1. DATA AND INFORMATION TYPES

A. Provide a contextual description of the data stream.

AOOS supports four University of Alaska Fairbanks (UAF) operated HF Radar (HFR) stations in the Arctic in conjunction with multiple partners. The Alaska HFR data served by AOOS is acquired from the National IOOS HFR data server at Coastal Observing Research and Development Center (CORDC) University of California, San Diego. The CORDC HF radar-derived surface current dataset provides nearshore sea surface velocity measurements.

For a more detailed description, see:
http://cordc.ucsd.edu/projects/mapping/documents/principles.php).

Website URL:
http://portal.aoos.org/#module-metadata/de91c282-01e2-11e2-ad19-00219bfe5678/9c31793f-cd35-4b29-9be4-1bada207616c

B. How many station locations are there for this data stream?
4

C. What are the specific parameters of the data.
The parameters include calculated surface water velocity.

D. Provide information about the sampling platform or instrumentation.
The sampling platform includes shore-based HF radar systems, and when no grid power supply is available, the use of Remote Power Modules using renewable wind and solar energy, are co-located.

2. DATA PATHWAY

A. Is a data sharing agreement required?
Data are available publically.

B. In which format(s) are data received by AOOS?
Data are available from web harvest to the originator's THREDDS site:
http://hfrnet.ucsd.edu/thredds/catalog.html

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 the data are available from three unique access points:
- Web Mapping Service (WMS)

- THREDDS
- OPeNDAP

D. What file formats will be used for sharing data, if different from original?
Data are shared as WMS and through OPeNDAP. 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 these 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 are shared in the AOOS portals with descriptive project and file metadata describing the data and accompanying fields.

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

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)**
Federal:
University of Alaska, Fairbanks (UAF) operates these stations.
Data are acquired from the CORDC (UCSD).
UCSD acquires the HFR data directly from UAF HFR platforms.

Alaska HFR data served by AOOS are and will always be acquired from the National IOOS HFR data server at CORDC UCSD.

    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).**
Near-Real-Time. These data are served as a separate layer and are not part of the Real-Time Sensors catalogue or map on the AOOS Ocean Data Explorer data portal.

C. **If real-time, list the QARTOD procedures that are currently applied.**
As long as these data are processed and accessed through the HFR Network, they do not require additional QC or QARTOD QC implementations by AOOS.

The following link provides the QC documentation on the UCSD website that describes the quality control performed on HFR Network data:
http://cordc.ucsd.edu/projects/mapping/documents/HFRNet_QC-RTVproc.pdf

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)**
Quality controls fully implemented by originator.
Delayed mode processed and reported near-real-time.

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

The HF-Radar Network (HFRNet) acquires surface ocean radial velocities measured by HF-Radar through a distributed network and processes the data to produce synoptic maps of surface currents in near-real time throughout coastal waters of the United States.

Radial data are quality controlled during each of three main processing stages:
1) On-site at the Radar installation during production of georeferenced radial velocities with bearing determination from raw signal voltages;
2) Upon acquisition of radial data by HFRNet Portals; and
3) During processing for production of synoptic surface current maps.

    a. Provide a link to any documented procedures.
The following link provides the QC documentation on the UCSD website that fully describes the quality control performed on HFR Network data:
http://cordc.ucsd.edu/projects/mapping/documents/HFRNet_QC-RTVproc.pdf

G. Describe the data control procedures that were applied by AOOS.
After data are ingested, AOOS applies 2 standard QC tests to *HFR current data* only:

1. Syntax Test: 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. Values outside of the prescribed parameter ranges are left in the dataset, but they are not used when autoscaling graphic displays.

    a. Provide a link to any documented procedures.
AOOS Data Assembly Center and Data Management Subsystem Plan, Section 4.4.4.

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 on the AOOS data servers. Long-term archiving is the responsibility of HFRadar Network (HFRNet) and the Coastal Observing Research and Development Center (CORDC).

B. Which long-term data storage facility will be used for preservation?
N/A

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