

IIOE-2 Data and Information Policy (revised 06 December 2023)

Introduction

Basic scientific research requires sound data management practices and one of the overarching objectives of IIOE-2 will be to support the collection and curation of all data to encourage data sharing using internationally agreed rules of data exchange, and to facilitate data discovery and use in the long term. Timely and unrestricted sharing of data and other research outcomes is critical for the success of ocean research programs that aspire to inform the decision-making process.

Scientists participating in research activities, projects and programs endorsed by IIOE-2 (<https://iioe-2.incois.gov.in/IIOE-2/EndorsementForm.jsp>) are expected to comply with this data policy. The IIOE-2 Data Policy is consistent with the IOC Oceanographic Data Exchange Policy (<https://www.iode.org/index.php?Itemid=100040>) and informed by data sharing policies of similar, contemporary global research programs. Exceptions can be arranged in cases where this policy is in conflict with policies associated with a Member State's national data access policies. In those cases, it is recognized that Member State's policies must supersede the IIOE-2 data policy, and the project lead should contact the head of the IIOE-2 Project Office (PO) located at the Indian National Centre for Ocean Information Services (INCOIS) in Hyderabad, India.

The intent of this policy is to promote practices that support the FAIR data principles (<https://www.force11.org/group/fairgroup/fairprinciples> and <https://www.go-fair.org/>) that research data be Findable, Accessible, Interoperable and Reproducible (FAIR). That objective is compatible with common practices of collaborative, scientific research programs wherein researchers require access to a broad range of trans-disciplinary research outcomes to achieve the scientific outcomes of the research plan. IIOE-2 research outcomes should: be made available on a free and unrestricted basis ensuring open exchange of data and metadata; be compatible with the FAIR data principles; and be archived in recognized data centres to be preserved for future use.

IIOE-2 strives to be inclusive of all national programs and therefore the data policy is intended to encourage open data sharing in an effort to facilitate the scientific goals of IIOE-2, while respecting national data and information exchange policies. The IIOE-2 Data Policy is written to support scholarly exchange, but not be a deterrent to participation.

General Data Submission Guidelines

For the purposes of this data policy, ‘data’ includes all types of digital data generated during the course of the IIOE-2 endorsed research project. Some examples include: raw and processed data files, in situ observations and measurements, remote sensing and experimental data, model results and synthesis data products.

Researchers associated with IIOE-2 endorsed projects are encouraged to contact their local project office, national data centre (e.g., NODC), IODE recognized Associate Data Unit (ADU) or other accredited data centre. If local or regional data management support is not available, then researchers should submit data and metadata directly to the IIOE-2 Regional Coordination Unit for Data and Information Management (<https://iioe-2.incois.gov.in/IIOE-2/login.jsp>) in Hyderabad, India. This distributed approach means that it is imperative Digital Object Identifier (DOI) be assigned to each data set.

All IIOE-2 researchers are encouraged to have an ORCID (persistent digital identifier for persons). To get or retrieve your ORCID visit: <https://orcid.org/>

Cruise Data and Metadata Submission Guidelines:

- As early as possible: pre-cruise metadata (<https://iioe-2.incois.gov.in/IIOE-2/metadata.jsp>) should be submitted to the IIOE-2 Regional Coordination Unit for Data and Information Management in addition to the relevant national data centre.
- Within two weeks of the end of a cruise the Chief Scientist should submit a completed cruise report (<https://iioe-2.incois.gov.in/IIOE-2/login.jsp>).
- Within 6 months of the end of a cruise the Chief Scientist should submit the following to the relevant national data centre and/or INCOIS:
 - a final copy of the cruise report;
 - data and metadata for standard shipboard observations and measurements (e.g., underway data, basic hydrography);
 - CTD profile and underway data (both raw and processed files, including sensor metadata and calibration history).
- As soon as possible, and no more than 2 years after data generation:
 - all data sets (processed) along with initial quality flags and accompanying metadata (including any additional relevant documentation) should be submitted to the relevant national data centre and/or INCOIS.

Data Release Policy

- Soon after submission, pre-cruise metadata for cruises and datasets will be made publicly available from the IIOE-2 Data Portal hosted at INCOIS.
- Science party members are encouraged to make all metadata and data generated during a cruise available to cruise participants in preliminary form during the cruise.
- Any data generated from a cruise and submitted to INCOIS will be password protected and available at the Chief Scientist's discretion (e.g., recognized data originators and approved collaborators) until the public release date.
- Prior to public release, all data will be considered preliminary and clearly designated as such. Data should be shared with other cruise participants as soon as they become available during or after a cruise, to enable data synthesis to proceed rapidly, and to facilitate early quality assessment of the data. It is understood that the data are the proprietary material of the originating scientist and should not be used without their permission.

Data Access and Citation Guidelines

- Data and metadata generated by IIOE-2 endorsed projects will be accessible from the IIOE-2 Metadata Portal (<https://iioe-2.incois.gov.in/IIOE-2/data.jsp>).
- All datasets will be assigned a Digital Object Identifier (DOI) such that they may be uniquely identified and will be freely available with a CC BY 4 license.

It is expected that data will be properly cited in any subsequent reuse to ensure that proper credit is afforded the original investigator.

Data Embargo Periods

Most nations have data release conditions imposed by funding sources. IIOE-2 acknowledges and respects these conditions. However, in the interest of advancing collaborative scientific efforts the IIOE-2 program expects that all data will be released as soon as possible and within two years of data generation, or at the time of publication, whichever is sooner. Exemptions can be arranged with the IIOE-2 Steering Committee in cases where this is in conflict with Member State policies or for data associated with a student's thesis work.

Data Management Plans

IIOE-2 investigators are encouraged to write a data management plan for their respective research programs and cruises. A data management plan includes plans for stewardship of data, samples, physical collections, software, curriculum materials, and other materials to be produced during the course of the research project. The plan should reference community-accepted content standards to be used for data files and metadata records. Plans for data access and sharing including provisions for



appropriate protection of personal privacy, confidentiality, security, or other requirements should be clearly specified as required. The plan should also specify mechanisms for archiving data, samples, software code and other research products.

For guidance on writing data management plans, see:
UNESCO IOC (2016) “Guidelines for a Data Management Plan”. Paris. Intergovernmental Oceanographic Commission of UNESCO, 16pp. 2016. IOC Manuals and Guides No. 73. English. IOC/2016/MG/73. © UNESCO 2016

Also, an online, interactive data management planning tool is available that uses templates to guide the creation of a data management plans appropriate for a range of funding sources and data types, see DMPTool at URL: <https://dmptool.org/>.

ADDITIONAL INFORMATION:

DOI: Digital Object Identifier (<https://dx.doi.org>)

ORCID: Open Researcher and Contributor ID (<https://orcid.org/>)

GENERAL GUIDELINES:

A User Guide is available from INCOIS.

<https://iioe-2.incois.gov.in/IIOE-2/pdfviewer.jsp?docname=UserGuide.pdf>

IOC Manuals & Guides:

Cookbook

IOC Manuals and Guides No. 73 Guidelines for a Data Management Plan

IOC Manuals and Guides No. 77 IOC Strategic Plan for Data and Information Management