Apalachicola NERR Meteorological Metadata

January - December 2006

Last Update: **October 19, 2023**

**I. Data Set & Research Descriptors**

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**2) Entry verification:**

The Data Logger program (NERR\_4\_2.csi) controls the sampling of the sensors. Meteorological conditions are measured every 5 seconds from each sensor and stored on the CR10X. Data are output to a file in three arrays: array 15 stores 15 minute averages, max and min data; array 60 stores hourly data; max and min data; and array 144 stores daily average, max and min data. Storage modules are used to interface between the CR10X and the PC208W software supplied by Campbell Scientific. 4M storage modules are used to store the larger output needed for the new program. EQWin is the NERR MET primary QA/QC program.

In Use Dates are from 00:15 1/01/2006 to 06:45 6/28/2006

The Data Logger program (APALACHICOLA\_APAEBMET.CR1) controls the sampling of the sensors. Meteorological conditions are measured every 5 seconds from each sensor and stored on the CR1000. Data are output to a file in array 15, which stores 15-minute averages, max, and min data. Compact flash module cards (CFM100) are used to interface between the CR1000 and the LoggerNet software supplied by Campbell Scientific. EQWin is the NERR MET primary QA/QC program.

In Use Dates are from 07:00 6/28/2006 to 23:45 12/31/2006

Files are exported from the Campbell Scientific software in a comma-delimited format (.DAT file) and opened in Microsoft Excel for pre-processing with the EQWin format macro that was developed by the CDMO to reformat the header columns, insert station codes, insert a date column (mm/dd/yyyy), correct the time column format and reformat the data to the appropriate number of decimal places. The pre-processed file is then ready to be copied into the EQWin weather.eqi file where the data are QA/QC'd and archived in the database. EQWin queries, reports and graphs are used to discover data set outliers (values that fall outside the range that the instrument is designed to measure) and large changes in the data. EQWin is also used to generate statistics, view graphs, create customized queries and reports of the data, cross-query the water, weather and nutrient data and finally export the data to the CDMO. Any anomalous data are investigated and noted below in the Anomalous/ Suspect Data Section. Any data corrections that were performed are noted in the Deleted Data Section below.

**3) Research objectives:**

Data collected from the East Bay weather station complement those data taken from the East Bay water quality station. Data are also used for the analysis of other datalogger data collected at Cat Point and Dry Bar. Positioning the weather station in East Bay allows the Reserve to monitor changes in rainfall, photosynthetically active radiation, temperature, and other weather parameters influencing the water quality of East Bay. East Bay drains the Tate's Hell Swamp area, which was altered in the late 1960's and early 1970's by timber companies. An EPA grant allowed the Northwest Florida Water Management District to begin restoration of the site in 1995 to reduce non-point source runoff. East Bay is also an important nursery area for numerous fish and invertebrate species within Apalachicola Bay.

**4) Research methods:**

Data Collection Schedule: (CR10X)

i) 15 minute data are averages/totals of 5 second sampling over the period of 15 minutes.

ii) 60 minute data are averages/totals of 5 second sampling over the period of 1 hour.

iii) 24 hour data are averages/totals of 5 second sampling over the period of 24 hours.

In Use Dates are from 00:15 1/01/2006 to 06:45 6/28/2006

iv) Parameters collected during each interval include:

Date, Julian date, Time, Average Temperature (°C), Maximum and Minimum Temperature, Time at maximum and minimum temperature, Relative Humidity, Maximum and Minimum Relative Humidity, Time at maximum and minimum relative humidity, Average Barometric Pressure, Minimum and Maximum

Barometric Pressure, Time at max and min barometric pressure, Wind speed, Wind Direction, Standard deviation of wind direction, Maximum and Minimum Wind Speed, Time at minimum and maximum wind speed, Total Precipitation (for that interval), Total Photosynthetically Active Radiation (for that interval), and Battery Voltage.

In Use Dates are from 00:15 1/01/2006 to 15:00 12/20/2006

Data Collection Schedule: (CR1000)

i) 15 minute data are averages/totals of 5 second sampling over the period of 15 minutes.

In Use Dates are from 07:00 6/28/2006 to 23:45 12/31/2006

ii) Parameters collected during each interval include:

Date, Julian date, Time, Average Temperature (°C), Maximum and Minimum Temperature, Time at maximum and minimum temperature, Relative Humidity, Wind speed, Wind Direction, Standard deviation of wind direction, Maximum and Minimum Wind Speed, Time at minimum and maximum wind speed, Total Precipitation (for that interval), Total Photosynthetically Active Radiation (for that interval), and Battery Voltage.

In Use Dates are from 16:15 12/20/2006 to 23:45 12/31/2006

Sensor Calibration QA/QC

Sensors are calibrated either annually or biannually according to the maintenance schedule dictated by the Weather SOPs. The sensors and their wires are inspected monthly to make sure that they are clean, moving freely, and undamaged. The arm of the wind sensor is checked monthly to assure that it is aligned to true north.

Data Storage/Interface with PC208W

Storage modules are used to interface between the CR10X and the PC208W software supplied by Campbell Scientific. 4M storage modules are used to store the larger output needed for the new NERR\_4\_2.csi program. Storage modules are exchanged monthly. At the time of the exchange, a handheld Kestrel 4000 is used to measure weather conditions and compare them to the measurements of the sensors on the weather station. The storage module is downloaded with the PC208W software.

Compact flash module cards (CFM 100) are used to interface between the CR1000 and the LoggerNet software supplied by Campbell Scientific. CFM100 cards are exchanged monthly. At the time of the exchange, a handheld Kestrel 4000 is used to measure weather conditions and compare them to the measurements of the sensors on the weather station. The CFM 100 card is downloaded with the LoggerNet software.

Telemetry

Campbell Scientific data telemetry equipment is used at this station to transmit to the NOAA GOES satellite, NESDIS ID # 3B01C09E. The transmissions are scheduled hourly and contain four (4) datasets reflecting the fifteen-minute data-sampling interval. The telemetry is “Provisional” data and not the “Authentic” Dataset used for long term monitoring and study. This data can be viewed by going to [http://cdmo.baruch.sc.edu](http://cdmo.baruch.sc.edu/).

Preprocessing and Data QA/QC

The raw .DAT file is run through the CDMO “EQWin Format” macro in Excel. At this point the file is inspected to detect any kind of gross sensor malfunction. The file can then be imported into EQWin. Queries, Reports, and Graphs are created in EQWin to detect sensor malfunction or outliers. The following criteria are used in the EQWin program to flag potentially erroneous data:

Air Temp:

- Sample not greater than 50 degrees Celsius (C)

- Sample not less than –40 degrees Celsius (C)

- 15 min sample greater than max for the day

- 15 min sample less than the min for the day

Relative Humidity:

-Sample not greater than 100 percent humidity (%)

-Sample not less than 0 percent humidity (%)

-15 minute averages not greater than the max for the day

-15 minute averages not less than the min for the day

Barometric Pressure:

- Sample greater than 1060 millibars (mb)

- Sample not less than 900 millibars (mb)

-15 minute averages not greater than the max for the day

-15 minute averages not less than the min for the day

Wind Speed:

- Sample not greater than 30 meters per second (m/s)

- Sample not less than 0.5 meters per second (m/s) for 12 hours consecutively

Wind Direction:

- Sample not greater than 360 degrees

- Sample not less than 0 degrees

Precipitation

-15 minute total not greater than 5 millimeters

Solar Radiation

-15 minute total not greater than 5000 millimoles per meter squared (mmol/m^2)

-15 minute total not less than 0 millimoles per meter squared (mmol/m^2)

Time:

- 15-minute interval not recorded

For all data:

* Duplicate interval data

There were no other analyses, data collection intervals, or QA/QC procedures utilized other than EQWIN expressed in Version 5.1 of the CDMO manual.

**5) Site location and character:**

The Apalachicola National Estuarine Research Reserve is located in the northwestern part of Florida, generally called the panhandle. It is located adjacent to the City of Apalachicola, and encompasses most of the Apalachicola Bay system, including 52 miles of the lower Apalachicola River. Passes, both natural and manmade, connect Apalachicola Bay to the northeastern Gulf of Mexico. The sampling site is located in the upper reaches of East Bay. East Bay is separated from Apalachicola Bay by two bridges and a causeway and is located to the north of Apalachicola Bay proper. The bay is 8.2 km long, has an average depth of approximately 1.0 m MHW, and an average width of 1.8 km. The tides in East Bay are mixed and range from 0.3 m to 1.0 m (average 0.5 m).

The weather station is located at latitude 29 47.472' N and longitude 84 53.005' W. This site is less than 0.5 nautical miles west of the East Bay water quality station. The site is located near the tip of a peninsula, which separates Blount's Bay from West Bayou. The peninsula is dominated by marsh vegetation (mainly *Juncus roemerianus*). There is a cabbage palm hammock along the southeastern shoreline of the peninsula. The dominant upland habitat is primarily pineland forest to the northwest, which includes slash pine, saw palmetto, and sand pine. The weather station sensors are mounted at the top of a 3-meter tower. The tower is mounted on a 2m platform. The tipping bucket rain gauge is mounted on a 1m platform approximately 4m feet from the weather station platform. There is nothing nearby to shade the tower and the nearest wind block is the edge of the pine forest about one-half to three-quarters of a mile north to northwest of the station.

**6) Data collection period: January-December, 2006**

The Apalachicola weather monitoring station was erected on August 27, 1999 and began monitoring on September 3, 1999. The data submitted with this report encompasses data collected from 00:15 January 1, 2006 through 23:45 December 31, 2006. Actual module deployment during this time period began on 12/19/2005 at 09:45 and ended on 1/08/2007 at 16:00.

**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.

**8) Associated researchers and projects:**

Edmiston, H.L., Farhny, S., Lamb, M., Levi, L., Wanat, J., Avant, J., Selly, N./ Apalachicola National Estuarine Research Reserve. Tropical Storm and Hurricane Impacts on a Gulf Coast Estuary: Apalachicola Bay, Florida USA.

Dulaiova, H. / Florida State University Department of Oceanography. NOAA Graduate Research Fellowship. Determination of the distribution and volume of groundwater entering Apalachicola Bay from St. George Island.

Edmiston, H.L., Wanat, J., Levi, L., Stewart, J., Lamb, M., Fahrny, S./ Apalachicola

National Estuarine Research Reserve. Distribution and density of fishes and benthic invertebrates in Apalachicola Bay.

Edmiston, H.L., Levi, L., Wanat, J., Stewart, J., Lamb, M., Fahrny, S./ Apalachicola National Estuarine Research Reserve. System-Wide Monitoring Program (SWMP) for water quality, weather, nutrients & chlorophyll A, and submerged aquatic vegetation monitoring in Apalachicola Bay.

Gihring, T./ Florida State University. The role of oligohaline marshes as a source or sink of nitrogen to the Apalachicola Bay.

Niu, X./ Florida State University Department of Statistics, Edmiston, H.L., Bailey, G.O./ Apalachicola

National Estuarine Research Reserve. Time series models for salinity and other environmental factors in the Apalachicola estuarine system (1998). Estuarine, Coastal, and Shelf Science 46:549-563.

Peterson, R./ Florida State University. Origin and fate of suspended particulates in the Apalachicola River: Impact on Apalachicola Bay

Putland, J./ Florida State University Department of Oceanography. NOAA Graduate Research Fellowship.

Planktonic food web variations related to salinity and nutrient patterns in Apalachicola Bay.

Stewart, J., Edmiston, H.L./ Apalachicola National Estuarine Research Reserve. Growth and spat recruitment related to environmental conditions at oyster bars in Apalachicola Bay.

Surratt, D./ Florida A&M University. Compare and contrast the historic and current trophic status of Apalachicola Bay using stable isotopes in sediments.

Wilber, P., et.al./NOAA Coastal Services Center & Edmiston, H.L., et al./Apalachicola National Estuarine Research Reserve. Benthic habitat mapping in Apalachicola Bay.

**II. Physical Structure Descriptors**

**9) Sensor Specifications:**

LiCor Quantum Pyranometer

Model # LI190SB

Stability: <±2% change over 1 yr

Operating Temperature: -40 to 65°C

Sensitivity: typically 5 µA per 1000µmoles s-1 m-2

Light spectrum wavelength: 400 to 700 nm

Date of last calibration: 4/28/2004

In Use Dates are from 00:15 1/01/2006 to 12:15 4/03/2006

LiCor Quantum Pyranometer

Model # LI190SB

Stability: <±2% change over 1 yr

Operating Temperature: -40 to 65°C

Sensitivity: typically 5 µA per 1000µmoles s-1 m-2

Light spectrum wavelength: 400 to 700 nm

Date of last calibration: 4/03/2006

In Use Dates are from 12:30 4/03/2006 to 23:45 12/31/2006

Wind Sentry: RM Young Model # 03001-5

Range: 0-50 m/s; 360° mechanical

Date of last calibration: 9/14/2005

In Use Dates are from 00:15 1/01/2006 to 10:00 4/14/2006

\*\*Note\*\* The arm of the wind sensor is checked monthly to ensure that it remains aligned to true north.

Wind Monitor: RM Young Model # 05103

Range: 0-60 m/s; 0-360° mechanical

Date of last calibration: 4/14/2006

In Use Dates are from 10:15 4/14/2006 to 23:45 12/31/2006

\*\*Note\*\* The arm of the wind sensor is checked monthly to ensure that it remains aligned to true north.

Temperature and Relative Humidity: Vaisala Model #: HMP45AC

Operating Temperature: -40 to 60°C

Temperature Measurement Range: -40 to 60°C

Temperature Accuracy: ± 0.2 °C @ 20°C

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

RH Accuracy: +/-2% RH (0-90%) and +/-3% (90-100%)

Uncertainty of calibration: ± 0.6% RH

Date of Last calibration: 9/14/2005

In Use Dates are from 00:15 1/01/2006 to 12:15 4/05/2006

Temperature and Relative Humidity: Vaisala Model #: HMP45AC

Operating Temperature: -40 to 60°C

Temperature Measurement Range: -40 to 60°C

Temperature Accuracy: ± 0.2 °C @ 20°C

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

RH Accuracy: +/-2% RH (0-90%) and +/-3% (90-100%)

Uncertainty of calibration: ± 0.6% RH

Date of Last calibration: 4/05/2006

In Use Dates are from 12:30 4/05/2006 to 23:45 12/31/2006

Barometric Sensor: Vaisala model CS-105

Operating Range:

Pressure: 600 to 1060 mb

Temperature: -40 to 60C

Humidity: non-condensing

Accuracy: ±0.5 to 6.0 mb (20 to 60°C)

Stability: ± 0.1 mb per year

Date of Last calibration: 9/14/2005

In Use Dates are from 00:15 1/01/2006 to 12:15 4/03/2006

Barometric Sensor: Vaisala model CS-105

Operating Range:

Pressure: 600 to 1060 mb

Temperature: -40 to 60C

Humidity: non-condensing

Accuracy: ±0.5 to 6.0 mb (20 to 60°C)

Stability: ± 0.1 mb per year

Date of Last calibration: 04/03/2006

In Use Dates are from 12:30 4/03/2006 to 23:45 12/31/2006

Precipitation: Tipping Bucket Rain Gauge FIT Model #: TE 525

Range: 0.1 mm

Accuracy: 1.0% at <2"/hr

Date of Last calibration: 05/12/2006

In Use Dates are from 00:15 1/01/2006 through 23:45 12/31/2006

Storage Module

Model #: SM4M

Storage capacity: 2 million low-resolution data values

Program storage: stores up to 8 programs with a total capacity of 128 KB

Processor: Hitachi H8S

Operating system: 64KB, flash memory based, and user downloadable

Operating range: Temperature: -35° to +65°C

Baud rates: 9600, 76800

Memory type: user selectable for either ring style (default) or fill and drop.

Power requirements: 5 +/-0.3 VDC @ 100mA

In Use Dates are from 00:15 1/01/2006 to 06:45 6/28/2006

Campbell Scientific CR10X Wiring Panel has 128K of flash memory (EEPROM), in which it stores the operating system and it's 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.

Compact Flash Module

Model #: CFM100

Storage capacity: 64 MB

Operating range: Temperature: -35° to +65°C

Memory type: user selectable for either ring style (default) or fill and drop.

Power requirements: 12 V supplied through CR1000 peripheral port

In Use Dates are from 09:30 8/07/2006 to 23:45 12/31/2006

The CR1000 has two MB Flash EEPROM that are used to store the Operating System. Another 128 K Flash is used to store configuration settings. A minimum of 2 MB SRAM is (4 MB optional) is available for program storage (16K), operating system use, and data storage. Additional storage is available by using a compact flash card in the optional CFM100 Compact Flash Module.

**10) Coded variable indicator and variable code definitions:**

Site Definitions: The weather data master table files for the Apalachicola NERR are coded APAEBMET, indicating the location of the weather station (EB= East Bay) within the greater Apalachicola Bay (APA) system.

**11) Data Anomalies:**

**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](http://www.nerrsdata.org/get/landing.cfm) throughout the fall of 2022.

Negative PAR data have been observed during the night; small negative values are within range of the sensor and are due to normal errors in the sensor and the CR10X Datalogger. The maximum signal noise error for the PAR sensor is +/- 2.214 mmoles/m2 over a 15-minute interval. These data have been retained.

Relative Humidity (RH) values periodically are slightly greater than 100% throughout the year. The observed values, of +1 to 2%, are within the error range of the sensor and have been retained. The values can be attributed to a super-saturation event.

March

During the Florida Fish and Wildlife Conservation Commission prescribed wildfire on 03/03/2006 at 12:30 and 13:00 (array 60) the MaxTemp was recorded as 73.5ºC and the MinRH was recorded as 1%.

August - October

The TotPrcp data from 8/23/2006 at 10:00 through 10/02/2006 at 13:45 should be considered suspect. The funnel rain gauge top was found on the ground on 10/02/2006. It is undetermined exactly when it came off between those dates.

**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.nerrsdata.org/get/landing.cfm](http://www.nerrsdata.org/get/landing.cfm) throughout the fall of 2022.

March - April

Florida Fish and Wildlife Conservation Commission had a prescribed fire in the marsh where the weather station is located. The wind sentry was melted. Therefore the WSpd, Wdir, SDWDir, MaxWSpd, MaxWSpdT, MinWSpd, MinWSpdT data from 03/03/2006 at 12:45 through 03/13/2006 at 11:00 (array 60) and from 03/24/2006 at 12:45 through 04/14/2006 at 10:00 (array 60) was deleted. The Data Management Oversight Committee was notified immediately about missing wind data until a new sensor was purchased and installed.

April

The following data was deleted due to sensor installation:

Date Julian Time Array Date Julian Time Array Data Type

4/03/2006 93 11:15 15 All BP data

4/03/2006 93 11:30 15 through 4/03/2006 93 12:15 15 All data

4/03/2006 93 13:00 60 All data

4/03/2006 93 24:00 144 All data

4/14/2006 104 24:00 144 All wind data

The following NAN data was deleted due to out of range sensor programming:

Date Julian Array Time Data Type

6/28/2006 179 15 08:00 through 12:00 TotPAR

6/29/2006 180 15 13:15 TotPAR

6/29/2006 180 15 14:15 TotPAR

6/30/2006 181 15 12:15 WSpd

July

Array 15 at 12:15 WSpd NAN data from 07/01/2006 through 07/10/2006 was deleted due to out of range sensor.

The following NAN data was deleted due to out of range sensor programming:

Date Julian Array Time Data Type

7/02/2006 183 15 13:45, 14:15,14:30, 14:45 TotPAR

7/03/2006 184 15 13:15 TotPAR

7/04/2006 185 15 12:30, 12:45, 13:30 TotPAR

7/05/2006 186 15 11:45, 13:30, 13:45, 14:15, 14:30, 14:45 TotPAR

7/06/2006 187 15 14:45, 15:00, 15:15 TotPAR

7/07/2006 188 15 15:00 TotPAR

7/12/2006 193 15 11:30 through 14:15 TotPAR

7/13/2006 194 15 11:15 through 14:45 TotPAR

7/14/2006 195 15 10:45 through 13:45 TotPAR

7/16/2006 197 15 11:30 through 14:45 TotPAR

7/17/2006 198 15 11:15, 13:30, 13:45, 14:30, 14:45 TotPAR

7/18/2006 199 15 11:45 through 13:15 TotPAR

7/21/2006 202 15 12:45, 13:00, 13:15, 13:45 TotPAR

7/23/2006 204 15 12:15 through 14:45 TotPAR

7/24/2006 205 15 11:00, 11:15, 12:30, 12:45, 13:00, 13:45, 14:15,

14:30, 14:45, 15:00 TotPAR

7/27/2006 208 15 13:15, 13:30, 13:45, 14:45 TotPAR

7/29/2006 210 15 11:30, 11:45, 12:00 TotPAR

7/30/2006 211 15 13:45, 14:15, 14:30, 14:45, 15:00 TotPAR

7/31/2006 212 15 11:00, 11:15 TotPAR

August

Array 15 at 12:15 WSpd NAN data from 08/07/2006 through 08/21/2006 was deleted due to out of range sensor.

The following NAN data was deleted due to out of range sensor programming:

Date Julian Array Time Data Type

8/01/2006 213 15 12:00, 12:15, 14:30, 14:45, 15:00 TotPAR

8/04/2006 216 15 13:30, 13:45, 14:00 TotPAR

8/06/2006 218 15 13:30, 13:45 TotPAR

8/08/2006 220 15 12:15-12:45, 13:15, 13:30, 14:00 TotPAR

8/09/2006 221 15 08:00 through 17:45 TotPAR

8/10/2006 222 15 08:15 through 17:45 TotPAR

8/11/2006 223 15 08:15 through 17:45 TotPAR

8/12/2006 224 15 08:00 through 17:45 TotPAR

8/13/2006 225 15 08:15 through 12:45 TotPAR

8/14/2006 226 15 08:15 through 17:45 TotPAR

8/15/2006 227 15 11:30 TotPAR

8/16/2006 228 15 11:45, 12:00, 12:15, 12:30, 12:45 TotPAR

8/17/2006 229 15 12:15, 12:30, 12:45, 13:00, 13:15 TotPAR

8/18/2006 230 15 12:45, 13:00, 13:15, 14:15 TotPAR

8/19/2006 231 15 12:00, 12:15, 12:30, 13:00, 13:15, 14:00, 14:15 TotPAR

8/20/2006 232 15 12:00, 12:15, 12:30, 12:45, 13:00, 14:00 TotPAR

8/21/2006 233 15 12:00, 12:15 TotPAR

September

The following data was deleted due to sensor malfunction:

Station Code Date Julian Time Data Type

apaebmet 9/06/2006 249 13:15 RH, MaxRH, MaxRHT

apaebmet 9/13/2006 256 10:30 RH, MaxRH, MaxRHT

apaebmet 9/13/2006 256 11:15 RH, MaxRH, MaxRHT

**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](http://www.nerrsdata.org/get/landing.cfm) throughout the fall of 2022.

Missing data are denoted by a blank in the data set. Data are missing due to equipment failure or power loss, where no sensors were deployed, for maintenance or calibration of equipment, elimination of obvious outliers or elimination of data due to calibration problems. For more details on deleted data, see the Deleted Data section. To find out more details about missing data, contact the Research Coordinator at the site submitting the data.

March

Florida Fish and Wildlife Conservation Commission had a prescribed fire in the marsh where the weather station is located. The wooden structure of the weather station was burnt down; the wind sentry was melted along with various other parts of sensors. The box and the datalogger inside were not damaged. The datalogger collected data through the fire. All data from 3/13/2006 at 11:15 through 3/24/2006 at 12:30 following the fire is missing. The Data Management Oversight Committee was notified immediately about missing data until the weather station was secure enough to evaluate and new equipment was purchased and installed.

June

The following data is missing due to installation of the new datalogger and telemetry:

Station Code Date Julian Time Data Type

apaebmet 6/28/2006 179 07:00, 07:15, 07:30, 07:45 All data

apaebmet 6/28/2006 179 12:15, 12:30, 12:45, 13:00, 13:15 All data

apaebmet 6/29/2006 180 12:15, 12:30, 12:45, 13:00 All data

August

The following data is missing due to installation of the new CFM100:

apaebmet 8/07/2006 219 09:00, 09:15 All data

December

The following data is missing due to installation of the new version 3 program:

apaebmet 12/20/2006 354 15:15, 15:30, 15:45, 16:00 All data

**14) Other Remarks/ Notes**

**On 10/19/2023 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](http://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](http://www.nerrsdata.org/get/landing.cfm) throughout early 2023.

Timestamp:

On 6/28/2006 at 07:00 the CR10X was switched to the CR1000. With this update in datalogger and program the midnight time stamp was changed from 24:00 to 00:00. Also with the new CR1000 program the timestamps were recorded as such 00:12, 00:27, 00:42, 00:57, 01:12, etc. Three minutes (00:03) were added to all timestamps so the data values are 00:15, 00:30, 00:45, 01:00, 01:15, etc.

Precipitation:

The tipping bucket rain gauge was cleaned and/or calibrated while the datalogger was recording. The following data values were changed to 00.0:

Station Code Date Julian Time Array Data Type

apaebmet 4/14/2006 104 09:45 15 TotPrcp

apaebmet 4/14/2006 104 10:00 60 TotPrcp

apaebmet 4/14/2006 104 24:00 144 TotPrcp

apaebmet 5/12/2006 132 12:30 15 TotPrcp

apaebmet 5/12/2006 132 13:00 60 TotPrcp

apaebmet 5/12/2006 132 24:00 144 TotPrcp

apaebmet 6/08/2006 159 12:00 15 TotPrcp

apaebmet 6/08/2006 159 12:00 60 TotPrcp

apaebmet 6/08/2006 159 24:00 144 TotPrcp

apaebmet 10/2/2006 275 14:00 15 TotPrcp