HRECOS Piermont Pier Weather Metadata

Last updated: 03/25/2025

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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

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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.

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Data Quality Assurance:
Data collection and verification have been performed on all parameters (except velocity; see below) since the establishment of this station (January 2011) according to the HRECOS Quality Assurance Project Plan, which is available at www.hrecos.org

Code Definitions
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/calibration
[GPF]	power failure/low battery
[GQR]	rejected due to QAQC checks
[GSM]	see metadata
[GMT]	instrument maintenance
[GDP]	power down
[GPR]	program reload

Sensor Errors

[SIC]	incorrect calibration constant, multiplier or offset
[SNV]	negative value
[SSN]	not a number/unknown value
[SOC]	out of calibration
[SSM]	sensor malfunction
[SSR]	sensor removed

Comments

(CAF)	acceptable calibration/accuracy error of sensor
(CDF)	data appear to fit conditions
(CRE)	significant rain event
(CSM)	see metadata
(CVT)	possible vandalism/tampering

Weather Sensor Specifications Prior to 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: $\pm$ 3 Degrees

Parameter: Wind speed
Units: m/s
Sensor Type: Mechanical propeller
Model#: RM Young 05106
Range: 0 to 100 m/s
Accuracy: $\pm$ 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: $\pm$0.1°C at 23°C

Parameter: Relative humidity
Units: %

Model#: Rotronic HC2S3
Range: 0 to 100%
Accuracy: $\pm 0.8\%$ 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: $\pm$ 3 Degrees

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