**HRECOS Mohawk River at Lock 8 Weather Metadata**

**Last updated: 08/20/2024**

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Station Overview

Location: Lock 8 Park, Mohawk River ([42.8302,-73.9925](https://maps.google.com/maps?q=42.8302%2BN%2B%2C73.9925%2BW&hl=en&ll=42.830168%2C-73.992373&spn=0.004217%2C0.004823&sll=42.829242%2C-73.991504&sspn=0.004217%2C0.004823&t=h&z=18) )

Data collection period: 10/20/2012

Parameters:air temperature, soil temperature, barometric pressure, dew point, radiation (PAR), precipitation, daily cumulative rainfall, relative humidity, wind speed, direction, and gusts.

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Station Description:

The weather station at Lock 8 is just NW of the Lock 8 buildings. Sensors are installed on a 10’ tower that is above nearby vegetation and over 15 meters from any nearby structure. Data is reported to a nearby CR1000 datalogger.

Dew point and daily cumulative rainfall are calculated by the HRECOS database in real-time.

Special Remarks:

|  |  |
| --- | --- |
| **Date** | **Remark** |
| **10/20/2012** | Barometric pressure sensor failure. All data rejected. |
| **12/29/2013** | Significant rain event not recorded. Site visit on 12/30 revealed that the rain bucket was full of ice, and the wind sensor was frozen in position. Rain bucket cleared same day and wind sensor de-iced on 12/31. |
| **8/14/2014** | Upgraded wind monitor installed. Other sensors swapped with newly calibrated versions |
| **6/22/2018-8/3/2018** | PAR sensor failure |
| **4/16/2024** | Rain bucket unclogged. A large amount of water was funneled through at one time. |

Distribution Terms:

HRECOS requests that attribution be given whenever HRECOS material is reproduced and re-disseminated and the HRECOS Coordinator be notified prior to publications including any part of the data. Example citation: “Hudson River Environmental Conditions Observing System. 2012. Albany Hydrologic Station data. Accessed April 13th, 2016. <http://www.hrecos.org/>.”

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](https://nysemail-my.sharepoint.com/personal/brittney_flaten_dec_ny_gov/Documents/www.hrecos.org)

Remark on velocity: The level gage and velocity meter have been maintained by the U.S. Geological Survey since their adoption/installation by the agency in September 2016. Water elevation is verified by USGS annually, while velocity is only a working dataset and is primarily purposed for short-term operational use. USGS-verified data may have been corrected based on field measurements, sensor calibrations, sensor cleanings, and other observations using standard USGS methodology. Unverified data is provisional and is subject to revision.

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

YSI EXO2 Sensor Specifications:

Consult description and remarks for upgrade dates.

Parameter: Temperature

Units: Celsius (C)

Sensor Type: Thermistor

Model#: 599870-01

Range: -5 to 50 C

Accuracy: -5 to 35: +/- 0.01, 35 to 50: +/- .005

Resolution: 0.01 C

Parameter: Conductivity

Units: mS/cm

Sensor Type: 4-electrode cell with autoranging

Model#: 599870-01

Range: 0-200 mS/cm

Accuracy: 0 to 100: +/- 0.5% of reading or 0.001 mS/cm; 100 to 200: +/- 1% of reading

Resolution: 0.001 mS/cm to 0.1 mS/cm

Parameter: Salinity

Units: practical salinity units (psu)/parts per thousand (ppt)

Sensor Type: Calculated from conductivity and temperature

Range: 0 to 70 psu

Accuracy: +/- 1.0% of reading pr 0.1 ppt, whichever is greater

Resolution: 0.01 psu

Parameter: Dissolved Oxygen % saturation

Sensor Type: Optical probe w/ mechanical cleaning

Model#: 599100-01

Range: 0 to 500% air saturation

Accuracy: 0-200% air saturation: +/- 1% of the reading or 1% air saturation, whichever is greater 200-500% air saturation: +/- 5% or reading

Resolution: 0.1% air saturation

Parameter: Dissolved Oxygen mg/L (Calculated from % air saturation, temperature, and salinity)

Units: milligrams/Liter (mg/L)

Sensor Type: Optical probe w/ mechanical cleaning

Model#: 599100-01

Range: 0 to 50 mg/L

Accuracy: 0-20 mg/L: +/-0.1 mg/l or 1% of the reading, whichever is greater

20 to 50 mg/L: +/- 5% of the reading

Resolution: 0.01 mg/L

Parameter: pH

Units: pH units

Sensor Type: Glass combination electrode

Model#: 599701 (guarded) or 599702 (wiped)

Range: 0 to 14 units

Accuracy: +/- 0.01 units within +/- 10° of calibration temperature, +/- 0.02 units for entire temperature range

Resolution: 0.01 units

Parameter: Turbidity

Units: formazin nephelometric units (FNU)

Sensor Type: Optical, 90-degree scatter

Model#: 599101-01

Range: 0 to 4000 FNU

Accuracy: 0 to 999 FNU: 0.3 FNU or +/-2% of reading (whichever is greater); 1000 to 4000 FNU +/-5% of reading

Resolution: 0 to 999 FNU: 0.01 FNU, 1000 to 4000 FNU: 0.1 FNU

Parameter: Chlorophyll

Units: micrograms/Liter, RFU

Sensor Type: Optical probe

Model#: 599102-01

Range: 0 to 400 ug/Liter; 0 to 100 RFU

Accuracy: Dependent on methodology

Resolution: 0.1 ug/L chl a, 0.1% RFU

Parameter: Phycocyanin

Units: micrograms/Liter, RFU

Sensor Type: Optical probe

Model#: 599102-01

Range: 0 to 100 ug/Liter; 0 to 100 RFU

Accuracy: Dependent on methodology

Resolution: 0.1 ug/L PC, 0.1% RFU

YSI 6600 Sensor Specifications

Consult description and remarks for upgrade dates.

Parameter: Temperature

Units: Celsius (C)

Sensor Type: Thermistor

Model#: 6560

Range: -5 to 45 C

Accuracy: +/- 0.15 C

Resolution: 0.01 C

Parameter: Conductivity

Units: mS/cm

Sensor Type: nickel electrode

Model#: 6560

Range: 0-100 mS/cm

Accuracy: 0 to 100: +/- 0.5% of reading or 0.001 mS/cm

Resolution: 0.001 mS/cm to 0.1 mS/cm

Parameter: Salinity

Units: parts per thousand (ppt)

Sensor Type: Calculated from conductivity and temperature

Parameter: Dissolved Oxygen % saturation

Sensor Type: Optical probe w/ mechanical cleaning

Model#: 6150 ROX

Range: 0 to 500% air saturation

Accuracy: 0-200% air saturation: +/- 1% of the reading or 1% air saturation, whichever is greater 200-500% air saturation: +/- 15% or reading

Resolution: 0.1% air saturation

Parameter: Dissolved Oxygen mg/L (Calculated from % air saturation, temperature, and salinity)

Units: milligrams/Liter (mg/L)

Sensor Type: Optical probe w/ mechanical cleaning

Model#: 6150 ROX

Range: 0 to 50 mg/L

Accuracy: 0-20 mg/L: +/-0.1 mg/l or 1% of the reading, whichever is greater

20 to 50 mg/L: +/- 5% of the reading

Resolution: 0.01 mg/L

Parameter: pH

Units: pH units

Sensor Type: Glass combination electrode

Model#: 6589

Range: 0 to 14 units

Accuracy: +/- 0.2 units

Resolution: 0.01 units

Parameter: Turbidity

Units: nephelometric turbidity units (NTU)

Sensor Type: Optical

Model#: 6136

Range: 0 to 1000 NTU

Accuracy: +/-2% of reading or 0.3 NTU (whichever is greater

Resolution: 0.1 NTU

Parameter: Chlorophyll

Units: RFU, micrograms/Liter

Sensor Type: Optical probe

Model#: 6025

Range: 0 to 400 ug/Liter; 0 to 100 RFU

Accuracy: Dependent on methodology

Resolution: 0.1 ug/L chl a, 0.1% RFU

Remarks on Sensor Specifications and Units

*Conductivity:*

Historically, specific conductivity data from HRECOS sites was reported in millisiemens/cm. However beginning in 2019, reporting switched to microsiemens/cm. All data files available on hrecos.org have been converted to reflect this change.

*Salinity:*

The 6600 series sondes report salinity in parts per thousand (ppt) units, the EXO sondes report practical salinity units (psu).

*Turbidity:*

The 6600 series sondes report turbidity in nephelometric turbidity units (NTU), the EXO sondes use formazin nephelometric units (FNU).

***Chlorophyll and Phycocyanin Disclaimer:***

YSI chlorophyll sensors (6025 or 599102-01) are designed to serve as a proxy for chlorophyll concentrations in the field for monitoring applications and complement traditional lab extraction methods; therefore, there are accuracy limitations associated with the data that are detailed in the YSI manual.

Weather Sensor Specifications

Parameter: Air temperature

Units: Celsius

Sensor Type: Platinum resistance thermometer

Model#: HMP45AC

Range: -40 C to +60 C

Accuracy: ±0.2°C at 20°C

Parameter: Relative humidity

Units: %

Sensor Type: Capacitive polymer

Model#: HMP45AC

Range: 0 to 100%

Accuracy: At 20°C: ±2% (0-90%); ±3% (90-100%)

Temperature dependence: ±0.05%/°C

Parameter: Barometric pressure

Units: mbar

Sensor Type: Silicon capacitive

Model#: CS106

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#: CS TE525WS-L

Accuracy: Up to 1 in./hr: ±1%; 1 to 2 in./hr: +0, -2.5%; 2 to 3 in./hr: +0, -3.5%

Parameter: Radiation (PAR)

Units: mmoles/m2

Sensor Type: Silicon PV detector (400-700 nm)

Model#: LI190SB

Temperature dependence: 0.15% per °C max.

Parameter: Wind direction

Units: Degrees

Sensor Type: Mechanical vane

Model#: RM Young 05103

Range: 355 Degrees

Accuracy: ± 3 Degrees

Parameter: Wind speed

Units: m/s

Sensor Type: Mechanical propeller

Model#: RM Young 05103

Range: 0 to 100 m/s

Accuracy: ± 0.3 m/s or 1% of reading

Parameter: Soil temperature

Units: Celsius

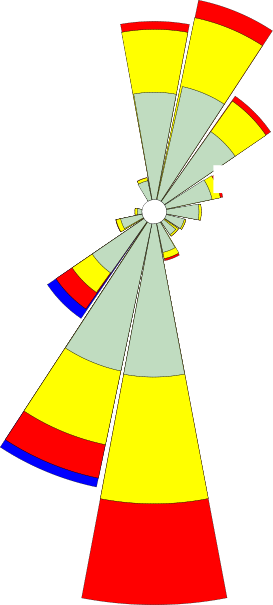
Sensor type: Aluminum-housed thermistor

Model#: CS109

Range: -50 C to 70 C

Accuracy: ± 0.2 C

Appendix A



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| --- | --- | --- | --- | --- | --- |
| WIND ROSE PLOT: DISPLAY:  **HRECOS Weather Station, Port of Albany, NY Winds Wind Speed**  **averaged over 5 years (2012-2016) Direction (blowing from)** | | | | | |
|  | NORTH | |  |  |  |
|  |  | |  | 25% |  |
|  |  | |  | 20% |  |
|  |  | | 15% | |  |
|  |  | | 10% |  |  |
|  | 5% | |  |  |  |
| WEST |  | |  |  | EAST |
|  |  | |  |  | WIND SPEED |
|  |  | |  |  | (Knots) |
|  |  | |  |  | >= 22 |
|  |  | |  |  | 17 - 21 |
|  |  | |  |  | 11 - 17 |
|  | SOUTH | |  |  | 7 - 11 |
|  |  | |  |  | 4 - 7 |
|  |  | |  |  | 1 - 4 |
|  |  | |  |  | Calms: 12.87% |
| COMMENTS: | DATA PERIOD:  **Start Date: 1/1/2012 - 01:00 End Date: 12/31/2016 - 23:00** |  | | | |
|  | | |  |
| CALM WINDS:  **12.87%** | TOTAL COUNT:  **41736 hrs.** | | |
| AVG. WIND SPEED:  **3.60 Knots** | DATE:  **6/29/2017** | | | PROJECT NO.: |

WRPLOT View - Lakes Environmental Software