



INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION
(of UNESCO)

Second Session
of the Intergovernmental Working Group
on IOC Oceanographic Data Exchange Policy

UNESCO Headquarters, Paris, France, 17-18 June 2002

Abstract

The Second Session of the Intergovernmental Working Group on IOC Oceanographic Data Exchange Policy was held at UNESCO Headquarters, Paris, France between 17 and 18 June 2002. The Meeting agreed on a draft policy for submission to the 22nd Session of the IOC Assembly.

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1. OPENING

The Meeting was opened by Dr Angus McEwan, Chairman of the Intergovernmental Working Group on IOC Oceanographic Data Exchange Policy. In his introduction Dr McEwan recalled the proceedings of the 1st Session, that had taken place in Brussels, Belgium (29-31 May 2001) where participants had not been able to agree on a Draft Policy but did define a statement recommending elements that should be adopted as a basis on which the oceanographic data exchange and archival policy of the IOC should be formulated.

2. ADMINISTRATIVE ARRANGEMENTS

2.1 ADOPTION OF THE AGENDA

The Meeting adopted the Agenda as shown in Annex I.

3. NATIONAL STATEMENTS OF POLICY AND POSITION

In order to enable the consideration of national policies of oceanographic data exchange participants were invited to make short presentations. These are included as Annex II.

4. DRAFTING OF IOC OCEANOGRAPHIC DATA POLICY

In order to facilitate discussions a Discussion Paper, prepared by the Chairman, was introduced (see Annex V). The Meeting then proceeded with discussions on (i) the scope of the policy; (ii) clauses of the policy; and (iii) definitions.

The Meeting decided to create a policy statement including a preamble and six clauses:

- Preamble: to outline the fundamental principles
- Clause 1: statement on exchange related to IOC programmes
- Clause 2: statement on exchange related to non-IOC programmes
- Clause 3: statement referring to research and education communities
- Clause 4: statement on associated rights of the data originators and Member States
- Clause 5: statement referring to long-term repositories for oceanographic data
- Clause 6: statement on capacity building

5. ADOPTION OF THE DRAFT IOC OCEANOGRAPHIC DATA POLICY

After substantial discussion, the Second Session of the Intergovernmental Working Group on IOC Oceanographic Data Exchange Policy agreed on the following draft policy:

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 on the marine and coastal environment, as well as for the advancement of scientific understanding that makes this possible.

Recognizing the vital importance of these purposes to all humankind and the important role of IOC and its programmes in this regard, the Member States of the Intergovernmental Oceanographic Commission agree that the following clauses shall define their 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 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 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

The underlying aim of the IOC policy is to maximize the amount of oceanographic data for public use, while acknowledging the associated rights of the data originators and Member States.

Clause 5

Member States shall, to the best practicable degree, use data centres linked to IODE's NODC and WDC network as long-term repositories for oceanographic data and associated metadata.

IOC programmes will cooperate with data contributors to ensure that data can be accepted into the appropriate systems and can meet quality requirements.

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.

6. CLOSURE

In his closing remarks the Chairman thanked the delegates for their hard work in this Second Session and commended the Group for reaching consensus on a draft Policy on IOC Oceanographic Data Exchange. He informed the delegates that this Draft Policy would now be submitted to the 22nd Session of the IOC Assembly, as specified in Annex I to Resolution EC-XXXIII.4. He recalled that this Resolution had tasked the Intergovernmental Working Group with proposing to the IOC Assembly: (i) a statement of the general IOC principles and policy with regard to oceanographic data exchange; (ii) a statement of recommended practices and associated institutional arrangements for the exchange of oceanographic data; and (iii) a draft resolution for consideration by the Assembly.

Taking into consideration that (i) had now been accomplished, the Chairman requested the delegates to assist him, inter sessionally, with any further input and advice for the finalization of (ii) and the drafting of the Resolution for submission to the IOC Assembly at its 22nd Session.

The meeting was closed on Tuesday 18 June at 16h30.

ANNEX I

AGENDA

1. OPENING
2. ADMINISTRATIVE ARRANGEMENTS
3. NATIONAL STATEMENTS OF POLICY AND POSITION
4. DRAFTING OF IOC OCEANOGRAPHIC DATA POLICY
5. ADOPTION OF THE DRAFT IOC OCEANOGRAPHIC DATA POLICY
6. CLOSURE

ANNEX II

STATEMENTS ON NATIONAL POLICY

1. AUSTRALIA

An Australian National Position On Oceanographic Data Exchange Under IOC Programmes

Background

The First Session of the Intergovernmental Working Group on IOC Oceanographic Data Exchange Policy was held in Brussels, Belgium between 29 and 31 May 2001 and attended by 21 Member States. Australia was represented by Kim Finney (CSIRO Marine Research) and Geoff Love (Bureau of Meteorology). The aim of the meeting was to formulate a policy for the public exchange of oceanographic data and data products that could be agreed upon by all Member States. During its three days of deliberations the Participating Member States were given the opportunity to inform the Meeting on national policies. The Meeting then split into three sessional Working Groups: one dealing with the issue of a two-tier approach (as used by WMO Resolution 40, distinguishing between 'essential' and 'additional' data), and two dealing with the elements to be included in a policy statement. After substantial discussion, the First Session of the Intergovernmental Working Group on IOC Oceanographic Data Exchange Policy prepared a draft statement for submission to the 21st Session of the IOC Assembly.

Whilst the principles in the statement appeared to be supported by all Member States, it transpired that not all members were entirely comfortable with the statement as submitted and a Second Session of the Working Group has been scheduled for Paris, 17th and 18th June 2002, in order to reach a consensus. Kim Finney, endorsed by the Australian National Marine Data Group, will present the national position at this meeting. The Chair of the IOC Working Group is Dr Angus McEwan, Australia's delegate to the IOC.

The purpose of this briefing is to alert national marine data custodial agencies to this policy development exercise and to provide an opportunity for comment upon the draft national position.

Issues

1. Policy Scope

It is important for national marine data custodial agencies to understand that the policy proposed is an intergovernmental policy of the IOC. It is directed to the Member States of IOC and should strictly cover only IOC related programmes. The intention, however, is to develop the policy in a way that makes it a potential model for other international programmes managed under the auspices of the United Nations and indeed other programmes collecting data in the public arena. In this context it is important to note that the United Nations agencies have the main international mandate for research and observation programs directed to global change and beneficial use and protection of the environment. Clearly, national policies dealing with data exchange issues may differ significantly from the wording of the IOC Policy. But the concept is, that in the public interest areas covered by UN programmes, national policies of Member States would embrace the main complimentary principles of:

- **free** and **open** exchange,
- **timeliness** of data submission and exchange, and
- the use of the IOC International Ocean Data Exchange (**IODE**) framework of Data Centres¹ and any infrastructure arrangements established by the newly created Joint Commission on Oceanography and Marine Meteorology (**JCOMM**) or any other internationally recognised networks for data archiving, publication and data dissemination.

¹ *In Australia, the Australian Oceanographic Data Centre (AODC – Department of Defence) has been the IODE focal point for data exchange matters. This role is now under review with the possibility that Australia*

may take a distributed Data Centre approach to its IOC obligations, involving a number of linked, but geographically disparate Data Centres.

Whilst the Policy refers to “oceanographic data” it has been generally accepted during Working Group sessions that the thematic scope of data being referred to is “marine” in nature, rather than referring simply to data from the discipline of physical oceanography. More generically “data” has previously been defined by IOC working groups as “observation data, derived data and gridded fields”. This has been distinguished from “data/information products” that have been developed through post collection processing and data derivation involving an element of interpretation and “value-adding”. This distinction, in the context of previous deliberations, is important because the draft IOC Policy does not seek to bind “data/information products” to the principle of “free and open” access. Given the significance of this issue it is worth briefly focussing on this point.

Some will argue, and I agree, that the distinction made above, between “data” and “product” is not clear at all. Derived data often uses algorithms and their development is “value-adding”. This may be particularly true for satellite observations. Gridding often involves development of optimal methods which can also be conceived of as “value-adding”. This would imply that the “distinction” cited above is very fuzzy rather than clear, and without clarity the Policy risks being a toothless tiger.

In Australia we have tackled the problem of identifying which “data” or “product” is covered by a particular national policy through the use of “Data Schedules”. These are specific agreed lists of “datasets” or “products” that are covered by a Policy. A “Fundamental Data Schedule” applies to our Commonwealth Spatial Data Access and Pricing Policy”. It is also the Policy mechanism preferred by the UN Permanent Committee on the Geographic Information System Infrastructure for Asia and the South Pacific (PCGIAP) on which Australia is an active member. We should also note that a similar approach has been used by the meteorological community in the World Meteorological Organisation’s (WMO) Resolution 40. In this Policy there is a list of the essential minimum sets of data and products which WMO members are expected to exchange on a “free and unrestricted” basis. That is, what is actually covered by the Policy is explicitly, rather than broadly defined. The added benefit of composing a schedule is that it allows those nations that are nervous about the Policy covering the exchange of oceanic and coastal biological datasets to be more precise about what they are prepared to exchange in a “free and open” manner.

2. Definitions of “Free” and “Open”

A considerable sticking point in discussions between Member States has been to what degree the IOC Policy should mandate “free and open” access to data. Some member States, although agreeing in principle to the overall concept, have differed in their detailed interpretation of this approach. A number of Member States, including Australia have agreed with the principle but argued in the past for certain caveats to be placed on access to data. A typical caveat might be, for example, provision for a withholding period before data is widely disseminated in the public arena, during which time scientists can write up the results of their research for publication purposes. Some Australian scientists have suggested that this is an unnecessary restriction, whilst others have indicated that without such a clause they would not comply with Policy guidelines, even when formally tied to operating under its auspices. On balance, it seems as if those scientists holding the former view are more willing to negotiate on this issue than their colleagues holding the alternative viewpoint. So, whilst strongly disagreeing with such withholding periods, they could countenance a Policy where the term of such withholding periods was explicitly temporally limited. At the last IOC Working Group session the Australian position on this was actually split, with both delegates agreeing to disagree on the need for such caveats. At the next IOC Meeting Australia can only present one position on this principle.

3. Commonwealth Spatial Data Access & Pricing Policy

It is worth restating that since September of last year Australia has a Commonwealth Spatial Data Access & Pricing Policy. The purpose of this Policy is to maximise the benefit to the community by providing better access to Commonwealth holdings of spatial data. This Policy is premised on the view that

all fundamental spatial data should be freely available at marginal cost of transfer in order to maximise the net economic and social benefits arising from its use.

As user requirements and technology trends converge, all agencies will make fundamental spatial data available through their websites. This is consistent with the Access Policy and the broader Government Online initiatives. As datasets become accessible over the Internet, the marginal cost of transfer approaches zero. Therefore, all fundamental spatial data will eventually be made available free of charge.

The basic elements of this Pricing Policy are:

- custodians of fundamental spatial data will make that data freely available through the Internet at no cost, as soon as appropriate technology becomes available within the custodian agency;
- fundamental spatial data distributed as packaged products will be made available at a price not exceeding the marginal cost of transfer;
- fundamental spatial data distributed as customised products will be made available at a price not exceeding the full cost of transfer;
- there will be no restrictions on commercial use or value-added activities related to fundamental spatial data, as defined in the Schedule to the Policy, although copyright may be reserved by the Commonwealth.

The cost of providing fundamental spatial data as packaged products (e.g. CDs) or customised products (e.g. significant staff time to generate) is a legitimate charge to users - hence these will be made available at a price not exceeding marginal cost or full cost of transfer, respectively. However, data accessed through these mechanisms will also be available free over the Internet, as each agency develops this capability.

Although this Commonwealth Policy applies to “fundamental data” as listed on a specific schedule it is important to note that the principles of “free and open” access are the main tenets of the Policy and that customised products may attract a price reflecting the full cost of transfer.

Closely aligned with this Policy is the concept of an Australian Spatial Data Infrastructure (ASDI). It comprises four core components - institutional framework, technical standards, fundamental datasets, and clearinghouse networks. The Australia and New Zealand Land Information Council (ANZLIC), the nation’s peak cross-jurisdictional spatial data coordinating body has carriage of promoting this infrastructure. Despite the inference of its title, ANZLIC also has national responsibility for coordination of marine data management and access issues, through its Working Committee, the Australian National Marine Data Group. It is under the auspices of this Group that a National Position is being developed for Australia’s involvement in IOC related data exchange activities.

Proposed National Position

In light of discussions at the previous IOC Working Group Meeting, recourse to Australia’s own Data Access & Pricing Policy For Spatial Data, feedback from a number of marine scientists (mainly within CSIRO), the following national position is posited for presentation to the Second Session Of The Intergovernmental Working Group on IOC’s Oceanographic Data Exchange Policy:

1. Support for free and open access to all “marine” data collected under the auspices of IOC programmes, or partner projects that have the capacity to:

- benefit public use and protection of the ocean environment,
- facilitate the forecasting of weather, the monitoring/modelling of climate and climate change and ocean/ecosystem prediction,
- inform education and research activities.

Such data will be listed on a Policy Data Schedule – which will be continuously monitored and updated by the IOC.

2. “Free and open” to imply that the data is available to the community, researchers, IOC partner programs and potential commercial “value adders”, at no more than the marginal cost of transfer,
3. Support for the IOC/IODE network of Data Centres as the focal point for archiving, publishing and disseminating IOC program related data, including metadata,
4. Provision for the re-exporting of data, once data is within the IOC/IODE network without re-course to the original provider, providing that the data is re-exported with all of its associated metadata (including originator details and appropriate disclaimers),
5. IP (intellectual property) in all data remains with the originator who will be the definitive source regarding the quality of the data. The data originator should be cited in all published uses of the data and reserves the right to request a limited (in time) withholding period for the specific purpose of publishing results. Data (and associated metadata) should still, however, be forwarded in a timely manner to the relevant IOC/IODE focal point for archiving and dissemination (once any withholding period expires).
6. Metadata for data and data/information products should be published immediately without restriction.
7. All “marine” data collected under the auspices of IOC programmes, or partner projects to be submitted to the IOC/IODE network for dissemination in a timely fashion such that the transient value of the data in its application to a particular purpose (e.g. synoptic analysis or real-time prediction) is not significantly degraded,
8. Data or information products, not listed on the Policy Schedule can be submitted to the IOC/IODE system for distribution with restrictions placed on access, provided that these restrictive conditions are stated at the time of submission along with any desired pricing information. If used as a marketing medium, the IOC/IODE system reserves the right to recover any costs associated with marketing and distributing products.

Feedback

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2. BELGIUM

Belgium's point of view on IOC Data Exchange Policy (as presented during the Session)

The fundamental principle of IOC's current policy of data exchange is the free and open exchange of data. This is line with, amongst others:

- WMO Resolution 40 which states that exchange of oceanographic data cannot be restricted because of implications on safety at sea;
- the policy of ICSU's WDCs

Negative consequences of restricting this openness have been listed at the 16th Session of IODE:

- a decrease in the ability of the IODE system to provide integrated regional and global oceanographic databases for regional and global assessments such as IPCC, which serve as the basis of international treaties;
- creation of barriers for use of data for educational and training purposes;
- divergence of data policy between IOC and ICSU's WDCs. A more restrictive IOC policy would likely result in the departure from the ICSU-WDCs for Oceanography from the IODE system;
- creation of bureaucratic responsibilities to monitor the flow of restricted data that cannot be supported with the limited resources of IODE data centres;
- creation of legal requirements that will discourage the exchange of data between IOC Member States.

Probably the strongest argument in favour of the open approach is the following: data only achieve value through its use. The freer data are available, the more they will be used, and the more value they will attain.

Belgium's position has not changed since the First Session of this Working Group. This means that Belgium continues to support the existing IOC oceanographic data exchange policy.

- Belgium supports the fundamental principle of full and open access to all oceanographic, marine data and information (at least for research and educational purposes);
- Belgium embraces the principle of timeliness of data submission and exchange. Data should be available to all, i.e. researchers, IOC partner programmes and potential value adders, at not more than the marginal cost;
- Belgium recognizes the IOC/IODE network of data centres as the focal point for archiving, publication and dissemination of data, including metadata;
- Data can be re-exported without recourse to the original provider, providing that data is re-exported with all its associated metadata, including originator details and appropriate disclaimers. The data originator should be cited in all published uses of the data. The originator reserves the right to request a withholding period for the purpose of publishing results;
- Originators of value added products derived from marine data have the right to decide whether they charge for the provision of the products or not
- Privacy and/or confidentiality of the data: data collected in the framework of a research project should be available initially only to project members and funding authorities. This is to allow project members to generate publications on the basis of their research results. This is adequately provided for in the present IOC data policy (point 3), on condition that the period of exclusivity is counted from the date the data become available, not from the date samples were taken. Obviously the earlier the data become available the better; however, some types of data could need a longer interval than the 2 years proposed in the current data policy.
- Proprietary rights and restrictions imposed by the data provider: these restrictions should only apply to data that are not collected using public funding. For data collected under a publicly funded project, the restrictions under the previous point should apply. One could argue that privately

collected data sets that are not publicly available should be kept out of the IODE system. This should not apply to the metadata associated with it.

- Commercial use of data: open and free access to data might preclude development of commercial products based on these data, including developments by the producer/provider of the data. Gains from commercial products might be used for cost recovery of data collection, and be reinvested in new data collecting ventures, thus increasing the amount of data available. However, for all reasons explained above, and also because of the additional complications of building a revenue receiving structure, it is felt that disadvantages of cost recovery outweigh the advantages. Any data transmissions of free data should mention that these data should remain free. Specific fees and royalties could apply however to derived products, in any form.
- Recovery of marginal costs: the cost of retrieval, processing, copying and shipping data to satisfy a user request can, in the view of the current IOC data exchange policy, be recovered from the requester. The obvious advantage is that this would avoid a successful data centre going broke over the amount of requests it has to process. This approach is not without its hazards. Any cost would impose a threshold on access to the data, certainly for developing countries or countries with currency restrictions, or for data to be used for training purposes. The 'marginal costs' can be interpreted very broadly, making even those marginal costs prohibitive for some less fortunate data centres. Some level of standardisation of the calculation of marginal costs might be necessary.
- Raw data of insufficient quality: some sets of raw data are of very poor quality. Rather than divulging this low-quality data, it might be worth performing a preliminary quality check, and prevent too many invalidated data from flooding the system. This is provided for in the present policy by referring to 'quality ocean data' (preamble) but could be made more explicit.

A few other that are relevant are:

- Metadata should be made available as soon as possible, without the restrictions for research data. Also information on planned measurements and campaigns should be made available as early as possible, to avoid duplication of data collecting efforts;
- Technological developments make it easy to make data available through the Internet, especially through the WWW. Using the web to distribute data would make the cost of data distribution independent from the number of requests, and offers users access to the most recent data sets. However, data centres or other users with a narrow Internet connection run the risk of loosing out.

3. Canada

Management Policy for Scientific Data (submitted in advance of the Session)

Preamble

Fisheries and Oceans Canada, through its own programs and through exchanges with national and international organisations, has acquired a large volume of scientific data and information over the years, and manages these through a set of practices evolved over the years. Since these historical data sets are an extremely valuable and irreplaceable resource of the Department, it is essential to develop and implement a Science and Oceans data management policy to ensure the preservation and enhancement of the data, while facilitating efficient and appropriate utilisation. It is recognised that this policy has to be consistent with the many data sharing arrangements the Department has with external agencies in Canada and international organisations and with the obligations associated with these arrangements. The policy will have to be flexible enough to permit effective new partnerships and to be responsive to new priorities. The intent of this policy is to safeguard the present and future holdings of scientific data, to strengthen the promotion of data interconnectivity, to maximise the usefulness of existing data through standards, and to determine cost-effective ways to manage data holdings. The implementation of such a policy is consistent with the Government of Canada's initiative to rationalise and improve the overall cost-effectiveness of its data holdings.

Priorities Influencing the Policy

This policy is based on current Departmental priorities, which include:

- Support scientific research projects and resource assessments at a regional, zonal, national, or international level;
- Provide scientific information and data on ocean, coastal and inland waters and ecosystems in support of integrated resource management, conservation of marine, anadromous and freshwater fishery resources, and the sustainable development of aquaculture;
- Provide scientific information and data for the achievement of marine and freshwater environmental and fish habitat protection and conservation through an integrated approach;
- Support the information and data requirements for marine services, transportation, and navigation;
- Support the Departmental responsibility to review environmental impact assessments for approval of environmental design parameters associated with offshore, coastal zone and inland waters development;
- Collaborate with other federal and provincial governmental departments to ensure greater flexibility in timely and cost-effective access to data and information;
- Provide scientific information in support of policy development in the department;
- Support Canada's commitment to international organizations.

Basic Principles

1. Fisheries and Oceans Canada (DFO) scientific data sets are a valuable national resource that have been acquired through decades of investment, enabling the Department to maintain world leadership in aquatic sciences and aquatic management. These data are irreplaceable, and must be protected and managed to ensure long-term availability.
2. Because of the complex and often unique nature of scientific data, it is essential that DFO Science/Oceans maintain responsibility for their quality control, management, archiving and dissemination.
3. To ensure proper management and archival of data, all scientific data collected by the Department must be migrated to a 'managed' archive immediately after the data have been processed.
4. To obtain maximum benefit to the Department and to the user community at large, scientific data must be made available in a timely manner with full and open access, consistent with Departmental, national and international obligations with respect to its data holdings.
5. To obtain access to international data and information that are pertinent to Canadian needs, Canada must be able to exchange its data with other world data centres, subject to the 'Exceptions' listed in the section 'Availability of Access' below.

Data Management Policies

Data Archiving

All DFO scientific data must be managed as part of an integrated system accessible through regional, zonal and national data centres. The Marine Environmental Data Service, Science Sector, (MEDS) will provide co-ordination among regional, zonal and national centres as appropriate, to ensure that all data are properly managed. Where no data management centre exists in a Region, Science and Oceans managers will be required to designate and support indeterminate A-base staff positions that include data management responsibilities.

MEDS will continue to function as a national data centre for Departmental data with archiving functions shared as appropriate with existing Regional data centres, and will serve as the primary point of contact for international data exchanges except in cases where the ADM Science or the ADM Oceans has designated in writing an alternate data centre as the primary contact.

The responsibilities of the integrated system of data centres will be to:

- Respond to internal and external data requests, in accordance with 'Availability of Access' Section below.
- Maintain inventories and documentation for all data holdings for which they have designated responsibility, including references to data sets not stored at the data centre.
- Provide basic data retrieval, integration and summarization capabilities to satisfy common requests.
- Provide or authorize computerized networking linkages.
- Perform, in concert with the data providers, data quality control, verification and removal of duplicate data.
- Ensure long term accessibility and documentation in the event of organizational changes, retirements, etc.
- Protect data against loss resulting from error, accident, technological change, degradation of media, etc.

In cooperation with Regional staff, MEDS may provide any or all of the above services on behalf of a Region, if so requested by that Region.

Data Submission

It is the responsibility of Science and Oceans managers to ensure that data collectors under their management submit their data as well as data collected under contract to or partnership with other agencies, to the appropriate data centre in a timely fashion. This is important to ensure that data are quickly migrated into a 'managed' environment where they are properly backed up and secured from accidental or circumstantial loss, and where the supporting metadata are integrated with the data to preserve the long-term usefulness of a data set.

Timely fashion will be taken to mean that: (a) data sets will be submitted immediately after the data are processed (b) submission will not be delayed while data analysis, statistical treatment, interpretation and publication occur, and (c) submission will include metadata prepared by the data collector to accompany the data set and document the methodologies and other details needed so that others are aware of the potential limitations of the data.

Data encompassed by this policy include data identified in Annex 1, and any other scientific data that may be created or otherwise acquired by DFO.

Exceptions to this policy are possible if: (a) the responsible manager and the responsible data centre have agreed that the data in question are not appropriate for submission, or (b) it can be demonstrated that there is a legal imperative (e.g. legal chain of custody requirements) that categorically prohibits submission of the excluded data, or (c) an extension or exemption from the policy is sought for other reasons and granted in writing by the Regional Science/Oceans Director.

Data submission to the responsible data centre does not mean that the data will be openly accessible. Thus concerns about access shall not be seen as a valid reason for not submitting data. It is the responsibility of the Regional Science/Oceans Director to designate data as classified for the purpose of preventing access to data which may not and must not be openly accessible.

Availability of Access

DFO scientific data are a public resource and subject to full and open access within two years of being acquired. In cases where, in the opinion of the Regional Science/Oceans Director, there may be a danger of improper or incorrect interpretation of the data, steps shall be taken to ensure that potential users are fully apprised of this possibility and a contact person should be identified who can provide assistance in proper use and interpretation.

Exceptions will be made to this policy in the event that one or more of the conditions below are met:

- DFO investigators have written approval from the Regional Science/Oceans Director to delay access to the data; in such cases, the letter of approval will include the rationale for the delay, and an agreed-upon date for the release of the data;
- There are third party agreements, privacy concerns, or legal restrictions;
- The data are of commercial benefit to DFO, in which case they will be managed according to Departmental intellectual property management regimes and prevailing policy. The data would be protected under s.18 of the Access to Information and Privacy Act.

Where there is uncertainty or dispute over whether a data set meets the second or third condition, legal advice shall be sought and followed.

Future third party agreements for the provision or exchange of data will certainly have an impact on data management in DFO and must therefore be approved by NSDC to ensure consistency with this Policy.

Inclusion of a Data Management Component in Science Project Plans

All science project proposals and plans must demonstrate the existence of a comprehensive data management plan, or must develop one if the existing infrastructure cannot adequately respond to the requirements of the project, to address the management of scientific data collected during the life of the underlying project. This plan must include strategies and schedules for the transfer of the data to the responsible data centre. The project budget must clearly indicate the allocation of resources for data management and how these resources will be used. The Regional Science/Oceans Director or their designate will be responsible for conducting periodic reviews of data management activities to ensure that they are consistent with the plan.

National Inventory

A national inventory of DFO scientific data holdings will be maintained. It will be the responsibility of each designated data centre to maintain and update the inventories of its holdings. MEDS will be responsible for maintaining national links to all data inventories and the infrastructure to ensure the inventories are nationally accessible.

Acquisition of Data from Third Party Sources

DFO Science and Oceans sectors should pursue the acquisition of relevant scientific data from other national and international sources where these data contribute to the goals of the Department. This must be done in an open and transparent manner and DFO's rights and duties must be agreed upon by all concerned parties and approved by NSDC.

Data Submitted under Regulations or Having Legal Aspects

Scientific data that have legal aspects constraining their distribution, whether collected by DFO or submitted by third parties, will be kept in their original form, and appropriately secured. If confidential data are submitted by third parties, a letter from the third party will be obtained indicating that the data are confidential. As well, the data manager responsible for that data set should designate the data as "Protected - Third Party Information".

Data Rescue

DFO Science and Oceans sectors will develop a national data rescue program to locate and preserve scientific data that are of value to departmental programs and may be in danger of being lost.

Application of Technology

Science and Oceans data centres will manage their data and will service users in an efficient manner by taking full advantage of current technology within the existing Informatics framework where appropriate.

Access to Information and Privacy Act Considerations

DFO Science and Oceans sectors will manage their data in a manner consistent with the Access to Information and Privacy Act (ATIP) and the requirement to document the location, status, and availability of the data consistent with good data management practices. When scientific data are requested under the Act, MEDS officials or the responsible Science/Oceans Regional Director should provide the data to the ATIP Secretariat in HQ and inform ATIP as to whether the data are confidential (along with supporting rationale for confidentiality) or inform ATIP that the data can be disclosed.

Working Mechanisms

A permanent National Data Management Working Group (NDMWG), with representation from Regions and Sectors and a chairperson from MEDS, will be established, reporting to the ADM Science and ADM Oceans. MEDS will carry the secretariat function for the group. Annually, the group will review the data management activities, assess last year's performance against plans and define the tasks and milestones for the coming year. MEDS will have the responsibility of presenting a report on the status of scientific data management to the ADM Science and ADM Oceans, and to make recommendations to correct any deficiencies that prevent the policy from meeting its objectives.

Implementation

It will be the responsibility of the Regional Directors of Science/Oceans to implement and ensure adherence to this policy. Inter-regional and inter-sectorial issues and concerns will be addressed by the ADM Science and ADM Oceans, as appropriate.

Contacts

For further information on this policy or on accessing the scientific data please contact:

Director, Marine Environmental Data Service

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Ottawa, Ontario, Canada, K1A 0E6

(Tel) 613-990-0265

(FAX) 613-993-4658

e-mail: services@meds-sdmm.dfo-mpo.gc.ca

Appendix 1: Some Data Types Covered Under the Management Policy of DFO Scientific Data

- A. Physical oceanographic data
- B. Hydrological data (e.g. Flow volumes of streams and rivers)
- C. Meteorological data
- D. Biological oceanographic data
- E. Marine chemistry data
- F. Contaminants data
- G. Fisheries data
 - Biological data (from catch sampling, trawl and acoustic surveys, sentinel fisheries and industry surveys, science logbooks, etc.)
 - Field and lab data in support to stocks' assessment process
 - Fish health data
- H. Freshwater and marine habitat data
- I. Freshwater biological data
- J. Experimental Lakes Area (ELA) data
- K. Data collected by the Canadian Hydrographic Service, subject to CHS agreements and operational practices.

4. Chile

CHILE National Statement on Oceanographic Data Exchange Policy. (submitted in advance. Chile was unable to attend the Session)

Since the establishment of the Chilean NODC in 1968 (known as CENDOC), Chile, as a Member State of IOC has been following, practicing and implementing the policies and procedures of the IODE-IOC Assembly, related to ocean data management for global science programmes. Ocean data has been provided to the operational, scientific and educational community directly or through the WDC-A.

Even though, Chile does not have an official written policy yet, at a national level there are ongoing efforts and discussions between different partners to establish it. Notwithstanding, in principle Chile supports the concept on free and open exchange of oceanographic data (essential data), especially the data coming from public funds. Furthermore, Chile also understands the importance to clearly regulate the possible and necessary interactions between Data Centres and data providers (other than public data or additional data) in relation to proprietary rights for further use/re-exporting of the data or the need to commercialise some of them to recover part of the operating cost.

FERNANDO MINGRAM LOPEZ
CAPTAIN
DIRECTOR SHOA
CHILEAN IOC REPRESENTATIVE

5. China

National Position of the P.R. China on IOC Oceanographic Data Exchange Policy June 17-18, 2002 (as presented during the Session)

The IOC oceanographic data exchange policy is of great significance for the marine scientific research and services of the IOC Member States. Up to now, the IOC oceanographic data exchange policy has played a very important role. China, as an IOC Member State, has supported and will continue to support the existing IOC/IODE full and open policy of oceanographic data exchange. And China has always complied

with and implemented the relevant policies and procedures. However, the Chinese side hopes to emphasize the following:

China supports the full open (free and unrestricted) principle on the oceanographic data and data products. IOC should establish a reliable and effective mechanism to make the oceanographic data and products fully serve the marine environmental protection, human life and property, social public welfare, scientific research and education.

China supports the principle of “reciprocal exchange and sharing” of the oceanographic data and products. “Reciprocal exchange and sharing” does not refer to the quantity of the exchanged data and products, but to the fact that the IOC Member States engaged in the oceanographic data and products exchange have the right of equal sharing of the oceanographic data and data products obtained in all IOC programmes and projects.

It is necessary to retain the principle of free exchange should remain in the data and products exchange among the IOC Member States and in the exchange of data and products obtained in the regional projects supported by the IOC programmes and the projects by international organizations. The IOC Member States should be able to get all the information on metadata free of charge.

Supporting for the NODCs of IOC/IODE member states and WDCs as the focal point for archiving, publishing and disseminating IOC programmes and projects related data, data products and their metadata. In order to ensure the rapid and effective exchange and services of oceanographic data, it is suggested that the data exchange should be conducted by the national oceanographic data centres of the IOC Member States. Meanwhile, it is requested that the NODC of the Member States should provide the exchanged data and data products for their native scientists and users, and provide their own data and products for exchange and service among the Member States.

It may be considered that the contributions of the originators should be confirmed when their data or data products serve others or new products are resulted from these data or data products. For instance, users should note the sources of data and data products when they publish their research articles.

Considering that the quality of oceanographic data plays a very important role in the data exchange and services, it should be collect users’ feedback information after being exchanged and served.

6. Cuba

Position of the Republic of Cuba

Just as was stated during the first session of the Intergovernmental Working Group on IOC Oceanographic Data Exchange Policy, held in Brussels, Belgium, May 2001, Cuba shares the principle of free information and data exchange. However this principle should be applied under conditions of equality and respect to the rights of the states, not only to protect their resources but also to facilitate them a free use of knowledge and technologies that allow an ample and appropriate use of any available information. This is even more reinforced at present times, when some of the ethical principles of the founder fathers of IOC are vanishing under the pressure of irrational commercialisation.

Bearing in mind the next 2nd Session of the Intergovernmental Working Group on IOC Oceanographic Data Exchange Policy to be held in Paris, 17-18, June, 2002, Cuba’s National Oceanographic Committee wishes to inform its country position concerning this important issue.

Cuba declares its support to the principle of free and open exchange of oceanographic data, on the condition that it has to be carried out on the basis of ethical norms.

Therefore, the establishment of an IOC oceanographic data exchange policy shall be developed together with the approval of the corresponding ethical principles.

Cuba also sustains that:

1. All data generated by an institution constitute an essential part of its scientific patrimony.
2. All data obtained as a result of international exchange should be used solely for scientific and educational purposes, and not for any commercial objectives, except for those previously agreed among the interested parties. In this case reliable and transparent mechanisms will be settled down to control the exchanged data.
3. The rights of the originator of the data will be recognized in all products or services resulting from the use of the data.
4. The institutions will commit that the data could be freely accessed after a two- (2) years period after its capture, or before this period according to the criteria of the originator Institution.
5. The originator institution will never lose the property rights on the data. Therefore, it will be free to decide to charge or not for the commercial rights concerning the use of their data for purposes of this nature.
6. All data resulting from research programs of regional scale or even bigger scales, or data resulting from projects financially supported by international organizations, will be considered free for exchange.
7. Free access to data of local scale but indispensable for understanding of regional or global processes and/or phenomenon, will only be obtained through the direct contact among the originator and the interested party, fulfilling the corresponding national policies.
8. All metadata will be freely and unrestrictedly exchanged.
9. Data from observations of the program of volunteer ships are for free exchange.
10. Free and open exchange not necessarily means equal possibilities and profits to all countries; therefore capacity building will be the basis of the real development and application of an IOC policy for free and open oceanographic data exchange
11. Capacity building (of human, institutional and organizational resources) will be unconditional, universal and based on solidarity with developing states.
12. Capacity building will include transfer of technology and knowledge in order to reach an effective and real development of the possibilities and abilities for free data exchange, management and use in all directions and purposes. This will be understood as real free access to data not only from developing to the developed world, but from developed to developing countries.
13. The IODE (IOC) program and their regional components (ODINCARSA, ODINAFRICA, etc) should be sustained strengthened in order to ensure an appropriate process of capacity building and a proper process of policy and ethics application.

7. France

The French delegation considers that the data policy to be discussed here can have a regulatory status only for what concerns IOC programmes. Out of this context, it can only be an incentive.

Furthermore, we consider two aspects to be covered by the policy:

- a) the timely exchange within the framework of operational programmes such as GOOS of for implementing some international conventions (safety at sea, climate change, etc). We consider that resolution 40 of WMO provides a sound framework for that, especially because most of data to be dealt with here, mainly physical oceanography data, are already covered through the joint IOC-WMO commission J-COMM. For that reason, IOC will not escape to establishing an essential data catalogue for the programme implementation.
- b) data specifically acquired for research, could be made available to IOC programmes provided some clauses guarantee the rights of the originators and/or funding entities.

More generally, we consider that data exchanged under IOC programmes shall be forwarded to research and education at not more than the extraction and reproduction costs. We also consider that any use of these data for commercial activities requires a contractual approach guaranteeing, amongst others, the rights of the originator. To conclude it appears to us logic that IODE be the long-term repository of data exchanged under IOC programmes.

8. Germany

Germany's Position

With reference to IOC Circular Letter No. 2016 of 18 March 2002 the German position on an IOC data exchange policy is given in the following.

1. Germany support the fundamental principle of full and open access to oceanographic data and information, at least for research and educational purposes.
2. Originators of value added products derived from ocean data shall have the right to decide whether they charge for the provision of the products or not.
3. Germany will continue to provide on a free and unrestricted basis those ocean data which are necessary for the provision of services in support of the protection of life and property as well as for the well-being of all peoples.
4. Germany will continue to provide on a free and unrestricted basis ocean data which are required to sustain programmes and projects of IOC, including those undertaken jointly with other organisations, related to operational oceanography and ocean research at the global, regional and national levels.
5. To accelerate and increase the submission of data into the international exchange systems Germany favour the possibility for data originators to attach conditions on the transmission of their data set to secondary users. This principle has proved successful to accumulate ocean data in data centres fairly soon after their collection.
6. Data recipients who use ocean data for commercial purposes are charged for the data reproduction and delivery.
7. Germany have no strong feelings about the re-import of German oceanographic data to a German commercial customer without charge. The small number of such cases would certainly not justify the immense organisational mechanisms which had to be established amongst national, regional and world data centres to monitor the data flows.
8. Germany recommend that the oceanographic part of WMO Resolution 40 be formally endorsed by IOC-22 in a corresponding resolution.

The German delegation would like to continue with the results achieved by the ad hoc Working Group on Oceanographic Data Exchange Policy which met in Paris from 15-17 May 2000. That meeting had drafted a rather substantial statement which left open only a few issues. The meeting in June this year should focus on the unresolved questions of the ad hoc meeting in 2000 rather than start from scratch, as it was done in Brussels in 2001.

Dieter Kohnke.
For the German IOC Committee

9. India

The Government of India is totally committed to working with other member States and IOC to promote oceanographic programmes, capacity building and benefit of free exchange of oceanography data and products which are necessary for the common public use and well-being of all people.

However, there are certain national security considerations peculiar to India which need to be taken into account while formulating a policy on exchange of oceanographic data. Accordingly, our position on exchange of oceanographic data is given in the succeeding paragraphs.

Sub-surface Oceanographic Data pertaining to our TW & EEZ are classified as “Confidential” for purposes of exchange of data with International Agencies. Such data is totally closed for exchange with International Agencies. Exceptions, however, can be made in respect of data collected in our EEZ to support studies in such areas such as Marine Pollution, Marine Fishing, Marine Algae, Chemicals, Drugs from the sea, etc.

All Member States should have the exclusive jurisdiction to regulate exchange of data collected in their Exclusive Economic Zones, In the case of Data from Argo floats, such data should be received, transmitted and regulated by the concerned State. Such states should set up their own ground stations for reception and transmission of data.

Data pertaining to open oceans beyond EEZ could, however, be exchanged unrestrictedly amongst the Member States.

10. Iran (Islamic Republic of)

Iran is adjacent to three important water bodies of the Persian Gulf, Oman Sea and the Caspian Sea. The sustainable management of marine resources and environment of the above mentioned water bodies requires the access to quality marine data. Therefore, the attention towards marine research and oceanographic data collection and management is increasing significantly in Iran. Currently, different Iranian governmental institutions are participating in national projects and collecting and managing various categories of oceanographic data such as physical data, Sea level data, biological data, geological data, bathymetric data, etc. Iran also is actively participating in the regional marine projects within the framework of regional organizations such as CEP in the Caspian Sea and ROPME in the Persian Gulf and Sea of Oman regarding collecting and managing of marine data.

There is also especial attention for increasing the capacity of the country in data management and in this regard in October 2002 Iran will host an IODE Training Course on data management for the Caspian Sea and the Black Sea regions.

Iran presently does not have a national oceanographic data exchange policy, but the need for that policy is recognized by most of the related institutions in Iran. However, Iran supports the principle of free and open sharing of oceanographic data.

The Iranian National Oceanic Data Centre is based in the Iranian National Centre for oceanography. This centre is following IODE instructions for data formatting, data quality control and data management and in this regard we are getting help from NODC s in the other countries and I would like to express thanks to France NODC for their help during the last year. The data available in the Iranian National Centre with the permission of the originator organizations will be placed on the INCO web Page.

11. Italy

National Position on Oceanographic Data Exchange: ITALY

The issue of the IOC Oceanographic Data Exchange Policy is of crucial and fundamental importance to the future of ocean sciences and services in all IOC Member States. In Italy does not exist yet an official national policy and concretely a designated IOC/IODE able to operate and financially support the activity within the network of IODE and/or Declared National Agency (NDA). However, Italy “de facto” supports the free and open exchange of oceanographic data including also bio-geochemical data. This policy has been implemented through the participation of Italian agencies and institutions to several international programs mainly on EC basis (EDMED, MODB, MATER, MEDAR/MEDATLAS), and actually, within EDIOS and MAMA (projects devoted to design and implement a metadata archive of EuroGOOS real time data acquisition platforms in the seas around Europe).

Dr. Renzo Mosetti, OGS, Trieste.

12. Japan

National position on IOC oceanographic data exchange policy: JAPAN

The Intergovernmental Oceanographic Commission (IOC) of UNESCO has been established to aim at promoting scientific investigations through the concerted action of the member states in order to learn more about the nature and resources of the ocean for which investigations and researchers are too formidable a task to be undertaken by any single country or a small number of countries.

The observation data showing the various phenomena and the ecosystem in the ocean is never reproducible. Therefore, the oceanographic data obtained by each program of IOC should finally be treated as the properties to be shared among the IOC member states, and should be recognized as the common properties of the human being.

IOC should build up a mechanism to everlastingly manage and provide observation data and the result obtained by each program of IOC to the users of the member states and the users who are interested in the result of various IOC activities.

With such recognition, IOC has been setting up the International Oceanographic Data & Information Exchange (IODE) system since the establishment of IOC in order to encourage exchanging of oceanographic data among the member states on the basis of the data policy "Full and Open sharing".

Therefore, in view of many achievements of IOC, we continue to support the existing IOC oceanographic data exchange policy.

However, we have to consider the right of the data originator who has participated in each program of IOC, and we should consider setting a suitable term before publicizing the observation data and results in every program of IOC.

13. Morocco

NOT RECEIVED

14. Russian Federation

(received in advance. Delegate was not able to attend)

National position of the Russian Federation on IOC's oceanographic data exchange policy

1. National position of the Russian Federation on international oceanographic data exchange is fully consistent with the following Federal Acts of the Russian Federation: “On Information, Informatization and Protection of Information” and “On International Information Exchange”. In accordance with these Acts state information resources are subject to full and open access. An exception is made to the restricted access information for the reason of national security, confidentiality and other restrictions.

Taking into account the requirements of the Acts mentioned above and bearing in mind fruitful practice of international oceanographic data exchange maintained throughout the history of IOC IODE system the Russian Federation considers the fundamental principle of IODE to be the principle of full and open access to oceanographic data.

However it is evident that some restrictions may be imposed on data submitted for international exchange due to specific features of relevant national laws of IODE Member States. IOC's oceanographic data exchange policy should take proper account of these features.

2. IOC's data exchange policy should be oriented to strengthening the IODE system based on coordinated activities of Responsible (RNODC), National (NODC) and World (WDC) Oceanographic Data Centres. With this in view the IOC policy should reflect the following:

- IOC fundamental principle;
- IODE principles related to IOC Member States (RNODCs and NODCs);
- IODE principles related to World Data Centres.

Position of the Russian Federation with regard to the IOC fundamental principle is given above (item 1).

3. IODE principles related to IOC Member States should be based on the following:

- IOC Member States ensure provision of and (or) free and open access to data, which are essential for services in support of the protection of life and property;
- IOC Member States made data accessible to IODE voluntarily through DNP and International Research Projects/Programs;
- IOC Member States submit for IODE data which are properly documented (i.e. data, which are on a physical media and which have requisites including requisites of data owner/provider);
- IOC Member States made national data accessible to IODE through NODCs.

But:

- the mechanism of informing NODCs on the World Ocean information resources arriving to IODE should be developed;
- NODCs collaborate with national data owners on the basis of the national applicable laws;
- IOC Member States submit global oceanographic data to be used for non-commercial activities. For commercial activities these data may be used exclusively by agreement with the relevant NODC and on conditions stipulated by the national applicable laws;
- IOC Member States reserve proprietary rights and copyright for data being submitted;
- IOC Member States submit data for IODE within 1-year period from the moment of taking observations. In case the research programme has an exclusive period for data obtained in its framework to be used for scientific publications and other purposes IOC Member States can submit data for IODE within a 2-year period;

- IOC Member States submitting data for IODE should use international data and information exchange standards and protocols to the greatest extent possible.

4. IODE principles related to World Data Centres should be based on the following:

- o WDC activities are coordinated by the relevant IOC and ICSU bodies, which should initiate and be involved in development of a mechanism regulating delivery of information resources generated under IOC programmes and programmes/projects supported by IOC;
- o information holdings of WDCs in a specific discipline should be identical in content. It is necessary to develop a mechanism which will allow to maintain WDCs data holdings identical;
- o WDCs should provide users with data without restrictions and free of charge (provided that data are used for non-commercial activities) or at a cost not to exceed the cost of preparing and sending the requested data;
- o WDCs should use international data and information exchange, storage and dissemination standards to the greatest extent possible.

15. Ukraine

NOT RECEIVED

16. United Kingdom

Statement on UK's national oceanographic data policy

The UK policy for marine data exchange has not changed from that outlined at the 2001 Brussels meeting of the Group as recorded in the report of that meeting. It is consonant with the new UK Government policy for all basic data collected in the public sector, and at public expense. Data collected and subject to UK Crown Copyright is to be available via the web, easily and at marginal costs. This open access applies to all potential users, without restriction either to the expected use or user nationality. Users are asked to register their interest, and to acknowledge the data source. The aim is to maximise the use and value of the data, rather than to maximise the limited income to the national funding agency which made the observations. This fundamental change of Government policy at present excludes Trading Funds including the Met Office and the Hydrographic Office as they have to find other sources of funding to replace the income from selling basic data. For purposes of research and education it has always been UK Government Policy to make data available free, or in rare cases, at marginal cost.

17. United States of America

The U.S. supports the existing IOC/IODE policy, which calls for full and open exchange of all ocean data.

The existing IOC policy has been in effect and has served its members well since the first IOC Assembly in 1961 (Reference IOC Resolution I-9). Annex 1 to WMO Resolution 40 considers "all available *in situ* observations from the marine environment" to be part of the "minimum set of data and products which are essential to support WMO programmes and which members shall exchange without charge and with no conditions on use". In the U.S. view, therefore, the existing IOC/IODE policy is fully consistent with and supportive of the WMO's carefully considered policy already approved by governments, including that of the U.S. This point was likewise recognized by the WMO Executive Council Advisory Group on the International Exchange of Data and Products held January 31-February 1, 2001. If one or more Member States has a restrictive data policy, it does not follow that all Member States should adopt a restriction.

18. Viet Nam

Vietnam point of view on IOC Data Exchange Policy

Through the process of Oceanography research and economy activity, Vietnam was collected and stored a large amount of data on over South of China Sea. Most of that data was placed in different Research and Develop Centres. The problem is to collect, store and manage all data in one place be required, as well as the requirement of data exchange with foreign Oceanographic data centre was make in serious. With this situation, Vietnam Oceanographic Data Centre was established.

During the years, with the effort of all members of VODC and the support of Institute of Oceanography Nha Trang, VODC has been collected, processed and stored a lot of oceanographic data of South of China Sea. However, with a small finance, all the VODC works just limit in Collecting, processing and storing data in personal computer (PC). Via the IOC, VODC hope to have the support from any sources to enhance the capacity, improve the professional knowledge, link to others Data Centre, have a place on the Internet (Web site) and develop VODC to fall in line with all Data Centres on over the world.

In the point of view of Vietnam is hope to support the existing IOC oceanographic data exchange policy, which calls for free and unrestricted access to all data, metadata and products generated.

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19. ICSU/SCOR

Statement by ICSU

ICSU, the International Council for Science, and its Scientific Committee on Oceanic Research (SCOR) are partners of the IOC in many programs. Among these, the IODE system works closely with ICSU's World Data Centre system. IOC and ICSU are joint sponsors of the World Climate Research Program and the International Geosphere-Biosphere Program. ICSU is thus concerned that any data policy adopted by the IOC not jeopardize the many programs that are jointly carried out.

ICSU and SCOR would like to see an IOC data policy that promotes free and unrestricted exchange of data, derived products and metadata. This is the policy of ICSU's World Data Centres (WDC) which provide access to all data holdings on a non-discriminatory basis ("non-discriminatory" in this sense means that data users in all countries have equal access). ICSU and SCOR hope that the IOC data policy will be short and clear so that its meaning will be clear to all. They look forward to continuing the partnerships with the IOC.

ANNEX III

LIST OF WORKING DOCUMENTS

WORKING DOCUMENTS

Discussion Paper (version 22 April 2002)

National Position Papers: Australia, Chile, Cuba, Germany, Italy, Japan, United States of America

INFORMATION DOCUMENTS

IOC Circular Letter 2003	Nomination of Representatives to The Intergovernmental Working Group on IOC's Oceanographic Data Exchange Policy
IOC Circular Letter 2014	Second Session of the Intergovernmental Working Group on IOC's Oceanographic Data Exchange Policy: Invitation
IOC Circular Letter 2016	Second Session of the Intergovernmental Working Group on IOC's Oceanographic Data Exchange Policy: National Position
IOC/INF-1144rev.	Meeting of the <i>ad hoc</i> Working Group on Oceanographic Data Exchange Policy (Paris, France, 15-17 May, 2000)
IOC/INF-1163	First Session of the Intergovernmental Working Group on IOC Oceanographic Data Exchange Policy (Brussels, Belgium 29-31 May 2001)

ANNEX IV

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ANNEX V

DISCUSSION PAPER

1. Do we need a preamble?

- (a) **We draft a preamble**
- (b) **We accept the preamble of the 2000 SWG (see Annex 1)**
- (c) **We leave it to the IOC Assembly**
- (d) **No preamble.**

Draft preamble

‘The timely⁷ and unrestricted¹ 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 preservation of life, the mitigation of human-induced changes on the marine and coastal environment, as well as for the advancement of scientific understanding that makes this possible. Recognizing the vital importance of these purposes to all humankind, the Member States of the Intergovernmental Oceanographic Commission agree that the following clauses shall define their policy for the international exchange of oceanographic data and its associated metadata’.

2. The core of the policy

It appears there is general consensus on the basic principle of free and open exchange of data for public good purposes. Options:

- (a) **See draft below (offered by USA).**
 - ‘All data, products, and associated metadata from IOC programmes shall be subject to timely exchange on a free and open basis’
- (b) **Provide clauses covering IOC programmes and also embracing other essential public good purposes as in Annex 1, clauses 1, 2 and 3 or in Annex 2 Clauses 1 and 3, unaltered;**
- (c) **Group the clauses together, e.g.:**
 - ‘Member States shall provide free and open access¹ to all oceanographic data² and their associated metadata³:
 - Necessary for application to the preservation of life, beneficial public use and protection of the ocean environment, the forecasting of weather, the monitoring and modelling of climate and sustainable development in the marine environment;
 - From all IOC-sponsored programmes;
 - Acquired and applied for non-commercial⁴ use by the research and education communities, providing that any products or results of such use shall be freely available in the open literature without delay or restriction.’

3. Additional Clauses

The IWG will be asked to consider whether additional clauses should be recommended to embrace the following issues:

(a) Promoting the use of IODE and national coordination bodies

This is covered in Annex 1 Clause 7 and Annex 2 Clauses (ii), (iii), 5 and 7, which could be combined as follows:

- Member States shall to the best practicable degree, use data centres linked to the IOC/IODE system as long-term repositories for oceanographic data and associated metadata accumulated using public funds. IOC programmes will cooperate with data contributors to ensure that data can be accepted into their systems and can meet quality requirements.
- Member States shall promote the establishment of national coordination bodies or mechanisms for the development of consistent national policies on marine data management and exchange

and shall encourage the maintenance of operational links between these bodies and relevant IOC programmes, IODE in particular.

(b) Commitment to capacity building

Covered by Annex 1 Clause 8 or Annex 2 Clauses (v) and 6 but could be rephrased, e.g.:

- Member States shall enhance the capacity in developing countries to obtain and manage oceanographic data and information and benefit fully from the exchange of oceanographic data and products through appropriate means, including IOC's Training Education and Mutual Assistance (TEMA) programme.

(c) Proprietary data

This issue has not been settled. Annex 1, Clauses 4, 5 and 6 and Annex 2, Clauses (iv) and 8 were attempts to resolve it. The following are offered as an alternative for discussion:

- Proprietary rights to oceanographic data rest with the originator, who may apply conditions of access such as fees and charges, exclusive use, withholding periods⁵ or availability for use or re-export⁶. However, in the interests of maximizing the amount of data available for beneficial public use, Member States are encouraged to require data originators receiving national sponsorship of their activities:
 - o To make all oceanographic data that are essential for the operational forecasting or 'nowcasting' of weather, climatic extremes, severe natural events, for the protection of life or the mitigation of acute environmental damage freely and openly accessible using current technology within a period appropriate for their effective and timely⁷ application.
 - o For data of restricted access or whose value may be diminished by re-export or unauthorized use, to make available to a IODE-linked data centre, without charge or delay, the associated metadata on any derived or computed composites, fields or results.
 - o Generally to minimize the application of costs and other impediments to the exchange of oceanographic data in the international community.
 - o Member States shall promote the establishment of cooperative arrangements between public and private oceanographic data providers and users to maximize the beneficial use of data;
 - o Proprietary restrictions to oceanographic data cannot be retrospectively applied to data, metadata or data products that have been released or made available:
 - To programmes identified as sponsored or co-sponsored by IOC or done in an acknowledged association with IOC programmes;
 - To the IODE system, unless the restrictions are specifically defined in the metadata information.

(d) Specifics of timeliness

Timeliness has not been explicitly included in previous policies but the elimination of technical impediments makes it more important that unnecessary delay is avoided. The following is offered for consideration:

- o Where data and/or metadata are released for free and open access and especially where the timeliness of such data is important to their effective application, Member States shall to the best practical degree, expedite distribution by encouraging:
 - o The removal of administrative obstacles to timely⁷ release;
 - o The implementation of current technology and best practice for archiving, quality control, validation and transmission to internationally designated data centres using the Internet, the Global Telecommunication System or other appropriate means;
 - o Reference to IODE and JCOMM for technical guidance and for integration with international networks;

(e) Definitions

For debate:

1. 'Freely and openly accessible' means being made available without restriction at a charge no more than the cost of reproduction and delivery.

2. 'Data' consists of observation data, derived data and gridded fields. Gridded fields may be created by the numerical computation of composited and assimilated raw data but processed or derived interpretative information are not included in the definition.
3. 'Metadata' is information (including models, forecasts, decision-making tools, the description of products etc) linked to the data. Metadata can include information on location, time, depth and variables measured (but not the measurements themselves) and can also include contact addresses for the originator or owner and restrictions applied to access and use of the data.
4. 'Non-commercial' means not conducted for profit, cost-recovery or re-sale.
5. 'Withholding' refers to the deliberate limitation of supply or access for a period of time to allow preferential benefit to a restricted number or class of users including the originators or proprietors.
6. 'Re-export' in this context means the provision of original data or products to a user without the authority or involvement of the originator.
7. 'Timely' in this context means sufficiently rapidly for the transient value of data in its application to a particular purpose (such as synoptic analysis or prediction) not to be significantly degraded.

Appendix 1: DRAFT IOC DATA POLICY STATEMENT

(as prepared by the Meeting of the *ad hoc* Working Group on Oceanographic Data Exchange Policy, UNESCO Headquarters, Paris, France, 15-17 May, 2000)

It is a fundamental principle of the IOC that there shall be free and unrestricted¹ sharing of all ocean data and related information².

Member States shall provide on a free and unrestricted basis those ocean data and products which are necessary for the provision of services in support of the protection of life and property and for the well-being of all peoples;

Member States shall also provide on a free and unrestricted basis ocean data and products, where relevant, which are required to sustain programmes and projects of IOC, including those undertaken jointly with other organizations, related to operational oceanography and ocean research at the global, regional and national levels and, furthermore, to assist other Member States in the provision of ocean services in their countries;

Member States should provide to the research and education communities, *[for their non-commercial activities]*³, free and unrestricted access to all ocean data and products exchanged under the auspices of IOC; *[4. Respecting (2) and (3) above, Member States may place conditions on the re-export⁴, for commercial purposes, of these ocean data and products, outside the receiving country or group of countries forming a single economic group;]*

[5. Member States should make known to all Member States those ocean data and products which have such conditions as in (4) above;]

[6. Member States should make their best efforts to ensure that the conditions placed by the originator on ocean data and products are made known to initial and subsequent recipients;]

Ocean data and their related information⁵, collected by IOC programmes and ocean data from IOC cooperative programmes should be preserved⁶ in the long term, through the IODE system.

Member States shall work to enhance the capacity in developing countries to participate and benefit fully from the exchange of ocean data and products, through TEMA and other mechanisms.

Notes

¹ 'Free and unrestricted': Non-discriminatory and without charge. "Without charge", in this context means at no more than the cost of reproduction and delivery, without charge for the data and products themselves.

² 'Data': consists of observed and derived data including data generated by numerical models and created through data integration and assimilation.

³ *['Non-commercial activity': an activity which is not for profit and/or of which the results can be published in the open scientific literature.]*

⁴ *['Re-export', in this context means to redistribute, physically or electronically, outside the receiving country, group of countries forming a single economic group, or regional and global data centres, directly or through a third party.]*

⁵ *['Related information' consists of complete descriptions (metadata) to the level necessary to enable secondary users to make full use of the data].*

⁶ 'Preserved': the data will be managed, made accessible, updated or improved in quality and maintained on media suitable for long-term archival.

Appendix 2: TOWARDS AN IOC OCEANOGRAPHIC DATA EXCHANGE POLICY

Prepared at the First Session Of The Intersessional Working Group on Oceanographic Data Exchange Policy, Brussels, May 2001

The Intergovernmental Working Group on IOC Oceanographic Data Exchange Policy, at its First Session, noted the needs of Member States to:

- (i) Provide free and open access¹ to data² that are collected, produced or exchanged as part of programmes conducted in association with IOC;
- (ii) Freely contribute data and metadata from all sources to the IOC/IODE system to gain maximum benefit from the coordination of observing systems and the integration of data gathered, creating a truly global observing network in order to contribute to monitoring and forecasting the present and future state of the planet;
- (iii) Submit to the appropriate IOC/IODE data centres or suitable national archive linked to the IOC/IODE system, all publicly funded data and encourage the submission of data that may have a withholding period or other restrictions, with minimal delay;
- (iv) Where restrictions need to be applied on access to nationally acquired data relevant to IOC programmes, submit all metadata to the appropriate IOC/IODE data centre or suitable national archive linked to the IOC system, to facilitate the exchange of metadata and to expedite its rapid inclusion in international inventories;
- (v) Assist in building national capacity to manage oceanographic data and information and to develop relevant products and services.

The Intergovernmental Working Group on IOC Oceanographic Data Exchange Policy, at its First Session, recommended that the following 'elements' be adopted as a basis on which the oceanographic data exchange and archival policy of the IOC will be formulated:

- (i) All oceanographic data and their metadata which are capable of contributing to the beneficial public use and protection of the ocean environment, resources, protection of life and property and for the prediction of weather and climate shall be freely and openly¹ accessible;
- (ii) The IOC should promote, through its programmes and Member States, the reciprocal value and benefits of free and unrestricted exchange of data and metadata;
- (iii) Data available from IOC programmes should have no re-export restrictions;
- (iv) Data and metadata should not be delayed or withheld deliberately and arrangements for their timely transmission should be implemented using the most appropriate technology;
- (v) The IOC/IODE system of data centres should be developed as the main repository for the long-term preservation of data, metadata and related information. Data collected by IOC programmes should be preserved by IOC/IODE data centres and are provided with the understanding that (1) will apply;
- (vi) Member States shall work to enhance the capacity in developing countries to participate and benefit fully from the exchange of oceanographic data and products through IOC's Training Education and Mutual Assistance (TEMA) programme and other mechanisms;
- (vii) IODE, GOOS and (other) programmes of IOC will work with data contributors to ensure that data can be accepted into their systems and meet quality requirements;

¹ Freely and openly accessible means being made available without restriction at a charge no more than the cost of reproduction and delivery.

² 'Data' consists of observation data, derived data and gridded fields

- (viii) IOC Programmes will, where appropriate, identify their requirements for data on which no conditions of access apply (in conformity with (i)) and also identify further data and products to be made available to which the originator may attach conditions.

The Intergovernmental Working Group on IOC's Oceanographic Data Exchange Policy, at its first session, recommended that all the above recommendations and content be regarded as informal working information with no official status, to be submitted for guidance to IOC Subsidiary, Technical Bodies, WMO, ICSU and other appropriate organizations and programmes, and for review by the IOC Assembly. The response from these bodies will provide guidance for the further development of the Policy at a second session of the Intergovernmental Working Group.