

Chesapeake Bay Virginia (CBV) NERR Meteorological Metadata
January 2004 - December 2004
Latest update: **October 11, 2023**

I. Data Set & Research Descriptors

1) Principal investigator & contact persons:

Virginia Institute of Marine Science
College of William and Mary
PO Box 1346, Gloucester Point, VA 23062
Phone: (804) 684-7135

Dr. William Reay, Director
E-mail: wreay@vims.edu; (804) 684-7119
Dr. Kenneth Moore, Research Coordinator
E-mail: moore@vims.edu; (804) 684-7384

2) Entry verification

a) Data Input Procedures:

The 15-minute, 1-hour average, and 24-hour data were downloaded from each instrument on the weather station to a Campbell Scientific CR10X datalogger. The CDMO Data Logger Program (nerr.csi) was loaded into the CR10X and controls the sensors and data collection schedule (see 2b of the Entry Verification section for the data collection schedule). The CR10X interfaced with the PC208W software supplied by Campbell Scientific. This software was located on a laptop computer to which the data were downloaded manually in the field. Data were downloaded monthly or biweekly from a storage module located within the weather station. Data were formatted in Excel using the weather macro provided by CDMO.

The Centralized Data Management Office converted all SWMP weather data collected with CR10X program versions prior to version 4.0. This was necessary in order to merge the old data format (12 array output) with the new data format found in version 4.0 (3 array output). The new format produces averages, maximums and minimums every fifteen minutes (array 15), every hour (array 60) and every day (array 144) for any sensors connected to the CR10X. Specifically, the 150 and 151 fifteen minute data were converted to the new 15 array; the hourly 101, 102, 105 and 106 data were converted to the new 60 array, and the daily 241, 242, 243, 244, 245 and 246 data were converted to the new 144 array. With the new format, the use of 55555's to code for deleted data and 11111's to code for missing data has been abandoned. Hence, all 55555's or 11111's contained in the SWMP weather data collected prior to Version 4.0 of the CR10X program were removed and left blank.

Gretchen Arnold was responsible for the QA/QC of the 2004 Weather data.

For data collection, the CR10X datalogger was programmed to collect data in the following formats:

i) 15-minute data are collected instantaneously for Air Temperature (degrees C), Relative Humidity (%), Barometric Pressure (mb), Wind Speed (m/s), and Wind Direction (degrees). 15-minute Precipitation (mm) and PAR (mmol/m²) data are totaled from 5-second readings.

ii) 15-minute average, maximum and minimum data are averages of 5-second readings for Air Temperature (degrees C), Relative Humidity (%), Barometric Pressure (mb) and Wind Speed (m/s).

iii) Hourly average, maximum, and minimum data are averages of 5-second readings for Air Temperature (degrees C), Relative Humidity (%), Barometric Pressure (mb), Wind Speed (m/s), and Wind Direction (degrees). Hourly totals for PAR (mmol/m²) and Precipitation (mm) are totals of 15-minute readings.

iv) Daily average, maximum and minimum data are averages of 5-second readings for Air Temperature (degrees C), Relative Humidity (%), Barometric Pressure (mb), Wind Speed (m/s), and Wind Direction (degrees). Daily totals for PAR (mmol/m²) and Precipitation (mm) are totals of 15-minute readings.

Data were stored on a Campbell Scientific storage module (SM192 or SM4M). The data were downloaded and pre-processed as described in Section 2. QA/QC of the data was conducted using EQWin. Data were investigated as recommended in the CDMO NERR SWMP Data Management Manual Version 5.1, and included the use of queries, graphs, and reports. Any anomalous or missing data were investigated and are noted below in the corresponding section. Any data corrections that were performed are noted in the Data Correction section below. Additionally, basic EQWin queries were conducted based on the following anomalous data criteria:

Air Temp:

- Sample not greater than 40 C or less than -20 C
- 15 minute averages not greater than the max for the day
- 15 minute averages not greater than the min for the day

Relative Humidity:

- Sample not greater than 100% or less than 0%
- 15 minute averages not greater than the max for the day
- 15 minute averages not greater than the min for the day

Pressure:

- Pressure not greater than 1040 mb or less than 980 mb
- 15 minute averages not greater than the max for the day
- 15 minute averages not greater than the min for the day

Wind Speed:

- Wind speed not greater than 30 m/s and not less than 0
- Sample not less than 0.5 m/s for 12 hours consecutively

Wind Direction:

- Wind direction not greater than 360 degrees or less than 0 degrees

Rainfall:

- Precipitation not greater than 5 mm in 15 minutes

Photosynthetically Active Radiation (PAR):

- 15 min. total not greater than 5000 mmol/m² or less than -2.214 mmol/m².
- 60 min. total not greater than 20000 mmol/m² or less than -8.856 mmol/m²
- 24 hour total not greater than 480,000 mmol/m² or less than -212.544 mmol/m²

Time:

- 15 minute interval recorded

For all data:
-No duplicate data

Additional queries were performed as necessary.

3) Research objectives:

The principal objective is to record long-term meteorological data within the York River watershed in order to observe any environmental changes or trends over time. Data may also be used for watershed research. Samples were taken every 5 seconds and 15 minutes over roughly two-week collecting intervals.

4) Research methods:

The Campbell Scientific weather station samples every 5 seconds to produce both hourly and daily averages of those measurements of air temperature, relative humidity, barometric pressure, rainfall, wind speed and wind direction. An instantaneous sample is taken every 15 minutes and that data is stored in array 150. A one-month to biweekly sampling interval was chosen so that the storage module would not run out of room and overwrite data. Periodically, sensors on the weather station are inspected for damage or debris. If any is found, it is repaired and/or cleaned. Sensors are scheduled to be removed and sent back to Campbell Scientific for calibration at minimum of every two years. However, it should be noted that the following sensors in 2004 were overdue for calibration: Temperature/RH, Barometric Pressure, and Precipitation.

5) Site location and character:

Taskinas Creek (TC) Component:

The Chesapeake Bay National Estuarine Research Reserve in Virginia (CBNERRVA) is located on the York River, a tributary of the Chesapeake Bay. CBNERRVA maintains a long-term water quality-monitoring program and stream gauge station at Taskinas Creek, a tributary of the York River that is located in the transitional zone of the York River State Park. The Taskinas Creek weather station is also located within York River State Park. The park is located on the mainstem of the York River, which is 50 km long, 38 kilometers from the mouth of the river, and 2.25 kilometer wide near the weather station. The weather station is located (37°24' 50.79850" N, 76°42' 44.51934" W) on a bluff (11m elevation) 60m from the York River in a manicured lawn area of the park. No trees or other major structures are within a 35m radius of weather station. The stream gauge is located 2km NW (288 degrees) of weather station and the water quality station is located 200m (298 degrees) of weather station. The weather station has a landscape fence around it to deter park visitors from tampering with it. All the instruments are located on the approximately 3.5 m aluminum tower following the descriptions outlined in the CDMO Manual V 4.0. The Tipping Bucket Rain gauge is located within 2m of the tower. The sensors were wired to the CR10X following the protocol in the CDMO Manual.

6) Data collection period:

Weather data has been collected at the Taskinas Creek since 1996. The current weather station has been operational since 1996. Data was collected for the entire year in 2004.

7) Distribution

According to the Ocean and Coastal Resource Management Data Dissemination Policy for the NERRS System-wide Monitoring Program, NOAA/ERD retains the right to analyze, synthesize and publish summaries of the NERRS System-wide Monitoring Program data. The PI retains the right to be fully credited for having collected and processed the data. Following academic courtesy standards, the PI and NERR site where the data were collected will be contacted and fully acknowledged in any subsequent publications in which any part of the data are used. Manuscripts resulting from the NOAA/OCRM supported research that are produced for publication in open literature, including refereed scientific journals, will acknowledge that the research was conducted under an award from the Estuarine Reserves Division, Office of Ocean and Coastal Resource Management, National Ocean Service, National Oceanic and Atmospheric Administration. The data set enclosed within this package/transmission is only as good as the quality assurance/quality control procedures outlined by the enclosed metadata reporting statement. The user bears all responsibility for its subsequent use/misuse in any further analyses or comparisons. The Federal government does not assume liability to the Recipient or third persons, nor will the Federal government reimburse or indemnify the Recipient for its liability due to any losses resulting in any way from the use of this data.

NERR weather data and metadata can be obtained from the Research Coordinator at the individual NERR site (please see Section 1 Principal investigators and contact persons), from the Data Manager at the Centralized Data Management Office (please see personnel directory under the general information link on the CDMO home page) and online at the CDMO home page <http://cdmo.baruch.sc.edu>. Data are available in text format and Access data tables.

8) Associated researchers and projects:

The Taskinas Creek watershed is a site of limited impact due to development or recreational use. There is a water quality station and a stream gauge station at this site. This site is being developed as a control site for watershed work in the area.

II. Physical Structure Descriptors

9) Sensor specifications, operating range, accuracy, date of last calibration

CSI LiCor Quantum Sensor

Model # LI190SB

Stability: $<\pm 2\%$ change over 1 yr

Operating Temperature: -40 to 65°C

Sensitivity: typically $5\ \mu\text{A}$ per $1000\ \mu\text{moles s}^{-1}\text{ m}^{-2}$

Light spectrum wavelength: 400 to $700\ \text{nm}$

Multiplier: 1.346

Date of last calibration: 8/2000 installed 3/2003

CSI Wind Sentry (In use 1/1/2004 until 6/23/2004)

Model # 03001-5, #03301-5

Range: 0 - $50\ \text{m/s}$; 360° mechanical

Date of last calibration: 12/2000 installed 3/2003

R.M. Young Wind Monitor (installed on 6/23/2004 by E. Wooden; calibrated on 7/08/2004).

Model # 05103-5

WIND SPEED SUMMARY:

Range: 0-60 m/s; gust survival 100 m/s

WIND DIRECTION (AZIMUTH) SUMMARY:

Range: 360° mechanical, 355° electrical

CSI Temperature and Relative Humidity

Model #: HM45C

Operating Temperature: -40-+60°C

Temperature Measurement Range: -40-+60°C

Temperature Accuracy: ± 0.2 °C @ 20°C

Relative Humidity Measurement Range: 0-100% non-condensing

RH Accuracy: $\pm 2\%$ RH (0-90%) and $\pm 3\%$ (90-100%)

Uncertainty of calibration: $\pm 1.2\%$ RH

Date of Last calibration: 10/2000 installed 3/2003

CSI Barometric Sensor

Model #PTB101B

Operating Range: Pressure - 600-1060 mb

Temperature: -40-+60C

Humidity: non-condensing

Accuracy: ± 0.5 to 6.0 mb (+20-60C)

Stability: ± 0.1 mb per year

Date of Last calibration: 7/2000 installed 3/2003

Fluid Isolation Technology Tipping Bucket Rain Gauge

Model #: RG-2000-C

Range: 0.1 mm

Accuracy: 1.0% at <14 "/hr

Date of Last calibration: 1/2001

The Campbell Scientific CR10X Wiring Panel has 128K of flash memory (EEPROM) in which it stores the operating system and its program (that it uses to run the weather station). Additionally, there are 128K of SRAM, which it uses to run the program and store its measurements and for final data storage.

10) Coded variable indicator and variable code definitions:

Sampling station:	Sampling site code:	Station code:
Taskinas Creek	TC	cbvtcmet

11) Data anomalies/Data corrections:

Arrays:

During 2022 all pre-2007 weather data were revisited by the CDMO. Historically those datasets included 15 minute, hourly (60), and daily data arrays (144). As directed by the NERRS Data Management Committee, the CDMO removed the hourly and daily data arrays leaving only the 15 minute data to make the entire NERRS SWMP weather dataset consistent in its reporting. All references to the 60 and 144 arrays were left in the metadata document as they may still provide valuable information, but users should be aware that they are largely no longer relevant. The updated datasets were uploaded to the database and made available through the various data applications at www.nerrrsdata.org/get/landing.cfm throughout the fall of 2022

January 2004 TC

During the following period, the values for BP, MaxBP, and MinBP appear as outliers and are considered suspect because they deviate significantly from data at a nearby station:

1/27/2004, 18:00 through 1/28/2004, 12:00.

The following daily average data for BP, MaxBP, and MinBP associated with the data enumerated above are also considered suspect:

1/27/2004, Class 144, 24:00

1/28/2004, Class 144, 24:00

Relative Humidity data greater than 100% have been observed; these data are within range of the sensor accuracy of +/-3%. These data have been retained.

Temperature data accurately reflect unseasonably warm weather during the first week of this month.

The following PAR data fall outside the range of accuracy for the sensor:

Date	Time	Julian	Array ID	TotPAR
1/22/2004	17:30	22	15	-2.4
1/22/2004	17:45	22	15	-3.8
1/22/2004	18:00	22	15	-3.9
1/22/2004	18:15	22	15	-3.5
1/22/2004	18:30	22	15	-3.2
1/22/2004	18:45	22	15	-3.2
1/22/2004	19:00	22	15	-3.2
1/22/2004	19:15	22	15	-3.2
1/22/2004	19:30	22	15	-3.2
1/22/2004	19:45	22	15	-3.2
1/22/2004	20:00	22	15	-3.2
1/22/2004	20:15	22	15	-3.2
1/22/2004	20:30	22	15	-3.2
1/22/2004	20:45	22	15	-3.5
1/22/2004	21:00	22	15	-3.4
1/22/2004	21:15	22	15	-3.2
1/22/2004	21:30	22	15	-3.2
1/22/2004	21:45	22	15	-3.2
1/22/2004	22:00	22	15	-3.2
1/22/2004	22:15	22	15	-3.2
1/22/2004	22:30	22	15	-3.2
1/22/2004	22:45	22	15	-3
1/22/2004	23:00	22	15	-2.4
1/22/2004	23:15	22	15	-2.4
1/22/2004	23:30	22	15	-2.5
1/22/2004	23:45	22	15	-2.9
1/23/2004	0:00	23	15	-3.1
1/23/2004	0:15	23	15	-3.1
1/23/2004	0:30	23	15	-2.8
1/23/2004	0:45	23	15	-2.5
1/23/2004	1:00	23	15	-2.4
1/23/2004	1:15	23	15	-2.4
1/23/2004	1:30	23	15	-2.4
1/23/2004	1:45	23	15	-2.4

1/23/2004	2:00	23	15	-2.4
1/23/2004	2:15	23	15	-2.5
1/23/2004	2:30	23	15	-3
1/23/2004	2:45	23	15	-3.1
1/23/2004	3:00	23	15	-3.1
1/23/2004	3:15	23	15	-2.8
1/23/2004	3:30	23	15	-2.6
1/23/2004	3:45	23	15	-2.4
1/23/2004	4:00	23	15	-2.4
1/23/2004	17:45	23	15	-2.6
1/23/2004	18:00	23	15	-3.1
1/23/2004	18:15	23	15	-2.8
1/24/2004	2:30	24	15	-2.4
1/27/2004	17:45	27	15	-2.9
1/27/2004	18:00	27	15	-3.2
1/27/2004	18:15	27	15	-2.6
1/28/2004	18:00	28	15	-2.4
1/28/2004	18:15	28	15	-2.4
1/29/2004	18:00	29	15	-3.2
1/29/2004	18:15	29	15	-3.4
1/29/2004	18:30	29	15	-3.2
1/29/2004	18:45	29	15	-3.2
1/29/2004	19:00	29	15	-3.2
1/29/2004	19:15	29	15	-3.2
1/29/2004	19:30	29	15	-3.2
1/29/2004	19:45	29	15	-3.2
1/29/2004	20:00	29	15	-2.8
1/29/2004	20:15	29	15	-2.4
1/29/2004	20:30	29	15	-2.4
1/29/2004	20:45	29	15	-2.4
1/29/2004	21:00	29	15	-2.4
1/29/2004	21:15	29	15	-2.7
1/29/2004	21:30	29	15	-2.4
1/29/2004	21:45	29	15	-2.4
1/29/2004	22:00	29	15	-2.4
1/29/2004	22:15	29	15	-2.4
1/29/2004	22:30	29	15	-2.4
1/29/2004	22:45	29	15	-2.4
1/29/2004	23:00	29	15	-2.4
1/29/2004	23:15	29	15	-2.4
1/29/2004	23:30	29	15	-2.4
1/30/2004	18:15	30	15	-2.4
1/30/2004	18:30	30	15	-2.4
1/30/2004	18:45	30	15	-2.3
1/22/2004	18:00	22	60	-9.3
1/22/2004	19:00	22	60	-13
1/22/2004	20:00	22	60	-12.7
1/22/2004	21:00	22	60	-13.3
1/22/2004	22:00	22	60	-12.7
1/22/2004	23:00	22	60	-11.7
1/23/2004	0:00	23	60	-10.9
1/23/2004	1:00	23	60	-10.8
1/23/2004	2:00	23	60	-9.6
1/23/2004	3:00	23	60	-11.7
1/23/2004	4:00	23	60	-10.2
1/29/2004	19:00	29	60	-12.9
1/29/2004	20:00	29	60	-12.3

1/29/2004	21:00	29	60	-9.5
1/29/2004	22:00	29	60	-9.9
1/29/2004	23:00	29	60	-9.5
1/30/2004	19:00	30	60	-9.1

February 2004 TC

Relative Humidity data greater than 100% have been observed; these data are within range of the sensor accuracy of +/-3%. These data have been retained.

The following PAR data fall outside the range of accuracy for the sensor:

Date	Time	Julian	Array ID	TotPAR
2/2/2004	18:00	33	15	-2.5
2/2/2004	18:15	33	15	-2.4
2/2/2004	18:30	33	15	-2.4
2/2/2004	18:45	33	15	-2.4
2/2/2004	19:00	33	15	-2.4
2/2/2004	21:00	33	15	-2.3
2/2/2004	21:15	33	15	-2.4
2/2/2004	21:30	33	15	-2.4
2/2/2004	21:45	33	15	-2.4
2/2/2004	22:00	33	15	-2.4
2/2/2004	22:15	33	15	-2.4
2/2/2004	22:30	33	15	-2.3
2/3/2004	3:15	34	15	-2.3
2/3/2004	3:30	34	15	-2.4
2/3/2004	3:45	34	15	-2.4
2/3/2004	4:00	34	15	-2.4
2/3/2004	4:15	34	15	-2.3
2/3/2004	4:30	34	15	-2.3
2/3/2004	4:45	34	15	-2.3
2/3/2004	6:15	34	15	-2.4
2/3/2004	6:30	34	15	-2.4
2/3/2004	6:45	34	15	-2.4
2/3/2004	18:15	34	15	-2.6
2/3/2004	18:30	34	15	-2.5
2/3/2004	18:45	34	15	-2.4
2/3/2004	19:00	34	15	-2.4
2/3/2004	19:15	34	15	-2.4
2/3/2004	21:45	34	15	-2.3
2/3/2004	22:00	34	15	-2.3
2/3/2004	22:15	34	15	-2.4
2/3/2004	22:30	34	15	-2.3
2/3/2004	22:45	34	15	-2.4
2/3/2004	23:00	34	15	-2.4
2/3/2004	23:15	34	15	-2.3
2/3/2004	23:30	34	15	-2.4
2/3/2004	23:45	34	15	-2.3
2/4/2004	0:15	35	15	-2.3
2/4/2004	1:00	35	15	-2.3
2/4/2004	4:45	35	15	-2.3
2/4/2004	5:00	35	15	-2.4
2/4/2004	18:15	35	15	-2.4
2/4/2004	18:30	35	15	-2.4
2/4/2004	18:45	35	15	-2.4
2/4/2004	20:45	35	15	-2.3

2/5/2004	0:00	36	15	-2.4
2/5/2004	18:00	36	15	-2.4
2/5/2004	18:15	36	15	-2.8
2/5/2004	18:30	36	15	-2.6
2/5/2004	18:45	36	15	-2.5
2/5/2004	19:00	36	15	-2.4
2/5/2004	19:15	36	15	-2.4
2/5/2004	19:30	36	15	-2.4
2/5/2004	19:45	36	15	-2.4
2/5/2004	20:00	36	15	-2.4
2/5/2004	20:15	36	15	-2.4
2/5/2004	20:30	36	15	-2.4
2/5/2004	20:45	36	15	-2.4
2/5/2004	21:00	36	15	-2.4
2/5/2004	21:15	36	15	-2.4
2/5/2004	21:30	36	15	-2.4
2/5/2004	21:45	36	15	-2.4
2/5/2004	22:00	36	15	-2.4
2/5/2004	22:15	36	15	-2.4
2/5/2004	22:30	36	15	-2.4
2/5/2004	22:45	36	15	-2.4
2/5/2004	23:00	36	15	-2.4
2/5/2004	23:15	36	15	-2.4
2/5/2004	23:30	36	15	-2.4
2/5/2004	23:45	36	15	-2.4
2/6/2004	0:00	37	15	-2.4
2/6/2004	0:15	37	15	-2.3
2/6/2004	0:30	37	15	-2.3
2/6/2004	2:15	37	15	-2.3
2/6/2004	2:30	37	15	-2.3
2/6/2004	3:30	37	15	-2.3
2/6/2004	3:45	37	15	-2.3
2/6/2004	4:00	37	15	-2.3
2/6/2004	4:15	37	15	-2.3
2/6/2004	4:30	37	15	-2.4
2/6/2004	4:45	37	15	-2.4
2/6/2004	5:00	37	15	-2.4
2/6/2004	5:15	37	15	-2.4
2/6/2004	5:30	37	15	-2.4
2/6/2004	5:45	37	15	-2.4
2/6/2004	6:00	37	15	-2.4
2/6/2004	6:15	37	15	-2.4
2/6/2004	6:30	37	15	-2.4
2/6/2004	6:45	37	15	-2.4
2/6/2004	18:00	37	15	-2.4
2/6/2004	18:15	37	15	-2.3
2/6/2004	18:30	37	15	-2.6
2/6/2004	18:45	37	15	-2.5
2/6/2004	19:00	37	15	-2.5
2/6/2004	19:15	37	15	-2.5
2/6/2004	19:30	37	15	-2.6
2/6/2004	19:45	37	15	-2.8
2/6/2004	20:00	37	15	-2.7
2/6/2004	20:15	37	15	-2.6
2/6/2004	20:30	37	15	-2.7
2/6/2004	20:45	37	15	-2.5
2/6/2004	21:00	37	15	-2.5

2/6/2004	21:15	37	15	-2.5
2/6/2004	21:30	37	15	-2.6
2/6/2004	21:45	37	15	-2.6
2/6/2004	22:00	37	15	-2.7
2/6/2004	22:15	37	15	-2.6
2/6/2004	22:30	37	15	-2.5
2/6/2004	22:45	37	15	-2.5
2/6/2004	23:00	37	15	-2.4
2/6/2004	23:15	37	15	-2.4
2/6/2004	23:30	37	15	-2.4
2/6/2004	23:45	37	15	-2.4
2/7/2004	0:15	38	15	-2.4
2/7/2004	0:30	38	15	-2.4
2/7/2004	0:45	38	15	-2.4
2/7/2004	1:00	38	15	-2.4
2/7/2004	1:15	38	15	-2.4
2/7/2004	1:30	38	15	-2.4
2/7/2004	1:45	38	15	-2.4
2/7/2004	2:00	38	15	-2.4
2/7/2004	2:15	38	15	-2.4
2/7/2004	2:30	38	15	-2.4
2/7/2004	2:45	38	15	-2.4
2/7/2004	3:00	38	15	-2.4
2/7/2004	3:15	38	15	-2.4
2/7/2004	3:30	38	15	-2.4
2/7/2004	3:45	38	15	-2.4
2/7/2004	4:00	38	15	-2.4
2/7/2004	4:15	38	15	-2.4
2/7/2004	4:30	38	15	-2.4
2/7/2004	4:45	38	15	-2.4
2/7/2004	5:00	38	15	-2.3
2/7/2004	5:30	38	15	-2.3
2/7/2004	5:45	38	15	-2.4
2/7/2004	6:00	38	15	-2.4
2/7/2004	6:15	38	15	-2.4
2/7/2004	6:30	38	15	-2.3
2/7/2004	18:00	38	15	-2.8
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2/24/2004	6:00	55	15	-2.4
2/24/2004	6:15	55	15	-2.4
2/24/2004	6:30	55	15	-2.3
2/24/2004	18:15	55	15	-2.4
2/24/2004	18:30	55	15	-3
2/24/2004	18:45	55	15	-2.9
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2/24/2004	19:30	55	15	-3.2
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2/24/2004	20:15	55	15	-3.2
2/24/2004	20:30	55	15	-3.2
2/24/2004	20:45	55	15	-3.1
2/24/2004	21:00	55	15	-3
2/24/2004	21:15	55	15	-2.7
2/24/2004	21:30	55	15	-2.4
2/24/2004	21:45	55	15	-2.4
2/24/2004	22:00	55	15	-2.4
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2/24/2004	22:45	55	15	-2.4
2/24/2004	23:00	55	15	-2.4
2/24/2004	23:15	55	15	-2.3
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2/25/2004	18:30	56	15	-2.4
2/25/2004	18:45	56	15	-2.4
2/25/2004	20:30	56	15	-2.4
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2/28/2004	18:30	59	15	-2.7
2/28/2004	18:45	59	15	-2.4
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2/28/2004	19:15	59	15	-2.5
2/28/2004	19:30	59	15	-2.4
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2/29/2004	18:15	60	15	-2.3
2/29/2004	18:30	60	15	-3.2
2/29/2004	18:45	60	15	-3.4
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2/3/2004	7:00	34	60	-8.9
2/3/2004	19:00	34	60	-9.8

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2/5/2004	19:00	36	60	-10.3
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2/6/2004	6:00	37	60	-9.5
2/6/2004	7:00	37	60	-9.2
2/6/2004	19:00	37	60	-9.9
2/6/2004	20:00	37	60	-10.7
2/6/2004	21:00	37	60	-10.3
2/6/2004	22:00	37	60	-10.4
2/6/2004	23:00	37	60	-9.9
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2/7/2004	2:00	38	60	-9.5
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2/7/2004	5:00	38	60	-9.4
2/7/2004	6:00	38	60	-9.3
2/7/2004	19:00	38	60	-12.7
2/7/2004	20:00	38	60	-10.2
2/7/2004	21:00	38	60	-12.3
2/7/2004	22:00	38	60	-10.5
2/7/2004	23:00	38	60	-9.5
2/8/2004	3:00	39	60	-9.2
2/8/2004	4:00	39	60	-9.5
2/9/2004	0:00	40	60	-10.7
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2/10/2004	23:00	41	60	-11.2
2/11/2004	1:00	42	60	-12.6
2/11/2004	2:00	42	60	-12.6
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2/11/2004	4:00	42	60	-9.5
2/11/2004	5:00	42	60	-9.5
2/11/2004	6:00	42	60	-9.5

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2/12/2004	5:00	43	60	-9.5
2/12/2004	6:00	43	60	-9.4
2/12/2004	7:00	43	60	-8.9
2/12/2004	19:00	43	60	-9.2
2/14/2004	0:00	45	60	-11
2/14/2004	19:00	45	60	-12
2/14/2004	20:00	45	60	-10.4
2/14/2004	21:00	45	60	-9.6
2/14/2004	22:00	45	60	-9.6
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2/20/2004	20:00	51	60	-13.3
2/20/2004	21:00	51	60	-15.6
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2/21/2004	19:00	52	60	-11.7
2/21/2004	20:00	52	60	-12.3
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2/21/2004	22:00	52	60	-9.6
2/21/2004	23:00	52	60	-9.6
2/22/2004	0:00	53	60	-9.5
2/22/2004	1:00	53	60	-8.9
2/22/2004	2:00	53	60	-9.5
2/22/2004	6:00	53	60	-12.2
2/22/2004	19:00	53	60	-12
2/22/2004	20:00	53	60	-9.8
2/22/2004	21:00	53	60	-9.4
2/22/2004	22:00	53	60	-9.5
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2/23/2004	1:00	54	60	-9.2
2/23/2004	4:00	54	60	-10.3
2/23/2004	5:00	54	60	-9.6
2/23/2004	6:00	54	60	-9.5

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2/23/2004	20:00	54	60	-9.5
2/23/2004	22:00	54	60	-9
2/24/2004	1:00	55	60	-9.4
2/24/2004	2:00	55	60	-9.5
2/24/2004	3:00	55	60	-9.5
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2/24/2004	21:00	55	60	-12.5
2/24/2004	22:00	55	60	-9.8
2/24/2004	23:00	55	60	-9.5
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2/29/2004	22:00	60	60	-12.7
2/29/2004	23:00	60	60	-12.7

March 2004 TC

The following PAR data fall outside the range of accuracy for the sensor:

Date	Time	Julian	Array ID	TotPAR
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3/1/2004	0:45	61	15	-3.2
3/1/2004	1:00	61	15	-3.2
3/1/2004	1:15	61	15	-3.2
3/1/2004	1:30	61	15	-3.1
3/1/2004	1:45	61	15	-3
3/1/2004	2:00	61	15	-2.8
3/1/2004	2:15	61	15	-2.6
3/1/2004	2:30	61	15	-2.4
3/1/2004	2:45	61	15	-2.4
3/1/2004	3:00	61	15	-2.4
3/1/2004	3:15	61	15	-2.4
3/1/2004	3:30	61	15	-2.4
3/1/2004	3:45	61	15	-2.4
3/1/2004	4:00	61	15	-2.3
3/1/2004	6:00	61	15	-2.3
3/1/2004	18:30	61	15	-3.8
3/1/2004	18:45	61	15	-4
3/1/2004	19:00	61	15	-3.7
3/1/2004	19:15	61	15	-3.2
3/1/2004	19:30	61	15	-3.2
3/1/2004	19:45	61	15	-3.2
3/1/2004	20:00	61	15	-3.3
3/1/2004	20:15	61	15	-3.5
3/1/2004	20:30	61	15	-3.5
3/1/2004	20:45	61	15	-3.2
3/1/2004	21:00	61	15	-3.2
3/1/2004	21:15	61	15	-3.2
3/1/2004	21:30	61	15	-3.2

3/1/2004	21:45	61	15	-3.2
3/1/2004	22:00	61	15	-3.2
3/1/2004	22:15	61	15	-3.2
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3/1/2004	23:15	61	15	-3.2
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3/1/2004	23:45	61	15	-3.2
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3/2/2004	0:15	62	15	-3.3
3/2/2004	0:30	62	15	-3.3
3/2/2004	0:45	62	15	-3.4
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3/2/2004	1:15	62	15	-3.3
3/2/2004	1:30	62	15	-3.4
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3/22/2004	1:00	82	15	-2.8
3/22/2004	1:15	82	15	-2.6
3/22/2004	1:30	82	15	-2.4
3/22/2004	1:45	82	15	-2.4
3/22/2004	2:00	82	15	-2.4
3/22/2004	2:15	82	15	-2.4
3/22/2004	2:30	82	15	-2.4
3/22/2004	2:45	82	15	-2.4
3/22/2004	3:00	82	15	-2.4
3/22/2004	3:15	82	15	-2.4
3/22/2004	3:30	82	15	-2.4
3/22/2004	3:45	82	15	-2.4
3/22/2004	4:00	82	15	-2.4
3/22/2004	4:15	82	15	-2.4
3/22/2004	4:30	82	15	-2.4
3/22/2004	4:45	82	15	-2.4
3/22/2004	5:00	82	15	-2.3
3/22/2004	19:00	82	15	-2.4
3/22/2004	19:15	82	15	-2.4
3/22/2004	21:00	82	15	-2.4
3/22/2004	21:15	82	15	-2.4
3/22/2004	21:30	82	15	-2.4
3/22/2004	21:45	82	15	-2.4
3/22/2004	22:00	82	15	-2.3
3/22/2004	22:15	82	15	-2.3
3/23/2004	18:45	83	15	-2.7
3/23/2004	19:00	83	15	-2.8
3/23/2004	19:15	83	15	-2.4
3/23/2004	19:30	83	15	-2.5
3/23/2004	19:45	83	15	-2.4
3/23/2004	20:00	83	15	-2.4
3/23/2004	20:15	83	15	-2.4
3/23/2004	20:30	83	15	-2.4
3/23/2004	20:45	83	15	-2.4
3/23/2004	21:00	83	15	-2.5
3/23/2004	21:15	83	15	-2.7
3/23/2004	21:30	83	15	-2.9
3/23/2004	21:45	83	15	-2.8
3/23/2004	22:00	83	15	-2.9
3/23/2004	22:15	83	15	-3
3/23/2004	22:30	83	15	-3.1
3/23/2004	22:45	83	15	-3.1

3/23/2004	23:00	83	15	-3
3/23/2004	23:15	83	15	-3
3/23/2004	23:30	83	15	-2.8
3/23/2004	23:45	83	15	-2.6
3/24/2004	0:00	84	15	-2.5
3/24/2004	0:15	84	15	-2.4
3/24/2004	0:30	84	15	-2.4
3/24/2004	0:45	84	15	-2.4
3/24/2004	1:00	84	15	-2.4
3/24/2004	1:15	84	15	-2.4
3/24/2004	1:30	84	15	-2.6
3/24/2004	1:45	84	15	-2.5
3/24/2004	2:00	84	15	-2.4
3/24/2004	2:15	84	15	-2.4
3/24/2004	2:30	84	15	-2.4
3/24/2004	2:45	84	15	-2.4
3/24/2004	3:00	84	15	-2.4
3/24/2004	3:15	84	15	-2.4
3/24/2004	3:30	84	15	-2.4
3/24/2004	3:45	84	15	-2.4
3/24/2004	4:00	84	15	-2.4
3/24/2004	4:15	84	15	-2.4
3/24/2004	4:30	84	15	-2.4
3/24/2004	4:45	84	15	-2.4
3/24/2004	5:00	84	15	-2.3
3/24/2004	19:00	84	15	-2.4
3/24/2004	19:15	84	15	-2.4
3/24/2004	19:30	84	15	-2.3
3/24/2004	19:45	84	15	-2.3
3/24/2004	20:15	84	15	-2.3
3/24/2004	20:30	84	15	-2.3
3/24/2004	21:15	84	15	-2.3
3/24/2004	21:30	84	15	-2.4
3/24/2004	21:45	84	15	-2.4
3/24/2004	22:00	84	15	-2.4
3/24/2004	22:15	84	15	-2.4
3/24/2004	22:30	84	15	-2.3
3/25/2004	0:00	85	15	-2.3
3/25/2004	0:15	85	15	-2.4
3/25/2004	0:30	85	15	-2.4
3/25/2004	0:45	85	15	-2.4
3/25/2004	1:00	85	15	-2.3
3/25/2004	1:15	85	15	-2.3
3/25/2004	1:30	85	15	-2.3
3/25/2004	1:45	85	15	-2.3
3/25/2004	19:15	85	15	-2.4
3/25/2004	19:30	85	15	-2.3
3/25/2004	20:15	85	15	-2.3
3/25/2004	20:30	85	15	-2.4
3/25/2004	20:45	85	15	-2.4
3/25/2004	21:00	85	15	-2.4
3/25/2004	21:15	85	15	-2.4
3/25/2004	21:30	85	15	-2.4
3/25/2004	21:45	85	15	-2.4
3/25/2004	22:00	85	15	-2.4
3/25/2004	22:15	85	15	-2.4
3/25/2004	22:30	85	15	-2.4

3/25/2004	22:45	85	15	-2.4
3/25/2004	23:00	85	15	-2.4
3/25/2004	23:15	85	15	-2.4
3/25/2004	23:30	85	15	-2.4
3/25/2004	23:45	85	15	-2.4
3/26/2004	0:00	86	15	-2.4
3/26/2004	0:15	86	15	-2.4
3/26/2004	0:30	86	15	-2.4
3/26/2004	0:45	86	15	-2.4
3/26/2004	1:00	86	15	-2.4
3/26/2004	1:15	86	15	-2.4
3/26/2004	1:30	86	15	-2.4
3/26/2004	1:45	86	15	-2.4
3/26/2004	2:00	86	15	-2.4
3/26/2004	2:15	86	15	-2.4
3/26/2004	2:30	86	15	-2.4
3/26/2004	2:45	86	15	-2.4
3/26/2004	3:00	86	15	-2.4
3/26/2004	3:15	86	15	-2.5
3/26/2004	3:30	86	15	-2.6
3/26/2004	3:45	86	15	-2.6
3/26/2004	4:00	86	15	-2.6
3/26/2004	4:15	86	15	-2.6
3/26/2004	4:30	86	15	-2.4
3/26/2004	4:45	86	15	-2.4
3/26/2004	5:00	86	15	-2.4
3/26/2004	5:15	86	15	-2.4
3/26/2004	5:30	86	15	-2.4
3/26/2004	5:45	86	15	-2.4
3/26/2004	19:00	86	15	-2.4
3/26/2004	19:15	86	15	-2.4
3/26/2004	19:30	86	15	-2.4
3/26/2004	19:45	86	15	-2.4
3/26/2004	20:00	86	15	-2.4
3/26/2004	20:15	86	15	-2.4
3/26/2004	20:30	86	15	-2.4
3/26/2004	20:45	86	15	-2.4
3/26/2004	21:00	86	15	-2.4
3/26/2004	21:15	86	15	-2.4
3/26/2004	21:30	86	15	-2.3
3/26/2004	23:30	86	15	-2.3
3/26/2004	23:45	86	15	-2.3
3/27/2004	0:00	87	15	-2.4
3/27/2004	0:15	87	15	-2.4
3/27/2004	0:30	87	15	-2.4
3/27/2004	0:45	87	15	-2.4
3/27/2004	1:00	87	15	-2.4
3/27/2004	1:15	87	15	-2.4
3/27/2004	1:30	87	15	-2.4
3/27/2004	1:45	87	15	-2.4
3/27/2004	2:00	87	15	-2.4
3/27/2004	2:15	87	15	-2.4
3/27/2004	2:30	87	15	-2.4
3/27/2004	2:45	87	15	-2.4
3/27/2004	3:00	87	15	-2.4
3/27/2004	3:15	87	15	-2.4
3/27/2004	3:30	87	15	-2.4

3/27/2004	3:45	87	15	-2.4
3/27/2004	4:00	87	15	-2.4
3/27/2004	4:15	87	15	-2.4
3/27/2004	4:30	87	15	-2.4
3/27/2004	4:45	87	15	-2.4
3/27/2004	5:00	87	15	-2.4
3/27/2004	5:15	87	15	-2.4
3/27/2004	5:30	87	15	-2.4
3/27/2004	19:00	87	15	-2.4
3/27/2004	19:15	87	15	-2.4
3/27/2004	19:30	87	15	-2.4
3/27/2004	19:45	87	15	-2.4
3/27/2004	20:00	87	15	-2.3
3/28/2004	3:00	88	15	-2.3
3/28/2004	3:45	88	15	-2.3
3/28/2004	4:00	88	15	-2.3
3/28/2004	4:15	88	15	-2.3
3/1/2004	0:00	61	60	-12.8
3/1/2004	1:00	61	60	-12.7
3/1/2004	2:00	61	60	-12
3/1/2004	3:00	61	60	-9.7
3/1/2004	4:00	61	60	-9.5
3/1/2004	19:00	61	60	-11.7
3/1/2004	20:00	61	60	-12.8
3/1/2004	21:00	61	60	-13.3
3/1/2004	22:00	61	60	-12.7
3/1/2004	23:00	61	60	-12.7
3/2/2004	0:00	62	60	-12.7
3/2/2004	1:00	62	60	-13.4
3/2/2004	2:00	62	60	-13.2
3/2/2004	3:00	62	60	-12.7
3/2/2004	4:00	62	60	-12.7
3/2/2004	5:00	62	60	-12.7
3/2/2004	6:00	62	60	-12.7
3/2/2004	19:00	62	60	-11.2
3/2/2004	20:00	62	60	-13.7
3/2/2004	21:00	62	60	-13.9
3/2/2004	22:00	62	60	-12.7
3/2/2004	23:00	62	60	-12.7
3/3/2004	0:00	63	60	-12.7
3/3/2004	1:00	63	60	-12.7
3/3/2004	2:00	63	60	-10.3
3/3/2004	3:00	63	60	-11.3
3/3/2004	4:00	63	60	-9.6
3/3/2004	5:00	63	60	-9.3
3/3/2004	19:00	63	60	-10.6
3/3/2004	20:00	63	60	-13.8
3/3/2004	21:00	63	60	-12.7
3/3/2004	22:00	63	60	-12.6
3/3/2004	23:00	63	60	-12.7
3/4/2004	1:00	64	60	-12.7
3/4/2004	2:00	64	60	-12.7
3/4/2004	3:00	64	60	-12.7
3/4/2004	4:00	64	60	-12.7
3/4/2004	5:00	64	60	-12.7
3/4/2004	6:00	64	60	-12.7
3/4/2004	19:00	64	60	-13.7

3/4/2004	20:00	64	60	-15.8
3/4/2004	21:00	64	60	-15.3
3/4/2004	22:00	64	60	-12.8
3/4/2004	23:00	64	60	-12.7
3/5/2004	0:00	65	60	-12.2
3/5/2004	1:00	65	60	-10.1
3/5/2004	2:00	65	60	-9.5
3/5/2004	3:00	65	60	-9.6
3/5/2004	4:00	65	60	-10.2
3/5/2004	19:00	65	60	-15.7
3/5/2004	20:00	65	60	-17.9
3/5/2004	21:00	65	60	-15.8
3/5/2004	22:00	65	60	-15.8
3/5/2004	23:00	65	60	-15.8
3/6/2004	0:00	66	60	-15.8
3/6/2004	1:00	66	60	-15.9
3/6/2004	2:00	66	60	-15.7
3/6/2004	3:00	66	60	-15.4
3/6/2004	4:00	66	60	-15.6
3/6/2004	5:00	66	60	-15.8
3/6/2004	6:00	66	60	-15.8
3/6/2004	20:00	66	60	-12.6
3/6/2004	21:00	66	60	-12.6
3/6/2004	22:00	66	60	-12.6
3/6/2004	23:00	66	60	-11.5
3/7/2004	0:00	67	60	-12.6
3/7/2004	1:00	67	60	-10.6
3/7/2004	4:00	67	60	-9.2
3/10/2004	19:00	70	60	-9.8
3/10/2004	20:00	70	60	-15.8
3/10/2004	21:00	70	60	-15.6
3/10/2004	22:00	70	60	-13.5
3/10/2004	23:00	70	60	-12.7
3/11/2004	0:00	71	60	-12.7
3/11/2004	1:00	71	60	-12.7
3/11/2004	2:00	71	60	-12.7
3/11/2004	3:00	71	60	-12.7
3/11/2004	4:00	71	60	-12.7
3/11/2004	5:00	71	60	-12.7
3/11/2004	6:00	71	60	-12.7
3/13/2004	1:00	73	60	-9.5
3/13/2004	2:00	73	60	-9.5
3/13/2004	3:00	73	60	-9.5
3/13/2004	4:00	73	60	-9.5
3/13/2004	5:00	73	60	-9.5
3/16/2004	5:00	76	60	-12.2
3/16/2004	6:00	76	60	-19.2
3/16/2004	7:00	76	60	-9.6
3/16/2004	19:00	76	60	-17
3/16/2004	20:00	76	60	-18.8
3/16/2004	21:00	76	60	-17.5
3/16/2004	22:00	76	60	-17
3/16/2004	23:00	76	60	-14.3
3/17/2004	0:00	77	60	-12.8
3/17/2004	1:00	77	60	-12.7
3/17/2004	2:00	77	60	-12.7
3/17/2004	3:00	77	60	-12.7

3/17/2004	4:00	77	60	-12.7
3/17/2004	5:00	77	60	-12.7
3/17/2004	6:00	77	60	-12.7
3/17/2004	19:00	77	60	-9.2
3/17/2004	20:00	77	60	-12.7
3/17/2004	21:00	77	60	-12.6
3/17/2004	22:00	77	60	-12.1
3/17/2004	23:00	77	60	-12
3/18/2004	0:00	78	60	-12
3/18/2004	1:00	78	60	-12.6
3/18/2004	2:00	78	60	-9.8
3/18/2004	3:00	78	60	-9.6
3/18/2004	4:00	78	60	-11.8
3/18/2004	5:00	78	60	-24.1
3/18/2004	6:00	78	60	-15.8
3/18/2004	20:00	78	60	-12.7
3/18/2004	21:00	78	60	-12.7
3/18/2004	22:00	78	60	-12.7
3/18/2004	23:00	78	60	-12.7
3/19/2004	0:00	79	60	-12.7
3/19/2004	1:00	79	60	-12.7
3/19/2004	2:00	79	60	-16.3
3/19/2004	3:00	79	60	-19
3/19/2004	4:00	79	60	-19.2
3/19/2004	5:00	79	60	-19.1
3/19/2004	6:00	79	60	-19.2
3/19/2004	20:00	79	60	-19.5
3/19/2004	21:00	79	60	-19.9
3/19/2004	22:00	79	60	-19
3/19/2004	23:00	79	60	-16
3/20/2004	0:00	80	60	-15.8
3/20/2004	1:00	80	60	-13.4
3/20/2004	2:00	80	60	-12.7
3/20/2004	3:00	80	60	-13.3
3/20/2004	4:00	80	60	-9.7
3/20/2004	5:00	80	60	-9
3/20/2004	20:00	80	60	-9.5
3/20/2004	21:00	80	60	-9.5
3/20/2004	22:00	80	60	-9.5
3/20/2004	23:00	80	60	-9.5
3/21/2004	0:00	81	60	-9.3
3/21/2004	1:00	81	60	-9.1
3/21/2004	2:00	81	60	-9.3
3/21/2004	3:00	81	60	-9.4
3/21/2004	4:00	81	60	-9.5
3/21/2004	5:00	81	60	-9.5
3/21/2004	6:00	81	60	-9.5
3/21/2004	21:00	81	60	-12.6
3/21/2004	22:00	81	60	-10.9
3/21/2004	23:00	81	60	-9.7
3/22/2004	0:00	82	60	-11.3
3/22/2004	1:00	82	60	-12
3/22/2004	2:00	82	60	-9.8
3/22/2004	3:00	82	60	-9.5
3/22/2004	4:00	82	60	-9.5
3/22/2004	5:00	82	60	-9.4
3/22/2004	22:00	82	60	-9.4

3/23/2004	20:00	83	60	-9.7
3/23/2004	21:00	83	60	-9.6
3/23/2004	22:00	83	60	-11.3
3/23/2004	23:00	83	60	-12.2
3/24/2004	0:00	84	60	-10.9
3/24/2004	1:00	84	60	-9.6
3/24/2004	2:00	84	60	-9.9
3/24/2004	3:00	84	60	-9.5
3/24/2004	4:00	84	60	-9.5
3/24/2004	5:00	84	60	-9.4
3/24/2004	20:00	84	60	-9.2
3/24/2004	21:00	84	60	-8.9
3/24/2004	22:00	84	60	-9.5
3/25/2004	1:00	85	60	-9.5
3/25/2004	2:00	85	60	-9.1
3/25/2004	21:00	85	60	-9.5
3/25/2004	22:00	85	60	-9.5
3/25/2004	23:00	85	60	-9.5
3/26/2004	0:00	86	60	-9.5
3/26/2004	1:00	86	60	-9.5
3/26/2004	2:00	86	60	-9.5
3/26/2004	3:00	86	60	-9.6
3/26/2004	4:00	86	60	-10.4
3/26/2004	5:00	86	60	-9.8
3/26/2004	20:00	86	60	-9.6
3/26/2004	21:00	86	60	-9.5
3/26/2004	22:00	86	60	-9.1
3/27/2004	0:00	87	60	-9.1
3/27/2004	1:00	87	60	-9.5
3/27/2004	2:00	87	60	-9.5
3/27/2004	3:00	87	60	-9.5
3/27/2004	4:00	87	60	-9.5
3/27/2004	5:00	87	60	-9.5
3/27/2004	20:00	87	60	-9.4
3/28/2004	4:00	88	60	-9
3/28/2004	5:00	88	60	-8.9

April 2004 TC

The following PAR data fall outside the range of accuracy for the sensor:

Date	Time	Julian	Array ID	TotPAR
4/14/2004	22:45	105	15	-2.3
4/15/2004	0:00	106	15	-2.4
4/15/2004	0:15	106	15	-2.4
4/15/2004	0:30	106	15	-2.4
4/15/2004	0:45	106	15	-2.4
4/15/2004	1:00	106	15	-2.4
4/15/2004	1:15	106	15	-2.4
4/15/2004	1:30	106	15	-2.4
4/15/2004	1:45	106	15	-2.4
4/15/2004	2:00	106	15	-2.4
4/15/2004	2:15	106	15	-2.4
4/15/2004	2:30	106	15	-2.4
4/15/2004	2:45	106	15	-2.4
4/15/2004	3:00	106	15	-2.4
4/15/2004	3:15	106	15	-2.4

4/15/2004	3:30	106	15	-2.4
4/15/2004	3:45	106	15	-2.4
4/15/2004	4:00	106	15	-2.3
4/15/2004	4:45	106	15	-2.4
4/15/2004	5:00	106	15	-2.4
4/15/2004	5:15	106	15	-2.3
4/15/2004	20:15	106	15	-2.4
4/15/2004	20:30	106	15	-2.4
4/15/2004	20:45	106	15	-2.4
4/15/2004	21:45	106	15	-2.3
4/15/2004	22:00	106	15	-2.4
4/15/2004	22:15	106	15	-2.4
4/15/2004	22:30	106	15	-2.4
4/16/2004	2:30	107	15	-2.3
4/16/2004	3:30	107	15	-2.3
4/15/2004	1:00	106	60	-9.5
4/15/2004	2:00	106	60	-9.5
4/15/2004	3:00	106	60	-9.5
4/15/2004	4:00	106	60	-9.4
4/15/2004	5:00	106	60	-9.2
4/15/2004	21:00	106	60	-9.2

May 2004 TC

The following data were compared against precipitation data collected from nearby stations and appear to be correct:

Date	Time	Class	TotPrcp
5/22/2004	0:45	15	26.9
5/22/2004	1:15	15	53.3
5/22/2004	2:00	15	17.5

June 2004 TC

The following data were compared against precipitation data collected from nearby stations and appear to be correct:

Date	Time	Class	TotPrcp
6/16/2004	11:00	15	7.9
6/16/2004	11:15	15	24.6
6/16/2004	11:30	15	12.7
6/16/2004	11:45	15	7.4
6/16/2004	12:45	15	5.1
6/26/2004	4:15	15	10.2

July 2004 TC

The following data were compared against precipitation data collected from nearby stations and appear to be correct:

Date	Time	Class	TotPrcp
7/4/2004	14:00	15	6.9
7/7/2004	14:00	15	5.8
7/7/2004	14:15	15	11.9
7/12/2004	18:30	15	5.1

November 2004 TC

Relative Humidity data greater than 100% have been observed; these data are within range of the sensor accuracy of +/-3%. These data have been retained.

Barometric pressure spiked to the annual high (1041 mb) on 11/14/2004; however these data were compared to weather data from a nearby station and appear to be correct.

December 2004 TC

Relative Humidity data greater than 100% have been observed; these data are within range of the sensor accuracy of +/-3%. These data have been retained.

MaxBP, MinBP, and BP for 12/19/2004 21:30 through 12/20/2004 11:30 is considered suspect due to the significant decline then rapid ascent of BP values. A front moved through the area during this period and may be the source of the anomalous data; however, the data do not correspond well to values from a nearby weather station during this period. Also station maintenance occurred around 12:00 on 12/20/2004 and may have restored the sensor's accuracy if it had been obstructed or fouled.

12) Deleted Data

Arrays:

During 2022 all pre-2007 weather data were revisited by the CDMO. Historically those datasets included 15 minute, hourly (60), and daily data arrays (144). As directed by the NERRS Data Management Committee, the CDMO removed the hourly and daily data arrays leaving only the 15 minute data to make the entire NERRS SWMP weather dataset consistent in its reporting. All references to the 60 and 144 arrays were left in the metadata document as they may still provide valuable information, but users should be aware that they are largely no longer relevant. The updated datasets were uploaded to the database and made available through the various data applications at www.nerrrsdata.org/get/landing.cfm throughout the fall of 2022

January 2004 TC

1/22/2004, Class 60, 15:00: All values deleted because of missing data at 14:45.

1/22/2004, Class 144, 24:00: All daily average values (calculated from 1/22/2004) were deleted due to missing data on 1/22/2004 at 14:45.

February 2004 TC

2/16/2004, Class 60, 15:00: All values were deleted because data were missing from 14:15 to 14:30 due to a powering down of the station.

2/16/2004, Class 144, 24:00: All daily averages (calculated from 2/16/2004) were deleted due to missing data listed above.

June 2004 TC

6/23/2004, Class 60, 12:00: All values were deleted because data were missing from 10:00 to 11:15 due to a powering down of the station and installation of a new wind monitor.

6/23/2004, Class 144, 24:00: All daily averages (calculated from 6/23/2004) were deleted due to missing data listed above.

6/23/2004, 10:00 through 6/30/2004, 24:00: All data points associated with the following parameters were deleted because the newly installed wind monitor was not calibrated until 7/8/2004: WSpd, Wdir, SDWDir, MaxWSpd, MaxWSpdT, MinWSpd, MinWSpdT.

July 2004 TC

7/01/2004 through 7/08/2004 12:15: All data points associated with the following parameters were deleted because the newly installed wind monitor was not calibrated until 7/8/2004 at approximately 12:15: WSpd, Wdir, SDWDir, MaxWSpd, MinWSpd, MinWSpdT.

7/8/2004, Class 60, 13:00: All values were deleted because data were missing from 12:30 to 12:45 due to a powering down of the station.

7/8/2004, Class 144, 24:00: All daily averages (calculated from 7/8/2004) were deleted due to missing data listed above.

August 2004 TC

All TotPrcp values were deleted due to malfunctioning rain gauge.

September 2004 TC

All TotPrcp values were deleted due to malfunctioning rain gauge.

October 2004 TC

All TotPrcp values were deleted due to malfunctioning rain gauge.

November 2004 TC

All TotPrcp values were deleted due to malfunctioning rain gauge.

11/15/2004, Class 60, 11:00: All values were deleted because data from 10:15 on that day was missing due to a powering down of the station.

11/15/2004, Class 144, 24:00: All daily averages (calculated from 11/15/2004) were deleted due to missing data listed above.

December 2004 TC

All TotPrcp values were deleted due to malfunctioning rain gauge.

12/20/2004, Array 144, 24:00: All daily average values were deleted because data were missing from 13:00 due to a powering down of the station.

13) Missing data:

Arrays:

During 2022 all pre-2007 weather data were revisited by the CDMO. Historically those datasets included 15 minute, hourly (60), and daily data arrays (144). As directed by the NERRS Data Management Committee, the CDMO removed the hourly and daily data arrays leaving only the 15 minute data to make the entire NERRS SWMP weather dataset consistent in its reporting. All references to the 60 and 144

arrays were left in the metadata document as they may still provide valuable information, but users should be aware that they are largely no longer relevant. The updated datasets were uploaded to the database and made available through the various data applications at www.nerrsdata.org/get/landing.cfm throughout the fall of 2022

January 2004 TC

01/22/2004, 14:45: Data are missing due to a powering down of the station.

February 2004 TC

02/16/2004, 14:30: Data are missing due to a powering down of the station.

June 2004 TC

6/23/2004, 10:00-11:15: Data are missing due to a powering down of the station and replacement of the Wind Sentry.

July 2004 TC

7/08/2004, 12:30-12:45: Data are missing due to a powering down of the station.

November 2004 TC

11/15/2004, 10:15: Data are missing due to a powering down of the station.

December 2004 TC

12/20/2004, 13:00: Data are missing due to a powering down of the station.

14) Other Remarks/notes

On 10/11/2023 this dataset was updated to include embedded QAQC flags for anomalous/suspect data. System-wide monitoring data beginning in 2007 were processed to allow for QAQC flags and codes to be embedded in the data files rather than detailed in the metadata alone (as in the anomalous/suspect, deleted, and missing data sections above). Prior to 2007, rejected data were deleted from the dataset so they are unavailable to be used at all, but suspect data were only noted in the metadata document. Suspect data flags <1> were embedded retroactively in order to allow suspect data to be easily identified and filtered from the dataset if desired for analysis and reporting purposes. No other flags or codes were embedded in the dataset and users should still refer to the detailed explanations above for more information.

Arrays:

During 2022 all pre-2007 weather data were revisited by the CDMO. Historically those datasets included 15 minute, hourly (60), and daily data arrays (144). As directed by the NERRS Data Management Committee, the CDMO removed the hourly and daily data arrays leaving only the 15 minute data to make the entire NERRS SWMP weather dataset consistent in its reporting. All references to the 60 and 144 arrays were left in the metadata document as they may still provide valuable information, but users should be aware that they are largely no longer relevant. The updated datasets were uploaded to the database and made available through the various data applications at www.nerrsdata.org/get/landing.cfm throughout the fall of 2022

Precipitation:

During the initial years of NERRS SWMP weather data collection the CR10X programming was inconsistent in how precipitation values were recorded. For most reserves, zeros were not recorded when rainfall had not occurred between 2001-2003, instead no rainfall was represented by a blank cell. The CDMO verified which datasets were impacted by this issue for the 2001-2006 datasets and inserted zeros when the metadata indicated that no precipitation occurred and data were not missing for other reasons. In some cases, zero values for precipitation data were evaluated and removed where the metadata confirmed that no rainfall should have been in the dataset. The pre-2007 data did not go through a thorough QAQC process again at that time (in addition to previous QAQC); however, if discrepancies were noticed between what was documented in the metadata and what was in the dataset, additional updates may have been made. The updated datasets were uploaded to the database and made available through the various data applications at www.nerrsdata.org/get/landing.cfm throughout early 2023.

Rain Events:**January 2004**

Date	Amount (mm)
1/28/2004	1.5
1/29/2004	2.0
1/30/2004	7.6

Monthly Total: 11.1

February 2004

Date	Amount (mm)
2/4/2004	13.0
2/7/2004	27.9
2/8/2004	2.8
2/13/2004	1.0
2/14/2004	0.3
2/17/2004	0.8
2/18/2004	1.3
2/19/2004	4.8

Monthly Total: 51.9

March 2004

Date	Amount (mm)
3/3/2004	0.3
3/7/2004	2.8
3/8/2004	12.2
3/9/2004	1.0
3/11/2004	3.6
3/17/2004	24.4
3/19/2004	0.3
3/20/2004	2.3
3/22/2004	0.8

Monthly Total: 47.7

April 2004

Date	Amount (mm)
4/1/2004	4.6
4/2/2004	19.8
4/3/2004	2.3
4/4/2004	0.5
4/11/2004	0.3
4/12/2004	31.2
4/13/2004	29
4/14/2004	7.6
4/15/2004	6.6
4/16/2004	0.5
4/24/2004	2.8
4/25/2004	0.5
4/26/2004	0.5
4/27/2004	2.5
4/28/2004	2.3

Monthly Total: 111.0

May 2004

Date	Amount (mm)
5/2/2004	0.5
5/3/2004	1.5
5/4/2004	6.4
5/17/2004	5.3
5/18/2004	0.3
5/23/2004	107.7
5/27/2004	12.7
5/28/2004	0.3
5/31/2004	0.3

Monthly Total: 135.0

June 2004

Date	Amount (mm)
6/1/2004	0.5
6/5/2004	5.3
6/6/2004	2.0
6/12/2004	21.1
6/13/2004	1.3
6/16/2004	3.6
6/17/2004	78.0
6/19/2004	0.8
6/20/2004	0.3
6/25/2004	8.4
6/26/2004	33.3
6/28/2004	10.9

Monthly Total: 165.5

July 2004

Date	Amount (mm)
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7/2/2004	0.5
7/4/2004	19.6
7/7/2004	23.4
7/9/2004	1.3
7/13/2004	6.9
7/15/2004	0.3
7/18/2004	2.8
7/19/2004	7.6
7/20/2004	2.8
7/23/2004	2.8
7/24/2004	2.0
7/25/2004	11.4
7/26/2004	2.5
7/27/2004	0.5
7/28/2004	5.1
7/29/2004	8.9

Monthly Total: 98.4

August 2004 - December 2004

No data are available.