

Data Management

The NOAA Office of Ocean Exploration and Research (OER) is subject to NOAA Public Access to Research Results (PARR)¹ policy and the implementing guidance contained in NOAA Environmental Data Management Committee (EDMC) Procedural Directives². The PARR policy is NOAA's response to the White House Office of Science and Technology Policy (OSTP) memorandum, dated February 22, 2013, Increasing Access to the Results of Federally Funded Scientific Research³.

The Data and Publication Sharing Directive for NOAA Grants, Cooperative Agreements, and Contracts⁴ is the procedural directive specific to competitive awards. This procedural directive requires OER to consider, in advance, how to ensure public accessibility and long-term preservation of NOAA-funded data, to provide guidance for applicants to use in developing a plan for data access, and to track and enforce conditions imposed on grant recipients.

Environmental data and information collected or created under NOAA grants and cooperative agreements must be made discoverable by and accessible to the general public in a timely fashion (typically within two years, but OER encourages submission as soon as possible), and free of charge or at no more than the cost of reproduction, except where 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 requirements⁵. Data should be made available in at least one machine-readable format, preferably a widely-used or open-standard format, and should also be accompanied by machine-readable documentation (metadata), preferably based on widely used or international standards (ISO).

Proposals submitted in response to this funding announcement must include a Data Management Plan of up to two pages describing how OER's requirements for environmental data and information will be satisfied. The Data Management Plan should be aligned with the Data Management Guidance provided by NOAA in the funding announcement. The content of the Data Management Plan (or absence thereof), and past performance regarding such plans, will be considered as part of the proposal review. A typical Data Management Plan should include descriptions of the types of environmental data and information expected to be collected or created during the course of the project; the tentative date by which data will be shared; the standards to be used for data/metadata format and content; methods to be used for providing data access; approximate total volume of data to be collected; and prior experience in making such data accessible. Accepted submission of properly formatted data to the NOAA National Centers for Environmental Information (NCEI) is one way to satisfy data sharing requirements. However, NCEI is not obligated to accept all submissions and may charge a fee, particularly for large or unusual datasets. For reference, a Data Management Plan guide is

provided at the end of this section.

NOAA may, at its own discretion, make the Data Management Plan from a funded proposal publicly visible. NOAA may also use information from the Data Management Plan to produce a formal metadata record, and include that metadata record in an online catalog to indicate the pending availability of new data.

Applicants are hereby advised that scholarly publications on work partially or fully funded by NOAA must be submitted to the NOAA Institutional Repository. The final pre-publication manuscript of articles should be submitted to the repository after acceptance by the journal, and no later than upon publication. Such manuscripts are also required to be compliant with Section 508^{6,7}, an amendment to the United States Workforce Rehabilitation Act of 1973. Manuscripts will be made publicly available by the NOAA Institutional Repository one year after publication by the journal. Grant recipients are encouraged to publish in open-access journals, where appropriate.

The costs of data preparation, data management, and making data publicly accessible is necessary to meet the requirements of the data sharing procedural directive⁴, and these costs should be considered when calculating the proposal budget. OER's data management team may be available to provide some assistance if needed.

PARR Compliance Guide

OER will consult with grant recipients on Data Management Plans to help them fully comply with PARR requirements. Responsibility for meeting these requirements may rest solely with the grant recipient or be shared between the grant recipient and NOAA, depending on the terms of the final Data Management Plan. For reference, the following requirements define full PARR compliance:

- Datasets from every instrument/sensor are provided in archive-ready, open-source, non-proprietary formats.
- Datasets of scientific logging and first hand scientific observations are preserved and converted into archive-ready formats.
- Datasets are accompanied by ISO metadata with all mandatory elements completed; any additional information, such as data quality, acquisition software settings, etc., necessary for an end user to completely understand the dataset and be able to use it.
- All datasets used to support the conclusions of a peer-reviewed publication are made available in a form that permits verification and reproducibility of the results.
- Post-processed datasets, data products, and reports generated by the researcher are documented with metadata, including descriptions of processing steps and quality assurance

methods.

- The full complement of data is archived, stewarded, and made discoverable and accessible to the public (preferably through NCEI).
- Final pre-publication manuscripts, compliant with Section 508, of scholarly articles produced by recipients of federal funds are submitted to the NOAA Institutional Repository after acceptance, and no later than upon publication.

Data Management Plan Guide

For reference, the following information is provided as a guide for developing a Data Management Plan. Please refer to the Frequently Asked Questions (FAQ) for Data Sharing for NOAA Grants (https://geo-ide.noaa.gov/wiki/index.php?title=FAQ_for_Data_Sharing_for_NOAA_Grants_PD) for answers to questions you may have when reviewing and completing this guide. Some relevant FAQ question numbers are also provided at the end of each question for your convenience.

- a. What types of environmental data or other information will be collected or created during this project? (FAQ 1)
- b. What is the tentative date by which the data will be made publicly accessible? (FAQ 2, 3)
- c. If the data are not to be shared, under what authority are you requesting an exemption? (FAQ 10, 16, 23, 24)
- d. Where will the data be hosted for public access? (FAQ 2, 4, 18)
- e. In what formats will the data be submitted? Data should be made available in at least one machine-readable format. Open-standard, archive-ready formats are encouraged⁸.
- f. Will you require assistance in providing metadata? At a minimum, the metadata should make the data independently understandable to the end user and document the instrumentation/sensors used, data processing steps, and quality control procedures. The ISO 19115 metadata standard is encouraged. The OER data management team can provide assistance if needed. (FAQ 14, 15)
- g. Can you provide an estimate of the total volumes of data to be archived by data type? (e.g., geophysical/bathymetry, oceanographic, video/images)
- h. Can you provide examples of prior experience in making such data publicly accessible?

- 1 <https://repository.library.noaa.gov/view/noaa/10169>
- 2 <https://nosc.noaa.gov/EDMC/PD.all.php>
- 3 <https://repository.library.noaa.gov/view/noaa/13809>
- 4 https://nosc.noaa.gov/EDMC/documents/Data_Sharing_Directive_v3.0.pdf
- 5 http://www.corporateservices.noaa.gov/ames/administrative_orders/chapter_212/212-15.html
- 6 <https://www.library.noaa.gov/Services/Author-Services/Section-508-Compliance>
- 7 <https://www.access-board.gov/guidelines-and-standards/communications-and-it/about-the-ict-refresh/final-rule>
- 8 <https://www.archives.gov/records-mgmt/policy/transfer-guidance-tables.html>