Ocean Biogeographic Information System (OBIS) Infrastructure coordination meeting

INCOIS, Hyderabad, India
2–4 March 2011
Intergovernmental Oceanographic Commission
Workshop Report No. 240

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Figure 1: Participants in the meeting

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I. AGENDA OF THE MEETING
II. LIST OF PARTICIPANTS
III. TEXT OF WRAP-UP PRESENTATION
The Intergovernmental Oceanographic Commission (IOC) of UNESCO celebrates its 50th anniversary in 2010. Since taking the lead in coordinating the International Indian Ocean Expedition in 1960, the IOC has worked to promote marine research, protection of the ocean, and international cooperation. Today the Commission is also developing marine services and capacity building, and is instrumental in monitoring the ocean through the Global Ocean Observing System (GOOS) and developing marine-hazards warning systems in vulnerable regions. Recognized as the UN focal point and mechanism for global cooperation in the study of the ocean, a key climate driver, IOC is a key player in the study of climate change. Through promoting international cooperation, the IOC assists Member States in their decisions towards improved management, sustainable development, and protection of the marine environment.
1. INTRODUCTION

In response to IOC Circular Letter 2333 (ESTABLISHMENT OF A MULTISOURCE TRUST FUND FOR THE SUPPORT OF THE OCEAN BIOGEOGRAPHIC INFORMATION SYSTEM (OBIS) (16/02/10)), requesting IOC Member States to contribute to assist in the maintenance and further development of the Ocean Biogeographic Information System, several organizations expressed their willingness to assist with support in kind:

- Rutgers University, New Brunswick, New Jersey, USA, expressed their willingness to host the OBIS Project Office, following conditions as spelled out in document IOC/INF-1193;
- The Indian Government offered to host a special data centre for OBIS at the Indian National Centre for Ocean Information Services (INCOIS), Hyderabad, India;
- The Flanders Marine Institute, Oostende, Belgium, offered to assist with various data management and IT-related tasks;
- The Marine Geospatial Ecology Laboratory (MGEL) of Duke University, Durham, North Carolina, USA, offered to continue assisting in the development of the OBIS IT infrastructure, and with data analysis and visualization;
- The Centre for Marine Biodiversity of the University Simon Bolivar (USB), Caracas, Venezuela, offered to continue assisting in the development of the OBIS IT infrastructure, and with statistical analysis of OBIS data.

More information on the precise nature of the offers for assistance in kind is part of Annex III, the text of the wrap-up presentation. This meeting, kindly hosted by INCOIS, was needed to coordinate these different offers for support in kind, and to discuss how to share the workload between the different institutes.

The list of participants to the meeting is attached as Annex I. MGEL and USB were not present at the meeting, but were able to provide input to the meeting through Dr Vanden Berghe. Apart from Rutgers University, INCOIS, VLIZ and IODE, several participants from India represented institutes that house OBIS-related activities.

The first part of the meeting was dedicated to a series of presentations, offering all participants an opportunity to inform the meeting on their OBIS-relevant activities. The second part of the meeting was devoted to discussions on how to organize the collaboration, and how to share the workload between the institutes that offered to assist OBIS. The agenda of the meeting is attached as Annex II.

2. CONTRIBUTION OF INDIA

It was noted that the Indian Government will play an active role in OBIS on two levels. The Indian Ocean Regional OBIS Node (IndOBIS) will be hosted by the Centre for Marine Living Resources and Ecology (CMLRE) based in Kochi. Through INCOIS, the Indian Government will also contribute to the international activities of OBIS.
3. OBIS DEVELOPMENT CONSORTIUM

In order to coordinate the collaboration, it was suggested to create a list of activities in which OBIS is engaged, and try and match these activities with the expertise and the offers for support of the institutes. In Annex III, a preliminary list of activities, categorized in five broad groups, is listed. For some of these activities, a further specification is given, listing concrete ‘tasks’. These tasks were seen as the basic unit to share the development; they should be a single, well-defined activity, which can be either temporary (e.g. the development of a new tool) or continuous (e.g. the maintenance of a server). The description of a task will contain the person responsible and the team carrying out the work; an implementation plan with deliverables and deadlines; prerequisites. The description of a task should be made available to the OBIS community (through the Steering Group) before implementation starts. The lead institution will make a formal commitment towards the completion of the task, as described below.

The group of five institutes will be referred to as the ‘OBIS Development Consortium’. Each of the institutes will be invited to sign a Memorandum of Understanding with IOC. Descriptions of the tasks to which the institute has committed itself will be appended as annexes to this MOU.

It was stressed that membership of the OBIS Development Consortium is open; any institute that is willing to make a firm commitment to the development of the OBIS infrastructure is welcome to join the Consortium. Such commitment should be communicated with IOC through a letter to the IOC Executive Secretary.

In order to start the development process, a technical workshop needs to be organized as soon as possible. During this workshop, representatives of Rutgers, MGEL and USB will present the existing infrastructure and suggest further development. VLIZ, INCOIS and possibly others should attend and suggest further developments; they will also be expected to take on some commitments.

Some of the highest priorities for technical developments in OBIS are, from highest to less high:

- Moving OBIS servers out of the Amazon cloud, and on servers that are owned by partners of the OBIS consortium.
- Installing mirror servers, and procedures to keep separate OBIS installations in sync
- Automating, as far as possible, data acquisition and data quality control

Institutes that are member of the OBIS Development Consortium should be member of the IODE Steering Group for OBIS. Presently, this is not the case for USB and INCOIS. It was also suggested that staff members of institutes forming the Development Consortium might want to contact their National IOC representatives about participation in the proposed Group of Experts for OBIS.

It was stressed that the mandate of the Development Consortium is to implement, not to decide on the direction of the development – the latter is the mandate of the Steering Group.
ANNEX I

AGENDA OF THE MEETING

02 March 2011

1430 – 1435 hrs  Welcome remarks by Dr. S.S.C. Shenoi, Director, INCOIS
1430 – 1435 hrs  Opening remarks by Dr. Shailesh Nayak, Secretary, Ministry of Earth Sciences (MoES), Govt. of India
1445 – 1500 hrs  Opening remarks by Mr. Peter Pissierssens, Head, IOC Project Office for IODE, Oostende, Belgium
1500 – 1800 hrs  Presentation on OBIS/IODE by Mr. Peter Pissierssens, Head, IOC Project Office for IODE, Oostende, Belgium
                  Presentation on OBIS by Dr. Edward Vanden Berghe, OBIS Executive Director, Rutgers University, USA
                  Presentation by Mr. Francisco Hernandez, Head, Data Centre and EurOBIS Node Host, VLIZ, Belgium
                  Presentation by Mr. E. Pattabhi Rama Rao, Head, Data and information Management Group (DMG), INCOIS
1900 – 2100 hrs  Dinner hosted by Director, INCOIS

03 March 2011

0930 – 1030 hrs  Presentation by Dr. V. Sanjeevan, Director, Centre for Marine Living Resources and Ecology (CMLRE), Kochi, India
                  Presentation by Dr. Baban Ingole, Scientist-F, National Institute of Oceanography (NIO), Goa, India
1030-1100 hrs   Tea Break
1100 – 1300 hrs  Presentation by National Institute of Ocean Technology (NIOT), Chennai, India
                  Presentation by National Centre for Antarctic and Ocean Research (NCAOR), Goa, India
                  Presentation by Project Directorate, Integrated Coastal Marine Area Management (ICMAM), MoES, Chennai, India
1300-1400 hrs   Lunch Break
1400 – 1530 hrs  Visit to INCOIS Labs
1530-1600 hrs   Tea Break
1600 – 1730 hrs  Discussions and formulation of the project document
04 March 2011

1000 – 1300 hrs  Discussions and formulation of the project document
1300 – 1400 hrs  Lunch Break
1400 – 1730 hrs  Tour to city
ANNEX II

LIST OF PARTICIPANTS

**INCOIS (India)**

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ANNEX III

TEXT OF THE SLIDES USED DURING THE WRAP-UP DISCUSSIONS

OBIS Resources

- Funding for Project Officer and Data Manager at Rutgers for 2011
  - A bit of funding will spill over in 2012
  - Resources available through IODE
- A home for the Project Office
  - In a university – possible student projects
- ‘Offers in Kind’
  - Formal: INCOIS, MGEL, USB, VLIZ
  - Informal through discussions in Oostende
  - Pending project proposals

Available

- Rutgers
  - Host of international OBIS Secretariat
- Duke/MGEL
  - Mapping and Visualisation team of CoML
  - Thematic centre (Tetrapoda, Tracking data)
- University Simon Bolivar
  - CoML Synthesis
  - Regional centre (Caribbean)
- VLIZ
  - Regional Centre (Europe)
- WoRMS
- INCOIS
  - Physical oceanography
  - IT infrastructure

Possible contributions

- Rutgers
  - Hosting project office, including office space and facilities, and 1 FTE (1/2 FTE=data manager)
  - Networking with international organisations, and international data providers
  - Final data integration and QC
  - Further development of data structures, data exchange formats, information products
- MGEL
  - Systems administration: Amazon, Ubuntu
  - Web site development: GeoServer, OpenLayers
  - Data analysis: GIS, remote sensing
  - Data visualisations
  - (in the framework of GOBI) international networking
  - Networking with US organisations such as NOAA and Navy
  - Thematic centre (Tetrapoda, Tracking data)
- USB
  - Systems administration: Drupal, Ubuntu
  - Data analysis: R, remote sensing
  - Regional Networking
Spanish translation of the web site; dealing with Spanish feedback
• Regional centre (Caribbean)
  • Indian organisations (led by INCOIS)
  • Hosting and maintenance of data centre (including backup and archival) – either as the Public Web-site or Mirror Site
  • Invest in hardware, software, manpower that are necessary for hosting and maintenance of the data center
  • Partner with other organizations of OBIS community in data management, development of tools for automatic data assimilation, integration and QC and Analysis
  • Provide expertise in designing appropriate data products and visualization
  • Networking with IOGOOS, SIBER, ISA in promoting OBIS
  • Any other requirements related to the automation of procedure or development of new tools for generation of data products or QC tools in future
• Vlaams Instituut voor de Zee
  • Development and maintenance of the OBIS data system
  • Development and maintenance of the OBIS website
  • Development and maintenance of the OBIS data interfaces to other networks (CBIFC, ESO, DP, Seadatanet, EMODNET,...)
  • Better integration of the WORMS-OBIS datasytems
  • Long-term hosting, regular updates essential for security and performance of these systems
  • High speed internet connection (1 GBit)
  • Professional support by IT-staff, data managers and biologist

Categories of activities

• Infrastructure
• Data management
• Usage
  – Applications, use cases
  – Networking of the non-IT kind
  – Governance

Activities: Infrastructure

• Host database, GeoServer and website, system management, backups, usage reporting
  – Now Duke, iOBIS; future also VLIZ, INCOIS and others
  – See below: how to split up this abstract ‘concept’ in several well-defined tasks, with time line and responsibilities
• Host and maintain DiGIR and IPT web services for data transport to GBIF; other web services towards ODP and others
  – Now iOBIS; future VLIZ and others
• Web site development
  – Now Duke, Simon B; future all
• Additional expertise with web developments, tools for data analysis and visualisation
  – Now Duke; future Duke, INCOIS, VLIZ, ScarMarbin

Activities: Data Management

• Capture data from data providers
  – Nodes
• Integrate data in local database
  – Nodes
• Standardize and quality control the data (step I)
  – Nodes
• Generate metadata (step I)
  – Nodes, iOBIS
• Synchronise data with iOBIS
  – Now iOBIS; future Nodes
• Capture data from Nodes
  – iOBIS
• Integrate data in central database
  – iOBIS
• Standardize and quality control the data (step 2)
  – iOBIS
• Generate metadata (step 2)
  – iOBIS, GCMD
• Synchronise data with GBIF, EOL (others?)
  – Now iOBIS, GBIF; future Nodes
• Tools for data assimilation, integration and QC
• Tools for data synchronization
  – Now iOBIS, too much ad-hoc
  – Future VLIZ, INCOIS
• Needs description of the data flow to clarify terminology
• Needs splitting in ‘tasks’

Activities: Usage/Applications

• Generate species distribution maps
  – Now Aquamaps, KU; future ??
• Link species distributions to environmental data
  – Now iOBIS; future INCOIS, WDC
• Tools for data products generation
  – Now iOBIS; future INCOIS, all
• Data products generation
  – Now iOBIS; future all, Nodes

Activities: Networking

• Networking with local data providers and users
  – Nodes
• Networking with regional data initiatives (SeaDataNet, LifeWatch, IOGOOS, SIBER)
  – Nodes, INCOIS, VLIZ
• Networking with global data initiatives (GBIF, EOL, Barcode of Life); networking with international organisations (FAO, CBD)
  – iOBIS; assisted by others where appropriate (eg ISA through INCOIS)

Activities: Governance

• Participation to SG-OBIS
  – Now Nodes, iOBIS; future also INCOIS
• Participation to GE-OBIS
  – individual experts; need for Duke and Simon Bolivar to get included
• Participation to IODE assembly
  – VLIZ, INCOIS; iOBIS ex-officio

Infrastructure

• Host database, GeoServer and website, system management, backups, usage reporting
  – Now Duke, iOBIS; future also VLIZ, INCOIS and others
  – See below: how to split up this abstract ‘concept’ in several well-defined tasks, with time line and responsibilities
• Host and maintain DiGIR and IPT web services for data transport to GBIF; other web services towards ODP and others
  – Now iOBIS; future VLIZ and others
• Web site development
  – Now Duke, Simon B; future all
• Additional expertise with web developments, tools for data analysis and visualisation
  – Now Duke; future Duke, INCOIS, VLIZ, ScarMarbin

Possible tasks

• Host database, GeoServer and website, system management, backups, usage reporting
  – Archive; WDC is deep archive
• Task: develop procedures; what is archived when?
• Task: implement procedures; develop scripts to automate
  – Host database, GeoServer and web site
• Task: set up servers, install operating system, develop back-up procedures; develop sysadmin plan
• Choice of Operating System, specifications of machines
• Sys admin plan: users, authentication…
• Prerequisites: commitment for uptime and life time
• Deadline
• Who will do the work, oversee, sign off
• Task: install Apache, Tomcat, Geoserver, php… Configure software; develop web admin plan (logging, log file admin)
• Task: install Postgres, PostGIS; configure; develop db admin plan…
  – …

What is a ‘task’

• A well-defined activity, either temporary or permanent (continuous)
• Needs someone in charge, a set of people to implement
• Needs a plan and an implementation
• Needs a deadline and clear deliverables
• Prerequisites have to be acknowledged and spelled out
• Needs an (institutional) commitment
• Needs to be visible within the OBIS community from the planning phase
Way forward

• Establishment of tasks/task teams?
  – This meeting:
• Establishment of the process to create tasks & task teams
• Deal with some urgent tasks
  – Has to be open and transparent
• Technical workshop
  – Rutgers, Duke and USB: present existing infrastructure and suggest further development
  – VLIZ, INCOIS and others: attend and suggest further developments; commitment of resources
• Scientific workshop
  – Identify scientific questions that can be addressed with OBIS data.
# IOCC Workshop Reports

The Scientific Workshops of the Intergovernmental Oceanographic Commission are sometimes jointly sponsored with other intergovernmental or non-governmental bodies. In most cases, IOCC assures responsibility for printing, and copies may be requested from:

Intergovernmental Oceanographic Commission – UNESCO
1, rue Molliès, 75732 Paris Cedex 15, France

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<td>Report of the ICOP/IOCC/GEOMAR Workshop on Marine Geology and Resources and Coastal Development of the South Pacific; Suva, Fiji, 1-6 September 1975.</td>
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<td>IOC/FAO/WHO/UNEP Project on Monitoring of Pollution in the South and Central Western Indian Ocean, Oman, 6-15 February 1981.</td>
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<td>Ocean Surface pCO2 Data Integration and Database Development (IOCCP Reports, 2), Tsukuba, Japan, 14–17 January 2004</td>
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<td>First Session of the IODE Steering Group for the IODE OceanDataPortal (SG-ODP-I) 20–22 September 2010, Ostend, Belgium</td>
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<td>212</td>
<td>International Ocean Carbon Stakeholders' Meeting, Paris, France, 6–7 December 2004</td>
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<td>213</td>
<td>International Repeat Hydrography and Carbon Workshop (IOCCP Reports, 4), Shonan Village, Japan, 14–16 November 2005</td>
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<td>In preparation</td>
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<td>214</td>
<td>Initial Atlantic Ocean Carbon Synthesis Meeting (IOCCP Reports, 5), Laugavatn, Iceland, 28–30 June 2006</td>
<td>E</td>
<td>239</td>
<td>Ocean Biogeochemical Information System (OBIS) Infrastructure Meeting, INCRA, New Delhi, India, 2–4 March 2011</td>
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<td>215</td>
<td>Surface Ocean Variability and Vulnerability Workshop (IOCCP Reports, 7), Paris, France, 11–14 April 2007</td>
<td>E</td>
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<td>Changing Times: An International Ocean Biogeochemical Time-Series Workshop (IOCCP Reports, 11), La Jolla, California, USA, 5–7 November 2008</td>
<td>E</td>
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<td>Ocean Biogeographic Data, Ostend, Belgium</td>
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<td>218</td>
<td>Second Joint GOSUD/SAMOS Workshop, Seattle, Washington, USA, 10–12 June 2009</td>
<td>E</td>
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<td>219</td>
<td>International Conference on Marine Data management and Information Systems (IMDIS), Athens, Greece, 31 March–2 April 2009</td>
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<td>Oceanographic Data Collections, Danish Oceanographic Data Collection, Denmark</td>
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<td>220</td>
<td>Geo-marine Research on the Mediterranean and European-Atlantic Margins: International Conference and TTR-17 Post-cruise Meeting of the Training-through-research Programme, Granada, Spain, 2–5 February 2009</td>
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<td>221</td>
<td>Surface Ocean CO2 Atlas Project Pacific Regional Workshop, Tsukuba, Japan, 18–20 March, 2009 (IOCCP Report Number 12)</td>
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<td>223</td>
<td>Advisory Workshop on enhancing forecasting capabilities for North Indian Ocean Storm Surges, Indian Institute of Technology (IIT), New Delhi, India, 14–17 July 2008</td>
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<td>Oceanographic Data Collections, Danish Oceanographic Data Collection, Denmark</td>
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<td>224</td>
<td>2009 International Nutrients Scale System (INSS) Workshop Report, Paris, France, 10–12 February 2009</td>
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<td>Oceanographic Data Collections, Danish Oceanographic Data Collection, Denmark</td>
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<td>225</td>
<td>Reunión subregional de planificación de ODINCARSA (Red de Datos e Información Oceánograficos para las Regiones del Caribe y América del Sur) ODINCARSA (Ocean Data and Information Network for the Caribbean and South America region) Latin America sub-regional Planning Meeting, Universidad Autónoma de Baja California (UABC), Ensenada (México), 7-10 December 2009, 2010</td>
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<td>OBIS (Ocean Biogeochemical Information System) Strategy and Work plan Meeting, IOC Project Office for IODE, Ostend, Belgium, 18–20 November 2009</td>
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<td>227</td>
<td>ODINAFRICA-IV Project Steering Committee, First Session, Ostend, Belgium, 20–22 January 2010</td>
<td>In preparation</td>
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<td>Oceanographic Data Collections, Danish Oceanographic Data Collection, Denmark</td>
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<td>First IODE Workshop on Quality Control of Chemical Oceanographic Data Collections, IOC Project Office for IODE, Ostend, Belgium, 8-11 February 2010 (IOCCP Report Number 18)</td>
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<td>IOCIOCDE/MLMLWHO Library Workshop on Data Publication, Paris, France, 10-12 April 2010</td>
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<td>231</td>
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<td>232</td>
<td>Eleventh International Workshop on Wave Hindcasting and Forecasting and Second Coastal Hazard Symposium, Halifax, Canada, 18–23 October 2009</td>
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<td>2010 Meeting of the Joint IODE-JCOMM Steering Group on the Global Temperature-Salinity Profile Programme, Ostend, Belgium, 5–7 May 2010</td>
<td>E</td>
<td>258</td>
<td>Oceanographic Data Collections, Danish Oceanographic Data Collection, Denmark</td>
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