Weather Metadata

Last updated:

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Station Overview

Location: Piermont Pier, NY (41.043, 73.896)

Data collection period: 4/25/2008-present

Parameters: air temperature, barometric pressure, dew point, radiation (PAR), precipitation, daily precipitation accumulation, relative humidity, wind speed, direction & gusts

Contacts

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Station Description

The meteorological instrumentation is on the roof of a small maintenance building at the end of Piermont Pier in the village of Piermont, NY. Until 2024, this station used a HOBO Weather Station Data Logger with a SolarStream wireless data transceiver, in combination with sensors that report the following parameters every 15 minutes: air temperature, barometric pressure, dew point, radiation (PAR), precipitation, daily precip. accumulation, relative humidity, wind speed, direction & gusts. See the section titled "Sensor Specifications" for more information. All sensors are attached to a satellite tower with the exception of barometric pressure, which is located inside the logger box. The building is at least 3 m from tree growth and the sensors are not shaded.

 Special Remarks

Date	Remark
5/28/2010	**Rain cap was not on the rain gauge. Based on site visits, this must have occurred sometime between 5/20 and 5/28. Data for this period was marked as suspicious**
3/11/2011	**Fixed telemetry issue. Expect data gap leading up to this date.**
11/8/2011-12/11/2011	**Data was lost during this period.**
12/14/2011	**Telemetry restored to site.**
1/21/2011	**New RM Young wind sensor installed**

2/2/2012	**Discovered that the RM Young wind sensor that was installed on 1/21/11 was shading solar radiation sensor during mid-day.**
7/31/2012	**RM Young wind sensor moved to prevent shading of solar radiation sensor.**
9/12/2012	**Replaced datalogger batteries**
October 2012	**Rain gauge and other equipment sustained damage during Hurricane Sandy**
April 2017	**Added redundant weather station with alternative equipment to compare results.**
December 2024	**Station received upgraded equipment.**

Distribution Terms

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Data Quality Assurance

Data collection and verification have been performed on all parameters since the establishment of this station according to the HRECOS Quality Assurance Project Plan(s), which are available at www.hrecos.org

Code Definitions

Parameters

Name	Synonyms	Description	Units
ATMP	TAIR	Air temperature	Degrees Celsius
BARO	PRES	Air pressure	Millibars
DEWP		Dewpoint	Degrees Celsius
GST		Wind gust (15 min. max)	m/s
PAR		Photosynthetically active raditon	mmoles/m^2
RAD		Total radiation	Watts/m^2
RAIN	PRECIP	Rainfall	mm
RAINDC	PRECIP_TOT	Total daily precipitation accumulation	mm
RHUM	RELH	Relative humidity	%
STMP		Soil temperature	
WD	WDIR	Wind direction	Degrees

WDEV	SDWDIR	Wind direction standard deviation	Degrees
WSPD		Wind speed	m/s

Flag code definitions:

A	Accepted data
P	Provisional data
S	Suspect data, consult comment codes
R	Rejected data, consult comment codes
C	Corrected data, consult comment codes

Comment code definitions:

General Errors

GIM	Instrument malfunction
GIT	Instrument recording error, recovered telemetry data
GMC	No instrument deployed due to maintenance or calibration
GPF	Power failure
GQR	Rejected due to QAQC checks
GSM	See metadata
GMT	Instrument maintenance
GDP	Power down
GPR	Program reload

Sensor Errors

SIC	Incorrect calibration, multiplier, or offset
SNV	Negative value
SOC	Out of calibration
SSM	Sensor malfunction
SSR	Sensor removed for deployment
SSN	Not a number/unknown value

Other comments

CAF	Acceptable calibration/accuracy error of sensor
CDF	Data appear to fit conditions
CRE	Significant rain event
CSM	See metadata
CVT	Possible vandalism
CWE	Significant weather event

Weather sensor specifications (before December 2024)

Parameter: Air temperature
Units: Celsius
Sensor Type: 12-bit temperature
Model#: S-THB-M002
Range: -40 C to +75 C
Accuracy: ±0.21°C at from 0 to 50°C

Parameter: Relative humidity
Units: %
Model#: S-THB-M002
Range: 0 to 100%
Accuracy: ±2.5% from 10% to 90%

Parameter: Barometric pressure
Units: mbar
Sensor Type: Silicon capacitive
Model#: S-BPA-CM10
Range: 660 to 1070 mbar
Accuracy: ±3 mb @ 25°C

Parameter: Precipitation
Units: mm
Sensor Type: Tipping bucket with magnetic switch
Model#: S-RGA-M002
Accuracy: Up to 1 in./hr: ±1%

Parameter: Radiation (PAR)
Units: W/m^2
Sensor Type: Silicon pyranometer (300 to 1100 nm)
Model#: S-LIB-M003
Accuracy: ±10 W/m^2 or ±5%
Temperature dependence: 0.38 W/m^2 at 25°C

Parameter: Wind direction
Units: Degrees
Sensor Type: Mechanical vane
Model#: RM Young 05106
Range: 355 Degrees
Accuracy: ± 3 Degrees

Parameter: Wind speed
Units: m/s
Sensor Type: Mechanical propeller
Model#: RM Young 05106
Range: 0 to 100 m/s
Accuracy: ± 0.3 m/s or 1% of reading

Weather Sensor Specifications After December 2024

Parameter: Air temperature
Units: Celsius
Sensor Type: Resistance thermometer
Model#: Rotronic HC2S3
Range: -40 C to +60 C
Accuracy: ±0.1°C at 23°C

Parameter: Relative humidity
Units: %
Model#: Rotronic HC2S3
Range: 0 to 100%
Accuracy: ±0.8% at 23°C

Parameter: Barometric pressure
Units: mbar
Sensor Type: Silicon capacitive
Model#: Vaisala PTB110
Range: 500 to 1100 mbar
Accuracy: ±0.3 mb @ 20°C; ±0.6 mb @ 0 to 40°C; ±1.0 mb @ -20 to +45°C; ±1.5 mb @ -40 to +60°C;

Parameter: Precipitation
Units: mm
Sensor Type: Tipping bucket with magnetic switch
Model#: Texas Electronic TE525WS
Accuracy: Up to 1 in./hr: ±1%; ±2.5% at 1-2 in./hr

Parameter: Radiation (PAR)
Units: mmoles/m^2 (total flux)
Sensor Type: High stability silicon photovoltaic detector
Model#: Apogee SQ-500
Temperature Response: -0.11 ± 0.04% / °C
Stability: <±2% change over 1 yr
Operating Temperature: -40°C to 70°C; Humidity: 0 to 100%
Sensitivity: 0.01 mV per mmole m^2/s

Parameter: Wind direction
Units: Degrees
Sensor Type: Mechanical vane
Model#: RM Young 05106
Range: 355 Degrees
Accuracy: ± 3 Degrees

Parameter: Wind speed
Units: m/s
Sensor Type: Mechanical propeller
Model#: RM Young 05106
Range: 0 to 100 m/s
Accuracy: ± 0.3 m/s or 1% of reading