

**INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION**  
(of UNESCO)

**Eighteenth Session of the IOC Committee on International Oceanographic Data and  
Information Exchange (IODE)**  
**Ostend, Belgium, 26 – 30 April 2005**

**Report on Inter-sessional Activities of the Chairman of  
the IOC Committee on IODE**  
(Lesley Rickards, IODE Chairman)

**1. Introduction**

This report will describe the activities of the Chairman of the IODE Committee over the intersessional period. It will also focus briefly on the developments and achievements in the IODE program and also on issues and external activities that benefit or impact IODE in some way. The report will briefly describe some specific meetings where the IODE Chairman has represented the IODE community.

**2. IODE Activities**

Over the intersessional period IODE has continued to grow and develop with a number of projects – both established and new - achieving significant success. The WDCs, RNODCs, NODCs and DNAs continue to work as the long-term depositories for oceanographic data and associated metadata and also to serve the IODE and user community producing a great variety of new data products. The number of data centres has also grown steadily over the past 40 years. A new RNODC has been established for the Persian Gulf. The number of national oceanographic data centres and declared national agencies is now 64 and the number of national coordinators stands at 82. 60 national reports have been received for IODE-XVIII. An Ocean Data and Information Network has been proposed for the Indian Ocean area (ODINCINDIO) which should be the capacity building instrument for Indian Ocean GOOS. Altogether, this growth provides an increasingly larger community of marine data managers. It should be noted that there has been no IODE Officers Meeting IODE-XVII.

The 22<sup>nd</sup> IOC Assembly in 2003 adopted the new IOC Oceanographic Data Exchange Policy, and it is part of IODE's role to ensure that it is implemented in member states.

A preliminary meeting was held to discuss the development of an IOC Data and Information Strategy, and some progress was made. This is now becoming a critical issue that needs to be addressed very quickly.

Mr. Peter Pissierssens is well established as Head, Ocean Services at the IOC Secretariat, including the responsibility for the IODE program. Greg Reed returned to Australia during the

intersessional period after secondment to IODE. Current staffing comprises Peter Pissierssens, supported in Paris by Benjamin Sims, Adrien Vannier and Françoise Ricotou. Over the last six months Bob Gelfeld, from the USA, has been on secondment to IODE. In addition, Mika Odida is the ODINAFRICA Coordinator and Vladimir Vladimirov has been appointed Head of the Project Office, here in Oostende. However, this is considerably below what is needed to implement the IODE Programme satisfactorily, and the situation is not likely to improve in terms of the regular budget received.

The issue of declining resources for IODE has been raised on a number of occasions. IODE is acknowledged to be a key activity of the IOC and is one of its flagship programs. However, when the issue of resources is raised, the member states have not supported any increase to the slowly declining level of support. The IODE Committee at this, the 18th Session, must look at ways of raising the profile of IODE, especially with their own national IOC representatives. It is important that we turn the compliments given to IODE by the delegates at the IOC Assembly into additional resources for the IODE program.

The recent devastating tsunami in the Indian Ocean has clearly stressed that the absence of timely and scientifically underpinned data and information can and will cost many lives. The steps that are now being taken by the countries in the Indian Ocean to develop an Indian Ocean Tsunami Warning System are building upon the new IOC data policy in which IODE has been instrumental in its development. We may want to consider during the current Session how the IODE programme can contribute to the efforts in the Indian Ocean as well as in other part of the world as tsunami warning systems are now considered in various other regions.

### **3. Programme Successes**

IODE's long term and new global data programs are continuing to be successful. While there will be specific reports on these activities later in the agenda, it is important to recognise the success of some of the more significant efforts.

#### **GODAR**

The Global Oceanographic Data Archaeology and Rescue (GODAR) project has continued to be a great success. To date, data from approximately 1.05 million Station Data casts, 1.15 million MBT casts, 610,000 XBT casts, 145,000 high resolution CTD casts, and 142,000 Plankton Tows have been recovered and distributed without restriction to the international scientific community. A further 200,000-250,000 historical ocean profiles and over 60,000 plankton tows to be made available in the next release of the "World Ocean Database" series. In addition, substantial progress has been made in the collection of historical measurements of sea level from tide gauges, as recommended by the International GODAR Review Meeting held in 1999. A total of 372 years of hourly data has been rescued so far for tide gauges at 34 locations in 15 countries.

#### **GOSUD**

The Global Ocean Surface Underway Data (GOSUD) Pilot Project, with the objective of organizing surface underway data and working with the data collectors to improve data collection to meet the benchmarks of spatial and temporal sampling and data accuracies set out by the Ocean Observation Panel for Climate (OOPC). Both real-time and delayed-mode data are included in the system. The GOSUD Global Data Assembly Centre (GDAC) has been established at Coriolis, France, from where data are available both through the web site and via ftp.

#### **MarineXML**

IODE is also a key player in the development of marine XML through participation in the ICES-IOC Study Group on the Development of Marine Data Exchange Systems using XML (SGXML), and the EU Marine XML project. Both of these projects have completed their work

and their final reports and recommendations will be discussed here. IODE needs to build on the momentum generated and urgently needs to decide on the next steps and recommend the appropriate mechanism to continue this work. Marine XML will support tracking of data from collection through to generation of integrated global and regional datasets, and support metadata describing the data collection, quality control and subsequent processing. The generation of data tagged with marine XML at the instrument level can enable automating processes like generation of metadata descriptions.

#### **4. Ocean Data Conferences and Workshops**

Various International and Regional Conferences, Symposia, Workshops, etc. related to different issues of ocean data and information management and associated information technology were held during the intersessional period. They allowed experts from developed and developing countries to share information and to present project results, thus serving as a valuable source of education to scientists and planners. Most of these activities have been in support of ongoing programmes and with close co-operation with the countries of the regions. These included:

- Scientific and Policy Challenges towards an effective management of the Marine Environment in support of Regional Sustainable Development. Varna, Bulgaria, October 2003.
- MAMA Workshop on Marine Data & Information Management. Malta, January 2004
- IOC Major Subsidiary bodies meeting, Paris, France. June 2004
- GODAR WESTPAC Workshop. Tokyo, Japan, November 2004
- Ocean Biodiversity Informatics (OBI) Hamburg. Germany, November 2004

It is also worth noting that at the end of May and the beginning of June, two further conferences, to be hosted by IFREMER, France, are scheduled. These are:

- International Marine Data and Information Systems (IMDIS) conference
- Fourth EuroGOOS Conference

#### **5. IODE Expert Groups**

The IODE Community operates three groups of experts: the Group of Expert on Marine Information Management (GE-MIM), the Group of Experts on Biological and Chemical Data Management and Exchange Practices (GE-BICH) and the joint JCOMM-IODE Expert Team on Data Management Practices (ETDMP). These continue to develop and improve IODE's data and information management capabilities through their various programs and activities. The ETDMP, with Mr Nick Mikhailov (Russian Federation) as Chair, held its first meeting in Oostende in 2003, where three pilot projects were established: progress on these will be reported on later. GE-BICH, with Edward Vanden Berghe as Chair, has met once during the intersessional period at BODC, Liverpool, UK in March 2004. Two pilot projects have been identified. The 8<sup>th</sup> Session of GE-MIM was held at CSIRO Marine Research Laboratories, Hobart, Australia in September 2004. At this meeting Ms Suzie Davies (USA) took over from Mr. Murari Tapaswi (India) as the Chair. GE-MIM is developing a strategic plan to provide direction for the Group over a 4 year period. Details of the past efforts and proposed future programs of these groups will be discussed under other agenda items.

#### **6. IODE Capacity Building**

Capacity building is an essential and critical part of all IODE activities. Its role has always been proactive and synergic in the IODE relationship with Member States. Solving society's needs requires building the capacity to analyze the data, generate forecasts and other products and communicate the results to the public, managers and policy makers. To

develop expertise requires a series of successive and inter-linked approaches including training of experts, knowledge of the framework for integrated management, a product development ability and an operating data management system that is fully integrated into a global network. Capacity building uses a variety of mechanisms which has included national and regional workshops and training courses, advisory missions and internships. However, increasingly the IODE strategy is to use ODIN regional data and information exchange networks and the use of training tools like OceanTeacher.

Notable IODE capacity building initiatives, such as, the Ocean Data and Information Networks for Africa (ODINAFRICA) and for Caribbean and South America regions (ODINCARSA) exhibited significant activity in developing regional infrastructures for data and information management in the aforementioned areas, and thus, greatly advancing international cooperation, necessary for the sustainable development in these regions.

The second phase of ODINAFRICA was completed in September 2003 and this was marked by a seminar where the ODINAFRICA NODCs exhibited posters and provided demonstrations of the accomplishments of the project including data atlases and metadatabases. ODINAFRICA activities have also included national ocean awareness activities, stakeholder meetings, and the establishment of national coordination teams. Impressive progress made by the region and ODINAFRICA continues to build on this with ODINAFRICA-III, which began in 2004. Training courses on data management including biodiversity data management have just taken place in the Project Office.

OceanTeacher is being upgraded. The new product, ODIMeX, currently under development will provide a single integrated e-learning and expert system, including expert and training resources for marine data information management needed by professional ocean data and information managers and scientists involved in data management and will provide ocean researchers and students with the necessary knowledge to interact effectively with their national oceanographic data centres

## **7. IODE Awareness**

During the intersessional period IODE's emphasis on developing a prominent and interactive web presence has continued. The web site has been redesigned substantially since IODE-XVII. It now uses a re-engineered version of the BeeBox dynamic content management system. The latest re-development was carried out in December 2004/January 2005, when the graphic elements and layout of the site were redesigned and user-friendliness and navigation of the site was improved. The average number of visits to the site per month is now (March 2005) about 3500 visits/month.

## **8. Partnerships and collaborations**

The IODE programme provides support to a range of other international and regional activities. The most significant of these continue to be the Global Ocean Observing System (GOOS) and the Joint WMO/IOC Technical Committee on Oceanography and Marine Meteorology (JCOMM). In the intersessional period, IODE has participated in a range of GOOS and JCOMM meetings. However, the offer to support GOOS and JCOMM needs to be backed up with concrete actions developed here at IODE-18. It should be noted that some IODE data centres are already playing a role participating in projects such as Argo, GTSP and GLOSS. Further cooperation will develop with the GOOS Regional Alliances and the Coastal Module of GOOS.

IODE has been represented at the I-GOOS meetings in 2003 and 2005 and also at the GOOS Steering Committee in 2004. Similarly IODE has been represented at the JCOMM Management Committee in 2004 and 2005 and is part of the JCOMM Data Management Coordination Group. Cooperation is also effected through the JCOMM-IODE Expert Team on Data Management Practices.

The IODE Chair was a member of the Global Observing System Information Centre (GOSIC) Review Team in 2003. GOSIC is a data and information centre in support of the 3 Global Observing Systems: the Global Climate Observing System (GCOS), the Global Ocean Observing System (GOOS) and the Global Terrestrial Observing System (GTOS).

In December 2003, an IGBP-SCOR meeting on Data Management for Marine Research Projects, was held in Liverpool, UK, December 2003, with the objective of producing a common strategy for managing and sharing marine data within and among IGBP and SCOR projects, learning from the experiences in WOCE, JGOFS, and other projects.

Links have been continued with new and existing science programmes. The IODE Chair attended a CLIVAR Data Planning Meeting in March 2004 and presented IODE to the meeting.

The IODE Chair also chaired a review of the Joint Committee on Antarctic Data Management (JCADM) last month. This review also considered ways of developing collaboration and cooperation between NODCs and the JCADM National Antarctic Data Centres (NADCs).

Collaboration between ICES and IODE has occurred over many years. This is set to continue in the future.

IODE was invited to attend the third Ocean Biogeographic Information System (OBIS) Management Committee where ways of collaboration were discussed.

Further discussions of some of these will take place under the appropriate agenda items.

### **9. IODE Project Office**

The new IODE Project Office will be opened in Oostende, Belgium on 25 April 2005. The Office will establish a creative environment facilitating the further development and maintenance of IODE projects, services and products with emphasis on improving the efficiency and effectiveness of the data and product/service stream between the stage of sampling and the user. It will further assist in strengthening the capacity of Member States to manage oceanographic data and information and to provide ocean data and information products and services required by users. I am very pleased to have Vladimir Vladimirov as the Head of the Project Office. Already there is a training course underway, with others planned during the year. Plans for developing the IT infrastructure are underway, and IODE's web sites will be moved to the Project Office. Through the Project Office, IODE will participate in several EU funded projects.

### **10. IODE Review**

To further guide IODE towards fully meeting the user needs, a full review of IODE was undertaken during the last year. Mr Dieter Kohnke has led the IODE Review Team and provided the report for IODE XVIII. This will be discussed in detail later in the meeting. The Review Report will be submitted to the IOC Assembly in 2005. The review considered the operation and implementation of IODE, with particular attention to its mandate, mission, structure, data centre networks and their ways of operation, the activities of its subsidiary groups and projects, and the national development of IODE activities. It reviewed the extent to which IODE activities, including those specifically targeted at capacity-building in support of IODE, benefit Member States. The Report needs careful consideration by the IODE Committee. The outcome of the review will also be used to aid the development of an "IOC Data Management Strategy".

### **11. Future Developments and Directions**

For over forty years the IODE programme has been serving the marine community not only through collecting, quality controlling, archiving and exchanging of data, but also in developing formats, standards, protocols, in addition to powerful data products. To serve these requirements IODE has used state of the art data systems, methods and techniques for data management, but the emphasis has focused on delayed mode data and, in most cases, on physical data.

Advances in oceanography, marine science and technology, especially during the last decade, have led to a rapid expansion in the volume and the diversity of ocean data collected. During this period, the marine community has paid increased attention to multidisciplinary research, especially that serving integrated coastal zone management. User requirements have also changed. There is now an increased requirement for operational data and products. Data types, such as chemical, biological, biogeochemical, coastal and remote sensed data are now being increasingly collected and managed. These changing requirements have an impact on IODE, which IODE has recognised and is evolving in order to meet these needs.

IODE now closely collaborates with, and services the needs of, the other IOC and related programmes such as Ocean Sciences, GOOS and JCOMM. Another major and long-term commitment of the IODE Programme is the long-term accessibility and archival of oceanographic data, meta-data and information to safeguard present and future holdings against loss or degradation.

However, there is still much to be done. IODE still largely comprises a collection of separate NODCs, RNODCs and WDCs, using primarily centralised data centre architecture, with a wide variety of remits, skills and data. Sometimes these centres have worked together in groups for individual projects. Much focus has been on quality control, data archival and dissemination.

IODE continues to go through a period of change and some critical decisions are needed, both as a result of the IODE Review, but also through further development of XML and such initiatives at the prototype End-to-end data management pilot project developed through the ETDMP. Significant progress needs to be made to ensure easy access to all types of marine data (and information) on an appropriate time scale, encompassing global, regional and local needs. Elements of this exist, but others still need to be adapted and developed. In addition, there is an urgent need to lead the development of the IOC Data Management Strategy. IODE-XVIII provides an excellent opportunity to define the future role of IODE and to make real decisions, thus ensure the future of this important programme.

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