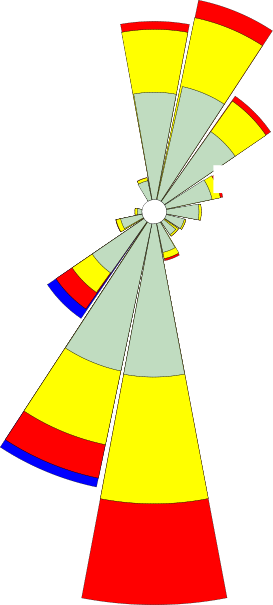
|  |
| --- |
| **Metadata: Port of Albany Weather Station**  **C:\HRECOS\HRECOS_logo.small.TIF**  **Location:** Port of Albany, Hudson River ([42.61954, -73.75890](https://maps.google.com/maps?q=42.61954+N,+73.75890+W&hl=en&ll=42.619544,-73.758903&spn=0.009079,0.01929&sll=42.619592,-73.758152&sspn=0.009079,0.01929&t=h&z=16))  **Data collection period:** January 4th, 2011 – present  **Parameters:** air temperature, barometric pressure, dew point,  radiation (PAR), precipitation, daily cumulative rainfall, relative humidity, wind speed, direction & gusts. |
| **Disclaimer:** HRECOS is a research project. No warranty—either express or implied—is made for any information presented by this program. |
| **Contacts**:  Brittney Flaten, HRECOS Coordinator  NY State Dept. of Environmental Conservation  256 Norrie Point Way, Staatsburg, NY 12580  Phone: 845-889-4745 x117  Email: brittney.flaten [at] dec.ny.gov |
| **Location and equipment:**  The Albany HRECOS Meteorological station began reporting on January 4th, 2011. It is mounted on the concrete bulkhead on the western shoreline of the Hudson River at the Port of Albany, just to the south of the Cargill Granary. Its coordinates are 42.61954 N, 73.75890 W. Sensors are installed on a 10’ tower that is above nearby vegetation and over one hundred feet from nearby structures1. Data is reported to a CR1000 datalogger, then to a nearby computer (~1000 m) via a 900 MHz spread spectrum radio.  Meteorological sensors at this site reports the following parameters every 15 minutes: air temperature, barometric pressure, radiation (PAR)2, precipitation, relative humidity, wind speed3, direction & gusts. See the section titled “Sensor Specifications” for more information. Dew point and daily cumulative rainfall are calculated by the HRECOS database in real-time.  1 Although sensors are located a significant distance away from structures, a 2017 analysis by DEC Division of Air Resources suggested that the warehouse to the NW of the station is blocking NW winds. It was noted that NW winds are the second most common after S at the Albany Airport weather station (~8 mi. NNW). See *Appendix A* for a detailed analysis.  2 Until 6/27/2014, PAR was recorded as photon density (umol s^-1 m^-2). This was changed to total photon flux (mmole m^-2) from hereon to be consistent with other HRECOS weather stations.  3 Until 6/24/2014, wind speed was recorded as *resultant mean*. From here on it will be recorded as normal wind speed. |
| **Special remarks / notes:**   * 01/04/2011 – 9/6/2011: Barometric pressure used the wrong coefficients. Historical data record was corrected. * 10/06/2011 – Rain gauge was plugged. Cleaned on this date. * 12/22/2011 – 1/1/2012: The transmission failed at this station due to a power outage. * 06/17/2012 – 6/18/2012: The transmission failed at this station due to a power outage. * 09/06/2012 – The wind sensor was turning but the station reported 0 wind speed. Sensor was removed on 10/11/2012 and returned to the manufacturer for calibration. * 11/08/2012 – The wind sensor reinstalled * 11/08/2012 – 11/15/2012: Wind sensor was installed with direction offset. Corrected on 11/15/2012. * 06/27/2014 – Rain bucket calibrated in field. Attempted swapping all sensors with newly calibrated sensors, but wiring issues caused completion delay. * 07/15/2014 – Returned to site and completed sensor swap. * 6/27/2015 – Rain gage appears to have been clogged. * 8/4/2015 – Rain gage cleaned and unclogged. * 5/23/2016 – Server PC was 17 minutes slow, therefore the logger was too. Possible bad internal battery on server PC. Disabled automated time update in LoggerNet and corrected logger time (1:29 PM EST to 1:46 PM EST). Exact duration of time offset unknown, but likely less than 1 year. * 8/2/2016 – Rain gage completely clogged (filled to brim of funnel attachment with water). Severe rain event the night before. Several resident spiders were evicted. May have been clogged as early as 7/26/16. * 6/26/18 – Rain gage was clogged; cleaned. Likely clogged since early June. |
| **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 Meteorological Station data. Accessed April 13th, 2036. <http://www.hrecos.org/>.” |
| **Data Quality Assurance:**  Data collection and verification have been performed since the establishment of this station (January 2011) according to the HRECOS Quality Assurance Project Plan, which is available at [www.hrecos.org](http://www.hrecos.org) See relevant section on following pages for QAQC flag and comment code definitions. |
| **QAQC 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 |

**Table 1. Weather station specifications.**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Parameter | Model | Sensor type | Units | Range | Accuracy | Temp dependence | Misc. |
| **Air temperature** | HMP45AC (until 6/27/14) | Platinum resistance thermometer | °C | -40°C to +60°C | ±0.2°C at 20°C | N/A | N/A |
| HMP45C | “ “ | “ “ | “ “ | “ “ | “ “ | Similar unit, different wiring |
| **Barometric pressure** | CS106 | Silicon capacitive | mbar | 500-1100 mbar | ±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 | N/A | N/A |
| **Precipitation** | CS TE525WS-L | Tipping bucket/ magnetic reed switch | mm | N/A | Up to 1 in./hr: ±1% 1 to 2 in./hr: +0, -2.5% 2 to 3 in./hr: +0, -3.5% | N/A | 8” diameter funnel, 0.254 mm/tip |
| **Radiation (PAR)** | LI190SB | Silicon PV detector (400-700 nm) | Mmoles m-2 (total flux) | N/A | N/A | 0.15% per °C max. | Sensitivity: 5 µA per 1000 µmoles s-1 m-2 |
| **Relative humidity** | HMP45C | Capacitive polymer | % | 0 to 100% non-condensing | At 20°C: ±2% (0-90%); ±3% (90-100%) | ±0.05%/°C | N/A |
| **Wind direction**  **---**  **Wind Speed** | MetOne 034B (until 6/27/14) | Mechanical vane  ---  Mechanical propeller | Degrees  ---  m/s | 356° electrical  ---  0 to 50 m/s | ±4°  ---  ±0.11 m/s (@<10.1 m/s) or ±1.1% (@>10.1 m/s | N/A | Replaced with model below due to intermittent outages |
| **Wind direction**  **---**  **Wind Speed** | RM Young 05103 | Mechanical vane  ---  Mechanical propeller | Degrees  ---  m/s | 355° electrical  ---  0 to 100 m/s | ±3°  ---  ±0.3 m/s or 1% of reading | N/A | N/A |

**Appendix A:** Port of Albany HRECOS Station, Wind Rose Analysis



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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