Data Management Plan: Port Radar, Oregon State University
(Taken from NOAA Data Sharing Template and adapted for IOOS Certification)

I. Type of data and information created

1. **What data will you collect or create in the research?**
   Contextual statement describing what data are collected and relevant URL (IOOS Certification, f 2)
   We operate marine radar observing stations. We collect marine radar image sequences. The data represent radar backscatter intensity as a function of range, azimuth, and time.

2. **What data types will you be creating or capturing?**
   The backscatter intensity data are rectified to geographic coordinates and used to create mean images (time exposures) and bulk wave parameters (peak directions and frequencies). This information is saved as image files (PNG). Raw data are saved in NetCDF format.

3. **How will you capture or create the data?**
   Describe how the data are ingested (IOOS Certification, f 2)
   The data is recorded on-site, processed on a workstation either on-site or at OSU's campus in Corvallis (OR), and then the imagery is made available to NANOOS through our website.

   The radar intensity data is saved on redundant backup hard drives in either raw or NetCDF format and is available upon request.

   Describe how data are managed (IOOS Certification, f 2)
   All raw and/or pre-processed data are archived locally at the field sites. These backups are retrieved at regular intervals and tracked in our database. Some processed data are stored on servers at OSU for research and web image generation.

   Describe the data quality control procedures that have been applied to the data. (IOOS Certification, f 3)
   There is no established standardized protocol for radar image data. However, we are able to flag times when data is not available.

   As a NANOOS Observing System provider, we follow industry best practices and manufacturer guidance where applicable, to calibrate, operate, and maintain the equipment used in this effort, and will provide documentation of this upon request.

   Further, we maintain equipment inventories, shipping logs, and instrument maintenance history logs, as appropriate, that are available upon request.

4. **If you will be using existing data, state that fact and include where you got it. What is the relationship between the data you are collecting and the existing data?** N/A

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II.　　Expected schedule for data sharing

Adheres to the NOAA Data Sharing Procedural Directive. The System is an operational system; therefore the RICE should strive to provide as much data as possible, in real-time or near real-time, to support the operation of the System. (IOOS Certification, f 4)

The imagery generated by the system is generally available on the website within one hour of the end of the recording. This is in some cases constrained by the need to transfer large amounts of data across the Internet for off-site processing.

Raw data is always available upon request.

1. **How long will the original data collector/creator/principal investigator retain the right to use the data before opening it up to wider use?**
   Raw or pre-processed data (data that has been mapped, but not modified) is always available upon request.

2. **How long do you expect to keep the data private before making it available? Explain if different data products will become available on different schedules (Ex: raw data vs processed data, observations vs models, etc.)**
   N/A

3. **Explain details of any embargo periods for political/commercial/patent reasons? When will you make the data available?**
   N/A

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III. Standards for format and content

1. **Which file formats will you use for your data, and why?**
   How can the information be accessed? (IOOS Certification, f 2)
   The raw data is stored in NetCDF format. Processed data is generally stored as MATLAB MAT files. Imagery is stored as PNG files.

2. **What file formats will be used for data sharing?**
   All of the above.

3. **What metadata/ documentation will be submitted alongside the data or created on deposit/ transformation in order to make the data reusable?**
   The raw data files are accompanied by metadata text files with supplemental information for properly mapping the data to real-world coordinates. The NetCDF files include metadata for every variable and the recording as a whole.

4. **What contextual details (metadata) are needed to make the data you capture or collect meaningful?**
   The following information is supplied as metadata:
   1. Radar antenna elevation
   2. Radar zero heading
   3. Radar antenna location (latitude/longitude or UTM coordinates)
   4. Recording year
   5. Recording UTC offset
   6. The "donut", or number of range bins that should be removed from each radar pulse in order to correctly map the data.

   The NetCDF files include all necessary metadata for making the data meaningful, as well as other useful information pertaining to the recordings.

5. **How will you create or capture these details?**
   Metadata files and processing scripts are provided along with the raw intensity and azimuth files that provide the necessary metadata and guidance for processing the data.

6. **What form will the metadata describing/documenting your data take?**
   The metadata is provided either as text files or embedded in the NetCDF files.

7. **Which metadata standards will you use and why have you chosen them? (e.g. accepted domain-local standards, widespread usage)**
   The NetCDF files include metadata required by the Climate and Forecast Metadata Conventions CF-1.6 [http://cfconventions.org/cf-conventions/v1.6.0/cf-conventions.html] and the Attribute Convention for Data Discovery as much as is appropriate. [http://wiki.esipfed.org/index.php/Attribute_Convention_for_Data_Discovery]

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IV. Polices for stewardship and preservation

1. **What is the long-term strategy for maintaining, curating and archiving the data?**
   Points of contact- Individuals responsible for the data management and coordination across the region (CV's attached); (IOOS Certification f 1.i)
   Merrick Haller - Principal Investigator
   541-737-9141
   Merrick.Haller@oregonstate.edu

   Randall Pittman – Employee 4 years, Programmer, Archivist, Technician
   541-737-2102
   Randall.Pittman@oregonstate.edu

   Identify the procedures used to evaluate the capability of the individual (s) identified in subsection 997.23(f)(1) to conduct the assigned duties responsibly. (IOOS Certification, f 1.iii)
   Oregon State University has a process in place for personnel evaluation. These evaluations are on file with Oregon State University Human Resources. All personnel listed have received excellent evaluations.

2. **Which archive/repository/database have you identified as a place to deposit data?**
   Documents of the RICE's data archiving process or describes how the RICE intends to archive data at the national archive center (e.g., NODC, NGDC, NCDC) in a manner that follows guidelines outlined by that center. Documentation shall be in the form of a Submission Agreement, Submission Information Form (SIF) or other, similar data producer-archive agreement (IOOS Certification, f 6).
   N/A

3. **What procedures does your intended long-term data storage facility have in place for preservation and backup?**
   Local redundant HDD storage at OSU in Corvallis, OR.

4. **How long will/should data be kept beyond the life of the project?**
   Not sure. But there is no present plan for sunsetting the data.

5. **What data will be preserved for the long-term?**
   Presently, we preserve all data.

6. **What transformations will be necessary to prepare data for preservation / data sharing?**
   N/A

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7. **What metadata/ documentation will be submitted alongside the data or created on deposit/ transformation in order to make the data reusable?**
   N/A

8. **What related information will be deposited?**
   N/A

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V.   Procedures for providing access

1. **What are your plans for providing access to your data? (on your website, available via ftp download, via e-mail, or another way)**
    Describe how data are distributed including a description of the flow of data through the RICE data assembly center from the source to the public dissemination/access mechanism. (IOOS Certification, f 2 and 4)
    Plots of radar intensity and spectra are available on our website. Raw data can be made available upon request via a file server.

2. **Will any permission restrictions need to be placed on the data?**
    Our data and products are freely available for public use. We only request acknowledgement. For example, "... data from the Nearshore Remote Sensing Group, Coastal and Ocean Engineering, Oregon State University."

3. **With whom will you share the data, and under what conditions?**
    Data are publicly available.

4. **Will a data sharing agreement be required?**
    In general, a data sharing agreement will not be required. However, data should be properly acknowledged.

5. **Are there ethical and privacy issues? If so, how will these be resolved?**
    N/A

6. **Who will hold the intellectual property rights to the data and how might this affect data access?**
    Oregon State University holds the rights to the data and allows free and full distribution of all data.

VI.   Previous published data
N/A