

*Ports X-Band Radar*

*Please provide the following information and submit to the NOAA DM Plan Repository.*

**Reference to Master DM Plan (if applicable)**

URL of higher-level DM Plan (if any) as submitted to DM Plan Repository:

NANOOS DMP: <https://www.nanoos.org/documents/certification/DMP/2023/NANOOS-DMP.pdf>

**1. General Description of Data to be Managed**

1.1. Name of the Data, data collection Project, or data-producing Program:

Port Radar, Oregon State University

1.2. Summary description of the data:

Backscatter intensity images from X-band marine radar and associated processed data products, including:

- Geo-rectified and gridded backscatter intensity maps with associated metadata stored in NetCDF and MATLAB data files.
- Color-mapped intensity images of single-rotation (snapshot) and time-averaged backscatter intensity mapped to geographic coordinates (PNG files).
- Plots of wavelength-direction spectra and bulk wave parameter time series (peak period, wavelength, and dominant wave direction) for three subregions within the radar imaging footprint (PNG files and MATLAB data files).

1.3. Is this a one-time data collection, or an ongoing series of measurements?

Ongoing

1.4. Actual or planned temporal coverage of the data:

Raw intensity images are recorded continuously at the radar rotation rate of ~40 rotations per minute. Snapshot and time-averaged imagery is generated every two minutes. Wave spectra products are computed once every hour. The radar station operates 24/7/365 except for periods of maintenance or repair.

1.5. Actual or planned geographic coverage of the data:

~6 km radius of the ocean surface measured from the roof of the US Coast Guard Station Yaquina Bay watchtower, adjacent to the Yaquina Bay lighthouse in Newport, OR. Coverage extends northward to Yaquina Head and southward to Moore Creek.

1.6. Type(s) of data:

*(e.g., digital numeric data, imagery, photographs, video, audio, database, tabular data, etc.)*

Digital numeric data and imagery

1.7. Data collection method(s):

*(e.g., satellite, airplane, unmanned aerial system, radar, weather station, moored buoy, research vessel, autonomous underwater vehicle, animal tagging, manual surveys, enforcement activities, numerical model, etc.)*

Radar video signals digitized with an external data acquisition system.

1.8. If data are from a NOAA Observing System of Record, indicate name of system:

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1.8.1. If data are from another observing system, please specify:

**2. Point of Contact for this Data Management Plan (author or maintainer)**

- 2.1. Name: Randall Pittman
- 2.2. Title: Faculty Research Assistant
- 2.3. Affiliation or facility: Oregon State University
- 2.4. E-mail address: [Randall.Pittman@oregonstate.edu](mailto:Randall.Pittman@oregonstate.edu)
- 2.5. Phone number: 541-737-2102

**3. Responsible Party for Data Management**

*Program Managers, or their designee, shall be responsible for assuring the proper management of the data produced by their Program. Please indicate the responsible party below.*

- 3.1. Name: Randall Pittman
- 3.2. Position Title: Faculty Research Assistant
- 3.3. Name of current Position holder: Randall Pittman

**4. Resources**

*Programs must identify resources within their own budget for managing the data they produce.*

- 4.1. Have resources for management of these data been identified? Yes.
- 4.2. Approximate percentage of the budget for these data devoted to data management (specify percentage or "unknown"): 90%

**5. Data Lineage and Quality**

*NOAA has issued Information Quality Guidelines<sup>1</sup> for ensuring and maximizing the quality, objectivity, utility, and integrity of information which it disseminates.*

- 5.1. Processing workflow of the data from collection or acquisition to making it publicly accessible (*describe or provide URL of description*):
  - Radar backscatter intensity data is captured via a radar acquisition card and custom software running on a data acquisition PC. Data and metadata are to disk. Data is captured as one 14-minute recording at the top of the hour and 23 two-minute recordings for the remainder of the hour.
  - The raw intensity data of each recording is interpolated to a fixed range/azimuth grid and georectified to create the snapshot and time-averaged images. Interpolated data and images are saved to disk.
  - For the 14-minute recording, a subregion of the raw intensity data is interpolated to a fixed Cartesian grid and used to calculate 3-D wavenumber-frequency ( $k_x$ ,  $k_y$ ,  $f$ ) spectra. Peak wavelength, frequency, and direction are extracted from the spectra, and frequency-integrated ( $k_x$ ,  $k_y$ ) spectral density contour plots are generated. The Cartesian-interpolated radar data, peak spectral parameters, and plot images are saved to disk.

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<sup>1</sup> [http://www.cio.noaa.gov/services\\_programs/IQ\\_Guidelines\\_030414.html](http://www.cio.noaa.gov/services_programs/IQ_Guidelines_030414.html)

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- Imagery, spectra plots, and peak spectral values are transmitted to an OSU server in Corvallis as soon as they are generated. The imagery and spectral plots are published on a research website: <https://research.engr.oregonstate.edu/haller/Newport>. The time-averaged images are assembled into two-day-long animations and published to the same site at <https://research.engr.oregonstate.edu/haller/Newport/movies.html>
- Imagery, spectra plots, and 31-day timeseries of peak spectral values are also provided to NANOOS NVS Explorer.

5.1.1. If data at different stages of the workflow, or products derived from these data, are subject to a separate data management plan, provide reference to other plan: N/A

5.2. Quality control procedures employed (*describe or provide URL of description*):

There is no established standardized protocol for Port X-Band Radar image data. However, times when data are not available are flagged.

## 6. Data Documentation

*The EDMC Data Documentation Procedural Directive<sup>2</sup> requires that NOAA data be well documented, specifies the use of ISO 19115 and related standards for documentation of new data, and provides links to resources and tools for metadata creation and validation.*

6.1. Does metadata comply with EDMC Data Documentation directive? Yes, in general.

6.1.1. If metadata are non-existent or non-compliant, please explain: There is no national standard for X-Band radar data. See description in section 6.4.

6.2. Name of organization or facility providing metadata hosting: OSU

6.2.1. If service is needed for metadata hosting, please indicate:

6.3. URL of metadata folder or data catalog, if known:

6.4. Process for producing and maintaining metadata (*describe or provide URL of description*):

Each radar recording file contains detailed metadata on the radar system, data acquisition, time, and location of the recording, according to the WIMR Format Specification<sup>3</sup>. Lists of recordings are being made accessible on our group's website at [https://research.engr.oregonstate.edu/haller/Newport/drive\\_listings](https://research.engr.oregonstate.edu/haller/Newport/drive_listings).

## 7. Data Access

*NAO 212-15 states that access to environmental data may only be restricted when distribution is explicitly limited by law, regulation, policy (such as those applicable to personally identifiable information or protected critical infrastructure information or proprietary trade information) or by security requirements. The EDMC Data Access Procedural Directive<sup>4</sup> contains specific guidance, recommends the use of open-standard, interoperable, non-proprietary web services, provides information about resources and tools to enable data access, and includes a Waiver to be submitted to justify any approach other than full, unrestricted public access.*

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<sup>2</sup> <https://www.nosc.noaa.gov/EDMC/PD.DD.php>

<sup>3</sup> [https://gitlab.com/osu-nrsg/wimr-format-spec/uploads/7b7bd7a4e4850ec884f6ffab45499ebb/Wave\\_Imaging\\_Marine\\_Radar\\_Format\\_spec\\_v1.7.pdf](https://gitlab.com/osu-nrsg/wimr-format-spec/uploads/7b7bd7a4e4850ec884f6ffab45499ebb/Wave_Imaging_Marine_Radar_Format_spec_v1.7.pdf)

<sup>4</sup> Data Access Directive currently in review; URL to be added.

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- 7.1. Do these data comply with the Data Access directive? Yes
- 7.1.1. If the data are not to be made available to the public at all, or with limitations, has a Waiver (Appendix A of Data Access directive) been filed?
- 7.1.2. If there are limitations to public data access, describe how data are protected from unauthorized access or disclosure:

- 7.2. Name of organization of facility providing data access: OSU

7.2.1. If data hosting service is needed, please indicate:

7.2.2. URL of data access service, if known:

<https://nvs.nanoos.org/Explorer?snapshot=dd6dd774ba25d6d73219d0c058b91>

[https://research.engr.oregonstate.edu/haller/Newport/drive\\_listings](https://research.engr.oregonstate.edu/haller/Newport/drive_listings)

- 7.3. Data access methods or services offered:

Radar recordings, imagery, and calculated spectral parameters are available upon request via email to PI Merrick Haller <Merrick.Haller@oregonstate.edu> or Research Assistant Randall Pittman <Randall.Pittman@oregonstate.edu>. Depending on data request volume, data may be available via temporary web storage or via shipped hard drive[s]. At this time, due to data volume it is not feasible to make all data available on the web.

- 7.4. Approximate delay between data collection and dissemination:

7.4.1. If delay is longer than latency of automated processing, indicate under what authority data access is delayed:

## 8. Data Preservation and Protection

*The NOAA Procedure for Scientific Records Appraisal and Archive Approval describes how to identify, appraise and decide what scientific records are to be preserved in a NOAA archive.*

- 8.1. Actual or planned long-term data archive location:

*(Specify NODC, NCDC, NGDC, World Data Center (WDC) facility, Other, To Be Determined, Unable to Archive, or No Archiving Intended)*

8.1.1. If World Data Center or Other, specify:

8.1.2. If To Be Determined, Unable to Archive or No Archiving Intended, explain:

- 8.2. Data storage facility prior to being sent to an archive facility (if any):

- 8.3. Approximate delay between data collection and submission to an archive facility:

- 8.4. How will the data be protected from accidental or malicious modification or deletion prior to receipt by the archive? Discuss data back-up, disaster recovery/contingency planning, and off-site data storage relevant to the data collection:

All data products are saved on-site on redundant archival-class storage drives. When full, these drives are swapped and stored on the OSU campus in protective cases in separate locations. Data storage drive location and contents are maintained in an internal spreadsheet for tracking and responding to public requests.

## 9. Additional Line Office or Staff Office Questions

*Line and Staff Offices may extend this template by inserting additional questions in this section.*