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INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION
(of UNESCO)

**Twenty-seventh Session of the IOC Committee on
International Oceanographic Data and Information
Exchange (IODE-XXVII)**
UNESCO Headquarters, Paris, 22-24 March 2023

Revision of the IOC Oceanographic Data Exchange Policy

This version includes minor editorial edits based upon comments from Member States received between 13 December 2022 and 6 January 2023, in response to an email to IODE national coordinators sent by the IODE Secretariat on 13 December 2022.

1 Background

The IOC Assembly, during its 22nd Session, adopted Resolution XXII-6, IOC Oceanographic Data Exchange Policy. The 25th Session of IODE (February 2019) revised Clause 5 of the policy which was adopted by the 30th Session of the IOC Assembly (June 2019) (attached as Annex 1).

At its meeting on 17 February 2021, the Management Group of the International Oceanographic Data and Information Exchange Programme (IODE) agreed that there were enough elements that warrant a revision of the IOC data exchange policy and a new IOC data policy should further promote and support free and open exchange of data in the framework of IOC activities and programmes. The Management Group acknowledged the amount of effort that went into building consensus on the current policy, especially with respect to acknowledging the rights of countries and the non-binding nature of the policy, so any changes should be carefully considered. Suggestions were made to build on other models such as the data policy of WMO that has a main policy with core principles, and modular extensions pertaining to specific data types or applications and products. This way the scope of the policy could be further expanded more easily if needed without opening a debate on the core elements. The ultimate goal of the IOC policy is to increase global cooperation, improved sharing and uptake of data and it is therefore important that data policies should not hamper, but streamline this within commonly agreed terms (e.g., use of a Creative Commons licence). The review of the current policy should ensure better alignment with data policies at national, regional and international level as well as those from other sectors, and should reflect current international principles (such as FAIR), which did not exist in 2003.

The IOC Assembly, during its 31st Session (June 2021), recognized that a revision of the 20-year-old IOC data exchange policy was timely and adopted Decision A-31/3.4.2 (International Oceanographic Data and Information Exchange) including part III *Revision of the IOC Oceanographic Data Exchange Policy (2003, 2019)* which established the IOC Intersessional Working Group on the Revision of the IOC Oceanographic Data Exchange Policy (2003, 2019) (IWG-DATAPOLICY) and defined its terms of reference¹. The IWG would reflect on the international, regional and national developments and improvements in data sharing principles and should align with updated policies from other organizations, such as WMO. The revised IOC data exchange policy should also serve and be applicable to the variety of data types and applications under the UN Decade of Ocean Science for Sustainable Development (2021-2030) and should consider the increased interest from philanthropic and private or commercial enterprises in using the ocean data collected by our Member States and recovered and stored by IODE.

In view of the complexity of the issue and the need for the most extensive inclusiveness possible the IODE Co-Chairs subsequently agreed on the following process to facilitate the work of the inter-sessional working group starting January 2022 with the following tentative timeline:

- STEP 1 (December 2021–February 2022): implementation of desk study on existing policies (IOC, UN, non-UN) by the IOC/IODE Secretariat
- STEP 2: (December 2021–February 2022): The IOC/IODE Secretariat will invite the following IOC regional subsidiary bodies and IOC programmes and projects to designate representatives to the IWG-DATAPOLICY as follows:
 - IOCAFRICA: 1-2 representatives
 - IOCARIBE: 1-2 representatives

¹ [A-31 Summary Report of the 31st Session of the IOC Assembly, 14-25 June 2021](#)

- IOCINDIO: 1-2 representatives
 - WESTPAC: 1-2 representatives
 - IODE: 1-2 representatives
 - Ocean Science (HAB, Ocean Acidification and GOSR): 3 representatives
 - GOOS: 1-2 representatives
 - Marine Policy and Regional Coordination: 1-2 representatives
 - Tsunami: 1-2 representatives.
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- STEP 3: (March–May 2022): The IWG-DATAPOLICY will be invited to discuss the issue and draft a first version of the new policy (the group will be invited to elect a Chair and possibly a Co-Chair)
 - STEP 4: (May–July 2022): The IWG-DATAPOLICY will share the draft with selected UN and non-UN organizations and partners and seek their comments
 - STEP 5: (August/September 2022): An information session will be organized (online) for IOC Member States (national focal points) to collect feedback
 - STEP 6: (September–November 2022): The IWG-DATAPOLICY will revise the first draft of the new IOC data policy based on input from steps 4 and 5.
 - STEP 7: (February/March 2023): The IWG-DATAPOLICY will submit the first draft of the new IOC data policy to IODE intergovernmental Committee at its 27th session
 - STEP 8: (May/June 2023): The IWG-DATAPOLICY will submit the final draft of the new proposed policy to the IOC Assembly at its 32nd session for adoption.

To inform Member States about this step process [IOC Circular Letter 2864](#) was issued on 9 November 2021.

2 Progress

STEP 1: a desk study on existing policies (IOC, UN, non-UN) was prepared by the IOC/IODE Secretariat (Mr Greg Reed) and published on 8 February 2022 as Document IOC/IWG-DATAPOLICY-I/5.

STEP 2: IOC global and regional programmes were invited to designate their representatives as members of the inter-sessional working group as indicated above. This process was completed in February 2022.

STEP 3: The First meeting of the IOC Inter-sessional Working Group on the Revision of the IOC Oceanographic Data Exchange Policy (IWG-DATAPOLICY-I) was held as a hybrid meeting on 5-6 April 2022. The report is available as Document IOC/IWG-DATAPOLICY-I/3. The meeting recommended that revisions should add “terms of use/licensing” to the policy. The meeting also agreed on a work plan, timetable and assignment of responsibilities and identified UN and non-UN organizations and other partners that should be consulted in the process. The IWG designated Mr Taco De Bruin (IODE Co-Chair) as its Chair.

STEP 4: Online drafting by the IWG membership took place in April and May 2022 with a draft policy as a result. It was now entitled “**IOC Data Policy and Terms of Use (2023)**”. This draft was shared with the 18 organizations identified under Step 3 in June 2022 inviting their comments.

STEP4A: Based on the feedback received by the mentioned organizations a revision was prepared by the Secretariat which was shared with the IWG membership and discussed with the membership on 23 September 2022.

STEP 5: On 30 September IOC Member States (through their official contact points) were invited to a briefing session that was held online (with interpretation to/from English, French, Spanish and Russian) on 21 October 2022. The session was organized twice that day to enable participants from different time zones to participate. During this information session the draft version of the new policy (IOC Data Policy and Terms of Use (2023)) was presented and explained. Participants were able to ask questions after the presentation.

The main comments and feedback received are summarized as follows:

- Licenses may be different for each data centre/data provider or even between individual data sets. Data centres or data services that collect these from various sources may face huge challenges dealing with this variety of licenses;
- There should be a stronger focus on “free and open” as was the case in the 2019 data policy and more encouragement of member states to share data;
- It was noted that, unlike organizations like WMO, IOC does not operate under a convention so all participation in IOC is based on voluntary participation and contributions.
- Need to split FAIR and CARE
- Need to elaborate more regarding best practices (documented)
- Should the principles of OIH be mentioned?

STEP 6: Based upon the feedback in steps 4 and 5 a revised version of the draft policy was prepared. This is the version that is now provided in this working document.

It is important to note that the policy is an “umbrella” policy that provides general guidelines agreed upon across all IOC programmes and projects. The IWG noted that IOC projects/programmes deal with a wide variety of data types that require different timelines, conditions of sharing and use licenses. It is therefore recommended that each of these communities develop more detailed implementation guidelines that respect the IOC Data Policy and Terms of Use (2023) but take into account specific issues related to the data types they handle. Similarly these programmes/projects will need to take into account that data centres/ data systems that collect and disseminate data from a wide variety of data sources may face substantial technical challenges if they need to deal with widely varying use licenses. Specific agreements may be needed in such cases.

STEP 6A: The version of the draft policy mentioned in Step 6 (and further discussed in this working document) was shared with the IODE community of IODE national coordinators for data management, IODE national coordinators for marine information management, ADU contact points and AIU contact points in December 2022.

3 Current draft of the IOC Data Policy and Terms of Use (2023)

This version is the result of Steps 1 to 5.

SECTION 1. PREAMBLE

The timely, open and unrestricted international sharing, in both real-time and delayed mode of ocean metadata, data and products is essential for a wide variety of purposes and benefits including scientific research, innovation and decision making, the prediction of weather and climate, the operational forecasting of the marine environment, the preservation of life,

economic welfare, safety and security of society, the mitigation of human-induced changes in the marine and coastal environment, as well as for the advancement of scientific understanding that makes this possible. Metadata, data and products should be accessible, interoperable and openly shared with minimum delay and minimum restrictions.

SECTION 2. PURPOSE

The purpose of this data policy is to outline the requirements with respect to sharing, access, preservation, and attribution to facilitate the broad use and reuse of metadata, data and products.

SECTION 3. FAIR & CARE PRINCIPLES

To support knowledge discovery and innovation both by humans and machines and to acknowledge indigenous data governance, data should meet the FAIR Guiding Principles (Findable, Accessible, Interoperable and Reusable)² and In the case of indigenous data and information, data should meet the CARE principles (Collective Benefit, Authority to Control, Responsibility, Ethics)³ to the greatest extent practicable.

SECTION 4. CONDITIONS OF USE

Data should be licensed (respecting Section 8) under a minimally restrictive and voluntary common-use licence⁴ that grants permission, ensures proper attribution (for example, citable using a persistent identifier) and allows others to copy, distribute and make use of the data.

SECTION 5. DATA REPOSITORIES AND THE IOC OCEAN DATA AND INFORMATION SYSTEM (ODIS)

Data should be quality controlled (using community adopted and documented best practices or standards), accompanied by complete metadata and stored in an openly discoverable and accessible data repository and made available through standards-based data services. Member States shall encourage convergence and interoperability and, where possible, use IODE data centres (National Oceanographic Data Centres or Associate Data Units) or other IOC programme related data centres that share metadata and data using the IOC Ocean Data and Information System (ODIS). ODIS is an interoperability layer and supporting technology to allow existing and emerging ocean data and information systems, to interoperate with one another.

SECTION 6: SECURE LONG-TERM DATA ARCHIVES

To support long-term and secure archival, data and associated metadata should be submitted, to the best practicable degree, to IODE's World Ocean Database (WOD), the Ocean Biodiversity Information System (OBIS), Global Sea Level Observing System (GLOSS), other IOC related global data archives, and data centres linked to the World Data System (WDS), their successors or other global data archives.

SECTION 7. ACCESS RESTRICTIONS

Data and associated metadata should be made available with minimal restrictions on use unless there are valid reasons to restrict access. Legitimate reasons to restrict access to, and

² Wilkinson, M., Dumontier, M., Aalbersberg, I. *et al.* The FAIR Guiding Principles for scientific data management and stewardship. *Sci Data* **3**, 160018 (2016). <https://doi.org/10.1038/sdata.2016.18>

³ CARE Principles for Indigenous Data Governance. <https://www.qida-global.org/care>

⁴ For example: the Creative Commons family of licences <https://creativecommons.org/about/cclicences/>

reuse of, data include, *inter alia*, privacy and confidentiality, protection of species, populations or habitats of concern, and national security.

SECTION 8. DATA SHARING POLICIES OF MEMBER STATES

This Policy acknowledges the right of Member States and data owners to determine the terms of metadata, data and products sharing in a manner consistent with national jurisdictions, international conventions, and treaties, where applicable.

SECTION 9. DATA AND METADATA SHARING GUIDELINES

IOC programmes, projects as well as other communities of practice should develop and/or apply, where applicable, detailed metadata, data and products sharing guidelines that are consistent with this IOC Data Policy and Terms of Use.

SECTION 10. DEFINITIONS

'Data' is a set of values, symbols or signs (recorded on any type of medium) that represent one or more properties of an entity⁵.

'Metadata' is 'data about data' describing the content, quality, condition, and other characteristics of data that allows their inventory, discovery, evaluation or use.

'Timely' in this context means the distribution of data and/or products, sufficiently rapidly to be of value for a given application

'Openly' means data that can be freely used, re-used and redistributed by anyone - subject only, at most, to the requirement to attribute and share alike.

'Product' means a value-added enhancement of data applied to a particular use.

Note: an instruction will be added to the draft decision to instruct the IWG or IODE to develop Guidelines for the development of detailed data and metadata sharing guidelines

4 Next steps

STEP 7: The IWG-DATAPOLICY will submit the first draft of the new IOC data policy to IODE intergovernmental Committee at its 27th session.

STEP 8: The IWG-DATAPOLICY will submit the final draft of the new proposed policy to the IOC Assembly at its 32nd session for adoption, possibly with amendments discussed and agreed by IODE-XXVII.

⁵ [Ocean Decade Implementation Plan \(Appendix 1/ Glossary\)](#)

ANNEX 1
IOC OCEANOGRAPHIC DATA EXCHANGE POLICY (2019)

The Intergovernmental Oceanographic Commission,

Recalling Resolution XX-11 on Oceanographic Data Exchange Policy (1999),

Noting:

- (i) WMO Resolution 40 (Cg-XII) which defined a policy and practice for the international exchange of meteorological and related data and is intended to promote the free and unrestricted exchange of basic data,
- (ii) The “Statement on Data Management Policy for Global Ocean Programmes” as submitted by the IOC Committee on IODE (Recommendation IODE-XIV.6, December 1992) and adopted by the IOC Assembly at its 17th Session (Paris, 25 February–11 March 1993) (para. 220 of the Summary Report of the Session),

Considering the reports of deliberations of:

- (i) The Ad hoc Working Group on Oceanographic Data Exchange Policy (Paris, 15–17 May 2000),
- (ii) The First Session of the Intergovernmental Working Group on IOC Oceanographic Data Exchange Policy (Brussels, 29–31 May 2001),
- (iii) The Second Session of the Intergovernmental Working Group on IOC Oceanographic Data Exchange Policy (Paris, 17–18 June 2002),

Adopts the IOC Oceanographic Data Exchange Policy as detailed in the Annex to this Resolution.

Financial implications: none

**Annex to Resolution XXII-6
IOC Oceanographic Data Exchange Policy**

Preamble

The timely, free and unrestricted international exchange of oceanographic data is essential for the efficient acquisition, integration and use of ocean observations gathered by the countries of the world for a wide variety of purposes including the prediction of weather and climate, the operational forecasting of the marine environment, the preservation of life, the mitigation of human-induced changes in the marine and coastal environment, as well as for the advancement of scientific understanding that makes this possible.

Recognising the vital importance of these purposes to all humankind and the role of IOC and its programmes in this regard, the Member States of the Intergovernmental Oceanographic Commission agree that the following clauses shall frame the IOC policy for the international exchange of oceanographic data and its associated metadata.

Clause 1

Member States shall provide timely, free and unrestricted access to all data, associated metadata and products generated under the auspices of IOC programmes.

Clause 2

Member States are encouraged to provide timely, free and unrestricted access to relevant data and associated metadata from non-IOC programmes that are essential for application to the preservation of life, beneficial public use and protection of the ocean environment, the forecasting of weather, the operational forecasting of the marine environment, the monitoring and modelling of climate and sustainable development in the marine environment.

Clause 3

Member States are encouraged to provide timely, free and unrestricted access to oceanographic data and associated metadata, as referred to in Clauses 1 and 2 above, for non-commercial use by the research and education communities, provided that any products or results of such use shall be published in the open literature without delay or restriction.

Clause 4

With the objective of encouraging the participation of governmental and non-governmental marine data gathering bodies in international oceanographic data exchange and maximizing the contribution of oceanographic data from all sources, this Policy acknowledges the right of Member States and data originators to determine the terms of such exchange, in a manner consistent with international conventions, where applicable.

Clause 5

Member States shall, to the best practicable degree, use data centres linked to the World Data System (WDS) and IODE's NODCs, such as the World Ocean Database (WOD) and the Ocean Biogeographic Information System (OBIS), as long-term repositories for oceanographic data and associated metadata.

Clause 6

Member States shall enhance the capacity in developing countries to obtain and manage oceanographic data and information and assist them to benefit fully from the exchange of oceanographic data, associated metadata and products. This shall be achieved through the non-discriminatory transfer of technology and knowledge using appropriate means, including IOC's Training Education and Mutual Assistance (TEMA) programme and through other relevant IOC programmes.

Definitions

'Free and unrestricted' means non-discriminatory and without charge. "Without charge", in the context of this resolution means at no more than the cost of reproduction and delivery, without charge for the data and products themselves.

'Data' consists of oceanographic observation data, derived data and gridded fields.

'Metadata' is 'data about data' describing the content, quality, condition, and other characteristics of data.

'Non-commercial' means not conducted for profit, cost-recovery or re-sale.

'Timely' in this context means the distribution of data and/or products, sufficiently rapidly to be of value for a given application

'Product' means a value-added enhancement of data applied to a particular application.