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Reports on changes in national arrangements for oceanographic data and information management and exchange
Secretariat (R. Gelfeld)

This document provides information on the Reports on changes in national arrangements for oceanographic data and information management and exchange

Appendix A: Examples of Member States making progress as distributed centres

DRAFT TEXT FOR INCLUSION IN THE SUMMARY REPORT

Mr. Gelfeld reported that the IODE system forms a worldwide service oriented network consisting of 65 DNAs and NODCs, and 4 WDCs established during the past 45 years. This network has been able to collect, control the quality of, and archive millions of ocean observations, and make these available to Member States. It was stated at IODE-XIX that a National Oceanographic Data Centre’s mandate is to be “a centralized facility for providing on a continuing basis ocean data/information in a usable form to a wide user community” and that NODCs “acquire, process, quality control, inventory, archive and disseminate data in accordance with national responsibilities”. In addition to disseminating data and data products nationally, NODCs are normally charged with the responsibility for conducting international exchange.

The role of NODCs has evolved based upon (i) changes in technology and changes in society that are both forcing data centres to rethink their role and modus operandi; (ii) the need to becoming more service-orientated; (iii) the need to create data and information products, not only for other data managers and scientists, but also for policy makers and society at large. These products will assist in increasing the visibility of data centres and demonstrate the usefulness of data management to a larger audience.

The IODE Review had stated that: (i) NODCs are still seen as the strength of IODE; (ii) NODCs should function differently from the way they do at present; (iii) that an NODC should have a central role in ocean data management in each IOC country; and (iv) that a distributed system is viewed as being a better solution compared to the present hierarchical system. The NODC should take on an additional role as a hub for national data activities.

The advantages of a distributed system are the following:
• the data become more readily accessible by the public;
• the NODC is better aware of the availability of diverse data sets in the national network;
• the assembly of national data collections by the NODC is easier;
• groups with special competence in specific data types or techniques can be easily identified.

Thirty-eight Member states responded as centralized and twenty-one responded as distributed. There appears to have been a misunderstanding in the definition of centralized versus distributed. There are no true distributed data centres in the IODE system. A better definition of centralized versus distributed needs to be updated in future surveys and should be re-analyzed at that time.
Appendix A: Examples of Member States making progress as distributed centres

The online survey used for IODE-XX asks the following question:

**Does your country formally have a centralized (single centre) data management system or a distributed (multiple centres) data management system?**

Thirty-eight Member states responded as centralized and twenty-one responded as distributed. There appears to have been a misunderstanding in the definition of centralized versus distributed. There are no true distributed data centres in the IODE system. The following Member States have demonstrated the most progress in working to become a full distributed centre:

1. The Australian Oceanographic Data Centre Joint Facility (AODCJF) is a distributed data centre comprising six national data centres (Australian Antarctic Division, Australian Institute of Marine Science, Bureau of Meteorology, CSIRO Marine and Atmospheric Research, Royal Australian Navy Directorate of Oceanography and Meteorology, and Geoscience Australia).

2. The Russian NODC is the one of thematic (for oceanography, marine meteo, coastal hydrometeo) data centre of the distributed unified state system of information on World Ocean (ESIMO). ESIMO operates on basis of 21 data centre of 10 marine-related ministries/agencies of Russia, Also RNODC is methodical and technological coordinator of ESIMO.

3. The Canadian Oceanographic Data Centre (MEDS) report that they are are engaged in the development of a national ocean data system. This requires the creation/ adoption of standards, of an inventory, of providing guidance about how to manage and provide data of all types collected within our department. IODE could assist by pushing standards in as many areas as possible. A start would be in such areas as naming ocean variables, in deciding an inventory record structure, in generating unique tags for data, in setting information content standards for archives, in promoting standard data access technology. This is also of importance to JCOMM and could be done as a cooperative programme using ETDMP and other groups in JCOMM to assist.”

4. The British Oceanographic Data Centre (BODC) is working towards a more fully distributed system (MEDIN - Marine Environmental Data and Information Network), but it is not yet mature.

5. The Italian Oceanographic Data Centre (Istituto Nazionale di Oceanografia e di Geofisica Sperimentale - OGS Name of the Head of the Host Organization) is distributed and six institutions (plus the OGS) are component of it (APAT, CNR, ENEA, ICRAM, INGV, SZN). Italy is continuing towards the full development of a national distributed system.

6. The Japan Oceanographic Data Center (JODC) participates with several national agencies that collect oceanographic data and submit them to JODC. Japanese operational agencies including the Japan Meteorological Agency (JMA), Japan Fisheries Agency (JFA), and some others have actively participated in IODE since the early stage. Other agencies including the Japan Marine Science and Technology Agency (JAMSTEC) and Japan Fisheries Information Center (JAFIC) have also joined the IODE activities in Japan. The development of a distributed data system has also been progressing. JMA, JAMSTEC, and JAFIC are operating their own data servers to provide the users with not only oceanographic data but also with a series of data products. These are the working components of a distributed data system in Japan. Using the terminology of the IODE Review report, the NODC in Japan has become a ‘data hub’, through its coordinating role in a distributed data system.

7. The U.S. NODC operates the following regional sites: an Eastern Liaison in Charleston, South Carolina, which is responsible for the entire East Coast of the U.S.; a Gulf of Mexico Liaison in
Stennis Space Center, Mississippi, which works closely with organizations in Texas, Louisiana, Mississippi, and Alabama; and a Pacific Islands Liaison in Honolulu, Hawaii, which is responsible for Hawaii and the U.S.-affiliated islands in the Pacific. The NOAA Central Library is networked to 29 regional and field libraries and has access to their specialized collections.

8. The Netherlands has never established a traditional NODC but created, from the start in 1997, a NODC as a distributed network of research institutions sharing and providing data. The Netherlands is working to develop a distributed data access system that will enable transparent access to data held by the 8 cooperating institutions, making use of the technology and standards developed by SeaDataNet.

A distributed system requires the adoption (or creation) of standards. This is mentioned in the draft IOC Strategic Plan for Oceanographic Data and Information Management, as well as in the JCOMM Data Management Strategy. In addition, the GEOSS Components Linking Document states: “the GEOSS strategy is to realise a system of systems through adoption of selected international standards that enable interoperability.”

In partnership with the JCOMM Data Management Coordination Group IODE organized the IODE/JCOMM Forum on Oceanographic Data Management and Exchange Standards between 21-25 January 2008 at the IOC Project Office for IODE in Oostende, Belgium. The meeting discussed a wide variety of topics including metadata, ontology resources, date and time, lat, lon, alt, countries, platforms, platform types, quality control (temperature and salinity profiles, surface temperature and salinity, sea level, currents, surface waves), quality flags, projects, institutions, units, instruments, science words, taxa and parameters. The meeting further agreed on a "Standards Process" that will enable the recommendation of a standard to IOC and WMO. A dedicated web site has been established to monitor progress of submissions and to disseminate adopted standards (http://www.oceandatastandards.org).

As Member States worked towards a distributed system, it is important to keep open the lines of communication and share discussions on individual progress.