

## 1. DATA AND INFORMATION TYPES

### A. Provide a contextual description of the data stream.

This page provides access to environmental climate data from research sites spanning from the Northern foothills of the Brooks Range to the Coastal Plain of Alaska, near Prudhoe Bay. Most sites are within the Kuparuk River watershed.

Website URL: Historical Sensors: Source UAF Water and Environmental Research Center  
<http://portal.aos.org/#module-metadata/0cbe63ce-87aa-11e3-acbf-00219bfe5678/467dd946-87aa-11e3-9eb2-00219bfe5678>

### B. How many station locations are there for this data stream?

28

### C. What are the specific parameters of the data.

The parameters include date, time, GPS (Latitude and Longitude), wind speed, wind direction, air temperature, snow depth, precipitation, and dew point.

### D. Provide information about the sampling platform or instrumentation.

Campbell Scientific 21X and CR10X data loggers were used to record and process data at all sites. Wind speed was measured using a Weathertronics anemometer. Wind direction was measured with a model 024a Met One Wind Direction Sensor at all sites. Air temperature and relative humidity were measured using a Campbell Scientific Model 207 Temperature and Relative Humidity Probe. The relative humidity component utilizes a Phys-Chemical Research Corporation PCRC humidity transducer. Snowpack depth and water equivalent were measured using an Adirondak snow sampler, CRREL snow depth probe and manual graduated snow depth probes.

## 2. DATA PATHWAY

### A. Is a data sharing agreement required?

Data are available publically.

### B. In which format(s) were data received by AOOS?

Data are received by web harvest from the originator website.

### C. How can the information be accessed?

The data are available through the AOOS data portal, where it can be downloaded or explored through interactive visualizations. Specifically, data are available from two unique access points:

- File Downloads (CSV)
- ERDDAP

**D. What file formats will be used for sharing data, if different from original?**

Data are shared as CSV and through ERDDAP. Data are also available for exploration in the AOOS portals via interactive, graphical visualizations.

**E. Describe how the data are ingested(e.g. the flow of data from source to AOOS data portals) and any transformations or modifications made to share data in the AOOS data portal.**

Data are downloaded from the source to the AOOS storage. Custom Java, Scala, and Python scripts are used to convert data formats suitable for internal and external interoperability services. Data are made available in the AOOS portals through the access points and via graphic displays generated through internal JSON-format data requests from these services.

Graphic displays include a mapping service, customized interactive visualizations, and time-series plots of the unit values wherein each parameter is graphed independently. Back-end scripts handle the conversion of visualized data from CF standards to other, non-CF units that may be requested by the user. Data files may be downloaded by the user from the AOOS data portal. A user request for a CSV file request pulls the data from the server cache. A user request for ERDDAP pulls data from the ERDDAP service using the same cache. For this data, no CF-standard names or units exist, therefore custom names of abundance\_of\_{scientific\_name} were used. Refer to Appendix I for CF standards.

Summary statistics generated within the interactive graphical displays may be requested by the user. Summary statistics may include minimum, maximum and mean values. Seasonal statistics, available on time series longer than 3 years, include mean, and 10th and 90th percentiles. Note: the number of points visually available to interactive users from the source data are limited when necessary using temporal binning, such as daily, weekly, monthly, seasonally and yearly.

**F. What metadata or contextual information is provided with the data?**

Data is shared in the AOOS portals with descriptive narratives describing the data and linking back to the originator's site. Metadata documentation is also available from the originator's site here: <http://ine.uaf.edu/werc/projects/NorthSlope/northslope.html>

**G. Are there ethical restrictions to data sharing?**

No

**a. If so, how will these be resolved?**

N/A

**H. Who holds intellectual property rights (IPR) to the data?**

University of Alaska Fairbanks  
Institute of Northern Engineering

Water and Environmental Research Center

**I. Describe any effect of IPR on data access.**

None

**3. DATA SOURCE AND QUALITY CONTROL**

**A. Indicate the data source type (i.e. Federal, Non-Federal, University, State Agency, Local Municipality, Military Establishment (branch), private industry, NGO, non-Profit, Citizen Science, Private individual)**

University

**a. If Federal data source, were changes applied to the data?**

N/A

**b. If Yes, describe any changes to the data that require documentation?**

N/A

**B. Indicate the data reporting type (e.g. real-time, historical).**

Historical

**C. If real-time, list the QARTOD procedures that are currently applied.**

N/A

**D. If real-time, list the QARTOD procedures that are planned for implementation.**

N/A

**E. What is the status of the reported data? (e.g. raw, some QC, incomplete, delayed mode processed but not QC'd)**

Some QC by originator

**F. Describe the data control procedures that were applied by the originator.**

Contact the data provider for availability of QC information.

**a. Provide a link to any documented procedures.**

N/A

**G. Describe the data control procedures that were applied by AOOS.**

AOOS currently applies three standard QC procedures to most real-time and historical observation data before it is stored in the AOOS Data System. These tests include the following:

1. *Syntax Test*: Each regional data source uses unique syntax to transfer data. Some (e.g., Canada Water Office) have standardized data storage protocols and provide files whereas others (e.g., Alyeska Weather stations) are merely html web pages that are scraped for data. Therefore, each regional source requires a custom syntax test, which merely checks for

parity errors by testing if data can be extracted from the downloaded or scraped data. If no data can be extracted, the test fails, and no data are accessed, served or stored for that record.

2. *Gross Range Test*: This test checks data values against minimum and maximum values defined for each parameter. In addition to parameters outlined in QARTOD manuals, AOOS includes gross range tests for parameters not covered by QARTOD (see Appendix H for the list and minimum and maximum values). Parameters relevant to this data stream include Air temperature (-130 and 130 deg F); barometric pressure (355 and 1085 mbar); wind speed and gust speed (0 and 253 mph); wind direction and gust direction (0 and 360 degrees); relative humidity (0 and 100%); precipitation (0 min only); snow depth (0-500 inches). Values outside of the prescribed parameter ranges are rejected and replaced with missing value flags in data storage connected to access points and the graphic displays.

3. *Time-Gap Check*: AOOS implements a “*time-gap check*” that informs observational assets (e.g., weather stations) displayed on its “Real-Time Sensor Map”. If no data are received from an existing observational station for four hours, the icon on the map changes from a scaled color to a small grey-shade dot. If no data are received from an existing observational station for one week, the asset is automatically removed from the map, although assets are still made available on a historical sensor map.

AOOS QC syntax and gross range tests also qualify as legitimate QC checks for many data stream parameters described by US IOOS Quality Assurance of Real-Time Oceanographic Data (QARTOD) protocols. The AOOS version of the “*time-gap check*” does not flag data or gaps in the underlying AOOS data storage, thus may not completely satisfy the “*time-gap test*” proposed by QARTOD.

**a. Provide a link to any documented procedures.**

N/A

**H. List the procedures taken for data that could not be QC'd as directed.**

N/A

**4. STEWARDSHIP AND PRESERVATION POLICIES**

**A. Who is responsible for long-term data archiving?**

Data are aggregated for visualization and exploration with other layers in the AOOS data portal. AOOS stores the real-time and historical data internally using the AOOS data servers.

AOOS will contact Horacio Toniolo to see if these data are being actively archived. If not, AOOS will facilitate data archival with NCEI.

**B. Which long-term data storage facility will be used for preservation?**

If not already archived, NCEI.

**C. Describe any transformation necessary for data preservation.**

N/A

**D. List the metadata or other documentation that will be archived with the data.**

N/A