NERRMET 2000-2004 Missing and Anomalous Data Documentation

This document was compiled by the 2006 Data Rescue Manager for the Baruch Institute's version of the NIW NERR Meteorological dataset and details the missing, anomalous/questionable, and erroneous data identified by the NERR Technicians, CDMO, and 2006 Data Rescue Manager. It also details any changes or corrections made to the dataset. It is a comprehensive document, applying to the final dataset, and includes all NERR/CDMO missing/anomalous/erroneous data documentation determined relevant by the 2006 Data Rescue Manager in addition to further documentation made by the 2006 Data Rescue Manager. However, users should not assume that documentation is adequate to attempt to use the raw data. There have been multiple protocol, personnel, and equipment changes over the course of the dataset and some documentation has been more thorough then others. Not all manipulations of the data have been recorded over the course of the database. For instance, the act of cleaning the tipping bucket rain gauge (regular maintenance) may cause a rain event reading to be recorded, which must later be removed from the data by the NERR Technician. Instances such as these are not always recorded and are only noted in this document if they were included in previous documentation.

The document is organized in chronological order and divided into years. Each year is complete and stands on its own. Within each year, there are subdivisions for month. These subcategories are simply an aid for navigation and only describe the month in which an event started, not necessarily ended. Therefore an event could have started in July and continued throughout the year, but is not repeated in each month's subcategory.

For the purposes of this version of the data, all missing data were marked with a place holder period (.). NERR/CDMO protocol for identifying missing/erroneous data changed over the course of the database; missing data or data that were removed from the dataset were originally designated as missing/anomalous/erroneous with specific codes (11111, 55555, 99999, etc). The codes were later removed and spaces were left blank in the final NERR/CDMO dataset. The period placeholders were inserted by the 2006 Data Rescue Manager.

All Parameters

Users should be aware that data values may not have been collected over the entire relevant time period or be based on all the expected 5-second data. Problems with the weather station data collection, maintenance, or power outages may result in missing data; but, for example, an hourly average isn't necessarily deleted from the database simply because a few 5-second data are missing. Also, precipitation, PAR (LiCor), and later Solar Radiation parameters are total values (rather than averages) and are often left in the dataset despite not being based on the entire relevant time period (totals may be incomplete). If a "significant" portion of the data comprising a time interval was missing, protocol called for the time interval's calculated value to be deleted as well. In general, decisions to leave data in the dataset were made at the NERR Technician's discretion; the 2006 Data Rescue Manager did not attempt to determine the validity of these values, as the NERR Technician had a much better grasp of the situation at the time that the decision was made. It is the user's responsibility to examine the missing, deleted, and anomalous data reports to ensure that average and total data were collected/calculated to their standards.

Relative Humidity

For relative humidity data from 01/01/2000 through 05/15/2003, all measured values greater than 100% were altered by the CR10X datalogger program to read 100% in the raw data. Readings greater than 100% could indicate a sensor malfunction, calibration problems that should be addressed, normal measurement error, or super saturated air. Because these values were manipulated in the raw data, it was impossible for the NERR Tech or Data Managers to determine whether they were valid data points. On 4/17/2002, Baruch's data managers met with representatives from the Southeastern Regional Climate Center of the South Carolina DNR, representatives from the CDMO, and two NERR technicians to discuss this and other matters. As a result of this meeting, a formal recommendation was made to the CDMO to cease the manipulation of these values at the data collection level (raw data) and to instead handle the matter at the data management editing level where informed decisions can be made and documented. The CDMO and the Data Management Committee reviewed the recommendation, agreed with it, and began implementing it in May of 2003.

In addition, the sensor that was in use from 08/11/1999 through 05/16/01 seemed to have slightly lower readings than would be expected, and they should be considered questionable as a result. When it was installed, there was a marked difference in the readings from the previous sensor. Maximum readings were around 97 or 98% as opposed to 100%, which was standard for the previous sensor and the climate in this area. When the sensor was replaced on 05/16/01, the readings returned to the previous and expected range.

Wind Speed
From 01/01/2000 through 05/16/2001, the wind speed sensor offset number (0.2) for the sensor in use (03001-5 Wind Sentry) showed up as a reading whenever there was no wind, and potentially, when the sensor was malfunctioning. There are no reported zero wind speed readings for this time period; the lowest reported value is 0.2. The offset number is the threshold from which the sensor can first recognize wind and, when it appears erroneously (through CR10X programming or sensor error) in the data, it represents a zero. Values of 0.2 in the data should be treated with caution as they may actually result from a measurement taken when there was either no wind or too little for the sensor to measure. The NIW NERR and 2006 Data Rescue Manager did not find any specific instances during this time where the offset value was present as a reading when the sensor was malfunctioning. The sensor measured in increments of 0.15, and only one decimal place was retained, so after the offset number, readings appear in the data as 0.3 (0.30), 0.5 (0.45), 0.6 (0.60), 0.8 (0.75), 0.9 (0.90).

Starting on 05/17/2001, when the new Met One sensor was installed, the CR10X datalogger program was altered to record a wind speed of zero (instead of the offset number) if there was no wind. However, since the lowest recorded reading is the offset number, and this number was changed to zero by the datalogger program, the next lowest reading that is present in the data is equal to the offset number (0.2811) plus 0.16, the increment that the sensor measures in. Therefore, the measurements begin at zero, jump to 0.4 (0.44), and then continue on as 0.6 (0.60), 0.8 (0.76), 0.9 (0.92), etc. If the sensor changes and the offset number and/or increment of measurement change, the recorded measurements would change accordingly.

On 10/21/2003 the datalogger program for wind speed changed yet again. Beginning on 10/21/2003 and through 12/31/2004, zero wind speed readings were no longer recorded. The 03001-5 Wind Sentry sensor was in use and the offset number (0.2) was once again recorded when there was no wind or when the wind speed was less than the sensor's threshold. Values of 0.2 in the data should be treated with caution (see above). It is unclear what the increment of measurement was for this period, but with one decimal place retained, readings progress normally.

Wind Direction
Wind directions were recorded whether or not there was a measurable wind speed. As mentioned above, from 01/01/2000 – 03/16/2001 and from 10/21/2003 – 12/31/2004, there were no zero wind speed readings and the wind speed offset number was reported as a reading instead. Users should be cautious of both 15-minute instantaneous wind direction readings taken when the wind speed was recorded as zero and when the offset number was recorded as a wind speed. These may not be true direction readings as there was no measurable wind speed at the time. Average wind directions may also include direction readings taken when there was no measurable wind speed.

PAR (LiCor)
The LiCor PAR sensor has been in use throughout the NIW NERR MET data sets, which began in 1997. However, PAR data were not reported in the final dataset until 06/26/2001 as a result of various problems with the data. For documentation on earlier PAR data, please see the NERR MET 1997-1999 database documentation. For the purposes of this database, an explanation of PAR data problems is as follows.

On 04/19/2000 a new LiCor sensor was installed in a new location on the weather station. The sensor was moved, from a location next to the tipping bucket rain gauge to the top of the storage box on the pier, because it was possible that it was being shaded for a portion of the day (per conversation with Baruch Data Manager, Ginger Ogburn-Matthews, no written documentation). After this move, there was a large increase in the PAR recorded. Because of this large discrepancy in the readings, it was determined that the sensor probably was being shaded, that the effect on the readings was both evident and substantial, and that there was no way to rescue the data. The readings during this time period were also extremely erratic and often out of the expected range for a 15-minute total. There appeared to be changes made to the program, in an attempt to correct these readings, which affected the data and were not documented. In addition, the old sensor had a cracked/corroded cable that may have been causing problems. As a result, these data were designated as completely unreliable and all PAR data were deleted from 01/01/2000 to 04/19/2000. (It should be noted that the sensor location was changed yet again on 12/14/2000. It was moved off of the top of the storage cabinet (on the platform) to the southeast corner piling of the floating dock (off of the platform)).

Unfortunately, the multiplier (specific to sensor/calibration) was never changed in the CR10X datalogger program when the new sensor was installed on 04/19/2000. There was a multiplier change and sensor test on 4/24/2000 (noted in the NERR Tech's "Other remarks" section of the NERR metadata), but it appears that it was still incorrect and the change was not

specified or documented in the CR10X program. The sensor was recalibrated in March of 2001 (no documentation for exact date), but again the multiplier wasn't corrected. The error was discovered and the multiplier was finally corrected for the sensor in use on 04/03/2002. The NERR Data Technician was able to go back and correct data beginning on 06/26/2001 (through 04/03/2002) for the multiplier that should have been used at that time. Data recorded prior to June 26 couldn't be corrected because of incomplete documentation. While the incorrect multiplier may have accounted for some of the large discrepancy noticed after the sensor location was moved, it is unlikely that all of the issues described above were a result; pre-4/19/2000 data are still believed to be unreliable.

In addition, for PAR data from 01/01/2000 through 10/21/2003 all measured values less than zero were altered by the CR10X datalogger program to read zero in the raw data. Values less than zero could indicate a sensor malfunction, calibration problems that should be addressed, normal measurement error, or an incorrect multiplier. Because these values were manipulated in the raw data, it was impossible for the NERR Tech or Data Managers to determine whether they were valid data points. On 04/17/2002, Baruch's data managers met with representatives from the Southeastern Regional Climate Center of the South Carolina DNR, representatives from the CDMO, and two NERR technicians to discuss this and other matters. As a result of this meeting, a formal recommendation was made to the CDMO to cease the manipulation of these values at the data collection level (raw data) and to instead handle the matter at the data management editing level where informed decisions can be made and documented. The CDMO and the Data Management Committee reviewed the recommendation, agreed with it, and began implementing it in October of 2003.

Finally, users should be aware that because this is a total parameter, small negative values recorded in the 5-second data that are within the expected error range of the sensor are summed to attain 15-minute, hourly, and 24-hour totals. 15-minute and hourly totals may show larger than expected negative values as a result.

Solar Radiation (Eppley)
From 01/01/2000 through 10/21/2003, solar radiation data are available as 15-minute instantaneous readings reported in Langleys/minute. These data were not reported in the NIW NERR/CDMO version of the dataset. The 2006 Data Rescue Manager merged the archived NIW NERR solar radiation data with the rest of the dataset for the purposes of this data publication. Beginning on 10/21/2003, this parameter was changed to Total Solar Radiation and included in the NIW NERR/CDMO version of the dataset.

Total Solar Radiation (Eppley)
Total Solar Radiation, reported in Langleys, was reported for 15-minute, hourly, and 24-hour time intervals beginning on 10/21/2003. Users should be aware that because this is a total parameter, small negative values recorded in the 5-second data that are within the expected error range of the sensor are summed to attain 15-minute, hourly, and 24-hour totals. 15-minute and hourly totals may show larger than expected negative values as a result.

2000

January 2000
01/01/2000 – 12/31/2000: Since July 7, 1997 incorrect values have been collected for 24-hour barometric pressure data. Maximum barometric pressures were recorded instead of averages. These data were deleted by the NERR Tech and the 2006 Data Rescue Manager filled the resulting blank cells with missing data markers.

01/01/2000 00:15 – 12/31/2000 24:00: From October 19, 1997 through May 15, 2003, all measured relative humidity values greater than 100% were altered by the CR10X datalogger program to read 100% in the raw data (see Relative Humidity documentation at the beginning of this document).

01/01/2000 00:15 – 12/31/2000 24:00: Questionable relative humidity data for the sensor that was in use from 08/11/1999 through 05/16/01, readings seem to be slightly lower than would be expected. When this sensor was installed, there was a marked difference in the readings from the previous sensor. Maximum readings were around 97 or 98% as opposed to 100%, which was standard for the previous sensor and the climate in this area. When the sensor was replaced on 5/16/01, the readings returned to the previous and expected range.

01/01/2000 00:15 – 04/19/2000: PAR (LiCor) data were deleted as the sensor was most likely being shaded for a portion of the day and they were believed to be unreliable. (see PAR documentation at the beginning of this document) The 2006

Data Rescue Manager filled blank cells in 15-minute data and replaced all zero totals that were left in hourly and daily data with missing data markers. Contact the NIW Reserve for raw PAR data from this period to use for trend comparisons.

01/14/2000 19:00 – 19:15: Error message, Rel hum difference is greater than 25%. NERR Tech determined that these data were due to actual weather conditions.

01/22/2000 08:15 – 08:30: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were due to actual weather conditions.

01/22/2000 03:45 – 04:00: 01/14/2000 19:00 – 19:15: Error message, Rel hum difference is greater than 25%. NERR Tech determined that these data were due to actual weather conditions.

February 2000
01/01/2000 23:45 – 24:00: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were due to actual weather conditions.

01/03/2000 14:30 – 14:45: Error message, Rel hum difference is greater than 25%. NERR Tech determined that these data were due to actual weather conditions.

01/12/2000 11:00 – 11:15: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were due to actual weather conditions.

01/12/2000 15:30 – 15:45: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were due to actual weather conditions.

01/14/2000 05:00 – 05:15: Error message, precip difference is greater than 5 mm. NERR Tech determined that these data were due to actual weather conditions.

01/24/2000 13:45 – 14:15: Error message, precip differences (15-minute readings) are greater than 5 mm. NERR Tech determined that these data were due to actual weather conditions.

March 2000
03/02/2000 24:00 – 03/03/2000 00:15: Error message, air temp difference is greater than 3.0 degrees C and Rel hum difference is greater than 25%. NERR Tech determined that these data were due to actual weather conditions.

03/03/2000 00:30 – 00:45: Error message, air temp difference is greater than 3.0 degrees C and Rel hum difference is greater than 25%. NERR Tech determined that these data were due to actual weather conditions.

03/04/2000 15:30- 16:00 and 16:15 – 16:30: Error message, precip differences (15-minute readings) are greater than 5 mm. NERR Tech determined that these data were due to actual weather conditions.

03/27/2000 08:45 – 09:00: Error message, precip difference is greater than 5 mm. NERR Tech determined that these data were due to actual weather conditions.

April 2000
04/08/2000 16:30 – 16:45: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were due to actual weather conditions.

04/19/2000: A new LiCor sensor was installed in a new location on the weather station around 13:30 (see PAR documentation at the beginning of this document), but it is unclear whether that was DST or EST. All data for all sensors around that time period and 24-hour data should be considered suspect.

04/19/2000 – 12/31/2000: PAR (LiCor) data were deleted due to an incorrect multiplier being used beginning on April 19, 2000. (see PAR documentation at the beginning of this document) The 2006 Data Rescue Manager filled blank cells in 15-minute data and replaced all zero totals that were left in hourly and daily data with missing data markers. Contact the NIW Reserve for raw PAR data from this period to use for trend comparisons.

04/24/2000 12:00 – 14:00: Changes were made to the CR10x program (another LiCor multiplier change), but it is unclear whether times were in DST or EST. All data for all sensors around that time period and 24-hour data should be considered suspect.

04/24/2000 22:15 – 22:45: Error message, precip differences (15-minute readings) are greater than 5 mm. NERR Tech determined that these data were due to actual weather conditions.

May 2000
05/16/2000 04:00 – 04:15: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were due to actual weather conditions.

05/25/2000 17:45 – 18:00: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were due to actual weather conditions.

05/25/2000 18:15 – 18:45: Error message, precip differences (15-minute readings) are greater than 5 mm. NERR Tech determined that these data were due to actual weather conditions.

05/25/2000 19:15 – 19:30, 20:15 – 20:30, 22:15 – 22:45: Error message, precip differences (15-minute readings) are greater than 5 mm. NERR Tech determined that these data were due to actual weather conditions.

05/28/2000 15:00 – 15:15 and 15:30 – 15:45: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were due to actual weather conditions.

June 2000
06/26/2000 11:45 – 12:00: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were due to actual weather conditions.

06/28/2000 11:30 – 11:45: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were due to actual weather conditions.

06/29/2000 13:30 – 13:45, 14:00 – 14:15, 18:00 – 18:15, 20:00 – 20:30: Error message, precip differences (15-minute readings) are greater than 5 mm. NERR Tech determined that these data were due to actual weather conditions.

July 2000
07/03/2000: The NERR Tech removed 24-hour data due to missing data for 14:00 (see below).
14:00: Unexplained missing 15-minute and hourly data, probably resulted in missing 5-second data as well. There may have been a program change/reload or loss of power during this period that resulted in a loss of data, but there is no documentation. The 2006 Data Rescue Manager filled resulting blank cells with missing data markers.

07/05/2000 01:00 – 11:00: Error message, pressure average (hourly data) is greater than 24-hour maximum. There may have been a program change/reload or loss of power during this period that resulted in a loss of data, but there is no documentation to explain these error messages. The data were retained, but should be considered suspect.

07/05/2000 22:15 – 22:45: Error message, precip differences (15-minute readings) are greater than 5 mm. NERR Tech determined that these data were due to actual weather conditions.

07/16/2000 12:00 – 12:30: Error message, precip differences (15-minute readings) are greater than 5 mm. NERR Tech determined that these data were due to actual weather conditions.

07/16/2000 12:00 – 12:15: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were due to actual weather conditions.

07/22/2000 21:15 – 21:30: Error message, precip difference is greater than 5 mm. NERR Tech determined that these data were due to actual weather conditions.

07/23/2000 22:00 – 22:30: Error message, precip differences (15-minute readings) are greater than 5 mm. NERR Tech determined that these data were due to actual weather conditions.

07/23/2000 21:45 – 22:00: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were due to actual weather conditions.

07/24/2000 18:45 – 19:45: Error message, precip differences (15-minute readings) are greater than 5 mm. NERR Tech determined that these data were due to actual weather conditions.

07/30/2000 00:30 – 01:00, 09:15 – 09:30: Error message, precip differences (15-minute readings) are greater than 5 mm. NERR Tech determined that these data were due to actual weather conditions.

07/31/2000 04:45 – 05:15: Error message, precip differences (15-minute readings) are greater than 5 mm. NERR Tech determined that these data were due to actual weather conditions.

August 2000
08/02/2000 10:00 – 10:15: Error message, precip difference is greater than 5 mm. NERR Tech determined that these data were due to actual weather conditions.

08/11/2000 12:00 – 12:30: Error message, air temp differences (15-minute readings) are greater than 3.0 degrees C. NERR Tech determined that these data were due to actual weather conditions.

08/11/2000 12:45 – 13:15, 13:45 – 14:00: Error message, precip differences (15-minute readings) are greater than 5 mm. NERR Tech determined that these data were due to actual weather conditions.

08/13/2000 16:00 – 16:30: Error message, precip differences (15-minute readings) are greater than 5 mm. NERR Tech determined that these data were due to actual weather conditions.

08/24/2000 21:45 – 22:00: Error message, precip difference is greater than 5 mm. NERR Tech determined that these data were due to actual weather conditions.

08/28/2000 16:15 – 16:30: Error message, precip difference is greater than 5 mm. NERR Tech determined that these data were due to actual weather conditions.

September 2000
09/03/2000 01:45 – 02:00: Error message, precip difference is greater than 5 mm. NERR Tech determined that these data were due to actual weather conditions.

09/07/2000: Unexplained missing 15-minute data from 12:15 – 13:15 and hourly data from 13:00, may have also resulted in missing 5-second data. Hourly data for 14:00 and the 24-hour data were deleted by the NERR Tech as a result. The 2006 Data Rescue Manager filled the resulting blank cells with missing data markers.

09/08/2000: There may have been a program change/reload or loss of power during this period that resulted in a loss of data, but there is no documentation to explain these error messages. The data, including 24-hour max and mins, are suspect but were retained.

00:15 – 10:15: Error message, air temps (15-minute readings) are less than 24-hour minimum temp.
01:00 – 10:00: Error message, air temp averages (hourly data) are less than 24-hour minimum.
02:00 – 09:00: Error message, relative humidity averages (hourly data) are greater than 24-hour maximum.

09/13/2000: There may have been a program change/reload or loss of power during this period that resulted in a loss of data, but there is no documentation to explain these error messages. The data, including 24-hour max and mins, are suspect but were retained.

00:15 – 07:00: Error message, air temps (15-minute readings) are less than 24-hour minimum temp.
01:00 – 07:00: Error message, air temp averages (hourly data) are less than 24-hour minimum.
01:00 – 06:00: Error message, relative humidity averages (hourly data) are greater than 24-hour maximum.

08:00 – 12:00: Error message, pressure averages (hourly data) are greater than the 24-hour maximum.

09/13/2000 22:00 – 09/14/2000 10:00: Error message, wind speed (hourly averages) are less than 0.5 m/s. NERR Tech determined that these data were due to actual weather conditions.

09/18/2000 06:45 – 07:00, 07:15 – 07:45, 08:00 – 08:15, 08:30 – 09:15, 09:30 – 10:00: Error message, precip differences (15-minute readings) are greater than 5 mm. NERR Tech determined that these data were due to actual weather conditions.

09/19/2000: There may have been a program change/reload or loss of power during this period that resulted in a loss of data, but there is no documentation to explain these error messages. The data, including 24-hour max and mins, are suspect but were retained.

00:15 – 09:00: Error message, air temps (15-minute readings) are less than 24-hour minimum temp.
01:00 – 09:00: Error message, air temp averages (hourly data) are less than 24-hour minimum.
01:00 – 07:00: Error message, pressure averages (hourly data) are less than the 24-hour minimum.

09/20/2000: There may have been a program change/reload or loss of power during this period that resulted in a loss of data, but there is no documentation to explain these error messages. The data, including 24-hour max and mins, are suspect but were retained.

00:15 – 08:00: Error message, air temps (15-minute readings) are less than 24-hour minimum temp.
01:00 – 08:00: Error message, air temp averages (hourly data) are less than 24-hour minimum.
01:00 – 13:00: Error message, pressure averages (hourly data) are greater than the 24-hour maximum.
02:00 – 07:00: Error message, relative humidity averages (hourly data) are greater than 24-hour maximum.
09:00 – 14:00: Error message, relative humidity averages (hourly data) are less than 24-hour minimum.
09:00 – 09:30, 10:00 – 13:45, 14:15: Error message, air temps (15-minute readings) exceed 24-hour max temp.
10:00 – 14:00: Error message, air temp averages (hourly data) are greater than 24-hour maximum.

09/20/2000 16:00 – 09/21/2000 08:00: Error message, wind speed (hourly averages) are less than 0.5 m/s. NERR Tech determined that these data were due to actual weather conditions.

09/22/2000: There may have been a program change/reload or loss of power during this period that resulted in a loss of data, but there is no documentation to explain these error messages. The data, including 24-hour max and mins, are suspect but were retained.

00:15 – 00:30, 02:45, 05:15, 05:45, 12:15: Error message, air temps (15-minute readings) are less than 24-hour minimum temp.
01:00 and 06:00: Error message, air temp averages (hourly data) are less than 24-hour minimum.
01:00 – 09:00: Error message, relative humidity averages (hourly data) are greater than 24-hour maximum.
09:00 – 11:00: Error message, pressure averages (hourly data) are greater than the 24-hour maximum.

09/23/2000 04:00 – 04:30, 05:15 – 05:30, 06:00 – 06:30: Error message, precip differences (15-minute readings) are greater than 5 mm. NERR Tech determined that these data were due to actual weather conditions.

09/28/2000: There may have been a program change/reload or loss of power during this period that resulted in a loss of data, but there is no documentation to explain these error messages. The data, including 24-hour max and mins, are suspect but were retained.

00:15 – 07:45: Error message, air temps (15-minute readings) are less than 24-hour minimum temp.
01:00 and 08:00: Error message, air temp averages (hourly data) are less than 24-hour minimum.
01:00 – 08:00: Error message, relative humidity averages (hourly data) are greater than 24-hour maximum.
10:00 – 11:00: Error message, pressure averages (hourly data) are greater than the 24-hour maximum.

09/29/2000: There may have been a program change/reload or loss of power during this period that resulted in a loss of data, but there is no documentation to explain these error messages. The data, including 24-hour max and mins, are suspect but were retained.

00:15 – 09:30: Error message, air temps (15-minute readings) are less than 24-hour minimum temp.
01:00 and 09:00: Error message, air temp averages (hourly data) are less than 24-hour minimum.
01:00 – 07:00: Error message, pressure averages (hourly data) are less than the 24-hour minimum.
03:00, 06:00 – 10:00: Error message, relative humidity averages (hourly data) are greater than 24-hour maximum.

October 2000
10/25/2000 05:00, 06:00 – 06:45: Error message, air temps (15-minute readings) are less than 24-hour minimum temp. There may have been a program change/reload or loss of power during this period that resulted in a loss of data, but there is no documentation to explain these error messages. The data, including 24-hour max and mins, are suspect but were retained.

10/29/2000: There may have been a program change/reload or loss of power during this period that resulted in a loss of data, but there is no documentation to explain these error messages. The data, including 24-hour max and mins, are suspect but were retained.

00:15 – 18:45: Error message, air temps (15-minute readings) are greater than 24-hour maximum temp.
01:00 – 19:00: Error message, air temp averages (hourly data) are greater than 24-hour maximum.
01:00 – 02:00, 04:00 – 18:00: Error message, relative humidity averages (hourly data) are less than 24-hour minimum.
01:00 – 04:00: Error message, pressure averages (hourly data) are less than the 24-hour minimum.
06:00 – 14:00: Error message, pressure averages (hourly data) are greater than the 24-hour maximum.

10/30/2000: There may have been a program change/reload or loss of power during this period that resulted in a loss of data, but there is no documentation to explain these error messages. The data, including 24-hour max and mins, are suspect but were retained.

08:45 – 17:45: Error message, air temps (15-minute readings) are greater than 24-hour maximum temp.
10:00 – 18:00: Error message, air temp averages (hourly data) are greater than 24-hour maximum.
10:00 – 17:00: Error message, relative humidity averages (hourly data) are less than 24-hour minimum.
01:00 – 03:00, 05:00 - 15:00: Error message, pressure averages (hourly data) are greater than the 24-hour maximum.

10/31/2000: There may have been a program change/reload or loss of power during this period that resulted in a loss of data, but there is no documentation to explain these error messages. The data, including 24-hour max and mins, are suspect but were retained.

00:15 – 01:00, 05:15 – 07:00: Error message, air temps (15-minute readings) are less than 24-hour minimum temp.
01:30 – 04:15, 07:30 – 22:45: Error message, air temps (15-minute readings) are greater than 24-hour maximum temp.
01:00, 06:00 – 07:00: Error message, air temp averages (hourly data) are less than 24-hour minimum.
03:00 – 04:00, 08:00 – 22:00: Error message, air temp averages (hourly data) are greater than 24-hour maximum.
02:00 – 22:00: Error message, relative humidity averages (hourly data) are less than 24-hour minimum.
02:00 – 04:00, 15:00 – 18:00: Error message, pressure averages (hourly data) are less than the 24-hour minimum.
07:00 – 13:00, 21:00 – 22:00: Error message, pressure averages (hourly data) are greater than the 24-hour maximum.

November 2000
11/07/2000 – 11/08/200 09:00: Error message, wind speed (hourly averages) are less than 0.5 m/s. NERR Tech determined that these data were due to actual weather conditions.

11/15/2000: There may have been a program change/reload or loss of power during this period that resulted in a loss of data, but there is no documentation to explain these error messages. The data, including 24-hour max and mins, are suspect but were retained.

00:15 – 02:45, 08:30 – 18:30: Error message, air temps (15-minute readings) are greater than 24-hour maximum temp.
05:45 – 07:15: Error message, air temps (15-minute readings) are less than 24-hour minimum temp.
01:00 – 03:00, 09:00 – 19:00: Error message, air temp averages (hourly data) are greater than 24-hour maximum.
01:00 – 19:00: Error message, relative humidity averages (hourly data) are less than 24-hour minimum.
01:00 – 09:00, 13:00 – 19:00: Error message, pressure averages (hourly data) are less than the 24-hour minimum.
06:00 – 07:00: Error message, air temp averages (hourly data) are less than 24-hour minimum.

11/18/2000: There may have been a program change/reload or loss of power during this period that resulted in a loss of data, but there is no documentation to explain these error messages. The data, including 24-hour max and mins, are suspect but were retained.

00:15 – 06:15, 08:45 – 20:00: Error message, air temps (15-minute readings) are greater than 24-hour maximum temp.
07:00 – 07:45: Error message, air temps (15-minute readings) are less than 24-hour minimum temp.
01:00 – 20:00: Error message, relative humidity averages (hourly data) are less than 24-hour minimum.
01:00 – 06:00, 09:00 – 20:00: Error message, air temp averages (hourly data) are greater than 24-hour maximum.
01:00 – 04:00: Error message, pressure averages (hourly data) are less than the 24-hour minimum.
08:00: Error message, air temp average (hourly data) is less than 24-hour minimum.

2001

January 2001

01/01/2001 – 12/31/2001: Since July 7, 1997 incorrect values have been collected for 24-hour barometric pressure data. Maximum barometric pressures were recorded instead of averages. These data were supposed to be deleted by the NERR Tech, but were still part of the NERR CDMO posted data as of 02/02/2006. The 2006 Data Rescue Manager deleted the data and filled the resulting blank cells with missing data markers.

01/01/2001 00:15 – 12/31/2001 24:00: From October 19, 1997 through May 15, 2003, all measured relative humidity values greater than 100% were altered by the CR10X datalogger program to read 100% in the raw data (see Relative Humidity documentation at the beginning of this document).

01/01/2001 00:15 – 05/16/2001 12:15: Questionable relative humidity data for the sensor that was in use from 08/11/1999 through 05/16/01, readings seem to be slightly lower than would be expected. When this sensor was installed, there was a marked difference in the readings from the previous sensor. Maximum readings were around 97 or 98% as opposed to 100%, which was standard for the previous sensor and the climate in this area. When the sensor was replaced on 5/16/01, the readings returned to the previous and expected range.

01/01/2001 00:15 – 06/26/2001 12:30: PAR (LiCor) data were deleted due to an incorrect multiplier being used beginning on April 19, 2000. (see PAR documentation at the beginning of this document) The 2006 Data Rescue Manager filled blank cells in 15-minute data and replaced all zero totals that were left in hourly and daily data with missing data markers. Contact the NIW Reserve for raw PAR data from this period to use for trend comparisons.

01/11/2001 08:00 – 08:15: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were due to actual weather conditions.

01/27/2001 19:30 – 19:45: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were due to actual weather conditions.

February 2001

02/14/2001 13:45 – 14:00: Error message, air temp difference is greater than 3.0 degrees C. Data were retained.

02/17/2001 07:45 – 08:00: Error message, air temp difference is greater than 3.0 degrees C. Data were retained.

March 2001

03/04/2001 03:00 – 03:30: Error message, precip differences (15-minute readings) are greater than 5 mm. NERR Tech determined that these data were consistent with rain events.

03/06/2001 10:00 – 03/20/2001 11:15: 15-minute, hourly, and 24-hour data are missing due to computer problems.

03/20/2001: Undocumented program reload on this date. No times were recorded, so all data should be considered suspect. Possibly occurred at 12:00 (see below).

03/20/2001: NERR Tech deleted 24-hour data due to computer problems which resulted in missing 5-second data.

12:00: NERR Tech deleted hourly data due to computer problems which resulted in missing 5-second data.

03/21/2001: NERR Tech deleted 24-hour data due to program reloads which resulted in missing 5-second data.
10:00: NERR Tech deleted hourly data due to program reloads which resulted in missing 5-second data.

03/29/2001 11:30: Rain gauge was tipped manually, therefore a 0.254 mm value was recorded erroneously. The NERR Tech corrected the data by subtracting 0.254 mm from the 15-minute data. The hourly and 24-hour totals were corrected by the WDMP.

03/29/2001: NERR Tech deleted 24-hour data due to program reloads which resulted in missing 5-second data.
14:00: NERR Tech deleted hourly data due to program reloads which resulted in missing 5-second data.

April 2001
04/01/2001 15:00 – 15:15: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were due to actual weather conditions.

04/02/2001: NERR Tech deleted 24-hour data due to program reloads which resulted in missing 5-second data.
09:15: 15-minute data missing, no documentation for cause, probably due to program reload.
10:00: NERR Tech deleted hourly data due to program reloads which resulted in missing 5-second data.

04/17/2001 14:45 – 15:00: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were due to actual weather conditions.

04/25/2001: NERR Tech deleted 24-hour data due to program reloads which resulted in missing 5-second data.
15:00: NERR Tech deleted hourly data due to program reloads which resulted in missing 5-second data.

May 2001
05/04/2001 08:30 – 05/09/2001 16:15: 15-minute, hourly, and 24-hour data are missing for unexplained reason. Met Station may have malfunctioned or data may have been recorded over and not recovered.

05/09/2001: NERR Tech deleted 24-hour data due to unexplained missing data, power offs, and program reloads which may have resulted in missing 5-second data.
17:00: NERR Tech deleted hourly data due to unexplained missing data, power offs, and program reloads.

05/10/2001 14:45 – 15:00: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were due to actual weather conditions.

05/15/2001 17:15 – 17:30: Error message, Rel hum difference is greater than 25%. NERR Tech determined that these data were due to actual weather conditions.

05/16/2001 12:30 – 05/18/2001 15:30: 15-minute, hourly, and 24-hour data are missing due to NERR Tech switching out instruments on the met station.

05/18/2001 15:45 – 17:00: All data for this period are considered suspect, program was reloaded at 17:00.
15:45 – 16:00: Error message, Rel hum difference is greater than 25%, data were retained.
16:00: NERR Tech deleted hourly data due to program reloads which resulted in missing 5-second data.
17:00: 2006 Data Rescue Manager deleted -99999s for hourly data and replaced with missing data markers. Data were most likely missing as a result of the same program reload and rewiring.

05/18/2001: NERR Tech deleted 24-hour data due to program reloads which resulted in missing 5-second data. 2006 Data Rescue Manager deleted -99999s for 24-hour data and replaced with missing data markers.

05/18/2001 15:45 – 05/20/2001 04:30: NERR Tech deleted all temperature data. They were suspect, problems may have occurred due to rewiring and reprogramming of the sensor.

05/18/2001 15:45 – 05/21/2001: Total Solar Radiation (Eppley) data are suspect for this period. The wrong multiplier was in use after the 05/18 reload at 17:00 through 05/21 (no time documented) when the correct multiplier was inserted into the program.

05/20/2001: All temperature data for this date should be considered highly suspect due to rewiring and reprogramming of the sensor. Preceding data were deleted by NERR Tech as erroneous.
08:45: Error message, air temp difference is greater than 3.0 degrees C.

05/22/2001: NERR Tech deleted 24-hour data due to program reloads which resulted in missing 5-second data.
10:00: NERR Tech deleted hourly data due to program reloads which resulted in missing 5-second data.

05/23/2001 11:15: Error message, wind direction greater than 360 degrees and less than 0 degrees. NERR Technician retained due to small error (approximately 3 degrees), but reading is suspect.

05/25/2001: NERR Tech deleted 24-hour data due to program reloads which resulted in missing 5-second data.
08:45: 15-minute data missing, no documentation for cause, probably due to program reload.
09:00: NERR Tech deleted hourly data due to program reloads which resulted in missing 5-second data.

05/26/2001 09:00 – 09:30: Error message, precip differences (15-minute readings) are greater than 5 mm. NERR Tech determined that these data were consistent with rain events.

June 2001
06/01/2001 14:15 – 06/03/2001 21:00: Only zero values were recorded for wind speed. NERR Tech noted that sensor might have been removed from the weather station or "stuck" but retained the data. The 2006 Data Rescue Manager deleted these values, as the sensor was obviously not functioning properly, and replaced them with missing data markers.
06/01/2001 15:00 – 06/03/2001 21:00: Error message, wind speed is less than 0.5 m/s.

06/01/2001 14:15 – 06/03/2001 21:00: Only zero values were recorded for hourly and 24-hour wind direction data, 15-minute data were recorded but should be considered suspect, as there was obviously a sensor malfunction (see wind speed error above). NERR Tech noted that sensor might have been removed from the weather station or "stuck" but retained the data. The 2006 Data Rescue Manager deleted all zero values for hourly and 24-hour data and replaced with missing data markers. 15-minute data were retained, but should be considered suspect.

06/03/2001 12:45 – 13:00: Error message, Rel hum difference is greater than 25%. NERR Tech determined that these data were due to actual weather conditions.

06/03/2001 20:15 – 20:30: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were due to actual weather conditions.

06/03/2001 20:30 – 21:00: Error message, precip difference (each 15-minute reading) is greater than 5 mm. NERR Tech determined that these data were consistent with rain events.

06/03/2001 21:15 – 06/04/2001 07:15**:** 15-minute, hourly, and 24-hour data are missing due to computer problems.

06/04/2001: NERR Tech deleted 24-hour data due to computer problems which resulted in missing 5-second data.
08:00: NERR Tech deleted hourly data due to computer problems which resulted in missing 5-second data.

06/06/2001: The 01:00 hourly data and 24-hour maximum data are suspect. There were no associated power offs or program reloads associated with this data and all other data appear to be correct, so the data were retained.
01:00: Error message, pressure average in 1 hour data is greater than 24 hour maximum

06/06/2001 13:30 – 13:45: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were due to actual weather conditions.

06/08/2001: The 09:00 hourly data and 24-hour data are suspect. There may have been a program reload.

06/10/2001 22:00 – 06/30/2001 02:00: For the following dates and times within this period, error message, wind direction greater than 360 degrees and less than 0 degrees. NERR Technician retained due to small error (approximately 3 degrees), but readings are suspect.

06/10/2001 22:00
06/16/2001 20:15, 23:00
06/17/2001 04:30, 06:30, 19:45, 21:15 – 21:30, 22:15
06/20/2001 06:45, 07:00
06/24/2001 08:00, 18:45, 20:30, 23:30
06/25/2001 02:15
06/27/2001 07:30
06/30/2001 02:00

06/11/2001 03:45 – 06/14/2001 14:30: 15-minute, hourly, and 24-hour data are missing due to computer problems.

06/14/2001: NERR Tech deleted 24-hour data due to computer problems which resulted in missing 5-second data.
15:00: NERR Tech deleted hourly data due to computer problems which resulted in missing 5-second data.

06/14/2001 15:15 – 15:30: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were due to actual weather conditions.

06/23/2001 17:00 – 17:15: Error message, precip difference is greater than 5 mm. NERR Tech determined that these data were consistent with rain events.

06/23/2001 17:30 – 17:45: Error message, precip difference is greater than 5 mm. NERR Tech determined that these data were consistent with rain events.

06/25/2001 16:30 – 17:45: Error message, precip difference (each 15-minute reading) is greater than 5 mm. NERR Tech determined that these data were consistent with rain events.

06/26/2001: NERR Tech deleted 24-hour data due to program reloads which resulted in missing 5-second data.
12:45: 15-minute data missing, system shut down for rewiring of new LiCor sensor.
13:00: NERR Tech deleted hourly data due to program reloads which resulted in missing 5-second data.

06/26/2001 13:00: NERR Tech deleted 15-minute rain data. Data were erroneous as a result of the gauge tipping during cleaning.

06/26/2001 13:00 – 12/31/2001 24:00: 15-minute, hourly, and daily PAR (LiCor) data were edited and corrected to reflect the proper multiplier. The wrong multiplier had been in use since April 19, 2000. The multiplier was corrected in the program on April 3, 2002. In addition, all measured values less than zero were altered by the CR10X datalogger program to read zero in the raw data. Values less than zero could indicate a sensor malfunction, calibration problems that should be addressed, normal measurement error, or an incorrect multiplier (see the PAR documentation at the beginning of this document).

06/26/2001 13:00 – 06/23/2001 16:00: 2006 Data Rescue Manager found these PAR (LiCor) data to be suspect. The hourly totals for this period are by far the highest recorded in the entire 4 year dataset and are the first data reported after the multiplier correction began.

July 2001

07/2001: For the following dates and times within the month of July, error message, wind direction greater than 360 degrees and less than 0 degrees. NERR Technician retained due to small error (approximately 3 degrees), but readings are suspect.

07/03/2001 01:00
07/07/2001 03:15 – 03:30
07/08/2001 14:00
07/09/2001 11:00
07/10/2001 04:00

07/12/2001 03:00, 03:30, 21:45
07/13/2001 02:45, 04:30, 07:00, 14:15, 14:45, 17:15, 22:45
07/14/2001 01:15 – 01:30, 02:30
07/17/2001 08:30
07/18/2001 11:15
07/20/2001 08:15, 09:15
07/21/2001 06:15
07/22/2001 06:45
07/23/2001 04:45
07/26/2001 21:00
07/27/2001 19:15, 21:45, 23:00
07/28/2001 02:30 – 02:45, 04:00, 04:45, 06:30, 09:30, 11:30, 18:00
07/30/2001 12:30, 13:30, 14:30, 16:30, 16:45, 18:00, 20:30, 22:15, 22:45, 22:30
07/31/2001 01:15, 03:45, 04:30 – 04:45, 05:45, 06:45, 07:30

07/02/2001 14:00 – 14:15: Error messages, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were consistent with other variables and likely due to actual weather conditions.

07/02/2001 14:00 – 14:15: Error message, Rel hum difference is greater than 25%. NERR Tech determined that these data appear to be correct, as readings were consistent prior to and immediately following the documented difference.

07/02/2001 16:30 – 16:45: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were consistent with other variables and likely due to actual weather conditions.

07/03/2001: NERR Tech deleted 24-hour data due to program reloads which resulted in missing 5-second data.
09:00: NERR Tech deleted hourly data due to program reloads which resulted in missing 5-second data.

07/05/2001 – 07/13/2001: NERR Tech deleted erroneous 15-minute data for the following dates and times, there was a problem with the humidity sensor and the backup was being calibrated. Other data are suspect but were left in as they appeared to be consistent with other instruments
07/05/2001 11:45
07/06/2001 05:30, 22:00
07/07/2001 00:45, 7:30, 10:00
07/08/2001 19:45, 23:15
07/09/2001 15:00
07/11/2001 00:15, 12:30
07/12/2001 12:15 – 1300, 13:30, 14:30, 15:30 – 15:45, 16:30 – 17:00, 17:30 – 18:15, 18:45, 19:30 – 19:45
07/13/2001 11:00, 12:15, 1330, 1615

07/05/2001 – 07/15/2001: 2006 Data Rescue Manager deleted erroneous 24-hour maximum and minimum values and times. Maximums for this period were all 100 (which was unlikely) and minimums were all 0 (impossible). There were also documented problems with the humidity sensor during this time (see above).

07/05/2001 17:00 – 17:15: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were consistent with other variables and likely due to actual weather conditions.

07/06/2001 06:00: Error message, relative humidity average in 1 hour data is less than 15-minute minimum by at least 10%. NERR Tech retained the data, however they are suspect.

07/06/2001 16:45 – 17:00: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were consistent with other variables and likely due to actual weather conditions.

07/11/2001: NERR Tech deleted 24-hour data due to program reloads which resulted in missing 5-second data.
08:15: 15-minute data missing due to power off and program reload.
09:00: NERR Tech deleted hourly data due to program reloads which resulted in missing 5-second data.

07/12/2001 13:00 – 19:00: Error message, relative humidity average in 1 hour data is less than 15-minute minimum by at least 10%. NERR Tech retained the data, however they are suspect.

07/13/2001 12:00 – 12:15: Error message, air temp difference is greater than 3.0 degrees C and precip difference is greater than 5 mm. NERR Tech determined that these data were consistent with other variables and likely due to actual weather conditions.

07/13/2001 12:30 – 12:45: Error message, precip difference is greater than 5 mm. NERR Tech determined that these data were consistent with other variables and likely due to actual weather conditions.

07/13/2001 13:00 and 15:00: Error message, relative humidity average in 1 hour data is less than 15-minute minimum by at least 10%. NERR Tech retained the data, however they are suspect.

07/19/2001 12:30 – 12:45: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were consistent with other variables and likely due to actual weather conditions.

07/19/2001 12:30 – 13:00: Error message, precip differences (15-minute readings) are greater than 5 mm. NERR Tech determined that these data were consistent with other variables and likely due to actual weather conditions.

07/19/2001 13:15 – 13:30: Error message, precip difference is greater than 5 mm. NERR Tech determined that these data were consistent with other variables and likely due to actual weather conditions.

07/20/2001 07:45 – 08:15: Error message, precip differences (15-minute readings) are greater than 5 mm. NERR Tech determined that these data were consistent with other variables and likely due to actual weather conditions.

07/29/2001 09:45 – 10:15: Error message, precip differences (15-minute readings) are greater than 5 mm. NERR Tech determined that these data were consistent with other variables and likely due to actual weather conditions.

07/29/2001 15:30 – 16:00: Error message, precip differences (15-minute readings) are greater than 5 mm. NERR Tech determined that these data were consistent with other variables and likely due to actual weather conditions.

August 2001

08/2001: For the following dates and times in August, error message, wind direction greater than 360 degrees and less than 0 degrees. NERR Technician retained due to small error (approximately 3 degrees), but readings are suspect.

08/01/2001 06:45
08/02/2001 02:30, 03:15, 05:15 – 06:00
08/05/2001 06:45
08/07/2001 12:45
08/17/2001 09:15
08/22/2001 04:15, 04:45, 08:00
08/24/2001 19:45
08/25/2004 03:45, 04:30, 04:45, 10:00, 10:30, 10:45, 11:30, 13:30, 18:45
08/26/2001 00:30, 00:45, 01:15, 03:45, 05:00, 10:30, 13:15, 14:15, 14:30
08/29/2001 20:45
08/31/2001 22:30

08/08/2001: NERR Tech deleted 24-hour data due to program reloads and power off for maintenance which resulted in missing 5-second data.

14:00, 15:00: NERR Tech deleted hourly data due to program reloads and power off for maintenance which resulted in missing 5-second data.

08/09/2001 10:45 – 08/20/2001 08:45: NERR Tech deleted wind speed and PAR (LiCor) data. Data were erroneous as a result of conflicts with the YSI programming and wiring. Following data, when the YSI was disconnected, appear reasonable but are suspect. 2006 Data Rescue Manager replaced zeros left in database for PAR (LiCor) hourly and 24-hour data (as a result of deleted 15-minute data) with missing data markers.

08/09/2001: NERR Tech deleted 24-hour data due to program reload which resulted in missing 5-second data.
11:00: NERR Tech deleted hourly data due to program reload which resulted in missing 5-second data.
10:15 – 10:30: 15-minute data missing due to power off and program reload.

08/10/2001: NERR Tech deleted 24-hour data due to program reload which resulted in missing 5-second data.
09:15 – 09:30: 15-minute data missing due to power off and program reload.
10:00: NERR Tech deleted hourly data due to program reload which resulted in missing 5-second data.

08/13/2001 22:15 – 22:30: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were due to actual weather conditions.

08/13/2001 22:45 – 23:00: Error message, precip difference is greater than 5 mm. NERR Tech determined that these data were consistent with rain events.

08/14/2001 14:30 – 15:00: Error message, precip differences (15-minute readings) are greater than 5 mm. NERR Tech determined that these data were consistent with rain events.

08/19/2001 19:15 – 19:30: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were due to actual weather conditions.

8/20/2001 09:00 – 08/21/2001 10:00: The YSI was disconnected for this period and the wind speed and PAR (LiCor) data appear reasonable, but should be considered suspect. Conflicts between wiring and programming of the YSI caused problems with wind speed and PAR (LiCor) data when the YSI was connected. Preceding and following data were deleted as a result.

08/20/2001 15:15 –15:30: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were due to actual weather conditions.

08/20/2001 15:15 – 15:45: Error message, precip differences (15-minute readings) are greater than 5 mm. NERR Tech determined that these data were consistent with rain events.

08/21/2001 10:15 – 09/17/2001 13:15: NERR Tech deleted wind speed and PAR (LiCor) data. Data were erroneous as a result of conflicts with the YSI programming and wiring. Preceding data, when the YSI was disconnected, appear reasonable but are suspect. 2006 Data Rescue Manager replaced zeros left in database for PAR (LiCor) hourly and 24-hour data (totals of deleted 15-minute data) with missing data markers.

08/24/2001 16:00 – 16:15: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were due to actual weather conditions.

08/24/2001 16:30 – 16:45: Error message, precip difference is greater than 5 mm. NERR Tech determined that these data were consistent with rain events.

08/28/2001: NERR Tech deleted 24-hour data due to program reload which resulted in missing 5-second data.
13:30: 15-minute data missing due to power off, new modem installation, and program reload.
14:00: NERR Tech deleted hourly data due to new modem installation and program reload which resulted in missing 5-second data.

08/29/2001 19:30 – 20:00: Error message, precip differences (15-minute readings) are greater than 5 mm. NERR Tech determined that these data were consistent with rain events.

08/29/2001 20:15 – 20:30: Error message, precip difference is greater than 5 mm. NERR Tech determined that these data were consistent with rain events.

08/29/2001 20:45 – 21:30: Error message, precip differences (15-minute readings) are greater than 5 mm. NERR Tech determined that these data were consistent with rain events.

08/30/2001 15:30 – 16:00: Error message, precip differences (15-minute readings) are greater than 5 mm. NERR Tech determined that these data were consistent with rain events.

September 2001

09/2001: For the following dates and times within the month of September, error message, wind direction greater than 360 degrees and less than 0 degrees. NERR Technician retained due to small error (approximately 3 degrees), but readings are suspect.

09/03/2001 12:00, 14:15
09/05/2001 07:45, 10:00
09/06/2001 04:15, 04:30, 06:30, 06:45
09/07/2001 03:45
09/08/2001 07:00
09/09/2001 06:45
09/10/2001 03:45, 04:15
09/11/2001 06:30
09/12/2001 00:30, 01:45, 04:15, 05:15
09/13/2001 00:45, 02:30, 04:30, 05:30
09/14/2001 05:30, 06:30, 19:30
09/15/2001 00:30, 07:15, 07:45, 11:45, 13:00, 13:15, 16:00, 19:30, 19:45, 23:30, 24:00
09/16/2001 07:00, 09:15, 17:00, 20:15
09/17/2001 00:30, 01:15, 01:30, 08:30

09/09/2001 12:30 – 13:00: Error message, precip differences (15-minute readings) are greater than 5 mm. NERR Tech determined that these data were consistent with rain events.

09/17/2001 13:30 – 09/18/2001 10:00: The YSI was disconnected for this period and the wind speed and PAR (LiCor) data appear reasonable, but should be considered suspect. Conflicts between wiring and programming of the YSI caused problems with wind speed and PAR (LiCor) data when the YSI was connected. Preceding data were deleted as a result.

09/18/2001: NERR Tech deleted 24-hour data, tower was dropped for maintenance and program was reloaded, resulting in missing 5-second data.

09/18/2001 10:15 – 11:00: 15-minute and hourly data missing due to weather tower maintenance.

09/18/2001 11:15 – 10/23/2001 08:00: NERR Tech deleted wind speed, wind direction, and PAR (LiCor) data. The wind sensor had been removed and sent for calibration, but zero values were still being reported for wind speed and direction. The wind sensor was reinstalled on 10/19/2001 at 11:00, but data were erroneous due to conflicts with the YSI wiring and programming. PAR (LiCor) data were erroneous due to conflicts with the YSI wiring. 2006 Data Rescue Manager replaced zeros left in database for PAR (LiCor) hourly and 24-hour data (totals of deleted 15-minute data) with missing data markers.

09/18/2001 11:15 – 09/19/2001 10:15, 11:30 – 12:00: 15-minute, hourly, and 24-hour temperature and humidity data missing due to incorrect wiring of the sensor. NERR Tech deleted 15-minute and hourly humidity data, the temperature and humidity sensor was not operating during this period. The 2006 Data Rescue Manager replaced -99999s (marking missing data) in the air temperature data with missing data markers for this time.

09/19/2001: NERR Technician deleted 24-hour data due to temperature and humidity sensor maintenance and program reload, resulting in missing 5-second data.

10:30 – 11:15: 15-minute and hourly data missing, power was turned off to rewire the temp and humidity sensor.
11:30 – 12:00: 15-minute, hourly, and 24-hour temperature and humidity data missing due to incorrect wiring of the sensor.
11:45: NERR Technician deleted 15-minute temperature data due to temperature and humidity sensor maintenance and program reload.
12:00 – 13:00: NERR Technician deleted hourly data due to temperature and humidity sensor maintenance and program reload, resulting in missing 5-second data.
12:15 – 12:30: 15-minute data missing due to power off and program reload.

09/20/2001: NERR Tech deleted 24-hour data due to program reload which resulted in missing 5-second data.
09:15 and 10:00: 15-minute and hourly data missing due to program reloads.

October 2001
10/01/2001 – 12/31/2001: Birds roosting heavily on OL Pier, possibly affecting rainfall and LiCor data.

10/06/2001 19:15 – 19:30: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were consistent with other variables.

10/08/2001 21:45 – 22:00: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were consistent with other variables.

10/16/2001 20:00 – 20:15: Error message, Rel hum difference is greater than 25%. NERR Tech determined that these data were consistent with other variables.

10/19/2001: NERR Tech deleted 24-hour data due to program reload which resulted in missing 5-second data.
10:45: 15-minute data missing due to power off and program reload.
11:00: NERR Tech deleted hourly data due to program reload which resulted in missing 5-second data.
12:00: 15-minute and hourly data missing due to power off and program reload.

10/23/2001 08:15 – 10/24/2001 09:30: NERR Tech deleted erroneous wind direction data.

10/24/2001: Error messages were recorded as a result of data lost during program changes and reloads. All data were retained, but should be considered suspect.
00:15 – 08:45: Error message, 15-minute air temps less than minimum temp.
01:00 – 09:00: Error message, hourly air temp data are less than 24-hour minimum and hourly relative humidity averages are greater than 24-hour maximum.
09:00 – 12:00: Error message, hourly pressure averages greater than 24-hour maximum.

10/24/2001 08:15 – 10/24/2001 09:30: The YSI was disconnected for this period and the wind speed and PAR (LiCor) data appear reasonable, but should be considered suspect. Conflicts between wiring and programming of the YSI caused problems with wind speed and PAR (LiCor) data when the YSI was connected. Preceding and following data were deleted as a result.

10/24/2001 09:45 – 10/26/2001 08:15: NERR Tech deleted wind speed and PAR (LiCor) data. Data were erroneous as a result of conflicts with the YSI programming and wiring. Following data, when the YSI was disconnected, appear reasonable. 2006 Data Rescue Manager replaced zeros left in database for PAR (LiCor) hourly and 24-hour data (as a result of deleted 15-minute data) with missing data markers.

10/25/2001: Error messages were recorded as a result of data lost during program changes and reloads. All data were retained, but should be considered suspect.
01:00 – 12:00: Error message, hourly relative humidity averages are greater than 24-hour maximum.
05:00 – 06:00: Error message, hourly pressure averages are less than 24-hour minimum.

10/26/2001: NERR Tech deleted 24-hour data due to program reload which resulted in missing 5-second data.
08:30, 10:15 – 10:30: 15-minute data missing due to power off and program reload.
09:00 and 11:00: NERR Tech deleted hourly data due to program reload which resulted in missing 5-second data.

10/27/2001 14:15, 21:00, 21:15: Error message, wind direction greater than 360 degrees and less than 0 degrees. NERR Technician retained due to small error (approximately 3 degrees), but readings are suspect.

10/28/2001 09:15, 09:45, 10:15, 11:00, 11:15, 13:15, 14:15, 17:30, 18:45, 21:15, 21:45, 22:15: Error message, wind direction greater than 360 degrees and less than 0 degrees. NERR Technician retained due to small error (approximately 3 degrees), but readings are suspect.

10/29/2001 01:15, 05:30, 06:30, 07:30 – 08:00: Error message, wind direction greater than 360 degrees and less than 0 degrees. NERR Technician retained due to small error (approximately 3 degrees), but readings are suspect.

10/30/2001 15:15 – 11/01/2001 15:30: NERR Tech noted that there were error messages during this time regarding wind direction greater than 360 degrees and less than 0 degrees, but that the data were retained due to the small error (approximately 3 degrees). However, in the comment section the NERR Tech noted that the data were "off" for this period. The 2006 Data Rescue Manager checked the data and found instead that the wind direction values were all zero for the time frame noted. The values could have been changed to zero because they were out of range. Regardless, the Data Rescue Manager felt that it apparent that these data were erroneous because wind direction is never that constant and because the problem was not resolved until the program was reloaded on 11/01/2001 at 15:30. Therefore the 15-minute, hourly, and 24-hour wind direction data were deleted and replaced with missing data markers.

10/30/2001: Error messages were recorded as a result of data lost during program changes and reloads. All data were retained, but should be considered suspect.

00:15 – 08:00: Error message, 15-minute air temps less than minimum temp.
01:00 – 08:00: Error message, hourly air temp data are less than 24-hour minimum.
01:00 – 03:00, 07:00 – 12:00: Error message, hourly pressure averages greater than 24-hour maximum.
01:00, 4:00: Error message, hourly relative humidity averages are greater than 24-hour maximum.

November 2001

11/2001: For the following dates and times within the month of November, error message, wind direction greater than 360 degrees and less than 0 degrees. NERR Technician retained due to small error (approximately 3 degrees), but readings are suspect.

11/01/2001 01:45, 02:00, 06:30
11/02/2001 05:30, 22:30, 23:30
11/03/2001 05:00
11/04/2001 05:45, 18:45, 21:15, 22:45, 24:00
11/05/2001 01:00, 03:00, 03:45, 07:30, 07:45, 08:00, 17:45, 18:30, 21:00, 23:30
11/06/2001 03:45, 06:30
11/09/2001 09:00, 21:00, 22:15
11/11/2001 17:45
11/12/2001 07:00, 21:00, 22:00, 23:15
11/13/2001 00:15 – 00:45, 02:30, 06:45
11/15/2001 02:00, 07:45, 09:45, 11:15, 16:45, 17:15, 17:30, 18:45, 19:30, 21:45
11/16/2001 00:15, 02:45, 03:30, 03:45, 05:00, 07:15, 08:30, 09:30, 11:45, 17:30, 22:15
11/17/2001 02:00, 02:15, 06:30, 07:00
11/18/2001 05:30, 05:45, 07:30, 10:30, 17:45, 21:00
11/19/2001 05:15, 06:30, 07:15
11/20/2001 17:45, 24:00
11/21/2001 01:45, 02:15, 07:45, 17:45, 19:15
11/22/2001 05:30, 07:45
11/23/2001 04:15
11/25/2001 21:00

11/01/2001 08:45: Precipitation reading may have been affected by bird droppings in the rain gauge.

11/01/2001: NERR Tech deleted 24-hour data due to program reload which resulted in missing 5-second data.

16:00: NERR Tech deleted hourly data due to program reload which resulted in missing 5-second data.

11/08/2001 13:30 – 13:45: Error message, Rel hum difference is greater than 25%. NERR Tech determined that these data were consistent with other variables.

11/14/2001: NERR Tech deleted 24-hour data due to program reload and power off which resulted in missing 5-second data.

14:15: 15-minute data missing due to power off and program reload.

15:00: NERR Tech deleted hourly data due to program reload and power off which resulted in missing 5-second data.

11/14/2001 14:30 – 15:00: Wind and PAR (LiCor) data are suspect, failed attempt to rewire YSI so as not to affect other sensors.

December 2001

12/2001: For the following dates and times within the month of December, error message, wind direction greater than 360 degrees and less than 0 degrees. NERR Technician retained due to small error (approximately 3 degrees), but readings are suspect.

12/02/2001 07:45, 18:15
12/03/2001 01:45, 03:15, 04:45, 06:00, 07:45 – 08:45, 09:45, 11:45, 14:45, 16:45, 18:45, 19:30, 20:00, 20:30, 21:15
12/04/2001 03:30, 04:30, 06:30, 09:30, 13:45
12/05/2001 05:30, 20:15
12/06/2001 00:30, 05:15, 06:00
12/09/2001 11:45, 12:15
12/10/2001 21:30
12/11/2001 15:45
12/12/2001 02:00, 10:15, 10:30
12/13/2001 08:15, 09:00, 09:30
12/15/2001 14:15, 14:45, 15:45, 19:30, 20:45
12/16/2001 07:30
12/17/2001 03:15, 03:30, 06:15
12/19/2001 09:30
12/20/2001 11:45, 14:00
12/21/2001 23:30
12/22/2001 03:00, 07:00, 07:45, 08:00, 08:45
12/25/2001 08:45, 14:30, 23:00
12/30/2001 01:30, 02:30, 02:45, 03:45, 07:00
12/31/2001 18:15, 23:30

12/04/2001: There may have been an undocumented power off or program reload on this date. Since there was no documentation, NERR Tech retained data but should be considered suspect.

12/04/2001: There may have been an undocumented power off or program reload on this date, causing the following error messages. Since there was no documentation, NERR Tech retained all data but they are suspect.

00:15 – 10:15, 13:15 – 14:15, 14:45: Error message, 15-minute air temp data are greater than 24-hour maximum.
01:00 - 11:00: Error message, hourly air temp averages are less than 24-hour minimum.
02:00 – 06:00: Error message, hourly pressure averages are less than 24-hour minimum.
12:00 – 15:00: Error message, relative humidity averages are less than 24-hour minimum.
14:00 – 15:00: Error message, hourly air temp averages are greater than 24-hour maximum.

12/07/2001: NERR Tech deleted 24-hour data due to program reload and power off which resulted in missing 5-second data.

15:00: NERR Tech deleted hourly data due to program reload and power off.

12/10/2001: There may have been an undocumented power off or program reload on this date. Since there was no documentation, NERR Tech retained data but should be considered suspect. In particular the 10:00 and 24-hour data are questionable as an error message was created for the 10:00 data.

12/10/2001 10:00: 15-minute and hourly data missing due to power off and program reload.

12/10/2001 20:45 – 21:00: Error message, precip difference is greater than 5 mm. NERR Tech determined that these data were consistent with other variables.

12/10/2001 21:00 – 21:30: Error message, precip differences (15-minute) are greater than 5 mm. NERR Tech determined that these data were consistent with other variables.

12/23/2001 01:15 – 01:30: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were consistent with other variables.

2002

January 2002

01/01/2002 00:15 – 12/31/2002 24:00: From October 19, 1997 through May 15, 2003, all measured relative humidity values greater than 100% were altered by the CR10X datalogger program to read 100% in the raw data (see Relative Humidity documentation at the beginning of this document).

01/01/2002 – 11/12/2002: Since July 7, 1997 incorrect values have been collected for 24-hour barometric pressure data. Maximum barometric pressures were recorded instead of averages. These data were deleted by the NERR Tech and the 2006 Data Rescue Manager filled the resulting blank cells with missing data markers. The program was corrected on 11/12/2002.

01/01/2002 00:15 – 12/31/2002 24:00: All measured PAR (LiCor) values less than zero were altered by the CR10X datalogger program to read zero in the raw data. Values less than zero could indicate a sensor malfunction, calibration problems that should be addressed, normal measurement error, or an incorrect multiplier (see the PAR documentation at the beginning of this document).

01/01/2002 00:15 – 04/03/2002 14:30: 15-minute, hourly, and daily PAR (LiCor) data were edited and corrected to reflect the proper multiplier. The wrong multiplier had been in use since April 19, 2000. The multiplier was corrected in the program and data were collected using the appropriate multiplier beginning on April 3, 2002 at 16:00.

01/2002: For the following dates and times within the month of January, error message, wind direction greater than 360 degrees and less than 0 degrees. NERR Technician retained due to small error (approximately 3 degrees), but readings are suspect.

01/01/2002 07:45, 10:00, 11:15, 12:00, 14:30, 16:45, 17:00, 21:15, 21:30, 24:00
01/02/2002 02:45, 05:00, 08:45, 10:15, 10:30, 13:00 – 13:30, 14:15, 17:15, 21:15, 23:00, 23:30
01/03/2002 00:15, 01:15, 03:45, 05:00, 06:30, 07:00, 07:15, 08:30, 11:00
01/04/2002 11:45
01/05/2002 23:45
01/08/2002 10:00
01/11/2002 17:45
01/13/2002 13:45
01/14/2002 02:45, 08:45
01/16/2002 05:30, 07:15, 07:45, 08:30, 08:45, 21:00
01/18/2002 16:45
01/21/2002 07:15
01/23/2002 17:45 – 18:15
01/25/2002 11:15, 14:30
01/26/2002 02:30, 03:00, 04:30, 05:00, 05:15, 06:30, 07:00, 08:45

01/03/2002 06:00 – 01/04/2002 09:00: Error message, wind speed is less than 0.5 m/s. Extremely cold temperatures combined with sleet may have resulted in the instrument freezing up.

01/03/2002 05:15 – 06:45: Hourly (06:00) and 15-minute data are questionable. NERR Tech retained the data, but it is likely that the instrument problems had already begun.

01/03/2002 07:00 – 01/04/2002 09:00: NERR Tech determined these data were erroneous and deleted 15-minute, hourly, and 24-hour (01/03 and 01/04) wind speed and direction data.

01/03/2002 12:30: NERR Tech cleaned rain gauge at 12:20, which resulted in a rainfall reading of 0.254. The NERR Tech corrected the rainfall data by deleting erroneous 15-minute data and subtracting 0.254 from hourly and 24-hour totals.

01/09/2002: NERR Tech deleted 24-hour data due to program reload and palm pilot testing which resulted in missing 5-second data.

15:00 – 15:30: Missing 15-minute data due to program reload and palm pilot testing.
15:00 – 16:00: NERR Tech deleted hourly data due to program reload and palm pilot testing.

01/10/2002 17:00 – 17:15: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were consistent with weather conditions.

01/13/2002 17:00 – 17:15: Error message, Rel hum difference is greater than 25%. NERR Tech determined that these data were consistent with weather conditions.

01/14/2002 04:00: Error message, air temp average in hourly data is greater than 15-minute maximum by at least 10%. NERR Tech determined that these data were consistent with weather conditions.

01/17/2002 15:15 – 15:30: Error message, Rel hum difference is greater than 25%. NERR Tech determined that these data were consistent with weather conditions.

01/19/2002 21:15 – 21:30: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were consistent with weather conditions.

01/30/2002 13:15 – 13:30: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were consistent with weather conditions.

February 2002

02/2002: For the following dates and times within the month of February, error message, wind direction greater than 360 degrees and less than 0 degrees. NERR Technician retained due to small error (approximately 3 degrees), but readings are suspect.

02/02/2002 09:15, 09:45
02/03/2002 02:30, 05:15, 05:30, 07:30, 08:00, 14:15
02/04/2002 23:00
02/05/2002 01:00, 04:00, 09:45, 11:00, 12:00, 12:45
02/06/2002 07:15, 10:30
02/08/2002 10:00
02/09/2002 09:45
02/11/2002 16:30, 17:45, 18:45, 21:00
02/12/2002 01:30
02/13/2002 08:45, 09:30, 23:45
02/14/2002 00:30, 01:45, 02:00, 02:15, 03:15
02/15/2002 06:00, 09:15
02/17/2002 20:15, 24:00
02/19/2002 08:30
02/22/2002 11:30, 12:00
02/23/2002 07:15, 14:45, 15:30, 15:45, 17:15, 17:30, 18:30, 21:15, 23:30, 24:00
02/24/2002 03:15, 03:30, 05:00, 05:15, 06:45, 07:00, 07:15, 14:30, 15:45, 18:30
02/25/2002 03:15
02/28/2002 08:45

02/24/2002 17:45 – 18:00: Error message, Rel hum difference is greater than 25%. NERR Tech determined that these data were consistent with weather conditions.

March 2002

03/2002: For the month of March, there were several changes made to the wind sensor program multiplier in an attempt to correct the problem causing wind direction readings over 360 and less than 0 degrees. Wind direction data for the entire

month of March should be considered questionable because the multiplier was adjusted so many times, however, any of the changes made would only affect the wind direction by a few degrees. In addition, for the following dates and times, error message, wind direction greater than 360 degrees and less than 0 degrees. NERR Technician retained due to small error (approximately 3 degrees), but readings are suspect.

03/01/2002 08:30, 08:45
03/05/2002 08:15
03/06/2002 21:15
03/07/2002 08:15
03/10/2002 10:45, 12:15, 15:00
03/11/2002 02:15, 02:45, 03:15, 06:00, 06:30, 06:45, 08:00
03/21/2002 05:00
03/22/2002 07:00, 07:15, 08:30, 09:45
03/26/2002 00:30
03/28/2002 07:15, 07:30

03/01/2002 00:15 – 03/07/2002 13:45: On March 7 the wind direction tail had to be adjusted because it was making contact with the weather station tower (hitting the lightening rod). The NERR Tech was unsure how long this had been the case, but considered the wind direction data for the week prior to March 7 to be suspect.

03/07/2002 13:45: NERR Tech cleaned rain gauge at 13:44, which resulted in a rainfall reading of 0.254. The NERR Tech corrected the rainfall data by deleting erroneous 15-minute data and subtracting 0.254 from hourly and 24-hour totals.

03/07/2002: NERR Tech deleted erroneous 24-hour wind direction and speed (see below).
14:00: NERR Tech deleted erroneous wind direction and speed 15-minute and hourly data. Readings were recorded when the wind direction tail was repaired/manipulated.

03/08/2002: NERR Tech deleted erroneous 24-hour wind direction and speed (see below).
10:00: NERR Tech deleted erroneous wind direction and speed 15-minute and hourly data. Readings were recorded when the wind direction tail was manipulated for testing.

03/12/2002 13:45 – 14:15: Error message, precip differences (15-minute data) are greater than 5 mm. NERR Tech determined that these data were consistent with weather conditions.

03/13/2002 03:30 – 03:45: Error message, precip difference is greater than 5 mm. NERR Tech determined that these data were consistent with weather conditions.

03/18/2002 17:00 – 17:15: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were consistent with weather conditions.

03/22/2002 19:15 – 19:30: Error message, Rel hum difference is greater than 25%. NERR Tech determined that these data were consistent with weather conditions.

03/22/2002: NERR Tech deleted 24- hour data due to program changes at 13:35 (see below).

03/22/2002 14:00: NERR Tech deleted hourly data due to program changes at 13:35 (attempt to correct wind direction problems by adjusting multiplier, per Craig Knox of Campbell Scientific) which may have resulted in missing 5-second data. 15-minute data were retained.

03/25/2002 14:00: NERR Tech cleaned rain gauge around this time and noted that it may have tipped, registering erroneous rainfall. There is no rainfall reading near this time, so we assume that the gauge did not tip during cleaning.

03/25/2002: NERR Tech deleted 24-hour data due to program reloads and changes from 15:50 to 16:03 (see below).

03/25/2002 16:00 – 17:00: NERR Tech deleted hourly data due to program reloads and changes from 15:50 to 16:03 (attempt to correct wind direction problems by using long leads length programming, per Bob Scarborough) which resulted in missing 5-second data. The 15-minute data were retained, and appear to be fine, with the possible exception of the LiCor

PAR total. All 15-minute data should be considered suspect for 16:00. The hourly PAR (LiCor) data were also retained and should be considered suspect.

03/27/2002 12:45 – 13:00: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were consistent with weather conditions.

03/27/2002 12:45 – 13:00: Error message, Rel hum difference is greater than 25%. NERR Tech determined that these data were consistent with weather conditions.

April 2002
04/01/2002 – 04/03/2002: For the following dates and times in early April, error message, wind direction greater than 360 degrees and less than 0 degrees. NERR Technician retained due to small error (approximately 3 degrees), but readings are suspect.

04/01/2002 09:00, 10:30
04/02/2002 06:30
04/03/2002 02:30

04/01/2002: NERR Tech deleted erroneous 24-hour wind direction and speed data (see below).

12:00: NERR Tech deleted erroneous hourly wind direction and speed data. Readings were recorded when the wind direction tail was being manipulated (to troubleshoot wind direction problems) at 11:20. It appeared that the 15-minute data were unaffected and they were retained.

04/03/2002 13:15 – 13:30: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were consistent with weather conditions.

04/03/2002 13:15 – 13:45: Error message, precip differences (15-minute data) are greater than 5 mm. NERR Tech determined that these data were consistent with weather conditions.

04/03/2002: NERR Tech deleted 24-hour data due to program reloads and changes from 14:40 to 15:09 (see below).

04/03/2002 15:00 – 16:00: NERR Tech deleted hourly data due to program reloads and changes from 14:40 to 15:09 (attempt to correct wind direction problems correcting wiring and changing multiplier, per Rod Ralston with MetOne, also corrected LiCor multiplier) which resulted in missing 5-second data. Hourly and 24-hour PAR (LiCor) totals were retained, but are incomplete and should be used with caution. Hourly and 24-hour rain data were retained, but are suspect. The 15-minute data were retained, and appear to be fine, but should be considered suspect for 14:45 – 15:15.

15:30 – 16:00: Missing PAR (LiCor) 15-minute data.

04/07/2002 01:45 – 02:00 and 04:30 – 04:45: Error message, air temp differences (15-minute data) are greater than 3.0 degrees C. NERR Tech determined that these data were consistent with weather conditions.

04/23/2002: NERR Tech deleted 24-hour data due to weather station cleaning and program reloads at 13:35 and 14:28.

13:45 – 14:15: Missing 15-minute and hourly (14:00) data due to weather station cleaning and program reloads.
15:00: NERR Tech deleted hourly data due to weather station cleaning and program reloads which resulted in missing 5-second data. The hourly and 24-hour PAR (LiCor) data were retained (along with precip) and should be considered suspect, they appear to be lower than expected.

04/24/2002 08:45 – 09:00 and 09:30 – 09:45: Error message, precip differences (15-minute data) are greater than 5 mm. NERR Tech determined that these data were consistent with weather conditions.

May 2002
05/03/2002 20:00 – 20:15: Error message, precip difference is greater than 5 mm. NERR Tech determined that these data were consistent with weather conditions.

05/04/2002 22:45 – 23:00: Error message, precip difference is greater than 5 mm. NERR Tech determined that these data were consistent with weather conditions.

05/06/2002 02:15 – 03:00, 05:00 – 05:15: Error message, air temp differences (15-minute readings) are greater than 3.0 degrees C. NERR Tech determined that these data were consistent with weather conditions.

05/13/2002 21:45 – 22:15: Error message, precip differences (15-minute data) are greater than 5 mm. NERR Tech determined that these data were consistent with weather conditions.

05/18/2002 13:30 – 13:45, 17:30 – 17:45: Error message, air temp differences (15-minute readings) are greater than 3.0 degrees C. NERR Tech determined that these data were consistent with weather conditions.

05/18/2002 13:45 – 14:15: Error message, precip differences (15-minute data) are greater than 5 mm. NERR Tech determined that these data were consistent with weather conditions.

05/25/2002 11:15 – 11:30: Error message, Rel hum difference is greater than 25%. NERR Tech determined that these data were consistent with weather conditions.

June 2002
06/07/2002 02:30 – 05:00: Hourly average wind parameters are missing for 04:00 and 05:00; there is no explanation or documentation of cause. 15-minutes wind speed data are suspect; all wind speeds during this time are zero, which is very rare and may indicate a problem with the sensor. 15-minute wind direction data and 24-hour data for all wind parameters should also be considered suspect as a result.

06/20/2002 05:30 – 06:00: Error message, precip differences (15-minute data) are greater than 5 mm. NERR Tech determined that these data were consistent with weather conditions.

06/27/2002 14:00 – 14:30: Error message, precip differences (15-minute data) are greater than 5 mm. NERR Tech determined that these data were consistent with weather conditions.

06/28/2002 16:00 – 16:15: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were consistent with weather conditions.

July 2002
07/05/2002 23:45 – 24:00: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were consistent with weather conditions.

07/09/2002 02:00: Missing hourly wind parameters, no documentation for cause.

07/10/2002 08:30 – 08:45, 09:30 – 10:15, 14:15 – 16:00: NERR Tech calibrated the rain gauge from 8:28 to 15:50 and corrected erroneous rainfall recordings by deleting readings of 0.254 (caused by manually tipping the bucket) from 15-minute data and subtracting 0.254 increments from hourly and 24-hour totals. The NERR Tech specified that there was no actual precipitation during this period.

07/11/2002: NERR Tech deleted 24-hour data with the exception of PAR and rainfall (see below).

13:00 – 16:00: NERR Tech deleted hourly data (with the exception of PAR and rainfall) due to missing 5-second data from program changes and reloads (12:56, 13:40, 14:00, 14:05, 14:35, 14:42, 15:05) during this time. PAR and rainfall data are suspect.

07/11/2002 17:00 – 17:15, 17:45 – 18:00, 23:15 – 23:45: Error message, precip differences (15-minute data) are greater than 5 mm. NERR Tech determined that these data were consistent with weather conditions.

07/12/2002 01:15 – 01:30, 1:45 – 02:00: Error message, precip differences (15-minute data) are greater than 5 mm. NERR Tech determined that these data were consistent with weather conditions.

07/13/2002 22:45 – 23:00: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were consistent with weather conditions.

07/14/2002 – 07/24/2002: The weather station battery was not holding a charge properly during this time. There were many instances where no data were recorded (detailed below) and data known to be affected were deleted (detailed below), however, it is impossible to determine whether data recorded during low voltage periods are accurate. As a result, all data remaining in the database for this period should be considered suspect.

For the following dates and times: missing 15-minute and 5-second data, battery voltage too low to record data. NERR Tech deleted corresponding hourly and 24-hour data as a result, with the exception of PAR (LiCor) and rainfall totals. The 2006 Data Rescue Manager examined the PAR data, determined that the incomplete totals were of little or no use and could be misleading, and deleted all corresponding PAR data. Rainfall data were generally retained but are suspect. Some rain was recorded during these periods, but the totals may have been incomplete, and it is unclear whether the NERR Tech verified with actual rainfall.

07/14/2002 01:45 – 07:00, 07:30 – 08:00, 23:15 – 24:00
07/15/2002 00:15 – 08:15, 08:45, and 21:15 – 24:00
07/16/2002 00:15 – 11:00, 21:00 – 24:00
07/17/2002 00:15 – 09:45, 22:00 – 24:00
07/18/2002 00:15 – 10:15
07/20/2002 23:00 – 24:00
07/21/2002 00:15 – 24:00
07/22/2002 00:15 – 11:30, 22:15 – 24:00
07/23/2002 00:15 – 11:30, 22:00 – 24:00
07/24/2002 00:15 – 08:45

07/16/2002 13:45 – 15:00: NERR Tech deleted 15-minute (13:45 – 14:45) and hourly (14:00 and 15:00) data due to sensors being unwired for battery voltage troubleshooting. The PAR (LiCor) 15-minute total for 15:00 is also missing and may have been deleted (no documentation) Rainfall data were retained, no precipitation occurred during the time period.

07/18/2002 12:45 -15:00: Missing 15-minute (12:45 and 13:45) and 5-second data, power off to the weather station to troubleshoot voltage problems and rewire sensor beginning at 12:42. Program resent at 14:54. NERR Tech deleted corresponding hourly (13:00 – 15:00) data as a result; PAR (LiCor) and rainfall totals were retained.

07/19/2002: NERR Tech deleted 24-hour data due to missing data below.

07/19/2002 09:00 – 11:00: Missing 15-minute (09:00) and 5-second data, power off (08:56) to the weather station to rewire the barometric pressure sensor. The program was resent at 9:08. Power was turned off again from 10:24 to 10:30 and the program was resent at 10:38. NERR Tech deleted corresponding hourly data as a result; PAR (LiCor) and rainfall totals were retained.

07/22/2002 12:00: Missing 5-second data, program was resent at 11:45. NERR Tech deleted corresponding hourly and 24-hour data as a result.

07/14/2002 15:30 – 15:45: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were consistent with weather conditions.

07/16/2002 – 07/19/2002: NERR Tech deleted erroneous 24-hour barometric pressure data (see below).

13:45 – 07/19/2002 10:15: NERR Tech deleted 15-minute and hourly barometric pressure data, erroneous data were recorded because sensor was incorrectly wired.

07/18/2002 14:30 – 15:00: Error message, precip differences (15-minute data) are greater than 5 mm. NERR Tech determined that these data were consistent with weather conditions.

07/19/2002 15:15 – 15:30: Error message, Rel hum difference is greater than 25%. NERR Tech determined that these data were consistent with weather conditions.

07/20/2002 19:30 – 19:45: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were consistent with weather conditions.

07/22/2002 15:45 – 16:00, 21:00 – 21:15: Error message, air temp differences (15-minute readings) are greater than 3.0 degrees C. NERR Tech determined that these data were consistent with weather conditions.

07/22/2002 21:00 – 21:15: Error message, precip difference is greater than 5 mm. NERR Tech determined that these data were consistent with weather conditions.

07/24/2002 09:00 – 08/09/2002 08:00: No weather data were collected during this time the CR10X was returned to Campbell Scientific for testing and repair. The 2006 Data Rescue Manager deleted all hourly and 24-hour PAR (LiCor) and rainfall data for this period, they were zero totals resulting from missing data.

August 2002

08/09/2002: NERR Tech deleted 24-hour data due to reinstallation of the CR10X (see below).
08:15 – 09:30: NERR Tech deleted 15-minute and hourly (09:00) data due to reinstallation of the CR10X, the correct program was sent at 09:30.

08/14/2002 11:00 – 11:15: Error message, precip difference is greater than 5 mm. NERR Tech determined that these data were consistent with weather conditions.

08/21/2002: NERR Tech deleted 24-hour data, missing 5-second data due to program reloads at 10:29 and 12:36.
11:00 and 13:00: NERR Tech deleted hourly data, missing 5-second data due to program reloads.

08/25/2002 17:45 – 18:00: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were consistent with weather conditions.

08/25/2002 18:00 – 18:30: Error message, precip differences (15-minute data) are greater than 5 mm. NERR Tech determined that these data were consistent with weather conditions.

08/28/2002 04:00 – 04:30, 05:15 – 05:30, 08:45 – 09:15: Error message, precip differences (15-minute data) are greater than 5 mm. NERR Tech determined that these data were consistent with weather conditions.

08/28/2002: NERR Tech deleted 24-hour data, missing 5-second data due to program reloads at 09:03, 09:46, 10:15, and 10:22.
10:00 – 11:00: NERR Tech deleted hourly data, missing 5-second data due to program reloads.

08/29/2002: NERR Tech deleted 24-hour data, missing 5-second data due to program reload at 08:30.
09:00: NERR Tech deleted hourly data, missing 5-second data due to program reload at 08:30.

08/30/2002 03:00 – 03:15, 04:30 – 05:00: Error message, precip differences (15-minute data) are greater than 5 mm. NERR Tech determined that these data were consistent with weather conditions.

08/30/2002 11:00: NERR Tech deleted 15-minute rainfall data. The funnel was cleaned at this time and the gauge may have been tipped causing erroneous data to be recorded, but it is unclear if there was any actual rainfall.

September 2002

09/02/2002 14:15 – 14:30, 14:45 – 15:00: Error message, precip differences (15-minute data) are greater than 5 mm. NERR Tech determined that these data were consistent with weather conditions.

09/03/2002 07:45: 15-minute data are missing, data were not saved to a newly created monthly file, program was reloaded at 08:00.

09/03/2002: NERR Tech deleted 24-hour data, missing 5-second data due to program reload at 08:00.
08:00: NERR Tech deleted hourly data, missing 5-second data due to program reload at 08:00.

09/06/2002: NERR Tech deleted 24-hour data, missing 5-second data due to program reload at 10:56.
11:00: NERR Tech deleted hourly data, missing 5-second data due to program reload at 10:56.

09/16/2002 03:45 – 04:15: Error message, precip differences (15-minute data) are greater than 5 mm. NERR Tech determined that these data were consistent with weather conditions.

09/06/2002: NERR Tech deleted 24-hour data, missing 5-second data due to program reload at 10:56.
11:00: NERR Tech deleted hourly data, missing 5-second data due to program reload at 10:56.

09/24/2002: NERR Tech deleted 24-hour data, missing 5-second data due to computer problems and program reload at 10:56.
11:00: NERR Tech deleted hourly data, missing 5-second data due to computer problems and program reload.

09/25/2002 19:15 – 19:30, 22:00 – 22:15, 22:30 – 22:45: Error message, precip differences (15-minute data) are greater than 5 mm. NERR Tech determined that these data were consistent with weather conditions.

09/26/2002 04:30 – 05:00: Error message, precip differences (15-minute data) are greater than 5 mm. NERR Tech determined that these data were consistent with weather conditions.

09/26/2002: NERR Tech deleted 24-hour data, missing 5-second data due to program reload at 12:59.
13:00: NERR Tech deleted hourly data, missing 5-second data due to program reload at 12:59.

09/27/2002: In the comment portion of the NERR Tech documentation, the tech states "9:00 EST 1.016 mm confirmed as real rainfall". This rainfall does not show up in the rain data for 09/27. It is unclear why not, but all rain data for 09/27/2002 should be considered supsect.
02:15: 15-minute rainfall data are missing, it is unclear why.
13:45 – 15:00: NERR Tech deleted 15-minute rain data. Water was poured into the rain gauge to troubleshoot real-time program, data were erroneous.

09/27/2002: NERR Tech deleted 24-hour data, missing 5-second data due to program reload at 11:32.
12:00: NERR Tech deleted hourly data, missing 5-second data due to program reload at 11:32.

October 2002
10/01/2002 11:00: NERR Tech deleted hourly (24-hour data missing, see below), missing 5-second data due to program reload at 10:50.

10/01/2002 12:45, 13:30, 14:00: NERR Tech deleted erroneous rain data, water was poured in to the rain gauge for troubleshooting. There had been no actual rain prior to troubleshooting.

10/01/2002 15:45 – 10/03/2002 14:45: Missing 15-minute, hourly, and 24-hour data. Reasons are unknown. 2006 Data Rescue Manager deleted hourly and 24-hour rainfall and LiCor totals during this period, they were incorrectly left in the database as zero values or partial totals.

10/03/2002: NERR Tech deleted 24-hour data (hourly data missing, see above), missing 5-second data due to program reloads at 07:48 and 13:10.

10/09/2002 00:45 – 01:00, 02:45 – 03:00: Error message, air temp differences (15-minute data) are greater than 3.0 degrees C. NERR Tech determined that these data were consistent with weather conditions.

10/11/2002: NERR Tech deleted 24-hour data, missing 5-second data due to program reload at 09:57.
10:00: NERR Tech deleted hourly data, missing 5-second data due to program reload at 09:57.

10/11/2002 18:15 and 19:30: Missing 15-minute rain data, it is unclear why.

10/12/2002 02:30: Missing 15-minute rain data, it is unclear why.

10/13/2002 17:45: Missing 15-minute rain and Eppley data, it is unclear why.

10/14/2002: NERR Tech deleted 24-hour data, missing 5-second data due to program reload at 07:49.
08:00: NERR Tech deleted hourly data, missing 5-second data due to program reload at 07:49.

10/28/2002: NERR Tech deleted 24-hour data, missing 5-second data due to program reload at 08:43.
09:00: NERR Tech deleted hourly data, missing 5-second data due to program reload at 08:43.

10/31/2002 02:15: Missing 15-minute Eppley data, it is unclear why.

November 2002
11/2002: Birds took up residence at the OL pier in the winter of 2002, data may have been affected by bird droppings

11/01/2002: NERR Tech deleted 24-hour data, missing 5-second data due to program reload at 08:40.
09:00: NERR Tech deleted hourly data, missing 5-second data due to program reload at 08:40.

11/04/2002: NERR Tech deleted 24-hour data, missing 5-second data due to power off at weather station from 15:00 – 15:15.
15:00 – 16:00: NERR Tech deleted hourly and 24-hour data, missing 5-second data due to power off at weather station from 15:00 – 15:15. 15-minute data seem unaffected.

11/11/2002: Multiple program reloads on this date caused missing data detailed below. NERR Tech deleted 24-hour data.
11:15 – 11:30: Missing 15-minute data due to program reload at 11:08.
12:00: NERR Tech deleted hourly data, missing 5-second data due to program reload at 11:08.
16:00: NERR Tech deleted hourly data, missing 5-second data due to program reload at 15:50.
17:00: NERR Tech deleted hourly data, missing 5-second data due to program reload at 16:22.

11/11/2002 12:45 – 13:00: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were consistent with weather conditions.

11/11/2002 16:15 – 12/31/2002 24:00: As a result of one of the above program changes, there was a change in rainfall data collection protocol. Instead of recording zero values for 15-minute totals when there was no rain, the CR10X program began only reporting rain events, and leaving times without rainfall blank. This presented a problem in that it was difficult to ensure that missing data were caught, and was corrected with a program change on (10/21/2003 10:30) so that zero values were once again reported. The 2006 Data Rescue Manager inserted zeros in the 15-minute data, wherever missing data were not noted/documented, to make this portion of the dataset complete.

11/12/2002 08:15: NERR Tech deleted questionable rainfall data. The funnel was cleaned and the gauge may have been tipped causing erroneous data to be recorded.

11/12/2002: NERR Tech deleted 24-hour data, missing 5-second data due to program reloads at 09:16 and 09:43.
10:00: NERR Tech deleted hourly data, missing 5-second data due to program reloads at 09:16 and 09:43.

11/14/2002: NERR Tech deleted 24-hour data, missing 5-second data due to program reload.
16:00: NERR Tech deleted hourly data, missing 5-second data due to program reload at 15:45.
15:45 and 16:30: Missing 15-minute data due to program reload at 15:45.

11/15/2002: NERR Tech deleted 24-hour data, missing 5-second data due to program reload at 10:34.
11:00: NERR Tech deleted hourly data, missing 5-second data due to program reload at 10:34.

11/29/2002 05:00: Error message, hourly air temp average is greater than 15-minute maximum by at least 10%. NERR Tech determined that these data were probably due to actual weather conditions and they were retained.

December 2002
12/2002: Birds took up residence at the OL pier in the winter of 2002, data may have been affected by bird droppings

12/03/2002 09:30: NERR Tech deleted questionable rainfall data. The funnel was cleaned and the gauge may have been tipped causing erroneous data to be recorded.

12/11/2002: NERR Tech deleted 24-hour data, missing 5-second data due to program reloads at 10:56 and 11:06.

12/11/2002 11:00 – 12:00: NERR Tech deleted hourly data, missing 5-second data due to program reloads at 10:56 and 11:06.

12/24/2002 13:15 – 13:45: Error message, precip differences (15-minute data) are greater than 5 mm. NERR Tech determined that these data were consistent with weather conditions.

12/31/2002 09:30: NERR Tech deleted questionable rainfall data. The funnel was cleaned and the gauge may have been tipped causing erroneous data to be recorded.

2003

January 2003

01/01/2003 00:15 – 10/21/2003 09:30: All measured PAR (LiCor) values less than zero were altered by the CR10X datalogger program to read zero in the raw data. Values less than zero could indicate a sensor malfunction, calibration problems that should be addressed, normal measurement error, or an incorrect multiplier (see the PAR documentation at the beginning of this document).

01/01/2003 00:15 – 05/15/2003 10:30: From October 19, 1997 through May 15, 2003, all measured relative humidity values greater than 100% were altered by the CR10X datalogger program to read 100% in the raw data (see Relative Humidity documentation at the beginning of this document).

01/01/2003 00:15 – 10/21/2003 09:30: During this period, instead of recording zero values for 15-minute totals when there was no rain, the CR10X program only reported rain events, and left times without rainfall blank. This presented a problem in that it was difficult to ensure that missing data were caught, and was corrected with a program change on (10/21/2003 10:30) so that zero values were once again reported. The 2006 Data Rescue Manager inserted zeros in the 15-minute data, wherever missing data were not noted/documented, to make this portion of the dataset complete.

01/02/2003: NERR Tech deleted 24-hour data due to missing 5-second data caused by creation of monthly raw data file.
08:30: Missing 15-minute data due to creation of monthly raw data file.
09:00: NERR Tech deleted hourly data due to missing 5-second data caused by creation of monthly raw data file.

01/05/2003 01:00: Error message, hourly air temp average is greater than 15-minute maximum by at least 10%. NERR Tech determined that these data were probably due to actual weather conditions (decreasing temperatures after midnight) and they were retained.

01/09/2003 14:45 – 15:00: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were consistent with weather conditions.

01/20/2003 7:30 – 17:45: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were consistent with weather conditions.

01/20/2003 17:30 – 17:45: Error message, Rel hum difference is greater than 25%. NERR Tech determined that these data were consistent with weather conditions.

01/21/2003 13:45: NERR Tech deleted 15-minute rainfall data resulting from the rain gauge tipping during cleaning (heavy coating of bird droppings) and corrected resulting erroneous hourly and 24-hour rainfall totals by subtracting 0.508.

01/23/2003: There was, presumably a small amount of, snowfall on this date. No precipitation data were recorded.

February 2003

02/04/2003 14:15 – 14:30: Error message, Rel hum difference is greater than 25%. NERR Tech determined that these data were consistent with weather conditions.

March 2003
03/06/2003 09:15 – 09:30: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were consistent with weather conditions.

03/11/2003 21:00 – 21:15: Error message, Rel hum difference is greater than 25%. NERR Tech determined that these data were consistent with weather conditions.

03/16/2003 14:45 – 15:00: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were consistent with weather conditions.

03/20/2003 09:15 – 09:30, 10:00 – 10:15, 10:30 – 11:00, 12:00 – 12:15, 24:00 – 01/21/2003 00:30: Error message, precip differences (15-minute data) are greater than 5 mm. NERR Tech determined that these data were consistent with weather conditions.

03/18/2003 – 03/25/2003 10:00: Suspect wind speed and direction data. 03/18/2003 was the date of the last visual inspection of the weather station prior to 03/25/2003. It is unclear when the wind direction tail was bent (see below), so data for this entire week should be considered suspect.

03/25/2003 09:43: NERR Tech adjusted and straightened the wind direction sensor tail, it was bent and making contact with the lightening rod. It is unclear how long it had been bent. Hourly (10:00) and 24-hour averages should be considered suspect as 5-second data wind speed and direction data may have been affected.

April 2003
04/07/2003 15:45 – 16:00: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were consistent with weather conditions.

04/25/2003 10:45 – 11:00, 12:00 – 12:15, and 12:45 – 13:00: Error message, precip differences (15-minute data) are greater than 5 mm. NERR Tech determined that these data were consistent with weather conditions.

May 2003
05/06/2003 18:00 – 18:15: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were consistent with weather conditions.

05/06/2003 18:15 – 18:30: Error message, precip difference is greater than 5 mm. NERR Tech determined that these data were consistent with weather conditions.

05/13/2003: The weather station was powered off and lowered for rotation of freshly calibrated Eppley, Temperature/Humidity, Barometric Pressure, and Wind sensors at 12:25 through 14:14. Difficulties with the Barometric Pressure, Wind and Humidity sensors led to the program being changed and resent numerous times between 14:35 and 15:22. The power was turned off again from 16:11 – 16:17 and the program was resent at 16:24. This corrected problems with the barometric pressure sensor, but not the wind and temperature/humidity sensors. See below for details.

12:30 – 14:30: Missing 15-minute data, all parameters.
13:00 – 14:00: Missing hourly data, all parameters.
14:45: NERR Tech deleted 15-minute LiCor total due to incorrect programming.
14:45 – 16:15: NERR Tech deleted 15-minute Barometric Pressure data.
15:00 – 17:00: NERR Tech deleted all hourly and 24-hour data.

05/13/2003 12:30 – 05/15/2003 09:15: NERR Tech deleted 15-minute, hourly, and 24-hour rainfall and wind speed data due to wiring problems (05/13 12:25 – 5/15 09:29 for 5-second data). Hourly and 24-hour wind direction data were also deleted, presumably by the NERR Tech, but the 15-minute data remained in the dataset. The 2006 Data Rescue Manager assumed that the 15-minute wind direction data were also affected by these problems and deleted them.

05/13/2003 12:30 – 05/15/2003 10:15: NERR Tech deleted 15-minute, hourly (05/13 15:00 – 05/15 11:00), and 24-hour humidity data (05/13 12:25 – 05/15 10:23 for 5-second data).

05/15/2003: Power was turned off from 08:27 through 08:31 and 09:09 – 09:11 in order to correct problems with the new sensors. The program was changed and resent at 7:05 and several times between 09:37 and 10:23.
08:00 – 11:00: NERR Tech deleted all hourly (with the exception of a few partial LiCor totals) and 24 hour data.

05/16/2003 14:30 – 14:45: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were consistent with weather conditions (impending storm caused power outages below).

05/16/2003 – 05/17/2003: Strong thunderstorms resulted in a power outage and missing data
05/16/2003: Missing 24-hour data, all parameters.
05/16/2003 15:00 – 05/17/2003 07:15: Missing 15-minute data, all parameters except Eppley. Eppley data appear unaffected and were retained but should be considered suspect.
05/16/2003 15:00 – 05/17/2003 07:00: Missing hourly data, all parameters.
05/17/2003: NERR Tech deleted 24-hour data, all parameters, due to missing 5-second data.
05/17/2003 08:00: NERR Tech deleted hourly data due to missing 5-second data.

05/20/2003: NERR Tech reset CR10x datalogger clock time and deleted 24-hour data (all parameters) due to possible missing 5-second data. Incorrect time may have been result of power outage on 5/16/2003 or a problem with a faulty UPS on 5/19/2003.
20:30: Missing 15-minute data (all parameters) due to NERR Tech resetting clock (see above).
21:00: NERR Tech deleted hourly data (all parameters) due to possible missing 5-second data (see above).

05/21/2003: NERR Tech corrected the CR10x datalogger date, which was off by one day, and deleted 24-hour data (all parameters due to possible missing 5-second data. The raw file was also corrected to reflect the correct date.
10:00: Missing 15-minute and hourly data, all parameters.
11:00: NERR Tech deleted hourly data (all parameters) due to possible missing 5-second data (see above).

June 2003
06/02/2003 08:17 – 09:06: Anomalous PAR (LiCor) data. The sensor was being moved during this time. All attempts were made to reduce shading of the sensor during the move, and as a result, the data were retained but should be considered suspect.

06/03/2003: Unexplained air temperature sensor malfunction caused missing data (-99999 in the original weather program) for the 24-hour average and minimum.
20:00: Missing hourly average air temperature (-99999 in the orig. program) caused by sensor malfunction.

06/03/2003 19:30 – 20:00: Error message, precip differences (15-minute data) are greater than 5 mm. NERR Tech determined that these data were consistent with weather conditions.

06/05/2003 15:30 – 15:45: Error message, Rel hum difference is greater than 25%. NERR Tech determined that these data were consistent with weather conditions.

06/10/2003 12:45 – 13:00: Error message, Rel hum difference is greater than 25%. NERR Tech determined that these data were consistent with weather conditions.

06/14/2003 11:45 – 12:15, 12:30 – 13:00: Error message, precip differences (15-minute data) are greater than 5 mm. NERR Tech determined that these data were consistent with weather conditions.

06/18/2003 10:00 – 10:15, 10:45 – 11:00: Error message, precip differences (15-minute data) are greater than 5 mm. NERR Tech determined that these data were consistent with weather conditions.

05/01/2003 – 06/19/2003: Suspect PAR (LiCor). There is an abrupt change (increase) in totals obtained after the sensors were switched out on 6/19. It appears that the old sensor was producing abnormally low readings, it may have been losing calibration and became less accurate. Regardless, these should be used with caution.

06/19/2003: Weather station was powered off while LiCor sensor was switched with a freshly calibrated one. There were missing and deleted data as a result of this down time and resending the program once the sensor was installed. The NERR Tech deleted 24-hour data due to missing 5-second data.

14:00: Missing 15-minute (all parameters) and hourly data (rainfall and LiCor totals were retained, but suspect).
15:00 – 16:00: NERR Tech deleted hourly data (all parameters) due to missing 5-second data.

06/19/2003 21:00 – 21:15, 22:15 – 22:30: Error message, precip differences (15-minute data) are greater than 5 mm. NERR Tech determined that these data were consistent with weather conditions.

06/20/2003 16:00 – 16:15: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were consistent with weather conditions.

06/20/2003 19:30 – 19:45: Error message, precip difference is greater than 5 mm. NERR Tech determined that these data were consistent with weather conditions.

06/21/2003 22:30 – 06/23/2003 13:16: Power failure due to faulty solar panel wiring (battery lost charge) resulted in missing data.

06/21/2003 – 06/22/2003: Missing 24-hour data, all parameters.
06/21/2003 22:30 – 06/23/2003 13:00: Missing 15-minute data, all parameters.
06/21/2003 23:00 – 06/23/2003 13:00: Missing hourly data, all parameters.
06/23/2003 14:00: NERR Tech deleted hourly data (all parameters) due to missing 5-second data.
06/23/2003: NERR Tech deleted 24-hour data due to missing 5-second data.

06/26/2003: NERR Tech deleted 24-hour data (all parameters) due to missing 5-second data. The weather station was powered off and the program reloaded in an attempt to troubleshoot YSI wiring to the CR10X.

13:00: NERR Tech deleted hourly data (all parameters) due to missing 5-second data (see above).

06/30/2003: NERR Tech subtracted erroneous rainfall data, resulting from calibration of rain gauge, from 24-hour totals.

10:00 –14:00: NERR Tech deleted erroneous hourly rainfall totals (see above).
10:00 – 11:15, 12:30, 13:00 – 14:00, 14:45: NERR Tech deleted erroneous 15-minute rainfall totals (see above).

July 2003

07/01/2003 08:15: NERR Tech deleted 15-minute rainfall data, the rain gauge was accidentally tipped at 08:15. The erroneous hourly and 24-hour rainfall totals were corrected by subtracting 0.254.

07/03/2003: NERR Tech calibrated rain gauge resulting in multiple tips of the rain gauge and the following deleted data. The 2006 Data Rescue Manager deleted the 24-hour rainfall total which was incorrectly retained.

08:00 – 09:00, 10:15 – 12:30, and 13:30 – 14:45: NERR Tech deleted erroneous 15-minute data.
08:00 – 09:00, 11:00 – 12:00, 14:00: NERR Tech deleted erroneous hourly data.
13:00 and 15:00: 2006 Data Rescue Manager deleted erroneous hourly data (incorrectly retained by NERR Tech).

07/07/2003 13:00 – 13:15: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were consistent with weather conditions.

07/07/2003 13:15 – 13:30: Error message, precip difference is greater than 5 mm. NERR Tech determined that these data were consistent with weather conditions.

07/12/2003 14:45 – 15:00: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were consistent with weather conditions.

07/14/2003 06:30 – 07:00: Error message, precip differences (15-minute data) are greater than 5 mm. NERR Tech determined that these data were consistent with weather conditions.

07/17/2003 13:30 – 13:45: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were consistent with weather conditions.

07/19/2003 01:45 – 02:15, 13:30 – 13:45: Error message, precip differences (15-minute data) are greater than 5 mm. NERR Tech determined that these data were consistent with weather conditions.

07/21/2003: NERR Tech deleted 24-hour data due to missing 5-second data from a program reload and modem replacement.

11:00: NERR Tech deleted hourly data (all parameters) due to missing 5-second data.

07/23/2003 17:15 – 17:30: Error message, precip difference is greater than 5 mm. NERR Tech determined that these data were consistent with weather conditions.

07/24/2003 06:00 – 06:15: Error message, precip difference is greater than 5 mm. NERR Tech determined that these data were consistent with weather conditions.

07/25/2003 16:30 – 17:15: Error message, precip differences (15-minute data) are greater than 5 mm. NERR Tech determined that these data were consistent with weather conditions.

07/26/2003: Tropical depression.

August 2003

08/03/2003 09:30 – 09:45: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were consistent with weather conditions.

08/18/2003 12:45 – 13:00: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were consistent with weather conditions.

September 2003

09/02/2003: NERR Tech cleaned rain gauge, bird droppings were preventing gauge from tipping. Approximately 0.1 to 0.13 inches of rain had been missed. It is unclear when this rain fell.

09/04/2003 11:15 – 11:45 and 12:00 – 12:15: Error message, precip differences (15-minute data) are greater than 5 mm. NERR Tech determined that these data were consistent with weather conditions.

09/06/2003: Tropical depression Henri.

09/10/2003: Error message, a 15-minute air temperature reading is less than the 24-hour minimum for this day. Data were retained but are suspect.

09/18/2003: Hurricane Isabel.

09/23/2003 11:45 – 12:00: Error message, air temp difference is greater than 3.0 degrees C. NERR Tech determined that these data were consistent with weather conditions.

09/23/2003: Error message, a 15-minute air temperature reading is less than the 24-hour minimum for this day. Data were retained but are suspect.

09/25/2003: Error message, a 15-minute air temperature reading is less than the 24-hour minimum for this day. Data were retained but are suspect.

October 2003

10/08/2003 15:30 – 16:00: Error message, air temp differences (15-minute data) are greater than 3.0 degrees C. NERR Tech determined that these data were consistent with weather conditions.

10/15/2003: Error message, a 15-minute air temperature reading is less than the 24-hour minimum for this day. Data were retained but are suspect.

10/15/2003 22:45: Error message, precip difference is greater than 5 mm. NERR Tech determined that these data were consistent with weather conditions.

10/16/2003: NERR Tech deleted 24-hour data (all parameters) due to missing 5-second data from the installation of a new storage module (power shut down from 13:04 – 13:06) on the weather station.

14:00: NERR Tech deleted hourly data (all parameters) due to missing 5-second data (see above).

10/16/2003 19:00 – 10/17/2003 08:00: Error message, wind speed averages (hourly data) are less than 0.5 m/s. NERR Tech determined that these data were consistent with weather conditions.

10/20/2003 19:00 – 10/21/2003 07:00: Error message, wind speed averages (hourly data) are less than 0.5 m/s. NERR Tech determined that these data were consistent with weather conditions.

10/21/2003: A new CR10X program (Version 4.0) was installed and sensors were rewired on this date. Troubleshooting the program caused missing data, the program was resent several times (09:38, 09:54, 10:15, 10:51, and 13:07) during the process.

09:45 – 10:15, 11:00, 13:00 – 13:15: NERR Tech deleted or missing 15-minute data, all parameters (see above).
10:00 – 11:00, 13:00 – 14:00: NERR Tech deleted hourly data, all parameters, missing 5-second data (see above).
10:30 – 12:45: NERR Tech deleted all humidity data. The sensor was incorrectly wired for the new program, resulting in zeros being recorded.

10/21/2003 09:45 – 12/31/2003 24:00: NERR Tech corrected PAR (LiCor) values, an incorrect multiplier was being used, the multiplier was not updated when the new CR10X program was installed.

November 2003

11/04/2003: NERR Tech deleted 24-hour data (all parameters) due to missing 5-second data resulting from troubleshooting the CR10X and resending the program at 15:22 and 16:15.

15:30: NERR Tech deleted 15-minute data, all parameters (see above).
16:15: Missing 15-minute data, all parameters (see above).
16:00 – 17:00: NERR Tech deleted hourly data, all parameters (see above).

11/06/2003: NERR Tech deleted 24-hour data (all parameters) due to missing 5-second data resulting from troubleshooting the YSI programming in the CR10X program. The program was resent at 13:00 and 15:07.

13:00 and 15:15: NERR Tech deleted 15-minute data, all parameters (see above).
14:00 and 16:00: NERR Tech deleted hourly data, all parameters (see above).

11/11/2003: NERR Tech deleted 24-hour data (all parameters) due to missing 5-second data resulting from troubleshooting the YSI programming in the CR10X program. The program was resent at 11:53, 12:57, 13:39, and 14:15.

12:00, 13:00, 13:45, 14:15: NERR Tech deleted 15-minute data, all parameters (see above).
12:00 – 15:00: NERR Tech deleted hourly data, all parameters (see above).

11/13/2003: NERR Tech deleted 24-hour data (all parameters) due to missing 5-second data resulting from troubleshooting the connection with the Marisys computer. The program was resent at 14:37 and 16:08.

14:45 and 16:15: NERR Tech deleted 15-minute data, all parameters (see above).
15:00 and 17:00: NERR Tech deleted hourly data, all parameters (see above).

11/19/2003 11:45 – 12:00: Error message, precip difference is greater than 5 mm. NERR Tech determined that these data were consistent with weather conditions.

December 2003

12/02/2003 14:30: Missing 15-minute data, all parameters. Data were not collected when the December raw.dat file was created.

12/18/2003: NERR Tech deleted 24-hour data (all parameters) due to missing 5-second data resulting from resending the CR10X program after changes were made to the collection interval for web data. The program was resent at 09:13.

09:15: NERR Tech deleted 15-minute data, all parameters (see above).

10:00: NERR Tech deleted hourly data, all parameters (see above).

January 2004

01/01/2004 – 12/31/2004: Throughout 2004 there are intermittent problems with corrosion in the temperature sensor and suspect, anomalous, and erroneous data as a result. Please pay particular attention the metadata below when using 2004 air temperature date.

01/01/2004 00:00 – 02/19/2004 11:30: Suspect air temperature readings, sensor malfunction, sporadic missing data.

01/01/2004 00:00 – 03/24/2004 09:10: NERR Tech corrected PAR (LiCor) values, an incorrect multiplier was being used, the multiplier was not updated when the new CR10X program was installed.

01/04/2004: Sensor malfunction caused by corrosion resulted in deleted 24-hour air temperature data.
07:45: Sensor malfunction caused by corrosion resulted in deleted 15-minute air temperature data.
08:00: Sensor malfunction caused by corrosion resulted in deleted hourly air temperature data.

01/05/2004: Sensor malfunction caused by corrosion resulted in deleted 24-hour air temperature data.
07:45: Sensor malfunction caused by corrosion resulted in deleted 15-minute air temperature data.
08:00: Sensor malfunction caused by corrosion resulted in deleted hourly air temperature data.

01/25/2004: Sensor malfunction caused by corrosion resulted in deleted 24-hour air temperature data.
10:30 – 10:45: Sensor malfunction caused by corrosion resulted in deleted 15-minute air temperature data.
11:00: Sensor malfunction caused by corrosion resulted in deleted hourly air temperature data.

01/30/2004: NERR Tech deleted 24-hour data, all parameters, due to program changes for the new EQWin database.
15:00: NERR Tech deleted hourly and 15-minute data, all parameters, due to program changes.

February 2004

02/06/2004: Sensor malfunction caused by corrosion resulted in deleted 24-hour air temperature data.
17:15 – 18:00: Sensor malfunction caused by corrosion resulted in deleted 15-minute air temperature data.
18:00: Sensor malfunction caused by corrosion resulted in deleted hourly air temperature data.

02/15/2004: Sensor malfunction caused by corrosion resulted in deleted 24-hour air temperature data.
07:15 and 23:45: Sensor malfunction caused by corrosion resulted in deleted 15-minute air temperature data.
08:00 and 24:00: Sensor malfunction caused by corrosion resulted in deleted hourly air temperature data.

02/17/2004: Sensor malfunction caused by corrosion resulted in deleted 24-hour air temperature data.
05:00: Sensor malfunction caused by corrosion resulted in deleted 15-minute and hourly air temperature data.

02/18/2004: NERR Tech deleted 24-hour data, all parameters, due to power being shut off from 13:40 to 14:16 for weather tower maintenance.
13:45 – 14:15: Missing 15-minute data due to weather tower maintenance (see above).
14:00: Missing hourly data due to weather tower maintenance (see above).
14:30 – 14:45: NERR Tech deleted 15-minute data due to weather tower maintenance (see above).
15:00: NERR Tech deleted hourly data due to weather tower maintenance (see above.)

02/18/2004 15:00 – 02/19/2004 10:15: NERR Tech deleted 15-minute relative humidity data due to incorrect wiring of the sensor. 24-hour data had already been deleted due to weather tower maintenance and relative humidity troubleshooting.
02/18/2004 16:00 – 02/19/2004 10:00: NERR Tech deleted hourly relative humidity data (see above).

02/19/2004: NERR Tech deleted 24-hour data, all parameters, due to power being turned off while troubleshooting relative humidity problems.
10:30 and 11:00: Missing 15-minute data due to troubleshooting (see above).
10:45 and 11:15: NERR Tech deleted 15-minute data due to troubleshooting (see above).
11:00: Missing hourly data due to troubleshooting (see above).
12:00: NERR Tech deleted hourly data due to troubleshooting (see above).

March 2004
03/15/2004: 24-hour data, all parameters, are suspect due to the power being turned off from 10:20 to 10:23 while the YSI connection cable could be disconnected and for battery voltage troubleshooting. 24-hour rainfall data were deleted.
10:30: NERR Tech deleted 15-minute data due to power being turned off (see above).
11:00: NERR Tech deleted hourly data due to power being turned off (see above).

03/16/2004: 24-hour data, all parameters, are suspect due to the power being turned off for troubleshooting low voltage readings with the CR10X battery. The battery was charged and the power was off from 09:05 to 09:07. 24-hour rainfall data were deleted.
09:15: NERR Tech deleted 15-minute data due to power being turned off (see above).
10:00: NERR Tech deleted hourly data due to power being turned off (see above).

03/17/2004: NERR Tech deleted 24-hour data, all parameters, due to power being turned off from 13:10 to 13:11 and 14:07 to 15:14 to troubleshoot low voltage readings.
13:15, 14:15, 14:45- 15:15: NERR Tech deleted 15-minute data due power being turned off (see above).
13:30 – 13:45: NERR Tech deleted 15-minute rainfall data, unsuccessful calibration of rain gauge.
14:00: 2006 Data Rescue Manager deleted hourly data due to power being turned off (see above) and NERR Tech deleted hourly raid data due to unsuccessful calibration of rain gauge.
14:30: Missing 15-minute data due to power being turned off (see above).
15:00 – 16:00: NERR Tech deleted hourly data due to power being turned off (see above).

03/24/2004: NERR Tech deleted 24-hour data, all parameters, due to power being turned off (from 11:10 to 11:34) while the Air Temp and Relative Humidity probe was disconnected in order to find the serial number. In addition, program was reloaded with new LiCor multiplier.
09:00 – 09:15: NERR Tech deleted 15-minute data due to the reloading of the program (see above).
09:00 – 10:00: NERR Tech deleted hourly data due to the reloading of the program.
11:15 – 11:45: NERR Tech deleted 15-minute data due to the power being turned off (see above).
12:00: NERR Tech deleted hourly data due to the power being turned off.

3/29/2004: Rain gauge calibration.
14:00 – 15:00: NERR Tech deleted 15-minute rainfall data due to calibration of the tipping bucket gauge.
15:00: 2006 Data Rescue Manager deleted hourly rainfall data due to calibration of the tipping bucket gauge.

03/31/2004 02:00: NERR Tech deleted hourly and 15-minute PAR (LiCor) data. Readings were outside the measurement range even when compensating for signal noise error.

April 2004
04/01/04: NERR Tech deleted 24-hour data, all parameters, due to a program reload.
14:45: NERR Tech deleted 15-minute data, all parameters, due to a program reload.
15:00: NERR Tech deleted hourly data, all parameters, due to a program reload.

04/08/04 05:30: Suspect PAR (LiCor) data. Reading is within the measurement range when accounting for signal noice, but lower than normal.

May 2004
05/10/2004: NERR Tech deleted 24-hour data, all parameters, due to program reload to initiate YSI recording.
09:15 – 09:45: Missing 15-minute data, all parameters. Probably related to YSI initiation (above).
10:00: NERR Tech deleted 15-minute and hourly data due to program reload.

June 2004
06/14/2004 00:15 – 07/12/2004 09:30: Suspect air temperature data due to malfunction of the Air Temperature and Relative Humidity probe on 7/12/2004. NERR Tech sent the probe/sensor to Campbell Scientific where it was determined that there was corrosion in the sensor. It is unclear when the corrosion may have started to affect readings, however, daily average data for this period were compared with daily averages from the Weather Underground website and a Kestrel 4000 and determined to be reasonable for recorded weather conditions.

July 2004
07/02/2004: NERR Tech deleted 24-hour data, all parameters, due to program reload.
12:30: NERR Tech deleted 15-minute data, all parameters, due to program reload.
13:00: NERR Tech deleted hourly data, all parameters, due to program reload.

07/05/2004 20:45: Suspect PAR (LiCor) data. Reading is within the measurement range when accounting for signal noise, but lower than normal.

07/12/2004: NERR Tech deleted 24-hour data, all parameters, due to the power being turned off from 09:43 to 09:50 and 12:04 to 12:10 in order to remove the Air Temperature and Relative Humidity probe. It was sent to Campbell Scientific for repairs.
09:45: Missing 15-minute data, probably due to the power being turned off (see above).
10:00 and 12:15: NERR Tech deleted 15-minute data due to the power being turned off (see above).
10:00 and 13:00: NERR Tech deleted hourly data due to the power being turned off (see above).

07/12/2004 12:30 – 08/06/2004 12:45: All Air Temperature and Relative Humidity data were deleted, there was not a sensor deployed during this time.

August 2004
08/01/2004 – 08/02/2004: Tropical Storm Alex (offshore of Charleston).

08/06/2004: NERR Tech deleted 24-hour data, all parameters, due to the power being turned off to reconnect the Air Temperature and Relative Humidity probe from 12:45 to 12:59, 13:34 to 13:37, and 14:05 to 14:07.
13:00, 13:30, 14:15: NERR Tech deleted 15-minute data, see above.
13:00, 14:00: NERR Tech deleted hourly data, see above.

08/06/2004 14:00 – 09/02/2004 09:30: Suspect air temperature data. The Air Temperature and Relative Humidity sensor was reconnected on 08/06 (see above), but still appeared to be reporting readings that were lower than normal. The NERR Tech compared daily average data for this period with daily averages from the Weather Underground website and a Kestrel 4000 and determined the data to be reasonable for recorded weather conditions.

08/11/2004: NERR Tech deleted 24-hour data, all parameters, due to program reload in order to troubleshoot YSI graphs on RTDM (Real Time Data Management).
08:15 – 08:30: NERR Tech deleted 15-minute data, see above.
09:00: NERR Tech deleted hourly data, see above.

08/12/2004: Tropical Storm Bonnie.

08/14/2004: Hurrican Charley passed over Georgetown around 09:00 – 11:00.

08/16/2004: NERR Tech deleted erroneous 24-hour air temperature data. Readings were extremely low (in the negative range) and had been falling. Data are suspect before and after this date, see documentation for 08/06/2004.
00:15 – 24:00: NERR Tech deleted erroneous 15-minute air temperature data, see above.
01:00 – 24:00: NERR Tech deleted erroneous hourly air temperature data, see above.

08/17/2004: NERR Tech deleted 24-hour data, all parameters, due to the power being turned off to the CR10X from 08:20 to 08:33 and 09:45 to 09:53. The Air Temperature/Relative Humidity probe had malfunctioned, but remained part of the weather station to record relative humidity and suspect air temperature data until the back up probe could be returned from repairs.
08:30: Missing 15-minute data, see above.
08:45, 09:45 – 10:00: NERR Tech deleted 15-minute data, see above.
09:00 – 10:00: NERR Tech deleted hourly data, see above.

08/17/2004 09:00 – 09:30: NERR Tech deleted 15-minute barometric pressure, air temperature, and relative humidity data the cables were not attached to the CR10X while the NERR Tech was addressing the Air Temp/Relative Humidity sensor problems (see above).

September 2004
09/02/2004: NERR Tech deleted 24-hour data, all parameters, due to the power being turned off to the CR10X while the Air Temp and Relative Humidity probe was switched out with a backup probe. The program was then reloaded.

08:45 – 09:00: Missing 15-minute data, see above.
09:00: Missing hourly data, see above.
09:15 – 09:30: NERR Tech deleted 15-minute data, see above.
10:00: NERR Tech deleted hourly data, see above.

09/06/2004 – 09/09/2004: Hurricane Frances

09/26/2004 – 09/28/2004: Hurricane Jeanne

October 2004
10/13/2004 13:45: Suspect 15-minute rainfall data, also caused hourly (14:00) and 24-hour totals to be suspect. The tipping bucket rain gauge appeared to tip (recording a rainfall event) when there was no rain. This may have been caused by the large amount of bird activity at the Oyster Landing dock/pier.

10/18/2004 16:30: Suspect 15-minute rainfall data, also caused hourly (17:00) and 24-hour totals to be suspect. The tipping bucket rain gauge appeared to tip (recording a rainfall event) when there was no rain. This may have been caused by the large amount of bird activity at the Oyster Landing dock/pier.

November 2004
11/01/2004: Suspect rain data. NERR Tech noticed that rain gauge was clogged with bird droppings and that there was approximately 0.13 inches of rain in the rain gauge at 10:15.

11/09/2004: Suspect rain data. NERR Tech noticed that rain gauge was clogged with bird droppings and that there was approximately 0.15 inches of rain in the rain gauge at 09:00.

11/23/2004: NERR Tech deleted erroneous air temperature data, the sensor malfunctioned and gave -99999 readings. Campbell Scientific determined that there was corrosion in the sensor when it was sent for repairs.

18:45: NERR Tech deleted erroneous 15-minute air temperature data, see above.
19:00: NERR Tech deleted erroneous hourly air temperature data, see above.

December 2004
No suspect/erroneous/deleted data were reported.