	115	120	118	122	119	95	89	93	119	101	106	112	154	150	110	143	175	146	116	107	219	151	108	89	219	126	29	24	
5	220	100	214	124	308	325	309	311	213	267	312	317	20	332	348	320	323	284	117	117	121	118	133	129	20	348	224	100	24	
6	127	130	126	135	133	137	136	166	156	217	229	250	255	267	269	264	226	133	125	121	120	134	114	112	112	269	170	58	24	
7	111	119	115	111	121	145	251	127	208	246	245	252	262	257	254	177	128	120	119	121	117	125	119	121	111	262	165	61	24	
8	114	110	111	120	111	117	113	108	123	242	257	229	237	263	228	235	138	123	116	123	119	120	123	117	108	263	154	58	24	
9	116	124	123	114	115	121	122	124	125	189	228	261	283	292	300	298	256	130	123	120	122	136	121	126	114	300	170	71	24	
10	118	116	120	129	92	112	140	133	135	163	254	232	278	258	285	153	124	106	243	146	96	226	191	160	92	285	167	62	24	
11	126	132	142	133	123	133	146	131	123	293	187	236	225	232	230	160	140	184	115	110	123	230	224	96	96	293	166	53	24	
12	229	229	134	136	89	171	123	132	181	149	185	206	180	160	211	209	166	151	204	220	210	102	126	101	89	229	167	43	24	
13	225	226	233	239	243	252	238	237	250	267	254	244	251	248	243	238	231	191	142	129	106	98	90	93	90	267	207	60	24	
14	88	105	118	100	102	100	101	107	108	97	143	225	218	210	132	179	199	165	187	132	186	205	100	90	88	225	142	47	24	
15	257	298	303	297	301	306	324	327	318	303	307	311	302	287	296	275	296	96	97	123	113	107	100	100	96	327	244	92	24	
16	117	114	157	118	110	156	175	132	124	124	187	241	218	193	233	239	94	79	101	103	112	91	112	111	79	241	143	50	24	
17	122	116	121	117	112	108	123	106	94	164	223	228	247	242	244	238	226	121	116	108	108	101	117	110	94	247	151	57	24	
18	129	127	195	108	228	173	180	121	132	147	231	218	267	231	199	222	113	83	130	98	113	124	113	119	83	267	158	53	24	
19	105	115	144	139	243	111	132	121	92	96	138	142	55	182	174	214	201	195	97	132	82	100	114	200	55	243	139	47	24	
20	110	93	100	103	100	94	126	94	217	243	247	239	235	231	233	233	215	221	229	235	235	245	257	318	93	318	194	69	24	
21	118	127	99	107	211	210	230	102	107	153	221	236	231	233	236	229	237	234	225	220	221	226	233	246	99	246	196	53	24	
22	245	242	249	251	252	201	125	207	210	208	239	238	244	235	226	230	230	213	224	186	109	100	114	118	100	252	204	51	24	
23	100	98	98	236	238	230	96	93	224	232	241	244	233	248	245	244	298	325	240	115	119	117	110	99	93	325	188	76	24	
24	88	114	105	116	127	125	116	124	185	180	109	212	230	214	233	209	180	200	216	153	32	238	186	171	32	238	161	54	24	
25	203	99	82	226	231	97	112	100	84	107	121	182	243	215	221	210	191	232	237	241	221	237	238	232	82	243	182	61	24	
26	243	225	215	167	170	229	230	154	146	215	217	241	238	230	232	246	235	106	211	116	202	224	194	215	106	246	204	40	24	
27	214	222	215	213	221	224	224	226	216	180	197	219	218	216	220	207	214	219	237	294	130	308	304	286	130	308	226	39	24	
28	106	131	123	101	99	104	104	111	108	133	115	88	264	251	230	196	215	219	230	89	216	240	247	185	88	264	163	63	24	
29	121	213	205	142	152	144	139	102	90	168	137	146	193	124	127	172	218	231	235	231	173	102	131	100	90	235	158	45	24	
30	225	233	236	233	235	251	240	248	262	261	243	259	271	294	283	270	266	261	271	96	92	87	119	226	87	294	228	62	24	
31	206	252	245	238	242	240	232	231	235	228	230	231	236	240	224	231	226	226	217	211	229	224	223	206	252	230	10	24		
HR MIN	88	93	64	81	89	94	95	89	84	96	101	88	20	124	96	110	94	79	97	89	32	87	90	89	20					
HR MAX	257	298	303	297	308	325	324	327	318	303	312	317	302	332	348	320	323	325	271	294	241	308	304	318		348				
HR AVG	150	154	153	150	168	164	163	150	158	185	202	218	223	230	227	219	202	177	177	152	143	162	153	154		176				
HR STD	55	59	61	59	68	65	64	65	62	62	59	52	61	45	52	47	58	63	58	56	54	64	58	66		65				
n	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	744	

Yellowstone National Park

Old Faithful

Vector Wind Direction hourly averages (deg)

02/01/2003 - 02/28/2003

Date	HOUR (LOCAL STANDARD TIME)																							DAY MIN	DAY MAX	DAY AVG	DAY STD	n		
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
1	223	219	221	219	214	219	218	223	217	216	214	217	223	222	213	191	219	227	218	286	310	309	327	320	191	327	237	40	24	
2	316	315	316	320	336	327	323	331	341	349	355	349	332	354	354	343	343	345	312	119	114	113	123	130	113	355	290	90	24	
3	137	126	143	132	124	142	144	143	156	219	225	223	187	229	237	223	233	274	118	107	79	116	88	116	79	274	163	55	24	
4	111	123	117	114	117	130	124	119	128	147	229	316	307	309	305	350	312	22	87	120	116	119	128	131	22	350	170	93	24	
5	136	137	125	113	129	101	119	112	85	86	195	284	296	288	288	315	308	313	320	354	323	35	294	296	35	354	211	103	24	
6	122	107	115	128	128	123	123	126	129	204	267	276	291	336	325	331	341	18	120	108	126	133	134	143	18	341	177	93	24	
7	141	138	127	120	178	136	127	146	169	233	275	245	254	276	287	311	320	330	343	142	130	108	143	118	108	343	200	80	24	
8	114	120	127	136	269	238	141	215	104	181	248	221	290	284	294	292	286	270	140	111	133	119	117	107	104	294	190	74	24	
9	78	106	118	92	83	298	309	72	92	124	221	236	224	213	227	242	235	238	108	115	193	229	229	205	72	309	179	74	24	
10	237	254	241	242	241	244	251	245	178	225	232	252	243	237	236	245	252	227	167	97	102	157	227	215	97	254	219	45	24	
11	226	220	220	208	165	122	181	183	118	190	217	222	222	223	226	229	236	249	81	89	110	114	111	120	81	249	178	55	24	
12	130	203	125	126	113	129	129	132	145	223	257	241	264	230	221	227	206	172	137	120	131	124	137	141	113	264	169	51	24	
13	119	142	132	123	107	237	181	209	223	271	281	288	280	284	158	153	139	139	101	122	84	101	100	121	84	288	171	69	24	
14	150	180	153	100	91	102	94	88	81	89	225	231	227	232	240	212	240	239	230	243	100	99	104	183	81	243	164	65	24	
15	196	85	99	110	126	103	100	131	213	233	219	225	228	230	231	225	217	231	150	136	119	125	126	150	85	233	167	55	24	
16	116	137	188	134	133	117	106	107	139	135	131	129	119	113	113	214	223	215	209	133	253	281	260	259	106	281	165	58	24	
17	258	211	116	174	211	223	235	221	233	234	231	232	237	237	238	254	255	253	276	259	255	254	248	257	116	276	233	33	24	
18	238	240	102	107	125	93	118	117	113	203	237	230	237	226	244	245	245	182	130	119	109	108	114	107	93	245	166	62	24	
19	107	117	121	122	94	215	190	215	188	206	239	225	222	220	225	223	221	166	137	115	112	117	123	118	94	239	168	51	24	
20	148	119	129	127	127	120	127	148	126	165	244	240	257	231	232	231	215	125	112	244	211	251	239	228	112	257	183	55	24	
21	241	240	241	243	204	126	238	244	249	250	249	250	256	263	257	254	256	258	280	271	273	100	233	246	100	280	238	42	24	
22	234	224	229	227	212	83	235	260	283	305	298	312	311	314	312	314	304	311	160	117	108	105	98	97	83	314	227	85	24	
23	82	83	246	304	304	306	305	301	298	291	304	321	326	313	317	319	341	46	10	133	112	108	112	114	10	341	225	111	24	
24	119	133	132	128	133	127	127	PF	PF	PF	PF	PF	IM	119	133	128	5	7												
25	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	274	282	258	125	115	125	121	124	126	115	282	172	75	9
26	136	132	132	126	125	117	121	125	237	255	246	252	237	244	336	331	332	312	100	113	127	122	117	147	100	336	188	83	24	
27	125	128	132	118	123	125	109	121	209	261	254	154	233	319	307	296	285	298	261	108	112	122	129	132	108	319	186	78	24	
28	130	127	138	134	134	137	127	126	217	216	215	224	219	229	226	223	231	241	238	190	113	115	90	110	90	241	173	52	24	
HR MIN	78	83	99	92	83	83	94	72	81	86	131	129	119	113	113	153	139	18	10	89	79	35	88	97	10					
HR MAX	316	315	316	320	336	327	323	331	341	349	355	349	332	354	354	350	343	345	343	354	323	309	327	320		355				
HR AVG	162	162	159	157	161	164	170	172	180	212	243	246	251	256	256	262	262	221	173	155	151	141	158	164		193				
HR STD	62	59	57	63	66	71	69	68	69	62	41	48	46	51	55	52	51	88	85	71	70	64	69	64		75				
n	27	27	27	27	27	27	27	26	26	26	26	26	26	26	26	27	27	27	27	27	27	27	27	27	27	640				

Yellowstone National Park

Old Faithful

Vector Wind Direction hourly averages (deg)

03/01/2003 - 03/31/2003

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
1	131	107	167	162	121	117	104	107	260	303	309	304	311	313	315	301	306	302	141	128	124	126	132	135	104	315	201	89	24	
2	125	133	128	116	106	101	103	98	158	226	238	236	206	228	175	225	226	229	223	158	104	157	220	117	98	238	168	54	24	
3	109	229	243	259	117	107	255	263	247	242	240	236	241	247	269	306	314	295	276	101	103	123	128	104	101	314	211	75	24	
4	131	132	100	113	127	127	125	126	113	249	239	259	282	283	277	263	290	297	116	97	125	107	106	111	97	297	175	78	24	
5	105	117	108	114	101	239	225	219	209	218	221	237	235	236	246	243	239	240	253	244	241	238	234	234	101	253	208	53	24	
6	237	235	236	244	248	246	234	242	241	243	232	238	272	288	284	293	306	268	243	242	240	239	246	247	232	306	252	21	24	
7	245	245	245	240	241	236	234	233	233	234	234	236	234	235	239	237	233	238	236	230	232	226	237	238	226	245	236	5	24	
8	237	230	232	245	241	235	230	227	235	238	230	235	239	239	243	240	241	253	233	235	237	224	189	221	189	253	234	12	24	
9	225	230	233	227	227	228	237	235	223	226	221	223	222	230	230	228	223	221	220	231	232	225	231	234	220	237	228	5	24	
10	228	230	230	228	243	239	231	238	254	236	233	236	241	240	222	236	240	238	204	230	225	233	228	234	204	254	233	9	24	
11	223	216	206	220	209	164	163	145	209	225	234	233	231	232	235	230	231	231	232	228	222	223	186	238	145	238	215	25	24	
12	233	225	240	255	250	242	226	197	232	224	234	230	225	232	231	224	223	195	194	145	123	129	115	156	115	255	208	42	24	
13	115	112	111	104	100	112	130	116	115	208	224	203	236	219	204	210	212	152	114	116	115	121	144	11	11	236	146	55	24	
14	2	74	139	118	125	136	102	199	209	230	241	242	239	224	121	199	204	193	111	107	80	103	104	100	2	242	150	65	24	
15	120	122	133	124	121	122	153	192	262	128	142	133	140	164	220	223	233	234	165	124	108	101	111	117	101	262	154	47	24	
16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0		
17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0		
18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0		
19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0		
20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0		
21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0		
22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0		
23	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0		
24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0		
25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0		
26	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0		
27	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0		
28	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0		
29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0		
30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0		
31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0		
HR MIN	2	74	100	104	100	101	102	98	113	128	142	133	140	164	121	199	204	152	111	97	80	101	104	11	2					
HR MAX	245	245	245	259	250	246	255	263	262	303	309	304	311	313	315	306	314	302	276	244	241	239	246	247		315				
HR AVG	164	176	183	185	172	177	183	189	213	229	231	232	237	241	234	244	248	239	197	174	167	172	174	166		201				
HR STD	73	62	58	63	64	61	59	56	48	35	32	35	37	34	46	33	37	41	55	60	64	58	56	73		59				
n	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	360			

Yellowstone National Park

Old Faithful

Standard Deviation for Wind Direction hourly averages (deg)

12/01/2002 - 12/31/2002

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0	
2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0
3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0
4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0
5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0
6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0
7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0
8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0
9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0
10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0
11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0
12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0
13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0
14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0
15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0
16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0
17	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	0	0	0	0
18	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	0	0	0	0
19	32	27	62	74	41	60	68	32	52	24	34	27	32	55	26	27	73	38	26	38	72	31	34	40	24	74	43	17	24
20	44	63	57	38	30	50	63	49	48	59	46	22	55	36	39	30	21	42	12	19	20	28	47	23	12	63	39	15	24
21	16	19	18	69	20	21	47	27	66	53	77	64	22	19	22	19	53	58	35	41	80	54	45	24	16	80	40	21	24
22	34	38	34	45	33	39	69	52	49	40	59	38	37	20	18	17	51	37	17	23	40	14	13	19	13	69	35	15	24
23	13	23	15	24	11	10	12	10	11	22	20	33	40	17	16	12	21	13	14	17	10	12	13	15	10	40	17	7	24
24	12	16	14	17	14	18	15	16	17	24	18	52	21	27	31	43	20	22	51	36	70	58	37	33	12	70	28	16	24
25	40	46	29	20	23	34	43	38	53	29	21	40	38	18	21	22	27	24	23	35	16	27	38	46	16	53	31	10	24
26	37	70	79	85	63	38	51	74	68	30	18	50	45	45	54	38	43	21	23	27	19	23	43	26	18	85	45	20	24
27	18	50	39	38	36	29	54	57	25	22	25	23	31	25	20	24	24	18	20	24	29	30	21	22	18	57	29	11	24
28	28	28	25	26	26	28	25	27	25	32	35	33	30	34	36	13	12	15	81	16	35	23	22	21	12	81	28	13	24
29	21	25	29	24	22	22	20	26	22	21	20	24	20	18	27	20	28	25	19	18	18	21	28	33	18	33	23	4	24
30	47	47	22	52	36	43	17	42	40	60	61	47	65	25	50	42	38	20	32	29	30	24	20	19	17	65	38	14	24
31	21	20	23	25	33	20	17	18	17	19	35	31	40	22	25	50	70	73	67	48	65	42	58	58	17	73	37	19	24
HR MIN	12	16	14	17	11	10	12	10	11	19	18	22	20	17	16	12	12	13	12	16	10	12	13	15	10				
HR MAX	47	70	79	85	63	60	69	74	68	60	77	64	65	55	54	50	73	73	81	48	80	58	58	58	85				
HR AVG	28	36	34	41	30	32	39	36	38	33	36	37	37	28	30	27	37	31	32	29	39	30	32	29		33			
HR STD	12	18	20	22	13	14	22	18	19	15	19	13	13	12	12	20	18	21	10	24	14	14	12		17				
n	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	312				

Yellowstone National Park

Old Faithful

Standard Deviation for Wind Direction hourly averages (deg)

01/01/2003 - 01/31/2003

Date	HOUR (LOCAL STANDARD TIME)																							DAY MIN	DAY MAX	DAY AVG	DAY STD n	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
1	33	37	37	69	50	27	38	18	15	23	39	24	19	28	34	37	46	66	54	30	32	65	24	45	15	69	37	15 24
2	55	56	78	43	25	44	77	42	59	29	42	66	45	33	61	20	30	59	48	22	20	40	16	19	16	78	43	18 24
3	25	61	61	43	58	32	34	21	33	37	56	24	21	21	16	25	29	23	17	21	51	70	55	59	16	70	37	17 24
4	57	46	23	19	21	19	22	24	38	49	34	16	20	51	69	23	53	54	62	48	54	66	65	43	16	69	41	18 24
5	57	43	45	46	57	41	24	24	31	23	29	37	61	57	58	45	55	36	18	15	61	32	24	28	15	61	39	15 24
6	30	25	45	23	22	44	28	32	27	19	16	18	21	39	17	13	27	37	17	24	18	27	36	16	13	45	26	9 24
7	10	19	10	36	35	47	14	34	19	9	13	16	24	24	20	25	12	47	46	12	28	17	25	25	9	47	24	12 24
8	24	15	13	19	29	25	43	45	48	19	15	21	21	19	35	18	30	51	34	25	22	30	26	17	13	51	27	11 24
9	16	17	43	29	14	35	15	18	18	21	16	26	18	19	24	20	16	12	14	16	15	47	18	21	12	47	21	9 24
10	31	24	15	39	55	13	61	31	15	27	18	32	21	19	20	37	15	41	22	56	19	51	54	73	13	73	33	17 24
11	43	17	39	35	55	20	55	66	18	50	57	18	27	19	26	20	21	32	44	57	71	40	51	46	17	71	39	17 24
12	39	25	61	60	44	61	40	32	35	32	41	68	27	40	42	49	41	50	46	26	61	22	40	51	22	68	43	13 24
13	49	33	25	22	19	40	53	28	36	33	24	17	24	22	19	20	25	55	42	25	16	53	26	15	15	55	30	12 24
14	15	22	26	22	16	17	18	18	18	31	39	28	30	54	50	61	51	39	32	52	48	54	49	55	15	61	35	15 24
15	56	22	22	23	26	25	45	51	36	21	27	36	23	19	19	22	30	47	37	33	19	23	39	27	19	56	30	11 24
16	32	51	55	33	36	59	52	18	13	13	34	18	29	39	37	39	27	13	30	33	23	47	39	13	13	59	33	14 24
17	69	25	42	27	29	11	21	15	16	27	12	35	22	25	24	32	41	63	54	40	41	66	57	57	11	69	35	18 24
18	75	82	66	47	75	56	58	38	39	36	23	33	28	17	22	22	18	23	62	24	43	51	40	49	17	82	43	19 24
19	29	55	67	77	64	73	46	30	29	59	52	77	71	89	68	41	42	66	82	68	61	75	53	67	29	89	60	17 24
20	46	36	64	55	55	63	31	46	19	21	17	15	16	20	63	58	26	22	19	20	22	39	33	15	64	36	18 24	
21	32	67	64	74	87	56	49	47	37	40	56	18	20	22	29	26	23	22	21	22	27	20	18	19	18	87	37	20 24
22	16	17	16	15	18	66	16	27	58	56	31	31	27	31	32	25	42	66	47	52	32	30	36	27	15	66	34	16 24
23	34	18	53	38	28	42	33	45	36	17	17	20	26	32	30	24	30	66	47	27	42	27	29	20	17	66	33	12 24
24	37	34	54	46	57	38	29	48	60	59	68	48	22	26	20	51	38	56	75	78	62	42	42	56	20	78	48	16 24
25	58	59	40	72	47	61	56	43	42	41	43	55	22	63	48	60	68	57	48	48	52	29	20	18	18	72	48	15 24
26	18	54	61	75	64	22	25	36	73	49	50	20	30	55	27	21	43	44	55	36	46	20	37	30	18	75	41	17 24
27	37	36	40	28	29	21	21	23	54	73	80	45	32	25	28	34	34	24	22	20	19	29	34	43	19	80	35	16 24
28	32	60	46	35	42	19	17	11	13	34	22	18	48	23	38	82	46	50	41	62	70	16	21	31	11	82	37	19 24
29	40	36	43	67	56	41	49	33	63	54	64	56	60	38	44	33	39	20	19	21	58	33	56	27	19	67	44	14 24
30	45	19	29	41	39	51	32	55	28	21	20	26	23	20	21	20	18	16	28	16	17	34	46	34	16	55	29	12 24
31	44	52	18	17	21	18	27	24	18	20	19	20	18	23	37	18	19	20	46	37	23	20	22	20	17	52	25	10 24
HR MIN	10	15	10	15	14	11	14	11	13	9	12	16	15	16	16	13	12	12	14	12	15	16	16	13	9			
HR MAX	75	82	78	77	87	73	77	66	73	73	80	77	71	89	69	82	68	66	82	78	71	75	65	73		89		
HR AVG	38	38	42	41	41	38	37	33	35	34	35	32	29	33	33	33	34	41	40	34	38	39	37	35		36		
HR STD	16	18	19	19	19	17	17	13	17	16	18	17	14	17	15	17	14	18	18	17	18	17	14	17			17	
n	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31		744		

Yellowstone National Park

Old Faithful

Standard Deviation for Wind Direction hourly averages (deg)

02/01/2003 - 02/28/2003

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
1	19	20	19	19	21	22	24	23	27	27	24	24	25	24	27	35	27	25	25	63	27	26	45	32	19	63	27	10 24	
2	30	27	28	28	56	38	29	44	53	57	59	54	46	62	59	54	57	65	46	45	24	22	21	24	21	65	43	15 24	
3	19	17	37	19	22	37	39	67	51	31	45	58	45	25	22	32	46	68	55	68	35	45	31	26	17	68	39	16 24	
4	17	69	31	20	14	19	12	19	17	29	44	49	36	40	34	47	38	61	45	23	29	12	18	12	69	31	16 24		
5	16	39	51	62	58	41	23	38	40	42	35	45	33	24	22	31	39	26	32	49	47	72	38	28	16	72	39	13 24	
6	26	31	28	15	10	12	16	13	28	25	22	22	29	53	43	43	55	49	28	8	13	10	9	14	8	55	25	14 24	
7	14	16	20	41	47	22	16	31	48	20	23	22	29	17	19	33	40	43	62	52	14	13	15	26	13	62	28	14 24	
8	19	23	32	28	43	30	20	38	23	39	27	46	20	26	23	24	21	23	34	11	19	16	19	19	11	46	26	9 24	
9	26	17	28	33	58	33	58	49	20	32	33	34	24	27	43	28	38	53	45	42	72	48	37	60	17	72	39	14 24	
10	37	43	28	17	16	21	39	35	55	43	34	20	18	17	16	19	31	38	47	39	37	62	47	58	16	62	34	14 24	
11	41	34	51	57	67	67	61	54	23	48	23	16	15	17	20	14	22	62	58	33	31	21	29	63	14	67	39	19 24	
12	57	68	44	59	75	60	23	35	21	15	34	32	25	35	19	15	20	21	14	63	22	17	19	29	14	75	34	19 24	
13	17	21	49	46	60	41	36	42	48	27	19	23	18	21	42	28	26	37	36	48	41	64	74	45	17	74	38	15 24	
14	67	70	51	38	40	54	41	21	22	39	45	19	24	28	21	29	21	15	27	46	48	52	10	36	10	70	36	16 24	
15	30	15	12	25	26	20	42	37	40	32	24	22	21	31	26	26	26	19	39	27	13	23	10	19	10	42	25	9 24	
16	14	15	27	40	45	25	17	41	43	17	16	16	15	14	13	32	21	22	28	36	23	20	18	18	13	45	24	10 24	
17	18	33	28	47	51	35	33	40	16	19	17	18	16	18	17	22	23	24	27	17	17	19	25	23	16	51	25	10 24	
18	18	23	60	24	26	55	55	61	43	45	23	19	16	19	19	22	46	75	45	51	33	22	22	22	16	75	35	17 24	
19	11	38	47	36	56	44	65	59	34	29	24	24	24	26	25	22	23	26	28	33	22	12	48	52	11	65	34	15 24	
20	42	24	31	17	52	53	52	52	36	28	31	21	25	23	18	18	38	60	54	63	61	28	18	58	17	63	38	16 24	
21	32	14	17	15	22	18	34	20	18	19	15	17	19	19	19	19	17	28	21	25	45	47	23	14	47	23	9 24		
22	17	39	19	26	41	40	65	36	41	26	21	28	26	27	28	32	24	43	43	17	13	26	52	43	13	65	32	12 24	
23	34	50	46	30	24	24	23	20	17	20	29	33	46	42	42	37	47	47	48	40	42	29	15	16	15	50	33	12 24	
24	17	18	16	26	18	14	19	PF	PF	PF	PF	IM	14	26	18	4 7													
25	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	22	22	36	11	15	12	14	14	16	11	36	18	8 9
26	10	12	13	13	11	22	14	23	31	26	16	20	17	30	53	47	50	41	20	13	14	28	11	33	10	53	24	13 24	
27	41	11	28	50	39	50	34	36	31	16	18	53	52	50	38	33	23	26	41	22	10	13	16	12	10	53	31	14 24	
28	13	12	10	12	10	28	66	39	38	64	49	20	20	20	20	20	18	16	20	47	35	32	30	41	10	66	28	16 24	
HR MIN	10	11	10	12	10	12	12	13	16	15	15	16	15	14	13	14	18	15	11	8	10	10	9	12	8				
HR MAX	67	70	60	62	75	67	66	67	55	64	59	58	52	62	59	54	57	75	62	68	72	72	74	63	75				
HR AVG	26	30	32	31	37	34	35	37	33	31	29	29	26	28	28	29	32	38	37	37	29	29	27	31	32				
HR STD	14	18	14	15	19	15	17	14	12	13	12	13	11	12	12	10	12	18	13	18	16	17	16	16	15				
n	27	27	27	27	27	27	27	26	26	26	26	26	26	26	26	27	27	27	27	27	27	27	27	27	640				

Final Validation

5/12/2003

Yellowstone National Park

Old Faithful

Standard Deviation for Wind Direction hourly averages (deg)

03/01/2003 - 03/31/2003

Date	HOUR (LOCAL STANDARD TIME)																							DAY MIN	DAY MAX	DAY AVG	DAY STD n	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
1	49	26	49	29	40	10	13	12	30	24	25	30	33	37	48	21	31	23	31	17	12	14	16	10	10	49	26	12 24
2	24	11	24	37	13	15	23	48	54	45	34	46	66	29	61	36	25	21	23	61	38	70	57	39	11	70	38	17 24
3	43	23	18	30	49	28	49	52	50	16	22	19	17	17	23	22	47	21	35	38	59	41	25	9	9	59	31	14 24
4	10	50	40	24	49	41	55	33	50	29	18	23	24	26	23	20	24	20	37	17	28	44	38	19	10	55	31	12 24
5	20	26	32	48	18	36	42	51	61	31	40	33	24	23	19	19	26	19	21	18	17	17	20	16	16	61	28	12 24
6	17	17	17	18	18	19	19	19	17	16	19	19	22	24	23	21	26	39	24	32	21	18	19	20	16	39	21	5 24
7	18	17	16	16	15	22	18	16	16	17	17	16	17	16	17	17	17	17	16	17	18	20	19	20	15	22	17	2 24
8	18	22	24	24	21	19	19	20	24	23	23	20	24	26	20	18	19	17	15	17	19	21	51	24	15	51	22	7 24
9	21	20	16	16	15	18	18	25	20	21	23	23	21	21	22	20	29	26	24	17	17	21	22	24	15	29	21	3 24
10	22	25	35	25	21	18	17	18	35	30	21	28	21	20	25	23	18	22	53	20	19	19	19	19	17	53	24	8 24
11	17	28	31	32	24	38	33	37	45	31	22	19	22	23	19	18	18	17	18	19	18	20	46	37	17	46	26	9 24
12	18	20	32	33	19	20	22	31	32	24	25	26	22	23	25	24	27	39	34	26	16	22	16	25	16	39	25	6 24
13	20	17	14	13	13	12	15	18	18	32	24	32	24	24	26	27	30	25	12	10	15	12	27	54	10	54	21	10 24
14	44	70	55	12	44	51	59	38	37	27	20	23	37	64	34	32	41	36	43	21	35	17	25	22	12	70	37	15 24
15	33	24	32	35	19	14	65	35	26	26	19	18	23	39	23	22	15	20	28	16	16	18	16	15	14	65	25	11 24
16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0
17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0
18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0
19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0
20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0
21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0
22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0
23	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0
24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0
25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0
26	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0
27	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0
28	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0
29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0
30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0
31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0
HR MIN	10	11	14	12	13	10	13	12	16	16	17	17	16	17	17	17	17	12	10	12	12	16	9	9	9	70		
HR MAX	49	70	55	48	49	51	65	52	61	45	40	46	66	64	61	36	47	39	53	61	59	70	57	54		26		
HR AVG	25	26	29	26	25	24	31	30	34	26	23	25	26	28	27	23	26	24	28	23	23	25	28	24				
HR STD	12	15	12	10	13	12	18	13	15	8	6	8	12	12	12	5	9	8	11	13	12	15	14	12				
n	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	360			

Yellowstone National Park

West Entrance

Carbon Monoxide hourly averages (ppm)

12/01/2002 - 12/31/2002

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n		
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23							
1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0						
2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0						
3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0						
4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0						
5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0						
6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0						
7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0						
8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0						
9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0						
10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0						
11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0						
12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0						
13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0						
14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0						
15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0						
16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0						
17	0.200	0.200	0.200	ZS	0.200	0.200	0.200	0.200	0.200	0.000	0.200	0.300	0.300	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.000	0.300	0.200	0.052	23			
18	0.200	0.200	0.200	ZS	0.200	0.200	0.200	0.200	0.200	0.400	0.300	0.300	0.300	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.300	0.200	0.400	0.230	0.056	23		
19	0.300	0.200	0.300	ZS	0.300	0.300	0.300	0.300	0.300	0.300	0.400	0.200	0.200	0.200	0.300	0.500	0.300	0.300	0.400	0.300	0.300	0.400	0.300	0.300	0.200	0.500	0.300	0.067	23		
20	0.300	0.300	0.300	ZS	0.200	0.200	0.200	0.200	0.200	0.300	0.300	0.600	0.400	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.300	0.500	0.500	0.400	0.200	0.600	0.300	0.124	23		
21	0.400	0.400	0.300	ZS	0.400	0.300	0.300	0.300	0.300	0.400	0.500	0.500	0.300	0.200	0.200	0.300	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.500	0.300	0.095	23		
22	0.200	0.200	0.300	ZS	0.200	0.200	0.200	0.200	0.400	0.700	0.600	0.300	0.300	0.200	0.300	0.600	0.400	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.700	0.296	0.149	23		
23	0.300	0.400	0.200	ZS	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.400	0.400	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.400	0.235	0.071	23	
24	0.200	0.200	0.200	ZS	0.200	0.200	0.200	MT	0.300	0.700	0.700	0.600	0.300	0.300	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.700	0.282	0.165	22	
25	0.200	0.200	0.200	ZS	0.200	0.200	0.200	0.200	0.200	0.300	0.400	0.400	0.400	0.500	0.200	0.200	0.200	0.200	0.300	0.500	0.400	0.400	0.400	0.300	0.200	0.500	0.291	0.108	23		
26	0.300	0.300	0.300	ZS	0.300	0.300	0.300	0.300	0.500	0.300	0.300	0.300	0.200	0.200	0.200	0.200	0.600	0.300	0.300	0.300	0.200	0.200	0.200	0.200	0.200	0.600	0.291	0.095	23		
27	0.200	0.200	0.200	ZS	0.200	0.200	0.200	0.200	0.200	0.400	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.400	0.239	0.058	23	
28	0.200	0.200	0.200	ZS	0.200	0.200	0.100	0.200	1.900	3.300	3.700	0.900	1.600	0.400	1.700	3.900	7.900	6.600	1.300	1.800	0.500	0.300	0.200	0.200	0.200	0.100	7.900	1.630	2.135	23	
29	0.200	0.200	0.200	ZS	0.200	0.200	0.200	0.300	2.000	1.900	1.200	0.700	0.600	0.500	0.800	1.200	1.200	0.900	0.400	0.200	0.200	0.300	0.200	0.200	0.200	0.200	0.200	2.000	0.609	0.552	23
30	0.200	0.200	0.200	ZS	0.200	0.200	0.200	0.400	2.500	2.600	2.100	1.500	0.600	0.700	1.200	2.000	3.100	1.300	0.300	0.300	0.200	0.200	0.200	0.200	0.200	0.200	0.200	3.100	0.900	0.940	23
31	0.200	0.200	0.200	ZS	0.200	0.200	0.200	0.700	3.600	3.400	1.300	1.000	0.600	0.600	1.700	1.700	2.400	1.100	0.500	0.300	0.200	0.200	0.200	0.200	0.200	0.200	0.200	3.600	0.909	1.021	23
HR MIN	0.200	0.200	0.200		0.200	0.200	0.100	0.200	0.200	0.000	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.000					
HR MAX	0.400	0.400	0.300		0.400	0.300	0.300	0.700	3.600	3.400	3.700	1.500	1.600	0.700	1.700	3.900	7.900	6.600	1.300	1.800	0.500	0.500	0.500	0.400		7.900					
HR AVG	0.240	0.240	0.233		0.227	0.220	0.213	0.279	0.867	1.027	0.827	0.533	0.440	0.327	0.527	0.793	1.187	0.867	0.333	0.360	0.267	0.260	0.253	0.233		0.468					
HR STD	0.063	0.074	0.049		0.059	0.041	0.052	0.137	1.085	1.162	0.955	0.375	0.352	0.171	0.554	1.039	2.056	1.626	0.282	0.407	0.111	0.099	0.092	0.062		0.768					
n	15	15	15	0	15	15	14	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	344					

Yellowstone National Park

West Entrance

Carbon Monoxide hourly averages (ppm)

01/01/2003 - 01/31/2003

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n				
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23									
1	0.200	0.200	0.200	ZS	0.200	0.200	0.200	0.700	4.000	3.800	0.600	0.800	0.500	0.300	0.500	0.600	2.200	1.000	0.300	0.200	0.200	0.200	0.200	0.200	0.200	4.000	0.761	1.086	23				
2	0.200	0.200	0.200	ZS	0.200	0.200	0.200	0.300	1.500	3.500	1.600	0.600	0.700	0.400	0.800	1.200	1.600	1.000	0.400	0.300	0.300	0.200	0.300	0.200	0.200	0.200	3.500	0.700	0.777	23			
3	0.200	0.200	0.200	ZS	0.200	0.200	0.200	0.500	1.100	2.700	0.900	0.500	0.500	0.400	0.600	0.500	1.200	0.800	0.300	0.300	0.300	0.200	0.200	0.200	0.200	0.200	2.700	0.539	0.558	23			
4	0.200	0.200	0.200	ZS	0.200	0.200	0.200	0.300	1.200	3.100	1.800	0.600	1.000	1.200	0.700	1.100	MT	MT	0.400	0.300	0.200	0.200	0.200	0.300	0.200	0.200	0.200	3.100	0.657	0.725	21		
5	0.200	0.200	0.200	ZS	0.300	0.300	0.300	0.500	2.300	2.400	0.600	0.400	0.300	0.300	0.300	1.100	1.800	3.300	3.500	1.200	0.700	0.500	0.300	0.300	0.300	0.300	0.200	3.500	0.926	1.016	23		
6	0.300	0.300	0.200	ZS	0.200	0.200	0.200	0.300	0.800	0.700	1.100	0.500	0.400	0.400	0.600	1.100	0.600	1.100	5.300	2.800	1.200	1.200	0.300	0.200	0.200	0.200	0.200	5.300	0.852	1.136	23		
7	0.200	0.200	0.200	ZS	0.300	0.300	0.400	0.400	0.600	1.500	0.500	0.600	0.400	0.600	0.600	1.500	0.600	0.700	2.400	0.900	0.500	0.400	0.300	0.300	0.300	0.300	0.200	2.400	0.626	0.521	23		
8	0.300	0.300	0.300	ZS	0.200	0.200	0.200	0.300	1.300	1.700	1.000	0.800	0.400	0.500	0.900	1.200	1.100	3.100	2.800	1.400	0.600	0.400	0.400	0.300	0.300	0.300	0.300	0.200	3.100	0.857	0.794	23	
9	0.300	0.300	0.300	ZS	0.300	0.300	0.300	0.300	1.000	6.200	1.700	0.500	0.200	0.300	0.300	0.700	0.800	2.200	1.700	0.500	0.500	0.200	0.200	0.200	0.200	0.200	6.200	0.839	1.292	23			
10	0.200	0.300	0.200	ZS	0.200	0.200	0.200	0.300	1.100	3.000	1.400	1.200	0.600	0.500	0.600	1.500	2.600	2.100	2.500	0.200	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.200	3.000	0.891	0.880	23	
11	0.400	0.300	0.300	ZS	0.300	0.300	0.300	0.600	2.600	1.500	0.600	0.700	1.000	0.500	0.500	0.600	2.300	2.300	0.600	0.700	0.200	0.200	0.200	0.200	0.200	2.600	0.748	0.720	23				
12	0.200	0.200	0.200	ZS	0.200	0.200	0.200	0.400	1.000	1.900	1.000	0.400	0.300	0.500	0.700	0.700	1.100	1.000	0.700	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	1.900	0.517	0.439	23		
13	0.200	0.200	0.200	ZS	0.200	0.200	0.200	0.300	0.900	0.700	0.500	0.300	0.400	0.300	0.500	0.800	0.800	0.600	0.600	0.300	0.200	0.500	0.200	0.200	0.200	0.200	0.200	0.900	0.404	0.231	23		
14	0.200	0.200	0.200	ZS	0.200	0.200	0.200	0.200	0.900	0.800	0.600	0.400	0.400	0.400	0.500	0.600	0.900	0.600	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.900	0.378	0.243	23		
15	0.200	0.200	0.200	ZS	0.200	0.200	0.200	0.200	2.800	1.700	1.100	0.500	0.300	0.200	0.300	0.500	1.400	0.600	0.400	0.500	0.500	0.200	0.200	0.200	0.200	0.200	2.800	0.557	0.637	23			
16	0.200	0.300	0.200	ZS	0.300	0.200	0.200	0.400	1.800	2.000	0.900	0.600	0.500	0.400	0.400	0.400	MT	0.900	0.500	1.200	0.300	0.300	0.400	0.300	0.200	0.200	0.200	0.200	2.000	0.568	0.505	22	
17	0.200	0.200	0.200	ZS	0.200	0.200	0.200	0.300	1.200	1.700	0.800	0.400	0.400	0.400	1.000	1.200	3.400	5.900	3.100	1.100	0.300	0.300	0.300	0.300	0.300	5.900	1.013	1.384	23				
18	0.300	0.300	0.200	ZS	0.300	0.300	0.300	0.500	1.500	3.000	2.500	2.100	0.800	0.700	0.700	0.700	1.100	1.800	1.700	0.500	0.300	0.200	0.300	0.300	0.300	0.300	0.300	0.200	3.000	0.870	0.822	23	
19	0.200	0.200	0.200	ZS	0.200	0.200	0.200	0.300	1.900	1.400	1.200	0.500	0.500	0.400	0.600	1.000	1.600	1.300	0.400	0.300	0.800	0.300	0.200	0.200	0.200	0.200	0.200	1.900	0.613	0.523	23		
20	0.200	0.200	0.200	ZS	0.200	0.200	0.200	0.300	0.900	0.700	0.900	0.400	0.300	0.500	0.700	0.600	1.800	0.700	0.400	0.300	0.200	0.200	0.200	0.200	0.200	1.800	0.457	0.378	23				
21	0.200	0.200	0.200	ZS	0.200	0.200	0.200	0.400	1.700	2.000	0.800	0.400	0.300	0.300	0.500	0.600	1.000	0.700	0.300	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	2.000	0.487	0.486	23		
22	0.200	0.200	0.200	ZS	0.200	0.200	0.200	0.400	1.300	1.000	0.500	0.300	0.400	0.600	0.400	0.600	0.600	1.000	1.000	0.300	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	1.300	0.417	0.310	23	
23	0.200	0.200	0.200	ZS	0.200	0.200	0.200	0.200	1.400	1.100	0.700	0.400	0.400	0.200	0.500	0.200	0.500	0.500	1.000	0.300	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	1.400	0.400	0.391	18	
24	0.100	0.100	0.100	ZS	0.200	0.200	0.200	0.300	0.700	2.700	1.000	0.300	0.400	0.600	0.600	1.200	1.300	0.600	0.400	0.300	0.200	0.200	0.200	0.200	0.200	2.700	0.526	0.585	23				
25	0.200	0.200	0.200	ZS	0.200	0.200	0.200	0.300	1.000	2.400	0.900	0.400	0.600	0.600	0.900	0.900	1.100	0.700	0.300	0.300	0.200	0.200	0.200	0.200	0.200	2.400	0.539	0.511	23				
26	0.200	0.200	0.200	ZS	0.200	0.200	0.200	0.300	0.800	0.700	0.400	0.300	0.400	0.400	0.500	0.500	0.800	0.500	0.300	0.300	0.300	PF	PF	0.300	0.400	0.200	0.800	0.386	0.190	21			
27	0.400	0.400	0.400	ZS	0.200	0.200	0.200	0.300	1.700	2.200	0.900	0.600	0.400	0.700	0.600	1.600	2.800	1.300	0.400	0.300	0.300	0.300	0.300	0.300	0.300	0.300	0.200	2.800	0.722	0.714	23		
28	0.200	0.200	0.200	ZS	0.200	0.200	0.300	0.400	2.000	5.300	0.900	0.300	0.300	0.200	MT	MT	2.000	1.600	0.500	0.200	0.200	0.100	0.100	0.100	0.100	0.100	5.300	0.743	1.203	21			
29	0.100	0.100	0.100	ZS	0.200	0.200	0.200	0.300	2.500	1.500	0.600	0.400	0.300	0.400	0.400	0.600	1.200	0.500	0.400	0.200	0.200	0.200	0.200	0.200	0.100	0.100	0.100	0.100	0.100	2.500	0.478	0.557	23
30	0.200	0.200	0.200	ZS	0.200	0.200	0.200	0.400	0.700	1.400	0.600	0.500	0.400	0.400	0.800	2.000	1.300	1.500	0.600	0.400	0.300	0.200	0.200	0.200	0.200	0.200	2.000	0.574	0.503	23			
31	0.300	0.200	0.200	ZS	0.200	0.200	0.200	0.200	0.600	1.500	1.500	0.700	0.500	0.300	0.500	0.900	1.000	1.300	1.300	0.400	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	1.500	0.557	0.460	23
HR MIN	0.100	0.100	0.100		0.200	0.200	0.200	0.200	0.600	0.700	0.400	0.300	0.200	0.200	0.300	0.500	0.600	0.500	0.200	0.200	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100
HR MAX	0.400	0.400	0.400		0.300	0.300	0.400	0.700	4.000	6.200	2.500	2.100	1.000	1.200	1.000	2.000	3.400	5.900	3.500	1.400	1.200	0.500	0.400	0.400	0.40								

Yellowstone National Park

West Entrance

Carbon Monoxide hourly averages (ppm)

02/01/2003 - 02/28/2003

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n			
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23								
1	0.200	0.200	0.200	ZS	0.200	0.100	0.200	0.200	1.100	1.000	0.900	0.500	0.200	0.300	0.400	0.700	1.500	0.400	0.500	0.200	0.100	0.200	0.100	0.200	0.100	1.500	0.417	0.375	23			
2	0.100	0.100	0.100	ZS	0.200	0.200	0.200	0.200	0.200	0.200	0.100	0.100	0.200	0.200	0.100	0.100	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.100	0.200	0.170	0.047	23		
3	0.200	0.200	0.200	ZS	0.300	0.300	0.300	0.400	1.400	2.000	0.800	0.500	0.300	0.400	0.300	1.000	1.200	1.400	0.600	0.300	0.200	0.300	0.300	0.300	0.400	0.200	2.000	0.578	0.490	23		
4	0.300	0.300	0.300	ZS	0.200	0.200	0.200	0.400	1.500	1.200	0.900	0.400	0.300	0.300	0.400	0.600	0.500	0.700	0.500	0.300	0.700	0.300	0.400	0.300	0.300	0.200	0.200	1.500	0.487	0.328	23	
5	0.300	0.300	0.300	ZS	0.300	0.200	0.300	0.900	1.600	1.800	0.500	0.500	0.400	0.300	0.500	0.700	1.100	2.100	2.500	0.700	0.200	0.200	0.200	0.200	0.200	0.200	0.200	2.500	0.700	0.669	23	
6	0.300	0.300	0.300	ZS	0.200	0.200	0.200	0.800	4.600	4.200	1.200	0.500	0.300	0.200	0.300	0.500	0.800	1.700	0.600	0.700	0.500	0.200	0.200	0.200	0.200	0.200	0.200	0.200	4.600	0.826	1.188	23
7	0.200	0.200	0.200	ZS	0.200	0.300	0.200	0.300	1.100	1.100	1.200	0.500	0.300	0.400	0.500	0.600	1.500	1.700	0.800	0.700	0.300	0.200	0.200	0.200	0.200	0.200	0.200	0.200	1.700	0.561	0.457	23
8	0.200	0.200	0.200	ZS	0.300	0.300	0.200	0.800	1.600	1.900	1.100	0.500	0.400	0.500	0.700	0.900	2.000	1.800	0.600	0.400	0.700	0.300	0.300	0.300	0.300	0.200	0.200	0.200	2.000	0.704	0.581	23
9	0.300	0.300	0.300	ZS	0.200	0.200	0.200	0.200	0.800	1.400	0.700	0.500	0.300	0.300	0.500	0.600	0.700	0.600	0.500	0.300	0.200	0.200	0.200	0.200	0.200	0.200	0.200	1.400	0.422	0.288	23	
10	0.200	0.200	0.200	ZS	0.200	0.200	0.200	0.300	1.000	1.300	0.800	0.600	0.500	0.400	0.500	1.200	1.000	1.100	0.400	0.200	0.200	0.200	0.200	0.200	0.200	0.200	1.300	0.491	0.378	23		
11	0.200	0.200	0.200	ZS	0.200	0.200	0.200	0.300	1.900	0.900	0.600	0.300	0.400	0.300	6.600	7.600	0.800	0.400	0.400	0.200	0.000	0.000	0.100	0.200	0.000	0.000	0.000	7.600	0.965	1.982	23	
12	0.100	0.100	0.100	ZS	0.300	0.200	0.200	0.600	1.500	2.200	1.000	0.600	0.300	0.400	0.300	0.700	1.800	2.600	3.900	3.000	1.700	0.700	0.300	0.300	0.300	0.300	0.300	1.000	3.900	0.996	1.062	23
13	0.200	0.200	0.200	ZS	0.200	0.200	0.300	0.700	1.100	1.900	1.400	0.700	0.400	0.400	1.100	1.200	1.800	0.500	0.800	0.200	0.400	0.200	0.200	0.200	0.200	0.200	0.200	1.900	0.630	0.536	23	
14	0.200	0.200	0.200	ZS	0.200	0.200	0.200	1.000	3.600	2.000	1.700	0.800	1.100	0.600	1.000	1.200	1.500	0.800	0.700	0.600	0.300	0.200	0.300	0.500	0.200	3.600	0.830	0.800	23			
15	0.500	0.300	0.300	ZS	0.200	0.200	0.200	1.000	5.000	3.800	1.800	0.800	0.900	0.800	1.300	1.600	2.700	2.400	1.700	0.900	0.300	0.600	0.300	0.200	0.200	0.200	0.200	2.000	5.000	1.209	1.249	23
16	0.300	0.300	0.200	ZS	0.200	0.200	0.300	0.900	2.500	3.600	3.400	1.400	0.800	0.700	2.300	0.900	0.900	0.600	0.300	0.200	0.200	0.200	0.200	0.200	0.200	0.200	3.600	0.904	1.040	23		
17	0.200	0.200	0.200	ZS	0.200	0.200	0.200	0.400	1.400	2.400	0.500	0.400	0.400	0.500	0.300	0.600	0.800	0.700	0.400	0.300	0.300	0.200	0.200	0.200	0.200	0.200	2.400	0.487	0.501	23		
18	0.200	0.200	0.200	ZS	0.200	0.400	0.500	1.200	8.600	3.400	1.000	0.500	0.300	0.300	0.700	0.500	1.000	1.400	0.900	0.300	0.300	0.200	0.200	0.200	0.200	0.200	2.000	8.600	0.987	1.801	23	
19	0.200	0.300	0.200	ZS	0.300	0.300	0.300	0.300	0.800	1.600	1.300	0.700	0.300	0.500	0.600	1.100	2.100	1.400	0.800	0.500	0.300	0.300	0.500	0.400	0.200	2.100	0.657	0.512	23			
20	0.300	0.300	0.300	ZS	0.300	0.300	0.300	0.800	2.400	1.600	0.500	0.600	0.300	0.300	0.500	0.800	1.400	0.900	0.400	0.500	0.400	0.200	0.200	0.200	0.200	0.200	2.400	0.600	0.538	23		
21	0.200	0.200	0.200	ZS	0.200	0.200	0.200	0.300	1.400	1.500	1.400	0.500	0.500	0.500	0.700	0.800	1.500	0.900	0.700	0.500	0.200	0.200	0.200	0.200	0.200	2.000	1.500	0.574	0.465	23		
22	0.200	0.200	0.200	ZS	0.200	0.200	0.200	0.700	2.400	3.100	2.000	0.500	0.700	0.400	0.900	0.700	1.700	1.100	0.900	1.400	0.800	0.500	0.200	0.200	0.200	0.200	0.200	3.100	0.843	0.791	23	
23	0.200	0.200	0.200	ZS	0.200	0.200	0.300	0.300	0.500	1.100	0.600	0.600	0.300	0.300	0.200	0.300	0.400	0.300	0.200	0.300	0.300	0.200	0.200	0.200	0.200	0.200	1.100	0.335	0.206	23		
24	0.200	0.200	0.200	ZS	0.300	0.300	0.300	0.300	0.500	2.400	0.700	0.300	0.300	0.400	0.300	0.300	0.900	1.300	2.500	1.800	0.500	0.300	0.300	0.300	0.300	0.200	2.500	0.648	0.686	23		
25	0.200	0.200	0.200	ZS	0.300	0.300	0.300	0.300	0.900	1.400	0.700	0.300	0.300	0.200	0.600	0.500	MT	MT	3.000	2.400	2.700	0.400	0.300	0.300	0.300	0.300	0.200	0.200	3.000	0.752	0.868	21
26	0.300	0.300	0.200	ZS	0.300	0.300	0.300	0.500	1.800	1.300	1.000	0.400	0.300	0.400	0.300	0.900	2.400	3.100	1.100	0.700	0.300	0.200	0.300	0.300	0.300	0.300	0.200	3.100	0.739	0.763	23	
27	0.300	0.300	0.200	ZS	0.200	0.200	0.200	0.500	1.300	2.300	0.800	0.400	0.200	0.500	0.500	0.600	1.400	1.400	1.200	0.500	0.500	0.400	0.300	0.300	0.300	0.300	0.200	2.300	0.639	0.532	23	
28	0.300	0.300	0.300	ZS	0.200	0.200	0.200	0.700	3.000	1.500	1.100	0.400	0.500	0.400	0.600	0.600	1.000	0.600	0.600	0.400	0.600	0.600	0.400	0.300	0.300	0.300	0.300	0.200	3.000	0.643	0.601	23
HR MIN	0.100	0.100	0.100		0.200	0.100	0.200	0.200	0.200	0.100	0.100	0.200	0.200	0.100	0.100	0.200	0.200	0.200	0.200	0.000	0.000	0.100	0.200		0.000							
HR MAX	0.500	0.300	0.300		0.300	0.400	0.500	1.200	8.600	4.200	3.400	1.400	1.100	0.800	6.600	7.600	2.700	3.100	3.900	3.000	2.700	0.700	0.500	0.500		8.600						
HR AVG	0.236	0.232	0.218		0.232	0.232	0.246	0.546	1.982	1.932	1.061	0.529	0.411	0.400	0.821	0.993	1.281	1.189	0.989	0.668	0.479	0.289	0.254	0.254		0.671						
HR STD	0.078	0.061	0.055		0.048	0.061	0.069	0.290	1.734	0.951	0.626	0.229	0.217	0.141	1.211	1.334	0.606	0.743	0.910	0.686	0.538	0.157	0.092	0.079		0.838						
n	28	28	28	0	28	28	28	28	28	28	28	28	28	28	28	28	28	27	27	28	28	28	28	28	28	28	642					

Final Validation

5/12/2003

Yellowstone National Park

West Entrance

Carbon Monoxide hourly averages (ppm)

03/01/2003 - 03/31/2003

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n		
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23							
1	0.300	0.300	0.300	ZS	0.200	0.200	0.400	1.000	8.400	2.500	0.900	0.300	0.300	0.600	0.500	0.900	2.200	1.900	2.300	1.300	0.300	0.400	0.200	0.200	0.200	0.200	0.200				
2	0.200	0.200	0.300	ZS	0.200	0.200	0.300	0.400	1.100	1.100	1.000	0.700	0.300	0.500	0.400	0.700	1.100	0.500	0.600	0.300	0.200	0.200	0.200	0.200	0.200	0.200	0.200				
3	0.200	0.200	0.200	ZS	0.200	0.200	0.200	0.300	0.700	1.100	0.600	0.400	0.400	0.600	0.500	0.700	2.200	1.600	1.400	0.800	0.400	0.400	0.200	0.300	0.200	0.200	0.200				
4	0.300	0.300	0.300	ZS	0.300	0.300	0.300	0.500	0.600	0.300	0.500	0.500	0.300	0.200	0.200	0.500	0.700	0.600	1.300	0.300	0.600	0.300	0.400	0.300	0.200	0.200	0.200	0.200			
5	0.200	0.200	0.200	ZS	0.200	0.200	0.200	0.200	0.300	1.700	1.100	0.500	0.400	0.400	0.500	0.700	0.700	0.300	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200			
6	0.200	0.200	0.200	ZS	0.200	0.200	0.200	0.300	0.400	0.700	0.400	0.400	0.500	0.400	0.600	0.500	0.600	0.500	0.400	0.300	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200		
7	0.200	0.200	0.200	ZS	0.200	0.200	0.200	0.300	0.300	0.600	0.500	0.500	0.300	0.500	0.500	0.500	0.500	0.700	0.300	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200			
8	0.200	0.200	0.200	ZS	0.200	0.200	0.200	0.300	0.600	1.000	0.600	0.500	0.300	0.700	0.700	0.600	0.800	0.400	0.400	0.300	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200		
9	0.200	0.200	0.200	ZS	0.200	0.200	0.200	0.300	0.500	1.000	0.700	0.500	0.500	0.300	0.400	0.600	0.900	0.300	0.300	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200		
10	0.200	0.200	0.200	ZS	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.100	0.100	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	
11	0.200	0.200	0.200	ZS	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
12	0.200	0.200	0.200	ZS	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
13	0.200	0.200	0.200	ZS	0.200	0.200	0.200	0.300	0.200	0.100	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
14	0.200	0.200	0.200	ZS	0.200	0.200	0.200	0.200	0.100	0.100	0.100	0.100	0.200	0.200	0.200	0.200	0.200	0.200	0.700	0.600	0.300	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	
15	0.200	0.200	0.200	ZS	0.200	0.200	0.200	0.200	0.300	0.200	0.300	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200
16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
23	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
26	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
27	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
28	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
HR MIN	0.200	0.200	0.200	0.200	0.200	0.200	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.100	
HR MAX	0.300	0.300	0.300	0.300	0.300	0.400	1.000	8.400	2.500	1.100	0.700	0.500	0.700	0.700	0.900	2.200	1.900	2.300	1.300	0.600	0.400	0.400	0.300	0.300	0.300	0.300	0.300	0.300	0.300	8.400	
HR AVG	0.213	0.213	0.220	0.207	0.207	0.227	0.327	0.940	0.733	0.500	0.360	0.287	0.353	0.367	0.460	0.740	0.540	0.580	0.347	0.247	0.233	0.213	0.213	0.213	0.213	0.213	0.213	0.213	0.213	0.379	
HR STD	0.035	0.035	0.041	0.026	0.026	0.059	0.205	2.080	0.687	0.316	0.172	0.125	0.188	0.176	0.241	0.665	0.519	0.616	0.304	0.113	0.072	0.052	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.546
n	15	15	15	0	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	345		

Yellowstone National Park

West Entrance

PM2.5 Bam hourly averages (ug/m3 25c)

12/01/2002 - 12/31/2002

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0		
2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0	
3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0	
4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0	
5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0	
6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0	
7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0	
8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0	
9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0	
10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0	
11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0	
12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0	
13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0	
14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0	
15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0	
16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0	
17	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	BM	10.0	9.0	7.0	0.0	1.0	0.0	4.0	5.0	11.0	0.0	11.0	5.2	4.3	9
18	4.0	21.0	13.0	0.0	7.0	5.0	15.0	17.0	13.0	3.0	0.0	0.0	0.0	5.0	4.0	6.0	1.0	5.0	5.0	7.0	9.0	6.0	7.0	12.0	0.0	21.0	6.9	5.7	24	
19	2.0	7.0	6.0	15.0	8.0	16.0	10.0	10.0	7.0	0.0	0.0	5.0	1.0	7.0	0.0	6.0	5.0	3.0	5.0	8.0	8.0	11.0	10.0	5.0	0.0	16.0	6.5	4.3	24	
20	8.0	25.0	13.0	0.0	1.0	1.0	0.0	0.0	3.0	2.0	2.0	8.0	7.0	0.0	0.0	3.0	3.0	3.0	2.0	1.0	8.0	16.0	10.0	19.0	0.0	25.0	5.6	6.7	24	
21	18.0	28.0	10.0	6.0	0.0	7.0	11.0	10.0	1.0	0.0	0.0	3.0	1.0	3.0	5.0	4.0	1.0	5.0	1.0	2.0	2.0	1.0	5.0	0.0	28.0	5.2	6.6	24		
22	2.0	4.0	6.0	6.0	4.0	0.0	1.0	4.0	9.0	15.0	8.0	2.0	0.0	0.0	1.0	10.0	2.0	6.0	2.0	3.0	6.0	8.0	11.0	6.0	0.0	15.0	4.8	3.9	24	
23	8.0	11.0	5.0	0.0	0.0	2.0	5.0	2.0	8.0	3.0	0.0	0.0	0.0	0.0	6.0	18.0	11.0	4.0	13.0	22.0	1.0	7.0	8.0	12.0	0.0	22.0	6.1	6.0	24	
24	23.0	20.0	10.0	0.0	1.0	7.0	11.0	8.0	0.0	0.0	0.0	1.0	2.0	0.0	1.0	7.0	13.0	14.0	9.0	20.0	8.0	1.0	8.0	9.0	0.0	23.0	7.2	7.0	24	
25	1.0	0.0	0.0	3.0	6.0	14.0	5.0	18.0	18.0	12.0	0.0	11.0	8.0	13.0	4.0	1.0	4.0	7.0	6.0	15.0	19.0	11.0	13.0	8.0	0.0	19.0	8.2	6.1	24	
26	5.0	25.0	25.0	16.0	9.0	3.0	3.0	6.0	0.0	0.0	0.0	2.0	0.0	1.0	2.0	2.0	10.0	4.0	5.0	2.0	3.0	5.0	2.0	5.0	0.0	25.0	5.6	7.0	24	
27	1.0	6.0	2.0	3.0	3.0	4.0	2.0	4.0	0.0	6.0	4.0	2.0	4.0	5.0	6.0	2.0	7.0	1.0	0.0	8.0	5.0	5.0	1.0	4.0	0.0	8.0	3.5	2.2	24	
28	2.0	0.0	4.0	4.0	0.0	3.0	1.0	1.0	5.0	30.0	35.0	19.0	10.0	5.0	8.0	6.0	38.0	60.0	6.0	7.0	3.0	1.0	5.0	3.0	0.0	60.0	10.7	15.1	24	
29	0.0	1.0	3.0	4.0	4.0	5.0	1.0	10.0	14.0	12.0	13.0	1.0	4.0	7.0	6.0	8.0	6.0	2.0	3.0	2.0	0.0	6.0	3.0	2.0	0.0	14.0	4.9	4.0	24	
30	0.0	4.0	3.0	5.0	2.0	4.0	6.0	3.0	12.0	34.0	20.0	17.0	2.0	0.0	18.0	14.0	14.0	8.0	5.0	3.0	2.0	6.0	2.0	4.0	0.0	34.0	7.8	8.1	24	
31	4.0	1.0	1.0	5.0	3.0	4.0	4.0	2.0	22.0	37.0	5.0	0.0	8.0	7.0	2.0	10.0	14.0	13.0	3.0	3.0	2.0	3.0	4.0	0.0	37.0	6.6	8.2	24		
HR MIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	2.0	0.0	0.0	0.0	0.0		
HR MAX	23.0	28.0	25.0	16.0	9.0	16.0	15.0	18.0	22.0	37.0	35.0	19.0	10.0	13.0	18.0	18.0	38.0	60.0	13.0	22.0	19.0	16.0	13.0	19.0	60.0	0.0	0.0	0.0		
HR AVG	5.6	10.9	7.2	4.8	3.4	5.4	5.4	6.8	8.0	11.0	6.2	4.9	3.5	3.6	4.4	7.2	9.4	9.2	4.6	6.9	5.1	6.1	5.9	7.3	6.4	0.0	0.0	0.0	0.0	
HR STD	6.9	10.5	6.6	5.1	3.1	4.6	4.7	5.7	7.1	13.3	10.2	6.5	3.5	4.0	4.7	4.7	9.0	14.6	3.3	6.9	4.9	4.1	4.0	4.6	7.1	0.0	0.0	0.0	0.0	
n	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	15	15	15	15	15	15	15	15	345	0.0	0.0	0.0	0.0	

Yellowstone National Park

West Entrance

PM2.5 Bam hourly averages (ug/m3 25c)

01/01/2003 - 01/31/2003

Date	HOUR (LOCAL STANDARD TIME)																							DAY MIN	DAY MAX	DAY AVG	DAY STD n	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
1	1.0	7.0	1.0	3.0	2.0	2.0	10.0	16.0	37.0	42.0	13.0	5.0	0.0	1.0	2.0	3.0	7.0	5.0	8.0	7.0	3.0	4.0	3.0	4.0	0.0	42.0	7.8	10.6 24
2	3.0	4.0	5.0	4.0	6.0	5.0	4.0	6.0	13.0	16.0	14.0	7.0	8.0	7.0	4.0	3.0	9.0	10.0	4.0	2.0	5.0	7.0	0.0	4.0	0.0	16.0	6.3	3.8 24
3	3.0	1.0	4.0	0.0	0.0	4.0	5.0	11.0	16.0	13.0	12.0	9.0	3.0	5.0	7.0	7.0	20.0	23.0	15.0	12.0	6.0	7.0	5.0	16.0	0.0	23.0	8.5	6.3 24
4	2.0	20.0	13.0	13.0	3.0	8.0	7.0	5.0	9.0	24.0	19.0	3.0	0.0	IM	IM	IM	13.0	15.0	11.0	13.0	1.0	4.0	0.0	10.0	0.0	24.0	9.2	6.9 21
5	12.0	13.0	11.0	7.0	13.0	14.0	16.0	14.0	20.0	11.0	0.0	IM	IM	IM	IM	IM	18.0	24.0	12.0	0.0	12.0	6.0	2.0	0.0	0.0	24.0	11.4	6.5 18
6	IM	7.0	13.0	19.0	22.0	17.0	22.0	0.0	0.0	0.0	0.0	4.0	0.0	0.0	IM	16.0	24.0	9.0	29.0	9.0	14.0	18.0	17.0	19.0	0.0	29.0	11.8	9.3 22
7	IM	2.0	8.0	2.0	7.0	4.0	11.0	14.0	17.0	19.0	4.0	0.0	0.0	IM	IM	IM	31.0	5.0	4.0	12.0	12.0	21.0	20.0	0.0	0.0	31.0	9.7	8.5 20
8	IM	7.0	13.0	10.0	4.0	0.0	5.0	4.0	9.0	20.0	7.0	0.0	0.0	1.0	IM	24.0	22.0	9.0	14.0	15.0	15.0	28.0	1.0	0.0	0.0	28.0	9.5	8.5 22
9	IM	7.0	11.0	16.0	11.0	7.0	13.0	10.0	21.0	42.0	29.0	0.0	IM	IM	IM	30.0	13.0	16.0	25.0	13.0	2.0	7.0	11.0	0.0	42.0	14.9	10.4 19	
10	IM	23.0	18.0	21.0	12.0	16.0	15.0	12.0	4.0	28.0	12.0	0.0	12.0	12.0	0.0	11.0	15.0	14.0	10.0	5.0	5.0	10.0	10.0	8.0	0.0	28.0	11.9	6.8 23
11	1.0	9.0	8.0	12.0	15.0	11.0	12.0	5.0	30.0	21.0	5.0	0.0	15.0	6.0	2.0	3.0	12.0	26.0	12.0	5.0	5.0	6.0	9.0	8.0	0.0	30.0	9.9	7.5 24
12	7.0	8.0	5.0	5.0	4.0	7.0	6.0	10.0	12.0	15.0	10.0	8.0	2.0	3.0	4.0	11.0	19.0	10.0	6.0	3.0	13.0	10.0	4.0	11.0	2.0	19.0	8.0	4.2 24
13	4.0	14.0	18.0	15.0	14.0	17.0	4.0	6.0	8.0	3.0	0.0	0.0	8.0	0.0	1.0	2.0	8.0	9.0	5.0	8.0	8.0	6.0	9.0	2.0	0.0	18.0	7.0	5.4 24
14	4.0	12.0	9.0	8.0	3.0	1.0	0.0	2.0	4.0	12.0	0.0	IM	IM	IM	IM	IM	16.0	9.0	3.0	14.0	6.0	11.0	8.0	0.0	0.0	16.0	6.8	4.9 18
15	1.0	3.0	2.0	2.0	5.0	4.0	1.0	0.0	13.0	29.0	IM	IM	IM	IM	IM	16.0	5.0	2.0	9.0	3.0	7.0	9.0	8.0	0.0	29.0	6.6	7.1 18	
16	IM	21.0	13.0	6.0	2.0	5.0	2.0	6.0	7.0	21.0	19.0	1.0	2.0	7.0	5.0	9.0	10.0	7.0	6.0	9.0	2.0	15.0	9.0	5.0	1.0	21.0	8.2	5.9 23
17	0.0	2.0	5.0	7.0	3.0	6.0	4.0	8.0	4.0	11.0	4.0	1.0	0.0	2.0	IM	14.0	33.0	23.0	53.0	10.0	11.0	21.0	13.0	2.0	0.0	53.0	10.3	12.4 23
18	IM	9.0	7.0	4.0	13.0	10.0	4.0	1.0	16.0	38.0	42.0	41.0	17.0	4.0	6.0	9.0	13.0	18.0	18.0	6.0	8.0	9.0	7.0	9.0	1.0	42.0	13.4	11.6 23
19	6.0	12.0	11.0	11.0	13.0	8.0	12.0	13.0	20.0	27.0	16.0	5.0	0.0	IM	IM	IM	18.0	18.0	12.0	9.0	3.0	5.0	3.0	3.0	0.0	27.0	10.7	6.7 21
20	5.0	6.0	9.0	4.0	13.0	9.0	11.0	8.0	12.0	1.0	17.0	12.0	16.0	16.0	11.0	23.0	19.0	19.0	15.0	14.0	26.0	22.0	13.0	15.0	1.0	26.0	13.2	6.1 24
21	16.0	22.0	15.0	21.0	20.0	17.0	8.0	11.0	24.0	23.0	5.0	1.0	0.0	2.0	5.0	11.0	10.0	12.0	12.0	13.0	5.0	22.0	15.0	1.0	0.0	24.0	12.1	7.6 24
22	6.0	10.0	13.0	8.0	6.0	3.0	7.0	13.0	3.0	10.0	8.0	8.0	0.0	2.0	6.0	7.0	9.0	4.0	4.0	14.0	4.0	3.0	0.0	3.0	0.0	14.0	6.3	3.9 24
23	7.0	5.0	0.0	2.0	0.0	2.0	2.0	2.0	7.0	10.0	1.0	5.0	11.0	1.0	2.0	3.0	6.0	6.0	2.0	1.0	0.0	0.0	0.0	0.0	0.0	11.0	3.2	3.2 24
24	0.0	4.0	2.0	4.0	9.0	6.0	8.0	3.0	3.0	31.0	9.0	1.0	4.0	IM	IM	IM	16.0	16.0	13.0	14.0	18.0	8.0	4.0	9.0	0.0	31.0	8.7	7.3 21
25	2.0	11.0	8.0	8.0	9.0	4.0	5.0	3.0	15.0	12.0	6.0	2.0	1.0	14.0	2.0	11.0	10.0	15.0	5.0	4.0	1.0	2.0	7.0	1.0	1.0	15.0	6.6	4.6 24
26	11.0	3.0	4.0	7.0	3.0	1.0	5.0	3.0	2.0	3.0	0.0	2.0	3.0	4.0	5.0	6.0	2.0	3.0	12.0	10.0	PF	PF	18.0	6.0	0.0	18.0	5.1	4.2 22
27	1.0	11.0	9.0	8.0	3.0	3.0	7.0	9.0	13.0	18.0	14.0	5.0	2.0	0.0	2.0	5.0	6.0	12.0	0.0	0.0	7.0	0.0	1.0	2.0	0.0	18.0	5.8	5.1 24
28	1.0	0.0	0.0	0.0	0.0	1.0	4.0	12.0	81.0	34.0	IM	IM	IM	IM	IM	17.0	19.0	6.0	1.0	4.0	5.0	5.0	3.0	0.0	81.0	10.2	19.3 19	
29	0.0	3.0	3.0	8.0	7.0	2.0	3.0	1.0	13.0	25.0	11.0	1.0	4.0	2.0	9.0	9.0	17.0	18.0	13.0	9.0	17.0	10.0	14.0	14.0	0.0	25.0	8.9	6.6 24
30	3.0	15.0	16.0	13.0	3.0	3.0	7.0	3.0	6.0	7.0	6.0	5.0	0.0	IM	IM	IM	8.0	6.0	7.0	3.0	11.0	3.0	3.0	3.0	0.0	16.0	6.4	4.3 20
31	3.0	7.0	3.0	2.0	IM	1.0	2.0	2.0	11.0	9.0	1.0	IM	IM	IM	2.0	6.0	8.0	IM	IM	IM	IM	IM	IM	1.0	11.0	4.4	3.4 13	
HR MIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HR MAX	16.0	23.0	18.0	21.0	22.0	17.0	22.0	16.0	37.0	81.0	42.0	41.0	17.0	16.0	11.0	24.0	33.0	26.0	53.0	25.0	26.0	28.0	20.0	19.0	81.0	8.8		
HR AVG	4.1	9.0	8.3	8.1	7.5	6.4	7.1	6.6	12.1	20.0	10.9	4.7	4.1	5.0	4.1	9.1	14.9	12.8	11.7	8.7	7.8	9.7	7.4	6.2		8.0		
n	24	31	31	31	30	31	31	31	31	30	30	26	25	20	18	21	28	30	30	29	29	30	30	30	30	678		

Yellowstone National Park

West Entrance

PM2.5 Bam hourly averages (ug/m³ 25c)

02/01/2003 - 02/28/2003

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
1	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	1.0	2.0	2.0	1.0	1.0	2.0	1.5	0.6	4	
2	4.0	3.0	2.0	1.0	2.0	2.0	2.0	2.0	0.0	0.0	1.0	0.0	0.0	0.0	IM	IM	16.0	7.0	6.0	4.0	3.0	0.0	9.0	4.0	12.0	0.0	16.0	3.6	4.2	22
3	19.0	22.0	15.0	0.0	0.0	4.0	8.0	12.0	4.0	15.0	10.0	10.0	0.0	0.0	0.0	1.0	13.0	8.0	7.0	1.0	6.0	6.0	15.0	0.0	22.0	7.6	6.5	24		
4	17.0	24.0	20.0	0.0	0.0	3.0	8.0	3.0	12.0	9.0	10.0	0.0	1.0	3.0	2.0	2.0	7.0	0.0	7.0	8.0	19.0	20.0	0.0	10.0	0.0	24.0	7.7	7.5	24	
5	5.0	13.0	11.0	0.0	0.0	1.0	7.0	8.0	25.0	7.0	0.0	0.0	0.0	0.0	6.0	8.0	11.0	6.0	15.0	18.0	7.0	9.0	12.0	14.0	0.0	25.0	7.6	6.5	24	
6	1.0	4.0	13.0	14.0	13.0	21.0	19.0	30.0	37.0	33.0	0.0	0.0	0.0	0.0	3.0	5.0	23.0	7.0	7.0	22.0	16.0	7.0	8.0	20.0	0.0	37.0	12.6	11.0	24	
7	IM	21.0	23.0	16.0	18.0	10.0	15.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	3.0	18.0	10.0	7.0	3.0	3.0	5.0	4.0	16.0	0.0	23.0	7.7	7.7	23	
8	21.0	18.0	7.0	3.0	3.0	2.0	1.0	0.0	10.0	2.0	0.0	1.0	3.0	0.0	2.0	26.0	10.0	11.0	5.0	15.0	20.0	15.0	14.0	0.0	26.0	8.0	7.8	24		
9	IM	0.0	0.0	2.0	IM	12.0	20.0	23.0	15.0	1.0	0.0	0.0	6.0	7.0	17.0	14.0	21.0	13.0	15.0	14.0	17.0	11.0	5.0	13.0	0.0	23.0	10.3	7.5	22	
10	2.0	7.0	7.0	IM	11.0	7.0	10.0	9.0	8.0	22.0	6.0	3.0	1.0	16.0	2.0	7.0	24.0	15.0	11.0	6.0	8.0	7.0	12.0	4.0	1.0	24.0	8.9	5.9	23	
11	2.0	7.0	15.0	5.0	11.0	13.0	11.0	IM	21.0	15.0	14.0	0.0	IM	IM	IM	IM	9.0	13.0	9.0	4.0	7.0	11.0	22.0	0.0	22.0	10.5	5.9	18		
12	23.0	33.0	2.0	0.0	7.0	4.0	7.0	17.0	11.0	16.0	3.0	IM	IM	IM	IM	IM	IM	21.0	10.0	11.0	5.0	13.0	18.0	0.0	33.0	11.8	8.7	17		
13	25.0	5.0	0.0	1.0	1.0	0.0	2.0	12.0	23.0	10.0	27.0	16.0	1.0	2.0	11.0	11.0	10.0	7.0	16.0	9.0	3.0	2.0	3.0	1.0	0.0	27.0	8.3	8.2	24	
14	2.0	9.0	5.0	4.0	1.0	2.0	3.0	3.0	32.0	13.0	IM	IM	IM	IM	IM	IM	6.0	7.0	7.0	5.0	6.0	3.0	2.0	15.0	1.0	32.0	6.9	7.3	18	
15	10.0	15.0	14.0	11.0	10.0	13.0	IM	3.0	41.0	14.0	IM	IM	IM	IM	IM	IM	13.0	11.0	19.0	15.0	13.0	5.0	IM	6.0	3.0	41.0	13.3	8.4	16	
16	0.0	6.0	8.0	7.0	3.0	0.0	IM	13.0	28.0	44.0	29.0	26.0	7.0	3.0	1.0	5.0	5.0	9.0	0.0	0.0	3.0	0.0	1.0	0.0	0.0	44.0	8.7	11.8	23	
17	0.0	3.0	4.0	IM	0.0	IM	IM	3.0	3.0	11.0	17.0	1.0	0.0	9.0	7.0	0.0	23.0	10.0	0.0	5.0	2.0	1.0	5.0	1.0	0.0	23.0	5.0	6.1	21	
18	8.0	IM	3.0	IM	4.0	6.0	IM	13.0	56.0	80.0	IM	14.0	10.0	7.0	3.0	5.0	6.0	IM	3.0	80.0	16.5	23.6	13							
19	21.0	24.0	IM	1.0	0.0	1.0	IM	4.0	5.0	5.0	11.0	1.0	0.0	1.0	0.0	1.0	14.0	12.0	15.0	10.0	4.0	4.0	16.0	IM	0.0	24.0	7.1	7.4	21	
20	20.0	14.0	IM	21.0	14.0	0.0	0.0	0.0	22.0	26.0	0.0	1.0	IM	IM	IM	9.0	24.0	18.0	18.0	18.0	15.0	17.0	9.0	5.0	0.0	26.0	12.6	8.9	20	
21	0.0	6.0	2.0	5.0	1.0	6.0	IM	5.0	5.0	18.0	13.0	0.0	1.0	14.0	10.0	6.0	2.0	6.0	8.0	6.0	6.0	4.0	2.0	0.0	0.0	18.0	5.5	4.7	23	
22	6.0	7.0	4.0	1.0	3.0	3.0	6.0	2.0	5.0	28.0	21.0	7.0	0.0	3.0	2.0	5.0	8.0	17.0	7.0	4.0	5.0	2.0	8.0	1.0	0.0	28.0	6.5	6.6	24	
23	11.0	2.0	0.0	IM	13.0	12.0	IM	IM	24.0	6.0	0.0	5.0	0.0	7.0	9.0	2.0	14.0	11.0	28.0	9.0	8.0	21.0	41.0	IM	0.0	41.0	11.2	10.5	20	
24	IM	IM	IM	IM	IM	IM	IM	IM	0.0	0.0	0.0	0.0	MT	3.0	0.0	1.0	18.0	16.0	21.0	33.0	24.0	29.0	28.0	37.0	0.0	37.0	15.0	14.0	14	
25	IM	IM	IM	IM	IM	IM	IM	IM	20.0	0.0	0.0	0.0	0.0	1.0	1.0	20.0	22.0	7.0	24.0	38.0	10.0	5.0	8.0	0.0	0.0	38.0	9.8	11.6	16	
26	IM	IM	16.0	13.0	15.0	10.0	12.0	11.0	2.0	0.0	0.0	0.0	IM	IM	IM	IM	25.0	19.0	2.0	0.0	2.0	8.0	11.0	0.0	0.0	25.0	8.6	7.7	17	
27	IM	18.0	25.0	6.0	0.0	0.0	2.0	2.0	1.0	20.0	7.0	0.0	IM	IM	IM	IM	13.0	14.0	14.0	7.0	8.0	7.0	15.0	0.0	0.0	25.0	8.8	7.6	18	
28	IM	29.0	2.0	1.0	10.0	13.0	17.0	16.0	28.0	4.0	6.0	5.0	16.0	0.0	12.0	7.0	24.0	18.0	15.0	13.0	17.0	13.0	5.0	8.0	0.0	0.0	29.0	12.1	8.1	23
HR MIN	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
HR MAX	25.0	33.0	25.0	21.0	18.0	21.0	20.0	30.0	56.0	80.0	29.0	26.0	16.0	16.0	17.0	16.0	26.0	25.0	28.0	33.0	38.0	29.0	41.0	37.0	80.0					
HR AVG	9.9	12.6	8.6	5.3	5.8	6.1	8.4	8.4	16.5	15.1	7.4	3.3	1.9	3.9	4.8	5.3	15.0	11.5	11.9	10.1	9.3	8.4	8.8	10.7		9.0				
HR STD n	8.9	9.4	7.6	6.1	5.9	5.7	6.2	7.8	14.8	17.0	8.9	6.4	4.1	4.9	5.1	4.5	7.4	5.5	6.7	7.8	8.5	7.1	8.7	8.6		9.0				
	20	23	23	21	24	24	18	23	26	27	24	23	18	18	18	20	22	26	27	27	28	28	27	25		560				

Final Validation

5/12/2003

Yellowstone National Park

West Entrance

PM2.5 Bam hourly averages (ug/m3 25c)

03/01/2003 - 03/31/2003

Date	HOUR (LOCAL STANDARD TIME)																							DAY MIN	DAY MAX	DAY AVG	DAY STD n		
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
1	22.0	17.0	14.0	6.0	12.0	IM	12.0	26.0	65.0	22.0	IM	IM	IM	IM	IM	IM	IM	23.0	11.0	13.0	13.0	25.0	15.0	1.0	1.0	65.0	18.6	14.2 16	
2	2.0	14.0	22.0	22.0	18.0	5.0	9.0	4.0	IM	0.0	1.0	5.0	0.0	4.0	6.0	8.0	8.0	9.0	9.0	7.0	0.0	2.0	0.0	5.0	0.0	22.0	7.0	6.6 23	
3	7.0	6.0	IM	7.0	IM	8.0	4.0	6.0	7.0	9.0	1.0	IM	IM	IM	9.0	0.0	9.0	9.0	15.0	8.0	1.0	6.0	4.0	IM	0.0	15.0	6.4	3.6 18	
4	18.0	18.0	19.0	IM	13.0	19.0	11.0	0.0	0.0	0.0	0.0	16.0	0.0	0.0	IM	10.0	15.0	4.0	7.0	3.0	7.0	2.0	14.0	23.0	0.0	23.0	9.0	7.8 22	
5	12.0	8.0	7.0	11.0	6.0	1.0	0.0	0.0	5.0	7.0	17.0	3.0	1.0	5.0	4.0	4.0	6.0	9.0	IM	4.0	6.0	1.0	6.0	6.0	0.0	17.0	5.6	4.1 23	
6	2.0	4.0	6.0	IM	3.0	1.0	3.0	2.0	1.0	2.0	3.0	21.0	3.0	0.0	1.0	8.0	6.0	3.0	IM	2.0	2.0	2.0	3.0	4.0	0.0	21.0	3.7	4.3 22	
7	9.0	3.0	2.0	3.0	IM	IM	IM	1.0	2.0	2.0	7.0	1.0	5.0	12.0	20.0	9.0	11.0	34.0	45.0	52.0	25.0	5.0	IM	IM	1.0	52.0	13.1	15.3 19	
8	6.0	6.0	3.0	4.0	IM	4.0	3.0	5.0	2.0	4.0	1.0	2.0	3.0	7.0	9.0	IM	IM	IM	6.0	7.0	7.0	5.0	4.0	1.0	9.0	4.6	2.1 19		
9	2.0	IM	4.0	3.0	1.0	IM	IM	IM	0.0	1.0	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	6.0	4.0	8.0	8.0	0.0	8.0	3.7	2.9 10	
10	0.0	6.0	7.0	4.0	4.0	3.0	5.0	4.0	1.0	0.0	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	3.0	8.0	3.0	0.0	4.0	0.0	8.0	3.5	2.5 15
11	11.0	3.0	4.0	11.0	8.0	6.0	1.0	3.0	1.0	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	1.0	7.0	1.0	5.0	1.0	11.0	4.8	3.6 13	
12	4.0	3.0	6.0	5.0	9.0	2.0	6.0	2.0	3.0	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	2.0	9.0	4.4	2.3 9	
13	IM	IM	10.0	10.0	5.0	10.0	3.0	5.0	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	10.0	11.0	8.0	3.1 8	
14	7.0	7.0	4.0	9.0	5.0	3.0	2.0	1.0	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	10.0	14.0	5.0	1.0	14.0	6.1	3.8 11	
15	7.0	11.0	5.0	6.0	6.0	6.0	4.0	8.0	21.0	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	IM	9.0	4.0	21.0	8.3	4.9 10
16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0
17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0
18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0
19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0
20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0
21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0
22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0
23	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0
24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0
25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0
26	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0
27	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0
28	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0
29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0
30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0
31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0
HR MIN	0.0	3.0	2.0	3.0	1.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	6.0	3.0	7.0	2.0	0.0	1.0	0.0	1.0	0.0	0.0	0.0		
HR MAX	22.0	18.0	22.0	22.0	18.0	19.0	12.0	26.0	65.0	22.0	17.0	21.0	5.0	12.0	20.0	10.0	15.0	34.0	45.0	52.0	25.0	25.0	15.0	23.0	65.0				
HR AVG	7.8	8.2	8.1	7.8	7.5	5.7	4.8	4.8	9.0	4.7	4.3	8.0	2.0	4.7	8.2	6.5	9.2	13.0	17.4	10.9	6.9	6.2	6.7	7.1		7.2			
HR STD	6.3	5.2	6.1	5.2	4.8	5.0	3.7	6.5	18.6	6.8	6.1	8.4	2.0	4.5	6.6	3.8	3.4	11.3	15.7	15.8	7.1	6.5	5.5	5.7		8.0			
n	14	13	14	13	12	12	13	14	12	10	7	6	6	6	6	6	6	7	5	9	11	12	12	12		238			

Yellowstone National Park

West Entrance

Ambient Temperature (aspirated) hourly averages (degC)

12/01/2002 - 12/31/2002

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n				
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23									
1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0								
2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0								
3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0								
4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0								
5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0								
6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0								
7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0								
8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0								
9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0								
10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0								
11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0								
12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0								
13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0								
14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0								
15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0								
16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0								
17	-1.3	-1.4	-1.6	-2.1	-2.0	-2.3	-2.4	-3.1	-2.7	-1.8	-1.6	-0.5	-0.9	-0.7	-1.3	-2.2	-3.0	-4.0	-5.1	-7.5	-9.8	-11.8	-13.0	-13.6	-13.6	-0.5	-4.0	4.0	24				
18	-15.0	-16.4	-18.1	-19.7	-21.2	-22.5	-23.4	-23.2	-20.8	-17.2	-14.8	-11.5	-9.5	-7.2	-7.2	-8.3	-9.3	-10.4	-12.7	-12.5	-12.4	-12.2	-12.2	-12.6	-23.4	-7.2	-14.6	5.1	24				
19	-13.2	-12.5	-13.6	-14.2	-15.4	-15.5	-15.2	-16.6	-18.1	-14.3	-8.0	-7.7	-7.6	-7.4	-7.0	-7.3	-8.1	-9.8	-11.0	-12.1	-12.3	-12.4	-12.4	-13.5	-18.1	-7.0	-11.9	3.3	24				
20	-15.3	-16.8	-18.1	-18.6	-18.4	-17.8	-17.8	-17.3	-16.5	-14.0	-11.9	-9.9	-8.9	-8.1	-7.5	-7.5	-7.4	-8.0	-8.9	-9.6	-10.4	-11.2	-13.0	-14.5	-18.6	-7.4	-12.8	4.1	24				
21	-15.7	-15.2	-14.1	-13.0	-13.6	-14.6	-15.2	-14.5	-12.6	-9.9	-8.2	-6.5	-5.1	-4.4	-4.6	-4.7	-5.2	-5.4	-5.4	-5.5	-5.5	-5.7	-5.6	-15.7	-4.4	-9.0	4.4	24					
22	-6.1	-6.5	-7.3	-8.0	-6.9	-6.0	-6.6	-7.4	-7.5	-7.0	-5.3	-4.5	-3.8	-3.6	-3.7	-4.3	-5.3	-7.8	-9.3	-10.1	-10.8	-13.0	-14.0	-14.2	-14.2	-3.6	-7.5	3.1	24				
23	-13.1	-11.8	-11.1	-10.7	-11.3	-12.7	-12.0	-13.0	-14.1	-12.7	-11.0	-8.3	-7.9	-6.1	-6.1	-7.7	-10.2	-14.3	-16.7	-19.0	-20.9	-22.0	-22.7	-24.1	-24.1	-6.1	-13.3	5.1	24				
24	-25.5	-26.3	-24.7	-23.1	-24.3	-26.1	-26.6	-25.0	-21.7	-18.7	-16.4	-14.2	-11.1	-9.2	-9.2	-10.3	-12.8	-12.9	-13.2	-17.1	-19.1	-20.7	-22.4	-26.6	-9.2	-18.9	6.0	24					
25	-20.6	-19.0	-18.5	-19.2	-20.9	-21.3	-23.1	-24.4	-24.5	-18.2	-15.6	-15.2	-13.7	-12.8	-11.7	-11.5	-12.0	-12.4	-12.7	-13.7	-13.9	-13.6	-13.3	-13.4	-24.5	-11.5	-16.5	4.3	24				
26	-14.8	-16.4	-16.2	-16.5	-15.4	-15.3	-15.9	-16.9	-15.7	-12.7	-11.2	-7.9	-7.3	-6.8	-6.8	-6.9	-7.5	-8.7	-8.2	-7.9	-7.5	-6.9	-6.1	-5.8	-16.9	-5.8	-10.9	4.2	24				
27	-5.6	-5.7	-5.4	-5.3	-5.3	-5.1	-4.9	-4.2	-3.5	-2.9	-2.5	-2.2	-2.1	-2.0	-1.9	-1.6	-1.4	-0.7	-0.4	-0.6	-0.7	-0.2	0.2	0.4	-5.7	0.4	-2.7	2.1	24				
28	0.9	1.2	1.2	0.9	1.0	1.2	1.1	1.1	1.5	1.3	1.2	1.0	1.4	1.4	1.5	1.6	0.8	0.3	0.3	-1.1	-2.0	-2.3	-2.7	-3.0	-3.0	1.6	0.4	1.4	24				
29	-2.1	-2.0	-3.0	-4.9	-2.5	0.0	-0.8	-1.9	-2.0	-1.6	-1.8	-1.4	-2.0	-1.7	-2.9	-3.1	-3.2	-3.4	-3.8	-4.2	-4.3	-4.3	-4.5	-5.0	-5.0	0.0	-2.8	1.3	24				
30	-5.7	-6.6	-6.5	-6.4	-6.6	-6.9	-7.0	-6.9	-6.7	-6.1	-5.7	-5.3	-3.9	-2.5	-3.9	-4.1	-4.1	-4.0	-3.8	-3.8	-3.7	-3.6	-3.5	-3.5	-7.0	-2.5	-5.0	1.4	24				
31	-3.4	-3.2	-3.3	-3.5	-3.7	-3.9	-3.6	-3.3	-2.7	-1.3	-0.6	0.2	-0.4	-0.4	0.0	-0.7	-1.2	-1.8	-2.1	-2.3	-2.2	-2.3	-2.3	-2.4	-3.9	0.2	-2.1	1.3	24				
HR MIN	-25.5	-26.3	-24.7	-23.1	-24.3	-26.1	-26.6	-25.0	-24.5	-18.7	-16.4	-15.2	-13.7	-12.8	-11.7	-11.5	-12.8	-14.3	-16.7	-19.0	-20.9	-22.0	-22.7	-24.1	-26.6								
HR MAX	0.9	1.2	1.2	0.9	1.0	1.2	1.1	1.1	1.5	1.3	1.2	1.0	1.4	1.4	1.5	1.6	0.8	0.3	0.3	-0.6	-0.7	-0.2	0.2	0.4		1.6							
HR AVG	-10.4	-10.6	-10.7	-11.0	-11.1	-11.3	-11.6	-11.8	-11.2	-9.1	-7.6	-6.3	-5.5	-4.8	-4.8	-5.2	-6.0	-6.9	-7.5	-8.5	-9.0	-9.5	-9.8	-10.2		-8.8							
HR STD	7.7	7.8	7.6	7.4	8.0	8.6	8.9	8.7	8.3	6.8	5.8	5.1	4.3	3.9	3.6	3.7	4.1	4.6	5.1	5.7	6.1	6.6	7.0	7.3		6.8							
n	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	360				

Yellowstone National Park

West Entrance

Ambient Temperature (aspirated) hourly averages (degC)

01/01/2003 - 01/31/2003

Date	HOUR (LOCAL STANDARD TIME)																							DAY MIN	DAY MAX	DAY AVG	DAY STD n	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
1	-2.6	-3.4	-4.8	-7.8	-10.0	-11.9	-13.8	-15.3	-15.9	-12.3	-8.7	-5.8	-5.0	-4.5	-5.1	-5.1	-5.4	-5.5	-5.7	-5.3	-5.5	-5.1	-5.0	-15.9	-2.6	-7.3	3.8 24	
2	-5.1	-4.7	-4.4	-4.3	-4.1	-4.0	-4.1	-4.3	-4.3	-3.0	-1.6	-1.9	-2.2	-2.4	-2.5	-2.2	-2.5	-2.6	-2.7	-3.3	-3.2	-3.7	-4.0	-4.1	-5.1	-1.6	-3.4	1.0 24
3	-4.4	-2.4	-2.2	-1.8	-1.5	-1.6	-1.9	-2.2	-2.2	-1.7	-1.2	-1.2	-1.1	-0.9	-0.1	-0.3	-0.5	-0.5	-0.5	-0.5	-0.7	-0.6	-0.8	-0.7	-4.4	-0.1	-1.3	1.0 24
4	-0.9	-0.8	-1.2	-2.0	-2.8	-3.1	-3.0	-3.3	-3.3	-1.7	-0.3	0.4	2.0	2.3	1.9	1.4	0.9	0.0	-1.0	0.1	0.4	0.4	0.4	-0.3	-3.3	2.3	-0.6	1.7 24
5	0.0	-0.4	0.1	-0.1	-0.4	-1.1	-1.7	-2.5	-2.0	1.0	1.9	3.1	4.3	4.4	4.0	2.4	0.4	-2.4	-3.3	-4.2	-6.3	-7.4	-8.8	-10.1	-10.1	4.4	-1.2	4.0 24
6	-11.2	-12.4	-13.2	-14.5	-15.3	-15.5	-13.7	-12.4	-11.2	-9.3	-8.8	-7.8	-5.8	-3.9	-2.0	-2.8	-4.1	-7.2	-9.8	-11.6	-13.3	-14.8	-15.9	-17.0	-17.0	-2.0	-10.6	4.4 24
7	-17.6	-18.5	-18.2	-17.0	-16.2	-16.1	-15.9	-16.0	-16.1	-14.9	-10.6	-7.7	-4.9	-3.5	-1.3	-2.1	-3.8	-7.2	-10.3	-12.5	-14.5	-16.1	-17.5	-18.6	-18.6	-1.3	-12.4	5.8 24
8	-19.8	-20.7	-21.4	-20.4	-19.4	-18.6	-18.5	-18.4	-18.3	-16.5	-13.1	-9.7	-5.7	-3.8	-2.8	-3.0	-4.8	-8.9	-12.1	-14.2	-16.0	-17.5	-18.4	-19.4	-21.4	-2.8	-14.2	6.3 24
9	-20.1	-20.7	-21.3	-22.1	-22.6	-23.6	-24.1	-24.9	-24.5	-16.5	-6.9	-3.8	-2.0	-2.5	-1.4	-3.2	-6.2	-10.7	-14.5	-17.2	-19.2	-20.8	-22.0	-23.1	-24.9	-1.4	-15.6	8.5 24
10	-24.3	-25.2	-25.6	-26.3	-26.8	-27.3	-27.6	-27.3	-26.3	-22.7	-18.3	-12.0	-11.6	-9.2	-7.2	-7.0	-7.6	-7.8	-8.0	-8.5	-8.5	-8.4	-8.3	-27.6	-7.0	-16.3	8.7 24	
11	-8.5	-8.8	-9.2	-9.6	-9.6	-11.3	-11.0	-10.0	-9.3	-7.9	-5.9	-4.2	-3.4	-2.0	-1.1	-1.4	-1.7	-2.8	-2.8	-2.9	-2.9	-3.0	-3.0	-3.0	-11.3	-1.1	-5.6	3.5 24
12	-3.2	-3.5	-3.4	-3.3	-3.2	-3.0	-3.2	-3.4	-3.3	-2.2	-1.4	-1.3	-0.9	-1.2	-0.1	-1.0	-1.3	-1.5	-1.4	-1.2	-1.1	-1.3	-0.9	-0.7	-3.5	-0.1	-2.0	1.1 24
13	-0.5	-0.5	-0.4	-0.4	-0.5	-0.8	-0.7	-0.7	-0.7	-0.3	0.5	0.7	0.7	1.2	1.4	1.4	1.1	0.7	0.5	0.6	0.8	0.8	0.9	0.7	-0.8	1.4	0.3	0.8 24
14	0.4	0.3	0.3	0.5	0.6	0.6	0.8	0.9	1.0	1.2	2.2	2.1	2.4	2.6	2.3	2.0	1.6	1.1	1.1	0.9	0.9	1.0	0.4	0.0	0.0	2.6	1.1	0.8 24
15	-0.7	-0.9	-1.3	-1.9	-2.8	-3.6	-4.8	-4.9	-4.7	-2.0	-0.1	-0.2	-0.9	-1.1	-1.4	-2.8	-4.2	-5.3	-7.1	-8.8	-8.1	-8.9	-10.2	-10.7	-10.7	-0.1	-4.1	3.3 24
16	-10.9	-11.7	-11.7	-11.1	-10.7	-10.4	-10.3	-10.2	-9.8	-8.9	-7.6	-4.7	-4.3	-3.8	-3.5	-4.0	-4.7	-5.6	-6.0	-6.8	-7.2	-6.9	-7.2	-8.0	-11.7	-3.5	-7.8	2.8 24
17	-9.3	-8.9	-8.8	-9.2	-10.1	-10.3	-10.1	-9.8	-9.4	-8.5	-6.4	-5.1	-3.8	-3.5	-2.5	-3.6	-4.7	-7.9	-10.6	-12.9	-14.8	-16.5	-17.7	-18.7	-18.7	-2.5	-9.3	4.4 24
18	-19.6	-18.9	-17.6	-17.6	-17.4	-17.0	-16.1	-15.4	-14.8	-13.7	-12.1	-11.1	-9.2	-7.9	-6.9	-6.5	-6.5	-6.4	-6.0	-6.0	-6.0	-5.8	-6.2	-6.4	-19.6	-5.8	-11.3	5.1 24
19	-6.3	-6.2	-6.2	-6.2	-6.2	-6.0	-5.7	-5.6	-5.1	-3.8	-2.5	-1.1	0.7	1.5	2.1	0.5	-0.4	-1.2	-1.6	-2.6	-2.7	-4.7	-6.8	-7.4	-7.4	2.1	-3.5	2.9 24
20	-5.8	-3.6	-2.7	-2.5	-2.7	-3.2	-2.8	-2.5	-3.0	0.7	0.0	0.1	-0.1	-0.4	-0.6	-1.1	-1.2	-1.4	-1.3	-1.5	-1.9	-2.1	-2.3	-2.7	-5.8	0.7	-1.9	1.4 24
21	-3.4	-3.3	-3.4	-3.4	-3.5	-3.5	-3.0	-3.9	-3.6	-2.2	-1.6	-1.1	-0.9	-1.0	-1.1	-1.3	-1.6	-1.9	-1.8	-1.9	-1.7	-1.9	-2.3	-2.5	-3.9	-0.9	-2.3	1.0 24
22	-2.5	-2.6	-2.5	-2.2	-2.7	-2.8	-2.7	-2.3	-1.9	-2.0	-1.7	-1.5	-1.5	-1.4	-1.3	-1.6	-1.7	-1.7	-1.8	-1.7	-1.5	-1.2	-1.1	-2.8	-1.1	-1.9	0.5 24	
23	-1.4	-1.4	-1.1	-0.7	-0.5	-0.5	-0.2	-0.3	0.0	0.6	0.6	1.0	0.7	0.6	0.8	0.7	0.4	-0.9	-2.3	-2.8	-4.4	-5.7	-7.7	-8.9	-8.9	1.0	-1.4	2.7 24
24	-6.5	-5.4	-6.0	-6.8	-6.9	-6.4	-6.1	-6.2	-5.7	-4.6	-1.5	-1.5	0.7	0.8	0.9	0.0	-0.7	-1.2	-1.5	-1.9	-2.2	-2.3	-2.2	-2.4	-6.9	0.9	-3.2	2.7 24
25	-2.6	-3.1	-2.8	-2.7	-2.8	-2.8	-2.9	-2.8	-1.9	-0.5	-0.3	0.3	0.1	0.2	-0.2	-0.7	-1.3	-1.6	-1.5	-1.2	-1.3	-1.6	-1.6	-3.1	0.3	-1.6	1.1 24	
26	-1.5	-1.6	-1.3	-1.1	-1.0	-0.9	-0.7	-0.6	-0.3	0.9	1.3	1.4	1.3	1.0	0.7	0.8	0.8	1.2	1.5	1.7	1.8	-1.6	1.8	0.3	1.2	2.2		
27	1.8	1.5	1.2	0.9	0.9	1.0	1.0	1.0	1.6	1.8	1.5	1.7	1.5	1.4	1.1	1.0	0.8	0.3	-0.1	-0.2	-0.7	-1.0	-1.7	-1.7	1.8	0.8	0.9	0.9 24
28	-2.8	-3.9	-5.4	-6.3	-6.8	-8.2	-9.7	-11.0	-10.3	-4.2	-1.0	1.0	0.1	0.3	-0.2	-1.3	-2.3	-3.0	-3.4	-3.3	-3.8	-3.6	-3.5	-4.8	-11.0	1.0	-4.1	3.3 24
29	-7.2	-6.6	-5.0	-4.3	-3.6	-3.9	-3.9	-3.6	-3.2	-2.9	-2.4	-1.7	-1.3	-1.2	-1.2	-1.5	-1.9	-2.1	-2.3	-1.9	-1.8	-1.6	-1.5	-7.2	-1.2	-2.8	1.7 24	
30	-1.3	-1.0	-1.1	-1.2	-1.2	-1.3	-1.1	-1.3	-1.0	-0.6	0.2	0.3	1.2	1.5	2.3	2.2	1.2	0.4	-0.4	-0.4	-0.5	0.6	0.9	0.8	-1.3	2.3	-0.0	1.2 24
31	0.5	0.8	1.1	1.3	1.3	1.6	1.7	1.4	1.9	2.4	3.3	3.5	2.9	2.8	2.4	2.6	3.0	3.6	3.8	4.0	4.5	4.3	4.3	0.5	4.5	2.6	1.3 24	
HR MIN	-24.3	-25.2	-25.6	-26.3	-26.8	-27.3	-27.6	-27.3	-26.3	-22.7	-18.3	-12.0	-11.6	-9.2	-7.2	-7.0	-7.6	-10.7	-14.5	-17.2	-19.2	-20.8	-22.0	-23.1	-27.6			
HR MAX	1.8	1.5	1.2	1.3	1.3	1.6	1.7	1.4	1.9	2.4	3.3	3.5	4.3	4.4	4.0	2.6	3.0	3.6	3.8	4.0	4.5	4.5	4.3	4.3	4.5			
HR AVG	-6.4	-6.4	-6.4	-6.6	-6.7	-6.9	-7.0	-7.0	-6.8	-5.0	-3.3	-2.2	-1.5	-1.1	-0.7	-1.2	-1.9	-2.9	-3.6	-4.2	-4.8	-5.2	-5.4	-5.8		-4.5		
HR STD	7.1	7.3	7.4	7.4	7.4	7.5	7.5	7.4	6.5	5.2	4.1	3.5	3.0	2.6	2.5	2.7	3.5	4.3	5.1	5.7	6.3	6.7	7.0		6.2			
n	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	742

Yellowstone National Park

West Entrance

Ambient Temperature (aspirated) hourly averages (degC)

02/01/2003 - 02/28/2003

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
1	4.3	4.2	4.0	3.9	3.4	3.6	3.7	3.9	4.1	4.3	4.3	4.5	4.7	4.7	4.9	4.9	4.4	3.7	1.7	-0.3	-0.8	-0.9	-1.6	-2.1	-2.1	4.9	3.0	2.3	24	
2	-2.3	-2.5	-2.6	-2.9	-3.0	-3.1	-3.4	-3.6	-3.4	-2.7	-2.0	-0.9	0.0	0.8	-0.4	-1.5	-2.3	-3.5	-5.8	-8.1	-9.6	-11.4	-10.8	-12.8	-12.8	0.8	-4.1	3.7	24	
3	-14.5	-16.0	-16.9	-17.9	-18.9	-19.6	-20.4	-20.7	-16.8	-13.0	-10.9	-8.9	-6.8	-5.6	-5.0	-5.1	-5.8	-6.5	-7.0	-7.7	-8.4	-9.6	-11.8	-12.8	-20.7	-5.0	-11.9	5.4	24	
4	-13.9	-15.6	-17.1	-15.8	-14.9	-16.8	-17.9	-17.1	-15.6	-11.4	-8.1	-5.7	-3.8	-3.4	-3.5	-4.7	-5.6	-7.3	-9.9	-14.1	-17.0	-18.8	-19.9	-21.2	-21.2	-3.4	-12.5	5.8	24	
5	-22.2	-22.7	-21.5	-19.6	-19.8	-21.0	-21.4	-22.0	-19.3	-14.7	-11.3	-8.2	-5.6	-5.1	-5.0	-5.5	-7.0	-9.2	-11.8	-12.7	-11.7	-12.4	-14.0	-17.5	-22.7	-5.0	-14.2	6.3	24	
6	-20.5	-22.2	-22.8	-23.8	-25.7	-26.7	-27.7	-28.1	-23.5	-15.8	-11.4	-7.5	-7.1	-5.5	-5.4	-6.1	-7.5	-9.7	-13.0	-16.9	-19.5	-21.4	-22.9	-24.5	-28.1	-5.4	-17.3	7.9	24	
7	-25.6	-26.6	-27.4	-27.7	-27.5	-28.2	-28.3	-25.4	-21.6	-18.1	-14.4	-9.9	-8.1	-7.0	-5.8	-5.2	-6.2	-7.1	-7.9	-8.7	-9.5	-10.2	-11.8	-14.5	-28.3	-5.2	-15.9	8.9	24	
8	-15.0	-14.1	-13.8	-13.3	-13.1	-13.0	-12.8	-12.5	-11.4	-9.6	-8.8	-7.4	-6.5	-6.2	-5.2	-5.4	-6.8	-8.1	-9.0	-11.4	-13.7	-13.1	-13.6	-14.2	-15.0	-5.2	-10.8	3.2	24	
9	-12.3	-11.8	-11.8	-11.9	-12.1	-13.1	-14.3	-13.8	-11.4	-9.0	-7.8	-6.4	-6.2	-5.6	-6.1	-6.0	-7.6	-8.0	-8.2	-8.1	-7.7	-6.7	-6.3	-6.3	-14.3	-5.6	-9.1	2.9	24	
10	-6.2	-6.3	-6.4	-6.5	-6.3	-6.4	-6.3	-6.4	-6.0	-5.0	-4.0	-1.8	-1.2	-1.3	-0.8	-1.6	-2.1	-3.2	-4.5	-5.0	-6.3	-6.2	-5.2	-5.4	-6.5	-0.8	-4.6	2.0	24	
11	-7.8	-5.5	-5.6	-6.0	-5.7	-5.9	-6.2	-6.6	-5.7	-4.6	-3.7	-1.5	-0.1	0.8	1.0	0.5	-0.5	-1.8	-3.3	-5.7	-8.4	-10.5	-12.3	-13.9	-13.9	1.0	-5.0	4.0	24	
12	-15.4	-16.8	-18.2	-19.4	-19.9	-19.0	-19.3	-19.3	-16.6	-10.8	-7.5	-3.2	0.4	2.0	3.2	3.1	1.5	-1.6	-4.7	-7.6	-9.8	-11.6	-13.5	-15.1	-19.9	3.2	-10.0	8.2	24	
13	-16.4	-17.6	-18.2	-18.6	-18.4	-15.2	-12.8	-11.7	-10.0	-7.1	-6.6	-5.3	-3.9	-2.8	-2.8	-1.9	-1.7	-2.5	-2.8	-2.6	-2.4	-2.2	-2.0	-2.3	-18.6	-1.7	-7.8	6.5	24	
14	-2.5	-2.5	-2.2	-1.9	-1.8	-1.9	-1.9	-1.9	-0.6	1.0	2.0	2.4	2.1	1.8	1.6	1.1	0.7	0.0	-0.4	-0.6	-0.8	-0.9	-1.6	-1.8	-2.5	2.4	-0.4	1.6	24	
15	-2.0	-2.1	-2.3	-2.4	-2.3	-1.6	-1.5	-1.7	-1.1	0.9	0.7	1.2	2.2	1.6	1.6	1.0	1.1	0.4	-0.4	-0.8	-1.0	-1.2	-1.4	-1.1	-2.4	2.2	-0.5	1.5	24	
16	-1.2	-2.2	-4.3	-6.3	-6.6	-4.6	-4.4	-4.3	-3.8	-2.9	-2.0	-1.5	-0.3	0.8	1.0	0.6	-0.8	-1.8	-2.3	-2.3	-2.6	-2.7	-3.0	-3.8	-6.6	1.0	-2.6	2.0	24	
17	-4.2	-5.6	-6.0	-6.0	-5.3	-4.9	-5.1	-5.3	-4.2	-2.7	-3.4	-2.1	-1.2	-1.6	-1.0	-1.2	-3.1	-3.9	-3.9	-4.3	-4.2	-4.5	-4.5	-4.3	-6.0	-1.0	-3.9	1.5	24	
18	-4.7	-5.5	-6.7	-8.6	-9.8	-10.9	-12.5	-11.4	-5.9	-1.2	-0.2	-0.5	0.1	0.5	0.5	-0.2	-1.4	-2.6	-4.8	-6.8	-8.1	-10.1	-11.5	-12.9	-12.9	0.5	-5.6	4.6	24	
19	-14.5	-14.0	-12.5	-11.0	-10.4	-9.9	-9.6	-9.3	-8.1	-5.6	-3.6	-2.7	-2.6	-2.3	-1.9	-1.7	-2.1	-3.2	-4.3	-5.7	-8.4	-10.5	-12.3	-13.3	-14.5	-1.7	-7.5	4.4	24	
20	-12.1	-13.1	-14.1	-16.3	-18.0	-17.3	-14.7	-13.6	-10.6	-7.2	-2.9	-1.7	-0.7	-0.3	-1.3	-2.4	-3.9	-4.3	-4.6	-4.2	-4.0	-3.3	-3.0	-3.3	-18.0	-0.3	-7.4	5.9	24	
21	-3.6	-3.6	-3.7	-4.0	-4.2	-4.6	-4.3	-4.3	-4.1	-3.3	-2.2	-0.5	-0.5	-1.5	-1.8	-1.7	-1.6	-1.9	-2.5	-3.1	-3.0	-2.9	-3.1	-2.9	-4.6	-0.5	-2.9	1.2	24	
22	-3.3	-3.5	-3.3	-3.2	-3.4	-3.5	-3.7	-3.7	-3.3	-2.4	-2.1	-2.0	-1.3	-1.1	-1.0	-2.0	-3.1	-5.0	-5.8	-6.6	-9.7	-10.0	-8.7	-10.3	-10.3	-1.0	-4.3	2.8	24	
23	-9.0	-9.1	-8.3	-9.9	-12.2	-13.4	-15.7	-16.5	-17.3	-14.2	-12.6	-11.2	-8.3	-8.3	-8.2	-10.0	-11.9	-14.5	-18.0	-20.4	-22.1	-26.1	-29.4	-31.8	-31.8	-8.2	-14.9	6.8	24	
24	-33.4	-34.7	-36.3	-37.5	-38.5	-39.0	-39.6	-39.3	-29.4	-24.5	-18.0	-16.6	-14.3	-11.5	-9.3	-8.7	-9.4	-11.6	-16.9	-21.0	-24.1	-26.4	-28.5	-30.0	-39.6	-8.7	-24.9	10.9	24	
25	-31.1	-32.3	-33.3	-34.1	-34.9	-35.5	-36.0	-35.5	-23.9	-20.4	-14.6	-11.6	-8.8	-6.2	-4.8	-3.4	-4.6	-6.3	-10.9	-14.7	-17.5	-19.5	-20.9	-22.3	-36.0	-3.4	-20.1	11.6	24	
26	-23.5	-24.6	-25.3	-26.1	-26.8	-27.4	-27.9	-27.6	-17.8	-12.9	-8.6	-4.6	-2.6	-0.6	0.7	1.6	0.8	-1.2	-3.5	-4.5	-6.2	-7.8	-10.4	-12.4	-27.9	1.6	-12.5	10.9	24	
27	-13.4	-14.2	-16.3	-18.3	-18.3	-17.2	-18.1	-17.5	-12.6	-9.5	-5.0	-1.5	0.3	1.6	1.7	1.2	0.2	-1.1	-2.4	-4.0	-6.6	-9.2	-11.4	-13.5	-18.3	1.7	-8.5	7.3	24	
28	-15.1	-16.7	-18.3	-19.7	-20.9	-22.1	-23.3	-23.0	-16.4	-9.8	-5.8	-4.6	-4.0	-2.5	-2.7	-3.0	-4.4	-5.7	-6.5	-6.4	-6.4	-7.4	-9.5	-23.3	-2.5	-10.9	7.3	24		
HR MIN	-33.4	-34.7	-36.3	-37.5	-38.5	-39.0	-39.6	-39.3	-29.4	-24.5	-18.0	-16.6	-14.3	-11.5	-9.3	-10.0	-11.9	-14.5	-18.0	-21.0	-24.1	-26.4	-29.4	-31.8	-39.6					
HR MAX	4.3	4.2	4.0	3.9	3.4	3.6	3.7	3.9	4.1	4.3	4.3	4.5	4.7	4.7	4.9	4.9	4.4	3.7	1.7	-0.3	-0.8	-0.9	-1.4	-1.1		4.9				
HR AVG	-12.2	-12.8	-13.3	-13.7	-14.1	-14.2	-14.5	-14.2	-11.3	-8.3	-6.1	-4.3	-3.0	-2.3	-2.0	-2.3	-3.2	-4.6	-6.2	-7.7	-8.9	-9.9	-10.8	-12.0		-8.8				
HR STD	9.4	9.8	10.0	10.2	10.4	10.7	10.9	10.7	8.2	6.9	5.4	4.7	4.2	3.7	3.5	3.5	3.7	4.0	4.7	5.6	6.3	7.1	7.8	8.4		8.6				
n	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	672

Final Validation

5/12/2003

Yellowstone National Park

West Entrance

Ambient Temperature (aspirated) hourly averages (degC)

03/01/2003 - 03/31/2003

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
1	-10.3	-10.2	-9.9	-10.1	-11.3	-12.1	-13.4	-15.3	-8.9	-3.9	-0.8	-0.5	-0.8	-0.9	-0.8	-0.9	-3.1	-3.9	-7.4	-11.3	-14.2	-16.3	-17.7	-19.4	-19.4	-0.5	-8.5	6.0	24	
2	-21.0	-22.5	-23.7	-24.5	-25.1	-25.1	-25.5	-21.8	-17.7	-14.5	-11.6	-7.0	-5.0	-5.2	-5.7	-4.9	-4.5	-4.7	-5.1	-5.0	-4.1	-3.8	-3.7	-3.9	-25.5	-3.7	-12.3	8.9	24	
3	-4.8	-5.2	-5.5	-5.6	-5.6	-5.7	-5.7	-5.4	-4.1	-2.8	-1.4	0.0	-0.2	-1.6	-1.5	-1.2	-2.0	-2.6	-5.0	-7.6	-8.7	-9.6	-10.0	-11.8	-11.8	0.0	-4.7	3.2	24	
4	-12.7	-13.0	-14.2	-14.7	-15.6	-15.9	-16.1	-15.5	-11.9	-7.4	-4.8	-4.3	-2.5	-2.3	-2.5	-3.9	-4.9	-6.1	-8.0	-8.2	-9.0	-9.7	-14.0	-17.2	-17.2	-2.3	-9.8	5.0	24	
5	-19.2	-21.0	-22.4	-22.3	-22.7	-19.0	-11.1	-9.6	-9.0	-8.4	-8.3	-7.7	-6.3	-5.8	-5.8	-5.1	-4.5	-4.3	-4.1	-3.9	-3.9	-4.0	-4.0	-22.7	-3.9	-9.9	7.0	24		
6	-3.9	-4.1	-4.6	-4.6	-4.3	-3.9	-4.1	-3.8	-2.2	-1.8	-1.5	-3.6	-3.0	-1.5	-1.5	-2.3	-2.9	-2.9	-3.9	-3.2	-3.3	-3.4	-3.8	-4.1	-4.6	-1.5	-3.3	1.0	24	
7	-4.2	-4.3	-4.4	-4.4	-4.1	-3.9	-4.0	-3.9	-3.0	-2.3	-1.9	0.1	0.3	0.3	0.1	0.5	-0.6	-0.3	-0.5	-0.8	-1.5	-1.9	-1.7	-1.7	-4.4	0.5	-2.0	1.8	24	
8	-2.3	-2.4	-2.3	-2.8	-2.9	-2.8	-2.8	-2.9	-2.1	-1.0	0.0	1.1	1.6	2.1	3.2	3.7	3.8	3.6	2.3	0.7	1.6	0.5	-0.3	0.1	-2.9	3.8	-0.0	2.4	24	
9	0.3	-0.3	-0.6	-0.8	-1.1	-1.5	-2.2	-1.0	1.0	2.0	3.3	3.4	3.5	3.4	5.3	5.9	4.5	3.8	3.3	2.4	1.8	1.1	0.5	0.2	-2.2	5.9	1.6	2.3	24	
10	0.0	-0.1	-0.1	0.2	0.1	0.1	-0.1	0.3	1.3	2.2	3.9	4.1	4.1	3.8	3.3	3.2	3.6	3.7	1.9	1.9	1.5	1.8	1.8	0.2	-0.1	4.1	1.8	1.6	24	
11	0.0	0.3	-0.2	-0.8	-0.9	-1.2	-1.0	-0.5	1.0	2.9	3.3	3.5	3.4	4.3	5.1	6.0	5.9	5.7	4.0	3.1	3.4	3.0	2.9	2.7	-1.2	6.0	2.3	2.4	24	
12	2.4	2.4	2.3	1.2	0.8	0.7	0.5	1.0	2.5	4.2	5.9	7.0	6.9	7.0	8.7	8.9	8.0	7.3	6.1	5.9	5.5	4.2	5.4	4.9	0.5	8.9	4.6	2.7	24	
13	4.7	2.7	1.2	-0.4	-1.4	-0.7	-2.3	-0.5	7.1	9.4	10.9	11.6	12.5	13.4	14.0	14.6	13.1	12.5	9.6	6.5	4.3	1.8	0.5	-1.0	-2.3	14.6	6.0	5.9	24	
14	-2.1	-1.5	-0.8	-1.3	-0.9	0.0	1.0	2.9	7.6	7.4	4.5	3.5	4.0	4.1	4.9	4.9	4.8	3.9	3.4	3.0	1.9	0.0	0.2	-2.1	7.6	2.3	2.8	24		
15	-1.7	-2.5	-3.2	-4.2	-5.3	-6.2	-7.1	-5.2	-0.6	2.7	5.5	8.7	11.4	11.1	10.1	10.0	7.1	5.3	4.1	3.1	3.0	2.5	1.8	1.4	-7.1	11.4	2.2	5.8	24	
16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0			
17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0			
18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0			
19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0			
20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0			
21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0			
22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0			
23	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0			
24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0			
25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0			
26	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0			
27	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0			
28	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0			
29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0			
30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0			
31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0			
HR MIN	-21.0	-22.5	-23.7	-24.5	-25.1	-25.5	-21.8	-17.7	-14.5	-11.6	-7.7	-6.3	-5.8	-5.8	-5.1	-4.9	-6.1	-8.0	-11.3	-14.2	-16.3	-17.7	-19.4	-25.5						
HR MAX	4.7	2.7	2.3	1.2	0.8	0.7	1.0	2.9	7.6	9.4	10.9	11.6	12.5	13.4	14.0	14.6	13.1	12.5	9.6	6.5	5.5	4.2	5.4	4.9		14.6				
HR AVG	-5.0	-5.4	-5.9	-6.3	-6.7	-6.5	-6.3	-5.4	-2.6	-0.8	0.5	1.3	2.0	2.1	2.5	2.6	1.9	1.4	0.0	-0.9	-1.4	-2.2	-2.8	-3.6			-2.0			
HR STD	7.6	7.9	8.2	8.1	8.3	7.9	7.4	7.1	6.9	6.2	5.8	5.5	5.4	5.5	5.7	5.9	5.5	5.4	5.3	5.4	5.7	5.7	6.4	7.1			7.2			
n	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	360				

Yellowstone National Park

West Entrance

Station Temperature hourly averages (degF)

12/01/2002 - 12/31/2002

Date	HOUR (LOCAL STANDARD TIME)																							DAY MIN	DAY MAX	DAY AVG	DAY STD	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0			
2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0			
3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0			
4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0			
5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0			
6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0			
7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0			
8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0			
9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0			
10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0			
11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0			
12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0			
13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0			
14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0			
15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0			
16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0			
17	67	67	67	67	67	67	67	67	66	64	66	65	67	66	66	67	67	67	66	66	66	66	66	66	64	67	66	1 24
18	66	65	65	65	65	65	65	65	65	65	66	66	67	67	67	66	66	66	66	66	65	66	66	66	65	67	66	1 24
19	66	66	65	66	65	65	65	65	65	65	66	66	66	66	66	66	66	66	66	66	66	66	66	66	65	66	66	0 24
20	66	66	65	65	65	65	65	65	65	65	66	66	66	66	66	67	67	66	66	66	66	66	66	66	65	67	66	1 24
21	66	65	66	66	66	66	66	66	66	66	66	67	67	67	67	67	66	66	66	67	66	67	66	66	65	67	66	1 24
22	66	67	66	66	66	66	66	66	66	66	67	67	67	67	67	66	66	66	66	66	66	66	66	66	66	67	66	0 24
23	66	66	66	66	66	66	66	66	66	66	66	67	67	67	67	66	66	65	65	65	65	65	65	65	65	67	66	1 24
24	65	65	65	65	65	64	64	64	64	65	65	65	66	66	66	66	65	65	65	65	65	65	64	65	64	66	65	1 24
25	65	65	65	65	65	65	64	64	64	65	65	65	66	66	66	66	66	66	66	66	66	66	66	66	64	66	65	1 24
26	66	65	66	65	66	65	66	65	65	66	66	66	67	66	66	66	66	66	66	66	66	66	66	66	65	67	66	0 24
27	66	66	66	66	66	66	66	66	66	66	67	66	66	66	66	66	66	66	66	66	66	67	67	67	66	67	66	0 24
28	67	66	67	66	67	67	66	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	66	67	67	0 24
29	67	67	66	66	67	67	67	67	66	67	66	67	66	67	66	66	66	66	66	66	66	66	66	66	66	67	66	0 24
30	66	66	66	66	66	66	66	66	66	66	66	66	67	67	67	67	66	66	66	67	66	66	66	67	66	67	66	0 24
31	66	66	66	66	66	66	67	67	67	67	67	67	67	67	67	67	67	66	66	66	67	67	66	66	66	67	67	1 24
HR MIN	65	65	65	65	65	64	64	64	64	65	65	66	66	66	66	65	65	65	65	65	65	64	65	64	64			
HR MAX	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67			
HR AVG	66	66	66	66	66	66	66	66	66	66	66	66	67	67	67	67	66	66	66	66	66	66	66	66	66			
HR STD	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1				
n	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	360

Yellowstone National Park

West Entrance

Station Temperature hourly averages (degF)

01/01/2003 - 01/31/2003

Date	HOUR (LOCAL STANDARD TIME)																							DAY MIN	DAY MAX	DAY AVG	DAY STD n			
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
1	66	66	66	66	66	66	65	65	65	66	66	66	67	66	66	66	66	66	66	66	66	66	66	67	65	67	66	0 24		
2	66	66	66	66	66	66	66	66	66	67	67	67	67	67	66	67	67	66	66	66	66	67	67	67	66	66	67	66	1 24	
3	66	67	66	66	66	66	67	67	67	66	67	67	67	67	67	67	67	66	66	66	67	67	67	66	66	67	67	0 24		
4	67	67	67	67	67	67	67	67	67	67	67	67	67	68	67	67	68	66	66	66	66	66	66	66	66	68	67	1 24		
5	66	66	66	66	65	66	66	66	66	67	66	67	67	68	69	67	66	66	66	66	66	65	65	65	65	65	69	66	1 24	
6	65	65	65	65	65	65	65	65	65	66	66	66	66	67	67	66	66	66	65	65	65	65	65	65	65	65	67	66	1 24	
7	65	65	65	65	65	65	65	65	65	65	66	66	66	67	67	67	66	66	65	65	65	65	65	65	65	65	67	65	1 24	
8	65	65	65	65	65	65	65	65	65	65	65	66	66	67	67	67	66	66	65	65	65	65	65	65	65	65	65	65	1 24	
9	65	65	65	65	65	65	65	64	64	65	65	66	67	68	67	67	66	66	65	65	65	65	65	65	65	64	68	65	1 24	
10	64	64	65	65	64	64	65	65	65	65	65	65	66	66	66	67	66	66	65	66	65	66	66	66	66	64	67	65	1 24	
11	66	66	66	66	65	65	66	66	65	66	66	66	66	66	66	66	66	67	66	66	66	66	66	66	66	65	67	66	0 24	
12	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	67	66	66	66	66	66	66	66	66	66	66	67	66	0 24	
13	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	67	66	66	66	66	66	66	66	66	67	66	0 24	
14	66	66	67	66	66	66	66	66	66	66	66	66	67	66	66	67	67	66	66	66	66	66	66	66	66	66	67	66	0 24	
15	66	66	66	66	66	66	66	66	66	66	66	67	67	67	67	66	66	66	65	65	65	65	65	65	65	65	67	66	1 24	
16	65	65	65	66	66	66	66	65	65	66	66	66	66	66	66	66	66	66	66	66	67	66	66	66	65	65	67	66	1 24	
17	66	66	66	66	66	66	66	66	66	66	66	67	67	66	66	66	67	66	66	66	66	65	65	65	65	65	67	66	1 24	
18	65	65	66	66	65	66	66	66	66	66	66	66	66	66	67	67	67	67	67	66	66	66	66	66	66	65	67	66	1 24	
19	67	67	66	67	67	67	66	66	67	67	67	67	67	67	66	67	66	67	66	66	66	66	66	66	66	66	67	67	1 24	
20	66	67	66	67	66	66	66	66	66	67	67	67	67	67	67	67	67	66	67	67	67	67	67	67	67	66	67	67	0 24	
21	66	67	67	67	67	66	66	67	67	67	67	67	67	67	67	67	67	67	67	67	67	66	67	67	66	66	67	67	0 24	
22	66	66	66	66	66	66	66	67	67	67	66	67	67	67	67	67	67	67	67	67	67	67	67	67	66	66	67	67	0 24	
23	67	67	66	67	67	67	66	67	67	67	67	68	69	70	67	68	66	66	66	67	66	66	66	66	66	66	70	67	1 24	
24	66	67	67	67	66	67	67	67	67	67	68	68	69	67	67	67	67	67	67	67	67	66	67	67	67	66	69	67	1 24	
25	67	67	67	67	67	67	67	67	67	67	67	67	68	67	68	67	67	67	67	67	67	67	67	67	67	67	68	67	0 24	
26	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	0 22	
27	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	0 24	
28	67	67	66	66	66	66	66	66	66	67	68	69	70	70	70	71	68	66	66	66	66	67	67	67	66	71	67	2 24		
29	66	66	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	66	66	67	67	67	66	66	67	67	0 24	
30	67	67	67	67	67	67	67	67	67	67	67	67	68	68	68	68	67	67	67	67	67	67	67	67	67	67	68	67	0 24	
31	67	67	67	67	67	67	67	67	67	68	68	68	67	67	67	67	67	67	67	67	67	68	68	68	67	67	67	742		
HR MIN	64	64	65	65	64	64	65	64	64	65	65	66	66	66	66	66	66	65	65	65	65	65	65	65	64					
HR MAX	67	67	67	67	67	67	67	67	67	68	69	70	70	70	71	68	67	67	67	67	68	68	68		71					
HR AVG	66	66	66	66	66	66	66	66	66	67	67	67	67	67	67	67	67	66	66	66	66	66	66	66		66				
HR STD	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		1
n	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	742	

Yellowstone National Park

West Entrance

Station Temperature hourly averages (degF)

02/01/2003 - 02/28/2003

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n					
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23										
1	67	67	67	67	67	67	67	67	67	68	68	68	68	67	68	67	68	67	67	67	67	67	67	67	67	68	67	0	24					
2	67	67	67	67	67	67	67	67	67	67	67	67	67	69	69	67	67	67	67	66	66	66	66	66	65	69	67	1	24					
3	66	65	65	65	65	65	65	65	65	66	66	66	67	67	67	67	67	67	66	66	66	66	66	66	66	65	67	66	1	24				
4	65	65	65	65	65	66	65	65	65	66	66	67	67	68	68	68	67	66	66	66	65	65	65	65	65	65	68	66	1	24				
5	64	65	65	65	65	65	65	64	65	66	66	67	68	68	68	67	66	66	65	65	65	65	65	65	65	64	68	66	1	24				
6	65	65	64	64	64	64	64	64	64	65	66	67	68	69	68	68	67	66	65	65	65	65	64	64	64	64	69	65	1	24				
7	64	64	64	64	64	64	64	64	65	65	66	67	68	68	68	68	67	66	66	66	66	66	66	65	65	64	68	66	1	24				
8	66	66	66	66	66	66	66	66	66	66	66	67	67	67	68	68	67	66	66	66	65	65	65	65	65	65	68	66	1	24				
9	65	65	65	66	65	66	65	66	66	66	66	67	67	67	67	67	67	66	66	66	66	66	66	66	66	65	67	66	1	24				
10	66	66	66	66	66	66	66	66	66	67	67	67	67	68	68	68	67	67	66	66	66	66	66	66	66	66	68	66	1	24				
11	66	66	66	66	66	66	66	66	66	67	67	67	68	69	70	71	68	66	66	66	66	66	66	66	66	66	71	67	1	24				
12	65	66	65	65	65	65	65	65	65	66	67	68	70	70	68	68	68	67	67	66	66	66	66	66	66	65	70	66	1	24				
13	65	65	65	65	65	65	65	66	66	66	67	67	67	67	66	66	67	67	67	67	67	67	67	67	67	65	67	66	1	24				
14	67	67	67	67	67	67	67	67	67	68	67	68	68	68	68	67	68	67	67	67	67	67	67	67	67	67	68	67	0	24				
15	67	67	67	67	67	67	67	67	67	67	67	68	68	68	68	67	67	67	67	67	67	67	67	67	67	67	68	67	0	24				
16	67	67	66	66	66	66	66	67	67	67	67	67	67	67	67	67	67	67	66	66	66	66	66	66	66	66	67	67	0	24				
17	66	66	66	66	66	66	67	66	66	67	67	67	68	68	68	68	67	67	66	66	66	66	66	66	66	66	68	67	1	24				
18	66	66	66	66	66	66	66	66	66	66	68	69	69	69	70	70	69	67	66	66	66	66	66	66	66	66	70	67	1	24				
19	65	66	66	66	66	66	66	66	66	66	67	67	67	67	67	67	67	67	66	66	66	66	66	66	66	65	65	67	66	1	24			
20	66	66	66	65	65	65	66	66	66	66	67	68	69	68	68	68	67	67	66	66	67	66	66	66	66	65	69	67	1	24				
21	66	67	67	67	66	66	67	66	66	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	66	67	67	0	24				
22	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	66	66	66	66	67	67	0	24			
23	66	66	66	66	66	66	66	66	66	66	67	67	67	68	68	68	67	66	65	65	65	65	64	64	64	64	68	66	1	24				
24	64	64	64	64	64	64	64	64	64	64	65	66	66	66	67	67	67	67	66	66	65	65	65	64	64	64	68	65	1	24				
25	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	69	66	2	24				
26	65	64	64	64	64	64	64	64	64	65	66	67	68	68	69	68	67	67	65	66	65	65	65	65	64	64	70	66	2	24				
27	66	65	65	65	65	65	65	65	65	66	66	67	68	70	70	69	67	66	66	66	66	66	65	65	65	65	70	66	1	24				
28	65	65	65	65	65	65	65	64	65	66	67	67	67	69	69	68	66	66	66	66	66	66	66	66	66	64	69	66	1	24				
HR MIN	64	64	64	64	64	64	64	64	64	65	66	66	67	66	66	67	66	66	65	65	65	65	64	64	64	64	64	64	64					
HR MAX	67	67	67	67	67	67	67	67	67	68	69	69	70	70	71	69	68	67	67	67	67	67	67	67	67	67	71							
HR AVG	66	66	66	66	66	66	66	66	66	67	67	67	68	68	68	68	67	67	66	66	66	66	66	66	66	66	66	66	66					
HR STD	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
n	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	672				

Final Validation

5/12/2003

Yellowstone National Park

West Entrance

Station Temperature hourly averages (degF)

03/01/2003 - 03/31/2003

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
1	66	66	66	66	66	66	66	66	66	66	68	69	70	70	67	67	66	66	65	65	65	65	65	65	65	65	70	66	1 24
2	65	65	65	64	65	64	64	65	65	66	66	66	67	67	66	66	66	66	66	66	66	66	66	66	66	64	67	66	1 24
3	66	66	66	66	66	66	66	66	66	66	67	68	69	69	67	67	66	66	66	66	66	66	66	66	66	66	69	67	1 24
4	66	66	66	65	65	66	65	65	66	66	67	67	68	69	69	67	66	66	65	66	66	66	66	66	65	65	69	66	1 24
5	65	65	65	65	65	65	65	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	65	66	66	0 24
6	66	66	66	66	66	66	66	66	66	66	67	66	66	67	67	66	66	66	66	66	66	66	66	66	66	66	67	66	0 24
7	66	66	66	66	66	66	66	66	66	66	67	66	66	67	67	66	66	66	66	66	66	66	66	66	66	66	67	66	0 24
8	66	66	66	66	66	66	66	66	66	66	67	67	67	67	67	67	67	67	67	67	67	67	67	67	67	66	67	67	1 24
9	66	67	66	67	67	66	66	66	67	67	67	68	67	67	68	70	69	67	67	66	66	67	66	66	67	66	70	67	1 24
10	66	67	66	67	66	67	66	66	66	67	68	70	68	67	69	68	67	66	67	67	66	67	66	66	66	66	70	67	1 24
11	66	67	66	67	66	66	66	66	67	67	69	69	69	69	69	70	69	68	67	67	67	66	66	67	66	70	67	1 24	
12	67	67	67	67	66	67	66	67	68	69	70	69	68	69	69	69	67	68	68	66	67	67	67	67	66	66	70	67	1 24
13	67	67	66	66	66	66	66	67	67	70	70	69	69	69	69	68	69	69	67	68	66	67	66	66	66	66	70	68	1 24
14	66	66	66	66	66	66	67	66	68	69	68	68	67	67	68	69	68	68	67	67	66	66	66	66	66	66	69	67	1 24
15	66	66	66	66	66	66	66	66	67	67	70	69	69	69	69	69	67	68	68	66	67	67	67	67	66	66	70	67	1 24
16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
23	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
26	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
27	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
28	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
HR MIN	65	65	65	64	65	64	64	65	65	66	66	66	66	66	66	66	66	66	65	65	65	65	65	65	65	64			
HR MAX	67	67	67	67	67	67	67	68	70	70	70	70	70	70	70	69	70	69	69	68	68	67	67	67	67	70			
HR AVG	66	66	66	66	66	66	66	66	67	68	68	68	68	68	68	68	68	68	67	67	66	66	66	66	66	67			
HR STD	1	1	0	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1		1		
n	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	360			

Yellowstone National Park

West Entrance

Scalar Wind Speed hourly averages (m/s)

12/01/2002 - 12/31/2002

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
17	1.6	1.5	1.1	0.4	0.8	0.4	0.5	0.3	0.6	0.8	1.0	1.1	0.8	1.0	1.0	0.6	0.3	0.2	0.2	0.2	0.1	0.2	0.2	0.3	0.1	1.6	0.6	0.4	24
18	0.3	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.5	0.6	0.5	0.6	0.7	1.3	1.6	1.4	0.9	0.4	0.3	0.3	0.4	0.2	0.3	0.4	0.2	1.6	0.6	0.4	24
19	0.5	0.2	0.3	0.4	0.4	0.4	0.4	0.4	0.5	0.3	0.4	0.9	1.3	1.1	1.2	1.1	0.9	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.2	1.3	0.5	0.4	24
20	0.2	0.2	0.2	0.3	0.3	0.2	0.3	0.2	0.3	0.3	0.6	0.6	0.6	0.5	0.4	0.7	0.4	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.2	0.7	0.3	0.2	24
21	0.3	0.3	0.2	0.2	0.3	0.2	0.2	0.3	0.4	0.4	0.3	0.4	0.5	1.0	0.9	0.8	0.6	0.5	0.4	0.5	0.5	0.4	0.6	0.6	0.2	1.0	0.5	0.2	24
22	0.4	0.3	0.2	0.2	0.3	0.5	0.3	0.2	0.2	0.5	0.7	0.8	1.0	0.9	1.0	0.6	0.2	0.2	0.1	0.2	0.2	0.2	0.4	0.3	0.1	1.0	0.4	0.3	24
23	0.3	0.2	0.3	0.2	0.3	0.2	0.6	0.6	0.7	0.8	0.6	0.5	0.6	0.5	0.5	0.2	0.3	0.2	0.3	0.2	0.3	0.3	0.3	0.3	0.2	0.8	0.4	0.2	24
24	0.3	0.3	0.4	0.4	0.3	0.3	0.4	0.5	0.5	0.5	0.7	1.0	0.7	1.4	1.1	0.8	0.2	0.7	0.5	0.3	0.4	0.3	0.3	0.4	0.2	1.4	0.5	0.3	24
25	0.7	0.4	0.4	0.3	0.4	0.3	0.4	0.4	0.5	0.4	1.0	0.7	0.7	0.8	0.7	0.5	0.3	0.3	0.3	0.2	0.3	0.3	0.2	0.2	0.2	1.0	0.5	0.2	24
26	0.2	0.2	0.4	0.3	0.4	0.3	0.3	0.4	0.3	0.4	0.4	0.9	1.1	1.0	1.1	1.1	0.6	0.3	0.3	0.3	0.3	0.6	0.6	0.5	0.2	1.1	0.5	0.3	24
27	0.6	0.9	0.9	0.9	0.9	0.9	1.1	0.9	1.0	1.2	1.6	1.9	1.9	2.3	2.5	2.1	1.9	2.3	1.9	1.7	1.5	1.9	2.1	2.2	0.6	2.5	1.5	0.6	24
28	2.0	1.9	2.2	2.0	1.8	1.7	1.8	1.3	1.0	0.7	0.6	0.5	0.6	0.3	0.5	0.6	0.2	0.4	0.5	0.4	0.3	0.2	0.2	0.4	0.2	2.2	0.9	0.7	24
29	0.6	0.4	0.4	0.4	0.8	1.6	1.6	1.2	1.3	2.2	2.2	2.4	2.8	2.3	1.6	1.6	2.0	1.8	1.8	1.4	1.2	1.3	0.9	0.4	2.8	1.5	0.7	24	
30	0.8	0.9	1.0	0.9	1.0	1.0	1.2	0.9	0.8	0.9	1.2	1.2	0.9	1.0	0.8	0.8	0.6	0.8	1.1	1.1	1.1	1.2	1.1	0.9	0.6	1.2	1.0	0.2	24
31	1.1	1.3	1.3	1.0	0.6	0.4	0.5	0.5	0.5	0.7	1.1	1.2	1.6	1.3	1.1	1.2	1.2	1.1	0.9	0.9	0.9	0.7	1.1	1.6	0.4	1.6	1.0	0.3	24
HR MIN	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.3	0.3	0.4	0.5	0.3	0.4	0.2	0.2	0.2	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.1				
HR MAX	2.0	1.9	2.2	2.0	1.8	1.7	1.8	1.3	1.3	2.2	2.2	2.4	2.8	2.3	2.5	2.1	1.9	2.3	1.9	1.8	1.5	1.9	2.1	2.2		2.8			
HR AVG	0.7	0.6	0.6	0.6	0.6	0.6	0.7	0.6	0.6	0.9	1.0	1.1	1.1	1.1	0.9	0.9	0.7	0.7	0.6	0.6	0.5	0.5	0.6	0.6		0.7			
HR STD	0.5	0.5	0.6	0.5	0.4	0.5	0.5	0.3	0.3	0.5	0.5	0.5	0.6	0.6	0.5	0.5	0.5	0.7	0.6	0.5	0.5	0.5	0.6	0.6		0.5			
n	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	360				

Yellowstone National Park

West Entrance

Scalar Wind Speed hourly averages (m/s)

01/01/2003 - 01/31/2003

Date	HOUR (LOCAL STANDARD TIME)																							DAY MIN	DAY MAX	DAY AVG	DAY STD n		
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
1	1.3	0.6	0.3	0.2	0.2	0.4	0.3	0.3	0.3	0.3	0.5	0.9	1.2	1.3	1.2	1.0	0.6	0.6	0.8	0.9	0.7	0.8	0.7	0.7	0.2	1.3	0.7	0.4 24	
2	0.7	1.1	0.9	1.0	0.9	1.0	0.7	0.5	0.4	0.6	0.8	0.7	1.1	0.9	0.7	1.0	0.8	0.6	0.7	0.4	0.5	0.6	0.6	0.4	0.4	1.1	0.7	0.2 24	
3	0.5	1.5	1.1	0.9	1.3	1.1	1.0	1.1	1.3	1.4	1.2	1.4	1.2	1.3	1.7	1.8	1.5	1.5	1.1	0.9	0.7	1.1	1.4	1.5	0.5	1.8	1.2	0.3 24	
4	1.0	1.1	0.7	0.4	0.3	0.2	0.3	0.3	0.2	0.4	0.3	0.3	0.4	0.8	0.9	0.7	0.7	0.5	0.3	0.5	0.4	0.5	0.7	0.2	0.2	1.1	0.5	0.3 24	
5	0.5	0.4	0.6	1.0	0.9	0.6	0.3	0.3	0.3	0.4	0.4	0.8	1.0	0.9	0.7	0.5	0.2	0.3	0.4	0.3	0.2	0.4	0.3	0.3	0.2	1.0	0.5	0.3 24	
6	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.4	0.2	0.4	0.5	0.5	0.5	0.7	0.6	0.6	0.3	0.4	0.2	0.3	0.1	0.2	0.3	0.3	0.1	0.7	0.3	0.2 24	
7	0.1	0.3	0.3	0.3	0.2	0.1	0.2	0.2	0.2	0.5	0.6	0.6	0.6	0.7	0.4	0.4	0.3	0.3	0.1	0.3	0.2	0.2	0.3	0.3	0.1	0.7	0.3	0.2 24	
8	0.2	0.3	0.3	0.3	0.4	0.3	0.2	0.4	0.4	0.5	0.7	0.7	0.6	0.7	0.7	0.5	0.4	0.2	0.1	0.3	0.2	0.4	0.2	0.4	0.1	0.7	0.4	0.2 24	
9	0.4	0.3	0.4	0.3	0.3	0.5	0.5	0.4	0.5	0.4	0.4	0.5	0.6	0.7	0.5	0.6	0.2	0.2	0.1	0.2	0.2	0.2	0.3	0.3	0.1	0.7	0.4	0.2 24	
10	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.4	0.5	0.5	0.8	0.7	0.9	0.5	0.7	0.5	0.6	0.2	0.1	0.2	0.1	0.2	0.2	0.2	0.1	0.9	0.4	0.2 24	
11	0.2	0.2	0.2	0.2	0.2	0.4	0.3	0.3	0.4	0.4	0.5	0.5	0.5	0.3	0.7	0.7	0.5	0.4	0.5	0.4	0.7	0.7	0.8	0.7	0.2	0.8	0.4	0.2 24	
12	0.9	0.7	0.7	0.7	0.6	0.5	0.3	0.3	0.8	1.4	0.8	1.5	1.4	1.1	1.3	0.7	0.8	0.7	1.0	1.5	1.4	1.3	0.7	0.3	1.5	0.9	0.4 24		
13	0.7	1.1	1.3	1.2	1.2	0.6	0.7	0.9	1.2	1.2	2.0	2.3	2.2	2.0	1.6	1.2	1.1	0.7	0.4	0.3	0.2	0.3	0.3	0.2	0.2	2.3	1.0	0.6 24	
14	0.3	0.3	0.2	0.5	0.4	0.6	0.8	0.7	0.6	0.5	0.7	1.3	1.4	1.1	1.1	1.0	0.8	0.9	1.0	1.1	0.8	1.0	1.2	1.2	0.2	1.4	0.8	0.3 24	
15	0.4	0.5	0.8	0.5	0.6	0.4	0.4	0.3	0.2	0.8	0.8	0.8	1.4	1.2	1.2	0.8	0.6	0.8	0.5	0.3	0.3	0.5	0.3	0.2	0.2	1.4	0.6	0.3 24	
16	0.3	0.4	0.4	0.3	0.3	0.3	0.2	0.4	0.3	0.4	0.5	0.5	0.6	0.8	0.6	0.3	0.3	0.2	0.3	0.3	0.3	0.5	0.2	0.2	0.8	0.4	0.1 24		
17	0.3	0.3	0.3	0.4	0.4	0.2	0.3	0.4	0.7	0.7	0.6	0.6	1.1	1.0	0.8	0.9	0.5	0.2	0.3	0.3	0.2	0.3	0.3	0.2	0.2	1.1	0.5	0.3 24	
18	0.3	0.4	0.3	0.4	0.3	0.3	0.4	0.3	0.4	0.3	0.4	0.7	0.6	0.5	0.4	0.5	0.5	0.5	0.7	0.8	0.5	0.5	0.4	0.5	0.3	0.8	0.5	0.1 24	
19	0.3	0.5	0.2	0.3	0.6	0.4	0.4	0.4	0.5	0.5	0.5	1.0	1.1	1.4	1.7	1.5	1.1	0.7	0.7	0.5	0.8	0.6	0.5	0.5	0.2	1.7	0.7	0.4 24	
20	0.4	0.5	0.5	0.7	0.6	0.5	0.9	0.9	0.8	1.6	1.7	1.1	1.2	1.4	1.4	1.4	1.1	0.8	1.0	1.2	1.5	1.2	1.0	0.8	0.4	1.7	1.0	0.4 24	
21	1.0	0.8	0.8	0.6	1.2	1.1	1.2	0.5	0.5	0.5	0.8	1.1	1.6	2.0	1.9	1.6	1.6	1.3	1.5	1.8	2.0	2.0	1.9	2.2	0.5	2.2	1.3	0.5 24	
22	2.2	2.3	2.2	2.3	1.9	1.3	1.6	1.6	1.5	2.0	1.8	1.6	1.4	1.5	1.5	1.5	1.2	1.1	1.6	1.6	1.4	1.3	1.1	1.0	1.0	2.3	1.6	0.4 24	
23	1.3	1.1	1.2	1.4	1.5	1.3	0.9	0.7	0.7	1.3	1.8	1.9	1.8	1.6	1.8	1.2	0.8	0.6	0.6	0.5	0.4	0.4	0.4	0.4	0.4	1.9	1.1	0.5 24	
24	0.6	0.5	0.4	0.4	0.3	0.2	0.4	0.7	0.4	0.5	0.6	0.6	1.1	1.4	1.3	1.2	1.0	1.2	1.4	1.6	1.6	1.5	0.9	0.6	0.2	1.6	0.9	0.5 24	
25	0.7	0.3	0.5	0.6	1.8	0.9	0.8	1.4	1.1	0.7	1.2	1.7	1.9	1.9	1.5	1.5	1.7	1.2	1.1	1.0	1.0	1.5	1.4	1.2	0.3	1.9	1.2	0.5 24	
26	1.0	0.7	0.8	1.3	1.3	1.0	1.2	0.6	0.9	1.7	1.9	2.2	2.3	1.7	1.2	1.6	1.3	1.3	1.6	1.5	PF	PF	1.1	1.2	0.6	2.3	1.3	0.4 22	
27	0.6	1.0	1.1	1.3	1.1	0.9	1.2	1.7	1.4	1.4	1.5	1.0	0.8	0.7	0.8	0.7	0.5	0.8	1.0	0.4	0.3	0.6	0.5	0.6	0.3	1.7	0.9	0.4 24	
28	0.4	0.4	0.3	0.3	0.4	0.2	0.2	0.2	0.3	0.6	0.6	1.3	1.5	1.5	1.4	1.1	1.0	0.7	0.5	0.7	0.4	0.7	0.9	0.4	0.2	1.5	0.6	0.4 24	
29	0.4	0.3	0.3	0.3	0.4	0.3	0.3	0.4	0.4	0.8	1.0	1.2	1.0	1.0	1.5	1.1	1.2	1.8	1.3	1.8	1.9	1.8	1.9	1.7	0.3	1.9	1.0	0.6 24	
30	1.7	1.6	1.9	1.5	1.1	1.2	1.6	1.5	1.7	1.9	2.0	1.8	1.3	1.2	0.7	0.8	0.8	0.6	0.8	0.8	0.6	0.8	0.6	0.9	0.6	2.0	1.2	0.5 24	
31	0.4	0.9	1.3	1.2	1.1	1.3	1.3	1.1	0.8	0.8	1.2	1.4	1.4	1.5	1.1	0.9	0.8	0.8	0.9	1.1	1.2	1.5	1.1	1.4	0.4	1.5	1.1	0.3 24	
HR MIN	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.4	0.3	0.4	0.4	0.4	0.2	0.2	0.1	0.2	0.1	0.2	0.2	0.1	0.1			
HR MAX	2.2	2.3	2.2	2.3	1.9	1.3	1.6	1.7	1.7	2.0	2.0	2.3	2.0	1.9	1.8	1.7	1.8	1.6	1.8	2.0	2.0	1.9	2.2		2.3				
HR AVG	0.6	0.7	0.7	0.7	0.7	0.6	0.6	0.6	0.8	1.0	1.0	1.1	1.1	1.1	1.0	0.8	0.7	0.7	0.8	0.7	0.8	0.8	0.7	0.7	0.8	0.8	0.8	0.8	
HR STD	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.5	0.5	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
n	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	742

Yellowstone National Park

West Entrance

Scalar Wind Speed hourly averages (m/s)

02/01/2003 - 02/28/2003

Date	HOUR (LOCAL STANDARD TIME)																							DAY MIN	DAY MAX	DAY AVG	DAY STD n		
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
1	1.6	1.6	1.3	1.3	1.1	1.0	1.0	1.3	1.3	1.3	1.4	1.2	1.1	1.2	1.2	0.8	0.6	0.7	0.5	0.5	0.3	0.5	0.4	0.6	0.3	1.6	1.0	0.4 24	
2	0.5	0.5	0.4	0.3	0.5	0.7	0.8	0.6	0.7	0.9	0.9	0.8	1.1	1.2	1.0	0.9	0.8	0.6	0.3	0.4	0.3	0.3	0.3	0.4	0.3	1.2	0.6	0.3 24	
3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.5	0.4	0.7	0.8	1.2	1.4	1.1	0.9	0.8	0.8	0.6	0.5	0.3	0.3	0.3	0.3	0.3	1.4	0.6	0.3 24
4	0.2	0.2	0.3	0.3	0.2	0.3	0.3	0.3	0.4	0.7	0.9	0.7	1.0	0.8	0.8	0.8	0.6	0.6	0.2	0.3	0.3	0.4	0.3	0.3	0.2	1.0	0.5	0.3 24	
5	0.4	0.4	0.3	0.3	0.3	0.3	0.4	0.3	0.4	0.6	0.7	0.7	0.8	0.8	0.7	1.0	0.6	0.4	0.3	0.3	0.5	0.5	0.2	0.5	0.2	1.0	0.5	0.2 24	
6	0.4	0.5	0.6	0.4	0.5	0.5	0.7	0.7	0.6	0.6	0.8	0.8	1.0	0.8	0.9	0.9	0.6	0.5	0.3	0.4	0.3	0.2	0.3	0.4	0.2	1.0	0.6	0.2 24	
7	0.4	0.5	0.4	0.4	0.5	0.5	0.5	0.4	0.5	1.0	1.0	0.7	0.8	0.8	0.9	0.8	0.4	0.3	0.5	0.3	0.4	0.3	0.2	0.3	0.2	1.0	0.5	0.2 24	
8	0.3	0.2	0.3	0.4	0.3	0.3	0.2	0.2	0.2	0.5	0.8	0.6	0.8	1.0	1.1	1.1	0.9	0.7	0.7	0.2	0.2	0.5	0.3	0.4	0.2	1.1	0.5	0.3 24	
9	0.9	1.0	1.0	0.7	0.6	0.4	0.2	0.4	0.8	1.0	1.3	1.5	1.7	1.9	2.0	1.9	1.7	1.4	1.2	1.3	1.2	1.7	1.6	1.7	0.2	2.0	1.2	0.5 24	
10	1.7	1.8	1.9	1.9	1.7	1.7	1.7	1.2	1.3	1.1	1.2	1.3	1.6	1.5	1.5	1.3	1.1	0.9	0.8	0.9	0.4	0.6	0.8	0.7	0.4	1.9	1.3	0.4 24	
11	0.5	1.1	1.3	0.8	1.1	1.0	0.6	0.4	0.3	0.5	1.3	1.6	1.3	1.3	1.4	1.4	1.2	0.9	0.5	0.2	0.3	0.3	0.2	0.2	0.2	0.2	1.6	0.8	0.5 24
12	0.2	0.3	0.2	0.2	0.4	0.3	0.3	0.4	0.5	0.5	0.7	0.8	0.6	0.7	0.6	0.8	1.0	0.3	0.1	0.1	0.2	0.2	0.2	0.2	0.1	1.0	0.4	0.3 24	
13	0.2	0.2	0.3	0.3	0.2	0.2	0.3	0.3	0.4	0.6	0.6	0.4	0.3	0.5	0.4	0.3	0.3	0.3	0.2	0.2	0.3	0.2	0.2	0.1	0.1	0.6	0.3	0.1 24	
14	0.1	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.3	0.5	0.8	0.8	0.9	1.0	1.0	0.7	0.7	0.9	1.0	0.5	0.2	0.1	0.1	0.1	1.0	0.5	0.3 24	
15	0.1	0.1	0.1	0.2	0.3	0.3	0.4	0.5	1.0	1.3	1.1	0.9	1.4	1.1	1.1	0.7	0.7	0.3	0.2	0.1	0.2	0.2	0.4	0.1	1.4	0.5	0.4 24		
16	0.5	0.3	0.3	0.4	0.4	0.3	0.4	0.3	0.3	0.3	0.5	0.6	0.5	0.3	1.4	2.5	2.5	3.0	2.5	1.8	2.3	1.3	1.2	0.3	0.3	3.0	1.0	0.9 24	
17	1.0	0.5	0.7	0.8	1.1	1.1	1.2	1.2	1.3	1.5	1.9	1.9	2.0	1.8	1.9	1.9	1.7	1.3	1.2	0.7	1.0	0.8	0.7	0.7	0.5	2.0	1.2	0.5 24	
18	0.9	0.6	0.5	0.4	0.4	0.3	0.3	0.4	0.2	0.6	1.1	1.2	1.6	1.7	1.7	1.5	1.3	0.8	0.5	0.4	0.5	0.4	0.3	0.2	0.2	1.7	0.7	0.5 24	
19	0.3	0.2	0.3	0.4	0.3	0.3	0.3	0.4	0.4	0.4	0.9	1.2	1.1	1.1	1.1	1.2	1.0	0.6	0.4	0.3	0.3	0.4	0.3	0.3	0.2	1.2	0.6	0.4 24	
20	0.3	0.2	0.2	0.3	0.4	0.3	0.4	0.2	0.3	0.7	0.7	1.0	1.6	1.6	1.5	1.7	1.1	0.6	0.4	0.8	1.1	1.2	1.9	1.4	0.2	1.9	0.8	0.6 24	
21	1.6	1.5	1.2	0.9	1.1	0.8	0.8	1.1	1.2	1.4	1.6	1.9	1.8	1.6	1.6	1.2	1.4	1.1	0.8	0.8	0.8	1.0	1.2	0.8	0.8	1.9	1.2	0.3 24	
22	0.6	0.5	0.8	1.1	1.1	1.2	1.0	1.4	0.7	0.5	0.8	0.9	0.7	0.7	0.6	1.0	1.0	0.7	0.3	0.3	0.3	0.5	0.3	0.3	0.3	1.4	0.7	0.3 24	
23	0.6	0.5	1.2	1.1	0.5	0.5	0.7	0.3	0.5	1.1	1.5	1.4	1.1	1.3	1.0	1.0	0.9	0.7	0.4	0.4	0.5	0.6	0.8	1.1	0.3	1.5	0.8	0.4 24	
24	1.4	1.7	1.4	2.2	2.1	1.9	1.8	2.1	2.0	1.3	0.9	1.1	1.2	0.9	0.9	0.8	0.5	0.2	0.2	0.2	0.3	0.4	0.7	0.2	2.2	1.1	0.7 24		
25	0.9	1.0	1.4	1.4	1.8	1.3	1.5	1.8	1.0	1.4	0.9	0.7	1.0	0.7	0.9	0.6	0.4	0.2	0.1	0.2	0.1	0.2	0.2	0.1	0.1	1.8	0.8	0.6 24	
26	0.2	0.2	0.3	0.2	0.4	0.4	0.5	0.4	0.6	0.8	0.9	0.7	0.8	0.8	0.9	0.8	0.7	0.2	0.3	0.8	0.5	0.2	0.2	0.2	0.2	0.2	0.9	0.5	0.3 24
27	0.2	0.1	0.2	0.1	0.2	0.1	0.3	0.2	0.2	0.6	0.7	0.8	0.8	0.7	1.1	0.9	1.1	0.6	0.4	0.1	0.1	0.1	0.3	0.2	0.1	0.1	1.1	0.4	0.3 24
28	0.2	0.2	0.2	0.3	0.2	0.1	0.3	0.3	0.4	0.8	0.8	0.8	1.4	1.6	1.6	1.6	1.5	0.9	0.7	0.5	0.2	0.2	0.5	0.1	0.1	1.6	0.7	0.6 24	
HR MIN	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.3	0.5	0.4	0.3	0.3	0.4	0.3	0.4	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	
HR MAX	1.7	1.8	1.9	2.2	2.1	1.9	1.8	2.1	2.0	1.5	1.9	2.0	1.9	2.0	1.9	2.5	3.0	2.5	1.8	2.3	1.7	1.9	1.7	3.0					
HR AVG	0.6	0.6	0.6	0.6	0.7	0.6	0.6	0.6	0.8	0.9	1.0	1.1	1.1	1.1	1.1	1.0	0.7	0.6	0.5	0.5	0.5	0.5	0.5	0.7					
HR STD n	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.4	0.5	0.5	0.4	0.4	0.4	0.5	0.5	0.5	0.5	
	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	672	

Yellowstone National Park

West Entrance

Scalar Wind Speed hourly averages (m/s)

03/01/2003 - 03/31/2003

Date	HOUR (LOCAL STANDARD TIME)																							DAY MIN	DAY MAX	DAY AVG	DAY STD n		
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
1	0.2	0.2	0.3	0.2	0.1	0.1	0.1	0.2	0.4	0.7	0.7	0.8	0.8	0.9	0.8	0.6	0.4	0.3	0.2	0.2	0.2	0.3	0.3	0.1	0.9	0.4	0.3 24		
2	0.2	0.3	0.3	0.3	0.4	0.5	0.5	0.6	0.4	0.4	0.6	1.0	1.5	1.4	1.1	0.9	1.0	1.2	0.7	0.6	0.9	1.3	1.8	1.4	0.2	1.8	0.8	0.5 24	
3	1.1	1.1	1.3	1.0	0.7	0.8	1.0	0.9	0.7	1.3	1.2	1.4	1.4	1.3	1.0	0.9	0.7	0.6	0.4	0.3	0.3	0.3	0.3	0.3	0.3	1.4	0.8	0.4 24	
4	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.4	0.5	0.7	1.1	1.6	2.1	2.0	2.2	1.6	1.1	0.2	0.2	0.2	0.2	0.2	0.3	0.2	2.2	0.7	0.7 24		
5	0.2	0.4	0.4	0.4	0.4	0.5	0.9	1.3	1.3	1.7	1.8	1.6	1.6	1.4	1.4	1.4	1.2	1.5	1.7	1.7	1.3	1.5	2.0	2.1	0.2	2.1	1.2	0.6 24	
6	2.2	2.1	2.3	2.1	2.1	1.7	1.6	1.7	2.0	2.2	1.9	1.4	1.3	2.3	2.8	2.3	1.7	0.9	1.1	0.9	0.7	1.1	1.6	2.1	0.7	2.8	1.8	0.5 24	
7	2.1	1.5	1.0	1.2	0.9	1.5	1.5	2.0	2.5	2.5	2.2	2.5	2.2	1.9	2.2	1.9	1.9	1.9	2.3	2.3	2.2	2.4	2.6	0.9	2.6	2.0	0.5 24		
8	1.8	1.9	2.3	1.8	1.5	1.6	1.6	1.4	1.9	2.1	2.4	2.5	2.2	2.0	2.1	2.0	1.9	1.4	0.5	0.7	0.9	0.8	0.8	1.4	0.5	2.5	1.6	0.6 24	
9	1.6	1.1	0.9	0.9	0.6	0.5	0.5	0.7	1.1	1.3	1.4	1.9	1.7	1.3	1.4	1.8	2.0	1.7	1.4	1.3	1.4	1.9	1.9	2.0	0.5	2.0	1.3	0.5 24	
10	1.8	1.7	1.4	1.5	1.2	1.2	1.4	1.3	1.3	1.3	2.0	1.8	2.2	2.0	1.9	1.7	1.8	1.2	0.6	0.7	0.8	1.0	1.1	0.3	0.3	2.2	1.4	0.5 24	
11	0.7	0.9	1.5	1.3	1.2	1.6	2.0	1.9	1.9	2.4	2.3	2.0	1.9	1.9	1.8	1.9	1.3	1.0	1.6	1.4	1.4	1.1	1.3	1.6	0.7	2.4	1.6	0.4 24	
12	1.3	1.4	1.7	1.1	0.6	1.5	1.6	1.1	1.4	1.6	1.6	1.5	1.9	1.9	1.4	1.3	1.3	1.2	0.8	1.0	0.7	0.6	0.9	0.7	0.6	1.9	1.3	0.4 24	
13	0.5	0.4	0.4	0.3	0.4	0.2	0.3	0.2	0.6	0.9	1.2	1.1	1.5	1.4	1.7	1.3	1.4	0.8	0.7	0.5	0.6	0.3	0.5	0.3	0.2	1.7	0.7	0.5 24	
14	0.5	0.5	0.7	0.5	0.4	0.5	0.5	0.5	0.6	1.4	1.4	0.9	0.8	1.1	1.0	1.0	0.8	0.6	0.5	0.9	0.6	0.4	0.3	0.4	0.3	1.4	0.7	0.3 24	
15	0.4	0.2	0.2	0.2	0.3	0.4	0.2	0.4	0.7	0.9	0.9	0.6	1.3	1.7	1.6	1.9	1.3	0.7	0.3	0.3	0.2	0.3	0.1	0.1	1.9	0.6	0.5 24		
16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
23	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
26	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
27	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
28	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0		
HR MIN	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.4	0.6	0.6	0.8	0.8	0.9	0.8	0.6	0.4	0.2	0.2	0.2	0.2	0.2	0.1	0.1					
HR MAX	2.2	2.1	2.3	2.1	2.1	1.7	2.0	2.0	2.5	2.5	2.4	2.5	2.2	2.3	2.8	2.3	2.0	1.9	1.9	2.3	2.3	2.2	2.4	2.6		2.8			
HR AVG	1.0	0.9	1.0	0.9	0.7	0.9	0.9	1.0	1.1	1.4	1.5	1.5	1.6	1.7	1.6	1.6	1.4	1.1	0.8	0.9	0.8	0.9	1.0	1.1		1.1			
HR STD	0.8	0.7	0.7	0.6	0.6	0.6	0.6	0.7	0.7	0.6	0.6	0.6	0.4	0.5	0.5	0.5	0.4	0.6	0.6	0.6	0.6	0.7	0.9		0.7				
n	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	360		

Yellowstone National Park

West Entrance

Vector Wind Direction hourly averages (deg)

12/01/2002 - 12/31/2002

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0	
2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0
3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0
4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0
5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0
6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0
7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0
8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0
9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0
10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0
11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0
12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0
13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0
14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0
15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0
16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	0	0
17	261	266	243	13	232	190	232	230	200	256	234	225	245	259	247	302	338	77	81	222	164	140	132	139	13	338	205	76	24
18	130	118	115	101	109	119	104	122	109	263	201	221	262	276	268	264	263	253	118	120	113	70	41	86	41	276	160	76	24
19	84	77	84	94	83	98	83	108	101	123	260	258	253	247	248	259	263	28	87	102	263	115	119	129	28	263	149	80	24
20	106	112	110	81	129	97	97	75	138	91	184	229	221	88	69	99	99	63	88	77	63	100	98	81	63	229	108	44	24
21	98	94	57	109	82	145	97	119	116	123	116	270	98	276	269	261	266	288	290	280	276	269	284	272	57	290	190	89	24
22	304	52	22	101	323	251	277	55	17	259	267	283	256	257	264	255	198	91	118	135	118	148	123	118	17	323	179	97	24
23	118	118	138	83	74	105	125	121	122	102	65	340	22	47	55	114	97	127	146	125	125	114	121	113	22	340	113	57	24
24	157	131	104	138	120	126	139	112	123	251	259	264	351	243	251	250	64	241	242	78	96	110	127	122	64	351	171	77	24
25	110	155	113	120	93	128	92	97	118	247	258	283	252	262	106	80	56	107	296	77	99	67	97	102	56	296	142	76	24
26	83	104	81	63	276	298	110	89	129	89	89	244	244	252	269	249	273	64	41	52	64	137	276	328	41	328	163	97	24
27	13	227	199	219	272	271	239	112	128	241	238	249	255	252	253	262	265	270	251	249	253	256	254	252	13	272	228	61	24
28	258	260	251	248	248	263	269	271	265	312	76	54	88	27	18	153	92	108	178	133	149	204	119	156	18	312	175	89	24
29	213	288	230	81	324	262	258	265	267	256	269	258	243	237	246	254	259	248	250	246	243	244	220	236	81	324	246	41	24
30	230	217	240	235	245	229	150	219	195	238	245	253	243	273	132	223	156	162	179	198	174	212	207	227	132	273	212	36	24
31	238	238	252	263	295	309	315	248	212	272	262	242	265	260	273	259	260	253	241	248	251	251	254	255	212	315	259	22	24
HR MIN	13	52	22	13	74	97	83	55	17	89	65	54	22	27	18	80	56	28	41	52	63	67	41	81	13				
HR MAX	304	288	252	263	324	309	315	271	267	312	269	340	351	276	273	302	338	288	296	280	276	269	284	328		351			
HR AVG	160	164	149	130	194	193	172	150	149	208	202	245	220	217	198	219	197	159	174	156	163	162	165	174		180			
HR STD	84	77	79	75	96	79	82	74	66	77	76	60	84	86	93	70	93	90	83	77	75	70	77	79		82			
n	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	360				

Yellowstone National Park

West Entrance

Vector Wind Direction hourly averages (deg)

01/01/2003 - 01/31/2003

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
1	250	240	121	134	116	130	115	94	156	87	79	276	246	257	230	185	219	220	232	230	236	248	233	277	79	277	192	65 24	
2	286	256	235	253	236	219	196	223	76	181	227	253	229	235	238	250	233	248	245	7	332	121	84	84	7	332	206	76 24	
3	59	261	263	260	250	246	240	261	261	252	236	256	226	239	251	247	246	255	222	204	260	259	268	265	59	268	241	42 24	
4	249	250	214	111	116	23	348	190	59	143	100	123	159	256	265	278	260	303	17	269	58	317	260	243	17	348	192	97 24	
5	329	14	201	237	281	274	234	242	240	246	75	21	37	31	1	28	42	90	109	114	70	114	105	109	1	329	135	101 24	
6	95	102	98	98	129	104	101	113	80	113	234	278	96	95	263	94	76	99	113	123	117	128	125	109	76	278	124	54 24	
7	128	109	118	106	48	64	137	54	45	251	234	237	224	252	228	53	74	92	127	115	127	113	121	120	45	252	132	68 24	
8	110	114	112	101	145	86	102	198	107	262	258	245	152	112	255	304	85	97	126	98	179	98	168	111	85	304	151	67 24	
9	123	130	120	87	129	114	139	103	132	135	198	326	40	79	54	90	65	125	138	129	138	140	126	128	40	326	125	54 24	
10	116	123	135	140	124	139	130	129	189	275	260	222	266	271	235	288	103	110	74	114	240	78	119	88	74	288	165	71 24	
11	89	108	127	115	105	113	105	130	144	105	117	49	221	52	272	124	142	254	211	282	264	250	268	272	49	282	163	77 24	
12	250	250	261	270	263	273	40	311	68	241	263	272	255	255	244	260	238	261	263	243	260	257	251	222	40	311	240	60 24	
13	181	232	233	241	254	332	290	225	263	278	248	244	238	236	252	250	228	251	284	282	84	92	125	129	84	332	228	62 24	
14	82	115	120	171	78	199	267	240	220	287	260	264	268	273	275	266	260	261	250	271	254	255	251	256	78	287	227	64 24	
15	262	259	273	269	275	274	246	60	45	272	268	260	268	264	252	256	237	270	37	63	39	1	83	82	1	275	192	103 24	
16	59	284	252	109	104	98	161	259	103	250	254	126	125	98	268	264	36	67	97	77	31	93	130	100	31	284	144	82 24	
17	126	137	259	151	148	147	116	117	147	153	126	163	89	93	92	97	96	100	124	103	132	93	112	114	89	259	126	36 24	
18	106	96	94	130	82	122	102	170	115	353	125	266	94	100	85	78	91	124	246	269	274	324	74	104	74	353	151	86 24	
19	79	96	74	61	75	115	106	90	104	83	289	255	238	237	246	254	261	270	283	32	314	113	61	72	32	314	159	94 24	
20	53	58	9	4	26	3	277	329	84	263	249	247	259	250	239	250	248	226	220	234	265	267	254	242	3	329	190	105 24	
21	264	251	232	262	255	261	275	106	126	246	246	254	251	256	257	257	260	266	256	261	257	247	250	268	106	275	244	41 24	
22	260	259	261	261	258	236	243	239	259	262	254	261	272	266	257	238	241	261	258	267	268	268	260	252	236	272	257	10 24	
23	254	250	261	261	250	253	264	302	277	248	242	244	237	239	248	243	237	206	260	256	226	92	100	117	92	302	232	53 24	
24	54	89	72	293	107	103	95	94	323	228	98	90	237	249	222	243	232	229	252	259	262	260	264	266	54	323	193	85 24	
25	255	356	103	225	269	273	263	267	268	251	260	260	246	255	259	266	248	269	270	274	274	268	223	103	356	259	40 24		
26	273	296	281	265	272	266	267	302	223	265	267	270	271	266	256	260	262	256	256	261	257	247	250	268	223	302	262	20 22	
27	274	223	221	228	242	276	262	248	241	219	227	232	288	296	276	268	277	261	277	121	186	280	257	266	121	296	248	38 24	
28	265	258	107	120	122	109	133	81	94	175	267	79	249	257	241	256	264	261	245	280	178	201	224	89	79	280	190	73 24	
29	79	87	89	91	212	87	300	243	289	253	263	240	241	254	247	235	255	262	271	267	262	265	261	252	79	300	221	73 24	
30	235	242	264	262	261	263	253	248	261	251	252	256	250	255	224	261	257	196	252	256	269	255	289	282	196	289	254	18 24	
31	353	278	250	233	229	219	249	264	253	60	179	225	223	240	249	238	247	204	261	222	234	219	238	231	60	353	233	48 24	
HR MIN	53	14	9	4	26	3	40	54	45	60	75	21	37	31	1	28	36	67	17	7	31	1	61	72	1				
HR MAX	353	356	281	293	281	332	348	329	323	353	289	326	288	296	276	304	277	303	284	282	332	324	289	282		356			
HR AVG	181	188	176	179	176	175	195	191	169	216	214	219	210	210	225	215	195	206	202	193	203	191	189	182		196			
HR STD	94	88	80	80	81	89	82	83	85	72	65	75	72	79	68	78	82	72	79	87	85	88	77	79		81			
n	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	742

Yellowstone National Park

West Entrance

Vector Wind Direction hourly averages (deg)

02/01/2003 - 02/28/2003

Date	HOUR (LOCAL STANDARD TIME)																							DAY MIN	DAY MAX	DAY AVG	DAY STD	n	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
1	241	242	250	264	270	260	221	218	224	240	251	248	252	251	238	267	257	270	340	23	68	39	350	297	23	350	233	80 24	
2	341	352	16	30	40	23	8	19	30	23	43	34	37	39	31	43	46	19	91	113	100	98	112	96	8	352	74	90 24	
3	86	86	97	86	86	93	83	85	105	261	187	84	100	260	257	253	250	227	220	221	242	109	86	106	83	261	153	75 24	
4	111	113	117	107	139	96	102	136	90	354	251	271	28	70	46	62	37	17	84	122	102	171	95	131	17	354	119	78 24	
5	92	109	82	93	94	56	159	82	115	125	82	226	56	66	56	283	325	105	104	74	48	43	87	128	43	325	112	71 24	
6	124	164	148	167	156	157	119	131	137	255	250	95	88	22	40	46	53	78	84	124	131	132	120	123	22	255	123	57 24	
7	106	106	107	101	105	105	92	345	243	248	60	63	112	84	77	79	105	247	194	201	239	119	111	60	345	140	75 24		
8	111	91	97	124	111	98	95	120	104	125	103	79	256	250	227	236	246	245	241	110	131	235	252	292	79	292	166	73 24	
9	231	244	267	266	232	322	41	293	278	270	252	259	242	250	257	264	233	236	273	267	284	262	265	248	41	322	252	49 24	
10	234	228	225	230	228	242	254	252	261	275	266	246	245	242	248	251	236	239	251	241	260	245	286	213	213	286	246	16 24	
11	106	248	210	211	235	250	264	315	317	360	269	265	243	229	251	260	230	222	136	32	61	71	92	111	32	360	208	88 24	
12	108	121	88	104	108	96	79	106	95	202	254	281	65	51	76	80	97	91	159	116	139	121	126	125	51	281	120	55 24	
13	106	107	120	112	103	93	86	252	177	185	266	245	116	99	261	175	346	306	262	282	280	296	291	25	25	346	191	92 24	
14	9	318	63	328	4	34	69	192	179	97	85	260	255	248	246	247	254	251	262	271	271	277	282	304	4	328	200	104 24	
15	190	256	323	139	225	275	219	231	252	246	266	241	237	268	247	258	251	267	284	42	78	116	50	47	42	323	209	83 24	
16	58	68	85	102	116	100	80	86	106	358	186	255	87	68	30	248	217	222	237	240	267	269	259	257	30	358	167	92 24	
17	243	227	252	262	238	213	233	231	215	228	236	239	245	231	232	219	227	220	238	239	205	214	203	240	203	262	230	14 24	
18	214	229	85	63	86	125	102	106	119	177	213	247	258	240	233	241	240	217	147	126	78	66	65	59	59	258	156	73 24	
19	105	118	97	107	95	103	59	84	65	94	252	248	223	234	248	227	228	259	179	146	88	110	123	161	59	259	152	69 24	
20	85	128	94	119	98	142	76	75	174	135	62	252	243	234	235	244	245	223	43	285	279	267	245	250	43	285	176	81 24	
21	252	239	230	226	261	251	248	249	253	251	257	258	253	254	247	248	247	247	280	244	235	260	271	247	226	280	250	12 24	
22	292	178	230	227	246	255	284	257	256	269	297	321	320	351	6	75	90	98	111	126	131	148	242	182	6	351	208	91 24	
23	268	261	273	277	317	305	290	18	324	274	266	268	27	66	39	25	21	13	23	70	76	67	112	111	13	324	158	122 24	
24	105	113	93	114	112	108	114	133	152	254	355	71	214	220	91	63	86	65	119	125	152	145	142	118	63	355	136	66 24	
25	125	102	115	104	115	110	103	107	192	259	36	257	52	33	97	66	80	70	111	133	117	151	140	165	33	259	118	57 24	
26	175	191	160	199	179	224	174	155	265	252	261	23	88	87	76	94	91	66	247	274	283	143	163	131	23	283	167	74 24	
27	152	109	114	133	130	102	117	107	190	245	220	102	59	303	247	249	268	261	273	113	98	118	115	154	59	303	166	72 24	
28	134	138	128	124	127	89	142	142	228	242	226	262	265	259	253	250	243	259	298	280	117	55	35	286	35	298	191	80 24	
HR MIN	9	68	16	30	4	23	8	18	30	23	36	23	27	22	6	25	21	13	23	23	48	39	35	25	4				
HR MAX	341	352	323	328	317	322	290	315	345	360	355	321	320	351	261	283	346	306	340	285	284	296	350	304		360			
HR AVG	157	175	149	158	152	155	140	153	187	225	212	203	165	180	164	180	187	175	191	165	162	160	169	169		172			
HR STD	80	77	78	76	77	86	80	81	84	81	83	90	96	99	97	92	95	93	87	84	82	81	88	81		87			
n	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28		672			

Yellowstone National Park

West Entrance

Vector Wind Direction hourly averages (deg)

03/01/2003 - 03/31/2003

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
1	99	110	320	339	95	32	102	126	133	221	65	38	36	52	73	60	77	17	271	182	133	174	116	129	17	339	125	88	24
2	104	151	78	192	131	213	216	270	106	105	81	227	228	238	250	321	291	262	159	77	246	252	224	239	77	321	194	73	24
3	244	250	252	241	242	273	285	280	279	254	232	235	240	241	236	229	270	281	257	60	92	333	115	32	32	333	227	75	24
4	101	83	77	198	70	102	91	149	113	54	94	265	246	251	257	273	272	267	195	98	71	155	85	135	54	273	154	79	24
5	132	92	116	114	58	83	249	240	256	262	274	250	249	262	262	257	254	258	247	233	234	242	244	245	58	274	213	69	24
6	249	243	240	246	248	253	246	240	231	228	246	306	285	273	275	276	273	270	267	276	239	247	241	241	228	306	256	19	24
7	248	245	208	173	142	233	246	240	246	248	249	246	247	247	247	247	262	244	237	240	242	241	246	247	142	262	236	26	24
8	259	242	248	255	251	250	248	235	241	242	239	238	248	257	259	261	272	269	162	95	226	238	208	216	95	272	236	38	24
9	231	236	229	222	147	291	44	215	229	243	201	235	255	267	247	240	237	232	244	226	227	229	224	218	44	291	224	46	24
10	229	232	235	232	244	249	248	234	248	240	251	246	236	232	243	239	247	246	283	261	238	226	224	243	224	283	242	12	24
11	247	256	255	251	247	256	257	255	252	245	250	247	257	248	238	261	244	160	201	196	212	168	217	216	160	261	235	29	24
12	220	222	220	273	209	259	259	189	239	242	233	229	244	245	225	228	234	211	197	182	152	89	188	189	89	273	216	39	24
13	222	48	358	354	308	346	176	220	155	218	235	258	276	260	223	223	180	106	85	82	77	60	117	123	48	358	196	95	24
14	110	246	232	122	69	72	88	102	204	233	243	195	216	199	283	268	266	40	106	249	322	71	60	84	40	322	170	86	24
15	73	46	229	264	128	103	82	110	271	271	256	100	166	215	198	196	247	207	49	102	181	209	80	67	46	271	160	77	24
16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	
17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	
18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	
19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	
20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	
21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	
22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	
23	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	
24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	
25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	
26	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	
27	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	
28	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	
29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	
30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	
31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0	
HR MIN	73	46	77	114	58	32	44	102	106	54	65	38	36	52	73	60	77	17	49	60	71	60	60	32	17				
HR MAX	259	256	358	354	308	346	285	280	279	271	274	306	285	273	283	321	291	281	283	276	322	333	247	247	358				
HR AVG	185	180	220	232	173	201	189	207	214	220	210	221	229	232	234	239	242	205	197	171	193	196	173	175		206			
HR STD	70	81	78	67	81	96	83	58	58	60	69	67	60	54	49	57	52	86	72	77	73	76	69	73		72			
n	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15		360			

Yellowstone National Park

West Entrance

Standard Deviation for Wind Direction hourly averages (deg)

12/01/2002 - 12/31/2002

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0				
17	46	50	56	75	48	72	64	88	58	59	57	49	48	39	54	57	76	77	61	62	51	46	50	56	39	88	58	12 24	
18	26	28	27	24	32	32	43	45	41	56	67	67	57	53	24	28	34	68	30	70	63	60	65	47	24	70	45	16 24	
19	57	52	79	38	56	72	74	49	47	67	62	36	42	51	46	43	57	66	37	52	90	78	71	61	36	90	58	15 24	
20	54	71	64	69	72	48	62	64	61	63	34	53	60	41	57	28	32	47	44	75	74	57	82	61	28	82	57	14 24	
21	57	60	85	70	58	75	41	66	82	63	77	71	64	47	46	48	67	59	71	77	60	76	49	55	41	85	64	12 24	
22	68	63	76	62	63	61	69	54	58	37	47	38	48	46	41	52	80	54	60	56	53	57	56	64	37	80	57	11 24	
23	69	59	45	34	34	55	36	35	33	32	62	72	76	69	64	67	22	29	57	52	51	28	55	53	22	76	50	16 24	
24	54	67	80	77	70	83	63	79	78	88	61	21	61	58	50	50	75	64	66	36	49	54	79	80	21	88	64	16 24	
25	95	78	77	48	66	71	78	86	82	67	37	50	52	47	42	47	64	64	68	78	71	70	69	74	37	95	66	15 24	
26	72	75	68	80	83	65	59	75	66	54	66	56	52	52	51	54	59	56	56	48	62	55	59	68	48	83	62	10 24	
27	80	84	72	73	52	67	70	84	73	89	59	43	41	37	30	36	29	25	37	38	44	43	47	37	25	89	54	20 24	
28	37	37	43	40	40	35	31	33	49	59	82	58	62	40	78	83	63	51	49	23	43	76	62	41	23	83	51	17 24	
29	50	66	72	63	64	42	45	46	39	36	30	38	35	47	44	44	43	39	43	43	46	52	49	58	30	72	47	11 24	
30	58	60	56	63	61	61	63	74	85	78	73	65	76	91	85	88	80	62	65	76	71	71	67	67	56	91	71	10 24	
31	60	65	54	50	55	79	75	66	78	61	40	45	28	44	52	43	36	37	53	52	48	58	41	29	28	79	52	14 24	
HR MIN	26	28	27	24	32	32	31	33	33	32	30	21	28	37	24	28	22	25	30	23	43	28	41	29	21				
HR MAX	95	84	85	80	83	83	78	88	85	89	82	72	76	91	85	88	80	77	71	78	90	78	82	80		95			
HR AVG	59	61	64	58	57	61	58	63	62	61	57	51	53	51	51	51	54	53	53	56	58	59	60	57		57			
HR STD	17	15	16	18	14	16	15	18	17	17	16	14	14	14	16	17	20	15	13	17	13	14	12	14		16			
n	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	360				

Yellowstone National Park

West Entrance

Standard Deviation for Wind Direction hourly averages (deg)

01/01/2003 - 01/31/2003

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n	
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
1	34	58	75	39	55	51	57	35	56	51	48	64	51	48	61	74	76	83	70	77	73	63	83	59	34	83	60	14	24	
2	70	59	66	65	71	62	83	84	80	83	66	65	55	58	59	54	61	71	65	57	75	41	47	54	41	84	65	11	24	
3	57	34	53	78	49	57	58	40	23	34	66	47	61	56	41	41	40	36	50	49	49	32	36	23	23	78	46	13	24	
4	35	38	44	76	60	77	75	72	76	69	71	54	65	54	35	60	51	70	74	66	85	69	46	66	35	85	62	14	24	
5	66	66	83	52	46	36	55	47	56	60	72	59	43	53	56	57	67	56	59	48	45	25	56	45	25	83	55	12	24	
6	48	41	75	50	54	40	43	21	50	36	65	71	63	55	59	40	17	19	49	34	47	24	20	33	17	75	44	16	24	
7	60	44	31	49	68	54	74	65	48	50	52	45	52	44	62	36	16	16	48	20	38	41	33	31	16	74	45	15	24	
8	36	63	48	28	49	49	49	63	48	49	29	41	52	61	40	35	24	34	42	16	45	24	69	68	16	69	44	14	24	
9	59	74	57	74	73	53	89	80	73	76	52	51	61	72	54	43	33	62	59	26	38	55	38	44	26	89	58	16	24	
10	51	57	67	55	66	69	69	58	67	61	33	56	20	62	44	54	24	39	44	48	75	55	61	60	20	75	54	14	24	
11	52	68	77	65	68	64	62	83	69	52	34	51	62	77	51	42	60	67	76	67	47	64	49	41	34	83	60	13	24	
12	50	71	71	52	64	68	73	82	71	60	35	44	41	43	55	47	60	47	54	61	40	40	36	62	35	82	55	13	24	
13	81	69	54	56	46	78	81	77	71	51	36	38	43	45	43	43	57	73	53	59	66	71	79	58	36	81	60	15	24	
14	58	34	43	59	62	64	55	75	72	58	75	44	32	40	40	40	49	41	40	23	49	47	42	41	23	75	49	14	24	
15	47	38	44	59	35	38	64	75	88	32	54	45	32	35	44	47	67	43	42	69	79	58	49	66	32	88	52	16	24	
16	80	57	54	51	23	32	77	70	52	78	80	57	74	54	56	52	74	63	44	46	54	79	45	57	23	80	59	15	24	
17	45	53	79	54	43	68	34	36	45	44	58	84	41	38	36	27	32	35	61	25	51	43	45	59	25	84	47	15	24	
18	46	49	74	73	44	56	51	76	55	77	53	52	45	35	38	28	30	61	62	39	67	55	32	27	27	77	51	15	24	
19	50	45	68	64	37	67	42	36	77	49	63	48	71	59	50	41	44	58	70	70	69	36	37	41	36	77	54	13	24	
20	67	77	76	71	75	75	69	67	69	52	49	65	45	39	43	37	47	66	58	45	30	32	33	58	30	77	56	16	24	
21	54	56	66	80	35	46	40	67	61	49	49	60	46	36	36	43	38	38	29	25	28	36	32	21	21	80	45	15	24	
22	24	26	23	24	28	48	40	32	21	21	30	29	21	29	41	48	44	46	42	37	37	47	54	67	21	67	36	12	24	
23	41	54	34	37	38	33	56	65	66	59	46	45	47	41	38	48	55	50	45	42	62	48	62	47	33	66	48	10	24	
24	51	26	39	59	68	92	39	56	59	69	52	53	64	37	53	43	55	50	35	40	29	32	54	59	26	92	51	15	24	
25	44	87	68	65	15	54	45	24	29	26	43	28	35	39	35	33	30	44	26	27	18	16	29	15	87	37	17	24		
26	43	39	65	53	40	63	60	80	84	46	43	37	23	28	61	44	39	42	43	46	PF	PF	58	54	23	84	50	15	22	
27	85	79	78	66	73	78	72	51	60	68	58	75	72	60	65	50	48	37	49	59	60	32	63	32	32	85	61	15	24	
28	29	60	79	46	34	28	64	46	47	61	32	57	42	39	49	33	31	57	62	60	79	61	58	63	28	79	51	15	24	
29	45	25	32	64	79	65	80	90	82	63	61	69	87	78	47	70	72	43	38	23	27	23	25	33	23	90	55	23	24	
30	39	51	38	45	52	50	46	47	39	44	38	39	40	44	63	53	70	62	29	40	58	50	50	27	27	70	46	10	24	
31	61	45	50	54	59	61	52	36	68	80	74	67	64	57	63	69	73	81	82	80	70	63	72	62	36	82	64	12	24	
HR MIN	24	25	23	24	15	28	34	21	21	29	28	20	28	35	27	16	26	16	27	18	16	21		15						
HR MAX	85	87	83	80	79	92	89	90	88	83	80	84	87	78	65	74	76	83	82	80	85	79	83	68		92				
HR AVG	52	53	58	57	52	57	60	59	60	55	52	53	50	49	49	46	48	51	52	46	53	45	48	48		52				
HR STD	15	16	17	14	17	15	15	20	17	16	15	13	16	13	10	11	18	17	14	18	18	16	16	15		16				
n	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	742	

Yellowstone National Park

West Entrance

Standard Deviation for Wind Direction hourly averages (deg)

02/01/2003 - 02/28/2003

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
1	54	52	52	45	32	46	61	61	56	52	52	49	56	57	54	56	62	36	68	54	57	52	52	31	31	68	52	9 24	
2	58	64	63	73	54	45	52	61	54	45	40	49	44	44	45	42	43	51	43	27	55	54	67	57	27	73	51	10 24	
3	63	24	60	43	46	43	57	56	54	42	55	44	55	45	50	56	55	63	62	66	77	61	49	35	24	77	53	11 24	
4	33	43	52	24	74	27	47	61	43	84	57	43	58	49	46	37	44	50	45	46	47	74	54	70	24	84	50	15 24	
5	44	46	59	71	47	70	79	53	51	51	43	65	63	69	74	60	66	74	65	72	48	55	66	59	43	79	60	11 24	
6	67	70	63	73	70	85	70	75	65	50	54	78	73	59	56	50	52	33	43	62	42	62	34	49	33	85	60	14 24	
7	59	40	57	55	57	63	57	61	79	38	56	60	66	72	54	48	50	68	66	75	68	72	35	36	35	79	58	12 24	
8	48	50	48	73	34	39	38	35	34	45	33	62	80	46	56	54	49	55	57	67	79	62	66	73	33	80	53	14 24	
9	60	63	50	57	69	49	67	55	33	48	44	39	46	46	37	37	51	62	58	49	43	55	49	50	33	69	51	10 24	
10	46	48	50	50	53	52	44	52	41	35	36	52	46	48	46	48	52	52	51	51	63	76	55	70	35	76	51	9 24	
11	67	54	63	77	58	55	53	54	75	57	50	37	50	59	52	45	54	55	75	68	29	43	87	58	29	87	57	13 24	
12	51	43	57	63	54	69	40	50	47	45	38	47	66	61	54	47	23	25	60	44	77	50	52	30	23	77	50	13 24	
13	22	38	40	50	41	57	70	74	62	63	26	60	66	71	53	66	82	64	87	82	84	78	82	84	22	87	63	19 24	
14	84	89	67	59	81	83	86	85	70	56	79	74	52	49	50	52	47	49	52	28	23	38	44	68	23	89	61	19 24	
15	66	63	65	58	66	46	73	57	41	39	30	50	55	27	46	37	54	35	57	65	73	75	80	75	27	80	56	15 24	
16	77	82	55	41	27	57	91	78	77	78	82	57	55	56	77	62	49	45	46	43	28	34	41	43	27	91	58	19 24	
17	50	66	54	42	46	61	59	59	53	51	46	48	48	51	47	54	54	58	65	77	57	62	62	63	42	77	56	8 24	
18	62	64	71	58	52	54	40	57	65	73	67	50	44	51	54	50	45	58	54	45	64	52	38	51	38	73	55	9 24	
19	66	64	53	47	66	86	46	67	71	52	54	49	59	56	52	61	50	55	54	37	26	59	69	65	26	86	57	12 24	
20	75	63	75	59	71	76	62	58	79	40	63	62	50	56	51	53	55	74	83	71	47	50	37	38	37	83	60	13 24	
21	44	44	50	61	42	59	55	46	42	44	43	38	42	41	43	47	43	51	45	52	57	39	29	40	29	61	46	7 24	
22	76	78	67	62	42	40	34	40	61	41	55	57	61	54	67	51	26	28	61	38	39	68	69	26	78	53	15 24		
23	55	68	23	40	59	54	45	59	59	39	35	38	62	41	61	46	50	50	65	82	66	85	73	63	23	85	55	15 24	
24	66	74	53	81	72	70	73	75	88	61	81	49	44	64	63	65	48	43	55	57	51	70	64	59	43	88	64	12 24	
25	55	54	56	53	65	57	62	71	77	30	64	80	44	60	51	56	57	37	35	39	49	43	56	70	30	80	55	13 24	
26	74	68	60	68	56	59	65	78	52	39	53	70	59	77	49	46	34	60	74	26	65	59	44	61	26	78	58	13 24	
27	36	44	38	36	52	55	49	83	56	47	52	51	47	84	57	51	31	45	56	54	34	55	42	52	31	84	50	13 24	
28	33	34	40	42	45	57	53	64	57	47	77	41	42	54	50	50	63	69	62	64	59	69	48	49	33	77	53	12 24	
HR MIN	22	24	23	24	27	27	34	35	33	30	26	37	42	27	37	37	23	25	35	26	23	34	29	30	22				
HR MAX	84	89	75	81	81	86	91	85	88	84	82	80	80	84	77	66	82	74	87	82	84	85	87	84		91			
HR AVG	57	57	55	56	55	58	58	62	59	50	52	54	55	55	53	51	50	52	59	55	54	59	55	56		55			
HR STD	15	15	11	14	14	14	14	12	15	13	15	12	10	12	9	8	12	13	12	16	17	13	15	14		13			
n	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28		672			

Final Validation

5/12/2003

Yellowstone National Park

West Entrance

Standard Deviation for Wind Direction hourly averages (deg)

03/01/2003 - 03/31/2003

Date	HOUR (LOCAL STANDARD TIME)																								DAY MIN	DAY MAX	DAY AVG	DAY STD	n
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
1	52	26	62	64	35	81	39	62	53	73	55	55	62	77	65	63	55	63	63	50	51	63	69	45	26	81	58	13	24
2	46	48	66	79	80	89	91	92	65	54	54	81	66	60	69	86	69	59	82	67	55	59	48	50	46	92	67	15	24
3	54	52	50	61	68	52	38	51	60	50	58	55	52	47	56	57	60	44	71	66	53	59	68	50	38	71	56	8	24
4	57	52	40	75	60	45	53	63	32	76	51	54	45	38	32	22	23	32	68	50	76	64	57	32	22	76	50	16	24
5	45	43	58	67	54	72	58	62	48	43	31	55	55	47	40	42	57	39	37	42	54	57	41	37	31	72	49	10	24
6	37	36	35	37	37	37	43	49	46	48	44	46	39	27	18	25	24	52	45	54	60	54	47	41	18	60	41	10	24
7	37	42	57	58	60	50	50	50	38	37	37	37	39	42	40	31	41	40	38	37	35	38	35	31	60	42	8	24	
8	33	38	34	30	33	34	34	48	42	40	37	41	41	37	37	36	28	34	89	50	50	49	63	51	28	89	42	13	24
9	37	42	51	57	69	70	58	72	56	53	58	58	56	50	59	51	46	49	48	49	51	39	43	44	37	72	53	9	24
10	45	48	50	48	52	45	47	51	45	56	45	47	47	48	46	42	41	50	47	52	51	50	53	74	41	74	49	6	24
11	45	40	31	38	42	32	27	32	34	39	37	39	35	42	59	37	61	62	57	58	62	63	70	51	27	70	46	13	24
12	56	52	52	43	73	29	32	66	44	47	51	56	42	47	58	60	59	60	68	55	59	62	72	79	29	79	55	12	24
13	69	75	62	67	55	51	75	76	65	74	62	70	64	58	62	69	61	55	41	41	56	58	87	41	87	64	12	24	
14	78	92	93	92	83	65	66	61	70	57	56	53	69	68	68	53	82	63	73	72	83	54	73	60	53	93	70	12	24
15	73	74	81	80	72	41	45	36	39	50	44	72	71	60	64	59	57	74	72	59	67	81	61	70	36	81	63	14	24
16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
23	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
24	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
26	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
27	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
28	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	
HR MIN	33	26	31	30	33	29	27	32	32	37	31	37	35	27	18	22	23	32	37	38	37	35	38	32	18				
HR MAX	78	92	93	92	83	89	91	92	70	76	62	81	71	77	69	86	82	74	89	72	83	81	87	87	93				
HR AVG	51	51	55	60	58	53	50	58	49	53	48	55	52	50	52	49	50	52	60	54	58	56	59	54	54		54		
HR STD	14	17	17	18	16	19	17	15	12	13	9	12	12	13	15	17	17	12	16	10	11	11	14	17	15				
n	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	360				

Appendix D

Old Faithful Eruption Intervals

Time and Date	Interval
01/Jan/03 00:44:36	1:27:00
01/Jan/03 02:19:36	1:35:00
01/Jan/03 03:45:36	1:26:00
01/Jan/03 05:28:36	1:43:00
01/Jan/03 06:58:36	1:30:00
01/Jan/03 08:32:36	1:34:00
01/Jan/03 10:11:36	1:39:00
01/Jan/03 11:49:36	1:38:00
01/Jan/03 13:20:36	1:31:00
01/Jan/03 14:57:36	1:37:00
01/Jan/03 16:28:36	1:31:00
01/Jan/03 17:59:36	1:31:00
01/Jan/03 19:33:36	1:34:00
01/Jan/03 21:02:36	1:29:00
01/Jan/03 22:26:36	1:24:00
02/Jan/03 00:06:36	1:40:00
02/Jan/03 01:30:36	1:24:00
02/Jan/03 02:55:36	1:25:00
02/Jan/03 04:39:36	1:44:00
02/Jan/03 05:37:36	0:58:00
02/Jan/03 07:23:36	1:46:00
02/Jan/03 08:46:36	1:23:00
02/Jan/03 10:15:36	1:29:00
02/Jan/03 12:20:36	2:05:00
02/Jan/03 13:47:36	1:27:00
02/Jan/03 15:13:36	1:26:00
02/Jan/03 16:54:36	1:41:00
02/Jan/03 18:34:36	1:40:00
02/Jan/03 20:06:36	1:32:00
02/Jan/03 21:52:36	1:46:00
02/Jan/03 23:19:36	1:27:00
03/Jan/03 00:52:36	1:33:00
03/Jan/03 02:28:36	1:36:00
03/Jan/03 03:52:36	1:24:00
03/Jan/03 05:24:36	1:32:00
03/Jan/03 06:45:36	1:21:00
03/Jan/03 08:22:36	1:37:00
03/Jan/03 09:58:36	1:36:00
03/Jan/03 11:29:36	1:31:00
03/Jan/03 12:34:36	1:05:00
03/Jan/03 14:06:36	1:32:00
03/Jan/03 15:18:36	1:12:00
03/Jan/03 16:57:36	1:39:00
03/Jan/03 18:21:36	1:24:00
03/Jan/03 19:46:36	1:25:00
03/Jan/03 20:53:36	1:07:00
03/Jan/03 22:19:36	1:26:00
03/Jan/03 23:52:36	1:33:00
04/Jan/03 01:25:36	1:33:00
04/Jan/03 02:51:36	1:26:00
04/Jan/03 04:44:36	1:53:00
04/Jan/03 06:23:36	1:39:00
04/Jan/03 07:54:36	1:31:00
04/Jan/03 09:18:36	1:24:00
04/Jan/03 11:10:36	1:52:00
04/Jan/03 12:38:36	1:28:00
04/Jan/03 14:13:36	1:35:00
04/Jan/03 15:43:36	1:30:00
04/Jan/03 17:30:36	1:47:00
04/Jan/03 18:59:36	1:29:00
04/Jan/03 20:25:36	1:26:00
04/Jan/03 21:55:36	1:30:00
04/Jan/03 23:27:36	1:32:00
05/Jan/03 01:03:36	1:36:00
05/Jan/03 02:36:36	1:33:00
05/Jan/03 04:07:36	1:31:00
05/Jan/03 05:41:36	1:34:00

Time and Date	Interval
05/Jan/03 07:20:36	1:39:00
05/Jan/03 08:28:36	1:08:00
05/Jan/03 10:01:36	1:33:00
05/Jan/03 11:31:36	1:30:00
05/Jan/03 12:59:36	1:28:00
05/Jan/03 14:33:36	1:34:00
05/Jan/03 16:04:36	1:31:00
05/Jan/03 17:39:36	1:35:00
05/Jan/03 19:13:36	1:34:00
05/Jan/03 20:45:36	1:32:00
05/Jan/03 22:09:36	1:24:00
05/Jan/03 23:46:36	1:37:00
06/Jan/03 01:05:36	1:19:00
06/Jan/03 02:33:36	1:28:00
06/Jan/03 04:01:36	1:28:00
06/Jan/03 05:00:36	0:59:00
06/Jan/03 06:38:36	1:38:00
06/Jan/03 07:41:36	1:03:00
06/Jan/03 09:23:36	1:42:00
06/Jan/03 10:43:36	1:20:00
06/Jan/03 12:19:36	1:36:00
06/Jan/03 13:44:36	1:25:00
06/Jan/03 15:15:36	1:31:00
06/Jan/03 16:53:36	1:38:00
06/Jan/03 18:18:36	1:25:00
06/Jan/03 19:48:36	1:30:00
06/Jan/03 21:17:36	1:29:00
06/Jan/03 22:48:36	1:31:00
07/Jan/03 00:24:36	1:36:00
07/Jan/03 01:51:36	1:27:00
07/Jan/03 03:17:36	1:26:00
07/Jan/03 04:42:36	1:25:00
07/Jan/03 06:10:36	1:28:00
07/Jan/03 07:36:36	1:26:00
07/Jan/03 09:14:36	1:38:00
07/Jan/03 10:42:36	1:28:00
07/Jan/03 12:19:36	1:37:00
07/Jan/03 13:50:36	1:31:00
07/Jan/03 15:19:36	1:29:00
07/Jan/03 17:05:36	1:46:00
07/Jan/03 18:01:36	0:56:00
07/Jan/03 19:38:36	1:37:00
07/Jan/03 21:14:36	1:36:00
07/Jan/03 22:51:36	1:37:00
08/Jan/03 00:20:36	1:29:00
08/Jan/03 02:12:36	1:52:00
08/Jan/03 03:37:36	1:25:00
08/Jan/03 05:16:36	1:39:00
08/Jan/03 06:38:36	1:22:00
08/Jan/03 08:09:36	1:31:00
08/Jan/03 09:50:36	1:41:00
08/Jan/03 11:27:36	1:37:00
08/Jan/03 13:02:36	1:35:00
08/Jan/03 14:24:36	1:22:00
08/Jan/03 16:08:36	1:44:00
08/Jan/03 17:38:36	1:30:00
08/Jan/03 19:12:36	1:34:00
08/Jan/03 20:43:36	1:31:00
08/Jan/03 22:23:36	1:40:00
08/Jan/03 23:55:36	1:32:00
09/Jan/03 01:35:36	1:40:00
09/Jan/03 03:08:36	1:33:00
09/Jan/03 04:31:36	1:23:00
09/Jan/03 06:02:36	1:31:00
09/Jan/03 07:25:36	1:23:00
09/Jan/03 09:01:36	1:36:00
09/Jan/03 10:35:36	1:34:00

Time and Date	Interval
09/Jan/03 12:08:36	1:33:00
09/Jan/03 13:36:36	1:28:00
09/Jan/03 15:09:36	1:33:00
09/Jan/03 16:45:36	1:36:00
09/Jan/03 18:10:36	1:25:00
09/Jan/03 19:38:36	1:28:00
09/Jan/03 21:11:36	1:33:00
09/Jan/03 22:53:36	1:42:00
10/Jan/03 00:28:36	1:35:00
10/Jan/03 01:53:36	1:25:00
10/Jan/03 03:18:36	1:25:00
10/Jan/03 04:50:36	1:32:00
10/Jan/03 06:14:36	1:24:00
10/Jan/03 07:47:36	1:33:00
10/Jan/03 09:10:36	1:23:00
10/Jan/03 10:32:36	1:22:00
10/Jan/03 12:04:36	1:32:00
10/Jan/03 13:40:36	1:36:00
10/Jan/03 15:14:36	1:34:00
10/Jan/03 16:47:36	1:33:00
10/Jan/03 18:15:36	1:28:00
10/Jan/03 19:40:36	1:25:00
10/Jan/03 21:30:36	1:50:00
10/Jan/03 22:56:36	1:26:00
11/Jan/03 00:27:36	1:31:00
11/Jan/03 02:10:36	1:43:00
11/Jan/03 03:31:36	1:21:00
11/Jan/03 05:10:36	1:39:00
11/Jan/03 06:41:36	1:31:00
11/Jan/03 08:12:36	1:31:00
11/Jan/03 09:45:36	1:33:00
11/Jan/03 11:16:36	1:31:00
11/Jan/03 12:43:36	1:27:00
11/Jan/03 14:17:36	1:34:00
11/Jan/03 15:46:36	1:29:00
11/Jan/03 17:20:36	1:34:00
11/Jan/03 18:52:36	1:32:00
11/Jan/03 20:18:36	1:26:00
11/Jan/03 21:59:36	1:41:00
11/Jan/03 23:31:36	1:32:00
12/Jan/03 01:07:36	1:36:00
12/Jan/03 02:17:36	1:10:00
12/Jan/03 03:43:36	1:26:00
12/Jan/03 05:19:36	1:36:00
12/Jan/03 06:47:36	1:28:00
12/Jan/03 08:15:36	1:28:00
12/Jan/03 09:41:36	1:26:00
12/Jan/03 11:14:36	1:33:00
12/Jan/03 13:03:36	1:49:00
12/Jan/03 14:27:36	1:24:00
12/Jan/03 15:58:36	1:31:00
12/Jan/03 17:20:36	1:22:00
12/Jan/03 18:56:36	1:36:00
12/Jan/03 20:22:36	1:26:00
12/Jan/03 21:53:36	1:31:00
12/Jan/03 23:17:36	1:24:00
13/Jan/03 00:58:36	1:41:00
13/Jan/03 02:24:36	1:26:00
13/Jan/03 03:58:36	1:34:00
13/Jan/03 05:32:36	1:34:00
13/Jan/03 07:05:36	1:33:00
13/Jan/03 08:36:36	1:31:00
13/Jan/03 10:11:36	1:35:00
13/Jan/03 11:45:36	1:34:00
13/Jan/03 13:23:36	1:38:00
13/Jan/03 14:55:36	1:32:00
13/Jan/03 16:16:36	1:21:00

Time and Date	Interval
13/Jan/03 17:45:36	1:29:00
13/Jan/03 19:15:36	1:30:00
13/Jan/03 20:52:36	1:37:00
13/Jan/03 22:28:36	1:36:00
13/Jan/03 23:59:36	1:31:00
14/Jan/03 01:25:36	1:26:00
14/Jan/03 02:50:36	1:25:00
14/Jan/03 04:27:36	1:37:00
14/Jan/03 05:57:36	1:30:00
14/Jan/03 07:32:36	1:35:00
14/Jan/03 09:08:36	1:36:00
14/Jan/03 10:37:36	1:29:00
14/Jan/03 12:02:36	1:25:00
14/Jan/03 13:53:36	1:51:00
14/Jan/03 15:13:36	1:20:00
14/Jan/03 16:51:36	1:38:00
14/Jan/03 18:22:36	1:31:00
14/Jan/03 19:56:36	1:34:00
14/Jan/03 21:37:36	1:41:00
14/Jan/03 23:06:36	1:29:00
15/Jan/03 00:49:36	1:43:00
15/Jan/03 02:20:36	1:31:00
15/Jan/03 03:56:36	1:36:00
15/Jan/03 05:30:36	1:34:00
15/Jan/03 06:56:36	1:26:00
15/Jan/03 08:20:36	1:24:00
15/Jan/03 09:29:36	1:09:00
15/Jan/03 11:01:36	1:32:00
15/Jan/03 12:37:36	1:36:00
15/Jan/03 14:04:36	1:27:00
15/Jan/03 15:32:36	1:28:00
15/Jan/03 16:59:36	1:27:00
15/Jan/03 18:35:36	1:36:00
15/Jan/03 20:06:36	1:31:00
15/Jan/03 21:06:36	1:00:00
15/Jan/03 22:38:36	1:32:00
16/Jan/03 00:11:36	1:33:00
16/Jan/03 01:46:36	1:35:00
16/Jan/03 03:17:36	1:31:00
16/Jan/03 04:53:36	1:36:00
16/Jan/03 06:26:36	1:33:00
16/Jan/03 08:02:36	1:36:00
16/Jan/03 09:33:36	1:31:00
16/Jan/03 11:09:36	1:36:00
16/Jan/03 12:41:36	1:32:00
16/Jan/03 14:09:36	1:28:00
16/Jan/03 15:50:36	1:41:00
16/Jan/03 17:24:36	1:34:00
16/Jan/03 18:53:36	1:29:00
16/Jan/03 20:31:36	1:38:00
16/Jan/03 21:26:36	0:55:00
16/Jan/03 23:04:36	1:38:00
17/Jan/03 00:43:36	1:39:00
17/Jan/03 02:21:36	1:38:00
17/Jan/03 03:47:36	1:26:00
17/Jan/03 05:25:36	1:38:00
17/Jan/03 06:54:36	1:29:00
17/Jan/03 08:31:36	1:37:00
17/Jan/03 10:02:36	1:31:00
17/Jan/03 11:26:36	1:24:00
17/Jan/03 12:56:36	1:30:00
17/Jan/03 14:36:36	1:40:00
17/Jan/03 16:02:36	1:26:00
17/Jan/03 17:41:36	1:39:00
17/Jan/03 19:01:36	1:20:00
17/Jan/03 20:26:36	1:25:00
17/Jan/03 21:59:36	1:33:00

Time and Date	Interval
17/Jan/03 23:29:36	1:30:00
18/Jan/03 01:07:36	1:38:00
18/Jan/03 02:36:36	1:29:00
18/Jan/03 03:52:36	1:16:00
18/Jan/03 05:32:36	1:40:00
18/Jan/03 07:03:36	1:31:00
18/Jan/03 08:32:36	1:29:00
18/Jan/03 09:57:36	1:25:00
18/Jan/03 11:38:36	1:41:00
18/Jan/03 13:07:36	1:29:00
18/Jan/03 14:42:36	1:35:00
18/Jan/03 16:14:36	1:32:00
18/Jan/03 17:53:36	1:39:00
18/Jan/03 19:30:36	1:37:00
18/Jan/03 21:03:36	1:33:00
18/Jan/03 22:28:36	1:25:00
19/Jan/03 00:19:36	1:51:00
19/Jan/03 01:48:36	1:29:00
19/Jan/03 03:21:36	1:33:00
19/Jan/03 04:59:36	1:38:00
19/Jan/03 06:32:36	1:33:00
19/Jan/03 08:13:36	1:41:00
19/Jan/03 09:46:36	1:33:00
19/Jan/03 11:19:36	1:33:00
19/Jan/03 12:48:36	1:29:00
19/Jan/03 14:21:36	1:33:00
19/Jan/03 15:56:36	1:35:00
19/Jan/03 17:33:36	1:37:00
19/Jan/03 18:54:36	1:21:00
19/Jan/03 20:33:36	1:39:00
19/Jan/03 22:02:36	1:29:00
19/Jan/03 23:41:36	1:39:00
20/Jan/03 01:20:36	1:39:00
20/Jan/03 02:49:36	1:29:00
20/Jan/03 04:13:36	1:24:00
20/Jan/03 05:42:36	1:29:00
20/Jan/03 07:09:36	1:27:00
20/Jan/03 08:47:36	1:38:00
20/Jan/03 10:16:36	1:29:00
20/Jan/03 11:21:36	1:05:00
20/Jan/03 13:00:36	1:39:00
20/Jan/03 14:33:36	1:33:00
20/Jan/03 15:59:36	1:26:00
20/Jan/03 17:06:36	1:07:00
20/Jan/03 18:40:36	1:34:00
20/Jan/03 20:14:36	1:34:00
20/Jan/03 21:57:36	1:43:00
20/Jan/03 22:58:36	1:01:00
21/Jan/03 00:38:36	1:40:00
21/Jan/03 02:01:36	1:23:00
21/Jan/03 03:39:36	1:38:00
21/Jan/03 05:08:36	1:29:00
21/Jan/03 06:42:36	1:34:00
21/Jan/03 08:14:36	1:32:00
21/Jan/03 09:54:36	1:40:00
21/Jan/03 11:34:36	1:40:00
21/Jan/03 13:06:36	1:32:00
21/Jan/03 14:42:36	1:36:00
21/Jan/03 16:11:36	1:29:00
21/Jan/03 17:57:36	1:46:00
21/Jan/03 19:30:36	1:33:00
21/Jan/03 20:57:36	1:27:00
21/Jan/03 22:29:36	1:32:00
21/Jan/03 23:55:36	1:26:00
22/Jan/03 01:22:36	1:27:00
22/Jan/03 02:54:36	1:32:00
22/Jan/03 04:26:36	1:32:00

Time and Date	Interval
22/Jan/03 06:01:36	1:35:00
22/Jan/03 07:47:36	1:46:00
22/Jan/03 09:12:36	1:25:00
22/Jan/03 10:55:36	1:43:00
22/Jan/03 12:19:36	1:24:00
22/Jan/03 13:55:36	1:36:00
22/Jan/03 15:23:36	1:28:00
22/Jan/03 16:30:36	1:07:00
22/Jan/03 18:12:36	1:42:00
22/Jan/03 19:52:36	1:40:00
22/Jan/03 21:23:36	1:31:00
22/Jan/03 22:54:36	1:31:00
23/Jan/03 00:24:36	1:30:00
23/Jan/03 01:57:36	1:33:00
23/Jan/03 03:31:36	1:34:00
23/Jan/03 04:36:36	1:05:00
23/Jan/03 06:21:36	1:45:00
23/Jan/03 07:45:36	1:24:00
23/Jan/03 09:15:36	1:30:00
23/Jan/03 10:46:36	1:31:00
23/Jan/03 11:45:36	0:59:00
23/Jan/03 13:29:36	1:44:00
23/Jan/03 14:35:36	1:06:00
23/Jan/03 16:07:36	1:32:00
23/Jan/03 17:39:36	1:32:00
23/Jan/03 19:15:36	1:36:00
23/Jan/03 20:40:36	1:25:00
23/Jan/03 22:16:36	1:36:00
23/Jan/03 23:43:36	1:27:00
24/Jan/03 01:13:36	1:30:00
24/Jan/03 02:58:36	1:45:00
24/Jan/03 04:32:36	1:34:00
24/Jan/03 06:00:36	1:28:00
24/Jan/03 07:27:36	1:27:00
24/Jan/03 09:12:36	1:45:00
24/Jan/03 10:53:36	1:41:00
24/Jan/03 12:27:36	1:34:00
24/Jan/03 13:55:36	1:28:00
24/Jan/03 15:21:36	1:26:00
24/Jan/03 16:58:36	1:37:00
24/Jan/03 18:27:36	1:29:00
24/Jan/03 20:03:36	1:36:00
24/Jan/03 21:32:36	1:29:00
24/Jan/03 23:00:36	1:28:00
25/Jan/03 00:31:36	1:31:00
25/Jan/03 02:13:36	1:42:00
25/Jan/03 03:37:36	1:24:00
25/Jan/03 05:02:36	1:25:00
25/Jan/03 06:35:36	1:33:00
25/Jan/03 08:14:36	1:39:00
25/Jan/03 09:47:36	1:33:00
25/Jan/03 11:18:36	1:31:00
25/Jan/03 12:45:36	1:27:00
25/Jan/03 14:17:36	1:32:00
25/Jan/03 15:47:36	1:30:00
25/Jan/03 17:21:36	1:34:00
25/Jan/03 18:49:36	1:28:00
25/Jan/03 20:28:36	1:39:00
25/Jan/03 22:01:36	1:33:00
25/Jan/03 23:27:36	1:26:00
26/Jan/03 00:55:36	1:28:00
26/Jan/03 02:32:36	1:37:00
26/Jan/03 04:00:36	1:28:00
26/Jan/03 05:38:36	1:38:00
26/Jan/03 07:07:36	1:29:00
26/Jan/03 08:43:36	1:36:00
26/Jan/03 10:16:36	1:33:00

Time and Date	Interval
26/Jan/03 11:39:36	1:23:00
26/Jan/03 13:15:36	1:36:00
26/Jan/03 14:42:36	1:27:00
26/Jan/03 16:11:36	1:29:00
26/Jan/03 17:32:36	1:21:00
26/Jan/03 19:03:36	1:31:00
26/Jan/03 20:48:36	1:45:00
26/Jan/03 22:12:36	1:24:00
26/Jan/03 23:43:36	1:31:00
27/Jan/03 01:17:36	1:34:00
27/Jan/03 02:52:36	1:35:00
27/Jan/03 04:26:36	1:34:00
27/Jan/03 06:02:36	1:36:00
27/Jan/03 07:45:36	1:43:00
27/Jan/03 09:08:36	1:23:00
27/Jan/03 10:41:36	1:33:00
27/Jan/03 12:08:36	1:27:00
27/Jan/03 13:39:36	1:31:00
27/Jan/03 15:16:36	1:37:00
27/Jan/03 16:46:36	1:30:00
27/Jan/03 18:27:36	1:41:00
27/Jan/03 20:02:36	1:35:00
27/Jan/03 21:43:36	1:41:00
01/Feb/03 10:08:36	1:20:00
01/Feb/03 11:39:36	1:31:00
01/Feb/03 13:12:36	1:33:00
01/Feb/03 14:37:36	1:25:00
01/Feb/03 16:17:36	1:40:00
01/Feb/03 17:41:36	1:24:00
01/Feb/03 19:09:36	1:28:00
01/Feb/03 20:37:36	1:28:00
01/Feb/03 22:09:36	1:32:00
01/Feb/03 23:42:36	1:33:00
02/Feb/03 01:17:36	1:35:00
02/Feb/03 02:51:36	1:34:00
02/Feb/03 04:15:36	1:24:00
02/Feb/03 05:46:36	1:31:00
02/Feb/03 07:16:36	1:30:00
02/Feb/03 08:53:36	1:37:00
02/Feb/03 10:14:36	1:21:00
02/Feb/03 11:40:36	1:26:00
02/Feb/03 13:14:36	1:34:00
02/Feb/03 14:54:36	1:40:00
02/Feb/03 16:35:36	1:41:00
02/Feb/03 17:28:36	0:53:00
02/Feb/03 19:01:36	1:33:00
02/Feb/03 20:24:36	1:23:00
02/Feb/03 22:02:36	1:38:00
02/Feb/03 23:22:36	1:20:00
03/Feb/03 00:38:36	1:16:00
03/Feb/03 02:10:36	1:32:00
03/Feb/03 03:36:36	1:26:00
03/Feb/03 05:06:36	1:30:00
03/Feb/03 06:39:36	1:33:00
03/Feb/03 08:01:36	1:22:00
03/Feb/03 09:40:36	1:39:00
03/Feb/03 11:06:36	1:26:00
03/Feb/03 12:39:36	1:33:00
03/Feb/03 14:04:36	1:25:00
03/Feb/03 15:37:36	1:33:00
03/Feb/03 17:10:36	1:33:00
03/Feb/03 18:44:36	1:34:00
03/Feb/03 20:13:36	1:29:00
03/Feb/03 21:37:36	1:24:00
03/Feb/03 23:03:36	1:26:00
04/Feb/03 00:45:36	1:42:00
04/Feb/03 02:12:36	1:27:00

Time and Date	Interval
04/Feb/03 03:38:36	1:26:00
04/Feb/03 04:41:36	1:03:00
04/Feb/03 06:20:36	1:39:00
04/Feb/03 07:48:36	1:28:00
04/Feb/03 09:32:36	1:44:00
04/Feb/03 11:05:36	1:33:00
04/Feb/03 12:15:36	1:10:00
04/Feb/03 13:54:36	1:39:00
04/Feb/03 14:55:36	1:01:00
04/Feb/03 16:35:36	1:40:00
04/Feb/03 18:03:36	1:28:00
04/Feb/03 19:34:36	1:31:00
04/Feb/03 20:59:36	1:25:00
04/Feb/03 22:32:36	1:33:00
05/Feb/03 00:02:36	1:30:00
05/Feb/03 01:24:36	1:22:00
05/Feb/03 03:00:36	1:36:00
05/Feb/03 04:32:36	1:32:00
05/Feb/03 06:03:36	1:31:00
05/Feb/03 07:31:36	1:28:00
05/Feb/03 09:01:36	1:30:00
05/Feb/03 10:30:36	1:29:00
05/Feb/03 12:09:36	1:39:00
05/Feb/03 13:36:36	1:27:00
05/Feb/03 15:10:36	1:34:00
05/Feb/03 16:34:36	1:24:00
05/Feb/03 18:02:36	1:28:00
05/Feb/03 19:34:36	1:32:00
05/Feb/03 21:08:36	1:34:00
05/Feb/03 22:38:36	1:30:00
06/Feb/03 00:05:36	1:27:00
06/Feb/03 01:32:36	1:27:00
06/Feb/03 03:01:36	1:29:00
06/Feb/03 04:38:36	1:37:00
06/Feb/03 06:14:36	1:36:00
06/Feb/03 08:02:36	1:48:00
06/Feb/03 09:27:36	1:25:00
06/Feb/03 11:04:36	1:37:00
06/Feb/03 12:26:36	1:22:00
06/Feb/03 13:53:36	1:27:00
06/Feb/03 15:26:36	1:33:00
06/Feb/03 16:56:36	1:30:00
06/Feb/03 18:31:36	1:35:00
06/Feb/03 20:04:36	1:33:00
06/Feb/03 21:32:36	1:28:00
06/Feb/03 22:37:36	1:05:00
07/Feb/03 00:14:36	1:37:00
07/Feb/03 01:42:36	1:28:00
07/Feb/03 03:18:36	1:36:00
07/Feb/03 04:48:36	1:30:00
07/Feb/03 06:14:36	1:26:00
07/Feb/03 07:47:36	1:33:00
07/Feb/03 09:23:36	1:36:00
07/Feb/03 10:58:36	1:35:00
07/Feb/03 12:29:36	1:31:00
07/Feb/03 14:00:36	1:31:00
07/Feb/03 15:29:36	1:29:00
07/Feb/03 16:58:36	1:29:00
07/Feb/03 18:31:36	1:33:00
07/Feb/03 20:01:36	1:30:00
07/Feb/03 21:25:36	1:24:00
07/Feb/03 22:50:36	1:25:00
08/Feb/03 00:21:36	1:31:00
08/Feb/03 01:52:36	1:31:00
08/Feb/03 03:35:36	1:43:00
08/Feb/03 05:06:36	1:31:00
08/Feb/03 06:39:36	1:33:00

Time and Date	Interval
08/Feb/03 08:05:36	1:26:00
08/Feb/03 09:30:36	1:25:00
08/Feb/03 11:03:36	1:33:00
08/Feb/03 12:37:36	1:34:00
08/Feb/03 14:09:36	1:32:00
08/Feb/03 15:35:36	1:26:00
08/Feb/03 17:19:36	1:44:00
08/Feb/03 18:37:36	1:18:00
08/Feb/03 20:09:36	1:32:00
08/Feb/03 21:44:36	1:35:00
08/Feb/03 23:23:36	1:39:00
09/Feb/03 00:50:36	1:27:00
09/Feb/03 02:35:36	1:45:00
09/Feb/03 03:38:36	1:03:00
09/Feb/03 05:08:36	1:30:00
09/Feb/03 06:42:36	1:34:00
09/Feb/03 08:23:36	1:41:00
09/Feb/03 09:20:36	0:57:00
09/Feb/03 10:56:36	1:36:00
09/Feb/03 12:27:36	1:31:00
09/Feb/03 14:00:36	1:33:00
09/Feb/03 15:34:36	1:34:00
09/Feb/03 17:11:36	1:37:00
09/Feb/03 18:15:36	1:04:00
09/Feb/03 19:52:36	1:37:00
09/Feb/03 21:15:36	1:23:00
09/Feb/03 22:49:36	1:34:00
10/Feb/03 00:18:36	1:29:00
10/Feb/03 01:56:36	1:38:00
10/Feb/03 03:27:36	1:31:00
10/Feb/03 05:17:36	1:50:00
10/Feb/03 06:46:36	1:29:00
10/Feb/03 08:14:36	1:28:00
10/Feb/03 09:50:36	1:36:00
10/Feb/03 11:20:36	1:30:00
10/Feb/03 12:27:36	1:07:00
10/Feb/03 14:03:36	1:36:00
10/Feb/03 15:10:36	1:07:00
10/Feb/03 16:45:36	1:35:00
10/Feb/03 18:15:36	1:30:00
10/Feb/03 19:43:36	1:28:00
10/Feb/03 21:16:36	1:33:00
10/Feb/03 23:05:36	1:49:00
11/Feb/03 00:43:36	1:38:00
11/Feb/03 02:06:36	1:23:00
11/Feb/03 03:32:36	1:26:00
11/Feb/03 05:11:36	1:39:00
11/Feb/03 06:44:36	1:33:00
11/Feb/03 08:36:36	1:52:00
11/Feb/03 10:06:36	1:30:00
11/Feb/03 11:31:36	1:25:00
11/Feb/03 13:04:36	1:33:00
11/Feb/03 14:37:36	1:33:00
11/Feb/03 15:59:36	1:22:00
11/Feb/03 17:33:36	1:34:00
11/Feb/03 19:19:36	1:46:00
11/Feb/03 20:51:36	1:32:00
11/Feb/03 22:26:36	1:35:00
12/Feb/03 00:02:36	1:36:00
12/Feb/03 01:41:36	1:39:00
12/Feb/03 03:30:36	1:49:00
12/Feb/03 04:57:36	1:27:00
12/Feb/03 06:22:36	1:25:00
12/Feb/03 08:00:36	1:38:00
12/Feb/03 09:37:36	1:37:00
12/Feb/03 11:08:36	1:31:00
12/Feb/03 12:08:36	1:00:00

Time and Date	Interval
12/Feb/03 13:51:36	1:43:00
12/Feb/03 15:15:36	1:24:00
12/Feb/03 16:42:36	1:27:00
12/Feb/03 18:17:36	1:35:00
12/Feb/03 19:47:36	1:30:00
12/Feb/03 21:24:36	1:37:00
12/Feb/03 22:50:36	1:26:00
13/Feb/03 00:20:36	1:30:00
13/Feb/03 01:56:36	1:36:00
13/Feb/03 03:20:36	1:24:00
13/Feb/03 04:54:36	1:34:00
13/Feb/03 06:24:36	1:30:00
13/Feb/03 07:49:36	1:25:00
13/Feb/03 09:27:36	1:38:00
13/Feb/03 11:01:36	1:34:00
13/Feb/03 12:32:36	1:31:00
13/Feb/03 14:11:36	1:39:00
13/Feb/03 15:44:36	1:33:00
13/Feb/03 17:20:36	1:36:00
13/Feb/03 18:47:36	1:27:00
13/Feb/03 20:20:36	1:33:00
13/Feb/03 22:01:36	1:41:00
13/Feb/03 23:27:36	1:26:00
14/Feb/03 00:57:36	1:30:00
14/Feb/03 02:26:36	1:29:00
14/Feb/03 03:49:36	1:23:00
14/Feb/03 05:39:36	1:50:00
14/Feb/03 07:11:36	1:32:00
14/Feb/03 08:16:36	1:05:00
14/Feb/03 09:50:36	1:34:00
14/Feb/03 11:26:36	1:36:00
14/Feb/03 12:56:36	1:30:00
14/Feb/03 14:31:36	1:35:00
14/Feb/03 16:03:36	1:32:00
14/Feb/03 17:35:36	1:32:00
14/Feb/03 19:09:36	1:34:00
14/Feb/03 20:43:36	1:34:00
14/Feb/03 22:24:36	1:41:00
14/Feb/03 23:57:36	1:33:00
15/Feb/03 01:22:36	1:25:00
15/Feb/03 02:52:36	1:30:00
15/Feb/03 04:32:36	1:40:00
15/Feb/03 06:03:36	1:31:00
15/Feb/03 07:37:36	1:34:00
15/Feb/03 09:13:36	1:36:00
15/Feb/03 10:41:36	1:28:00
15/Feb/03 12:21:36	1:40:00
15/Feb/03 13:54:36	1:33:00
15/Feb/03 15:22:36	1:28:00
15/Feb/03 16:58:36	1:36:00
15/Feb/03 18:28:36	1:30:00
15/Feb/03 20:01:36	1:33:00
15/Feb/03 21:42:36	1:41:00
15/Feb/03 23:12:36	1:30:00
16/Feb/03 00:59:36	1:47:00
16/Feb/03 02:21:36	1:22:00
16/Feb/03 03:48:36	1:27:00
16/Feb/03 05:23:36	1:35:00
16/Feb/03 06:58:36	1:35:00
16/Feb/03 08:40:36	1:42:00
16/Feb/03 10:14:36	1:34:00
16/Feb/03 11:48:36	1:34:00
16/Feb/03 13:13:36	1:25:00
16/Feb/03 14:49:36	1:36:00
16/Feb/03 16:22:36	1:33:00
16/Feb/03 17:59:36	1:37:00
16/Feb/03 19:29:36	1:30:00

Time and Date	Interval
16/Feb/03 21:06:36	1:37:00
16/Feb/03 22:38:36	1:32:00
17/Feb/03 00:04:36	1:26:00
17/Feb/03 01:18:36	1:14:00
17/Feb/03 02:50:36	1:32:00
17/Feb/03 04:26:36	1:36:00
17/Feb/03 05:54:36	1:28:00
17/Feb/03 07:26:36	1:32:00
17/Feb/03 08:54:36	1:28:00
17/Feb/03 10:26:36	1:32:00
17/Feb/03 11:48:36	1:22:00
17/Feb/03 13:17:36	1:29:00
17/Feb/03 14:44:36	1:27:00
17/Feb/03 16:22:36	1:38:00
17/Feb/03 17:48:36	1:26:00
17/Feb/03 19:26:36	1:38:00
17/Feb/03 21:01:36	1:35:00
17/Feb/03 22:25:36	1:24:00
18/Feb/03 00:05:36	1:40:00
18/Feb/03 01:34:36	1:29:00
18/Feb/03 03:06:36	1:32:00
18/Feb/03 04:44:36	1:38:00
18/Feb/03 06:28:36	1:44:00
18/Feb/03 07:58:36	1:30:00
18/Feb/03 09:34:36	1:36:00
18/Feb/03 11:10:36	1:36:00
18/Feb/03 12:54:36	1:44:00
18/Feb/03 14:23:36	1:29:00
18/Feb/03 15:26:36	1:03:00
18/Feb/03 17:04:36	1:38:00
18/Feb/03 18:29:36	1:25:00
18/Feb/03 20:05:36	1:36:00
18/Feb/03 21:37:36	1:32:00
18/Feb/03 23:08:36	1:31:00
19/Feb/03 00:38:36	1:30:00
19/Feb/03 02:05:36	1:27:00
19/Feb/03 03:33:36	1:28:00
19/Feb/03 04:33:36	1:00:00
19/Feb/03 06:15:36	1:42:00
19/Feb/03 07:49:36	1:34:00
19/Feb/03 09:10:36	1:21:00
19/Feb/03 10:37:36	1:27:00
19/Feb/03 12:03:36	1:26:00
19/Feb/03 13:29:36	1:26:00
19/Feb/03 14:55:36	1:26:00
19/Feb/03 16:22:36	1:27:00
19/Feb/03 17:58:36	1:36:00
19/Feb/03 19:30:36	1:32:00
19/Feb/03 21:08:36	1:38:00
19/Feb/03 22:38:36	1:30:00
20/Feb/03 00:25:36	1:47:00
20/Feb/03 01:59:36	1:34:00
20/Feb/03 03:44:36	1:45:00
20/Feb/03 05:17:36	1:33:00
20/Feb/03 06:29:36	1:12:00
20/Feb/03 08:02:36	1:33:00
20/Feb/03 09:29:36	1:27:00
20/Feb/03 11:01:36	1:32:00
20/Feb/03 12:38:36	1:37:00
20/Feb/03 14:13:36	1:35:00
20/Feb/03 15:44:36	1:31:00
20/Feb/03 17:23:36	1:39:00
20/Feb/03 18:50:36	1:27:00
20/Feb/03 20:34:36	1:44:00
20/Feb/03 22:04:36	1:30:00
20/Feb/03 23:31:36	1:27:00
21/Feb/03 01:05:36	1:34:00

Time and Date	Interval
21/Feb/03 02:06:36	1:01:00
21/Feb/03 03:47:36	1:41:00
21/Feb/03 05:19:36	1:32:00
21/Feb/03 06:50:36	1:31:00
21/Feb/03 08:23:36	1:33:00
21/Feb/03 09:57:36	1:34:00
21/Feb/03 11:33:36	1:36:00
21/Feb/03 13:06:36	1:33:00
21/Feb/03 14:44:36	1:38:00
21/Feb/03 16:19:36	1:35:00
21/Feb/03 17:47:36	1:28:00
21/Feb/03 19:25:36	1:38:00
21/Feb/03 20:50:36	1:25:00
21/Feb/03 22:21:36	1:31:00
22/Feb/03 00:07:36	1:46:00
22/Feb/03 01:35:36	1:28:00
22/Feb/03 03:13:36	1:38:00
22/Feb/03 04:41:36	1:28:00
22/Feb/03 06:22:36	1:41:00
22/Feb/03 07:49:36	1:27:00
22/Feb/03 09:26:36	1:37:00
22/Feb/03 10:50:36	1:24:00
22/Feb/03 12:16:36	1:26:00
22/Feb/03 14:05:36	1:49:00
22/Feb/03 15:03:36	0:58:00
22/Feb/03 16:44:36	1:41:00
22/Feb/03 18:14:36	1:30:00
22/Feb/03 19:52:36	1:38:00
22/Feb/03 21:23:36	1:31:00
22/Feb/03 22:51:36	1:28:00
23/Feb/03 00:21:36	1:30:00
23/Feb/03 01:52:36	1:31:00
23/Feb/03 03:29:36	1:37:00
23/Feb/03 05:02:36	1:33:00
23/Feb/03 06:32:36	1:30:00
23/Feb/03 07:35:36	1:03:00
23/Feb/03 09:16:36	1:41:00
23/Feb/03 10:49:36	1:33:00
23/Feb/03 12:18:36	1:29:00
23/Feb/03 13:52:36	1:34:00
23/Feb/03 15:25:36	1:33:00
23/Feb/03 16:57:36	1:32:00
23/Feb/03 18:25:36	1:28:00
23/Feb/03 19:57:36	1:32:00
23/Feb/03 21:26:36	1:29:00
23/Feb/03 23:07:36	1:41:00
24/Feb/03 00:33:36	1:26:00
24/Feb/03 02:00:36	1:27:00
24/Feb/03 03:28:36	1:28:00
24/Feb/03 04:52:36	1:24:00
24/Feb/03 06:30:36	1:38:00
24/Feb/03 08:12:36	1:42:00
24/Feb/03 09:42:36	1:30:00
24/Feb/03 11:12:36	1:30:00
24/Feb/03 12:47:36	1:35:00
24/Feb/03 14:30:36	1:43:00
24/Feb/03 16:00:36	1:30:00
24/Feb/03 17:39:36	1:39:00
24/Feb/03 19:06:36	1:27:00
24/Feb/03 20:33:36	1:27:00
24/Feb/03 22:05:36	1:32:00
24/Feb/03 23:46:36	1:41:00
25/Feb/03 01:20:36	1:34:00
25/Feb/03 02:55:36	1:35:00
25/Feb/03 04:34:36	1:39:00
25/Feb/03 06:03:36	1:29:00
25/Feb/03 07:36:36	1:33:00

Time and Date	Interval
25/Feb/03 09:16:36	1:40:00
25/Feb/03 10:37:36	1:21:00
25/Feb/03 12:11:36	1:34:00
25/Feb/03 13:36:36	1:25:00
25/Feb/03 15:05:36	1:29:00
25/Feb/03 16:43:36	1:38:00
25/Feb/03 18:09:36	1:26:00
25/Feb/03 19:44:36	1:35:00
25/Feb/03 21:08:36	1:24:00
25/Feb/03 22:45:36	1:37:00
26/Feb/03 00:14:36	1:29:00
26/Feb/03 01:47:36	1:33:00
26/Feb/03 03:11:36	1:24:00
26/Feb/03 04:39:36	1:28:00
26/Feb/03 06:10:36	1:31:00
26/Feb/03 07:44:36	1:34:00
26/Feb/03 09:19:36	1:35:00
26/Feb/03 10:50:36	1:31:00
26/Feb/03 12:34:36	1:44:00
26/Feb/03 14:08:36	1:34:00
26/Feb/03 15:42:36	1:34:00
26/Feb/03 17:15:36	1:33:00
26/Feb/03 18:47:36	1:32:00
26/Feb/03 20:16:36	1:29:00
26/Feb/03 21:52:36	1:36:00
26/Feb/03 23:19:36	1:27:00
27/Feb/03 00:55:36	1:36:00
27/Feb/03 02:23:36	1:28:00
27/Feb/03 03:55:36	1:32:00
27/Feb/03 05:29:36	1:34:00
27/Feb/03 07:02:36	1:33:00
27/Feb/03 08:45:36	1:43:00
27/Feb/03 10:07:36	1:22:00
27/Feb/03 11:44:36	1:37:00
27/Feb/03 13:24:36	1:40:00
27/Feb/03 14:52:36	1:28:00
27/Feb/03 16:29:36	1:37:00
27/Feb/03 18:00:36	1:31:00
27/Feb/03 19:30:36	1:30:00
27/Feb/03 21:04:36	1:34:00
27/Feb/03 22:46:36	1:42:00
28/Feb/03 00:17:36	1:31:00
28/Feb/03 01:47:36	1:30:00
28/Feb/03 03:12:36	1:25:00
28/Feb/03 04:42:36	1:30:00
28/Feb/03 06:18:36	1:36:00
28/Feb/03 07:57:36	1:39:00
28/Feb/03 09:21:36	1:24:00
28/Feb/03 11:01:36	1:40:00
28/Feb/03 12:26:36	1:25:00
28/Feb/03 14:01:36	1:35:00
28/Feb/03 15:28:36	1:27:00
28/Feb/03 17:10:36	1:42:00
28/Feb/03 18:42:36	1:32:00
28/Feb/03 20:09:36	1:27:00
28/Feb/03 21:44:36	1:35:00
28/Feb/03 23:05:36	1:21:00
01/Mar/03 00:34:36	1:29:00
01/Mar/03 02:03:36	1:29:00
01/Mar/03 03:38:36	1:35:00
01/Mar/03 05:04:36	1:26:00
01/Mar/03 06:31:36	1:27:00
01/Mar/03 08:06:36	1:35:00
01/Mar/03 09:41:36	1:35:00
01/Mar/03 11:18:36	1:37:00
01/Mar/03 12:58:36	1:40:00
01/Mar/03 14:33:36	1:35:00

Time and Date	Interval
01/Mar/03 15:38:36	1:05:00
01/Mar/03 17:09:36	1:31:00
01/Mar/03 18:33:36	1:24:00
01/Mar/03 20:06:36	1:33:00
01/Mar/03 21:35:36	1:29:00
01/Mar/03 22:32:36	0:57:00
02/Mar/03 00:04:36	1:32:00
02/Mar/03 01:42:36	1:38:00
02/Mar/03 03:07:36	1:25:00
02/Mar/03 04:36:36	1:29:00
02/Mar/03 06:02:36	1:26:00
02/Mar/03 07:40:36	1:38:00
02/Mar/03 09:06:36	1:26:00
02/Mar/03 10:43:36	1:37:00
02/Mar/03 12:15:36	1:32:00
02/Mar/03 13:44:36	1:29:00
02/Mar/03 15:11:36	1:27:00
02/Mar/03 16:58:36	1:47:00
02/Mar/03 18:21:36	1:23:00
02/Mar/03 19:55:36	1:34:00
02/Mar/03 21:28:36	1:33:00
02/Mar/03 23:08:36	1:40:00
03/Mar/03 00:39:36	1:31:00
03/Mar/03 02:07:36	1:28:00
03/Mar/03 03:43:36	1:36:00
03/Mar/03 05:16:36	1:33:00
03/Mar/03 06:44:36	1:28:00
03/Mar/03 08:14:36	1:30:00
03/Mar/03 09:46:36	1:32:00
03/Mar/03 11:20:36	1:34:00
03/Mar/03 12:48:36	1:28:00
03/Mar/03 14:22:36	1:34:00
03/Mar/03 15:52:36	1:30:00
03/Mar/03 17:35:36	1:43:00
03/Mar/03 19:12:36	1:37:00
03/Mar/03 20:36:36	1:24:00
03/Mar/03 22:09:36	1:33:00
03/Mar/03 23:44:36	1:35:00
04/Mar/03 01:19:36	1:35:00
04/Mar/03 02:44:36	1:25:00
04/Mar/03 04:16:36	1:32:00
04/Mar/03 05:56:36	1:40:00
04/Mar/03 07:32:36	1:36:00
04/Mar/03 09:03:36	1:31:00
04/Mar/03 10:33:36	1:30:00
04/Mar/03 12:13:36	1:40:00
04/Mar/03 13:37:36	1:24:00
04/Mar/03 15:17:36	1:40:00
04/Mar/03 16:44:36	1:27:00
04/Mar/03 18:11:36	1:27:00
04/Mar/03 19:41:36	1:30:00
04/Mar/03 21:09:36	1:28:00
04/Mar/03 22:50:36	1:41:00
05/Mar/03 00:18:36	1:28:00
05/Mar/03 01:47:36	1:29:00
05/Mar/03 03:15:36	1:28:00
05/Mar/03 04:46:36	1:31:00
05/Mar/03 06:20:36	1:34:00
05/Mar/03 07:51:36	1:31:00
05/Mar/03 09:21:36	1:30:00
05/Mar/03 10:54:36	1:33:00
05/Mar/03 12:30:36	1:36:00
05/Mar/03 13:57:36	1:27:00
05/Mar/03 15:33:36	1:36:00
05/Mar/03 17:08:36	1:35:00
05/Mar/03 18:42:36	1:34:00
05/Mar/03 20:17:36	1:35:00

Time and Date	Interval
05/Mar/03 21:55:36	1:38:00
05/Mar/03 23:33:36	1:38:00
06/Mar/03 01:09:36	1:36:00
06/Mar/03 02:21:36	1:12:00
06/Mar/03 04:00:36	1:39:00
06/Mar/03 05:31:36	1:31:00
06/Mar/03 06:58:36	1:27:00
06/Mar/03 08:36:36	1:38:00
06/Mar/03 10:09:36	1:33:00
06/Mar/03 11:43:36	1:34:00
06/Mar/03 13:10:36	1:27:00
06/Mar/03 14:52:36	1:42:00
06/Mar/03 16:31:36	1:39:00
06/Mar/03 18:03:36	1:32:00
06/Mar/03 19:08:36	1:05:00
06/Mar/03 21:00:36	1:52:00
06/Mar/03 22:42:36	1:42:00
07/Mar/03 00:27:36	1:45:00
07/Mar/03 01:26:36	0:59:00
07/Mar/03 03:11:36	1:45:00
07/Mar/03 04:31:36	1:20:00
07/Mar/03 06:00:36	1:29:00
07/Mar/03 07:07:36	1:07:00
07/Mar/03 08:51:36	1:44:00
07/Mar/03 10:21:36	1:30:00
07/Mar/03 11:59:36	1:38:00
07/Mar/03 13:33:36	1:34:00
07/Mar/03 15:06:36	1:33:00
07/Mar/03 16:24:36	1:18:00
07/Mar/03 18:06:36	1:42:00
07/Mar/03 22:44:36	1:28:00
08/Mar/03 00:23:36	1:39:00
08/Mar/03 01:30:36	1:07:00
08/Mar/03 03:14:36	1:44:00
08/Mar/03 04:41:36	1:27:00
08/Mar/03 06:33:36	1:52:00
08/Mar/03 08:10:36	1:37:00
08/Mar/03 09:40:36	1:30:00
08/Mar/03 11:08:36	1:28:00
08/Mar/03 12:36:36	1:28:00
08/Mar/03 14:01:36	1:25:00
08/Mar/03 15:40:36	1:39:00
08/Mar/03 17:09:36	1:29:00
08/Mar/03 18:45:36	1:36:00
08/Mar/03 20:14:36	1:29:00
08/Mar/03 22:00:36	1:46:00
08/Mar/03 23:39:36	1:39:00
09/Mar/03 01:08:36	1:29:00
09/Mar/03 02:15:36	1:07:00
09/Mar/03 03:45:36	1:30:00
09/Mar/03 05:21:36	1:36:00
09/Mar/03 06:41:36	1:20:00
09/Mar/03 08:16:36	1:35:00
09/Mar/03 09:40:36	1:24:00
09/Mar/03 11:20:36	1:40:00
09/Mar/03 12:50:36	1:30:00
09/Mar/03 14:20:36	1:30:00
09/Mar/03 15:54:36	1:34:00
09/Mar/03 17:25:36	1:31:00
09/Mar/03 18:53:36	1:28:00
09/Mar/03 20:26:36	1:33:00
09/Mar/03 21:26:36	1:00:00
09/Mar/03 23:10:36	1:44:00
10/Mar/03 00:29:36	1:19:00
10/Mar/03 01:57:36	1:28:00
10/Mar/03 03:27:36	1:30:00
10/Mar/03 05:03:36	1:36:00

Time and Date	Interval
10/Mar/03 06:37:36	1:34:00
10/Mar/03 08:07:36	1:30:00
10/Mar/03 09:08:36	1:01:00
10/Mar/03 10:44:36	1:36:00
10/Mar/03 11:46:36	1:02:00
10/Mar/03 13:26:36	1:40:00
10/Mar/03 14:39:36	1:13:00
10/Mar/03 16:06:36	1:27:00
10/Mar/03 17:36:36	1:30:00
10/Mar/03 19:01:36	1:25:00
10/Mar/03 20:42:36	1:41:00
10/Mar/03 22:11:36	1:29:00
10/Mar/03 23:47:36	1:36:00
11/Mar/03 01:17:36	1:30:00
11/Mar/03 02:49:36	1:32:00
11/Mar/03 04:32:36	1:43:00
11/Mar/03 06:13:36	1:41:00
11/Mar/03 07:43:36	1:30:00
11/Mar/03 09:18:36	1:35:00
11/Mar/03 11:02:36	1:44:00
11/Mar/03 12:27:36	1:25:00
11/Mar/03 14:00:36	1:33:00
11/Mar/03 15:35:36	1:35:00
11/Mar/03 17:11:36	1:36:00
11/Mar/03 18:33:36	1:22:00
11/Mar/03 20:09:36	1:36:00
11/Mar/03 21:14:36	1:05:00
11/Mar/03 22:48:36	1:34:00
12/Mar/03 00:36:36	1:48:00
12/Mar/03 02:04:36	1:28:00
12/Mar/03 03:38:36	1:34:00
12/Mar/03 05:09:36	1:31:00
12/Mar/03 06:50:36	1:41:00
12/Mar/03 08:14:36	1:24:00
12/Mar/03 09:53:36	1:39:00
12/Mar/03 11:14:36	1:21:00
12/Mar/03 12:46:36	1:32:00
12/Mar/03 14:20:36	1:34:00
12/Mar/03 15:52:36	1:32:00
12/Mar/03 17:15:36	1:23:00
12/Mar/03 18:49:36	1:34:00
12/Mar/03 20:13:36	1:24:00
12/Mar/03 21:50:36	1:37:00
12/Mar/03 23:19:36	1:29:00
13/Mar/03 01:02:36	1:43:00
13/Mar/03 02:34:36	1:32:00
13/Mar/03 04:08:36	1:34:00
13/Mar/03 05:38:36	1:30:00
13/Mar/03 07:06:36	1:28:00
13/Mar/03 08:39:36	1:33:00
13/Mar/03 10:06:36	1:27:00
13/Mar/03 11:36:36	1:30:00
13/Mar/03 13:16:36	1:40:00
13/Mar/03 14:44:36	1:28:00
13/Mar/03 16:17:36	1:33:00
13/Mar/03 17:50:36	1:33:00
13/Mar/03 19:19:36	1:29:00
13/Mar/03 20:42:36	1:23:00
13/Mar/03 22:10:36	1:28:00
13/Mar/03 23:41:36	1:31:00
14/Mar/03 01:14:36	1:33:00
14/Mar/03 02:54:36	1:40:00
14/Mar/03 04:30:36	1:36:00
14/Mar/03 06:04:36	1:34:00
14/Mar/03 07:26:36	1:22:00
14/Mar/03 09:03:36	1:37:00
14/Mar/03 10:35:36	1:32:00

Time and Date	Interval
14/Mar/03 12:09:36	1:34:00
14/Mar/03 13:39:36	1:30:00
14/Mar/03 15:22:36	1:43:00
14/Mar/03 16:53:36	1:31:00
14/Mar/03 18:26:36	1:33:00
14/Mar/03 19:53:36	1:27:00
14/Mar/03 21:25:36	1:32:00
14/Mar/03 22:53:36	1:28:00
15/Mar/03 00:06:36	1:13:00
15/Mar/03 01:44:36	1:38:00
15/Mar/03 03:12:36	1:28:00
15/Mar/03 04:46:36	1:34:00
15/Mar/03 06:24:36	1:38:00
15/Mar/03 07:54:36	1:30:00
15/Mar/03 09:25:36	1:31:00
15/Mar/03 11:07:36	1:42:00
15/Mar/03 12:31:36	1:24:00
15/Mar/03 14:06:36	1:35:00
15/Mar/03 15:36:36	1:30:00
15/Mar/03 17:10:36	1:34:00
15/Mar/03 18:46:36	1:36:00
15/Mar/03 20:22:36	1:36:00
15/Mar/03 21:51:36	1:29:00
15/Mar/03 22:49:36	0:58:00