

Intergovernmental Oceanographic Commission
Reports of Governing and Major Subsidiary Bodies



IOC Committee on International Oceanographic Data and Information Exchange

Nineteenth Session

Abdus Salam International Centre for Theoretical Physics,
Trieste, Italy, 12-16 March 2007

UNESCO

Abstract

The IOC Committee on International Oceanographic Data and Information Exchange held its Nineteenth Session (IODE-XIX) at the Abdus Salam International Centre for Theoretical Physics in Trieste, Italy between 12 and 16 March 2007. The Session was attended by 67 delegates from 43 Member States, 11 representatives of organizations, programmes and projects, and 3 World Data Centres. The IODE Committee, during its 5 day Session, reviewed the work of the past inter-session period. The Session (i) completed the implementation process of the IODE review recommendations, submitted at IODE-XVIII; (ii) recommended a new strategy and structure of IODE Groups of Experts; (iii) revised the terms of reference of the IODE GE-BICH; (iv) recommended the development of the IODE Ocean Data Portal project; (v) established ODINs for European countries in economic transition (ODINECET), WESTPAC region (ODINWESTPAC) and Black Sea region (ODINBLACKSEA); (vi) recommended the establishment of the OceanDocs e-repository project; and (vii) recommended the joint HAB/IODE development of a Harmful Algal Event Information System. The Committee further decided to continue the inter-session working group on quality control of ocean profile data and instructed it to submit its work to the March/April 2008 IODE Officers Meeting. The Committee recommended the organization of a joint GSSC/IODE Officers Meeting in March/April 2008 and this proposal was agreed upon by the GSSC. The Committee reviewed the draft IOC Strategic Plan for Oceanographic Data and Information Management and tasked Dr Rickards, Mr Reed and Mr Keeley to finalize the Document, and for Dr Rickards to submit it to the IOC Assembly during its 24th Session (18-28 June 2007). The Committee elected Dr Malika Bel-Hassen Abid (Tunisia) and Mr Gregory Reed (Australia) as IODE Co-Chairs.

* An executive Summary of this report is available in English, French, Russian and Spanish.



Group photograph of IODE-XIX participants

IODC Co-Chairs, Elected at IODE-XIX



Mr Gregory Reed, Australia



Dr Malika Bel-Hassen Abid, Tunisia

IODC Past Chair and Past Vice-Chair



Dr Lesley Rickards, IODE Past Chair



Mr Ricardo Rojas, IODE Past Vice-Chair

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1. OPENING

- 1 Dr Lesley Rickards, Chair of the IOC Committee on International Oceanographic Data and Information Exchange (IODE) welcomed the participants to the Nineteenth Session of the IODE at 09:00 on Monday 12 March 2007 at the International Centre for Theoretical Physics (ICTP) in Trieste, Italy. Dr Rickards thanked the local hosts and dignitaries for hosting and sponsoring the Session.
- 2 Dr Rickards stated that we are part of a new and exciting phase for IODE. Data management is increasingly being recognised as an important activity, and there are many opportunities which we need to grasp to ensure that the skills and expertise that we have are used to the best effect. In preparing for this meeting, and in drafting the IOC Data Management Strategy, recurring themes have emerged. Although IODE is a large programme with many components, the issue of standards is one of the most critical elements. Dr Rickards invited the participants to work together – not only within IODE – but with those programmes and organisations with which we collaborate (e.g. GOOS, JCOMM, GEOSS, OBIS) – to establish, for example, common ways to discover data, common ways to name variables, common ways to assess or indicate the quality of data in our archives, and common ways to handle data from the variety of disciplines that constitute our data holdings and stop duplicating copies of data. Dr Rickards cautioned the participants about reinventing what has already been developed or is under development and she stressed the importance of cross communication. Only through working together and developing shared standards based solutions can we realise one of IODE's ambitious goals of developing an Ocean Data Portal.
- 3 Dr Rickards concluded by inviting the Committee to make wise decisions to ensure an active, vigorous and relevant IODE Programme for the future.
- 4 Dr Rickards then invited Dr Renzo Mosetti, Director of the Department of Biological Oceanography and IODE National Coordinator for oceanographic data management to address the Session.
- 5 Dr Renzo Mosetti, on behalf of the President and the Council of Administration of the National Institute for Oceanography and Experimental Geophysics – OGS, welcomed the participants to IODE-XIX. He informed the participants that Trieste is known as the “town of science” for the excellence of the Universities, research institutions and scientific infrastructures. The ICTP is an example well known all over the world. Dr Mosetti recalled that in Trieste there exists a long tradition in oceanography starting from the 18th Century. OGS has roots that go back to a School of Astronomy and Navigation created at Trieste in the second half of the 1700s. This went through a series of re-organisations from the Imperial Academy of Commerce and Marine Sciences (1817), Meteorological Observatory (1841), Maritime Observatory (1903), Geophysical Institute of Trieste (1921), Experimental Geophysics Observatory of Trieste (1958), Applied Geophysics Observatory (1989), until the actual status of the National Institute. OGS is a public research institute financed by the Ministry of Education, University and Research. Its mission is to promote, co-ordinate and perform, also in collaboration with other national, international, and European institutions, studies and research on the Earth and its resources. OGS also hosts the Italian IODE National Oceanographic Data Centre. Dr Mosetti concluded saying that the organisation of the event has been possible through the agreement with the ICTP and by the enthusiasm of the ICTP Director Prof. Sreenivasan in supporting it from the very beginning. He further thanked the Italian Delegation of UNESCO in Paris and especially Prof. Ezio Bussoletti for helping with the organisation. The full speech by Dr Mosetti is attached as [Annex IV](#).
- 6 Prof Claudio Tuniz, ICTP Deputy Director, welcomed the participants on behalf of the ICTP Director, Professor Katepalli Sreenivasan, to the Abdus Salam International Centre for Theoretical Physics. He recalled that ITCP is organized under a tripartite agreement between UNESCO, IAEA and the Italian Government. Its mission is to foster studies of physics, mathematics and their applications,

particularly in developing countries. Each year, some 6000 scientists from 120 nations participate in the research and training activities at the Centre. He explained that ICTP's research focuses increasingly on exploring how physics and mathematics can interface with sustainable development through studies on climate, earthquakes, biomedicine and renewable energy. ICTP is active in many areas of research relevant to oceanography including climate modelling and fluid mechanics and has established cooperation with the University of Trieste and several other scientific institutions including OGS. In the recent past ICTP organized a workshop on "tsunami physics" in collaboration with UNESCO and OGS; in collaboration with the IAEA marine laboratories a course was held on "tracing and modelling the ocean variability". In addition, ICTP is active in promoting tools that can provide new oceanographic data, including the use of ultra-sensitive analyses of long lived isotopic tracers such as Carbon-14 and Iodine-129. ICTP is also planning better ways to share scientific information and data, particularly with developing countries, exploiting new information communication technologies. Prof. Tuniz further informed the Committee that in Trieste, on 10-12 May a high-level 'UNESCO-G8 World Forum on Education, Innovation and Research: New Partnership for Sustainable Development' will be organized in collaboration with UNESCO and the Italian Government. One of the sessions will be devoted to environment, and oceans will obviously play a key role in the discussions. There will also be a special session about science and technology needs in Africa.

- 7 Prof. Tuniz concluded stating that ICTP is interested to join forces with the community represented at this meeting, for supporting new scientific approaches in oceanography, contributing to programmes aimed to strengthen the principles of sustainable development and for building new capacities in least developed countries. Prof Tuniz's full speech is attached in [Annex IV](#).

2. ADMINISTRATIVE ARRANGEMENTS

2.1. ADOPTION OF THE AGENDA

- 8 This Agenda Item was introduced by the Technical Secretary. The Committee was invited to review and adopt the provisional agenda ([Document IOC/IODE-XIX/1 prov](#)). – available from the IODE web site. The Committee was requested to note that the core working documents (Agenda, List of Documents) were now only made available as on-line documents.

- 9 **The Committee adopted** the Agenda attached in [Annex 1](#)

2.2. DESIGNATION OF A RAPPORTEUR

- 10 **The Committee**, taking into consideration the limited size of most delegations, **decided** not to nominate a Rapporteur, and to task the Secretariat and Chair with the reporting of the Meeting.

2.3. SESSION TIME TABLE AND DOCUMENTATION

- 11 The Committee adopted the Timetable ([Document IOC/IODE-XIX/1 Add.Prov.](#)).

- 12 The IODE Technical Secretary (Mr Peter Pissierssens) reviewed the arrangements for the Session and presented **Document IOC/IODE-XIX/4 prov.** (*List of Documents*) available on-line through <http://www.iode.org/iode19docs>.

- 13 He informed the Committee about the working hours for the Session and provided other details relevant to the conduct of the Session.

2.4. ESTABLISHMENT OF SESSIONAL WORKING GROUPS

- 14 The Technical Secretary invited the Committee to establish sessional working groups. The Committee established the following sessional working groups:

(i) **Sessional working group on work plan and budget:** this sessional working group was tasked with preparing a work plan and budget for the remainder of 2007 and for 2008-2009. The group was requested to bear in mind that no concrete information was available on funds available for IODE from the UNESCO Regular Programme (RP) for 2008-2009, and that the funds remaining for 2007 from the same UNESCO RP amounted to only US\$ 30,000 (US\$ 20,000 for portal development and US\$ 10,000 for ODIN support). The sessional working group was requested to work on the basis of a possible budget of US\$ 100,000/year from the UNESCO Regular Programme. The sessional working group was further requested to summarize the financial requests of the Groups of Experts as well as those of projects and project proposals, and to prioritize the requests.

(ii) **Sessional working group on capacity building requirements:** this sessional working group was tasked to identify capacity building requirements for 2007 and 2008-2009 based upon the analysis of the national reports (Document IOC/IODE-XIX/8), as well as the reports and work plans of the ODINs (Documents IOC/IODE-XIX/35 to IOC/IODE-XIX/41). This sessional working group was further requested to take into consideration the course planning of the IOC Project Office for IODE for 2007, as described on page 9 in Document IOC/IODE-XIX/9. The sessional working group was also requested to bear in mind that the budget for courses should be covered entirely from extra-budgetary sources.

2.5. LOCAL ARRANGEMENTS

- 15 Dr Renzo Mosetti informed the Committee on local arrangements. Information and guidelines for participants were made available through the IODE-XIX web site (<http://www.iode.org/iode19>).

3. STATUS OF IODE

Under this agenda item reports were presented to give an overview of the IODE system, its activities and implementation of the programme at the national, regional and global levels.

3.1. CHAIR'S REPORT

- 16 This Agenda Item was introduced by the Chair, referring to [Document IOC/IODE-XIX/6](#) (*Chair's Report*).

- 17 Dr Rickards provided an overview of the major activities and implementation of decisions adopted by IODE-XVIII and the IOC Governing Bodies pursuant to the IODE programme and provided an update on inter-sessional activities since the Eighteenth Session of the Committee. She also reported on her specific actions undertaken as Chair. Her report focused on the developments and achievements of the IODE programme and also on issues and external activities that benefit or impact IODE in some way.

- 18 The Chair then provided information concerning the growing co-operation between IODE and other research, monitoring and marine data management programmes with special emphasis on GOOS and JCOMM. She further described the progress made by IODE's global and regional projects, including the further development of the Ocean Data and Information Networks (ODINs), Groups of Experts and joint IODE/JCOMM Expert Team.

- 19 The Chair noted the progress made and successes with the IOC Project Office for IODE, and commented on future activities. She stated that implementing the recommendations of the IODE Review has been an important activity in the inter-sessional period, but that more remained to do.
- 20 Dr Rickards concluded by looking at future direction and developments. As IODE continues to go through a period of change, some critical decisions are needed to drive IODE forward. In this regard she focused on two items in particular: the development of an Ocean Data Portal ([Agenda Item 6.2.13](#)) and the IOC Strategy for Data Management ([Agenda Item 8.2](#)).
- 21 The Chair then invited the Technical Secretary to inform the Committee about the discussions held during IOC Governing Bodies that took place during the inter-sessional period.
- 22 **IOC-XXIII** had (i) welcomed the opening of the IOC Project Office for IODE, thanked the Government of Flanders, Belgium for its support to the Office, invited other organizations and programmes to make use of this new facility, and invited Member States to provide seconded staff to the Office and/or IOC/IODE Secretariat; (ii) welcomed the development of ODIN projects that serve all ocean science and observation programmes of IOC at the regional level; (iii) invited Member States to consider a distributed national data management architecture (See 4.3); (iv) instructed the IODE Chair and IOC Executive Secretary to establish close collaboration with GEOSS; (v) stressed the importance of IODE as a core IOC programme that is of crucial importance to all IOC programmes; (vi) reaffirmed the importance of cooperation between IODE and JCOMM in the development of an integrated data management strategy (see also 4.3.5).
- 23 **EC-XXXIX** had (i) agreed that GOOS, JCOMM and IODE should play active roles in IPY; (ii) noted that GEO-Netcast should be developed ... with input from its programmes, including IODE, GOOS and its regional programmes; (iii) reaffirmed its view that one of the core objectives of IODE is the secure and long-term archival of ocean data and information and that this function should be re-emphasized; (iv) stressed that IODE is a core programme of the IOC, underpinning all the science and observation programmes; (v) welcomed the participation of IODE in regional (e.g., SeaDataNet) and global (e.g., GEO/GEOSS) initiatives that promote the development of global ocean data systems. It urged IODE to further establish close collaboration with regional and scientific organizations (and projects); (vi) instructed the Executive Secretary to ensure that all IOC programmes fully utilize the IODE expertise and systems for their data and information management requirements and thus avoid setting up their own systems; (vii) expressed its strong appreciation for the success of the ODIN systems and called on Member States to provide financial and other resources to maintain and further develop ODIN systems; (viii) expressed its gratitude to the Government of Flanders for its continued and increased support for the Project Office; (ix) expressed its concern about the diminishing funds allocated to IODE in the budget resolution adopted by the IOC Assembly at its 23rd Session, as well as the impact of this on the stability of the position of the Head of the IOC Project Office for IODE in Oostende, Belgium; stressed the need for securing a realistic and sustained funding base for the IODE Programme and, while acknowledging that funding from the UNESCO Regular Programme was unlikely to increase substantially in the near future, it invited consideration of innovative funding approaches which should be based on: establishing agreements with IOC and other programmes, projects and organizations that promote convergence in data and information management activities, funding of IODE regional capacity-building activities from regional funding sources; and increased financial and/or in-kind extra-budgetary contributions by Member States; (x) expressed its strong support for the visionary development of a global data system and portal "Data ATM" (OceanDataPortal).
- 24 **The Committee commended** the Chair for her tireless efforts to promote IODE on various occasions during the past inter-sessional period. **The Committee expressed its strong appreciation** to the Chair for her active participation in the Thirty-Ninth Session of the IOC Executive Council (June 2006) which had resulted in more than twenty interventions of IOC Member States which had resulted in the continuation of support for the position of Head of the IOC Project Office.

3.2. IMPLEMENTATION STATUS OF THE IODE-18 WORK PLAN

- 25 This Agenda Item was introduced by the Technical Secretary, referring to [Document IOC/IODE-XIX/7](#) (*Implementation Status of the IODE-XVIII work plan*). He noted that the Action Sheet had been reviewed at the IODE Officers Meeting held 6-7 February 2006 in Oostende, Belgium and that corrective action had been recommended for uncompleted items. The Technical Secretary reported that many of the IODE-XVIII Action Items had been implemented during the inter-sessional period but that a substantial number required further action by the Committee: paragraphs 80 (to be covered under [3.9](#)), 82, 94, 112, 188 (to be covered under [6.1.2](#)), 222 (to be covered under [5.1](#)), 233 (to be covered under [6.1.1](#)), 252 (to be covered under [5.6](#)), 258 (to be covered under [5.5](#)), 265 (to be covered under [6.3.1.8](#)), 285 (to be covered under [3.3](#)), 292 (to be covered under [6.2.13](#)), 294 (to be covered under [3.6](#)), 307 (to be covered under [6.3.1.5](#)), 312 (to be covered under [6.3.2.2](#)), 394 (to be covered under [6.1.1](#)), 425 (to be covered under [6.2.3](#)), 451 (to be covered under [6.2.6](#)), 467 (to be covered under [6.1.2](#)), 491 (to be covered under [6.3.2.2](#)), 535 (to be covered under [5.6](#)), 537 (to be covered under [6.3.1.4](#)), 538 (to be covered under [6.3.1.5](#)), 541 (to be covered under [6.3.1.7](#)), 549 (to be covered under [7.1](#)), 557 (to be covered under [7.2](#)).
- 26 With regard to paragraph 82 (*The Committee requested all IODE data centres, and other institutions in IOC Member States that manage oceanographic data, to check their national ocean-profile holdings against those contained in the "World Ocean Database" which is maintained by WDC Oceanography, Silver Spring*), Mr Sydney Levitus informed the Committee that WDC for Oceanography, Silver Spring is working with several countries and people to correct problems in the data and associated metadata in the World Ocean Database (WOD) or with data being submitted to the WOD. Problems can be with the metadata, e.g., bad location or bad date, or with the data themselves, e.g., incorrect units for oxygen or nutrient data.
- 27 With regard to para. 94 (*Considering that this varied offering of the WDCs may not be clear to end users, the Committee recommended the development on an information page on the IODE web site that will guide users to the relevant products and services available from the WDCs*) no action was reported. However **the Committee noted** that most products and services will become accessible through the OceanDataPortal.
- 28 With regard to para 112 (*The Committee recommended that all data centres consider making their metadatabases OAI compliant*) **the Committee noted** that this will be covered within the ETDMP activities.

3.3. REPORT ON INTER-SESSIONAL MEETINGS OF THE IODE OFFICERS

- 29 This Agenda Item was introduced by the Chair, referring, *inter alia*, to [Document IOC/INF-1124](#) (*IODE Officers Meeting 2006*).
- 30 The Chair recalled that IODE-XVIII had decided that "one Officers Meeting should follow immediately future Committee Sessions to finalize the inter-sessional Work Plan, and a second meeting should be held during the inter-sessional period to review progress and prepare for the coming Committee Session" (IODE-XVIII Summary Report, para. 285). The Chair noted that holding an Officers Meeting immediately following IODE-XIX had been considered but that this, due to the SeaDataNet meeting taking place immediately after IODE-XIX, would not be feasible this time. Instead the Chair suggested that the next Officers Meeting should be organized soon after the next IOC Assembly (which will be held between 18-28 June 2007 at UNESCO Headquarters, Paris. This would enable adjusting the work plan and budget based upon the decisions of the Assembly. In this regard she reminded the Committee that at the time of IODE-XIX no information was available on funds available to IODE from the UNESCO regular programme for the 2008-2009 biennium. Multiple scenarios would therefore need to be prepared to take into account different levels of UNESCO funding to IODE. Bearing in mind the limited financial resources, regardless of the scenarios, the Chair urged IODE Officers to seek national funding to participate in meetings of the Officers and

requested the Secretariat to identify the most cost-effective venue for Officers Meetings, suggesting the IOC Project Office for IODE in Oostende as a possibility. As far as the inter-sessional meeting of the Officers is concerned, the Chair recommended that this be held jointly with the GSSC. In this regard reference is made to Agenda Item 5.1 (and [Document IOC/IODE-XIX/49](#) (Options for the organization of future Sessions of the IODE Committee)).

31 Bearing in mind the very limited financial resources, **the Committee decided** that a formal Officers Meeting, immediately after IOC-XXIV was not required but that adjustments of the work plan and budget should be discussed and agreed upon by email, audio or video conference as required and possible.

32 **The Committee recommended** holding the 2008 meeting of the Officers jointly with the GSSC and suggested holding the meeting at the IOC Project Office for IODE in March or April 2008. (see also [Agenda Item 5.1](#))

3.4. REPORTS OF NODCS AND DNAS

33 This Agenda item was introduced by Mr Robert Gelfeld, referring to [Document IOC/IODE-XIX/8](#) (*Report on activities of the NODCs and DNAs*) and [Document IOC/IODE-XIX/8 add.](#) (*Full National Reports*). Mr Gelfeld recalled that at previous Sessions of the Committee this agenda item consisted only of brief interventions by Member States to mention highlights in the national reports. In preparation for IODE-XIX, and in line with recommendations by the IODE review and the IOC Assembly, the Secretariat had revised the national report format to obtain more quantitative information that would enable to identify trends at the national level, as well as questions to identify capacity building and general IODE programme needs.

34 The Committee was informed that the United States availed Mr Gelfeld to the IOC Project Office for IODE for a period of 3 weeks, to assist with preparations for the IODE-XIX Session in general, and to assist with the preparation of an analytical report of the national reports and WDC reports, in particular.

35 Mr. Gelfeld reported that for IODE-XIX thirty-four National Reports were received for Data Management and twenty-two reports for Marine Information. He stated that the National Reports are a unique opportunity for Member States to take stock of where they are and give other Member States the opportunity to view what others are doing. Unfortunately the poor showing for the submission of the National Reports from national data coordinators made a detailed analysis incomplete.

36 Mr. Gelfeld noted that summarizing national reports is not simple. There is a huge amount of information in the reports. There are a very diverse range of data centers with varying capacity and remit.

37 Mr. Gelfeld reported that the resources available to data centres have seen a decrease in budget and staff. Data Centres are being asked to do more with less. Travel and training resources are critical for most centres to benefit from membership in IODE primarily through the contacts in other centres and the experience they can share. They gain much from participation in the international projects and interactions with the scientific community who are usually also present at meetings.

38 He reported that an overwhelming number of Member States now provide their services online and the majority of Member States have a metadata catalogue. The range of data types handled by Member States showed that 92% of the existing data centres deal with physical oceanographic data, 78% also with chemical data, 72% with biological data, 55% with marine meteorology and atmospheric data, and 52% with geological and geophysical data. 65% of the data centres process delayed-mode data and 30% real-time data. About 50% consider they deal with data relevant to GOOS. Most data centres receive data from government and academic agencies and a smaller proportion (approximately one-third) also receive data from privately funded research institutions and/or from

industry. In terms of services provided, most provide quality controlled delayed-mode data. In addition, 54% offer data on-line.

- 39 Mr. Gelfeld reported that the majority of the reporting Member States apply the 'IOC Oceanographic Data Exchange Policy' adopted as Resolution IOC-XXII-6 in 2003 (see <http://www.iode.org/contents.php?id=200>). This includes the timely, free and unrestricted international exchange of oceanographic data and associated metadata that is essential for the efficient acquisition, integration and use of ocean observations gathered by the countries of the world for a wide variety of purposes including the prediction of weather and climate, the operational forecasting of the marine environment, the preservation of life, the mitigation of human-induced changes in the marine and coastal environment, as well as for the advancement of scientific understanding that makes this possible.
- 40 He reported that for the majority of Member States oceanographic data are collected by different government departments, by universities, and by private companies. The Member States had noted further that, especially in developing countries, the NODCs provided a bridge between the IOC programmes and national institutions. All Member States are participating in some level of national and international programmes/projects.
- 41 Mr. Gelfeld reported that the Member States felt that the IODE Project Office in Oostende, Belgium has become a very important oceanographic data and information management centre. The Project office has created an environment facilitating the further development and maintenance of IODE and partner data and information management projects, services and products. It has improved the efficiency and effectiveness of the data and product/service stream between the stage of sampling and the user; and assists 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.
- 42 He reported that IODE should concentrate on improving existing programs including OceanTeacher and OceanExpert. The current ODINAFRICA programme should continue to be enhanced and the newer ODIN programmes (ODINCARSA, ODINCINDIO, ODINECET, ODINWESTPAC, and ODINBLACKSEA) developed to the furthest degree as resources permit. All of the Member States agreed that quality control should be a priority including reviewing and revising existing manuals where appropriate. Providing guidelines and standards for data processing and management would improve skills and practices in the Member States which would in turn improve interoperability of data. Consolidation of a set of standards would benefit every member of IODE.
- 43 Mr Gelfeld stated that the national reports further identified the development of the OceanDataPortal as a priority for IODE; linked with this is continuing the metadata (i.e. SG-MEDI) and marineXML vocabulary work. Developing the OceanDataPortal would also be of benefit to the Member States to raise awareness of the availability of oceanographic data on a worldwide basis. This could lead to how to build a distributed network of oceanographic data centres enabling the searching and retrieving of data sets. The Marine Information Management community would like to see a coordination of existing E-repositories and establishment of new systems and the training of people to manage these systems.
- 44 He reported that the IODE capacity building strategy implemented through the ODINAFRICA and ODINCARSA projects had substantially increased the capacity of the participating countries as reflected in the national reports. The newer ODIN programmes (ODINCINDIO, ODINECET, ODINWESTPAC, and ODINBLACKSEA) should continue to develop.
- 45 Mr. Gelfeld reported that the Member States all felt that participation in IODE had raised the profile of Member States as leading oceanographic data centres, and improved links and cooperation with other NODCs. Member States have benefited from membership in IODE by receiving historical and modern ocean profile data which is distributed as part of the World Ocean Database (WOD) to all Member States in the form of products. Many Member States have hosted scientists and data managers

from IODE data centres which has been mutually beneficial. Each centre benefits from membership in IODE through communication with the contacts in other centres and the experiences they share. Each Member State has gained much from participation in the international projects and interactions with the scientific community who are usually also present at meetings. IODE strengthens the role of its data centres in Member States in the long term in contrast to project data centres, which are only active for a short period.

- 46 The Technical Secretary asked the Member States to comment on the revised National Report format which was designed to obtain more quantitative information that would enable IODE to identify trends at the national level, and included questions to identify capacity building and general IODE programme needs. He asked if IODE needs to further re-structure the National Report format and send it out well ahead of time.
- 47 **The Committee decided** that the revised National Report format was a considerable improvement to the previous format as it responds to the need for a more performance and metric oriented approach but that it needs to be further refined. **The Committee stressed** that National Reports need to be submitted in a timely manner in accordance with the deadlines set by the Secretariat.
- 48 **The Committee reiterated** that the IOC Oceanographic Data Exchange Policy needs to be implemented by all Member States in order for a future distributed system to be useful for all. **The Committee noted** that often there is no understanding at higher government levels of the IOC Oceanographic Data Exchange Policy. Reference is made to [Agenda Item 8.1](#)
- 49 **The Committee welcomed** the excellent response to the request to submit reports by the IODE National Coordinators for Marine Information Management stating that this illustrated the keen interest of the marine library community to participate in IODE.
- 50 **The Committee strongly endorsed** cooperation between WCRP and IODE, stating that the science and data managers need to be better connected.
- 51 **The Committee established** an inter-sessional working group that will review and improve the National Report format. The group will comprise Australia, the United States, the ODINCARSA Secretary, IODE Officers, and the JCOMM DMPA Chair. The sessional working group will work by email and will report to the next IODE Officers meeting in 2008.

3.5. REPORT OF THE IODE PROJECT OFFICE

- 52 This Agenda Item was introduced by Dr Vladimir Vladymyrov, Head of the IOC Project Office for IODE, Oostende, Belgium, referring to [Document IOC/IODE-XIX/9](#) (*Report of the IOC Project Office for IODE*). He recalled the history of the Project Office creation, the main Project Office objectives, and the Project Office activities to achieve these objectives. The Committee was reminded that unexpected additional financial recourses were made available to the Project Office by the Government of Flanders, Belgium that include (i) €60,000 for equipment and general operational expenses of the Project Office in 2005; and (ii) and annual allocation of €500,000/year (for an initial period of 5 years i.e. 2005-2009) for capacity building activities and related expenses at the Project Office. The substantial additional funding provided by the Government of Flanders, Belgium enabled an accelerated implementation of the work plan initially programmed for the period 2005-2006. It was also possible to recruit three permanent (local) staff members for the Project Office, administratively managed by the Flanders Marine Institute (VLIZ). Initial infrastructure (minimum furniture and computer infrastructure) was purchased in 2005, just prior to the official opening of the Project Office, using the €60,000 mentioned above. Additional furniture/equipment/computer hardware and software were bought during 2005-2006. The project office is now fully furnished, equipped and operational.

- 53 The Committee was informed about the main Project Office activities in 2005-2006. They included:
- Infrastructure acquisition (including furniture/computer hardware for the Project office staff, visiting experts, and trainees);
 - IT related activities (including launching of the Project Office web site, web servers installation, transfer of all IODE web sites from Paris to Oostende);
 - Training courses (29 training courses and workshops);
 - Hosting of events (20 IOC/IODE related meetings and 53 external meetings, mostly organized by VLIZ);
 - Expert visits (more than 250 short expert meetings (one day) and 32 medium-long term visits (up to several weeks));
 - Participation in EC funded projects (SIMORC, SeaDataNet, MOTIIVE, ASCABOS);
 - Development and hosting of Pilot/Demonstration projects (TideTool, Sea Level Data Facility Demonstration, and IODE/JCOMM Virtual Laboratory);
 - Project Office promotion.
- 54 A comprehensive overview of the Project Office activities in 2005-2006 and the budget distribution was presented to the Committee.
- 55 The Committee was informed that, as from March 2007, two additional staff have been recruited on half-time basis: (i) one staff (cost €10,250/year = approx. US\$ 13,000) to assist with the updating of infobases and databases (e.g. OceanExpert, OceanPortal, OceanDocs), the management of the IODE web site, and the organization of events; (ii) one staff (cost €21,500/year = approx. US\$ 28,000) to assist with the development of web-based applications. The cost of these additional positions is being (and will need to be in the future) covered from extra-budgetary projects.
- 56 The Committee was informed that the main activities planned for 2007 include the same areas of activities as in 2005-2006. For the period 2008-2009 the expected total contribution by Flanders, Belgium is expected to be €522,000. Out of this amount it is expected that about €232,000 (approx. US\$ 300,000) will be available for training courses, €65,000 (approx. US\$ 84,500) for expert visits, and €30,000 (approx. US\$ 40,000) for equipment.
- 57 The Committee was further informed that funding for the Head of the Project Office had been secured for 2005 and 2006 but due to budget cuts a problem had arisen for 2007. This problem had been announced by the IODE Chair to all IODE National Coordinators, many of whom had then informed their IOC Action Addresses. As a result the 2006 Executive Council had instructed the IOC Executive Secretary to correct this problem. As such Dr Vladymyrov's position is secured until, and including, December 2007.
- 58 **The Committee recalled** that one of the options for staffing the Office was through assigning NODC or National Oceanographic Library staff to the Office on a temporary basis (weeks, months). So far only one Member State (USA) has provided staff in this manner.
- 59 The Technical Secretary informed the Committee that he would change duty station from UNESCO Headquarters in Paris to the IOC Project Office for IODE in Oostende on 1 August 2007. It is expected that he will take over as Head of the Project Office as from 1 January 2008, following the departure of Dr Vladymyrov (whose contract will expire in December 2007). Provided funds can be identified, it is expected that Dr Vladymyrov can continue his work at the Office as well.
- 60 **The Committee welcomed** the very successful start of the Project Office work and its fast development into a fully equipped and operational IODE activity centre.

- 61 **The Committee noted with appreciation** the diversity of the training events provided and planned by the Project Office, and **recommended** to put more attention on specialized training courses (GIS, etc.).
- 62 **The Committee noted with appreciation** the high quality of the training courses provided by the Project Office and their usefulness for the Member States.
- 63 **The Committee underlined** the future role of the Project Office in the Ocean Data Portal Project and other new technology related tasks.
- 64 **The Committee expressed** its gratitude to the Government of Flanders, Belgium and to the City of Oostende for hosting the Project Office and financial support of its work.
- 65 **The Committee expressed** its gratitude to the Flanders Marine Institute (VLIZ) for the excellent technical and administrative support provided to the Project Office.
- 66 **The Committee, while expressing** great appreciation for his management of the Project Office during the start up phase, **stressed** the need for identifying extra-budgetary support to continue the position of Dr. Vladymyrov and **called** on Member States to assist in this regard.
- 67 **The Committee strongly encouraged** Member States to second relevant experts on short or long-term basis to the Project Office, following the examples of Australia and United States.

3.6. ACTIVITIES OF THE RNODCS AND THE WORLD DATA CENTRES

- 68 This Agenda item was introduced by Mr Robert Gelfeld referring to [Document IOC/IODE-XIX/10](#) (*Reports on Activities of the RNODCs and World Data Centres*).
- 69 Regarding the former RNODCs Mr Gelfeld recalled that IODE-XVIII had adopted Resolution IODE-XVIII.2 which had abolished the system of RNODCs, but which had requested also that, where available, NODCs participating in Ocean Data and Information Networks (ODIN) assume the functions of former RNODCs. In addition IODE-XVIII had instructed the IODE Chair to discuss with host institutions of other RNODCs how their operations, if considered essential for the international community, could be maintained and properly acknowledged, or transferred to other Centres of the IODE network.
- 70 At their February 2006 meeting the Officers had requested the former RNODCs to document the products and services that were provided by the RNODCs and to incorporate these, as relevant, in the terms of reference of the relevant ODINs. The following exceptions had been identified: RNODC for drifting buoys (Canada), JASIN (UK: to be closed), IGOSS (Japan, USA and Russia), MARPOLMON (Japan, USA and Russia), ADCP (Japan). The Officers had requested the centres that hosted the former RNODCs for drifting buoys (Canada), IGOSS (Japan, USA and Russia), MARPOLMON (Japan, USA and Russia) and ADCP (Japan) to continue their work until the next Session of IODE.
- 71 Mr Gelfeld reported that this matter should have been discussed prior to IODE-XIX but that no action had been reported. He noted also that this matter is relevant to [Agenda Item 8.2](#).
- 72 Mr. Gelfeld reported that for IODE-XIX only two reports were received from the WDCs at the time Document IOC/IODE-XIX/10 was prepared. He stated that the reports are a unique opportunity for the WDCs to take stock of where they are and give other Member States the opportunity to view what others are doing. The poor showing for the submission of the WDC Reports made a detailed analysis incomplete. He recalled that the WDCs have a history of 50 years and have served as the long-term archive for oceanographic data. The evolving role of the WDCs Oceanography as the ultimate archive of oceanographic data have to be evaluated and discussed.

- 73 The current terms of reference for the WDCs should be reviewed. It is the responsibility of ICSU to decide on the future of the WDCs. The World Data Centre Panel is in transition at the moment. However as the IODE data centres are both data providers to the WDCs and clients of the WDCs Oceanography, the future of the WDCs is most relevant to IODE. If the WDC system ceases to exist, then IODE will need to seek other arrangements to respond to the need for an ultimate and long-term repository of oceanographic data. The current “state of flux” is therefore of great concern to IODE.
- 74 Mr. Gelfeld reported the lack of coordination between the WDCs for Oceanography. With the development of scientific research and the implementation of more and more international cooperative projects and programmes, some terms of reference should be revised to fit the changes. For example, strengthening of capacity building and the improvement of WDCs management and service function should be written down in the terms of reference.
- 75 He reported that there has recently been some concern about the specialization of the WDCs, e.g. one dealing with certain data types and another one dealing with other data types. The WDCs for Oceanography are the world data centers and should be responsible for all the types of oceanographic data. There exist certain differences in the quality control carried out at the different WDCs and it was recommended that the WDCs participate in IODE led quality control discussions. The WDCs need to be involved in discussions on long-term data management.
- 76 The Directors of World Data Centres Oceanography provided the following comments:
- 77 Mr Sydney Levitus, Director of the **World Data Center for Oceanography, Silver Spring** felt that there was no indication from ICSU that the WDCs need to be abolished. The IODE Review Panel criticized WDC for lack of coordination with the other WDCs but Mr Levitus stated that this is not the case. WDC Silver Spring and WDC Obninsk have continued to cooperate over the intersessional period with regard to the Russian Navy. The continued decrease of resources limits the types of parameters that can be collected and archived. Specialization of data is resource dependent.
- 78 Dr Marsel Shairmardanov, Director of the **World Data Center for Oceanography, Obninsk** supported the comments made by Mr Levitus. Dr Shairmardanov informed the Committee that the WDC Directors are to meet in May 2007 and he expressed the hope that the issues mentioned in the analysis can be addressed. He stated that there needs to be more exchange between the national level and the WDCs. We should include wider areas of coverage to enrich data holdings. The WDCs have a proven track record of keeping the data safe. One of the major problems was the QC of data – there are too many duplicates. The low quality data are not destroyed, but are flagged. The QC procedures should be standardized for all of the WDCs. The World Data Centre for Oceanography, Obninsk will get new equipment.
- 79 Prof. Lin Shao Hua, Director of the **World Data Center for Oceanography, Tianjin, China** gave a brief introduction to the progress of the World Data Centre for Oceanography, Tianjin, China during the inter-sessional period. She reported that marine data and information were obtained through national surveys and international exchange.
- 80 National data were received from 6 agency systems. Eight agencies deliver marine data and information to the WDC for Oceanography Tianjin, such as NODC of USA, MEDS of Canada, University of Hawaii Sea Level Data Center, NCAR of USA, etc. The WDC, through NMDIS, developed the following products: (1) Argo Dataset on CD-ROM; (2) Marine Atlas of the South China Sea (5 volumes); (3) Marine Atlas of the Northwest Pacific. In addition several publications were released by NMDIS: (1) China Ocean Yearbook (2005 and 2006); (2) China Marine Statistical Yearbook (2005, 2006); (3) Marine Science Bulletin; (4) Marine Science Bulletin (English Edition); (5) Marine Information; (6) Chinese Oceanic Abstracts.

- 81 The WDC, through NMDIS, actively provided marine data, information and products to users. Prof Lin informed the Committee that the data and information products developed by NMDIS could be obtained through websites that include:
- China Oceanic Information Network (COINet): <http://www.coi.gov.cn/eindex.html> ;
 - WDC-D (for Oceanography, Tianjin, China) Website: <http://wdc-d.coi.gov.cn>
 - Asian Regional Forum Ocean Information Website: <http://www.arfmarinfo.org>
 - NEAR-GOOS Website: <http://near-goos.coi.gov.cn>
 - China Argo Data Center Website: <http://www.argo-cndc.org>
 - JCOMM/ODAS Metadata Center Website: <http://jcomm.coi.gov.cn>
- 82 Prof Lin further reported that the WDC for Oceanography, Tianjin, China received 12 delegations and 55 expert visits in 2005-2006. It cooperated with others NODCs, such as NODC of USA, IFREMER of France, MEDS of Canada, JODC of Japan, and KODC of Korea. Prof Lin highlighted a number of other international activities for data management and services related to international cooperation projects such as GLOSS, NEAR-GOOS, JCOMM, Argo and GTSP that have taken place in the inter-sessional period:
- GLOSS (Global Sea-level Observing System): provided monthly sea level data of 6 Chinese sea level stations to the UH Sea Level Center every month since 2003. The same monthly sea level data were also provided to the U.K. Proudman Oceanographic Laboratory every month from September, 2006 onwards; Conducted Tide forecast for around WDC for Oceanography Tianjin area;
 - NEAR-GOOS: Updated the China Near-GOOS website (<http://near-goos.coi.gov.cn>); 40MB of quality-controlled data have been uploaded into the China NEAR-GOOS Delayed Mode Database in 2005 and 2006;
 - JCOMM: Updated the ODAS Metadata Management Centre website, providing access to the ODAS metadata and related information on JCOMM metadata management, as well as the ODAS metadata products, such as the latest ODAS status map, the ODAS distribution maps. (<http://jcomm.coi.gov.cn>);
 - Argo: (1) The China Argo Data Center website was established in both Chinese and English versions. Users are able to access data on the website and via FTP. (<http://www.argo-cndc.org>); (2) Hosting of the seventh meeting of Argo Data Management Team In November 2006, the Chair of IODE, experts from IOC and more than 30 experts from nine countries attended the meeting; (3) Processing of Argo data and establishment of Argo databases; (4) Developing Argo data products and data assimilation processing;
 - GTSP: Processing and quality control of GTSP data from January 1990 to July 2006, 2.5 million station-times, 15GB totally; Established GTSP database and website (<http://mds.coi.gov.cn/GTSP.asp>);
 - SCS Database Information Exchange and Networking Project: Hosted the Expert Group Meeting on the Project in October 2005; constructed the main-website in 2006 and begun operating <http://www.coi.gov.cn/scs/>, tidal prediction, such marine scientific data as sea level data, surface meteorological data and current data, and metadata formats are released on the website.
- 83 Prof Lin also reported on activities related to MIM which are conducted by NMDIS.
- Online services provided by the Information Centre
 - Database of Chinese Scientific and Technical Periodicals (E-repository of more than 500 Chinese journals) <http://221.239.0.144/index.asp> ;
 - Database of Aquatic Sciences and Fisheries Abstracts (ASFA);
 - Database of Chinese Oceanic Abstracts;
 - Scholar Digital Library resources (E-repository of more than 10000 books/monographs);
 - Cooperation in national and international programmes
 - National Coordinator for Marine Information Management (NC-MIM) within IODE;
 - National partner of the Aquatic Sciences and Fisheries Information System (ASFIS)

since 1985;

- Leading agency of the Domestic Coordination Committee on Marine Library and Information Service in China since 1989;
- Member of IAMSLIC.

84 Prof Lin summarized the problems where there should be improvement in the future: (1) WDCs should cooperate more closely with international cooperative projects, to collect more and more data resources and make them available to users around the world. (2) Establish closer cooperation between WDCs, especially for marine data quality control technology and other activities.

85 Mr Nicolas Dittert of **WDC-MARE** gave a short presentation on its activities.

86 WDC-MARE is run as a mutual co-operation between the Alfred-Wegener-Institut for Polar and Marine Research (AWI), Bremerhaven, Germany, and the Centre for Marine Environmental Sciences (MARUM), Bremen, Germany. WDC-MARE has three core businesses, namely (1) establishment of data publication; (2) development of information interchange standards and protocols; (3) furthering of networking activities between data centres (WDC, NODC, programmes, projects, stake holders, etc.).

87 With respect to data publication, WDC-MARE focuses on the data entity of “analytical” values and meta-information as data collection with a defined granularity. Data entities are harmonized, archived, and eventually published in the sense of re-distribution to the community under defined conditions (digital object identifier [DOI] as technical means for any data entity; data quality through peer-review, etc.). As of February 2007, 480,000 data sets are available in consistent data format whereas the data stock is still increasing exponentially. All data sets are provided with a DOI.

88 With respect to networking activities, Dr Dittert showed the links among the 54 existing WDCs, and many multi- and international projects, organizations, institutions, etc. that are supposed to interlink through data portals. The motivation, in any case, is not a technical one but to serve the scientific community first hand through (1) open access; (2) safeguarding good scientific practice; (3) added value through data integration; (4) reporting to funding organizations; etc., which immediately relates to the entropy in data archiving from “no need for data archiving” through “data centres” to “data portals”.

89 WDC-MARE can be accessed by different means through the Internet: search engine, advanced retrieval tool, direct download interface, map interface, metadata search, digital object identifier, web services.

90 Still in process are the tasks of “peer review of data” and “formal acceptance of data sets as publication equivalent”. WDC-MARE will host the 50th anniversary event of the ICSU WDC system in the context of the IPY in May 2007 in Bremen, Germany, which will be the starting point of a new generation of WDC co-operation.

91 The Delegate from Canada supported the comments made by the Director WDC, Obninsk about standards and stated that is very important for JCOMM. He agreed with Mr Levitus about specialization and expressed support that not all data types need to be archived by the WDCs. WCRP is reviewing all of their data and this is an opportunity to improve how the global data system operates. He recommended that a small meeting of representatives from JCOMM, IODE and the WDCs be convened to clarify the respective roles of these organizations in managing oceanographic data.

92 Regarding the issue of RNODCs, the **IODE Committee decided** to establish an inter-sessional working group to propose concrete ways to implement the decision of IODE-XVIII on RNODCs while bearing in mind the IOC strategic plan for oceanographic data and information management. **The Committee tasked** the group to report to the next meeting of the IODE Officers (March/April 2008). The membership will include Canada, Japan, Russia and the IODE Co-Chairs.

3.7. FOLLOW UP TO THE IODE REVIEW

- 93 This Agenda Item was introduced by the Technical Secretary, referring to [Document IOC/IODE-XIX/11](#) (*Follow-up to the IODE review*). He recalled that out of the 17 recommendations formulated by the Review, nearly all had had been agreed upon by the IODE Committee at its eighteenth Session. He provided a summary of the Recommendations that required further action by IODE-XIX:
- 94 Review Recommendation 1: “The IODE review recommended the modification of objectives of the IODE Committee”. It was recalled that IODE-XVIII had adopted Recommendation IODE-XVIII.1 (The IODE Objectives). This matter is further covered under [Agenda Item 8.2](#).
- 95 Review Recommendation 2: “The IODE review recommended to reduce the present number of IODE Officers drastically”. In view of the increasing demands on the Chair (due to e.g. responsibilities in JCOMM, GOOS, etc) and the imbalance between the tasks of the Chair and Vice-Chair, the Committee was invited to consider the revision of the management structure by electing two Co-Chairs rather than Chair and Vice-Chair. The Committee adopted [Resolution IODE-XIX.1](#) (*The IODE Chairs*)
- 96 Review Recommendation 3: “The review recommended that the Groups of Experts be abolished”. Discussion on this item was referred to [Agenda Item 4.2](#)
- 97 Review Recommendation 4: “Regarding Distributed national data management systems the IODE review recommended a more distributed system in each country”. Discussion on this item was referred to [Agenda Item 4.3](#)
- 98 Review Recommendation 5: “Regarding Responsible National Oceanographic Data Centres (RNODCs) the Review recommended to abolish the RNODCs”. The Committee was informed that former RNODCs had been requested to include information as an annex to their National Report. Discussion on this item was referred to [Agenda Item 3.6](#).
- 99 Review Recommendation 6: “Regarding countries of a region with relatively small oceanographic activities...should consider the feasibility of establishing a joint multi-national oceanographic data centre”. In this regard **the Committee noted** that the “Guide for Establishing a National Oceanographic Data Centre” (IOC Manuals and Guides No. 5), published in 1997 was now out of date and needed urgent updating. **The Committee tasked** Dr Lesley Rickards, Mr Nickolay Michailov and Mr Greg Reed with reviewing “IOC Manuals and Guides No. 5” and start the updating process. With regard to the publishing of the revised Manual **the Committee noted** that, rather than publishing a printed version of the Manual, it would be more cost-effective to include the Manual in electronic format as part of OceanTeacher.
- 100 Review Recommendation 7: “Regarding Quality Control, the IODE Review recommended that IODE make a strong endeavour to ensure a better quality of oceanographic data”. Discussion on this item was referred to [Agenda Item 3.9](#)
- 101 Review Recommendation 8: “Regarding Cooperation with scientific programmes, institutions and agencies, the IODE review recommended for IODE to intensify its interaction with appropriate scientific programmes, institutions or agencies”. Discussion on this item was referred to [Agenda Item 5.5](#) and [Agenda Item 6.2.13](#) (related to the development of an Ocean Data Portal).
- 102 Review Recommendation 9: “Regarding the development of a global data set for long-term archival, the IODE review recommended that that IOC consults ICSU and scientific partners on the best way to build, in consultation with IODE, one master global data set of the best possible scientific quality for long-term archival”. **The Committee noted** that the different WDCs as well as other

programmes or projects hold complementary parts of a “global” data set, and **recommended** that these entities should consider ways and means to build a “global data set”. **The Committee noted further** that the “OceanDataPortal” would provide the technological solution to make available these holdings.

- 103 Review Recommendation 10: “Regarding MEDI the IODE review recommends that the IODE reviews the need and resources required for...”. Discussion on this matter was referred to [Agenda Item 6.2.6](#) (MEDI)
- 104 Review Recommendation 11: “The IODE review recommended to abolish the system of IODE Regional Coordinators”. It was noted that ODIN coordinators (for existing networks) have been requested to assume the responsibilities of the former IODE Regional Coordinators as defined in Resolution IODE-XVIII.1 (IODE regional coordinators). No action was required by IODE-XIX on this matter.
- 105 Review Recommendation 12: “Regarding IODE National Coordinators the IODE review recommended that the IOC Secretariat urges those IOC Member States which have not yet done so to nominate an IODE National Coordinator so as to improve liaison between their national oceanographic institutions and the IOC Secretariat”. The Committee was informed that IODE now counted 84 (of which 76 could be verified) IODE National coordinators for oceanographic data management, but only 33 IODE National Coordinators for marine information management. **The Committee noted** that further expansion of the IODE network should be promoted through the ODIN networks as this would enable assisting the new data and information management centres to acquire the necessary skills as part of a long-term integrated framework.
- 106 Review Recommendation 13: “Regarding the IOC Oceanographic Data Exchange Policy the IODE review recommended that the 23rd Session of the Assembly demands that IOC’s Member States implement IOC’s Data Policy which was approved by the 22nd Assembly in 2003 at their national level”. Discussions on this item were referred to [Agenda Item 8.1](#).
- 107 Review Recommendation 14: “Regarding the IODE unit at the IOC Secretariat, because of its cross-cutting nature, its special expertise, and unique role for the global exchange of marine data, the IODE review recommended to keep the IODE unit on the same administrative level to maintain its efficiency”. Discussions on this item were referred to [Agenda Item 4.1](#).
- 108 Review Recommendation 15: “Regarding IODE operational activity maintenance the IODE review recommended for the IOC Secretariat to consider ways and means for contracting out to private consultants IODE related operational activities”. Discussions on this item were referred to [Agenda Item 9](#) as well as to relevant agenda sub-items under Agenda Item 6.2.
- 109 Review Recommendation 16: The IODE review recommended that the IOC websites should be simplified and should have a common style and navigational system. Discussions on this item were referred to [Agenda Item 7.1](#).
- 110 Review Recommendation 17: “Regarding the role of IODE in the JCOMM/IODE ETDMP the Review recommended that IODE plays a pro-active role in the ETDMP and that the Officers monitor progress with particular care to avoid the same structural problems as the other groups of experts”. Discussions on this item were referred to [Agenda Item 6.1.3](#)

3.8. IODE DATA FLOW

- 111 This Agenda Item was introduced by the Chair, referring to [Document IOC/IODE-XIX/12](#) (IODE Data Flow). She recalled that the IODE started the system of the National Oceanographic Programmes (NOPs) and Cruise Summary Reports (CSRs, formerly ROSCOPs) as a way to share information on planned research cruises as well as to report on the results of research cruises. For the last 10 years, the OCEANIC system at the University of Delaware has provided a platform for the

dissemination of cruise programme and research vessel information, but they have been finding it increasingly difficult to fund this activity.

- 112 In the 1980s ICES led the effort to digitise the ROSCOP/CSR information and pioneered the development of a database for this information, and, in collaboration with IOC/IODE, developed and maintained a PC-based CSR entry tool and search facility. The emphasis for this was on ICES member countries, but extended to other countries who wished to submit their information. The CSR activity gained new momentum in Europe during the EU-funded EURONODIM/Sea-Search projects under the lead of BSH/DOD, Germany. The combined ICES and Sea-Search/SeaDataNet CSR database now comprises details of over 35000 oceanographic research cruises primarily from Europe and North America, but also including some other regions (e.g. Japan, Australia) The CSR databases BSH/DOD and ICES are regularly synchronised.
- 113 Recently the Partnership for Observation of the Global Oceans (POGO) members have recognized the need to improve on information sharing on pre-planned, planned, current and past cruises and related databases to enhance awareness of opportunities, to improve cost-effectiveness of cruises and to improve data mining. Their primary interest is for research vessels of length > 60 metres, certified for open ocean research. This comprises approximately 300 research vessels, operated by about 50 institutes worldwide. Most of these institutes are represented in POGO and/or the International Research Ship Operators' Meeting (ISOM).
- 114 POGO, together with the Census of Marine Life (CoML), have provided some funds to establish a dedicated international research cruise web-site that will give access to three interrelated information modules, specifically for open ocean Research Vessels: these are (i) Research Vessel Cruise Programme database (ii) Research Vessel Directory database and (iii) Cruise Summary Report (CSR) database. Each of these three database applications will feature a mechanism and application for adding new entries and updating existing entries and for searching and retrieving information.
- 115 The website and databases for POGO and CoML is being developed and operated by a subgroup of the SeaDataNet consortium, which includes IODE NODCs, with a strong emphasis on building on already existing activities.
- 116 The Chair suggested that IODE take advantage of these developments, building on the POGO system and its integrated web services and extend it to truly global coverage for all countries and their research vessels.
- 117 A few Member States expressed concern about making available information on ship routes due to the risks of piracy at sea. The Chair responded that this could be handled by restricting access to the site by passwords, if necessary.
- 118 Member States were invited by Germany to use the already operational CSR module which is open for entry and retrieval through <http://www.sea-search.net/roscop/welcome.html>. Moreover the CRS Online System offers the function to correct existing CSRs, thus improving the quality of this data.
- 119 **The Committee welcomed** the initiative of POGO to continue and strengthen the system of NOPs and CSRs and the leading role of the United Kingdom (BODC) and German (DOD) NODCs (as members of SeaDataNet) in this endeavour. **The Committee invited** POGO and the project leaders to report on progress to IODE-XX with the view of expanding the system to include smaller vessels.
- 120 **The Committee stressed** the need for close cooperation with ICES which, together with the US-NODC, is responsible for maintaining the ship code list.

121 **The Committee**, being informed about activities of several marine libraries in linking cruise metadata, data and research publications, **called** on the project to consider including “information linking” in future phases of the project by using the expertise available in marine libraries .

3.9. QUALITY CONTROL/ QUALITY ASSESSMENT

122 This Agenda Item was introduced by the Vice-Chair, Mr Ricardo Rojas, referring to [Document IOC/IODE-XIX/13](#) (*Report on the QC/QA Survey*) and [Document IOC/IODE-XIX/13 Add.](#) (*Appendix to Document 13*).

123 Mr Rojas recalled that during IODE-XVIII, the report of the IODE Review Group to IODE-XVIII emphasized the QC/QA issue as a priority task. Accordingly, the Committee had adopted resolution IODE-XVIII.4 to establish an inter-sessional working group on quality control of ocean profile data, with the following goals:

- (i) review existing quality control procedures and software;
- (ii) discuss quality control issues of historical, real-time, delayed-mode and modern ocean profile data;
- (iii) prepare a report on (i) and (ii) above.

124 Mr. Rojas reported that the Committee had decided that the working group should be composed of Sydney Levitus (USA), Nickolay Michailov (Russia), Loic Petit de la Villeon (France), Candida Seta (Mozambique), Hae-Seok Kang (Korea), Ruguang Yin (China) , Joon-Yong Yang (Korea), Scott Tomlinson (Canada), Ricardo Rojas (Chile), Catherine Maillard (France), Edward Vanden Berghe (Belgium), Anis Diallo (Senegal) and Murray Brown (Chief Editor OceanTeacher) . The working group was also instructed to work by email and to submit its report to the JCOMM/IODE ETDMP Session for its consideration and use, and its final report to the Nineteenth Session of the IODE Committee for adoption.

125 He informed the Committee that in order to assist the working group with its deliberations an online survey was prepared by the IODE Secretariat and opened for input on 17 May 2006. All IODE National Coordinators for Oceanographic Data Management were requested to fill the questionnaire. A total of 30 responses were received. A detailed list of the respondents as well as a full listing of the survey questions are added in Annex I and II of [Document IOC/IODE-XIX/13](#) (*Report on the QC/QA Survey*)

126 Mr. Rojas also reported that due to time constraints of the main participants, the inter-sessional working group was not able to make much progress. Some work progressed on (i) and (ii) above, but no report was prepared. However the questionnaire responses provided an indication of the variety of procedures and software that are in use in the 30 countries that responded to the questionnaire.

127 Referring to the questionnaire, Mr. Rojas mentioned that the countries that responded were well distributed geographically, but a number of countries with large data centres did not respond,. However, because some of these countries are participants in the EU funded SeaDataNet project, which has a quality control task, some input was acquired through that project.

128 He also reported that the online questionnaire dealt with those parameters included in the World Ocean Database, what quality control manuals or guidelines are in use by data centres and what software is used to quality control the data. In general, over 90% of the respondents manage temperature and salinity data. Dissolved oxygen and nutrients are handled by about 50% of the respondents and some meteorological parameters (air pressure and air temperature) are handled by over 40% of respondents. Usually the same methodology or manuals are used consistently by a centre but data are not necessarily quality controlled in a consistent way across different centres.

- 129 The Committee was informed that initial conclusions from the online survey are as follows:
1. There is no consistency across data centres responding to the questionnaire;
 2. Many data centres use in-house procedures and software but often no further details are given. Thus the extent of the quality control carried out is often not clear, for example, if accompanying metadata are checked, if automatic tests are used, if data are visualised, quality flags added or data values changed, etc.;
 3. There are some areas of a more consistent approach. These include use of the Manual of Quality Control Procedures for Validation of Oceanographic Data, GTSPQ QC Manual and MEDAR-MEDATLAS. The countries involved in the MEDAR-MEDATLAS project all use the same procedures. In fact, all parameters that can be presented in MEDATLAS (ASCII) format are quality controlled using QC procedures described in the MEDAR-MEDATLAS documentation;
 4. Some of the parameters in the World Ocean Database are not handled by the Centres responding to the questionnaire. These include: CO₂ warming, xCO₂ atmosphere, tritium, helium, delta helium-3, delta Carbon-14, delta Carbon-13, argon, neon;
 5. Some manuals and software are noted. The main examples are:
 - Manual of Quality Control Procedures for Validation of Oceanographic Data, UNESCO, IOC - Manuals & Guides, 1993, Manual And Guides 26
 - GTSPQ QC Manual
 - IOC Manuals on Physical Chemical Analyse
 - WOD98 Quality Control
 - WHP 1
 - Argo Quality Control Manual (Real Time and Delayed Mode)
 - MEDAR-MEDATLAS procedures and SCOOP software
 - ICES Guidelines
 - JPOTS Manual, 1991
 - Seabird software
 - Ocean Data View
 - Excel
 - Grapher
 - Surfer

- 130 Mr. Rojas reported that data centres responding to the questionnaire also hold many other parameters in addition to those included in the World Ocean Database, including sea level, current speed and direction, wave statistics, bathymetry, fluorescence, chlorophyll a, chlorophyll b, total-phosphorus, ammonium, phaeophytin, total-nitrogen, total organic carbon, saturated hydrocarbon, chemical oxygen demand, biochemical oxygen demand, hydrogen sulphide, mercury, total-mercury, lead, cadmium, arsenic, contaminants, polychlorinated biphenyl, suspended solid, magnesium, calcium, wind speed and direction and biological data (marine macro-invertebrates, fish species, cetaceans). No further information was requested or provided for these parameters.

- 131 Mr. Rojas also summarized the information obtained from the EU-funded SeaDataNet project task “Common Data Management Protocol for dissemination to all NODCs” that includes *Data quality checking methodology* and *Quality flag scale protocol*. He mentioned that SeaDataNet notes the importance of the information (metadata) that must be kept alongside the data, such as: Where and When the data were collected; How the data were collected; How to refer to the data and Who collected the data, and What has been done to the data and Watch points for other users of the data . He also mentioned how SeaDataNet relates to other IODE programmes such as GTSPQ and GOSUD projects, through tests and quality flags applied to data sets and that eventually an agreed list of quality flags and QC manual will be recommended for use for SeaDataNet partners and the IODE community.

Input from Director, WDC for Oceanography, Silver Spring

- 132 The Director of WDC for Oceanography (Silver Spring) and Leader of the GODAR project, Mr Sydney Levitus, recommended compiling, as a high priority task, a bibliography of all quality control publications and making these available *via* web sites (e.g. OceanPortal, OceanTeacher) where people can obtain such documents. Some input to this is available from the questionnaire and through

SeaDataNet. Requesting such documentation from other marine institutions will be most valuable and should be a high priority.

133 In addition, he recommended requesting papers from marine data centres (data centres should be especially urged to participate, perhaps an IOC Circular Letter is an appropriate mechanism to request such cooperation), institutes, and projects (e.g., JGOFS, WOCE, etc.) regarding QC issues they face or have faced. This could be broken down into categories including:

- issues regarding QC of real-time data;
- issues regarding QC of the delayed-mode versions of real-time data;
- issues regarding QC of ocean profile and plankton data not in the "real-time" category;
- issues regarding QC of classes of oceanographic data such as "physical", "chemical", and "biological" (plankton in particular).

134 Mr. Levitus cited one problem faced at NODC/WDC: metadata are frequently missing or incorrect. Data are often received that have the wrong sign of latitude and/or longitude.

135 The document to be produced should contain reports from any data centre, institution, or project that wishes to contribute. It could include reports from users of data, particularly from operational data (e.g. ISDM (Integrated Science and Data Management), formerly MEDS) and forecast centres (e.g. ECMWF, NCEP) regarding what problems they encounter with real-time data. The final report should summarize the documents submitted and include a list of "best" practices regarding QC. The report should focus on problems that data centres encounter, that users of data centre data and databases encounter, that operational centres encounter, etc. The purpose of the report is to improve the quality of oceanographic data and products based on these data for user communities.

136 Mr. Rojas further commented on an initiative developed by Dr Murray Brown, Chief Editor for data management in OceanTeacher, who has started integrating the ideas and contributions of the QC Working Group into OceanTeacher. At present, Dr Brown created a "pre-course" in the OceanTeacher environment (<http://ioc.unesco.org/oceanteacher/OceanTeacher2/CoursesHome.htm>) which covers topics ranging from initial planning to detailed QC procedures for specific data types. As the QC/QA group completes the collection of primary documents -- and provides other discussions and papers -- Dr Brown will convert this "pre-course" into a real training course to be offered to OceanTeacher international students.

Course DM 209	OCEANOGRAPHIC DATA QUALITY CONTROL
GOAL	[Proposed] To introduce the student data manager to the broad concept of quality control of marine data, including management practices, field measurements practices and technical procedures and methods for direct examination and quality control of datasets
LESSONS	<ol style="list-style-type: none"> 1. Introduction 2. Science & Implementation Plans 3. Data Management Policies & Guidelines 4. Manuals & Guides for Fields Measurements 5. Programmatic Aspects of Quality Control 6. Technical Aspects of Quality Control 7. Integration of QC into Operational Oceanography Infrastructure

Table 3. Outline of the future OceanTeacher course to be taught to trainees of IODE in QA/QC topics.

137 The Representative of WMO welcomed the initiative of IODE related to quality control/quality assurance, comparing it to the "WMO Quality Management Framework (QMF)" in which JCOMM is also involved. He further encouraged IODE to participate in the WMO QMF through JCOMM for activities related to quality management of interest to JCOMM.

- 138 **The Committee decided** to continue the inter-sessional working group for one more inter-sessional period and charged it with the following tasks:
- (i) compile a bibliography of all quality control publications (including both quality control procedures and software), building on what is currently available from OceanTeacher DM 209;
 - (ii) compile information on quality control issues of historical, real-time, delayed-mode and modern ocean profile data;
 - (iii) prepare a revised QC manual linking with other QC activities (such as SeaDataNet, DMAC and QARTOD) and building on the results of (i) and (ii) above.
 - (iv) this QC working group should work in collaboration with the JCOMM/IODE Expert Team on Data Management Practices (ETDMP).
- 139 **The Committee instructed** the inter-sessional working group to submit its work to the March/April 2008 session of the IODE Officers for review, and to the twentieth Session of the IODE Committee for adoption in 2009.
- 140 **The Committee further decided** that the inter-sessional working group membership will include Belgium, Canada, Chile, China, France, India, Italy, Republic of Korea, Russian Federation, Senegal, the United States of America, and WMO, and that the group lead will be the United Kingdom. It was further decided that the group will work by correspondence (email).
- 141 **The Committee instructed** the Co-Chairs and Secretariat to investigate the possibility of organizing a QC session as well as plenary presentation during IMDIS-2008.

4. STRUCTURAL ISSUES

4.1. RESTRUCTURING OF THE IOC AND ITS IMPACT ON IODE

- 142 This Agenda Item was introduced by the Technical Secretary. He informed the Committee that since January 2006 the IOC's Ocean Services section has been abolished by the Executive Secretary. The programmes formerly part of the Section were re-assigned as follows: (i) the IODE Programme has been placed in the OOS Section (Ocean Observations and Services which further includes GOOS and JCOMM), headed by Dr Keith Alverson; (ii) the ITSU programme has been placed in the new Tsunami Section, headed by Dr Peter Koltermann; and (iii) the Ocean Mapping programme is now under the direct supervision of the IOC Executive Secretary. He explained further that in terms of impact, in the 33 C/5 document (UNESCO work plan for 2006-2007) the IODE programme was no longer a Major Line of Action (MLA) but an Action. The immediate impact of this was that the IODE programme is no longer "visible" within the C/5. He concluded that it was as yet unclear whether the restructuring of the IOC Secretariat would also lead to further re-organization of the programmes (e.g. merger of IODE and GOOS, IODE and JCOMM,...). Similarly it was as yet unclear whether IODE would still have a budget line within this new structure or whether activities relevant to IODE will be funded from an overall OOS budget line.
- 143 **The Committee requested** the IODE national coordinators to discuss this matter with their IOC action addresses (and Delegates to the forthcoming 24th Session of the IOC Assembly) with the view of ensuring the continuation of the IODE programme as a programme within IOC, and to express the Member States' strong support for the IODE programme.

4.2. IMPACT OF THE IODE REVIEW AND FOLLOW-UP

144 This Agenda Item was introduced by Ms Suzie Davies, Chair GE-MIM, referring to [Document IOC/IODE-XIX/19](#) (*Future Strategy and Structure for IODE groups of Experts: Report to IODE-XIX by Chairs of Groups of Experts*).

145 **The Committee recalled** that it adopted Resolution IODE.XVIII.3 (IODE Groups of Experts) which instructed the Chairs of the Groups of Experts to finalize a revised structure and strategy for the Groups of Experts. In particular the Chairs were tasked to address issues like:

- (i) recommending a new structure and membership format for the IODE Groups of Experts, which offers flexibility, increased access to expanded pool of experts, and stronger focus on completion of tasks, whilst also maintaining a wider coordination role;
- (ii) suggesting mechanisms for improving communication and reporting between IODE Groups of Experts and National Co-ordinators for both data management and information management;
- (iii) including in the new mechanism, the potential for establishing steering groups based on specific projects, and gaining appropriate expert advice when required;
- (iv) suggesting mechanisms for improving communication amongst IODE Groups of Experts, and for offering direction to IODE Groups of Experts from the IODE Officer Group;

146 Ms Davies then summarized the outcome of the work:

(i) Structure and membership format

Flexibility:

147 The new structure should provide for a percentage of a group's membership to be ongoing, and for the remaining percentage to be short-term and associated with specific projects/tasks. This would increase a group's ability to respond to changing needs and be more flexible in its approach to issues. It would also place a stronger focus on the completion of tasks. Continuity of the groups' knowledge management and ongoing longer-term issues would be ensured by the ongoing positions.

Access to expanded pool of experts:

148 IOC has available 2 pools of potential experts within the IOC structure: National Coordinators for Information Management and National Coordinators for Data Management (NCs). Members of both groups should be invited to submit their professional details to OceanExpert, so that IOC can maintain a current directory of experts, their skills and expertise. MIM experts are also available via the International Association of Aquatic and Marine Libraries and Information Centers (IAMSLIC).

149 Implementation of GE work plans: this should not be limited to the members of the GE but can be "volunteered" by IODE National Coordinators (for DM and IM). In this regard mailing lists will be established by the IODE Project Office for the GEs and, as necessary for specific activities of the GE to get additional input and help.

Wider coordinating role of GEs:

150 GEs should take a co-ordinating role with NCs. This would involve each GE establishing a work programme (under IODE direction) with clear priorities. Tasks/projects would be then allocated to NCs, and GEs would continue with a co-ordinating/management role.

Selection of GE membership:

- 151 There should be a core, selected from Member State nominations by the IOC Executive Secretary (guided by Chairs GEs and Chair IODE). In addition extra experts can be added based upon the agenda of the meeting. Chairs of existing project Steering Groups can also be added;
- 152 Duration of membership of core group: the membership duration will be one intersessional period, renewable after a positive assessment by the GE Chair and Chair IODE. The GE Chair will be assessed by the Chair IODE

(ii) Improving communications (GEs to NCs)

- 153 The IODE Groups of Experts should better communicate their activities to the IODE community through sending regular information to the IODE National Coordinators (NCs). IODE Groups of Experts can also send questions to NCs. NCs should play an active role in the development of the IODE Strategic Plan, by providing regular input and suggestions and highlighting issues/information gaps for action or consideration to the IODE Groups of Experts.
- 154 An email listserv should be established for both data and information National Coordinators, also including any IODE Groups of Experts members who are not in these groups. It is recommended that people undertake an induction process when they first take on these roles, to ensure that they have a clear understanding of the role and responsibilities of the positions. The expected role of National Coordinators for Information Management was also defined.
- 155 The IODE Groups of Experts should perform a coordinating role for National Co-ordinators. Annual reporting procedures should be established so there is a constant flow of information between groups. Biennial Workshops/Conferences aligned with outside bodies should be encouraged (eg. OBI, IAMS LIC).

(iii) Improving communications (NCs to GEs to IODE Officers Group)

- 156 The NCs should prepare annual reports to the GEs (eg. achievements, progress on tasks, issues of concern, interactions with other NCs). GE Chairs should meet annually (possibly via virtual meetings), to share this information. Outcome of meeting should be a report to IODE Officers Meeting, for discussion and acceptance.
- 157 In addition, the following structure and reporting lines for IODE Groups of Experts were agreed upon (Fig 1):

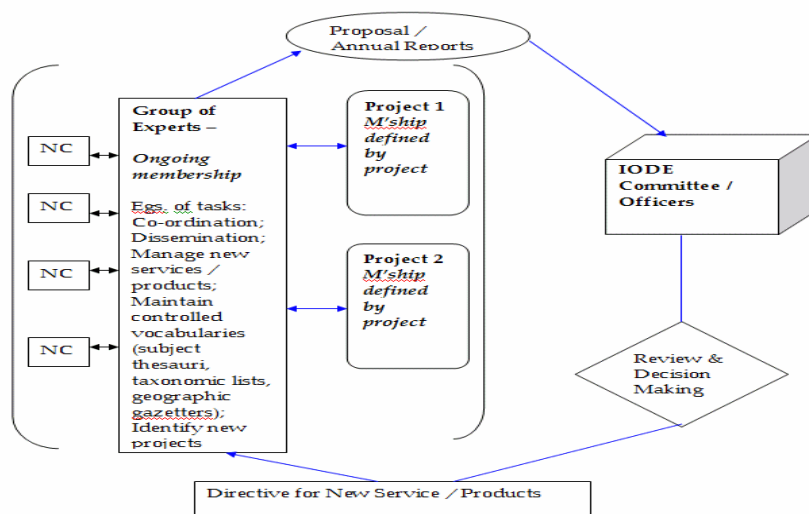


Figure 1

(iv) Steering groups

158 The new GE structure would be flexible enough to establish steering groups based on specific projects. Access to the larger pool of experts (see (i) above) would greatly assist with this process.

159 **The Committee adopted [Recommendation IODE-XIX.2](#)** (Strategy and Structure of IODE Groups of Experts).

160 The Representative of IAMSLIC, Ms Pauline Simpson, informed the Committee that IAMSLIC valued the relationship with IOC/IODE and, referring to the MOU between IAMSLIC and IOC, invited IOC to renew this agreement as a framework for continued cooperation between the two organizations.

4.3. ROLE OF NODCS AT THE NATIONAL LEVEL

161 This Agenda Item was introduced by the Vice-Chair, Mr Ricardo Rojas. He recalled 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. Mr Rojas further recalled 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.

162 Mr Rojas noted further that 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.

163 Mr. Rojas further recalled that 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.

164 With regard to the advantages of a distributed system, Mr Rojas mentioned the following:

- the data become more readily accessible by the public;
- the NODC is better aware of the availability of diverse datasets 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.

165 Mr. Rojas emphasised that 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.*"

166 In order to stress the importance of this issue, Mr. Rojas cited ISDM, Canada in their national report as follows: "We 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.”

167 The Delegate of Italy, Dr Renzo Mosetti, informed the Committee that Italy is continuing the development of a national distributed system. He noted that the cost of this is considerable in terms of infrastructure and personnel.

168 The Delegate of Japan, Dr Yutaka Michida, reported his country’s experience. The Japan Oceanographic Data Center (JODC) has been organizing a meeting of the national committee for IODE once a year since the 1970s. Its 36th session was held on March 7, 2007, at JODC, with the participation of several national agencies that collect oceanographic data and submit them to JODC. The national committee has played a very important role in promoting ocean data exchange at the national level. 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. They are working components of a distributed data system in Japan. At the same time, one of the most important roles of the NODC (JODC), which is to operate a secure archive of the observational data, has been well recognized among the related agencies and institutions in Japan through the discussions in the national committee meetings for IODE. 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. Dr Michida further noted that funding could be easier for a distributed centre as it can see funding from the individual centres.

169 The Delegate of Australia, Mr Greg Reed, informed the Committee that Australia is implementing a whole-of-government approach to ocean data management that is developing a national multi-agency data management system to manage the ocean data resources of the partner agencies through a distributed network. The Australian Ocean Data Centre Joint Facility (AODCJF) was officially inaugurated on 1st October 2005 following the signing of the Collaborative Head agreement by the participating agencies – 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.

170 The AODCJF will manage the ocean data resources of the partner agencies and provide a national infrastructure that will be flexible enough to permit on-line access to the data held in the partner institutions across Australia. To achieve the national distributed infrastructure, AODCJF is developing a Portal to share and exchange marine data and products at the national level. A Data Standards Working Group has been established to identify, develop and maintain data standards and commonly associated terms, definitions and schemas to enable the efficient use and effective exchange of data. The AODCJF has been also working with the research community to extend the distributed model to manage, host and archive the data from researchers.

171 The Delegate of India, Mr Pattabhi Rama Rao, informed the Committee that INCOIS (NODC-India) has been providing ocean data, information and advisory services through a website & ocean portal (<http://www.incois.gov.in>) especially in the areas of (i) Potential Fishing Zone advisory service (ii) Indian Ocean Argo Project, (iii) Ocean State Forecast, and (iv) IOGOOS besides facilitating users with an Information Bank, information on various projects and programmes, Ocean Tutor, etc. The data received in real time from *in situ* platforms and remote sensing satellites are vital for providing these web-based services. The INCOIS web-site has matured as a prime vehicle for delivery of ocean data, information and advisory services.

- 172 The Ocean Data and Information Bank, a ‘one-stop-shop’ for providing information on physical, chemical, biological and geological parameters of ocean and coast on spatial and temporal domains is being established by INCOIS and it is fed by the data received from both the in-situ platforms and satellites in real-time as well as in delayed mode. Further, it is supported by a network of Marine Data Centres (MDCs) established by the Ministry of Earth Sciences- MoES (the former Department of Ocean Development) in the 1990s, in national laboratories and academic institutions to collect and collate data, undertake quality control exercises and archive in digital data bases. At present, some MDCs are active, but some are not functional due to various reasons.
- 173 INCOIS plans to strengthen the Ocean Data and Information Bank with the data generated from the chain of active Marine Data Centres, other MoES Programmes and Projects, Academia, etc. by networking of these centres and enabling them on the INCOIS web-site with appropriate access privileges. A new scheme is evolving with the active MDCs by supporting them with necessary infrastructure development to network with INCOIS as the nodal point to provide data services.
- 174 The Delegate of the Russian Federation, Mr Michailov, informed the Committee about his country’s experience with the establishing of a multi-agency marine data system during the past five years. He explained that over 30 organizations from 10 ministries and the Academy of Science of the Russian Federation are involved in the “Unified information system for World Ocean (ESIMO)”. This system is supported by the constant activity of 25 ESIMO centres and integrates marine data (products) as well as data (products) about marine activity (marine transports, oil exploration, etc). The ESIMO operates as web-based and on-line accessible distributed data system. In 2006, the Government adopted a specific resolution on the implementation of the ESIMO by 30 governmental institutions by 2008.
- 175 The Delegate of the Netherlands, Mr Taco de Bruin, explained that his country 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. He further informed the Committee that funds were now obtained 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.
- 176 **The Committee welcomed** the development of national distributed systems including distributed data access systems, but **called** for close coordination between member states, through IODE, to avoid the development of widely diverging and incompatible systems at the regional and global level. Reference is made also to [Agenda Item 6.2.13](#)

5. COOPERATION WITH OTHER PROGRAMMES

- 177 The Chair introduced this Agenda Item recalling that IODE-XVIII had adopted Recommendation IODE-XVIII.1 (The IODE Objectives) through which the Committee had added objective (v): “*to support international scientific and operational marine programmes of IOC and WMO and their sponsor organizations with advice and data management services*”. She further recalled that the 23rd Session of the IOC Assembly had approved this Recommendation and further adopted Resolution XXII-4 and its Annex which lists the new objectives. The IOC Executive Council, during its 39th Session had furthermore stated that the “*IODE is a core programme of the IOC, underpinning all the science and observation programmes*”. This Agenda item reviewed the current status of cooperation with IOC’s ocean science and observation programmes, as well as with JCOMM, WMO, GEO/GEOSS and IPY.

5.1. COOPERATION WITH GOOS

- 178 This Agenda Item was introduced by the Chair. She provided an overview of the cooperation between IODE and GOOS since the last session. In this regard she mentioned IODE involvement with GSSC, GRA and I-GOOS meetings. She noted as examples the cooperation existing between ODINAFRICA and GOOS-Africa and the developing cooperation within the ODINCARSA region. In addition, she noted that there are opportunities to cooperate, together with the JCOMM DMPA, with the coastal component of GOOS. In particular she drew attention to the GOOS Report No. 148 "An Implementation Strategy for the Coastal Module of the Global Ocean Observing System" which has a number of actions relating to IODE in its data management chapter.
- 179 The Chair then requested that the IODE Technical Secretary introduce [Document IOC/IODE-XIX/49](#) (*Options for the organization of future Sessions of the IODE Committee*), which considers future working relationships with GOOS, including IODE meeting alongside I-GOOS and holding joint sessions, concurrent meetings of the GSSC and the IODE Officers.
- 180 The Technical Secretary recalled that the People's Republic of China had offered to host a joint Session of the IODE Committee and the I-GOOS Committee, if both bodies wished to hold such a joint Session.
- 181 He further recalled that the revised terms of reference of IODE (revised at IODE-XVIII, 2005) now state "(v) to support international scientific and operational marine programmes of IOC and WMO and their sponsor organisations with advice and data management services." This clearly indicates that IODE should play a more cross-cutting/horizontal role as a data and information management service provider for all IOC programmes. The restructuring of the IOC whereby the IODE programme has been "housed" together with GOOS under the "Ocean Observations and Services" section should facilitate collaborative activities between GOOS and IODE. Bearing in mind that IODE deals with "delayed mode" data as well as (increasingly) with "operational" data, a closer collaboration with GOOS should be mutually beneficial: for the GOOS community the collaboration with the IODE network of data centres will provide the ocean observation community with access to the know-how of the global network and resources of NODCs (as well as WDCs) and also make use of the IODE's regional as well as global capacity building expertise. IODE will benefit from this collaboration by gaining a new and extensive user community as well as from increased visibility (and hopefully appreciation).
- 182 The Technical Secretary noted that one way to establish this closer collaboration could be through the organization of partially joint Sessions of the IODE Committee and **I-GOOS (Intergovernmental Committee for GOOS)**. *"The Intergovernmental Committee for GOOS (I-GOOS), functioning under the IOC of UNESCO with co-sponsorship from WMO and UNEP, has the overall responsibility for formulation of policy, principles and strategy, and for planning and coordination of GOOS."* 23 IOC Member States have identified a GOOS national representative to I-GOOS. The I-GOOS Board consists of a Chair and four Vice-Chairs elected every two years by participating Member States at I-GOOS plenary meetings. The Chair of the GOOS Scientific Steering Committee is an appointed ex-officio member and the GPO Director serves as secretary. The **"GOOS Scientific Steering Committee"** (GSSC) *"advises the Intergovernmental-GOOS governing board on scientific and technical matters including strategy, implementation and pilot projects. The committee meets annually and is comprised of members appointed by the GOOS sponsoring organizations, representatives of these sponsors, representatives of partner organizations and invited scientific experts. In 2005 the GSSC was expanded in order to include oversight of Coastal GOOS implementation."* The GSSC has 12 members. Looking at the terms of reference of the two GOOS bodies we could say that the IODE Committee combines the two: *the IODE Committee deals with scientific and technical matters including strategy, implementation and pilot projects, but it also has the overall responsibility for formulation of policy, principles and strategy and for planning and coordination of [IODE]*. He noted further that there is also a difference in membership. Whereas the

IODE Committee is composed of professionals specialized in data or information management (75 IODE National Coordinator for oceanographic data management and 33 IODE national coordinators for marine information management), I-GOOS is composed of a wider spectrum of expertise (heads of research institutions, policy managers (in various sectors of government), researchers,...) representing the wide range of GOOS stakeholders, but as mentioned above the group is smaller (I-GOOS has 23 members). The IODE Committee currently has a Chair and Vice-Chair (two Co-Chairs starting from IODE-XIX). IODE also has IODE Officers, composed of the Chair and Vice-Chair of the Committee (two Co-Chairs starting from IODE-XIX), and Chairs of the Groups of Experts (including JOCOMM/IODE ETDMP). He noted that ideally the IODE Committee should be able to interact with the GSSC for technical/scientific matters and with the I-GOOS for policy and strategy matters.

183 The Technical Secretary noted that in the past, coordination was attempted through participation of the IODE Chair in the GSSC and I-GOOS. However in practice the impact of this arrangement was limited and GOOS requirements have not really been taken on board. Inversely IODE has not been featured very high on the GSSC and I-GOOS agenda. Establishing mutual paths of input or feedback between IODE on one side, and GSSC/I-GOOS on the other has not been easy.

184 Mr Pissierssens stated that efficient and effective cooperation between the IODE Committee, GSSC and I-GOOS would therefore need a different approach, a different model. Considering an end-to-end model that includes observation, data management, product/service provision to end users it could be concluded that GOOS covers two of these “systems” - observations and “product/service provision to end users”. IODE will play a role in the data management system. IODE centres should therefore respond to the needs of the observing system as well as to those of the actors that develop products and services (in some cases the IODE data centres may in fact be these actors). It is likely that the GSSC will be the partner who can identify the needs of the two aforementioned GOOS systems. These needs should then be submitted to IODE which will then, together with relevant GOOS experts, develop strategies and work plans that will enable the development of relevant data management systems (and, to some extent, product/service provision to end users systems). These could then be submitted to I-GOOS for inclusion in, and approval of, the relevant policy and strategic decisions. He also noted that JCOMM needs to be taken into consideration as the implementing mechanism of GOOS. IODE already has close working relations with JCOMM through the JCOMM/IODE Expert Team on Data Management Practices (ETDMP) and is also a member of the JCOMM Management Committee. Accordingly data management needs could also be communicated to IODE through JCOMM, if so desired.

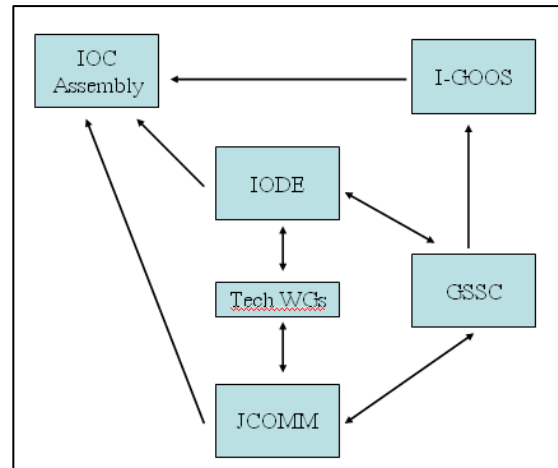
185 The Technical Secretary informed the Committee about the proposal of the GPO and IODE Secretariat, bearing in mind the above considerations, to hold a joint GSSC/IODE Officers Meeting in March/April 2008 and a joint IODE/I-GOOS Session in 2009. He further suggested that the 2009 Sessions of IODE and I-GOOS are organized with two joint events: one during the first day which will feature presentations on the issues that should be addressed by IODE (these presentations could be made by members of joint GSSC/IODE technical working groups and/or members of the GSSC). The second joint event would take place on the final day and would feature presentation and adoption of the work plan proposed by the IODE Committee, based upon the requirements defined by the joint GSSC/IODE meeting.

186 The IODE ODIN project coordinators (ODINAFRICA, ODINCARSA, and ODINCINDIO) noted that IODE and GOOS are cooperating at the regional level. The ODINs are recognized for their strengths in capacity building and End-to-End Data Management (E2EDM).

187 The Representative from the Permanent Commission for the Southeast Pacific (CPPS) remarked the importance of reinforcing the cooperation between IODE and GOOS, considering the positive ongoing interaction of ODINCARSA with GRASP and ERFEN (Programa Regional para el Estudio Regional del Fenómeno El Niño en el Pacífico Sudeste) which are the major regional contributions to the Global Ocean Observing System .

188 In order to discuss the modalities of cooperation between IODE and GOOS in more detail the Committee established a sessional working group.

189 The Chair of the sessional working group on cooperation between IODE and GOOS, Mr Robert Keeley, reported to the Committee that the working group recommended a joint meeting between the IODE Officers and the GSSC, noting that both groups had a similar size as well as similar interests. As a second option a joint meeting between the GSSC and IODE Committee could be considered although the membership numbers would be quite different. The organization of a joint IODE/I-GOOS meeting was considered of less relevance. Based upon these considerations the working group had drafted a possible organogram (Figure 2, right). This indicates that the GSSC can express its needs to the IODE Committee through the Officers. The IODE Committee, through its various subsidiary bodies (Groups of Experts, Steering Groups) and projects will then implement the necessary activities to respond to these needs. Similarly the JCOMM (and its subsidiary bodies) will receive tasks from the GSSC. In addition JCOMM will interact and cooperate with IODE through the ETDMP (as well as other IODE and JCOMM subsidiary bodies as necessary). At a higher level the IODE Committee receives instructions from the IOC Assembly, as does I-GOOS.



190 **The IODE Committee strongly welcomed** closer collaboration with GOOS.

191 **The Committee recommended** the organization of joint meetings of the IODE Officers and GOOS Scientific Steering Committee as a mechanism (i) to enable GOOS to benefit from IODE data and information management and exchange services; and (ii) for IODE to better respond to operational oceanography user needs.

192 **The Committee stated** that the internal organization of the IOC Secretariat is of no concern of the Committee but it **expressed its concern** about the internal distribution of resources within the new OOS (Ocean Observation and Services) section which was currently unclear with regard to resources available to IODE.

193 **The Committee instructed** the Secretariat to share its views with the 10th Meeting of the GSSC currently ongoing in Seoul, Republic of Korea. The Secretariat transmitted the video recording of the presentation by Mr Robert Keeley, in his capacity as Chair of the sessional working group on IODE-GOOS cooperation, to Korea for presentation during the GSSC meeting taking place there at that time. Below is an extract from the report provided by the GSSC on cooperation with IODE:

“The [GSSC] Committee received a brief report through the video clip on the result of the discussions of IODE sessional working group on cooperation between IODE and GOOS which discussed the proposed joint meetings of IODE Officers and GSSC, and possibly the JCOMM Management Committee. Mr. Bob Keeley, the chairman of this sessional working group recommended a joint meeting between the IODE Officers and the GSSC, noting that both groups had a similar size as well as similar interests. The working group had drafted a possible organigram (Figure XXX), indicating that the GSSC can express its needs to the IODE Committee through the Officers. The IODE Committee, through its various subsidiary bodies (Groups of Experts, Steering Groups) and projects will then implement the necessary activities to respond to these needs.

The [GSSC] Committee welcomed the proposal made by the IODE working group and approved by the IODE plenary, and emphasized the importance of close collaboration with IODE as the data management component of GOOS.

Dr. Peter Dexter, JCOMM Co-President, noted that there will be potential benefit to all bodies from having joint meetings, particularly in delivering and exchanging requirements in the area of common interests, although it would bear extra workload for the secretariat. He noted that the JCOMM community would cooperate with GOOS and IODE for joint meetings of GSSC, IODE officers meeting, and JCOMM Management Committee in 2008.

The [GSSC] Committee instructed GPO to organize next session in 2008 jointly with IODE officers meeting and JCOMM Management Committee in close cooperation with their secretariats. Those bodies might have a joint session, then followed by parallel sessions by each panels/programmes. [Action, GPO, by next GSSC session].”

194 **The Committee further instructed** the IODE Co-Chairs to report its recommendation to the upcoming IOC Assembly in June 2007.

5.2. COOPERATION WITH WMO

195 On behalf of the Secretary-General, Mr Michel Jarraud of the World Meteorological Organization, Dr Georgi Kortchev welcomed the Chairperson, delegates, and participants to this meeting. He expressed his appreciation to the National Institute of Oceanography and Experimental Geophysics (OGS) and the International Centre for Theoretical Physics (ICTP), for co-hosting this Meeting.

196 Dr Kortchev reported on the activities of the Marine Meteorology and Oceanography Programme (MMOP) as a component of the Applications of Meteorology Programme, one of the major WMO programmes that is committed to supporting its Members, particularly by strengthening all the relevant crosscutting issues. The purpose of MMOP is the provision of data, information and services in support of the safety of life and property at sea, operations in the open and coastal ocean areas, the protection and sustainable development of the ocean and marine environment, numerical weather prediction and operational meteorology, the monitoring and prediction of seasonal-to-interannual climate variability and climate change, and the efficient management of marine resources, based on the collection and integrated management of marine meteorological and oceanographic data, and the development and enhancement of capacity in all maritime countries.

197 Dr Kortchev explained that the WMO was supporting these activities mainly through the WMO/IOC Joint Technical Commission for Oceanography and Marine Meteorology (JCOMM), an important working mechanism for the collaboration and cooperation between the WMO and IOC.

198 JCOMM is one concrete sign of cooperation between oceanographers and meteorologists. JCOMM has a long-term, far-reaching and innovative vision to benefit the global community in the coordination, regulation and management of a fully integrated global marine system that uses state-of-the-art technologies and capabilities. It is responsive to the evolving needs of users of marine data and products, and enhances the national capacity of all maritime countries. The strategy for making this vision a reality will be through continuing and enhancing the collaboration between WMO and IOC.

199 Mr Kortchev then presented the WMO Information System (WIS), a major data management activity of WMO. The WIS is an overarching approach based on widely accepted standards, such as those promoted by the ISO to meet information exchange requirements of all WMO Programmes. The WIS offers much promise, and will help WMO to avoid data incompatibilities, and problems in the sharing of valuable data between various programmes. It will ensure interoperability of Information Systems between WMO Programmes and with those outside of the WMO community. The ultimate implementation will build upon the most successful components of existing WMO Information

Systems. The WIS will continue to rely upon the WMO communication system (initially the GTS) to provide highly reliable delivery of time-critical data and products.

- 200 The JCOMM and IODE interactions and cooperation are proposed and detailed in the JCOMM Data Management Strategy, which IODE is invited to endorse at this session. The strategy is indeed stressing in particular interoperability aspects, free and unrestricted data exchange, real-time distribution of the data, migration to table driven code forms, and quality management. Further, the IODE is invited to make specific recommendations for updating the draft IOC Strategic Plan for Oceanographic Data and Information Exchange in such a way that it is compatible with the JCOMM Data Management Strategy, and recognizes the strong and efficient cooperation that has been developed in this regard between the WMO and IOC.
- 201 Mr Kortchev therefore explained that it was absolutely necessary to place substantial efforts to achieve better interoperability between the different data management systems being developed in both the oceanographic and meteorological communities, and with the WMO Information System (WIS) in particular. In this regard, the strategy explores a number of possibilities, including the definition of common metadata profiles for discovery. He was pleased to report that the End-To-End (E2E) Data Management Prototype of Obninsk (Russian Federation) has been successfully developed and was being implemented in the WIS as a Data Production and Collection Centre (DCPC).
- 202 Requirements for platform/instrument metadata are now clearly expressed for a number of oceanographic and meteorological applications both research and operational. Active participation from both the IODE and JCOMM communities will be needed to avoid duplication of work, to ensure that common standards are adopted, and that the required metadata is collected and eventually made available to end users. An example of where such cooperation could effectively take place is the Water Temperature Metadata Pilot Project (META-T).
- 203 The JCOMM has been contributing to the efforts to establish a Global Earth Observation System of Systems (GEOSS), in providing technical guidance as well as international coordination and infrastructure such as the WIS.
- 204 Quality Management is a priority activity of the WMO, and an area where much cooperation between the IODE and JCOMM should take place. Currently, the JCOMM is collaborating with the development of the WMO Quality Management Framework, and is in the process of documenting all of its related publications and ensuring that the said documents comply with Quality Management terminology. It is believed that the IODE could engage in a similar process. The WMO is working to enhance its cooperation with the ISO so that some standards might eventually be published as a common set of WMO/ISO standards. The IODE would be able to participate in the development of these ocean-related ISO standards through its cooperation with JCOMM.
- 205 The JCOMM Data Management Strategy also discusses the cooperation with archive centres, and therefore with IODE, in assisting in the development of climatologies. The IODE support of GODAR is a prime example of this cooperation. The JCOMM DMPA has recently been asked to assist in the development of an Extreme Wave Event Database. In this case, the objective is not to develop climatology, but rather to identify extreme wave events and improve access to the data to assist with improving wave models. This will be discussed at the upcoming Expert Team on Wind Waves and Storm Surges and Expert Team on Marine Climatology which will be held later this month in Geneva Switzerland from 20 to 27 March, respectively.
- 206 In his conclusion, Mr Kortchev assured the Committee the continued commitment of WMO to support activities under the Data Management Programme Area of the JCOMM and to work through the JCOMM Data Management Coordination Group (DMCG) in this regard. Therefore, the WMO is strongly encouraging active participation of all respective IODE Members in the work of the JCOMM.

207 **The Committee agreed** with the recommendations by the WMO Representative regarding (i) developing interoperability between the different data management systems being developed in both oceanographic and meteorological communities, and with the WMO Information System (WIS) in particular, (ii) cooperating through JCOMM with the WMO Quality Management Framework, for documenting and updating IODE publications that are of interest to JCOMM, (iii) updating the draft IOC Strategic Plan for Oceanographic Data and Information Exchange in such a way that it is compatible with the JCOMM Data Management Strategy, (iv) collaboration of IODE Members with the META-T Pilot Project if appropriate.

208 The ODINCARSA project coordinator emphasized the need to establish South American JCOMM representatives at the national level for WMO services. ODINCARSA's strength in capacity building and E2EDM in the region will greatly assist in this task.

209 The Chair ETDMP, Mr Nickolay Michailov, noted that the technologies that were developed as part of the joint IODE/JCOMM ETDMP are proceeding rapidly. There is a need to develop metadata profiles using ISO technology for WMO specific programme needs. Members of the ETDMP need to be involved in all current and future groups for data and information management. He suggested that it would be advisable to organize a future meeting in order to describe metadata profiles as common standards.

210 While concerns were expressed about the weaknesses of JCOMM in certain regions, or its lack of visibility, **the Committee reminded** its Members that an efficient way to enhance JCOMM activities at the national level was through the establishment of a JCOMM National Committee. **The Committee therefore encouraged** its Members to work nationally in order to seek establishment of such Committees in cooperation with oceanographic institutes and National Meteorological and Hydrological Services (NMHS).

211 **The Committee invited** WMO to make recommendations for a representative from the ETDMP to participate in the Inter Programme Expert Team on Metadata implementation (IPET-MI) in order to discuss and define common standards with the OceanDataPortal and other IODE data management systems.

5.3. COOPERATION WITH JCOMM

212 This Agenda Item was introduced by Mr Robert Keeley, Chair of the JCOMM Data Management Coordination Group.

213 Mr Keeley recalled that both WMO and IOC are sponsors of the Joint Technical Commission of Oceanography and Marine Meteorology (JCOMM). Within JCOMM there are 3 Programme Areas and rapporteurs. One of these is the Data Management Programme Area (DMPA). Recently, JCOMM has distributed an initial version of a data management strategy ([Document IOC/IODE-XIX/48](#)) for comment to a wide audience. Some have been received and the final version will incorporate these and be issued later this year. It deals in general terms (i.e. not targeting particular kinds of data) but addresses many of the same issues of interest to IODE. Standardization of QC procedures, distribution of data (and formats), duplicates and version control, metadata, etc. are a few examples. In particular it discusses cooperation with IODE activities.

214 The Strategy suggests that the IODE Chair be a member of the JCOMM DMPA-CG, that we work together on programmes of joint interest and work to simplify the flow of data from collectors through JCOMM and IODE (links to WDCs are also discussed) to users. It is still possible to provide comments on the Strategy and these should be directed to the Chair of the JCOMM DMPA. The Strategy is being followed up with an Implementation Plan that will take the recommendations and more precisely describe what needs to be done. This is now being prepared.

- 215 JCOMM and IODE currently share the ETDMP and jointly set tasks for them to perform. ETDMP are leading the way in showing how JCOMM and IODE can cooperate with WIS. In so doing, they assist in helping forge a connection to GEOSS.
- 216 The ETMC (Expert Team on Marine Climatology) among other activities will assemble a collection of extreme wave events. Any IODE centres that hold instrumented wave data are welcome to contribute both data and expertise in this work. Simply contact Mr Keeley to get more details, or the chair of ETMC, Scott Woodruff.
- 217 The Committee was then provided with a short presentation on Argo by Mr Steven Diggs (Data Manager, CLIVAR Hydrography), referring to [Document IOC/IODE-XIX/47](#) (*Argo requirements for more rapid and easier access to CTD data*).
- 218 The JCOMM Argo pilot project has over 2800 profiling floats operating in the world's oceans. The measurements from these devices are being used for both operational forecasting and long-term climate studies by a variety of international groups, regardless of their direct contributions, if any, to the Argo pilot project. These data are immediately available to anyone on the internet and GTS. The CTD sensors on these floats may experience sensor drifts due to bio-fouling and other problems. For the foreseeable future, Argo floats will need to be calibrated against temperature/salinity climatologies. These are compiled from well calibrated ship-based CTD observations. The institutions and laboratories represented at IODE-XIX are asked to submit at least one (1) CTD profile in the format of their choice to Mr Steve Diggs via email for the purposes of initiating a data exchange dialogue within the week. An Excel compatible inventory of at least one (1) CTD profile should accompany the data file as well. These profiles will only be used in the Argo climatologies for the purposes of post deployment float CTD sensor calibration during the profile QC process
- 219 The Chair noted that it is important to acquire a good, clean data set from Argo and for this high quality CTD data are required.
- 220 The Delegate from Slovenia voiced his concern that those who did not contribute to floats, but would later be engaged in post processing would like to know what feedback they could expect. Mr Steve Diggs assured the Committee that Argo welcomes all feedback

5.4. COOPERATION WITH GEO/GEOSS

- 221 This Agenda Item was introduced by Mr Robert Keeley. He explained that the Global Earth Observations System of Systems (GEOSS) is a large, international endeavour. It is working towards a number of societal benefits including reducing loss of life from disasters, improved weather information and forecasting, improving management and protection of ecosystems, etc. The work is organized into a number of areas, with the ones of particular interest to IODE being the Data and Architecture (DA) and the Capacity Building (CB) Working Groups (WG). These groups have chairs and committees of volunteers from participating countries. They set work plans and targets and they are moving ahead very rapidly.
- 222 Within the DA WG they have developed documents that provide guidance to potential contributors explaining what conditions must be met to permit ready use of the data and information. A document called GEOSS Components Linking, provided for this meeting, explains the basic strategy for building GEOSS. Essentially, it has adopted the Service Oriented Architecture and Geospatial Data Infrastructure as technologies for contributions to GEOSS.
- 223 From an IODE and JCOMM perspective, , it is important to participate as much as possible in the discussions and to guide the deliberations of these WGs. But to participate is demanding. IODE can help in the organization of the ocean community by directing its efforts to build the components of a standards based, self consistent ocean data and information contributor. It can do this through

support and contributing to WIS and through support and implementing the OceanDataPortal (ODP) concept (see [Agenda Item 6.2.13](#))

- 224 The GEOSS is moving forward with a data discovery service. However, there is a proliferation of web sites that provide data. The data available at these sites often also end up in NODCs. So, organizations that provide discovery metadata for the data they make available on-line and NODCs that do the same will generate records that actually describe the same data. A user of the search facility may interpret the two records as two different data collections. This is a concern and is a question for SG-MEDI and ODP at least to address.

5.5. COOPERATION WITH IOC SCIENCE AND MONITORING PROGRAMMES

- 225 This Agenda Item was introduced by the Chair. She reported to the Committee that she approached several IOC science and monitoring programmes. Two of these have provided a response and suggestions for cooperation with IODE. These include the IOC's Harmful Algal Bloom Programme (HAB) and the Ocean Carbon programme (through the Carbon Dioxide Information Analysis Center).

5.5.1. IOC Harmful Algal Bloom Programme

- 226 Unfortunately the HAB Programme was unable to participate in the IODE-XIX Session so the Chair presented the information received.

- 227 The IOC Harmful Algal Bloom Programme has over the past 10 years established a number of data products. These are:

1. HAE-DAT: a meta database containing records of harmful algal events. HAE-DAT contains records from the ICES area (North Atlantic) since 1985 and from the PICES area (North Pacific) since 2000. IOC Regional networks in South America and North Africa are preparing to start contributing.
2. The IOC Taxonomic Reference List of Toxic Plankton Algae provides a reference for the use of names and information on each species of toxic microalgae.
3. The 'Design and Implementation of Some Harmful Algal Monitoring Systems' data component is presently still available at its old location. The data component on biogeography of harmful algal species is in preparation.
4. The International Directory of Experts In Harmful Algae and Their Effects on Fisheries and Public Health is a specialised section of the IOC OceanExpert directory.
5. The IOC Bibliographic HAB Data-base is a specialised section of the Aquatic Science and Fisheries Abstracts (ASFA)

- 228 These products are now, in cooperation with the IOC Project Office for IODE, being integrated into a 'Harmful Algal Event Information System' which in its present form (2006) is located at <http://www.iode.org/haedat/>.

- 229 The IOC Intergovernmental Panel on Harmful Algal Blooms (IPHAB) proposes to IODE to undertake the further development of the Harmful Algal Event Information System as a joint activity. This will ensure the embedding of HAB data in the overall IOC framework for data compilation and open access and will allow the HAB scientific and managerial community to develop its data products drawing on the expertise and platforms developed within IODE.

- 230 The 'Harmful Algal Event Information System' is a data product unique to IOC and its development is an IPHAB priority as regards data management. The Chair provided details about the proposed project:

- 231 The objective is to develop easy and open access to harmful algal event data or metadata in order to document trends in impact, changes in occurrences, monitoring systems in use, available datasets, and up-to-date use of species names.
- 232 The major deliverables is a one point entry on the web for global harmful algal event data or metadata on harmful algal events, harmful algae monitoring and management systems, current use of taxonomic names of harmful algae, biogeography of harmful algal species, an expert directory and a bibliography.
- 233 Timetable:
2005-2006:
▪ Development of new data base platform and transfer of HAEDAT data
2007-2008
▪ Development of platform to embrace MONDAT data and transfer of these into the new platform. Update of MONDAT data set.
▪ Development of platform to embrace HABMAP data and transfer of these into the new platform.
▪ Development of platform to embrace the 'IOC Taxonomic Reference List of Toxic Plankton Algae' or, development of new platform for the List, or, integration of the List into existing larger scale taxonomic information systems.
2007, 2008-2013
▪ Expansion of geographical coverage of all system components.
- 234 **The Committee strongly supported** the proposed cooperation with the Harmful Algal Bloom Programme and **adopted** [Recommendation IODE-XIX.1](#). **The Committee decided** to include the provision of seed funds in the 2007 and 2008-2009 work plan, although the source is yet to be defined, and **invited** Member States to identify extra-budgetary funds to enable the full implementation of the Project.

5.5.2. CDIAC: The New Data Management Projects and Data

- 235 Dr Benjamin Pfeil made a short presentation on "CDIAC: New Data Management Projects and Data" on behalf of Dr Alex Kozyr of CDIAC.
- 236 Dr Pfeil informed the Committee that, in terms of **Data Management Support for the International Global Ocean Carbon and CLIVAR Repeat Hydrography Programme** CLIVAR is concerned with further refining WOCE determinations of oceanic heat and freshwater transports and with documenting decadal and shorter period ocean changes based in large part on the reoccupation of a subset of the hydrographic sections that formed the WHP. Similarly there are a number of national and international initiatives aimed at better assessing the role of the oceans in storing and distributing carbon, particularly in light of the rapidly rising atmospheric CO₂ levels. Reoccupations of WHP sections form a key component of these ocean carbon strategies.
- 237 The International Ocean Carbon Coordination Project (IOCCP) is co-sponsored by the SCOR/IOC CO₂ Panel and the Global Carbon Project. It has been set up to work with national, regional and international carbon programmes and data centres to provide a global view of ocean carbon. The new web page was established by CDIAC for the CLIVAR Repeat Hydrography Program carbon measurements (http://cdiac.ornl.gov/oceans/RepeatSections/repeat_map.html). CDIAC is also responsible for updating the on-going and planned cruise information map at the IOCCP web site http://ioc.unesco.org/ioccp/Hydrography/Hydro_Map.htm
- 238 Dr Pfeil further informed the Committee that regarding the **Data Management Support for the Global Volunteer Observing Ship (VOS) Programme** Data the IOCCP hosted a workshop in January 2003 called "Ocean Observations from Ships of Opportunity", where participants developed the first global compilation of programmes measuring underway pCO₂, and outlined actions required

for better coordination of planning, implementation, methods, and data synthesis activities. Surface pCO₂ measurements form an important part of many national, regional, and international research programs, and the IOCCP is working with these groups to develop a cooperative network of observations, data management, data synthesis, and interpretation programmes. CDIAC has developed the new web page for the VOS data archive at: http://cdiac.ornl.gov/oceans/VOS_Program/VOS_home.html CDIAC is also responsible for updating the volunteer observing ship network information map at IOCCP web site http://ioc.unesco.org/ioccp/Underway/UW_MAP.htm

239 Dr Pfeil informed the Committee that CDIAC also provides Data Management Support for the **Global CO₂ Moorings and Time-series Project**: CDIAC has developed the new web site for Global CO₂ Moorings and Time-series Project data: <http://cdiac.ornl.gov/oceans/Moorings/moorings.html> . CDIAC is also responsible for updating the Current and proposed time series sites observing surface and column CO₂ map at IOCCP web page: http://ioc.unesco.org/ioccp/Underway/UW_MAP.htm.

240 In addition a **Global Surface Ocean Alkalinity Climatology** was calculated by Kitack Lee of Pohang University of Science and Technology, Korea using the relationships of total alkalinity with salinity and temperature. Surface Total Alkalinity fields were estimated from five regional TA relationships presented in Lee et al. [GRL, 2006, V33, L19605, doi: 10.1029/2006GL027207], using monthly mean sea surface temperature and salinity from the World Ocean Atlas 2001. CDIAC has opened the web page for Kitack's Global Surface Ocean Alkalinity Climatology data set is at: http://cdiac.ornl.gov/oceans/Lee_Surface_Alk_Climatol.html . This page is linked from the CDIAC All Oceanographic Data and Metadata page. The gridded data set is available now as a CSV formatted file, it is now searchable through Mercury and soon it will be available in ODV format and through CDIAC LAS.

241 CDIAC also developed a **Web-Accessible Visualization and Extraction System (WAVES) for Oceanographic Data** (<http://cdiac3.ornl.gov/waves/>). WAVES is a web-based database driven tool for oceanographic data (discrete measurements only at this time) extraction is now available through CDIAC web page for use (<http://cdiac3.ornl.gov/waves/>). It lets users to choose what kind of data they want to get and in which format.

242 **The Committee noted with appreciation** that there were already many ongoing activities with CDIAC. These include rescue and recovery of historical CO₂ measurements. **The Committee recommended** that further joint activities could include CO₂ data and metadata available through the IODE OceanDataPortal.

5.6. COOPERATION WITH IPY

243 This Agenda Item was introduced by Mr Taco de Bruin, referring to [Document IOC/IODE-XIX/18](#) (*Cooperation with IPY*)

244 He reported that the International Polar Year 2007-2008 (IPY 2007-2008) is a large scientific programme focused on the Arctic and the Antarctic from March 2007 to March 2009. It may well be the largest international scientific programme the world has ever seen, with a total of more than 1200 international research projects, which are combined into some 170 coordination projects. IPY will involve more than 50,000 participants (scientists, technicians, crew, etc.) from over 60 nations.

245 The data set resulting from IPY is considered to be the most important legacy of this IPY, or, in the words of the IPY Framework Document: "In fifty years time the data resulting from IPY 2007-2008 may be seen as the most important single outcome of the programme" and "These data ... will act as benchmark data which can serve as a baseline against which global change is measured". The central clause of the IPY Data Policy (<http://classic.ipy.org/international/joint-committee/data-management.htm>) reads:

“In accordance with
- *the Twelfth WMO Congress, Resolution 25 and 40 (Cg-XII, 1995)*
- *the ICSU 1996 General Assembly Resolution*
- *the ICSU Assessment on Scientific Data and Information (ICSU 2004b)*
- *Article III-1c from the Antarctic Treaty*
- *the Intergovernmental Oceanographic Commission Data Exchange Policy*
and in order to maximize the benefit of data gathered under the auspices of the IPY, the IPY Joint Committee requires that IPY data, including operational data delivered in real time, are made available fully, freely and on the shortest feasible timescale.”

246 There are 39 IPY coordination projects which fall in the category of Oceanography. Each of these 39 coordination projects consists of a series of up to 10 or 15 subprojects. Each one of these subprojects is an international oceanographic project in its own right. The resulting dataflow will therefore be huge. The handling of this data flow requires the active involvement of all relevant, discipline-based data centres, such as NODCs.

247 Mr De Bruin informed the Committee that the IPY Subcommittee on Data Policy and Management invites NODCs from countries active in the polar regions to become IPY data centres. IPY may very well act as a stimulus to increase the awareness for the importance of data management and be an opportunity for NODCs to obtain additional resources. An IPY data centre should: (i) contain and be willing to identify IPY data; (ii) preserve and provide continual access to IPY data - this includes the years after the formal IPY period; (iii) abide by the IPY Data Policy and Data Subcommittee standards; and (iv) ensure that the contents metadata catalogue is up to date with current data holdings.

248 The IPY Subcommittee on Data Policy and Management further asks the IODE Committee to endorse data management activities for the oceanographic IPY projects and urges NODCs to be actively involved. As the first step in this process, NODCs from countries active in the polar regions are asked to coordinate activities with their national IPY committees and provide oceanographic data management assistance where possible and necessary.

249 Mr De Bruin further informed the Committee that addresses and points of contact of their National IPY Committee can be found on the IPY website (<http://www.ipy.org/index.php?/ipy/national/>) and are attached in [Annex VII](#)

250 **The Committee welcomed** the invitation of the IPY Subcommittee on Data Policy and Management and **strongly urged** IODE National Oceanographic Data Centres to actively participate in, and contribute to the IPY activities as proposed. See also [para 369](#).

5.7. OTHERS

5.7.1. OBIS

251 This Agenda Item was introduced by Dr Lesley Rickards, IODE Chair, referring to the letter received by IODE on March 9 from Dr Mark J. Costello, Chair, Ocean Biogeographic Information System. The letter was distributed at the start of the meeting.

252 She informed the Committee that unfortunately, unanticipated circumstances last week prevented OBIS from sending a delegate to the IODE-XIX meeting and OBIS forwarded their apologies to the Committee.

253 Dr Rickards then presented the summary of the information provided by OBIS. It included the news from OBIS that:

- Dr Edward Vanden Berghe, will start work as OBIS' first Executive Director on 1st April 2007;
- OBIS has created a part-time appointment of Dr Jim Ammerman (of Rutgers University) at IOOS in Washington to help integrate biological data such as published through OBIS, with other oceanographic data;
- There are now 12 Regional OBIS Nodes (RON); located around the world plus an Antarctic node hosted by SCAR-MARBIN in Belgium;
- OBIS now publishes over 12.9 million locations of 77,000 species from over 200 datasets.

254 OBIS aims to have an authoritative checklist of all marine species names prepared by the end of 2008 for use as a data management service. It will be called the World Register of Marine Species (WoRMS) and be hosted by the Flanders Marine Institute (VLIZ) at www.marinespecies.org. This will build on existing resources, and require the cooperation of many taxonomic experts around the world. OBIS welcome any assistance from IODE and its members in this effort, including financial.

255 Regarding the IODE letter to its members during 2006, OBIS was very pleased with the overwhelmingly positive response of ocean data centres to collaboration with OBIS. OBIS thank the respondents from all those countries who responded. OBIS is aware of several oceanographic data centres collaborating with OBIS, including those in Australia, Canada, Denmark, France, Japan, India, South Africa and UK. The fact that 12 of the 32 respondents are aware of biological data that could be published through OBIS, and that 29 of the 32 respondents are willing to assist in contributing biogeographic data to OBIS, indicates the potential for further collaboration.

256 The significant success of OBIS can be attributed to financial support received from the Alfred P. Sloan Foundation, which is gratefully acknowledged. However, since this funding will not be available to OBIS for much longer, and since collaboration between RON and NODC relies critically on the financial sustainability of both components, delegates were kindly requested, where relevant, to support proposals to their national governments for funding of the RONS.

257 At present, OBIS is an *ad hoc* strategic alliance of people and organizations with an evolving governance structure. It may be that IODE would provide the best forum for coordinating and encouraging government support for RON in the future. OBIS asked if IODE would consider such an activity.

258 Looking at the bigger picture, there is an increasing volume of marine data available online: biological, physical, and chemical. Thus, a portal to 'all marine data' that builds on the success of individual components (i.e. OBIS and some of the oceanographic data centres), would now appear feasible and be worth considering. Perhaps such a pilot project could be initiated between a RON and oceanographic data centres.

259 Dr Rickards informed the Committee that OBIS suggested several approaches to further the potential synergies of effort between OBIS and IODE:

1. An exchange of contact persons at Regional OBIS Nodes and ocean data centres so that contacts may be made at regional and national levels;
2. A request to RON and ocean data centres to report at the next IODE meeting on progress from such contacts, such as publication of biological data or other collaborations, and any obstacles to making progress in integrating and making biological and physical ocean data publicly available;
3. Attendance of ocean data managers and colleagues at the 2007 (IODC sponsored) conference on Ocean Biodiversity Informatics, 2-4 October 2007 at the Bedford Institute of Oceanography, Canada. The first call for presentations closes on 30 April 2007, see: http://www.iobis.org/Members/brantonb/obi07/OBI07_poster.htm. Time could be arranged at this conference to discuss synergies of effort between managers of biological and environmental data with a view to further global efforts in this area;

4. That IODE recognizes the global significance of the proposed World Register of Marine Species to marine data management, and facilitates its completion and maintenance;
5. That IODE delegates support applications to their governments that contribute to the growth of online biological data publication and the sustainability of RON;
6. That IODE considers if it may provide a role in coordinating governments' support for OBIS;
7. That IODE members consider conducting a pilot project that demonstrates how biological (from OBIS) and other oceanographic data can be integrated and published online through a single portal, such that this experience may provide the know-how and software that can be replicated regionally and globally to benefit marine science.

260 It was remarked in the following discussion that the cooperation with OBIS is of considerable interest to IODE and the growing collaboration is welcomed. It was noted that the E2EDM system uses the same tool as OBIS to access the data (DiGIR) and this creates potential for joint work on the united system. It was also mentioned that it is important that VLIZ continue its work as the European OBIS node.

261 The ODINAFRICA project coordinator described the positive results of the collaboration with OBIS and proposed to further develop this collaboration.

262 It was noted by the Delegate of Canada that the requested actions can be handled mostly at the national level including the financial issues.

263 The Delegate of Germany informed the Committee that the World Register of Marine Species (WoRMS) would correct current problems for marine species in ITIS. It was recommended that the Project Office continue collaboration with OBIS and pay attention to the World Register of Marine Species.

264 **The Committee congratulated** Dr Edward Vanden Berghe with his new position and **expressed** the wish for continued collaboration between OBIS and IODE.

265 **The Committee recommended** that ODIN programmes include OBIS activities in their mandate as support to OBIS.

266 **The Committee recommended** that the Project Office continues training activities related to biodiversity.

267 **The Committee recommended** that the possibility of creating a multidisciplinary data system including physical, chemical, and biodiversity data will be investigated by the ETDMP jointly with OBIS.

268 **The Committee further recommended** support for the organization of the OBI 2007 conference.

5.7.2. WCRP

269 This Agenda item was introduced by Mr Robert Keeley. He reported that WCRP (The World Climate Research Programme) recently formed a task group to look at the data management activities within WCRP projects. Members of the group that are present at this meeting are Mr Taco de Bruin and Mr Robert Keeley (representing OOPC). The terms of reference of the group includes:

- determine what data management is done in WCRP Projects and seek to provide unifying guidelines;
- review data policies in projects and recommend if WCRP needs an overarching policy;
- look at work done in other organizations, such as GEOSS to look for opportunities to cooperate;
- data management including both *in situ* and model results.

270 Mr Keeley noted that matters of direct interest to IODE include the facts that CliC (Climate and Cryosphere Project) has a data and information service called DISC (Data and Information Service for CliC), but due to loss of expertise is now finding it difficult to maintain. Also GEWEX (Global Energy and Water Cycle Experiment) has developed data standards for its programme and there may be opportunities for cooperation with IODE in light of the strong emphasis on standards that has been expressed here. WCRP would like efficient access to IODE data and encourages IODE to achieve this. Because of the importance of standards in this objective, WCRP is ready to inform its community on preferred standards in data management as they become available. WCRP is also interested in the management of metadata for both discovery and descriptions of data procedures and techniques. It looks forward to a closer cooperation with IODE.

271 **The Committee noted with appreciation** the great interest of the WCRP programme for the IODE data management experience and recourses.

272 **The Committee welcomed** cooperation between WCRP and IODE and **instructed** the Officers to investigate ways to collaborate with WCRP.

5.7.3. SOLAS

273 This Agenda item was introduced by Dr Tom Bell. He reported that SOLAS (Surface Ocean - Lower Atmosphere Study) is a project focussed on the surface ocean and lower atmosphere, and the interaction between them. The SOLAS Project Integration is ongoing with the aim to produce global air-sea flux products for SOLAS-relevant compounds and particles (for example methane, aerosols, nitrous oxide, etc.). The reason for this is that these data products can be used to quantify and assess the role of ocean-atmosphere interaction in climate, air quality and ocean biogeochemistry. This project requires data management, data processing, as well as data interpolation and visualization. It is well supported by staff from the British Oceanographic Data Center and by the end user representatives from the Met Office Hadley Centre. The end users' interests are of particular importance, as this project has been funded under the scope of 'Knowledge Transfer'. It is also worth noting that, although funded by the UK's environmental science body - NERC, this is a truly international effort.

274 The proposed mechanism for this project is to create initially a meta-database of information relevant to SOLAS. From this, one would ideally then access data that has been submitted to the various NODCs (although some is bound not to have been) and compile global datasets of the relevant information. From this, one intends to produce extrapolated concentration and flux fields of publication-level quality. This will hopefully provide some motivation for the measurement community to ensure their involvement in the project. Finally, the intention would be to archive these products in a relevant location to ensure their legacy.

275 There are many challenges that this project faces and a particular issue that has been highlighted is that it should not "reinvent the wheel" in terms of data management. IODE has considerable experience with data measured on a routine and frequent basis, particularly the physical data and this experience can be of great help for the SOLAS project. SOLAS encourages the NODCs and WDCs with relevant information to make themselves known to Dr Tom Bell.

276 **The Committee noted with appreciation** the great interest of the SOLAS project to the IODE data management experience.

6. PROGRAMME ACTIVITIES: PROGRESS REPORTS AND FUTURE PLANNING

6.1. GROUPS OF EXPERTS

6.1.1. IODE Group of Experts on Biological and Chemical Data Management and Exchange Practices (GEBICH)

277 This Agenda Item was introduced by Dr Lesley Rickards, IODE chair, on behalf of the GEBICH co-chairs who could not manage to attend the meeting, referring to [Document IOC/IODE-XIX/20](#) (*Group of Experts – Biological and chemical data management and exchange practices (GEBICH)*).

278 Dr Rickards recalled that the IODE GE-BICH was founded with the aim of improving the quantity and quality of chemical and biological data available to the scientific community and to develop standards for biological and chemical oceanographic data. The objectives of the group were initially adopted by IODE-XVI, and extended during the first and second sessions of the GE. These objectives are: (i) to document the systems and taxonomic databases and inventories currently in use in various data centres; (ii) to document the advantages and disadvantages of different methods and practices of compiling, managing and archiving biological and chemical data; (iii) to develop standards and recommended practices for the management and exchange of biological and chemical data, including practices for operational biological data; (iv) to encourage data centres to compile inventories of past and present biological and chemical data holdings; and (v) to encourage data holders to contribute data to data centres for the creation of regional and global integrated oceanographic databases incorporating physical, chemical and biological data.

279 At the Third session of the group, held in Oostende, Belgium in November 2006, the following additional objectives were proposed:

- to create and keep updated a GEBICH web “portal” making all results from the GE’s work available to a wider community of data managers and data users;
- to contribute results of the GEBICH activity to OceanTeacher making results from the GE and from other programmes available to education of data managers and data users.

280 In response to the previous decisions of the Group on the need for additional expertise in chemical data management, Dr Sergey K. Konovalov was selected as a new member of GE-BICH. In addition Dr Sergey Konovalov and Dr Gwenaëlle Moncoiffé were elected Co-Chairs of GE-BICH for the next inter-sessional period which will enable better balancing biological and chemical issues and activities.

281 A list of the Group’s work results was then summarized, as follows:

- Three meetings of the Expert Group have been held since its creation;
- The OBI-I conference was held and resulted in the publication of 9 papers in the journal *Marine Ecology Progress Series*;
- Other planned inter-sessional activities included (i) contribution to OceanTeacher, (ii) collaboration with OBIS, GBIF, ITIS, and FAO, (iii) migration of URMO to the IODE Project Office, (iv) pilot projects on taxonomic nomenclatures and distributed systems, and (v) gathering information on biological and chemical data management within IODE Member States have been partially but not fully accomplished.

282 The following activities were proposed by GE-BICH-III to be implemented during its next inter-sessional period:

- Set up a GE-BICH web “portal” for biological and chemical data management;
- Implementation of the Ocean Biodiversity Informatics-II conference (or OBI’07);
- Promote and instigate the creation of a marine XML registry or repository;

- Continue promoting the submission of biodiversity data to OBIS through the OBI'07 conference and also through GE-BICH web pages and through the network of IODE data centres;
- Maintain a close relationship with OBIS, ICES, FAO, TDWG/GBIF, ITIS, and the MarBEF and SeaDataNet communities; promote the work of these groups/organizations, and collaborate as required;
- Extend GE-BICH work to biological, biogeochemical and chemical ocean data management issues relevant to ecosystem studies and modelling activities; liaise with relevant groups and seek co-operation whenever possible;
- Liaise with the marine genomics community;
- Liaise with CIESM and PICES, the ICES counterparts for the Mediterranean Sea and the Pacific Ocean;
- Centralise information on on-going initiatives, and existing or new tools, guidelines, ontologies, gazetteers, metadata standards and processing protocols relevant to biological and chemical data management;
- Populate the GE-BICH web pages and contribute to relevant sections of Ocean Teacher.

283 In order to support this ambitious work plan, it is proposed to establish a GE-BICH web portal, as a part of the IODE web site. It is further suggested to structure the web portal as follows:

1. General information and overview of the current status of marine biology and chemistry;
2. Current scientific problems in marine biology/chemistry;
3. Marine XML registry and marine metadata standards;
4. Taxonomy/nomenclatures in marine biology;
5. Recommended methods for chemical and biological data collection;
6. Chemical and biological oceanographic data processing and management facilities;
7. Methods of data quality assurance and evaluation for biological and chemical data;
8. Information on actual data sources (NODC, individual and project originated data bases), collectors of marine scientific data (individual researchers, research departments, institutions and projects that collect data);
9. Information on available marine data products and on users of oceanographic data products and services related to biological and chemical research;
10. Information on GE-BICH, plans, reports, information of meetings and activities.

284 It was noted in the discussion that followed that the funding request for the Group is high.

285 **The Committee** adopted the Summary Report of the third Session of the IODE Group of Experts on Biological and Chemical Data Management and Exchange Practices, and recommendations included therein.

286 **The Committee welcomed with satisfaction** the achievements of the Group of Experts on Biological and Chemical Data Management and Exchange Practices and **stressed** the importance of its work.

287 **The Committee adopted** [Recommendation IODE-XIX.3](#)

6.1.2. IODE Group of Experts on Marine Information Management (GEMIM)

288 This Agenda Item was introduced by Ms Suzie Davies, Chair GE-MIM. In her introduction Ms Davies recalled that GE-MIM presented a report at IODE-XVIII in April 2005, which highlighted achievements of work done and proposed a work plan for the period 2005-2007. She noted with regret that, due to budgetary restrictions, GE-MIM was unable to meet in 2006, as initially planned. She informed the Committee that GE-MIM now proposed to hold its Ninth Session in Oostende, Belgium in September or October 2007.

- 289 Ms Davies focused on the many achievements of GE-MIM from 2005 to date. She also recommended some future actions including improved communications between GE-MIM and MIM National Coordinators, future direction for marine information management; and priorities for the 9th Session of GE-MIM to be held in late 2007. Ms Davies noted that reporting on GE-MIM actions is also provided under Agenda Items 6.2.7, 6.2.8, 6.2.9, 6.3.1 and 6.3.2.2.
- 290 **The Committee noted with appreciation** the quick increase in the number of IODE national coordinators for marine information management which indicated the keen interest of marine librarians in cooperation with IODE.
- 291 **The Committee welcomed** the success of the marine information management activities but **called** on the marine information experts to focus also on issues such as climate change or programme such as IPY, suggesting the development of specialized bibliographies or even the establishment of subject specific ODINs. In this regard **the Committee welcomed** such initiatives of some marine libraries (e.g. USA NOAA) in this regard and **called** for wide publicizing of these efforts.
- 292 **The Committee requested** the Officers to investigate ways to address the need for translation of training and reference materials into languages other than English.

6.1.3. JCOMM/IODE Expert Team on Data Management Practices (ETDMP)

- 293 This Agenda Item was introduced by Mr Nickolay Michailov, referring to [Document IOC/IODE-XIX/22](#) (*JCOMM/IODE Expert Team on Data Management Practices*). Mr Michailov reported that the ETDMP work plan for 2005-2006 (following the IODE-XVIII and JCOMM-2 recommendations) was aimed at fulfilling the following tasks: (i) continuation of the Pilot Projects; (ii) development of the JCOMM/IODE E2EDM Implementation Plan; and (iii) cooperation with other programmes in the E2EDM field of activity. During 2005-2006 the ETDMP continued implementation of two Pilot Projects that had been proposed at the first session of the ETDMP, namely: (i) Pilot Project 1: Metadata Management; (ii) Pilot Project 3: E2EDM Prototype. Mr Michailov then described the results of the ETDMP pilot projects.
- 294 Under Pilot Project 1 (Metadata Management) the differences and similarities were investigated between the ISO 19115 Metadata Standard and the following data and metadata content standards: US Federal Geographic Data Committee (FGDC) Content Standard for Digital Geospatial Metadata, NASA Data Interchange Format (DIF), European Directory of Marine Environmental Datasets (EDMED), ROSCOP (or CSR - Cruise Summary Report), NOAA/NODC Electronic Data Description Format, and Ocean Data Acquisition System (ODAS) format. As a result of this work the points of divergence between the aforementioned standards and ISO-19115 metadata content definitions were identified and recommendations for future work on creation of a comprehensive ISO-compliant profile were proposed.
- 295 The goal of Pilot Project 3 (E2EDM prototype) was to develop the technical solutions for the E2EDM (end-to-end data management) integration technology (distributed data model, unified exchange standards, software and other) and test them through the integration of the local data systems handled by a small number (4 or 5) selected IODE and WMO centres. The E2E (end-to-end) architecture is based on web-oriented client-server technology that is sometimes named “virtual data holdings” or “virtual organizations”. The following existing systems and tools were used for the E2E development: DiGIR Portal and Provider software and Protocol, NetCDF/OPeNDAP Protocol, and Java-utilities. The metadata/data structures were developed taking into account ISO 19115, WMO ISO metadata profile, the ESIMO (Russian system) data model and metadata structures, and the NERC DataGrid models. Four data sources (10 resources) were used for E2EDM system prototype testing. They were provided by VLIZ (Belgium), RIHMI-WDC (Russian Federation), Met Office (United Kingdom) and IFREMER (France) with the oceanographic and marine meteorological observation data and products. The geographic area of the E2EDM prototype operation covers the North Atlantic, including Norwegian, North and Greenland seas. The historical, delayed-mode, near real-time, and

climatic data were presented. The prototype system is available at the VLIZ/IODE Project Office (<http://e2edm.vliz.be/iserv/>) and Russian NODC/RIHMI-WDC servers.

296 The Committee was informed that the objective of the JCOMM/IODE E2EDM implementation plan is to identify stages and actions for establishment of the E2EDM system to provide the technological infrastructure of implementation of the JCOMM and IOC/IODE Data Management Strategies. An E2E technology implementation plan was developed that envisages the building of the distributed system based on the IODE NODCs with the Ocean Data Portal (see [Agenda Item 6.2.13](#)) to access the system. Regional and project-oriented activities of IODE and JCOMM were taken into account. The IODE Ocean Data Portal concept and ODIN Black Sea E2EDM proposals were formulated.

297 The Committee was also informed on the ETDMP cooperation with other programmes and systems including the WMO Information System (WIS), EC SeaDataNet Project, and DMAC (cooperation emerging).

298 The Committee was requested to consider further funding of the ETDMP pilot projects through the Ocean Data Portal activity proposed under [Agenda Item 6.2.13](#)

299 **The Committee expressed** its strong satisfaction with the great progress made by the ETDMP with the E2EDM Pilot Project, and **adopted** the JCOMM/IODE ETDMP report and work plan for 2007-2009.

300 **The Committee welcomed the** ETDMP work as a good example of the fruitful collaboration between IODE and JCOMM.

301 **The Committee noted with satisfaction** that the proposed new Ocean Data Portal project will be based on the results of the ETDMP work.

302 **The Committee noted** that there are great possibilities for cooperation between the JCOMM/IODE ETDMP and OBIS.

6.2. PROJECTS

303 Under this Agenda Item detailed reports were provided on IODE Projects in oceanographic data management and marine information management.

6.2.1. Aquatic Sciences and Fisheries Abstracts (ASFA)

304 This Agenda Item was introduced by Mr Mika Odido, referring to [Document IOC/IODE-XIX/23](#) (*Aquatic Sciences and Fisheries Abstracts*).

305 Mr Odido provided an overview of the activities that have been implemented by the ASFA partnership in the period 2005-2006 including recruitment and training of new ASFA partners; Development, testing and release of the upgrade to the www-ISIS-ASFA software; Continuation of the project to increase availability of the ASFA information products (CD-ROM Internet access) to Low Income Food Deficit Countries (LIFDC) ; Initiatives to promote cooperation with IAMSLIC group(s) as regards Repositories; entry of the One millionth ASFA record in the ASFA database by IFREMER; and participation of the ASFA Secretariat in a workshop on Ocean Library at the UNEP, GPA Meeting in China.

306 The 2006 Annual ASFA Board meeting was held at the IODE Project Office in Oostende, Belgium and hosted by VLIZ. Some of the issues considered by the Board meeting include the possibility of UN co-sponsoring ASFA partners, budgeting some funds to support attendance at ASFA Board meeting, payment of IAMSLIC membership fees for ASFA partners through the ASFA Trust

Fund, additional entitlements (CSA Illumina access) to active Collaborating ASFA Centres in developing countries, organization of a Mini-Regional meeting for the Latin America Group of ASFA partners, development of an ASFA Trust Fund proposal for a pilot project to support the completion of the numerous partially complete records in ASFA, and the creation of a Geographic Working Group to develop a list of geographic names in a standardized hierarchical structure to assist partners during ASFA input. The Board also approved a proposal for a workshop to train trainers to assist the FAO ASFA Secretariat in training and backstopping ASFA partners. The ASFA Board agreed to set up a Working Group to define what is needed to be done and put forward a Trust Fund Proposal for an integrated solution to library cataloguing, ASFA input and e-repositories.

307 Mr Odido informed the Committee that the ASFA Advisory Board had accepted an invitation to hold the next Meeting at the Kenya Marine and Fisheries Research Institute in Mombasa, Kenya in September 2007.

308 **The Committee noted** with satisfaction the continued participation of IOC in the ASFA partnership, through the IODE programme, and **stressed** the importance of improved coverage of the ASFA database, expansion of the ASFA partnership and the expanded dissemination and use of ASFA products. **The Committee welcomed** the efforts being made to develop an integrated solution to library cataloguing, ASFA input and repositories.

309 **The Committee strongly supported** the continued participation of IOC in the ASFA Advisory Board, and its activities.

6.2.2. Global Oceanographic Data Archaeology and Rescue (GODAR)

310 This Agenda Item was introduced by Mr Sydney Levitus, referring to [Document IOC/IODE-XIX/24](#) (Global Oceanographic Data Archaeology and Rescue (GODAR)).

311 Mr Levitus informed the Committee that Member States continue to actively participate in the GODAR project. During the inter-sessional period, approximately 204,000 temperature profiles for the pre-1992 period were made available as part of the World Ocean Database 2005 as well as other profile and plankton data. Approximately 82 years of hourly sea level data also became available as part of GODAR during the inter-sessional period.

312 He further explained that the GODAR project supports the goals and activities of the U.N. Framework Convention on Climate Change, the Global Earth Observing System of Systems, the WCRP CLIVAR Programme, and the U.N. IPCC Assessment among other programmes.

313 Mr Levitus recommended that the GODAR project should continue in its present form, adding that no funding would be required from the IOC to support the GODAR project activities.

314 The Delegate from Japan announced that JODC is digitizing the historical plankton database from the University of Tokyo and will make it available soon to the IODE community.

315 Mr. Levitus stated that data was still needed from: (i) the Southern Oceans and (ii) pre-World War II. In addition, the data flow from ICES and WDC needs to be re-evaluated due to the oceanographic data manager change in ICES.

316 **The Committee strongly commended** WDC Oceanography, Silver Spring with the work accomplished within GODAR and the WOD and **recommended** the continuation of these projects.

6.2.3. Global Temperature and Salinity Profile Programme (GTSP)

- 317 This Agenda item was introduced by Mr Robert Keeley, referring to [Document IOC/IODE-XIX/25](#) (*Global Temperature and Salinity Profile Programme (GTSP)*). Mr. Keeley reported that the Global Temperature and Salinity Profile Project continues to deal with great volumes of data. The project began in 1990, with the goal of collecting and archiving all profile data from the oceans and providing the highest quality and resolution data to users as soon as possible after collection. The last annual report prepared was for 2004. Since then, other work pressures have prevented completion of the report for 2005. The number of BATHYs reported in 2005 was 32,533 and 27,063 by the end of 2006. The number of TESACs is steadily increasing. In 2005, more than 868,000 were received and more than 968,000 by the end of 2006. Much of this increase is due to Argo exceeding the 90% level of its target of 3,000 floats and some moored platforms reporting profiles hourly. Delayed mode data continued to be added to the archive, which now counts more than 3 million profiles and a significant number exist in real-time form (the delayed mode versions have not yet arrived), particularly for data from more recent years. The timeliness of real-time data delivery continues to improve. Nearly 80% of ship observations are processed within 3 days and by the end of 2006 Argo was providing almost 90% of its observations to the GTS within 24 hours of collection.
- 318 The GTSP collaborates with a number of international programmes. In particular, it is the main support for the SOT/SOOP programme of JCOMM. Additionally, the monitoring that is done to the real-time GTS data is an important contribution to Argo. The GTSP also offers the advantage of combining Argo profiles with all of the profile data collected in a common data structure and with common processing. The GTSP is collaborating with the GODAE QC intercomparison project along with colleagues from Coriolis and the GODAE Data Server in Monterey. The GTSP has collaborated with JCOMM OPA to develop an easy to understand metric of data collection for temperature and salinity profile sampling. These are updated quarterly.
- 319 The Committee was informed that a strategy for attaching a single unique identifier to both the real-time and delayed mode versions of XBT data has been under development at the GTSP, and has been implemented by the US SEAS programme on a trial basis. Preliminary results are very positive. GTSP will continue to monitor these results to test how well the unique identification scheme performs. Both France and Australia have expressed interest in implementing the same scheme for data originating from their platforms but there is no action to report, yet. The GTSP has developed a data dictionary to help identify different data and metadata identification schemes. It is hosted by ISDM (Integrated Science Data Management formerly MEDS). Contributors to the data dictionary include oceanographic institutes of Canada, the US NODC, and BODC. Other contributors are welcome. GTSP is also collaborating with the Marine Metadata Interoperability Initiative (MMI) in the area of metadata issues.
- 320 The GTSP is moving forward in a number of directions. It has developed software to read and write BUFR (Code for Binary Universal Form for Reports) messages. This is confined at present to the templates that support Argo, but as this is a replacement for TESAC (Temperature, Salinity and Current) code form, the use is broader than for Argo alone. Project participants intend to regularly reconcile the NODC and Coriolis databases; to provide Argo participants profile data in an Argo GDAC-like format; to provide a hard copy source (DVD) of GTSP data; to continue work on the unique data identifier between real-time and delayed-mode data; to extend the data dictionary; and to continue collaboration with GODAE (Global Ocean Data Assimilation Experiment).
- 321 Mr Keeley underlined that the most serious setback in GTSP operations has been the withdrawal of centres from performing scientific quality assessments of the data. He presented the detailed GTSP work plans for 2007 and 2008-2009 identifying the assistance requested from IODE.
- 322 **The Committee noted with satisfaction** the progress achieved by the Global Temperature and Salinity Profile Programme.

- 323 **The Committee encouraged** additional organizations to participate in the Programme.
- 324 **The Committee requested** Member States to consider a replacement for Robert Keeley as the GTSP chair according to his request to step down from this position.
- 325 **The Committee requested** the Member States to help the Programme in identification of candidates for Science centers that will take over scientific QC of the collected data.

6.2.4. Global Ocean Surface Underway Data Pilot Project (GOSUD)

- 326 This Agenda item was introduced by Mr Robert Keeley. He informed the Committee that the report was prepared jointly with Mr Loic Petit de la Villeon. He apologized that the working document on GOSUD for IODE-XIX had not been made available on time. He reported that the work of the past year of the Global Ocean Surface Underway Data (GOSUD) Pilot Project has been focused largely at IFREMER which operates the Global Data Assembly Centre (GDAC) for the Pilot Project (see <http://www.ifremer.fr/gosud/>). The GOSUD pilot project is focused on acquiring data directly from data collectors rather than using the GTS TRACKOB messages as a primary source of real-time data. There were a couple of reasons for this. The first was that although some data were being placed routinely on the GTS this was not generally so. Second, GOSUD is interested in acquiring 5 minute average data to allow for the description of high spatial scale variability. Some vessels do this high frequency sampling and in 2004 and 2005 some were reported on the GTS. However, the data volume is high and operators appeared to choose to stop reporting such high sampled data to the GTS in 2006. The number of ships reporting directly, however, has not changed substantially.
- 327 After some delays it appears that at least some of the data being collected by the SeaKeepers organization are reaching the GTS. These vessels mask their call signs, but all use a consistent prefix on their call signs. As yet there have been no direct data submissions to the GDAC. GOSUD needs to pursue this collaboration and improve the quantity of data coming directly to the GDAC and to the GTS.
- 328 In 2006, GOSUD held a joint meeting with the SAMOS (Shipboard Automated Meteorological and Oceanographic System) Project in Boulder, USA. The SAMOS project has similar goals to GOSUD but in this case it deals with meteorological data. It is common for both oceanographic and meteorological underway data to be collected at the same time and so collaboration with SAMOS is logical. The Boulder meeting was the first for members of each Project to meet each other and to understand objectives. It consisted of 3 sessions, one for GOSUD, one for SAMOS and a plenary where issues of common interest were discussed. A number of actions were identified and these will contribute to the work of GOSUD. The report is available through the SAMOS website (see http://www.coaps.fsu.edu/RVSMDC/marine_workshop3/docs/report_final.pdf).
- 329 JCOMM is taking up the task of changing real-time data reporting on the GTS from character based codes to BUFR. For GOSUD, this means changing from the TRACKOB (Report of Marine Surface Observations Along A Ship's Track) code form to BUFR. The work is being lead by the JCOMM Data Management Programme Area (DMPA). At this time, a draft BUFR template has been produced and is under discussion. The DMPA has formed a working group (lead by Mr Robert Keeley at present) to look at templates from TRACKOB as well as other code forms to look for opportunities to consolidate how information is reported. This is being done in cooperation with the META-T group of JCOMM looking at how to report SST and associated information about how the observations were made.
- 330 Although no formal meeting of GOSUD is planned at this point in time, some members will be present at an upcoming JCOMM Ship Observations Team (SOT) meeting to be held in April 2007. It is expected that informal discussions will take place to refine what will be done this year and into the future.

331 Mr Thierry Delcroix, one of the original Co-Chairs of GOSUD has resigned. It was recommended by the other Co-Chair, Mr Robert Keeley, that Mr Loic Petit de la Villeon be confirmed as a Co-Chair. Mr Petit de la Villeon works at IFREMER and has been a member of GOSUD from the start. He is well versed in the issues and working where the GDAC (Global Data Assembly Centre) is located, is able to influence its operations. It is also important for IODE to begin looking for a replacement for Mr Keeley as the other Co-Chair for GOSUD. His workload both at home and internationally has increased such that he is no longer able to find the time required to devote to this project. He will stay on as Co-Chair for another year, but then must withdraw.

332 Mr Keeley then gave an overview of the planned actions by GOSUD in 2007: (i) Continue to acquire, process and make available real-time and delayed mode surface underway data; (ii) Complete annual reports for 2005, 2006; (iii) Continue the collaboration with SeaKeepers to improve the direct submission of data to the GDAC and to encourage more data reported to the GTS; (iv) Collaborate with SAMOS and address actions resulting from the Boulder meeting; (v) Collaborate with DMPA WG on BUFR templates and META-T project to transition reporting surface observations from character code forms to BUFR; (vi) Install a new co-chair for GOSUD and hold a meeting. Regarding actions during 2008-2009, Mr Keeley listed the following: (i) Identify a replacement for Mr Keeley as Co-Chair of GOSUD; and (ii) Complete annual reports for 2007, 2008.

333 **The Committee noted with satisfaction** the progress achieved by the Global Ocean Surface Underway Data pilot project.

334 **The Committee strongly encouraged** other organizations to participate in the pilot project.

335 **The Committee endorsed** Mr Loic Petit de la Villeon as new Co-Chair of GOSUD and **welcomed** him to this position.

336 **The Committee requested** Member States to consider identifying a replacement for Robert Keeley as the GOSUD Co-Chair after he steps down from this position in 2008.

6.2.5. Development of a marine XML (marineXML)

337 This Agenda Item was introduced by the Chair on behalf of Dr Roy Lowry (Chair, MarineXML SG), referring to [Document IOC/IODE-XIX/27](#) "*Project Report: Development of a marine XML (marineXML)*"

338 Dr Rickards recalled that IODE involvement in MarineXML began in 2000 with the establishment of the marineXML consortium, which was superseded by two initiatives: (i) an EU funded project to demonstrate oceanographic data interoperability using an XML-based solution, and (ii) a joint IODE-ICES Study Group (SGXML) to examine the applicability of XML to marine data exchange systems. Following these and to ensure that the momentum of the process was not lost a recommendation from IODE-XVIII (Recommendation IODE-XVIII.7) proposed the establishment of an IODE XML Steering Group. Since IOC inherited the MarineXML brand from the EU marineXML project mentioned above, the Steering Group has adopted the title "MarineXML Steering Group".

339 The IODE-ICES SGXML final report (Isenor and Lowry 2005) included specific recommendations for the development of XML usage in oceanographic data exchange. Overseeing the implementation of these recommendations has been interpreted as falling within the remit of the MarineXML Steering Group. Thus, the preliminary work carried out since IODE-XVIII has been centered on progressing these 12 recommendations.

340 The Chair noted that a clear requirement has emerged in both the EU SeaDataNet project and the IOC MEDI work profiling ISO19115 for vocabulary content governance covering a wide range of subject areas relevant to oceanographic metadata including parameters, instruments, platforms and spatiotemporal coverage. To address this, the MarineXML SG Chair followed the example of the

Climate and Forecast (CF) community and created an e-mail discussion list under the title “SeaDataNet and MarineXML Vocabulary Content Governance Group”.

341 The terms of reference and operational rules of the system are summarized in the welcome message sent out to new members joining the list. The text of this is as follows:

“The SeaDataNet and MarineXML Vocabulary Content Governance Group is an e-mail discussion list covering all controlled vocabulary issues concerning the EU SeaDataNet project and IOC MarineXML Steering Group with the exception of platform instances (ship codes). These will remain under ICES technical and content governance. The IOC MarineXML Steering Group is responsible for the vocabulary issues of the IOC MEDI Steering Group and hence the IOC Marine Profile of the ISO19115 metadata content standard.”

342 The list was launched in October 2006, currently has 46 members and is in full active operation.

343 The future work plan of the MarineXML Steering Group is to:

1. Establish membership by issuing invitations to the countries that expressed interest at IODE XVIII (Belgium, China, the Netherlands, Russian Federation and the UK) plus the IODE Project Office), the SG-MEDI Chair and the US Marine Metadata Interoperability (MMI) initiative. This process should be completed by the end of June 2007.
2. Initiate e-mail discussions between the SG members to establish a strategy to:
 - i. Assess the conclusions of the EU MOTIIVE project with regard to registry implementation technology and use these as a basis for the specification, design and operational objectives of an ISO19135-compliant registry at the IODE Project Office.
 - ii. Develop further understanding of the E2EDM system so that the technology developed in that project may be more successfully integrated into other projects.
 - iii. Establish how IOC resources could be best utilized to take forward the objectives of the SG, possibly incorporating a face-to-face meeting early in 2008.
 - iv. Determine a long-term strategic vision for MarineXML Steering Group activities.

344 **The Committee stated** that the US MMI (Marine Metadata Interoperability Initiative) is crucial to the development of standardised vocabularies.

345 **The Committee instructed** the Secretariat to create a section on best practices, recommended by IODE, on the IODE web site, **while noting with appreciation** that the ISO19135-compliant registry, planned to be hosted by the IODE Project Office, will provide a robust environment for sharing such information.

346 **The Committee invited** JCOMM and WMO to continue participating in the deliberations of the SG-MEDI.

6.2.6. Marine Environmental Data Inventory (MEDI)

347 This item was introduced by Mr. Greg Reed (Chair, SG-MEDI). He referred to [Document IOC/IODE-XIX/28](#) “Project report: Marine Environmental Data Inventory (MEDI)”.

348 Mr. Reed recalled that MEDI is a catalogue system for marine datasets within the framework of the IODE programme. MEDI provides a reference point for locating marine and coastal datasets and is populated with metadata descriptions of marine datasets from IOC member states. MEDI became a permanent programme of IODE at the Sixteenth Session of the Committee (Recommendation IODE-XVI.1).

349 During the inter-sessional period, the Third Session of the Steering Group for the MEDI Project (SG-MEDI) was held from 11-13 September 2006 at Drexel University, Philadelphia, USA. Mr. Reed summarized the issues discussed by the Steering Group. These included:

- (i) Marine Metadata Profile: The Steering Group discussed the Marine Community Profile of ISO 19115 developed by the Australian Ocean Data Centre Joint Facility and agreed to circulate the Marine Profile for further comment on its suitability for use by the international community and a metadata discussion list has been established by the Project Office;
- (ii) Vocabularies: The Steering Group agreed that governance of vocabularies used by MEDI should be the responsibility of the MarineXML;
- (iii) Authoring Tool: The current MEDI authoring tool is not maintained and does not support the ISO 19115 standard. The Steering Group agreed to monitor developing metadata authoring tools that will support the requirements of the marine community.

350 Mr. Reed outlined the proposed work plan for the Steering Group for 2007-9 and put forward the following activities:

- (i) provide leadership in defining the metadata requirements for the Ocean Data Portal and work closely with the proposed development project;
- (ii) cooperate with other metadata initiatives, such as JCOMM META-T and the Marine Metadata Interoperability project, to ensure metadata interoperability across the marine domain;
- (iii) work with other communities to develop an ISO19115 compliant metadata authoring tool;
- (iv) continue to use and promote MEDI in IODE capacity building activities and encourage the use of MEDI.; and
- (v) hold a meeting of the Steering Group in 2008 to discuss the metadata requirements for the Ocean Data Portal and to evaluate and recommend a suitable metadata authoring tool.

351 The Delegate of Canada, Mr Keeley, informed the Committee that his data centre had developed a metadata authoring tool (in English and French) that can be provided to the SG-MEDI. The tool can also be modified if needed.

352 **The Committee thanked** Canada for its kind offer and instructed the SG-MEDI to investigate this matter further.

353 **The Committee decided** to continue the IODE Steering Group for MEDI during the next inter-sessional period.

354 **The Committee reviewed and adopted** the work plan submitted by the Third Session of the IODE Steering Group for MEDI and **allocated** funds for the implementation of the work plan within the available budget (See [Agenda Item 9](#)).

6.2.7. Global Directory of Marine and Freshwater Professionals (OceanExpert)

355 This Agenda Item was introduced by Dr Wouter Rommens. Reference was made to [Document IOC/IODE-XIX/29](#) (*Report on the global directory of Marine and Freshwater Professionals: OceanExpert*). The report provided a detailed overview of the history and development of OceanExpert and its predecessor GLODIR. The report listed the new functionalities that were implemented in OceanExpert based upon the recommendations of GE-MIM-VIII and a view towards the future development of OceanExpert was given.

356 OceanExpert started in 2002 with an inherited database of over 13,500 records from the GLODIR directory. Basic functionalities of OceanExpert included (i) an easy registration with a 'forgot my password' function (ii) email service for registered experts and (iii) a citation alert.

357 GE-MIM-VIII reviewed OceanExpert in 2004 and made recommendations for new features to be implemented to increase the functionality in OceanExpert.

- 358 The following GE-MIM-VIII recommendations were implemented during the inter-sessional period (2005-2006):
- Addition of field 'skills and expertise': this has been implemented in 2005;
 - Management of smaller groups (regions, countries) by individual managers: the regional directory AFRIDIR has been maintained regularly through the ODINAFRICA project;
 - Advanced searching (every field);
 - Reports (lists of experts, institutions from countries);
 - Announcement of job opportunities;
 - Financial resources to maintain OceanExpert.
- 359 Other new features allow OceanExpert to be used as an "alumni" database for IODE related training activities:
- Expert and administrator comment fields;
 - Active/inactive fields;
 - Group and region management interface.
- 360 The alumni database is available at <http://www.iode.org/alumni>. It now contains information on IODE training course alumni since 1997.
- 361 Dr Rommens also highlighted that the OceanExpert database is used as the "people" database for the IODE, GOOS and JCOMM web sites, thereby becoming a "clearing house" system for IOC ocean experts.
- 362 Dr Rommens noted that OceanExpert now also has the functionality to produce country reports which will provide the Member States information on (i) country members of IODE Subsidiary bodies, (ii) country participants in IODE meetings, (iii) participants in IODE training courses or workshops, (iv) travel or study grants provided to the Member States, (v) experts providing assistance to IODE and (vi) contributions from/to the IODE programme. He noted that the technical system is in place and that the data entry needed to provide these reports will be done in 2007.
- 363 Dr Rommens noted further that there is a continuing need for quality control of the OceanExpert database. In order to obtain this an update request to members of OceanExpert needs to be sent out yearly. This has been done in 2006 and 2007 and resulted in the deletion of circa 4,000 expert records without a valid email address. OceanExpert currently (March 2007) contains 8700 records.
- 364 Several additional new features were installed early 2007 to facilitate the quality control process of OceanExpert:
- Listing of institutions without attached experts;
 - Listing of institutions without attached experts;
 - Listing of institutions with duplicate names;
 - Listing of institutions having the same activities as a member;
 - Listing of members with the same name/email address;
 - Listing of members lacking essential information.
- 365 Dr Rommens stated that there is a need for local or regional administration and quality control of the database and requested the IODE National Coordinators for MIM to assist in this. He further noted that there is a need to actively extend the geographical coverage of OceanExpert since many countries (especially Eastern Europe, Asia and the Pacific) are underrepresented in OceanExpert.
- 366 The Chair of the IODE Group of Experts on Marine Information Management, Ms Suzie Davies congratulated Wouter Rommens on the excellent work done. The service of OceanExpert has improved a lot and it is now a very useful tool. She noted that following the considerable growth of the OceanExpert database, quality of entries must be assured. She noted that now that there is a growing

group of IODE National Coordinators for Marine Information Management there exists an opportunity to invite these to assist in improving quality of entries and possibly as national OceanExpert input centres. Considering the quality and size, OceanExpert will be important as a potential author authority file.

367 The Delegate of Senegal noted that OceanExpert is an excellent way to promote scientists and communication between experts. The yearly updating request and quality control is therefore very important. ODINs can be approached to improve geographical coverage of OceanExpert. As an example, each country in the ODINAFRICA network has developed a national directory, which is included in the regional AFRIDIR (which is part of OceanExpert).

368 The Delegate of Brazil informed the Committee that his country is willing to assist in keeping national information on Brazil up to date in OceanExpert.

369 **The Committee invited** cooperation between the International Polar Year (IPY) and OceanExpert for management of experts information. **The Committee requested** Mr Taco De Bruin to pass on this invitation to the IPY Programme Office.

370 **The Committee** congratulated the Project Office with the continued developments related to OceanExpert.

371 **The Committee** reviewed and adopted the 2008-2009 work plan and allocated funds in the 2007-2009 work plan and budget.

372 **The Committee invited** Member States to actively promote OceanExpert at the national and regional level.

6.2.8. Development of e-repositories (OceanDocs)

373 This Agenda Item was introduced by Mr Marc Goovaerts, referring to [Document IOC/IODE-XI/30](#) (*OceanDocs: Repository Network on Oceanography and Marine Science*). Mr Goovaerts recalled that ODINPubAfrica developed a repository for scientific literature of African marine science. During the project other ODIN groups, in the first place ODINCARSA, expressed interest in developing a similar repository project for their region. As a result the ODINPubAfrica repository was extended to accept other ODIN groups and was renamed to OceanDocs (<http://iodeweb1.vliz.be/odin> - <http://www.oceandocs.net>).

374 ODINPubAfrica has been funded through a small scale activity project of FUST (Flanders-UNESCO Science Trust Fund) between 2004-2006 and with a budget of approx. US\$ 100,000. The results of the project are: (i) the ODINPubAfrica project has accomplished its objective to establish a central repository of electronic publications. The repository contains 1122 documents related to marine science and oceanography prepared by African authors or authors affiliated with African institutions; (ii) the ODINPubAfrica project has trained 15 information professionals in Africa and two regional coordinators (one for East and one for West Africa); (iii) the ODINPubAfrica project has been recognized as a valuable example for the development of electronic repositories in developing countries. Similar repositories are now planned for Latin America and Eastern Europe (ECET). In addition IOC/IODE decided to place all e-repository projects under a new umbrella called OceanDocs; (iv) The ODINPubAfrica electronic repository is harvested by Google Scholar, providing global exposure of publications by African scientists; and (v) ODINPubAfrica developed specific collections for existing paper journals. The latest release of the OceanDocs Dspace support the creation of e-journals.

375 In 2006 an additional small scale activity proposal was submitted to FUST to develop an “easy-to-install” deployment package of an electronic repository of marine science publications (e-repository in a box). This proposal, requesting funding amounting to US\$ 30,000 was approved and is

being implemented in 2007. The project will (i) create a turnkey e-repository system based upon the DSpace e-repository application, customized for marine science collections and including clear instructions, standards and guidelines for deployment; (ii) train a few core experts from developing country regions in the deployment of the turnkey system focusing on “train the trainer” methodology; and (iii) provide translations of manuals and guidelines in French, Spanish and Russian to promote adoption of the system in different regions.

376 In view of the success and experience gained during the ODINPubAfrica project and the interest shown by other regions it is proposed to undertake the next phase of the e-repository initiative called “OceanDocs”. The project will continue the activities of the previous projects (training, setting up of national/regional repositories) but it will have global coverage (IOC regions) and also install a harvester application and associated portal that will enable searching of all associated e-repositories, thereby creating an information equivalent of the OceanDataPortal (see [Agenda Item 6.2.13](#))

377 Mrs Pauline Simpson, representing the International Association of Aquatic and Marine Science Libraries and Information Centres (IAMSLIC) then made a presentation on the “Aquatic Commons” initiative. This is among the initiatives in which IOC collaborates with IAMSLIC. Others include the OceanExpert, OceanPortal, and the OceanTeacher. IAMSLIC has set up a working group to explore opportunities for further collaboration with IOC.

378 The Aquatic Commons initiative is a model for digital resource sharing between stakeholders in the marine/aquatic information world. Its integrative architecture accommodates researchers and research institutions at all technological levels. It will include: (i) an open access OAI compliant repository, (ii) a thematic harvester offering federated searching; and (iii) other repositories, e.g. IAMSLIC’s Z39.50 distributed library, the union database of marine serials and the ASFA database.

379 The Aquatic Commons Board which represents the major stakeholders, including IOC, was established in 2006. The common goals include: (i) Using digitization technologies to provide free, global access to marine and aquatic information. (ii) Building the digital capacity of developing countries by providing appropriate combinations of training, equipment, and IT services, (iii) Providing access to the indigenous literature that is not part of the traditional publishing cycle, including technical series from academic and research institutions, (iv) Eliminating duplication of effort by coordinating content building and metadata creation. The Florida Centre for Library Automation was awarded the contract to set up and maintain an EPrints repository for IAMSLIC. In order to ensure that there is no overlap with other repositories, only marine or aquatic researchers who have no repository in their institutions, and are not covered by an ODIN OceanDocs programme will be able to deposit full text of research in the repository. This will ensure that it complements the OceanDocs programme.

380 **The Committee congratulated** the team that developed the OceanDocs Africa repository for their excellent work, and **welcomed** the initiative to extend the coverage of the repository to other regions,

381 **The Committee noted** the close collaboration that has been established between IOC and IAMSLIC and **requested** the Secretariat to work closely with the IAMSLIC working group that has been set up to explore avenues for further collaboration.

382 **The Committee stressed** the importance of ensuring that OceanDocs and the Aquatic Commons complement each other to ensure that resources are utilized optimally.

383 **The Committee adopted** [Recommendation IODE-XIX.11](#) (Establishment of the OceanDocs Project)

6.2.9. OceanPortal (including regional OceanPortals)

6.2.9.1. The IODE Ocean Portal (<http://www.oceanportal.org>)

384 This Agenda Item was introduced by Dr Wouter Rommens (Training Coordinator IOC Project Office for IODE). Reference was made to [Document IOC/IODE-XIX/31](#) (*Report on OceanPortal (including regional OceanPortals)*).

385 Dr Rommens recalled that IODE has been supporting the creation and maintenance of a global index of Internet websites containing Ocean Data and Information, called OceanPortal (OP). It currently holds over 4,600 records in eight super-categories and 251 specific subject categories. OceanPortal has become a highly regarded international source-of-choice for marine site information, and it is one of the most visited of all IOC websites.

386 He reported that during the inter-sessional period, the IODE OceanPortal websites database was enlarged by approximately 1,000 new records. Two annual house-cleaning exercises were carried out during the inter-sessional period to check accuracy of the URLs, to update records from individual inspections of sites, and to add categories to all records.

387 The complete OP site was moved from the servers at UNESCO Headquarters in Paris to its new location at the Project Office in Oostende, Belgium. OceanPortal has been edited by Dr Murray Brown (until the end of 2005) and Dr Wouter Rommens (2006 onwards).

388 Users selected and viewed 200,000 OceanPortal pages. There were approximately 500 page views per week day. On average, 130,000 visits were recorded per year during the intersessional period. There were 92,200 citations of OceanPortal in Google (from non-OP web pages) which explained the very high score Google has assigned to OP records. It is not uncommon to find OP records about resources to be placed before the actual resource, during Google searches. This confirms OceanPortal's position as the premier ocean data and information index today.

389 **The Committee congratulated** the IOC Project Office for IODE with the continued success of the IODE OceanPortal and **decided** to set aside funding in the inter-sessional work plan for the continued maintenance of OceanPortal.

6.2.9.2. The IODE Regional OceanPortals (<http://www.portaloceanico.net> and <http://www.africanoceans.net>)

390 Dr Rommens informed the Committee that the regional OceanPortals PortalOceanico and African OceanPortal were established under the cross cutting themes projects of IOC/UNESCO. Activities of PortalOceanico were reported by Mr. Rodney Martinez (ODINCARSA project coordinator). Activities of African OceanPortals were reported by Mr. Mika Odido (ODINAFRICA project coordinator). Reference was made to [Document IOC/IODE-XIX/31](#) (*Report on OceanPortal (including regional OceanPortals)*).

391 Dr Rommens informed the Committee that the Regional Ocean Portal for Latin America and the Caribbean, Portal Oceánico (URL: <http://www.portaloceanico.net>) has compiled more than 5,123 knowledge objects related to ocean issues. The Portal has recruited more than 420 editors from Latin America and the Caribbean regions, and contains contributions mostly in Spanish, but also in Portuguese, English and French. National marine information from 40 countries is included in the portal. More than 454 volunteer editors have contributed to the portal during this year and have assisted with the promotion of the Portal. A total of more than 85,000 visits to the portal have been registered. Visitors originated from 102 different countries with 80 % of them from Latin America and the Caribbean and 17.7 % from the USA, Canada and Europe.

- 392 Until the middle of 2006, the average number of daily visits was about 100. However, a significant drop was evidenced during the last months of 2006.
- 393 Mr Martinez reported that in order to get sustainability in the PortalOceánico and increase the number of visitors, there is a need for establishing an institutional mechanisms to get the support of relevant marine institutions from the regions. He reported that a promotion strategy will be implemented during 2007, in order to increase the number of visits and ensure the involvement of other partners across the regions.
- 394 Dr Rommens informed the Committee that the Regional Ocean Portal for Africa: African Oceans (URL: <http://www.africanoceans.net>), has compiled more than 2,713 knowledge objects related with ocean issues relevant for Africa. A total of more than 13,700 visits to the portal have been registered. More than 27 % of the visitors came from African countries.
- 395 The COSMARNEWS newsletter has been published quarterly since 2006 and reproduces parts of the materials available in the portal. The African Oceans portal is one of the partners in the development of the Clearing House Mechanism for Eastern Africa which is coordinated by the UNEP Regional Seas program.
- 396 The Regional Coordinator for ODINCINDIO asked about the possibility to develop a regional OceanPortal for the ODINCINDIO region. Mr Peter Pissierssens noted that the regional OceanPortals are currently funded through UNESCO cross-cutting theme projects but that this source of funding will end in December 2007. Any continuation or additional projects will have to be funded from extra-budgetary sources.
- 397 **The Committee welcomed** the success of the regional OceanPortals as information tools to disseminate information on ocean and coastal research to a wide audience. Taking into consideration the termination of the current funding source for these initiatives but bearing in mind the objective of these products, **the Committee called** on the Chief Editors of the regional OceanPortals to discuss continued funding with relevant national, regional or international organizations with an interest in public information related to coastal and marine environment.

6.2.10. OceanTeacher (see 6.3.2.2)

- 398 This Agenda Item was discussed under [Agenda Item 6.3.2.2](#).

6.2.11. SeaDataNet (and related)

- 399 This Agenda item was introduced by Dr Catherine Maillard on behalf of the SeaDataNet Consortium, referring to [Document IOC/IODE-XIX/32](#) (*EC Project: a Pan-European infrastructure for Ocean and Marine Data Management (SeaDataNet)*). Dr. Maillard reported that SeaDataNet (2006 – 2010) is a major Pan-European and EU-funded project, undertaken by the National Oceanographic Data Centres (NODCs) and marine information services of major national institutes from nearly all coastal states bordering the European seas. It focuses on interconnecting the data centres to provide integrated on-line access to the most comprehensive sets of multidisciplinary in-situ and remote sensing marine data, meta-data and products. The consortium comprises 49 partners of major oceanographic institutes of the 35 participating countries, including National Oceanographic Data Centres (NODC), Satellite Data Centres (SDC), two expert modelling centres and three international bodies including IOC/IODE.
- 400 SeaDataNet continues and expands previous initiatives of the consortium, in particular Sea-Search (2002-2006) and several distributed data management structures developed during MAST and following EU marine environment projects. Recent developments in Sea-Search were focused on metadata and have designed and populated an array of Pan-European directories of marine data & information resources.

401 The Committee was informed that the SeaDataNet network of data centres (40 Transnational Access Platforms of NODCs and SDCs), archives, checks for quality and disseminates the data and meta-data made available, either from EU funded projects or national data sources, which are continuously enriched from new sources, and develops new products and services in SeaDataNet. Therefore new infrastructure is being developed as a virtual data centre that will incorporate and enhance the existing facilities, and makes use of the new possibilities offered by communication technology. Together with the development and use of the most adapted technology, the development and adoption of common standards is actively carried out to ensure: (i) communication between the data platforms and their interoperability; and (ii) coherence, compatibility and quality of the data sets initially collected by several hundreds of research laboratories and organizations and by using various heterogeneous sensors on board of research vessels, drifting floats and buoys, moored platforms, satellites.

402 The common standards for vocabularies, discovery services, definition and adoption of formats and protocols for data checking are developed by the project Technical Task Team in strong cooperation with international experts. They follow international ISO basic standards and general practices in data management for the set-up of web services and content governance structures, transformation services, downloading services and viewing services.

403 Dr Maillard reported further that SeaDataNet is also developing common regional products for five pilot regions: the Mediterranean Sea, Black Sea, Baltic Sea, Barents Sea and North Atlantic. These common products are useful not only to serve a larger community of users, but also to test the system and the harmonization of the common procedures and standards implemented. The integration of *in situ* and remote sensing in the data management and the products development represents a challenge that meets a number of frequent user requests. Besides the technological development, SeaDataNet aims to enhance the overall data circulation, quality and perennial safeguarding. Joint workshops, training sessions and capacity building will contribute to ensuring a common level of expertise in data management and inter-compare basic equipment at all data centres. The strong links with the scientific community for the data exchange and preparation of products should both facilitate the data collection and meet better the user needs in data and services.

404 The question was raised by WMO if the system developing by SeaDataNet will be compatible with the WMO Information system. This was confirmed by Mr Nickolay Michailov, IODE/JCOMM ETDMP Chair, who works on this issue within the SeaDataNet project. Another question was whether the standards developed by SeaDataNet will be available to the IODE community. Dr. Maillard assured the Committee that all standards, procedures, etc. developed by the project will be available via the Project web site. First versions will be released in March or April 2007 and updates will be prepared regularly.

405 **The Committee noted with satisfaction** the SeaDataNet Project plans and the wide variety of useful standards and procedures that will be available to the IODE community as the SeaDataNet Project progresses.

406 **The Committee welcomed** the joint SeaDataNet/IODE organization of the IMDIS-2008 conference.

6.2.12. SIMORC

407 This Agenda item was introduced by Dr Vladimir Vladymyrov, referring to [Document IOC/IODE-XIX/33](#) (*EC Project: System of Industry Metocean data for the Offshore and Research Communities (SIMORC)*). Dr. Vladymyrov reported that a very substantial volume of metocean *in situ* data is collected by or under contract to major oil and gas companies. This is done all over the world and over many years a large volume of data has been acquired, often at substantial cost. These data are currently managed by the metocean departments of the oil and gas companies and stored in various

formats. They are exchanged on a limited scale between the oil and gas companies. Despite various industry co-operative joint projects, there is not yet a common awareness of available data sets and no systematic indexing and archival of these data sets within the industry. Furthermore there is only limited reporting about, and access to, these data sets and results of field studies for other parties, in particular the scientific community.

408 The Committee was informed that to stimulate and support a wider application of these industry metocean datasets, a System of Industry Metocean data for the Offshore and Research Communities (SIMORC) is being established. This consists of an index metadatabase and a database of actual data sets, that together are accessible through the Internet. The index metadatabase is public domain, while access to data is regulated by a dedicated SIMORC Data Protocol. This protocol contains rules for access and use of data sets by scientific users (free of charge), by oil and gas companies, and by third parties. In the project all metocean data sets in the database undergo quality control and conversion to unified formats, resulting in consistent and high quality harmonized data sets. The SIMORC is a unique and challenging development, undertaken by: MARIS (NL), BODC (UK), IOC-IODE (UNESCO), and the International Association of Oil and Gas Producers (OGP), involving participation of major oil & gas companies, that are bringing in their considerable data sets. Now the following companies have signed the agreement and are active contributors to SIMORC: Shell, Total, BP, Chevron, Statoil, and Hydro. At the moment they already provided more than 600 data sets to SIMORC and this number is growing fast. The SIMORC project is co-funded by the European Commission for the 2 year project period starting 1st June 2005 (now is being extended for 6 more months).

409 Dr Vladymyrov reported that scientific and academic organizations are invited to register for the SIMORC service and conclude a User License Agreement for their staff members for regular use and access to data sets. This Agreement is concluded between the organization, represented by a central contact person, and the SIMORC service. After acceptance of the registration request the central contact person will be asked to nominate staff members for which a personal id – password will be activated. This registration will give access to the growing number of metocean data sets from major oil and gas companies worldwide, that are being included in the SIMORC database.

410 In the following discussion Italy mentioned that it is an important initiative and that Italy will contact its oil and gas companies to request them to join the SIMORC. Dr Rickards (BODC) mentioned that the project is funded by EU for two years but it is hoped that it will continue and that new participants will be involved. The Delegate of the USA mentioned that the USA through IOOS will participate in the SIMORC conference in March 2007 and will encourage US companies to participate. The only concern is in understanding that access to the data not totally free and open, and only for the scientific community. Canada informed the committee that in Canada oil companies are obliged to pass data to their data centre. These are freely available.

411 **The Committee welcomed** the SIMORC system as a valuable initiative and **invited** Member States to use this new source of data.

412 **The Committee called** for more oil and gas companies to make their data available to SIMORC.

6.2.13. New initiatives: The Ocean Data Portal

413 This Agenda item was introduced by Mr Nickolay Michailov, ETDMP Chair, referring to [Document IOC/IODE-XIX/15](#) (*The IODE Ocean Data Portal: Concept Paper*). He informed the Committee of the objectives of the IODE Ocean Data Portal (ODP). The ODP will facilitate and promote the exchange and dissemination of marine data and services by providing access to collections and inventories of marine data from the NODCs in the IODE network. The system architecture will use Web-oriented information technologies to access non-homogeneous and geographically distributed marine data and information.

414 Mr Michailov explained that the ODP will not create a new data system but will provide interoperability with existing systems and resources. Participating IODE data centres will be required to accept and implement a set of agreed interoperable arrangements including the technical specifications and Web-services that will provide integration and shared use of the metadata, data and products. Interoperability will be achieved through the use of internationally endorsed standards (such as SOA, ISO and OGC) and ODP will be developed in close cooperation with existing and developing initiatives such as the IODE/JCOMM E2EDM Pilot Project, SeaDataNet, WIS, Australian Oceans Portal, US DMAC, Russian ESIMO and others. The proposed ODP will also support the data access requirements of other IOC programmes areas, including GOOS, JCOMM, HAB and the Tsunami warning system. The ODP development will also work closely with other international initiatives including WIS and GEOSS to ensure interoperability with other domains.

415 The OceanDataPortal Project will have the following work packages: (i) Project coordination and management; (ii) Standards development package; and (iii) Portal implementation package. It is proposed to commence the project by establishing the coordination and management working group which will be responsible for drafting a detailed work plan and budget. This will be followed by the standards development work package which will identify appropriate standards, best available practices and technical solutions for data interoperability using, wherever possible, existing standards. The ODP project will work closely with other IODE projects, such as ETDMP, MarineXML and MEDI, to ensure that existing standards and protocols are used. The ODP implementation package will focus on implementing a system to harvest metadata from the participating data providers and to set up the ODP to allow users to query the global catalogue and to retrieve and visualize datasets from the participating data providers.

416 **The Committee stressed** that the OceanDataPortal Project will focus on interoperability and interconnecting of existing national and regional data systems, and not on building a separate top level IODE system.

417 **The Committee instructed** the IODE Steering Group for the OceanDataPortal Project to investigate the issue of the name of this new initiative as IODE has developed several other “Portals” (OceanPortal, regional OceanPortals) which could cause confusion for the users.

418 **The Committee adopted** [Recommendation IODE-XIX.4](#) (The IODE Ocean Data Portal Project)

6.3. IODE CAPACITY BUILDING

6.3.1. IODE's regional capacity building projects: ODIN

6.3.1.1. Ocean Data and Information Network for Africa (ODINAFRICA)

419 This Agenda Item was introduced by Mr Mika Odido (ODINAFRICA Project Coordinator), referring to [Document IOC/IODE-XIX/35](#) (*Ocean Data and Information Network for Africa (ODINAFRICA)*).

420 Mr Odido recalled that the Ocean Data and Information Network for Africa (ODINAFRICA) brings together marine related institutions from twenty five (25) Member States of the Intergovernmental Oceanographic Commission of UNESCO in Africa. The earlier phases of development of ODINAFRICA (I and II) aimed at enabling Member States in Africa to get access to data available in other data centres, develop skills for manipulation of data and preparation of data and information products, and develop infrastructure for archival, analysis and dissemination of the data and information products. The goal of the current phase of ODINAFRICA (ODINAFRICA-III) is to improve data flows into the national oceanographic data and information centres in the participating

countries, develop data and information products required for integrated management of the coastal areas of Africa, and increase the delivery of services to end users.

- 421 Within the framework of ODINAFRICA-III new tide gauge stations have been installed in Djibouti (Djibouti), Takoradi (Ghana), and Nouakchott (Mauritania). Stations have been upgraded at Port Louis and Rodrigues (Mauritius), Mombasa and Lamu (Kenya), Inhambane and Pemba (Mozambique) through the Indian Ocean Tsunami Early Warning System (IOTWS) and the Global Sea Level Observing System (GLOSS). Data from these stations is available online through the ODINAFRICA Sea Level Data Facility (<http://www.sealevelstation.net>) that has been established at the IODE Project Office in Oostende, Belgium. A training course on sea level measurements and interpretation was organized jointly by ODINAFRICA and GLOSS at the IODE Project Office from 13-23 November 2006 and attended by 15 participants from countries participating in ODINAFRICA.
- 422 NODCs have been established or reactivated in all the five (5) IOC member states that joined the network in the current phase (Algeria, Angola, Congo, Egypt, and Namibia) adding to the twenty that had been established during the two previous phases of the project. These were provided with equipment, software, training, as well as funding to enable them commence their operations. ODINAFRICA has continued to provide support to institutions hosting the NODCs to enable them develop a core set of data and information products. These include but are not limited to: library catalogues, catalogues of national data sets and data sources (meta databases), directories of marine and freshwater professionals, directories of marine related institutions, marine data archives and marine biodiversity databases. Two workshops have been organized for mobilization of data for development of data bases on marine molluscs (13-22 March 2006), and sponges (6-16 November 2006). Data managers from the ODINAFRICA institutions have participated in training courses organized by the IODE Project Office and covering diverse topics such as advanced data management, application of remote sensing and GIS to coastal management, modelling and data management, marine biodiversity data management and development of websites. National NODC websites have been developed as a means for publicizing and dissemination of services and products.
- 423 Mr Odido informed the Committee that the second ODINAFRICA Seminar was held at the IODE Project Office in Oostende, Belgium from 24-26 April 2006 and was attended by more than 60 participants representing all 25 countries participating in ODINAFRICA, regional projects/programmes and organizations involved in marine related programmes, the Government of Flanders (Belgium), ODINAFRICA trainers, and members of the ODINAFRICA Project Management and Steering Committees. The theme of the seminar was "Ocean Data and Information for Management and Development in Africa". An exhibition and poster presentation on the activities of the ODINAFRICA National Data and Information Centres (NODCs), and the proposed ODINAFRICA Sea Level Data Facility was held during the seminar and opened by the Hon. Fientje Moerman, the Vice-Minister-President of the Flemish Government and Flemish Minister for Economy, Enterprise, Science, Innovation and Foreign Trade. The exhibition was also attended by the IOC Chairman, Dr David Pugh.
- 424 The African Marine Atlas was initiated in 2006 to synthesize geospatial data products for the African continent (emphasizing especially the marine and coastal environment). The Atlas incorporates existing geo-referenced datasets available in the public domain (but tailored to meet specific scope requirements), and also data products created from national and international marine data collections by scientists participating in the ODINAFRICA programme of capacity building projects. The Atlas was launched on 26 February 2007 and is available on-line through the URL <http://iodeweb2.vliz.be/omap/OMAP/index.htm>.
- 425 The current phase of ODINAFRICA will end in December 2007 or early 2008. It is expected that the ODINAFRICA Seminar, planned to take place between in November 2007 (Mombasa, Kenya) and ODINAFRICA Project Steering Committee, to be held immediately after (Mombasa, Kenya) will prepare a proposal for a fourth phase of ODINAFRICA.

426 **The Committee noted** with satisfaction the progress that has been made in implementation of the ODINAFRICA activities and the impact that these have had on ocean data and information management in Africa.

427 **The Committee called for** the preparation of a proposal for the next phase of the project which will cement ODINAFRICA as a sustainable network of African NODC's addressing the increased demands for data and information products and services required by ocean-based industry and coastal populations in Africa. The proposal should focus on development and dissemination of data and information products to assist in the sustainable management of marine and coastal areas, and include further development of the African Marine Atlas, as well as specialized skills necessary for trend analysis and scenario development.

428 **The Committee welcomed** the close collaboration that ODINAFRICA has developed with other organizations such as WIOMSA, UNEP Regional Seas programme, NEPAD/COSMAR, African LME projects, GOOS Africa, OBIS, ACEP and other organizations and programmes, and **called** on these organizations and programmes to collaborate in the preparation of the proposal for ODINAFRICA-IV.

429 **The Committee thanked** the Government of Flanders, Belgium for their continued support for the ODINAFRICA project **and requested** that they continue support for the next phase of ODINAFRICA. **The Committee also urged** other Member States to extend their support to the project.

430 **The Committee adopted** [Recommendation IODE-XIX.5](#) (Ocean Data and Information Network for Africa (ODINAFRICA))

6.3.1.2. Ocean Data and Information Network for the Caribbean and South America regions (ODINCARSA)

431 This Agenda Item was introduced by Mr Rodney Martinez, referring to [Document IOC/IODE-XIX/36](#) (*OCEAN DATA AND INFORMATION NETWORK FOR THE CARIBBEAN AND SOUTH AMERICA REGIONS (ODINCARSA): Report of Activities 2005-2006 and Proposed Work Plan 2007-2008*). Mr Martinez recalled that in October 2001, ODINCARSA was set up primarily as a mechanism for assessing the current and potential state of development of national data centers and to create the means for mutual capacity building in South America and the Caribbean. It further sought to develop a cooperation network for managing and exchanging oceanographic data and information within these regions. ODINCARSA is a network involving 19 IOC Member States: Argentina, Bahamas, Barbados, Belize, Brazil, Colombia, Chile, Cuba, Dominica, Ecuador, Haiti, Jamaica, Mexico, Nicaragua, Panama, Peru, Saint Lucia, Trinidad and Tobago, and Venezuela.

432 Mr Martinez informed the Committee that after 5 years of activity and limited resources, ODINCARSA has achieved several milestones which can be summarized as follows:

- ODINCARSA made Ocean Data and Information Management a relevant issue at the national level in about 60% of Member countries (mostly in South America);
- ODINCARSA established and kept active a huge regional network of more than 60 National Institutions with 237 experts from different sectors related to Ocean and Marine activities;
- ODINCARSA contributed to improving the provision of ocean data and information products and services to different users by sharing of expertise, knowledge transference and capacity building;
- ODINCARSA became a useful partner/platform for other IOC programmes and organizations such as GOOS, GCOS, IAMSILIC, IAI, CPPS, JCOMM, ASFA and ICAM.

433 Mr Martinez called the attention of the Committee to a number of important challenges remaining in the region: these relate to the Caribbean Region, where the project has not started.

Despite the efforts and contribution of several Member States and the training provided to experts from the islands little progress was made. During last year, important efforts were deployed to build a regional group on marine information management, but without success. ODINCARSA was not invited to participate in several important initiatives in the Caribbean and the visibility of the project is still limited.

434 Mr. Martinez proposed that, based on the potential opportunities, the next biennium should focus all efforts in the Caribbean region, mainly devoting resources to the preparation of project proposals and to obtaining support to implement the Action Plan. It is highly recommended to increase the coordination and interaction between IOCARIBE and ODINCARSA in order to ensure the best way to get external funding in this region and complement the upcoming initiatives.

435 Mr Martinez informed the Committee that the next phase of ODINCARSA in Latin America should have two main outcomes: (i) the consolidation of a regional network on Marine information that provides permanent and valuable services to a wide community; and (ii) the provision of data and information services to Operational Oceanography, Coastal Management and Disaster Reduction programmes in the regions.

436 The CPPS Representative informed the Committee that the Permanent Commission for the South Pacific (CPPS) was established on August 18th, 1952 to coordinate maritime policies of its Member States which include Chile, Colombia, Ecuador and Peru, with the aim of promoting their development through cooperation in marine-related matters. CPPS maintains since 1974 the Regional Programme for El Niño Research (ERFEN). This Programme is executed with the participation of various research institutions of the member countries. CPPS also participated in the process to create the GOOS Regional Alliance for the South Pacific (GRASP) and currently hosts the GRASP Technical Secretariat with the support of organizations such as IOC and WMO. The CPPS Representative stated that in this context the support received from IODE-ODINCARSA has been very important in order to achieve ERFEN and GRASP objectives regarding ocean data and information management. IODE and CPPS are currently working together on the development of a Regional research cruises data base. Considering all these aspects, the General Secretary of CPPS strongly urges IODE to support the ODINCARSA work plan.

437 **The Committee noted with appreciation** the success of ODINCARSA and the positive impact of the project in Latin American countries.

438 **The Committee adopted** the ODINCARSA work plan for 2007 and 2008-2009.

439 **The Committee adopted** Recommendation IODE-XIX.6 (Ocean Data and Information Network for the Caribbean and South American Regions (ODINCARSA)).

6.3.1.3. Ocean Data and Information Network for the Central Indian Ocean Region (ODINCINDIO)

440 This agenda item was introduced by Dr Nasser Zaker, the ODINCINDIO Project Coordinator, referring to Document IOC/IODE-XIX/37 (Ocean Data and Information Network for the Central Indian Ocean region).

441 In his presentation Dr Zaker outlined the objectives and the accomplishments of ODINCINDIO since its establishment at the Eighteenth session of IODE in April 2005. Experts and scientists from the ODINCINDIO/IOCINDIO region have participated in several training courses or workshops in the period of 2005-2006. Three of these courses were specifically designed for the ODINCINDIO/IOCINDIO Member States and the others were held by IODE or were joint activities of IODE in collaboration with other organizations and a group of nominees from ODINCINDIO/IOCINDIO Member States participated in these courses/workshops. All the training activities were hosted by the IODE project office in Oostende, Belgium. The training courses

included: (i) ODINCINDIO Marine Data Management Training Course, 5-18 October 2005 (ii) ODINCINDIO Marine Information Management Training Course, 12-25 February 2006 (iii) ODINCINDIO Data Management Training Course, 8-18 May 2006 (iv) Marine Biodiversity Data Management Training Course, 6-11 March 2006 (v) Joint IODE/IOI Training Course on GIS and Remote Sensing Data, 18-23 September 2006, and (vi) Second Combined Modeling and Data Management Training Workshop, 9-14 October 2006.

442 Dr Zaker further informed the Committee of the results of the Fourth Session of IOC Regional Committee for the North and Central Indian Ocean (IOCINDIO-IV, 8 - 10 December 2005 in Colombo, Sri Lanka) where he had presented the report of the development and activities of ODINCINDIO Project. The Regional Committee had stressed the need to increase the level of financial support for the ODINCINDIO so that it can achieve the planned objectives. The Regional Committee had expressed its satisfaction with the ODINCINDIO Project and highlighted the major role it can play in the advancement of oceanography in the region, as well as providing data exchange mechanism in the context of the ICG/IOTWS and IOGOOS. The Regional Committee had urged all the Member States of the region to play an active and supportive role with regards to ODINCINDIO in order to establish a reliable working network building on the successful example of the ODINAFRICA and ODINCARSA projects.

443 Collaboration with regional organizations and other IOC programmes or projects has been a priority of ODINCINDIO project. In this regard collaboration with IOGOOS has had a particular position since IOGOOS contributed to the establishment of ODINCINDIO and accepted ODINCINDIO as the capacity building tool for data and information management. The coordinator of ODINCINDIO presented a progress report to the Fourth Meeting of IOGOOS, 10-12 October 2006, Zanzibar, Tanzania. The meeting welcomed the successful achievements of ODINCINDIO and highly supported the close collaboration of IOGOOS, IOCINDIO and IODE in its development and implementation. Joint IOGOOS-ODINCINDIO activities were proposed.

444 Dr Zaker concluded by outlining the activities planned for the period 2007-2009. These include: encouraging the establishment of NODCs in Member States that have not done so, collaboration and networking, further training and capacity development, the development of national and regional directories, catalogues and databases that will provide useful reference materials for management of the marine and coastal areas of the region. Collaboration with other programmes such as Indian Ocean GOOS and ODINAFRICA will be important in achieving the identified objectives.

445 **Noting the significant** progress made in implementation of the ODINCINDIO activities since the IODE-XVIII, **the Committee commended** Dr Zaker for his efforts in ensuring the implementation of activities, **and welcomed** the collaboration that has been established with IOGOOS, IOTWS, and ROPME.

446 **The Committee endorsed** the ODINCINDIO work plan for 2007-2009 **and urged** Member States from the region to play an active and supportive role in order to ensure the establishment of a reliable network.

447 **The Committee adopted** [Recommendation IODE-XIX.7](#) (Ocean Data and Information Network for the Central Indian Ocean (ODINCINDIO))

6.3.1.4. Ocean Data and Information Network for European Countries in Economic Transition (ODINECET)

448 This Agenda item was introduced by Ms Oleksandra Sergeyeva on behalf of Ms Olga Akimova, who recently took over from Ms Maria Kalenchits as ODINECET coordinator, referring to [Document IOC/IODE-XIX/38](#) and [Document IOC/IODE-XIX/38add](#) (*Ocean Data and Information Network for European Countries in Economical Transition (ODINECET): PROGRESS*

REPORT 2005-2006). Ms Sergeyeva reported that IODE-XVIII had endorsed the proposal that EURASLIC should work with the GE-MIM to develop the proposal for an ODIN for ECET. A draft project document was prepared and reviewed at the ODINECET kick-off meeting (Oostende, 25 March 2006, funded by the IODE Project Office). In this meeting the following countries participated: Bulgaria, Croatia, Estonia, Latvia (observer – not an IOC Member State), Poland, Russian Federation and Ukraine. In April 2006 a final Project Proposal was prepared based upon the discussions of the kick-off meeting. It will be noted that, at this stage, the proposed network will focus on marine information management only, building on the already existing preconditions and networks in the ECET-region. The ODINECET network will constitute a capacity building strategy for Eastern and Central European participating member states linking training equipment and operational support in a regional context, product- and service-oriented and using multi-stakeholder approach.

449 The Committee was informed that in the project document for the establishment of ODINECET pilot project the objections are described as follows: (i) to support the networking of aquatic libraries in ECET countries; (ii) to support the development of national aquatic information centers and national/regional projects; (iii) to provide training opportunities in marine information management, applying standard formats and methodologies as defined by IODE; (iv) to assist with the development and dissemination of aquatic information, responding to the needs of the scientific community; and (v) to provide assistance to IODE in the recruitment of National Information Management Coordinators. The detailed list of the Project activities associated with these objectives was presented.

450 Through funding from the IODE Project Office a training session in basic marine information management (MIM) was organized as a contribution towards ODINECET, jointly by the IOC/IODE and EURASLIC (IODÉ Project Office, Oostende, Belgium, 13-24 March 2006). Among the 14 participants there were aquatic librarians and information specialists from Bulgaria, Croatia, Estonia, Latvia, Poland, Russia and the Ukraine. Course lectures and class assignments included such topics on marine information management as: strategic library planning, online access information sources and retrieval, collection development, on-line catalogues and their functions, e-repositories and open access, benefits of international networking and others. Planning discussions for MIM Eastern Europe (ODINECET) as well as a presentation of results of the ECET Union Catalogue were also included.

451 Ms Sergeyeva reported that a regional training session in MIM is planned as a further contribution to ODINECET on 7-9 May 2007, Crimea, Ukraine, back to back with the EURASLIC XII meeting. It will be a basic training for 10-12 participants from Russia and the Ukraine, working languages are Russian and English (training is planned for the Russian speaking group of trainees to help them to overcome the language barrier). A partial support for this event (\$4,500) is requested from the Committee. The intermediate level MIM training is planned for the ODINECET countries in autumn 2007 in the IODE Project Office, Oostende, Belgium.

452 Both GE-MIM and IAMSILIC expressed their gratitude to ODINECET for their enthusiasm and excellent work done during the short time period and supported the ODINECET request for \$4,500 for ODINECET MIM training to be held in Crimea, Ukraine, in May 2007.

453 **The Committee welcomed with satisfaction** the fast development of the ODINECET project and its achievements.

454 **The Committee adopted** the ODINECET work plan for 2007 and 2008-2009.

455 **The Committee adopted [Recommendation IODE-XIX.8](#)** (Establishment of the Ocean Data and Information Network for European Countries in Economic Transition (ODINECET)).

6.3.1.5. Ocean Data and Information Network for the Western Pacific region (ODIN-WESTPAC)

456 This agenda item was introduced by Mr Hirofumi Okano, representing Mr. Kunikazu Nishizawa (Director of JODC) and Mr. Wenxi Zhu (IOC/WESTPAC Secretariat), referring to [Document IOC/IODE-XIX/39](#) (*OCEAN DATA AND INFORMATION NETWORK FOR THE WESTERN PACIFIC (ODINWESTPAC): Report on the progress 2005-2006 and Proposed work plan of a pilot project of ODINWESTPAC in 2007-2008*).

457 Mr. Okano recalled that in May 2005, the IOC sub-commission for the Western Pacific decided to set up an inter-sessional Working Group which would further study the establishment of the ODINWESTPAC, and to prepare, as appropriate, a project proposal for an Ocean Data and Information Network for the region including a possible work plan, deliverables, timelines and required resources. He further informed the Committee on the outcome of the preparatory meeting for the establishment of the ODINWESTPAC, which took place in Tokyo, Japan, 5-6 December 2006. The major objectives of the preparatory meeting were (i) to assess the available resources and needs for data and information management capacity building in the region and how these needs can be met; (ii) to identify ODIN services and products that need to be developed; and (iii) to start the preparation of an ODINWESTPAC work plan for 2007-2008.

458 The preparatory meeting had recognized the importance of the establishment of ODINWESTPAC in the WESTPAC region and strongly recommended that the ODINWESTPAC project should be approved by the 7th Session of IOC/WESTPAC which will take place in 2008. In order to facilitate the approval of the ODINWESTPAC project and to draw some useful experience for the future ODINWESTPAC, the meeting agreed on a proposal to initiate a pilot project of ODINWESTPAC. It was decided that the pilot project proposal should be submitted to IODE-XIX for adoption. If adopted, it was expected that the pilot project would start after IODE-XIX and end at WESTPAC-VII (provisionally planned for September 2008).

459 Mr Okano then briefly introduced the proposed work plan of the ODINWESTPAC Pilot Project, included as Annex I in Document IOC/IODE-XIX/39. He explained that it was proposed that the pilot project will implement the following activities: (i) establish management structure; (ii) organize workshops to review progress of the pilot project and to finalize the formal proposal for WESTPAC-VII; (iii) establish an ODINWESTPAC pilot project web site and mailing list(s); (iv) start the preparation of national and regional metadata bases documenting data holdings available in the region; (v) collect cruise summary reports; (vi) continue the rescue and archival of historical oceanographic data as a follow-up to the GODAR-WESTPAC project; (vii) preparation of a directory of research institutions and experts in the region; (viii) preparation of a directory of ocean and coastal observation, research and management projects and programmes implemented in the region (not limited to IOC activities); (xix) preparation of a regional e-repository of scientific publications published by WESTPAC experts; (x) preparation of a list of potential partners (international organizations, regional organizations, donors, IOC programmes, other projects/programmes active in the region); (xi) assessment of capacity building requirements in the region; (xii) collect and share information on capacity building activities implemented in the region (training courses, seminars and workshops); (xiii) disseminate relevant data and information management tools and manuals; (xiv) implement training courses and workshops as required; and (xv) prepare a proposal for the ODINWESTPAC project to be submitted to WESTPAC.

460 He further introduced the proposed Recommendation on the Establishment of a Pilot Project for the Ocean Data and Information Network for the Western Pacific Region (ODINWESTPAC). He called attention of the Committee to one training course, included in the Work Plan, on basic data management and information management for the Western Pacific. This course, which was strongly recommended by the preparatory meeting, is planned to be held at the IOC Project Office for IODE, possibly in 2007.

461 The Representative of NOWPAP strongly endorsed the proposal to establish an ODINWESTPAC pilot project.

462 Prof. Lin, in her capacity as the Representative of NEARGOOS, informed the Committee that the NEARGOOS coordinating committee, at its Eleventh Session (Bangkok, Thailand, January 2007), had adopted a recommendation requesting IODE to establish the ODINWESTPAC pilot project.

463 The Delegate of Thailand informed the Committee that SEAGOOS had expressed its full support for the initiative to establish the ODINWESTPAC pilot project.

464 **The Committee welcomed** the proposal to establish the ODINWESTPAC Pilot Project and **endorsed** it.

465 **The Committee adopted** [Recommendation IODE-XIX.9](#) (Establishment of the ODINWESTPAC Pilot Project).

466 **The Committee decided** to allocate funds in the 2007 and 2008-2009 work plan and budget.

6.3.1.6. Black Sea Region

467 This Agenda item was introduced by Dr Atanas Palazov on behalf of the Black Sea riparian counties, referring to [Document IOC/IODE-XIX/40](#) (*Project document for the establishment of the Ocean Data and Information Network for the Black sea region (ODINBLACKSEA)*). Dr. Palazov reported that the lives of at least 160 million people are profoundly influenced by the Black Sea and considering that all riparian countries depend to a large extent on marine and coastal resources, the ability to acquire, manage, archive and disseminate data, as well as the capacity to generate products and services in support of decision making and management of the Sea and Coastal Zones is of vital importance. The Ocean Data and Information Network for the Black Sea Region (ODINBLACKSEA) Pilot Project is proposed to respond to these needs through: (i) providing assistance in the development, operation and strengthening of National Oceanographic Data (and Information) Centres and to establish their networking in the region; (ii) providing training and education in marine data and information management, taking into account the requirements of operational oceanography; applying standard formats and methodologies as defined by the IODE; (iii) enhancing national and regional awareness for Marine Data and Information Management; (iv) assisting in the development and maintenance of national and regional marine data, metadata and information databases; (v) assisting in the development and dissemination of marine data and information products and services, meeting the needs of user communities at the national and regional levels, and responding to national and regional priorities; (vi) undertaking the ODINBLACKSEA activities in close collaboration and networking with other relevant organizations, programmes and projects operating in the Black Sea region; and (vii) undertaking the above activities applying modern technologies for data collecting, processing, storing and disseminating. It is proposed to make the E2EDM (End to End Data Management) technology a basis of ODINBLACKSEA. In addition, ODINBLACKSEA will satisfy the requirements of the other IOC programmes (e.g. BlackSeaGOOS), as well as other organizations (e.g. Commission on the Protection of the Black Sea against Pollution, Black Sea Economic Cooperation), programmes and projects (e.g. BSERP, ASCABOS, SeaDataNet, BlackSeaScene, ECOOP, SESAME, ESONET) active in the region, in terms of capacity building, and management and exchange of oceanographic data and information.

468 The Committee was informed that development and implementation of the ODINBLACKSEA project will be based on the success and lessons learnt from the other IODE ODIN projects, in particular, ODINAFRICA, ODINCARSA (Caribbean and South America region) and ODINCINDIO (Central Indian Ocean region). It was recalled that the ODIN idea was first implemented in the IOCINCWIO region as from 1996 when the IOC, with funding from the Government of Flanders, started the development of the Ocean Data and Information Network for Eastern Africa (ODINEA).

The innovative model of these projects was the linking of provision of equipment, training and operation support in a regional context. The ODIN projects focus on building capacity at the national level and the development of products and services at the national and regional scale. Training courses are organized at the regional level and follow-up support by a training consultant is provided. It is worth noting that all ODIN networks are now being developed in close collaboration with GOOS (and other programmes). An excellent example is ODINAFRICA III, which has been developed as a cross-cutting project involving data collection (GOOS), data and information management (IODE), and product/service development (GOOS, ICAM).

469 The ODINBLACKSEA proposal was discussed first in the frame of SIBEMA project. The idea was supported by Dr. Patricio Bernal, Executive Secretary of IOC, and discussed in detail through electronic communications with all IODE national coordinators in the Black Sea region. They agreed that ODINBLACKSEA should become a capacity building instrument for further development of NODC structure in the region and will support BlackSeaGOOS and other regional initiatives. All of them expressed their support for the establishment of ODINBLACKSEA.

470 Dr Palazov described briefly the proposed activities associated with each Project objective with the results expected as a result of each activity. The project will be directed, monitored and supervised by the Project Steering Committee. This Project Steering Committee will be composed of the IODE National Coordinators from the participating Black Sea Countries. It is recommended that the steering committee will meet once a year. The Steering committee will have a Chairperson. Day to day project activities will be managed by the Project Coordinator. The first Chairperson and the Project Coordinator will be elected by the steering committee and every two years they will rotate among the participating countries.

471 It was recommended as well to set up the ODINBLACKSEA Project Office equipped with all the necessary communication tools to support everyday activities.

472 He further informed the IODE Committee that the first meeting of the Project Steering Committee was held alongside IODE-XIX, and the project document had been adopted at this meeting.

473 He informed the Committee that proposed funding of the project could include in-kind support from the participating countries, in-kind and cash support from the international projects operating in the region, donor funding, and IOC support for the Project Steering Committee meetings. The first support has already been negotiated with the Institute of Oceanology (Bulgarian Academy of Sciences) and with the SIBEMA project which will support the ODINBLACKSEA start-up activities.

474 **The Committee welcomed with satisfaction** the development of the ODINBLACKSEA project and its fast start.

475 **The Committee adopted** the ODINBLACKSEA work plan for 2007 and for 2008-2009.

476 **The Committee adopted [Recommendation IODE-XIX.10](#)** on the establishment of Ocean Data and Information Network for the Black Sea (ODINBLACKSEA).

6.3.1.7. Pacific Islands

477 This Agenda Item was introduced by Ms Suzie Davies (Chair GE-MIM) referring to [Document IOC/IODE-XIX/41](#) (Report on Pacific Islands Region: Current Issues and Suggested Future Directions).

478 Ms Davies recalled that IODE-XVIII agreed that GE-MIM should continue its activities with the Pacific Region and report on the progress made at IODE-XIX. The GE-MIM Chair attended 1st Meeting of the Pacific Regional Group of IAMSILIC, at the Secretariat of the Pacific Community

(SPC), Noumea, New Caledonia, in 2006. The meeting agreed to develop a proposal for an ODIN. Since then 5 out of 7 major instigators have left the Pacific Region, and their jobs have just been filled or are about to be filled by new staff. This made that no proposal had been developed. However, the MIM workers in that area continue to seek support and assistance, and the regional needs in MIM and DM remain unaddressed. Staffing is now stabilizing again, and GE-MIM proposes to continue its efforts to assist the Pacific region to develop a proposal for an ODIN network to be completed by 2008.

479 Ms Davies enumerated some of the Marine Information Management issues that need to be addressed, such as: the huge variation in qualifications and technical knowledge of MIM staff; the status of marine information management, which is very low; the need to provide support to PIMRIS so that it can continue providing information services; and the real need for development of an e-repository to capture web-based 'grey literature'. Concerning data management, she informed the Committee that data sharing between regional organizations is difficult, due to national ownership. A central metadata catalogue would be beneficial to the region.

480 **The Committee agreed** on the need to provide practical support to develop standards and build sharing mechanisms between regional and country-based agencies.

481 **The Committee instructed** GE-MIM to continue its efforts to assist the Pacific Islands region to develop a proposal for a region-based ODIN which builds on existing networks (e.g. PIMRIS, PEIN). In this regard, the GE-MIM Chair should approach relevant agencies such as SOPAC, PIMRIS and SPC to form a working group to jointly develop the proposal. GE-MIM should also investigate the possible opportunities for the ODIN to be associated with the Pacific Islands Regional Ocean Framework for Integrated Strategic Action (PIROF-ISA).

6.3.1.8. Other regions

482 The Chair invited Mr Nickolay Michailov to report on his initiative to set up an E2EDM pilot project for the Caspian Environment Programme (CEP). Mr Michailov reported that there has been communication with institutions in the Caspian Sea region on the possibility of setting up a distributed Marine Data Management System in the Caspian Sea region. A concept paper has been prepared on the basis of these consultations. The representative of the Caspian Environmental Programme reiterated his strong support for the establishment of such a system, and noted that the Caspian Meteorological Organization has also called for its establishment. The system would assist in addressing the many problems regarding archiving and sharing of oceanographic data in the region.

483 **The Committee welcomed the** proposal to establish the Distributed Marine Data Management System for the Caspian Sea, and **noted** the need to take the capacity building needs of the Caspian Sea region into account while developing the work plan for the coming intersessional period.

6.3.2. IODE Training Programme

6.3.2.1. Training activities at the IOC Project Office for IODE

484 This Agenda Item was introduced by Dr Wouter Rommens (Training Coordinator IOC Project Office for IODE). Reference was made to [Document IOC/IODE-XIX/42](#) (*Training activities at the IOC Project Office for IODE*).

485 He reported that the IOC Project Office for IODE has been established in Oostende, Belgium, with substantial support from the Government of Flanders (Belgium) and the City of Oostende (<http://www.iode.org/projectoffice>). The IOC Project Office for IODE was inaugurated on the 25th of April 2005.

486 He recalled that one of the objectives of the Project Office is to 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 the users. He noted that in order to obtain this specific objective the IOC Project Office provides the following:

- it further develops, strengthens and maintains IOC/IODE ocean data and information management training programmes and training tools;
- an environment ('think tank') where ocean data and information experts and students can work, meet and discuss;
- it hosts specialized short-term training courses in ocean data and information management.

487 He reported that through its close collaboration with, and proximity to the Flemish Marine Data and Information Centre (FMDC) of the Flanders Marine Institute (VLIZ), the Project Office is able to effectively interact with its focus audiences (researchers, data managers, students) who provide a feedback mechanism enabling continuous adjustment of services to the needs of the focus audiences.

488 Dr Rommens reported that 29 training courses and workshops were organized in 2005-2006. These training events were attended by 270 trainees from 79 different countries. The training events were either organized in the framework of specific IODE ODINs or were specialised training courses organised for an audience from different regions. Several of these training courses were organized jointly with other institutions or organisations.

489 He recalled that training events are announced through the regional IODE networks and the Project Office calendar (<http://www.iode.org/projectoffice/calendar.php>) or through the partner organizations (in case of jointly organised training courses).

490 He announced that information about trainees from the different regions and countries are entered into the new "alumni" database of the Project Office (<http://www.iode.org/alumni>).

491 The Committee was further informed that participants of training courses are asked to complete a survey consisting of two parts: one survey assesses the quality and content of the course, one survey assesses the quality of the facilities at the Project Office. This allows the Project Office staff to constantly improve the quality of the training events. Training materials are provided on CD-ROM or DVD to the participants.

492 The Committee was informed that a number of training courses were recorded on video. These video lectures are made available online in streaming video format for slow (e.g. dial-up) and fast (e.g. ADSL) internet connections. The video lectures are being made available on the new OceanTeacher web site (<http://www.oceanteacher.org>). The existing video library (http://iodeweb5.vliz.be/oceanteacherhome/video_library.html) with video lectures will be further extended with new courses.

493 The Committee was informed that at least 12 training events will be organized at the Project Office in 2007. A full list of the planned training activities is given in Document IOC/IODE-XIX/42. Several innovative training activities will be organized to address new needs in the IODE community: training for young scientists – Ocean DM: from Measurement to Product, Virtual Lab Training (follow up of Jamboree workshops), DBCP Training Course on Buoy Programme Implementation and Data Management and the E2EDM System Training.

494 Dr Rommens informed the Committee that training activities at the Project Office are proposed to continue the same main directions of activity in the next biennium 2008-2009 within the available budget with the priority for training/capacity building for developing countries.

495 Dr Rommens recalled that in order to sustain the training activities at the Project Office there is a constant need for new training activities and new partners to organize training activities jointly.

This has already partly been achieved in the past 2 years and needs to continue in the future. Some new domains for training were already identified and include marine GIS, remote sensing and modelling. To assess these future needs a survey will be sent out in 2007 among the IODE community.

496 The International Ocean Institute (IOI) congratulated the Project Office with the obtained results. IOI noted that the jointly organized training IOI/IODE course on Geographical Information Systems and Remote Sensing was highly successful and fits the capacity building targets in this field. IOI expressed its interest to support a second training course on these topics in the near future by contributing US\$10,000.

497 The ODINCINDIO project coordinator congratulated the Project Office with the obtained results. ODINCINDIO trainees have participated already in several of the training activities and this contributed highly to the advancement of the ODINCINDIO network. ODINCINDIO agreed that more jointly organized training courses should be organized.

498 The JCOMM DMPA Chair noted his great satisfaction with the available facilities and organization of training courses in Oostende. JCOMM has been a partner in several training courses and is willing to provide training materials to include in OceanTeacher.

499 The SeaDataNet Representative congratulated the Project Office on the organization of training courses. SeaDataNet has recently organized a training course at the Project Office and expressed its interest in making use of the Project Office facilities in future for the training course program of the SeaDataNet project.

500 The Delegate of the Russian Federation expressed his appreciation for the facilities at the Project Office. He offered his country's expertise and assistance for GIS training courses. He further suggested that trainees from different ODINs could be invited to the E2EDM training course planned to take place at the Project Office in 2007. Mr Michailov further stated that there is a need to organize a training course on data standards.

501 **The Committee expressed its gratitude** to the Government of Flanders, Belgium for its support to the Project Office as well as for the generous support to the ODINAFRICA network. ODINAFRICA advanced substantially due to the participation of ODINAFRICA trainees in the training activities organized at the Project Office.

502 **The Committee adopted [Recommendation IODE-XIX.13](#)** (Support for the IOC Project for IODE for Capacity Building)

6.3.2.2. OceanTeacher

503 This Agenda Item was introduced by Dr Wouter Rommens (Training Coordinator IOC Project Office for IODE). Reference was made to [Document IOC/IODE-XIX/43](#) (*Report on OceanTeacher/ODIMEX*).

504 Dr Rommens recalled that OceanTeacher provides training tools for Oceanographic Data and Information Exchange to be used during IODE Training Courses. They can also be used for self training and continuous professional development. He recalled that OceanTeacher originates from the late 1990's during the ODINEA project. The current system of resources has been developed in 2000 during the ODINAFRICA-II programme. The "OceanTeacher Digital Library" contains resources on Data Management, Information Management and can be considered as a specialized "encyclopedia". The second component of OceanTeacher contains various specialized training courses, and links extensively to the Digital Library. OceanTeacher has been used intensively during training activities in the framework of regional networks (ODINAFRICA, ODINCARSA, ODINECET, and ODINCINDIO) as well as for various specialized training courses such as Geographic Information Systems (GIS). Dr

Rommens informed the committee that the size of OceanTeacher currently exceeds 1.8 GB: 6000 files, 3600 illustrations, 14,500 internal links and 13,800 links to external resources.

- 505 Dr Rommens informed the Committee that 253 new content items have been added to the digital library in 2006. A number of video lectures were also being made available through the OceanTeacher website (see [Agenda Item 6.3.2.1](#)).
- 506 Dr Rommens informed the Committee that OceanTeacher has been used in 16 training events at the Project Office in the past 2 years (2005-2006). This number included 2 'train-the-trainer' events in which 15 trainers were trained. Besides this it has been used in 2 training events outside the Project Office (jointly organized with other organizations). He also noted that it is already being used by national participants in their own local training programmes in their home institutions.
- 507 Dr Rommens informed the Committee that OceanTeacher has now been transformed into an Integrated Expert and Training System for Oceanographic Data and Information Management (ODIMeX) using the static html version of OceanTeacher as a basis. It uses a Dynamic Content Management System (DCMS) which enables the editing of content online through a web interface. The system serves both as an e-learning platform (the 'training manuals' of OceanTeacher) and as an encyclopedia style learning resource (the OceanTeacher digital library). It allows the development of new courses with a minimum of effort, provided that the basic materials are already present. The system enables users to browse the content freely or follow a specified course. This work was carried out in the ODIMeX project which was funded by Flanders (FUST) over a period of 4 years (2004-2007). The system is partly or fully exportable to a CD-ROM or DVD for distribution in countries without good internet access. Dr Rommens informed the Committee that the migration exercise was completed recently and the new version was launched on 9 March 2007 on <http://www.oceanteacher.org>.
- 508 Dr Rommens informed the Committee about planned developments in 2007 and 2008-2009 (if funds can be identified, beyond 2007). This includes cooperation between IODE and WMO to include topics on Marine Meteorology. He noted that OceanTeacher will be advertised as "**OceanTeacher: a training resource for Oceanography and Marine Meteorology**". New multimedia training materials including video lectures on introductory courses (for self-study) will be developed. New materials and courses supporting operational oceanography, biological oceanography, information management, circulation modelling, data collection methods and tools, data analysis methods, data quality control and climatological data need to be added. Synthesis articles to summarize collected materials in many different topical areas will be produced. As new versions of the software will be published there is need for a continued update of all software resources.
- 509 Dr Rommens noted that there is a need for the development of an external author pool for the further development of the digital library.
- 510 Dr Rommens recalled that the ODIMeX Project has been managed by the Steering Group for OceanTeacher (SG-OT). The members of the Steering Group are Prof. Dr Paul Nieuwenhuysen, Ms Linda Pikula, Mr Peter Pissierssens, Dr Murray Brown, Mr Greg Reed, Mrs Pauline Simpson, Dr Wouter Rommens, Dr Edward Vanden Berghe and Dr Vladimir Vladymyrov. One Steering Group meeting was organized in 2005-2006 in Oostende, Belgium. The full report of this Steering Group Meeting is available in [Document IOC/IODE-SGOT-IV](#).
- 511 Dr Rommens informed the Committee that the general site management of OceanTeacher is now being done by Dr Wouter Rommens. The Chief Editor for Marine Information Management is Dr Paul Nieuwenhuysen (Vrije Universiteit Brussel, Belgium). The Managing Editor for Information Management is Ms Linda Pikula (NOAA, USA). The Chief Editor for Marine Data Management is Dr Murray Brown (Phoenix Training Consultants, USA). The Managing Editor for Biology has been Dr

Edward Vanden Berghe¹ (Flemish Marine Institute, Belgium). The Managing Editor for Operational Oceanography is Ms Regina Folorunsho (Nigerian Institute for Oceanography and Marine Research, Nigeria). The Management Editor for Geographic Information Systems is Mr Greg Reed (Australian Ocean Data Centre Joint Facility, Australia).

512 Dr Rommens noted that OceanTeacher is currently a project supported under the Flanders UNESCO Science Trust Fund (FUST) (<http://www.iode.org/fust>) – Project 513GLO2002: Integrated Expert and Training System for Oceanographic Data and Information Management (ODIMeX) – through which US\$ 348,000 was received covering the period 2004-2007. The Project has been managed through the aforementioned IODE Steering Group for OceanTeacher. He noted that the FUST-supported ODIMeX project will end on 31 December 2007.

513 The Delegate of France informed the Committee that IFREMER/SISMER staff provide lectures to university students (in French) on the relevance of oceanographic data exchange with the objective to promote awareness for the benefit of data management and exchange. He informed the Committee that the lecture materials can be provided to IODE for inclusion in OceanTeacher.

514 **The Committee welcomed** the success of OceanTeacher and **invited** member states to contribute to OceanTeacher by making available resource persons as lecturers or content providers.

515 **The Committee adopted** [Recommendation IODE-XIX.12](#) (OceanTeacher)

6.3.3. New requirements in regional capacity building

516 The Chairman of the sessional working group on Capacity Building, Mr Rodney Martinez, introduced this Agenda Item. This sessional working group was tasked to identify new requirements in regional capacity building based upon the experience with the existing ODINs and the needs expressed by emerging ODINs.

517 Mr Martinez reported that the sessional working group had prepared the following recommendations regarding requirements in regional capacity building:

- The sessional working group stressed the importance of follow up mechanisms for students after the training, preferably with some long term implementation at national level. A web site should be set-up where the further tasks of trainees can be monitored and ensure the application in the beneficiary institutions;
- The sessional working group proposed that the core training courses should be developed as “training of trainers” courses so that those who are trained can train other people in their countries. Those trainees who have demonstrated their competence as trainers at the local level should be invited to assist in training at the IODE Project Office;
- The sessional working group stressed the importance of identifying other relevant international or national partners that can share financial support in the regions and co-sponsor training activities at the IODE Project Office;
- The sessional working group welcomed the initiative by the IODE Project Office to prepare audio-visual materials to assist in local training, and proposed the translation of materials to other languages to facilitate their greater use at the national level;
- The sessional working group also emphasized the need to enhance the connection of the ODIN networks to ongoing IODE activities on standards developments, QC and End-to-End technologies.

518 **The Committee thanked the** sessional working group for the good work it had done in compiling the regional capacity building requirements and **endorsed** them.

¹ In view of Dr Vandenberghes new position as OBIS Executive Director his continued involvement in OceanTeacher will need to be investigated.

519 The Delegate of Italy informed the Committee that the facilities at the International Centre for Theoretical Physics (ICTP), through an agreement with OGS, can be used for IODE training courses and workshops. ICTP could also consider co-funding some of the training courses;

520 The Representative of IOI drew the attention of the Committee to the training course on Remote Sensing and GIS Applications that was organized jointly with IODE in 2006. This course had proved popular and complements the other courses on Ocean Governance organized by IOI. In this regard IOI would be ready to co-organise another similar course with IODE and would provide resource persons as well as support some participants.

521 **The Committee endorsed the** capacity building work plan and **welcomed** the offers of IOI and ICTP to collaborate in the implementation of the work plan.

6.3.4. National data and information management capacity building requirements

522 This Agenda Item was introduced by Mr Robert Gelfeld. He informed the Committee that the National Report template included a number of questions related to national needs, specifically questions 11 (IODE Priorities for 2007-2008) and 12 (National requirements). The analysis of received responses has been included in [Document IOC/IODE-XIX/8](#) (*Reports of NODCs and DNAs*).

523 Mr Gelfeld informed the Committee that the national requirements were also discussed by the sessional working group on capacity building and the needs have been incorporated, as possible, in the work plan for 2008-2009.

524 The Chair of GE-MIM reported that GE-MIM will review the Marine Information Management National Reports and use the information for future analysis of IODE MIM activities.

6.3.5. IODE capacity building strategy ([see also 8.2](#))

525 This Agenda Item was introduced by the Chair. She noted that the need for an IODE capacity building strategy was also discussed under [Agenda Item 8.2](#) but the Committee was invited to discuss the need for a specific IODE Capacity Building Strategy. In this regard she informed the Committee that an "IOC Principles and Strategy for Capacity Building" ([Document IOC/INF-1211](#)) had been developed and published, and a JCOMM Capacity Building strategy was being revised based upon the decisions of JCOMM-II.

526 The Chair recalled that the IODE programme had in fact been implementing its own capacity building strategy through the ODIN approach, without documenting this approach in a strategy document.

527 **The Committee strongly recommended** for IODE to publish its Capacity Building strategy.

528 **The Committee noted** that IODE's ODINAFRICA and ODINCARSA projects had not only developed national capacity in oceanographic data and information management and promoted regional cooperation and exchange, but had assisted member states to participate in several ocean science, observation and management programmes at the regional and international level.

529 **The Committee noted further** that it was essential to showcase the achievements of the ODIN projects at the regional as well as national level and recommended the publication of brochures or specialized audio/visual products. In this regard the Committee was informed that ODINAFRICA will publish such a brochure in 2007 and **the Committee recommended** that other ODINs follow this example.

- 530 **The Committee further invited** Member States participating in ODIN projects to promote these important IODE initiatives on all occasions, and especially to donors to mobilize resources for sustained support to these networks. In this regard **the Committee strongly urged** Member States to show strong commitment to the data and information centres that have been established through ODIN projects by committing resources to these facilities.
- 531 **The Committee**, while **welcoming** expressions of success, **noted** that it would be more productive to identify indicators of impact and thus to assess the success of IODE capacity building through objective performance assessment methods. In this regard the Committee was informed that the ODINAFRICA project was preparing a set of indicators.
- 532 The UNESCO Consultant charged with the Review of the IODE programme, Dr Juan Carlos Villagran de León, stressed the importance of demonstrating concrete outputs of capacity building. In terms of IODE capacity building it was essential to demonstrate how IODE's capacity building efforts had resulted in increased exchange of data and whether data (and what volumes) were reaching long-term archives such as the World Data Centres.
- 533 **The Committee tasked** the Training Coordinator of the IOC Project Office for IODE, Dr Wouter Rommens, with the preparation of the identified documents (Strategy) and products (brochures, audio/visual products), to be submitted to IODE-XX.

7. IODE PUBLIC AWARENESS

7.1. IODE WEB SITES

- 534 This Agenda Item was introduced by the Technical Secretary.
- 535 Mr Pissierssens informed the Committee that the new IODE web site had been launched in January 2007, coinciding with the posting of documentation for IODE-XIX. He explained that this was the reason that content had not been fully transferred from the old to the new site. He further explained that the new web site uses a dynamic content management system (based upon the open source application Joomla), combined with OceanExpert as the people management system as well as a document and calendar (events management system, developed by Coldrose Consulting). He further informed the Committee that the new system was also used by GOOS and JCOMM, thereby enabling the sharing of "people", "events", and "documents". All IOC web sites using the new system were hosted by the IOC Project Office for IODE. He further explained that the site will be fully populated within the next 6 months.
- 536 **The Committee congratulated** the IODE Secretariat and IOC Project Office for IODE with the new web site, which it described as a user friendly communication tool. While **the Committee expressed its appreciation** especially for the event management system that was used for the preparations of IODE-XIX, it **requested** the Secretariat to investigate the possibility to make working documents available as one downloadable (zip) file.
- 537 **The Committee requested** further to move the section "Popular IODE Sites" up higher on the home page and to consider adding links to all important IODE sub-sites and projects.
- 538 Mr Pissierssens, referring to para 549 of the IODE-XVIII Summary Report, recalled that IODE-XVIII had requested that "the JCOMM/IODE secretariat maintain an up-to-date web page of upcoming training events. This will help the member countries to plan their participation in such activities or influence the content of such activities". At their February 2006 meeting, the Officers requested the IODE Project Office Training Coordinator to maintain a list of IODE training activities

as well as other data and information management training courses on the IODE web site. The Officers requested that the Chair DMPA to contribute to the list. Mr Pissierssens reported that all training activities organized by IODE are now listed in the IODE calendar on the new IODE web site (see IODE homepage on <http://www.iode.org> or [IODE calendar](#)). He noted however that the calendar focuses on events organized by IODE or in which IODE is involved. There is currently no pro-active collecting of information on other ocean data and information management related events.

- 539 **The Committee requested** the Secretariat to allow submission of any ocean related event in the IODE web site calendar but enable a filtering option to select only IOC, GOOS and/or JCOMM events.

7.2. IODE BROCHURES, POSTERS AND PUBLICATIONS

- 540 This Agenda Item was introduced by Dr Wouter Rommens who noted that two IODE brochures were produced in 2005-2006: (i) brochure on IOC Project Office for IODE (IOC Brochure 2006-3); (ii) OceanDocs Brochure (IOC Brochure 2007-1).

- 541 He also invited Member States to submit materials produced at the local level to the Project Office.

- 542 The ODINCARSA Project Coordinator and the Delegate of Canada noted that it would be useful to make the IODE brochures available in digital format so that the IODE community is able to reproduce them at the national level.

- 543 The Delegate of France noted that it would be useful to provide an IODE template that can be used as a basis to produce national versions of IODE brochures.

- 544 Mr Peter Pissierssens noted that all IODE brochures will be made available through the IODE website. Translation of IODE brochures in French and Spanish by the Member States is welcomed.

- 545 The Chair GE-MIM noted that the OceanDocs brochure is an excellent document describing clearly the OceanDocs project.

- 546 **The Committee welcomed** the brochures prepared by the IOC Project Office for IODE and **requested** that electronic templates be made available to enable Member States to customize the brochures or to provide versions in other languages.

7.3. NATIONAL IODE AWARENESS ACTIVITIES

- 547 This Agenda Item was introduced by the Chair. She invited comments from the Committee on efforts made to raise awareness of IODE in their countries. Dr Wouter Rommens reported that the IOC Project Office for IODE had been invited to a number of events in Belgium:

- Wetenschapsfeest (Science festival), Gent, Belgium (27-29 October 2006) with approximately 25.000 participants;
- UNESCO@60 celebration (20 October 2006) with approximately 100 participants;
- Noordzeesymposium (North Sea Symposium), Bruges with approximately 150 participants.

- 548 The Delegate of France informed the Committee that the French NODC SISMER publishes two newsletters per year for users of the NODC. A meeting between users and the NODC is organized on a yearly basis.

- 549 The Delegate of the USA informed the Committee that the USA has an interagency working group for the IOC. The IODE representative of the USA is part of this group and this ensures that the activities of the IODE are well known across the USA. The US NODC has also been publishing the

Earth System Monitor, a quarterly newsletter, which contains information on the US NODC and Data Management issues in NOAA. This newsletter is mailed to 4000 persons and is available in PDF format on the NOAA website.

- 550 The Delegate of Belgium noted that submission of data to NODCs increases the international visibility of data originators, which is rewarding to them. The membership of a data centre in IODE is worth mentioning to the data originators.
- 551 The Delegate of Brazil noted that a new website will be published which will include translations in Portuguese, Spanish and English.
- 552 The Delegate of the Netherlands noted that the relevant Dutch institutes have started organizing meetings to determine a common point of view on IODE.
- 553 The ODINCARSA project coordinator noted that awareness activities were organized in several of the countries of ODINCARSA.

8. IODE VISION AND STRATEGY

8.1. IOC OCEANOGRAPHIC DATA EXCHANGE POLICY: IMPLEMENTATION BY MEMBER STATES

- 554 This Agenda Item was introduced by Mr Robert Gelfeld. He reported that the majority of the reporting Member States apply the 'IOC Oceanographic Data Exchange Policy' adopted as Resolution IOC-XXII-6 in 2003 (see <http://www.iode.org/contents.php?id=200>). This includes the timely, free and unrestricted international exchange of oceanographic data and associated metadata that is essential for the efficient acquisition, integration and use of ocean observations gathered by the countries of the world for a wide variety of purposes including the prediction of weather and climate, the operational forecasting of the marine environment, the preservation of life, the mitigation of human-induced changes in the marine and coastal environment, as well as for the advancement of scientific understanding that makes this possible.
- 555 Mr. Gelfeld reported that for the majority of Member States oceanographic data are collected by different government departments, by universities, and by private companies. The Member States noted further that, especially in developing countries, the NODCs provided a bridge between the IOC programmes and national institutions. All Member States are participating in some level of national and international programmes/projects.
- 556 In response to a question from the delegate of Italy, the Technical Secretary informed the Committee that there is no direct communication between the IOC and the European Union (EU) on the matter of oceanographic data exchange policy. The delegate from the Netherlands informed the Committee that there is an EU directive which ensures the free access to environmental data for all EU citizens.
- 557 **The Committee encouraged** each Member State to review the 'IOC Oceanographic Data Exchange Policy and enact it as part of their Oceanographic Data Policy.

8.2. IOC STRATEGIC PLAN FOR OCEANOGRAPHIC DATA AND INFORMATION EXCHANGE

- 558 This Agenda Item was introduced by the Chair, referring to [Document IOC/IODE-XIX/45](#) (*IOC Strategic Plan for Oceanographic Data and Information Management*).

559 Dr Rickards recalled that the IOC Data Management Strategy covers all of the data collected in IOC programmes. The vision is for “*A comprehensive and integrated ocean data and information system, serving the broad and diverse needs of IOC Member States, for both routine and scientific use.*” The IOC Data Management Strategy will deliver the following:

- process and archive data on the common variables according to scientifically sound and well-documented standards and formats;
- distribute data on the common variables (observations and model outputs) in real time and in “delayed” modes depending on the needs of user groups and their technical capabilities (automatic dissemination as well as “on demand”); and
- enable efficient access to data on the common variables and derived products (including forecasts, alerts and warnings) by users who have a broad range of capabilities.

560 The data and information system will, like GEOSS, be a system of systems. Each system within it should be an end-to-end system. There is no “one size fits all”, but by use of standards interoperability can be achieved. In the words of the GEOSS plan - the informal definition of interoperability is very useful in scoping the problem: “*What few things must be the same so everything else can be different.*” Increasingly standards are available, which have been designed elsewhere but which are applicable to ocean or marine data. The IOC Data and Information Management Strategy will build on existing systems, and will make every attempt not to re-invent the wheel. Borrowing words from the IOOS DMAC plan, it will “adopt, adapt and only develop as necessary”.

561 For some areas many elements of the strategy are already in place, in others a few have been developed, but there is still much to do. Within IOC, GOOS has the “Data and Information Strategy and Implementation Plan”; COOP has a strategy including data, JCOMM has recently developed a data management strategy. Wider than this, GEOSS, GCOS, ICES, IPY also have strategies and plans. These need to be reviewed to ensure that all are moving in the same direction. IODE is developing a similar plan – through the concept paper on developing an Ocean Data Portal (marine data ATM) which will bind together many of the goals described in the IOC data management strategy.

562 The Chair outlined the major goals of the strategy. These include:

- adherence to the IOC Oceanographic Data Exchange Policy;
- governance by a management committee, aided by a technical task team, supported by data and information coordination units;
- permanent long-term data archiving centre for all data, which operates to agreed standards;
- standardization of discovery metadata, converging to the use of ISO19115/19131;
- use of common standardized vocabularies and ontologies (guided by the Marine Metadata Interoperability project);
- a review of the available transport mechanisms and adoption of the most appropriate to IOC’s needs, for each situation, to achieve interoperability;
- exchange data in an agreed small number of formats, e.g. netCDF, BUFR for GTS, ASCII (csv), XML and OGC compliant GIS output;
- recommended best practice for quality control documented (including a standard suite of automatic quality control tests, scientific (agreed by appropriate experts) quality control and a single quality flag scheme) and made easily accessible and available;
- continued development of ODINs backed up by OceanTeacher as a capacity building tool, whilst extending OceanTeacher through cooperation with WMO, JCOMM and others as appropriate;
- facilitation of proper citation of data sets by providing all the required elements of a citation including an unambiguous, unchanging reference.

563 Dr Rickards pointed out that the strategic plan refers mainly to oceanographic data management and does not cover information (literature) management.

564 **The Committee, while expressing its great appreciation** to the Chair for drafting the Strategy, and taking into consideration that the Strategic document was commissioned by an IOC Governing Body, **recommended** the following:

- to add a section on the relationships between IODE and GEOSS;
- to balance the different sections in terms of their level of detail;
- to focus more on policy matters and less on technical issues;
- to sub-divide the document in a strategy section and implementation section or annex;
- to add sections on marine information management;
- to add sections demonstrating the linkages between IODE and ocean science programmes;
- to add a section emphasizing the role of IODE as a data dissemination coordination mechanism (to avoid Internet data provision chaos);
- to add sections that deal with new observation technologies and how IODE can deal with the data and products of these;
- to add more content on biological data management.

565 **The Committee invited** Dr Rickards, Mr Michailov, Mr Reed and Mr Keeley to continue the drafting of the Strategic document during the next few days in Trieste and then forward the revised version to the IODE Officers for finalization and approval.

566 **The Committee tasked** the IODE past Chair, Dr Lesley Rickards, with the formal submission of the Document, on behalf of the IODE Committee, to the 24th Session of the IOC Assembly. The Committee was informed that the deadline for submission of working documents to the Assembly was end of April 2007.

9. REQUIRED RESOURCES AND PLAN OF ACTION FOR 2007 (CURRENT UNESCO BIENNIUM) AND 2008-2009 (NEXT UNESCO BIENNIUM)

567 This Agenda Item was introduced by the Chair, referring to [Document IOC/IODE-XIX/14](#) (*Report on IODE Financial and Human Resources 2006-2007 and Previsions for 2008-2009*) and [Document IOC/IODE-XIX/46](#) (*Guidelines for the Development of the IODE short-term (2008-2009) and medium-term (2008-2013) Work Plan and Budget*).

568 She recalled that the Committee had been requested to draft a detailed work plan and budget for 2007-2009 based upon the priorities it established during the Session (Agenda Items 3 to 8). She noted that the work plan for 2007 had been adopted at IODE-XVIII but could be revised by IODE-XIX.

569 The Committee was informed that, at the time of drafting the action paper, no information was available on funds that will be available for the biennium 2008-2009 from the UNESCO Regular Programme. The Committee was therefore requested to take into consideration two scenarios: one with an expected budget of US\$ 50,000/year and one with an expected budget of US\$ 100,000/year. The Committee was requested further to take into consideration the extra-budgetary funds made available by Flanders for the IOC Project Office for IODE, earmarked for capacity building activities and activities contributing thereto (approximately US\$ 300,000/year), as well as funds made available by the United States of America for the Ocean Data Portal pilot project (US\$ 20,000 for 2007).

570 The Committee was reminded that the IODE work plan should be developed using Results Based Management (see Document IOC/IODE-XIX/46). The logical framework for results-based management is a planning process from top-down and a management process in the reverse direction. Planning starts with defining objectives -- future end-states, deciding what accomplishments are expected if the objective is to be achieved, determining which output will lead to those accomplishments, defining the activities necessary to produce those outputs and, finally, identifying the inputs that are necessary to carry out the activities. In other words, the overall IODE Programme

should contribute to the strategic objectives of IOC, and the individual activities of the IODE programme should have clear objectives (expected results), measurable performance indicators set against benchmarks and associated deliverables.

571 The Committee was reminded that all authors of working documents requesting financial resources were invited to use RBM for the preparation of work plans and budgets. It was noted with regret that few responded to this request.

572 The Chair of the sessional working group on Programme and Budget, Mr Greg Reed, reported on the deliberations of the group. He reported that, due to the very limited funds in 2007, it had been necessary to cut a substantial number of activities in 2007.

573 With regard to the budget for 2008-2009 the Chair reported that initially two UNESCO Regular Programme funding scenarios had been considered: one for US\$ 50,000/year and one for US\$ 100,000 per year. However after some consideration the group had concluded that it would be impossible to implement any work plan with a budget of US\$ 50,000. It had therefore been decided to consider only one funding scenario with US\$ 100,000/year. It was noted that even at that level a substantial number of activities would need to be shut down, unless extra-budgetary funding would become available.

574 In order to enable prioritization, the group had further decided to group together activities into 4 sections: data management, information management, ODIN and governance. Subsequently within each section, priorities had been set.

575 **The Committee instructed** the Officers to prepare a table indicating:

- Activities that are of strategic importance (as relevant to the strategic plan) but will need to be shut down due to shortage of funds;
- Activities that are of strategic importance but will be covered by the UNESCO regular programme (and indicating whether these funds suffice for effective implementation);
- Activities that are of strategic importance and are covered by extra-budgetary contributions.

576 **The Committee instructed** the Co-Chairs to bring the above-mentioned table to the attention of the IOC Assembly at its twenty-fourth session, requesting Member States to consider funding activities that are of strategic importance but cannot be covered by the UNESCO regular programme.

577 **The Committee adopted** [Recommendation IODE-XIX.14](#) (Programme and Budget for 2007 and 2008-2009)

10. ANY OTHER BUSINESS

10.1. ADDITIONAL PRESENTATION ON ARGO BY MR STEVEN DIGGS

578 This presentation was just an addition to the presentation Mr Diggs earlier in the meeting, under the agenda item 5.3. During this presentation Mr Diggs showed the most recent slides with Argo information and made the following statement:

“My thanks to the Chair, Vice Chair, and Secretariat. Friends and colleagues: thank you for your indulgence. This was much more than an experiment. I came to this meeting specifically because I believe that this is *the group* that will have the biggest impact on the exchange of earth science data in the foreseeable future. Argo is only one of many projects that will help describe the oceanographic component of climate change. Some of you have very legitimate reasons why it was not possible to submit a data file at such short notice. But

that's missing the point. What we should focus on here is the 100% willingness, as a group, to try and help one data project in need. Also, I am impressed by the speed at which many countries were able to open channels of communication and step in to try and help, even though you all knew that this gesture was just the first step. However, every journey has to begin with a single step. If we can exchange one file at such short notice, we should be optimistic that we will soon be able to get the right data to the right person on demand.

The actions taken as a result of your decisions over the past few days are setting the stage for seamless collaboration between scientists who will be working to unravel the mysteries of climate change. We all know what the stakes are. We, the trustees of these datasets, will play a central role in the policies of our governments which will determine our children's ability to survive on this planet. It is my hope that we, as a group, do not lose sight of the real responsibilities that we have been charged with.

We make data exchange possible. Thank you".

579 **The Committee welcomed** the statement **and congratulated** Mr Diggs with the interesting presentation.

10.2. PRESENTATION BY DR JUAN CARLOS VILLAGRÁN DE LEÓN

580 Dr Juan Carlos Villagrán de León briefly addressed the Committee. He informed the Committee that he had been contracted by UNESCO to review the IODE Programme for the period 2002-2006. The report was expected by July 2007. Dr Villagrán de León expressed his appreciation that he had been able to interact with Member States during the IODE Session and find out more about the programme as well as about how the IODE programme assists Member States. He further informed the Committee that he will contact all Member States individually through a questionnaire. He further informed the Committee that, within the framework of the review, he would visit UNESCO Headquarters (Paris), the IOC Project for IODE (Oostende), and the ODINAFRICA Project Office (Nairobi) to complement the evaluation process.

11. ELECTIONS OF CHAIR AND VICE-CHAIR

581 This Agenda Item was introduced by the Technical Secretary, referring to the IOC Rules of Procedure (Document IOC/INF-1166), and more particularly to Rule 25, para. 3. He recalled that the Committee had considered, under [Agenda Item 3.7](#), that henceforth, the Committee will be chaired by two Co-Chairs, rather than one Chair and one Vice-Chair. This proposal had been made to take into consideration the considerable increase in responsibilities of the Chair in recent years. This increase was caused by the need to liaise with GOOS and JCOMM bodies such as the GSSC, I-GOOS, JCOMM-MAN, JCOMM-DMCG etc. He recalled that the Committee had been requested to adopt Resolution IODE-XIX.1.

582 The Technical Secretary informed the Committee that three candidatures had been received for the two positions of IODE Co-Chair. The candidates were: Dr Malika Bel-Hassen Abid (Tunisia), Mr Gregory Reed (Australia) and Dr Ahmed Moustafa Hassan El Nemr (Egypt). Their curriculum vitae and IODE position papers had been made available on the IODE web site through the URL http://www.iode.org/index.php?option=com_content&task=view&id=55&Itemid=0

583 The Technical Secretary invited the Committee to elect the two co-chairs through a secret ballot. The Technical Secretary reminded the Committee that only IOC Member States were entitled to vote. Each Member State could cast one vote.

584 **The Committee elected** Dr Malika Bel-Hassen Abid (Tunisia) and Mr Gregory Reed (Australia) as Co-Chairs of the IOC Committee on International Oceanographic Data and Information Exchange (IODE).

585 **The Committee welcomed** that two of the three candidates were African, **noting** that this demonstrated the considerable impact of the ODINAFRICA project on data and information capacity on the African continent.

586 The outgoing Chair and Vice-Chair were invited to address the Committee. Dr Rickards congratulated the elected Co-Chairs with their election. She hoped that they would enjoy the work as much as she did. The work has been very rewarding due to the hard work of the Committee Members during the past 4 years. She also thanked the Secretariat, in particular Mr Peter Pissierssens, for the assistance during Sessions and during the inter-sessional periods.

587 The outgoing Vice-Chair, Mr Ricardo Rojas thanked the Committee and the Secretariat for their support.

588 The newly elected Co-Chairs were then invited to address the Committee.

589 Dr Malika Bel-Hassen Abid thanked the Committee for the election. She committed her best efforts to the Committee. She also expressed her commitment to capacity building and stated that she will do her utmost to assist NODCs in developing countries so they can become partner in global programmes.

590 Mr Greg Reed thanked the Committee for his election. He stated that IODE has a lot of activities to do but little financial resources. IODE has been invited to support many other programmes so it will be challenging to find the necessary additional funds to carry out these activities. Mr Reed thanked Dr Lesley Rickards and Mr Ricardo Rojas for all their hard work during two inter-sessional periods. He expressed the hope that he and Dr Malika Bel-Hassen Abid would be able to keep up the good work and provide leadership.

591 **The Committee expressed** its highest appreciation for the tireless efforts of the outgoing Chair and Vice-Chair during the past two inter-sessional periods which had witnessed great changes for IODE.

12. DATE AND PLACE OF IODE-XX

592 This Agenda Item was introduced by the Technical Secretary. He informed the Committee that the People's Republic of China had offered to host the Twentieth Session of the Committee.

593 **The Committee thanked** the People's Republic of China for the kind offer to host the twentieth Session of the IODE Committee and **accepted** it. **The Committee instructed** the Secretariat, in consultation with the Co-Chairs, to follow-up on the offer.

594 The Technical Secretary also referred to [Document IOC/IODE-XIX/49](#) (*Options for the organization of future Sessions of the IODE Committee*) which was introduced under Agenda Item 5.1. The Committee requested the Secretariat to discuss the planning of IODE-XX, taking into consideration the decisions made under Agenda item 5.1.

595 The Technical Secretary then called the attention of the Committee to the increasing number of working documents and number of activities that needed to be discussed during Committee Sessions. Taking into consideration that the duration of Sessions needs to be limited to five working days, he expressed his concern that this could lead to excessive pressure on Member States and the Secretariat to fit the growing agenda into this time frame. He proposed a few options to deal with this situation. He presented the following options: (i) to split the Session into morning sessions that focus on discussions and strategic planning, and afternoon sessions that include presentations; (ii) to reserve

two days for presentations and three days for discussions and adoptions of decisions; and (iii) split the Session into one day with selected presentations and four days reserved for strategic discussions, planning and adoption of decisions.

596 **The Committee considered** the presented options as well as some other such as running parallel sessions (e.g. one for data management and one for information management), grouping activities into the four groups utilized for the work plan and budget (data management, information management, ODIN and governance), grouping all ODIN activities into one presentation and discussion, and use of posters as alternative to plenary presentations.

597 **The Committee instructed** the Officers to further consider this issue and propose a small number of suitable options to the Committee, by email, not later than June 2008.

598 **The Committee commended** the Secretariat with the production of the Action Paper and **instructed** the Secretariat to continue preparing such a document for future Sessions. **The Committee further instructed** the Secretariat to further improve the Action Paper through a more concise summary of the issues that require decisions or action by the Committee.

599 **The Committee requested** that for future meetings the meeting report introductory text should be limited to approximately one page, allowing more room to report on discussions and without inflating the size of the summary report.

600 **The Committee instructed** the Co-Chairs to include in their report a brief review (preferably as a diagram) of the relationship of IODE with other organizations, as well as the relationships of the various IODE subsidiary bodies, projects and activities.

13. ADOPTION OF THE SUMMARY REPORT

601 Prior to proceeding with the adoption of the Summary Report, the Committee was addressed by Prof Katepalli Sreenivasan, Director of the Abus Salam International Centre for Theoretical Physics. Prof Sreenivasan provided a historical overview of the ICTP, its objectives, programmes and achievements.

602 **The Committee expressed** his appreciation to ICTP for hosting the Nineteenth Session of IODE.

603 **The Committee adopted** the draft Summary Report of the Session, the Resolutions and Recommendations as they are presented in [Annex II](#). **The Committee requested** the Secretariat and Co-Chairs to make editorial corrections as necessary, taking into consideration the discussions held during the Session.

604 **The Committee requested** the Co-Chairs to present the Report, Resolutions and Recommendations to the Twenty-Fourth Session of the IOC Assembly, June 2007.

14. CLOSURE

605 The Committee congratulated the outgoing Chair and Vice-Chair as well as the Secretariat for the excellent session. The Committee noted that the outgoing Chair and Vice-Chair had steered IODE through the IODE review and the Chair had now drafted the IOC strategic plan which would outline

IODE's wider role within the IOC. Several delegates expressed their gratitude to Dr Rickards and Mr Rojas.

606 **The Committee welcomed** the newly elected Co-Chairs.

607 **The Committee expressed its high appreciation** for the generous hospitality extended to all participants of the Session by the local organizers OGS and ICTP and **noted with great satisfaction** the outstanding efficiency of the local support staff.

608 The outgoing Chair, Dr Lesley Rickards thanked the Committee for its cooperation and guidance during the past two inter-sessional periods. She further thanked the Secretariat for its help during and between Sessions.

609 The Chair closed the Session on Friday 16 March 2007.

ANNEX I

AGENDA

1. OPENING
2. ADMINISTRATIVE ARRANGEMENTS
 - 2.1. ADOPTION OF THE AGENDA
 - 2.2. DESIGNATION OF A RAPPORTEUR
 - 2.3. SESSION TIME TABLE AND DOCUMENTATION
3. STATUS OF IODE
 - 3.1. CHAIR'S REPORT
 - 3.2. IMPLEMENTATION STATUS OF THE IODE-18 WORK PLAN
 - 3.3. REPORT ON INTER-SESSIONAL MEETINGS OF THE IODE OFFICERS
 - 3.4. REPORTS OF NODCS AND DNAS
 - 3.5. REPORT OF THE IODE PROJECT OFFICE
 - 3.6. ACTIVITIES OF THE RNODCS AND THE WORLD DATA CENTRES
 - 3.7. FOLLOW UP TO THE IODE REVIEW
 - 3.8. IODE DATA FLOW
 - 3.9. QUALITY CONTROL/ QUALITY ASSESSMENT
4. STRUCTURAL ISSUES
 - 4.1. RESTRUCTURING OF THE IOC AND ITS IMPACT ON IODE
 - 4.2. IMPACT OF THE IODE REVIEW AND FOLLOW-UP
 - 4.3. ROLE OF NODCS AT THE NATIONAL LEVEL
5. COOPERATION WITH OTHER PROGRAMMES
 - 5.1. COOPERATION WITH GOOS
 - 5.2. COOPERATION WITH WMO
 - 5.3. COOPERATION WITH JCOMM
 - 5.4. COOPERATION WITH GEO/GEOSS
 - 5.5. COOPERATION WITH IOC SCIENCE AND MONITORING PROGRAMMES
 - 5.5.1. IOC Harmful Algal Bloom Programme
 - 5.5.2. CDIAC: The New Data Management Projects and Data
 - 5.6. COOPERATION WITH IPY
 - 5.7. OTHERS
 - 5.7.1. OBIS.
 - 5.7.2. WCRP
 - 5.7.3. SOLAS
6. PROGRAMME ACTIVITIES: PROGRESS REPORTS AND FUTURE PLANNING
 - 6.1. GROUPS OF EXPERTS
 - 6.1.1. IODE Group of Experts on Biological and Chemical Data Management and Exchange Practises (GEBICH)
 - 6.1.2. IODE Group of Experts on Marine Information Management (GEMIM)
 - 6.1.3. JCOMM/IODE Expert Team on Data Management Practices (ETDMP)
 - 6.2. PROJECTS
 - 6.2.1. Aquatic Sciences and Fisheries Abstracts (ASFA)
 - 6.2.2. Global Oceanographic Data Archaeology and Rescue (GODAR)
 - 6.2.3. Global Temperature and Salinity Profile Programme (GTSPP)
 - 6.2.4. Global Ocean Surface Underway Data Pilot Project (GOSUD)
 - 6.2.5. Development of a marine XML (marineXML)

- 6.2.6. Marine Environmental Data Inventory (MEDI)
 - 6.2.7. Global Directory of Marine and Freshwater Professionals (OceanExpert)
 - 6.2.8. Development of e-repositories (OceanDocs)
 - 6.2.9. OceanPortal (including regional OceanPortals)
 - 6.2.10. OceanTeacher (see 6.3.2.2)
 - 6.2.11. SeaDataNet (and related)
 - 6.2.12. SIMORC
 - 6.2.13. New initiatives: The Ocean Data Portal
- 6.3. IODE CAPACITY BUILDING
 - 6.3.1. IODE's regional capacity building projects: ODIN
 - 6.3.2. IODE Training Programme
 - 6.3.3. New requirements in regional capacity building
 - 6.3.4. National data and information management capacity building requirements
 - 6.3.5. IODE capacity building strategy (see also 8.2)
- 7. IODE PUBLIC AWARENESS
 - 7.1. IODE WEB SITES
 - 7.2. IODE BROCHURES, POSTERS AND PUBLICATIONS
 - 7.3. NATIONAL IODE AWARENESS ACTIVITIES
- 8. IODE VISION AND STRATEGY
 - 8.1. IOC OCEANOGRAPHIC DATA EXCHANGE POLICY: IMPLEMENTATION BY MEMBER STATES
 - 8.2. IOC STRATEGIC PLAN FOR OCEANOGRAPHIC DATA AND INFORMATION EXCHANGE
- 9. REQUIRED RESOURCES AND PLAN OF ACTION FOR 2007 (CURRENT UNESCO BIENNIUM) AND 2008-2009 (NEXT UNESCO BIENNIUM)
- 10. ANY OTHER BUSINESS
 - 10.1. ADDITIONAL PRESENTATION ON ARGO BY MR STEVEN DIGGS
 - 10.2. PRESENTATION BY DR JUAN CARLOS VILLAGRÁN DE LEÓN
- 11. ELECTIONS OF CHAIR AND VICE-CHAIR
- 12. DATE AND PLACE OF IODE-XX
- 13. ADOPTION OF THE SUMMARY REPORT
- 14. CLOSURE

ANNEX II

RESOLUTIONS AND RECOMMENDATIONS

RESOLUTIONS

Resolution IODE-XIX.1 THE IODE CHAIRS

RECOMMENDATIONS

Recommendation IODE-XIX.1	A HARMFUL ALGAL EVENT INFORMATION SYSTEM
Recommendation IODE-XIX.2	STRATEGY AND STRUCTURE OF IODE GROUPS OF EXPERTS
Recommendation IODE-XIX.3	REVISION OF THE TERMS OF REFERENCE OF THE IODE GROUP OF EXPERTS ON BIOLOGICAL AND CHEMICAL DATA MANAGEMENT AND EXCHANGE PRACTICES (GE-BICH)
Recommendation IODE-XIX.4	THE IODE OCEAN DATA PORTAL PROJECT
Recommendation IODE-XIX.5	OCEAN DATA AND INFORMATION NETWORK FOR AFRICA (ODINAFRICA)
Recommendation IODE-XIX.6	OCEAN DATA AND INFORMATION NETWORK FOR THE CARIBBEAN AND SOUTH AMERICA REGIONS (ODINCARSA)
Recommendation IODE-XIX.7	OCEAN DATA AND INFORMATION NETWORK FOR THE CENTRAL INDIAN OCEAN REGION (ODINCINDIO)
Recommendation IODE-XIX.8	ESTABLISHMENT OF THE OCEAN DATA AND INFORMATION NETWORK FOR EUROPEAN COUNTRIES IN ECONOMIC TRANSITION (ODINECET)
Recommendation IODE-XIX.9	ESTABLISHMENT OF A PILOT PROJECT FOR THE OCEAN DATA AND INFORMATION NETWORK FOR THE WESTERN PACIFIC REGION (ODINWESTPAC)
Recommendation IODE-XIX.10	OCEAN DATA AND INFORMATION NETWORK FOR THE BLACK SEA REGION (ODINBLACKSEA)
Recommendation IODE-XIX.11	ESTABLISHMENT OF THE OCEANDocs PROJECT
Recommendation IODE-XIX.12	OCEANTEACHER
Recommendation IODE-XIX.13	SUPPORT TO THE IOC PROJECT OFFICE FOR IODE FOR CAPACITY BUILDING
Recommendation IODE-XIX.14	PROGRAMME AND BUDGET FOR 2007-2009

RESOLUTIONS

Resolution IODE-XIX.1

THE IODE CHAIRS

The IOC Committee on International Oceanographic Data and Information Exchange,

Recalling the revision of the objectives of the IODE programme through Recommendation IODE-XVIII.1 and the Annex to Resolution XXIII.4, expanding the role of IODE to support international scientific and operational marine programmes of IOC and WMO and their sponsor organizations with advice and data-management services;

Recognizing the need for strong and active leadership of the IODE programme, as well as for active liaison between IODE and international scientific and operational marine programmes;

Taking into account Rules 24 and 25 of the IOC Rules of Procedure;

Taking into consideration that the expanded objectives will increase substantially the work load of the IODE Chair;

Decides that:

- (i) the position of IODE Vice-Chair will be abolished;
- (ii) the IODE will henceforth have two Co-Chairs;
- (iii) the work load will be shared equitably between the two Co-Chairs.

RECOMMENDATIONS

Recommendation IODE-XIX.1

A HARMFUL ALGAL EVENT INFORMATION SYSTEM

The IOC Committee on International Oceanographic Data and Information Exchange,

Acknowledging the data products developed within the IOC Harmful Algal Bloom Programme on harmful algal events, harmful algae monitoring and management systems, current use of taxonomic names of harmful algae, biogeography of harmful algal species, and an expert directory and a bibliography;

Recognizing the need for a further development, integration and streamlining of these data products;

Noting with satisfaction the invitation by the IOC Intergovernmental Panel on Harmful Algal Blooms (IPHAB) to develop a Harmful Algal Event Information System as a joint IPHAB-IODE activity;

Re-emphasizing the importance of high-quality oceanographic data and information, products and services for scientific, observation and ocean based disaster warning and mitigation programmes of the Commission, for member States, the private sector and other users,

Endorses the IOC Harmful Algal Event Information System as a joint IPHAB-IODE activity.

Financial implications:

2007: US\$15,000	(extra-budgetary funds, not identified)
2008-2009: US\$30,000	(extra-budgetary funds, not identified)

Recommendation IODE-XIX.2

STRATEGY AND STRUCTURE OF IODE GROUPS OF EXPERTS

The IOC Committee on International Oceanographic Data and Information Exchange,

Recalling the outcome of the IODE Review and its call to IODE Officers to closely monitor and guide the IODE Groups of Experts,

Recalling further Resolution IODE-XVIII.3 in which it had instructed the Chairs of the IODE Groups of Experts to jointly develop a strategy for the future of the Groups of Experts and to submit this strategy to the IODE Officers and to IODE-XIX,

Noting the report of the Chairs of the IODE Groups of Experts (Document IOC/IODE-XIX/19),

Taking into account the IOC Rules of Procedure, specifically Rules 24 and 25,

Recommends that the Terms of Reference of the IODE Groups of Experts be revised as follows:

- (i) Objectives:
 - a. IODE Groups of Experts will undertake detailed scientific and technical studies and/or co-ordination tasks, by subject or region, as identified by the IODE Committee;
 - b. IODE Groups of Experts, including the JCOMM/IODE ETDMP, will monitor scientific and technical developments, and identify needs to be addressed by IODE, as pertaining to their IODE subject area and propose a work programme with clear priorities, for consideration by the IODE Committee;
 - c. To facilitate implementation of the Groups of Experts work programme, the Groups of Experts will (i) seek cooperation from IODE national coordinators; (ii) develop and implement projects with clear objectives and deliverables, and take responsibility for the coordination and management of such projects.
- (ii) Membership:
 - a. the total number of Members of IODE Groups of Experts should not exceed 8;
 - b. the Groups should be composed of not more than 4 long-term members; and not more than 4 short-term members;
 - c. The long-term members will be selected by the Executive Secretary, based upon nominations from Member States and further based upon individual expertise as relevant to the concerned IODE Group of Expert. Long-term members can remain a member of the Group during not more than 4 inter-sessional periods;
 - d. The short-term members shall be selected by the long-term members of the Group, based upon their specific expertise, documented in the OceanExpert system, related to specific tasks or projects and will remain a member during, preferably, not more than two inter-sessional periods;

Encourages IOC Member States to nominate experts with expertise relevant to the subject areas of the IODE groups of Experts;

Invites IOC Member States to submit information on relevant national experts to OceanExpert, as a further source of expertise for the Groups of Experts;

Urges IOC Member States to support the work of the IODE Groups of Experts by financially supporting the participation of their national experts in Sessions of the IODE Groups of Experts.

Recommendation IODE-XIX.3

REVISION OF THE TERMS OF REFERENCE OF THE IODE GROUP OF EXPERTS ON BIOLOGICAL AND CHEMICAL DATA MANAGEMENT AND EXCHANGE PRACTICES (GE-BICH)

The IOC Committee on International Oceanographic Data and Information Exchange,

Recognizing the increasing importance of managing, QC, and archiving biological and chemical data,

Noting the continued development of global research, monitoring and observing programmes, that are relevant to issues such as climate change, ecosystem dynamics and biodiversity, and which rely heavily on biological and chemical data sets,

Further noting the strong necessity of wide distribution of results of the GE-BICH work among the data managers, scientists, and users;

Recalling the revised Terms of Reference of the Group recommended by IODE-XVIII,

Recommends the extension of the Terms of Reference of the Group of Experts on Biological and Chemical Data Management and Exchange Practices to include:

- (i) documenting the systems and taxonomic databases and inventories currently in use in various data centres;
- (ii) documenting the advantages and disadvantages of different methods and practices of compiling, managing and archiving biological and chemical data;
- (iii) developing standards and recommended practices for the management and exchange of biological and chemical data, including practices for operational biological data;
- (iv) encouraging data centres to compile inventories of past and present biological and chemical data holdings;
- (v) encouraging data holders to contribute data to data centres for the creation of regional and global integrated oceanographic databases incorporating physical, chemical and biological data;
- (vi) creating and keeping updated GE-BICH web “portal” making all results from the GE’s work available to a wider community of data managers and data users;
- (vii) contribute results of GE-BICH activity to OceanTeacher making results from the GE and from other programmes available to education of data managers and data users.

Encourages IOC Member States to support the GE-BICH work through nomination of experts having expertise in biological and chemical data management to participate in work of the GE-BICH.

Recommendation IODE-XIX.4

THE IODE OCEAN DATA PORTAL PROJECT

The IOC Committee on International Oceanographic Data and Information Exchange,

Noting with satisfaction the submission of the IODE Ocean Data Portal Concept Paper that is aimed to provide the integration of marine data and information from a network of distributed IODE data centres as well as the resources from other participating systems and that will be based upon modern web technologies,

Taking into account that a number of similar initiatives are planned or have started such as IODE/JCOMM E2EDM Pilot Project, SeaDataNet, DMAC, WIS and others,

Recommends the establishment of the IODE Ocean Data Portal Project with the Terms of Reference as attached in the Annex of this recommendation;

Invites the IOC Executive Secretary, in consultation with the Co-Chairs of IODE and the Chair of the JCOMM-DMCG, to establish a Steering Group (SG-ODP) to implement and monitor the progress of the Project;

Invites IODE Member States and other interested countries and organizations, to participate in, and support the activities of the Project

Annex to Recommendation IODE-XIX.4

Terms of Reference of the IODE Ocean Data Portal Project

Objectives of the Project:

- (i) facilitate and promote the exchange and dissemination of marine data and services hosted by NODCs;
- (ii) provide seamless access to marine data to NODCs across the IODE network through the discovery, evaluation and access to data via web services;
- (iii) identify and recommend standards to provide interoperability with IODE data centres to allow shared use of metadata, data and products.

The Participants in the Pilot Project:

The Project will be carried out by a Steering Group composed of, *inter alia*, representatives of IODE/JCOMM ETDMP, SG-MEDI, SG-MarineXML, WMO ICG-WIS, and other appropriate experts as required for each work package.

Work Plan and Timing:

The Project Steering group will implement 3 work packages (Project coordination and management; Standards and development package; Portal implementation package) during the inter-sessional period (2007-2009) and submit a detailed report on the work achieved at the Twentieth Session of IODE (2009).

Financial implications:

2007:	US\$ 20,000	(extra-budgetary sources (obtained from USA))
2008-2009	US\$ 100,000	(extra-budgetary sources (to be identified))

Recommendation IODE-XIX.5

OCEAN DATA AND INFORMATION NETWORK FOR AFRICA (ODINAFRICA)

The IOC Committee on International Oceanographic Data and Information Exchange,

Noting with satisfaction the progress in the implementation of the ODINAFRICA project which has resulted in (i) further development and strengthening of National Oceanographic Data and Information Centres in Africa, (ii) development by the NODCs of a core set of data and information products, including but not limited to: library catalogues, catalogues of national data sets and data sources (meta databases), directories of marine and freshwater professionals, directories of marine related institutions, marine data archives and marine biodiversity databases, (iii) development of National NODC websites as a means of publicizing and dissemination of services and products, (iv) the progress in installation and upgrading of tide gauges at several locations along the African coastline, and the (v) the launching of the ODINAFRICA Sea Level Data Facility, through which data from the tide gauges can be accessed at the IOC Project Office for IODE in Oostende, Belgium,

Further noting the recent launch of the African Marine Atlas which incorporates existing geo-referenced datasets available in the public domain (but tailored to meet specific scope requirements), and the immense benefit that this will provide to national institutions and a variety of users such as environmentalists, local administrators, park managers, scientists, fishing communities, tourists, hotel keepers, teachers, NGOs, the general public, and any other interested persons,

Welcoming the close collaboration that ODINAFRICA has developed WIOMSA, NEPAD/COSMAR, UNEP/WIOLAB, GOOSAfrica, IOGOOS, African LME projects, OBIS, ACEP, and other organizations and programmes,

Taking into account the recommendations of the Second ODINAFRICA Seminar held at the IODE Project Office in Oostende, Belgium from 24-26 April 2006, which requested for the development of a next phase of the project,

Acknowledging the substantial funding provided by the Government of Flanders, Belgium for implementation of the earlier phases of the ODINAFRICA project, and the support provided by other IODE National Oceanographic Data and Information Centres (NODC) and WDCs,

Recommends that a fourth phase of ODINAFRICA be developed to cement ODINAFRICA as a sustainable network of African NODCs, addressing the increased demand for data and information products and services required by ocean based industry and coastal populations in Africa. This proposed phase would focus on development of data and information products that address the requirements for Integrated Coastal Area Management. This includes improvement of the coastal observations network, further development of the African Marine Atlas and specialized databases, as well as skills for trend analysis and scenario development.

Invites African Member States to prepare a proposal for submission to relevant donors,

Invites all IOC Programmes and other relevant organizations to collaborate with ODINAFRICA;

Requests the Secretariat to assist with the development of the proposal and its submission to potential donors for funding,

Urges Member States and donor organizations to provide funding for the preparation and implementation of the next phase of ODINAFRICA.

Financial Implications:

2007	fully covered by Flanders FUST project
2008-2009	to be identified (to be covered from extra-budgetary sources – not identified)

Recommendation IODE-XIX.6

OCEAN DATA AND INFORMATION NETWORK FOR THE CARIBBEAN AND SOUTH AMERICA REGIONS (ODINCARSA)

The IOC Committee of International Oceanographic Data and Information Exchange,

Noting the positive feedback regarding the improvement of ocean data and information management capabilities in Latin American countries through ODINCARSA,

Noting further the limited results in the Caribbean and Central America sub-regions,

Acknowledging the increasing interaction of ODINCARSA with GOOS Regional alliances and ICAM initiatives in the regions in close coordination with the CPPS² Institutional framework,

Invites all IOC Programmes and other relevant organizations to collaborate with ODINCARSA,

Urges Member States to support ODINCARSA to enable all ODINCARSA participating countries to benefit from ODINCARSA's capacity building and networking activities,

Requests the IOC Executive Secretary to implement, as a priority, the following actions:

- i) To establish, with IOCARIBE, a short-term financial strategy to fund the implementation of the ODINCARSA work plan for the Caribbean Region.
- ii) To set up the necessary coordination mechanisms to complement efforts with GOOS and ICAM in ODINCARSA regions.
- iii) To provide financial support to implement the ODINCARSA work plan for 2007-2009.

Financial Implications:

2007	US\$ 11,000	(US\$ 4,000 from UNESCO RP; US\$ 7000 from extra-budgetary sources – not identified)
2008-2009	US\$ 22,000	(US\$ 10,000 from UNESCO RP; US\$ 12,000 from extra-budgetary sources – not identified)

Recommendation IODE-XIX.7

OCEAN DATA AND INFORMATION NETWORK FOR THE CENTRAL INDIAN OCEAN REGION (ODINCINDIO)

The IOC Committee of International Oceanographic Data and Information Exchange,

Noting the progress made in the implementation of ODINCINDIO since it was launched, and in particular the participation of experts from the ODINCINDIO region in several training courses or workshops held at the IODE Project Office such as the (i) ODINCINDIO Marine Data Management Training Course, 5-18 October 2005 (ii) ODINCINDIO Marine Information Management Training Course, 12-25 February 2006 (iii) ODINCINDIO Data Management Training Course, 8-18 May 2006 (iv) Marine Biodiversity Data Management Training Course, 6-11 March 2006 (v) Joint IODE/IOI Training Course on GIS and Remote Sensing Data, September 18-23 2006, and (vi) Second Combined Modeling and Data Management Training Workshop, 9-14 October 2006,

Taking into account the views expressed by the Member States during the Fourth Session of IOC Regional Committee for the North and Central Indian Ocean (IOCINDIO-IV, 8 - 10 December 2005 in Colombo, Sri Lanka) which expressed its satisfaction with ODINCINDIO Project and highlighted the major role it can play in the advancement of oceanography in the region, as well as providing data exchange mechanism in the context of the ICG/IOTWS and IOGOOS,

Further noting the work plan submitted for ODINCINDIO for the period 2007-2009, which focuses on: encouraging the establishment of NODCs in member states that have not done so;

collaboration and networking; further training and capacity development on topics such as modeling, remote sensing and GIS applications; and the development of national and regional directories, catalogues and databases which will provide useful reference materials for management of the marine and coastal areas of the region.

Acknowledging the need to increase the level of financial support for ODINCINDIO, and also to strengthen collaboration with IOGOOS, IOTWS and other programmes to ensure that the network on NODCs develops successfully and serves the needs all user groups,

Requests the IOC Executive Secretary to:

- (i) provide funding for the implementation of the ODINCINDIO work plan for the period 2007-2009
- (ii) coordinate the necessary actions with IOCINDIO, IOGOOS, ROPME and other interested organizations to obtain funding for further development and implementation of ODINCINDIO

Invites all IOC Programmes and other relevant organizations to collaborate with ODINCINDIO;

Urges all the Member States of the region to play an active and supportive role with regards to ODINCINDIO in order to establish a reliable working network building;

Further urges Member States and donors agencies to provide support to enable implementation of the work plan.

Financial Implications:

2007	US\$ 5,000	(US\$ 4,000 from UNESCO RP. US\$ 1,000 from extra-budgetary sources, not identified)
2008-2009	US\$ 10,000	(US\$ 10,000 from UNESCO RP)

Recommendation IODE-XIX.8

ESTABLISHMENT OF THE OCEAN DATA AND INFORMATION NETWORK FOR EUROPEAN COUNTRIES IN ECONOMIC TRANSITION (ODINECET)

The IOC Committee on International Oceanographic Data and Information Exchange,

Recalling that, during its Eighteenth Session (Oostende, Belgium, 26-30 April 2005) **the IODE Committee endorsed** the proposal that EURASLIC should work with GE-MIM to develop the proposal for an ODIN for ECET,

Noting with satisfaction the submission of the ODINECET pilot project document,

Further noting the interest of ECET countries to join the ODINECET Project,

Taking into account the ECET Union Catalogue of Serials Project being successfully implemented in the region,

Noting with appreciation the support to the project expressed by the EURASLIC,

Recommends that an Ocean Data and Information Network Pilot Project for the ECET countries (ODINECET) be established,

Urges the information centres and marine libraries from ECET countries to join and to support the project,

Encourages the ECET member states and donors to support the ODINECET project financially or in-kind towards the successful implementation of the project.

Financial implications:

2007	US\$ 5,300	(US\$ 4,500 from UNESCO-RP, US\$ 800 from extra-budgetary sources – not identified)
2008-2009	US\$ 8,100	(US\$ 8,100 from UNESCO-RP)

Recommendation IODE-XIX.9

**ESTABLISHMENT OF A PILOT PROJECT FOR THE OCEAN DATA AND
INFORMATION NETWORK FOR THE WESTERN PACIFIC REGION
(ODINWESTPAC)**

The IOC Committee on International Oceanographic Data and Information Exchange,

Recalling that:

- (i) the IODE Committee, during its 18th Session (Oostende, Belgium, 26-30 April 2005), decided to abolish the system of IODE Responsible National Oceanographic Data Centres (Resolution IODE-XVIII.1) and the system of IODE Regional Coordinators (Resolution IODE-XVIII.2), and requested that NODCs participating in Ocean Data and Information Networks (ODIN) would assume the functions of former RNODCs, and further requested that the functions of the IODE Regional Co-ordinators be included in the terms of reference of the relevant IODE ODIN;
- (ii) the IOC Sub-Commission for the Western Pacific (IOC/WESTPAC) expressed, at its Sixth Session (Nha Trang, Vietnam, 23 – 27 May 2005), its strong interest in developing an ODIN for the WESTPAC region and adopted the recommendation SC-WESTPAC-VI.2 on the establishment of an Inter-sessional Working Group to prepare, as appropriate, a project proposal for an Ocean Data and Information Network for the region including a possible work plan, deliverables, timelines and required resources;
- (iii) the Preparatory meeting toward the establishment of ODINWESTPAC, Tokyo, 5-6 December 2006, prepared a pilot project proposal for an Ocean and Data Information Network for the WESTPAC region, for submission to the 19th Session of the IODE Committee (Trieste, Italy, 12-16 March 2007) for adoption.

Noting with appreciation the support expressed by the North Pacific Marine Science Organization (PICES) and UNEP Northwest Pacific Action Plan (NOWPAP) for this pilot project which will be an excellent opportunity to cooperate with the IOC Sub-Commission for the Western Pacific in improving regional capacity for ocean data and information management,

Recommends the pilot project proposal for ODINWESTPAC to be adopted with aims to develop a number of products that will promote communication and collaboration between WESTPAC member states, and between WESTPAC member states and other partners in the

fields of ocean observations, data and information management, and product/service delivery; implement relevant capacity building activities, specifically related to ocean data and information management; and prepare a proposal for the Seventh Session of IOC/WESTPC including objectives, deliverables, work plan, time table, budget and draft recommendation to establish an Ocean and Data information Network for the WESTPAC region (ODINWESTPAC) in accordance with the decision of the Sixth Session of IOC/WESTPAC;

Confirms the nominations, by the preparatory meeting toward the establishment of ODINWESTPAC, Tokyo, 5-6 December 2006, of the Director of JODC to be the Coordinator, and IOC/WESTPAC Secretariat to assume the secretariat function for this pilot project;

Requests member states of the IOC/WESTPAC to actively participate in the pilot project;

Invites all IOC Programmes and other relevant organizations to collaborate with ODINWESTPAC;

Encourages member states of the IOC/WESTPAC and donors to support this pilot project by providing financial and/or in-kind support towards the implementation of this pilot project.

Financial implications:

2007	US\$ 30,000	(US\$ 30,000 from extra-budgetary sources, identified)
2008	US\$ 20,000	(US\$ 20,000 from UNESCO RP)

Recommendation IODE-XIX.10

**OCEAN DATA AND INFORMATION NETWORK FOR THE BLACK SEA REGION
(ODINBLACKSEA)**

The IOC Committee on International Oceanographic Data and Information Exchange,

Noting with satisfaction the submission of the ODIN Black Sea project document supported by all Black Sea countries,

Noting further the existence of the Black Sea GOOS regional alliance for which ODIN Black Sea can serve as the regional data management service,

Further noting the interest of all Black Sea riparian countries to join the ODIN Black Sea,

Taking into account the existence of several international regional projects operational recently in the region that are interesting in the distributed regional data management system and that can provide in kind support for the ODIN Black Sea,

Recognising the role of ocean data and information management capacity building in the region,

Recommends that an Ocean Data and Information Network Pilot Project for the Black Sea region be established;

Requests the IOC Executive Secretary to implement, as a priority, the following actions:

- (i) to coordinate the necessary actions with the Black Sea GOOS Secretariat, and Black Sea Commission to obtain donor support for ODIN Black Sea;

- (ii) to provide funding for the implementation of the ODIN Black Sea work plan (2008-2009);
- (iii) to strengthen links with JCOMM and GOOS in terms of capacity building and oceanographic data and information management in the Black Sea participating Member States

Invites all IOC Programmes and other relevant organizations to collaborate with ODINBLACKSEA;

Urges Member States and donors to support this project by providing financial resources and/or in-kind support to enable the implementation of the ODIN Black Sea.

Financial implications:

2008 US\$ 5000 (UNESCO RP)

Recommendation IODE-XIX.11

ESTABLISHMENT OF THE OCEANDocs PROJECT

The IOC Committee on International Oceanographic Data and Information Exchange,

Recognizing the value of scientific literature as a means to create and preserve intellectual work and research findings, obtain feedback and recognition from peers, and to further scientific investigations;

Recognizing further the need to make scientific literature available to all in an equitable way between the developed and developing world and **welcoming** the decision of the ASFA Advisory Board to set up a Working Group to define what needs to be done to develop an integrated solution to library cataloguing, ASFA input and electronic repositories, and put forward a proposal to be considered by the ASFA Trust Fund,

Encourages the IODE Secretariat to actively participate in the activities of the Working Group,

Notes the collaboration between IODE, IAMSLIC, ASFA and other partners in developing the “Aquatic Commons” and the experience that has been gained through the ODINPubAfrica project with the establishment of an electronic repository;

Expresses its appreciation for the support by the Government of Flanders, Belgium through the Flanders UNESCO Science Trust Fund (FUST) for the ODINPubAfrica Project;

Recommends implementation of the proposal for the establishment of the OceanDocs project.

Welcomes ASFA, IAMSLIC, and other interested programmes and organizations to collaborate in implementation of OceanDocs

Urges Member States and donors to support the development of OceanDocs

Financial Implications:

2007	US\$33,000	(US\$ 33,000 from extra-budgetary sources – Flanders FUST)
2008-2009	US\$155,000	(US\$ 155,000 from extra-budgetary sources – not identified)

Recommendation IODE-XIX.12

OCEANTEACHER

The IOC Committee on International Oceanographic Data and Information Exchange,

Recognizing the importance of OceanTeacher as a training tool for capacity building activities in the IODE programme.

Expressing its appreciation for the support by the Government of Flanders, Belgium through the Flanders-UNESCO Science Trust Fund (FUST) to the development of OceanTeacher/ODIMEX (Integrated Expert and Training System for Oceanographic Data and Information Management) between 2004-2007.

Noting with satisfaction the delivery of the new OceanTeacher/ODIMeX training tool.

Expresses its concern about long-term sustainability and development of OceanTeacher after 2007.

Instructs the Steering Group on OceanTeacher to develop a strategy to guarantee the long term sustainability of OceanTeacher and to find additional financial resources and/or in kind support to enable the continuation of OceanTeacher after 2007.

Invites other programmes, projects and organizations to cooperate jointly with IODE to develop OceanTeacher further as a training tool for their marine related capacity building activities.

Financial Implications:

2007	fully covered by Flanders FUST project
2008-2009	to be identified (to be covered from extra-budgetary sources – not identified)

Recommendation IODE-XIX.13

SUPPORT TO THE IOC PROJECT OFFICE FOR IODE FOR CAPACITY BUILDING

The IOC Committee on International Oceanographic Data and Information Exchange,

Recognizing the importance of capacity building activities in the IODE programme,

Expressing its appreciation for the continuing support by the Government of Flanders, Belgium and the City of Oostende to host the IOC Project Office for IODE and for the substantial additional support of € 500,000/year, provided by the Government of Flanders, Belgium between 2005-2009 to support capacity building activities at the IOC Project Office for IODE related to Africa, the Indian Ocean, Caribbean and Latin America regions,

Noting with satisfaction the quality and quantity of capacity building activities at the IOC Project Office for IODE that have been organized during the first two years of activity.

Calls on IOC member states and other organizations to provide additional support to promote, facilitate and strengthen the capacity building activities of the IOC Project Office for

IODE to ensure the long-term sustainability of the IOC Project Office for IODE in general, and its capacity building activities in particular.

Invites other programmes and organizations to organize joint capacity building activities at the IOC Project Office for IODE.

Financial Implications:

2007	US\$ 15,000 (running costs, to be covered by extra-budgetary activities overhead)
2008-2009	US\$ 60,000 (running costs, to be covered by extra-budgetary activities overhead)

Note: staff cost is not included in financial implications. In 2008-2009 one professional position will be needed to replace V. Vladymyrov (departs 2007)

Recommendation IODE-XIX.14

PROGRAMME AND BUDGET FOR 2007-2009

The IOC Committee on International Oceanographic Data and Information Exchange,

Having reviewed its programme implementation requirements for the period 2007-2009,

Being aware of the continuing severe financial constraints faced by UNESCO and its IOC,

Re-emphasizing the importance of high-quality oceanographic data and information, products and services for scientific, observation and ocean based disaster warning and mitigation programmes of the Commission, for member States, the private sector and other users,

Noting the increasing role of IODE in JCOMM and the growing collaboration with, and contribution to GOOS,

Calling attention to the continued process of reform of the IODE programme that takes into consideration the recommendations made by the IODE Review,

Expressing great appreciation to the Government of Flanders, Belgium for hosting and supporting the IOC project Office for IODE and for its continuing and increasing financial support to IODE, as well as to other donors and Member States who are providing financial and in-kind support for IODE,

Appreciating the in-kind support for the IODE Programme provided by Member States through establishing and maintaining IODE Data Centres, provision of experts and through the provision of valuable ocean data and information products and services,

Noting with great concern the continuing decrease in funding from the UNESCO Regular Programme for IODE,

Calls on Member States to provide financial support to the IOC Trust Fund, earmarked for IODE, or in-kind support through the secondment of experts to the IOC Project Office for IODE or to the IODE secretariat;

Invites the IOC Executive Secretary to ensure stable and long-term staffing arrangements for the IODE Secretariat and for the IOC Project Office for IODE;

Requests to the IODE Co-Chairs to bring to the attention of the next Session of the IOC assembly, the IODE Programme of work and budget for the period 2007-2009, as attached in the Annex to this Recommendation.

ANNEX I to Recommendation IODE-XIX.14

EB exp : extra-budgetary funding committed; EB req: extra-budgetary funding to request (potential donor identified); Unfunded: funds not available and no potential donor identified

[illegible]

	GTSP meeting support			10,000								
6.2.4	PROJECT: GOSUD (DM)											
	GOSUD meeting support			10,000								
6.2.5	PROJECT: MARINE XML (DM)											
	MarineXML meeting (estimate secretariat)							5,000				
6.2.6	PROJECT: MEDI (DM)											
	SG-MEDI meeting							10,000				
6.2.13	PROJECT: OCEAN DATA PORTAL		20,000				50,000				50,000	
	Data Management sub total	12,500	26,000	33,500	45,000	10,000	65,000	15,000	10,000	0	65,000	0
	Information Management											
6.1.2	GEMIM Sessions	5,000	10,000	10,000					10,000			
	GEMIM projects: see agenda 6.2 and 6.3											
6.2.1	PROJECT: ASFA (IM)			3,000	2,000				3,000			
6.2.7	PROJECT: OceanExpert											
	software and maintenance [2007 already committed]				6,000				6,000			
	promotional materials				2,000							
	QC/data entry [2007 already committed]				4,000				4,000			
6.2.8	PROJECT: OceanDocs											
	work plan		33,000				65,000				90,000	
6.2.9.1	PROJECT: IODE OceanPortal				11,000				11,000			
	Information Management sub total	5,000	43,000	13,000	25,000	0	65,000	0	34,000	0	90,000	0
	ODIN											
6.2.9.2	PROJECT: African Ocean Portal				5,000			6,500	5,000			6,500
6.2.9.3	PROJECT: Portal Oceanico				5,000			7,000	5,000			7,000
6.3.1.2	ODIN: ODINCARSA	4,000		7,000	5,000			6,000	5,000			6,000
6.3.1.3	ODIN:ODINCINDIO	4,000		1,000	5,000				5,000			
6.3.1.4	ODIN:ODINECET	4,500		800	6,800				1,300			
6.3.1.5	ODIN:ODINWESTPAC		30,000		20,000							
6.3.1.6	ODIN:ODINBLACKSEA				5,000							
	ODIN sub total	12,500	30,000	8,800	51,800	0	0	19,500	21,300	0	0	19,500
	TOTAL	35,000	125,000	90,300	156,800	58,000	130,000	59,500	80,300	30,000	195,000	74,500
	available UNESCO RP (2008-2009: estimate)	33,000			100,000				100,000			

ANNEX III

LIST OF PARTICIPANTS

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ANNEX IV

SPEECHES

1- OGS Speech by dr. Renzo Mosetti, Director of the Department of Biological Oceanography and National Representative for IODE.

Distinguished Delegates,
Dear Colleagues,
Ladies and Gentlemen,

On behalf of the President and the Council of Administration of the National Institute for Oceanography and Experimental Geophysics-OGS, 'm honoured to open this large international meeting. If you allow me, I can say that I'm also very proud, following more than one year of preparation, to be able to organise this high level event in Italy and in particular in Trieste. Trieste is known as the "town of science" for the excellence of the Universities, research institutions and scientific infrastructures. The ICTP centre is an example well known all over the world. I want also to recall that in Trieste there is an old time tradition in oceanography starting from the 18th Century. OGS has roots that go back to a School of Astronomy and Navigation created at Trieste in the second half of 1700. This went through a series of re-organisations into Imperial Academy of Commerce and Marine Sciences (1817), Meteorological Observatory (1841), Maritime Observatory (1903), Geophysical Institute of Trieste (1921), Experimental Geophysics Observatory of Trieste (1958), Applied Geophysics Observatory (1989), until the actual status of National Institute.

OGS is a public research institute financed by the Ministry of Education, University and Research. Its mission is to promote, co-ordinate and perform, also in collaboration with other national, international, and European institutions, studies and research on the Earth and its resources. These are related to:

- applied geophysical and environmental disciplines;
- delineation and evaluation of mineral and energy resources, on land and at sea, and the development of environmentally friendly technologies for their exploitation;
- marine sciences, related in particular to the interaction of the oceans with the atmosphere, the lithosphere and the biosphere ;
- seismicity, hydrodynamic and geodynamic phenomena having an impact on the environment and population, also for civil protection purposes;
- development of techniques for the acquisition, processing, interpretation and storage of geophysical data;
- integration of research and capacity-building activities.

OGS promote researches through the joint use of its main research infrastructures, as:

- the R/V OGS-Explora. 70 m long and with a Gross tonnage of 1400 t, it has a personnel capacity of 42 crew and scientists and may operate world-wide also in ice conditions (Antarctica). Specifically built for geophysical surveys, it has been recently equipped also for researches of physical oceanography, biology and sedimentology;
- the Seismic Data Processing Centre and the Calibration Centre for data quality assurance of marine samples;
- the permanent environmental monitoring networks (seismometric; slow regional deformation; coastal)

- large structured sets of oceanographic and geophysical data. OGS is the Italian national reference of the Antarctic Seismic Data Library System and it hosts the National Data Centre for Italy of IODE.

Following this large spectrum of expertise, OGS research policy is oriented to solve interdisciplinary problems. In this sense, we really believe that the role of IODE is crucial in solving large scale problems, such as climatic changes, where there is the need of integration of data on a global scale.

Finally, I would like to say that the organisation of the event has been possible only through the agreement with the ICTP and by the enthusiasm of the ICTP Director Prof. Sreenivasan in supporting it from the very beginning.

I also want to thank the Italian Delegation of UNESCO in Paris and especially Prof. Ezio Bussoletti for helping me in the organisation.

I wish all of you a successful meeting and, whenever possible, to enjoy your stay in Trieste. Thank you very much for your attention.

2- Welcome address by Dr. Claudio Tuniz, ICTP

Distinguished Delegates, Ladies and Gentlemen,

It is for me a great honor and pleasure to welcome you, also on behalf of ICTP's Director, Professor Katepalli Sreenivasan, to the Abdus Salam International Centre for Theoretical Physics, for holding the Nineteenth Session of the IOC Committee on International Oceanographic Data and Information Exchange

Let me start with few words about our Centre.

ICTP is organized under a tripartite agreement between UNESCO, IAEA and the Italian Government. Its mission is to foster studies of physics, mathematics and their applications, particularly in developing countries. For over 40 years, ICTP has been a 'home away from home' for tens of thousands of scientists from less developed countries. Each year, some 6000 scientists from 120 nations participate in the research and training activities at the Centre. ICTP has been a centre of excellence in certain areas of theoretical sciences and some 90 Nobel Laureates have lectured in this room. Abdus Salam, the founding director of the Centre, was himself a Nobel Laureate in Physics.

ICTP's research focus is on physics and mathematics but, increasingly, it is exploring how these fields can interface with sustainable development, for example, through studies on climate, earthquakes, biomedicine and renewable energy.

Abdus Salam himself decided to start at ICTP an activity on climate modeling. Oceans, a key component of the climate system, have a complex behavior and their understanding is based on the availability of the data discussed by this IOC committee. ICTP is active in many areas of research relevant to oceanography, including climate modeling and fluid mechanics. ICTP has joined the University of Trieste and several other scientific institutions, including the National Institute of Oceanography and Experimental Geophysics (OGS), in launching a new PhD programme for young scientists in the field of environmental fluid mechanics, which includes aspects of oceanography.

There are still unsolved scientific problems in modeling ocean circulation, particularly deep convection processes. An ICTP group, led by the Director himself, is doing experiments using low

temperature helium as a test fluid to understand how turbulence is manifested in convective flows such as those occurring in deep oceans.

Talking about fluid mechanics, one should forget to mention the name of an important scientist. The year 2007 marks the 300th anniversary of the birth of one of Enlightenment's most important mathematicians and physicists, Leonhard Euler. His nonlinear dynamics equations, characterized by a striking beauty and deep geometric structure, provide the conceptual tools for handling important problems related to ocean circulation.

As part of the UN system, operating under the aegis of the IAEA and UNESCO, we collaborate with these institutions in various programmes related to the oceans. In the recent past we have held a workshop on 'tsunamis physics' in collaboration with UNESCO and OGS. In collaboration with the IAEA we have held a course on 'tracing and modeling the ocean variability'. This year we are organizing the first 'advanced school of oceanography', in collaboration with the IAEA marine laboratories and OGS. We also promote advanced tools that can provide new oceanographic data, including the use of ultra-sensitive analyses of long lived isotopic tracers, such as carbon-14 and iodine-129, a topic in which I have been personally involved for many years. Other studies being planned in collaboration with the IAEA include microanalyses using synchrotron radiation (in collaboration with Elettra, another key research centre in the Trieste science system).

ICTP is planning better ways to share scientific information and data, particularly with developing countries, exploiting new information communication technologies. ICTP groups are also promoting the use of wireless sensors to collect data of interest in oceanography.

Finally, I would like to inform you that here in Trieste, on 10-12 May, we are organizing in collaboration with UNESCO and the Italian Government, a high-level 'UNESCO-G8 World Forum on Education, Innovation and Research: New Partnership for Sustainable Development'. One of the sessions will be devoted to environment, and oceans will obviously play a key role in the discussions. We will also have a special session about science and technology needs in Africa.

In conclusion, ICTP is interested to join forces with the community represented at this meeting, for supporting new scientific approaches in oceanography, contributing to programmes aimed to strengthen the principles of sustainable development and for building new capacities in least developed countries.

I conclude thanking the organizers of this IOC meeting, particularly Professor Mosetti, Director of the Biological Oceanography Department of the OGS and Professor Marson Director General of OGS.

Best wishes for a productive week at ICTP and a pleasant stay in Trieste.

ANNEX V

LIST OF DOCUMENTS

1. WORKING DOCUMENTS

Agenda Item	Code	Title	Upd. On
2	IOC/IODE-XIX/2	IODE-XIX Action Paper	28/02/07
2.1	IOC/IODE-XIX/1 prov.	IODE-XIX Provisional Agenda (1st version, sent with circular letter) (Draft)	02/02/07
2.3	IOC/IODE-XIX/1 Add.Prov.	IODE-XIX Provisional Timetable	14/01/07
3.1	IOC/IODE-XIX/6	Report on Inter-sessional Activities of the Chairman of the IOC Committee on IODE (Lesley Rickards, IODE Chairman)	26/03/07
3.2	IOC/IODE-XIX/7	Implementation Status of the IODE-XVIII work plan (IODE-XVIII Action Sheet) as on 18 December 2006	18/12/06
3.2	IOC/IODE-XVIII/3	IODE-XVIII - IOC Committee on International Oceanographic Data and Information Exchange, 18th Session, Oostende, Belgium, 26-30 April 2005	26/01/07
3.3	IOC/INF-1224	IODE Officers Meeting 2006	16/12/06
3.4	IOC/IODE-XIX/8	Reports on activities of the NODCs and DNAs	28/02/07
3.4	IOC/IODE-XIX/8 add.	Full National Reports	28/02/07
3.5	IOC/IODE-XIX/9	Report of the IOC Project Office for IODE	12/02/07
3.6	IOC/IODE-XIX/10	Reports on activities of RNODCs and World Data Centres	28/02/07
3.7	IOC/IODE-XIX/11	Follow-up to the IODE review	16/01/07
3.8	IOC/IODE-XIX/12	IODE data flow: National Oceanographic Programmes (NOPs) and Cruise Summary Reports (CSRs)	23/02/07
3.9	IOC/IODE-XIX/13 Add.	Analysis of the QC/QA survey	23/02/07
3.9	IOC/IODE-XIX/13	Report on the QC/QA survey	22/02/07
4.2	IOC/IODE-XIX/19	Future Strategy and Structure for IODE Groups of Experts : Report to IODE XIX by Chairs of Groups of Experts.	23/01/07
5.1	IOC/IODE-XIX/49	Options for the organization of future Sessions of the IODE Committee	20/02/07
5.2	IOC/IODE-XIX/47	ARGO requirements for more rapid and easier access to CTD data	24/01/07
5.6	IOC/IODE-XIX/18	Cooperation with IPY	21/02/07
6.1.1.	IOC/IODE-BICH-III/3	Third session of the IODE Group of Experts on Biological and Chemical Data Management and Exchange Practices	31/01/07
6.1.1.	IOC/IODE-XIX/20	IODE Group of Experts – Biological and chemical data management and exchange practices (GE-BICH)	12/02/07
6.1.2	IOC/IODE-XIX/21	Report on Activities of the IODE Groups of Experts: IODE Group of Experts on Marine Information Management (GE-MIM)	20/02/07
6.1.3	IOC/IODE-XIX/22	Report on activities: JCOMM/IODE EXPERT TEAM ON DATA MANAGEMENT PRACTICES (ETDMP)	28/02/07
6.1.3	IOC/IODE-XIX/22 add.	THE CHECKLIST OF TECHNICAL REQUIREMENTS FOR DATA PROVIDERS FOR E2E TECHNOLOGY IMPLEMENTATION	09/03/07
6.2.1	IOC/IODE-XIX/23	Aquatic Sciences and Fisheries Abstracts (ASFA)	30/01/07
6.2.1		(Draft) Minutes of Action Items and Decisions Agreed at ASFA Advisory Board Meeting, VLIZ, Oostende, Belgium, 4-8 September 2006 (Draft)	01/02/07
6.2.2	IOC/IODE-XIX/24	Global Oceanographic Data Archaeology and Rescue (GODAR) Project	31/01/07
6.2.3	IOC/IODE-XIX/25	Project report: Global Temperature and Salinity Profile Programme (GTSP)	12/01/07
6.2.5	IOC/IODE-XIX/27	Project: Development of a marine XML: MarineXML Steering Group Progress Report	15/01/07
6.2.6	IOC/IODE-SG-MEDI-III/3	IODE Steering Group for MEDI, Third Session, Drexel University, Philadelphia, USA, 11-13 September 2006	16/12/06
6.2.6	IOC/IODE-XIX/28	Project report: Marine Environmental Data Inventory (MEDI)	08/02/07
6.2.7	IOC/IODE-XIX/29	The Global Directory of Marine and Freshwater Professionals: OceanExpert	23/01/07
6.2.8	IOC/IODE-XIX/30	OceanDocs: Repository Network on Oceanography and Marine Science	14/02/07
6.2.9	IOC/IODE-XIX/31	OceanPortal (including regional OceanPortals)	19/02/07

6.2.11	IOC/IODE-XIX/32	EC Project: a Pan-European infrastructure for Ocean and Marine Data Management (SeaDataNet)	02/02/07
6.2.12	IOC/IODE-XIX/33	EC Project: System of Industry Metocean data for the Offshore and Research Communities (SIMORC)	26/01/07
6.2.13	IOC/IODE-XIX/15	The IODE Ocean Data Portal: Concept Paper	22/02/07
6.3.1.1	IOC/IODE-XIX/35	Ocean Data and Information Network for Africa (ODINAFRICA)	22/02/07
6.3.1.2	IOC/IODE-XIX/36	OCEAN DATA AND INFORMATION NETWORK FOR THE CARIBBEAN AND SOUTH AMERICA REGIONS (ODINCARSA): Report of Activities 2005-2006 and Proposed Work Plan 2007-2008	31/01/07
6.3.1.3	IOC/IODE-XIX/37	Ocean Data and Information Network for the Central Indian Ocean region	20/02/07
6.3.1.4	IOC/IODE-XIX/38	OCEAN DATA AND INFORMATION NETWORK FOR EUROPEAN COUNTRIES IN ECONOMICAL TRANSITION (ODINECET): PROGRESS REPORT 2005-2006	07/02/07
6.3.1.4	IOC/IODE-XIX/38 add.	PROJECT DOCUMENT FOR THE ESTABLISHMENT OF THE OCEAN DATA AND INFORMATION NETWORK FOR THE EUROPEAN COUNTRIES IN ECONOMICAL TRANSITION (ECET)	02/03/07
6.3.1.5	IOC/IODE-XIX/39	OCEAN DATA AND INFORMATION NETWORK FOR THE WESTERN PACIFIC (ODINWESTPAC): PROGRESS REPORT 2005-2006	21/02/07
6.3.1.5	IOC/IODE-XIX/50	NORTHWEST PACIFIC ACTION PLAN (NOWPAP)	22/02/07
6.3.1.6	IOC/IODE-XIX/40	PROJECT DOCUMENT FOR THE ESTABLISHMENT OF THE OCEAN DATA AND INFORMATION NETWORK FOR THE BLACK SEA REGION (ODINBLACKSEA)	13/02/07
6.3.1.7	IOC/IODE-XIX/41	Report on Pacific Islands Region : Current Issues and Suggested Future Directions	20/02/07
6.3.2.1	IOC/IODE-XIX/42	Training activities at the IOC Project Office for IODE	21/02/07
6.3.2.2	IOC/IODE-XIX/43	OceanTeacher/ODIMex	26/01/07
8.1	CL2123	CL-2123 - IOC Oceanographic Data Exchange Policy - Implementation by Member States	18/12/06
8.2	IOC/IODE-XIX/45	IOC Strategic Plan for Oceanographic Data and Information Management – Draft 3 March 2007	03/03/07
8.2	IOC/IODE-XIX/48	JCOMM Data Management Strategy	30/01/07
8.2	IOC/TT-DMS-I/6	Historical Review of the IODE programme between 1961 and 2003	19/02/07
9	IOC/IODE-XIX/14	Report on IODE Financial and Human Resources 2006-2007 and Previsions for 2008-2009	13/02/07
9	IOC/IODE-XIX/46	Guidelines for the Development of the IODE short-term (2008-2009) and medium-term (2008-2013) Work Plan and Budget	07/01/07
10	CL-2213	IOC Circular Letter 2213 - CANDIDATURES FOR CHAIR AND VICE-CHAIR OF IODE	15/12/06

2. INFORMATION DOCUMENTS

Agenda #	Code	Title	Upd. On
2.5	IOC-XIX/Inf.1 Add.	IODE-XIX - Inf.1 Add. - PRE-ARRIVAL INFORMATION FOR VISITORS IN HOSTED ACTIVITIES - ICTP	15/12/06
2.5	IOC/IODE-XIX/Inf. 1	IODE-XIX - Inf 1 - Local arrangements for IODE-XIX – Hotel accommodation	15/12/06
3.4	IOC/IODE-XIX/Inf.2	IODE-XIX - Inf 2 - Format guidelines for the submission of national reports for the purpose of Sessions of the IODE Committee: Inter-Sessional Report of the IODE National Coordinator of [countryname]	15/12/06
3.7	IOC/IODE-XVIII/18	Review of the International Oceanographic Data and Information Exchange (IODE)	26/02/07
5.2, 6.1.3	JCOMM/DMCG-II/3	JCOMM DATA MANAGEMENT PROGRAMME AREA COORDINATION GROUP (DMCG), Second Session, Geneva, Switzerland, 10-12 October 2006	02/02/07
5.4		GEOSS Components Linking (Draft)	10/01/07
6.3.5	IOC/INF-1211	IOC PRINCIPLES AND STRATEGY FOR CAPACITY BUILDING	27/02/07
	IOC/EC-XXXIX/3	Thirty-ninth Session of the Executive Council, Paris, 21-28 June 2006	16/01/07

3. OTHER DOCUMENTS

Code	Title	Upd. On
CL-2211	IOC Circular Letter 2211 - Invitation for IODE-XIX - Member States	15/12/06
CL-2212	IOC Circular Letter 2212 - Invitation for IODE-XIX - Organizations	15/12/06
CL-2213	IOC Circular Letter 2213 - CANDIDATURES FOR CHAIR AND VICE-CHAIR OF IODE	15/12/06
CL2215	IOC Circular Letter 2215 - NOMINATION OF IODE NATIONAL COORDINATORS FOR MARINE INFORMATION MANAGEMENT	18/12/06
CL2125	IOC Circular Letter 2125 - NOMINATION OF IODE NATIONAL COORDINATORS FOR MARINE INFORMATION MANAGEMENT	18/12/06

ANNEX VI

IODE-XIX (2007-2009) ACTION SHEET

No	Para	Action	Deliverable	Expected result	By whom	By when
1	32	The Committee recommended holding the 2008 meeting of the Officers jointly with the GSSC and suggested holding the meeting at the IOC Project Office for IODE in March or April 2008.	Joint meeting between IODE Officers and GSSC	Improved guidance of IODE programme by GOOS	IODE Secretariat/ GPO	March 2008
2	47	The Committee stressed that National Reports need to be submitted in a timely manner in accordance with the deadlines set by the Secretariat. [see also para 51]	National Reports	Improved reporting and metrics on national activities related to IODE	Member States	December 2008
3	48	The Committee reiterated that the IOC Oceanographic Data Exchange Policy needs to be implemented by all Member States in order for a future distributed system to be useful for all. [see also para 84]	Reporting on implementation of IOC oceanographic data exchange policy by Member States	Increase in application by Member States of IOC oceanographic data exchange policy	Member States	Report by IODE-XX
4	50	The Committee strongly endorsed cooperation between WCRP and IODE, stating that the science and data managers need to be better connected	Formal agreement on cooperation between IODE and WCRP	Increased role of IODE NODCs in WCRP data management	IODE Co-Chairs to contact WCRP to discuss further action	May 2007
5	51	The Committee established an inter-sessional working group that will review and improve the national reports format. The group will comprise Australia, the United States, the ODINCARSA Secretary, IODE Officers, and the JCOMM DMPA Chair. The sessional working group will work by email and will report to the next IODE Officers meeting in 2008	National Reports format	Improved reporting and metrics on national activities related to IODE	Inter-sessional working group	National Reports format by February 2008
6	61	The Committee noted with appreciation the diversity of the training events provided and planned by the Project Office and recommended to put more attention on specialized training courses (GIS, etc.). [see also para 266]	Specialized Training courses organized	Increased focus on specialized training for established NODCs and National Ocean Libraries	IOC Project Office for IODE	2008-2009

7	66	The Committee, while expressing great appreciation for his management of the Project Office during the start up phase, stressed the need for identifying extra-budgetary support to continue the position of Dr. Vladymyrov and called on Member States to assist in this regard.	Financing contributions provided to ensure long-term professional staff positions at IOC Project Office for IODE	Improvement of staffing situation at IOC Project Office for IODE, enabling increase in activities carried out by IODE and Project Office	Member States	January 2008 – ...
8	67	The Committee strongly encouraged Member States to second relevant experts on short or long-term basis to the Project Office, following the examples of Australia and United States.	Seconded staff provided to IOC Project Office for IODE	Improvement of staffing situation at IOC Project Office for IODE, enabling increase in activities carried out by IODE and Project Office	Member States	January 2008 – ...
9	92	IODE Committee decided to establish an inter-sessional working group to propose concrete ways to implement the decision of IODE-XVIII on RNODCs while bearing in mind the IOC strategic plan for oceanographic data and information management. The Committee tasked the group to report to the next meeting of the IODE Officers (March/April 2008). The membership will include Canada, Japan, Russia and the IODE Chair.	Document with recommended actions	Re-distribution of tasks assigned to former RNODCs	Inter-sessional working groups, together with former RNODCs	March 2008 (IODE Officers Meeting)
10	99	The Committee noted that the “Guide for Establishing a National Oceanographic Data Centre” (IOC Manuals and Guides No. 5), published in 1997 was now out of date and needed urgent updating. The Committee tasked Dr Lesley Rickards, Mr Nickolay Michailov and Mr Greg Reed with reviewing “IOC Manuals and Guides No. 5” and start the updating process.	Revised version of Manuals and Guides No. 5	Improved guidance of Member States interested in establishing an NODC	L. Rickards, N. Michailov, G. Reed	December 2007
11	99	With regard to publishing of the revised Manual the Committee noted that, rather than publishing a printed version of the Manual, it would be more cost-effective to include the Manual in electronic format as part of OceanTeacher.	Revised version of Manuals and Guides No. 5 published in OceanTeacher	See action 10	Secretariat	March 2008
12	102	The Committee noted that the different WDCs as well	Global data set	One-stop access to	WDCs	March 2009

		QARTOD) and building on the results of (i) and (ii) above. This QC working group should work in collaboration with the JCOMM/IODE Expert Team on Data Management Practices (ETDMP).	Manual	Improved guidance of NODCs regarding QC resulting in improved QC procedures and improved quality of data		
17	141	The Committee instructed the Co-Chair and Secretariat to investigate the possibility of organizing a QC session as well as plenary presentation during IMDIS-2008	QC session held at IMDIS 2008	Improved knowledge of QC procedures by ocean data management community		
18	143	The Committee requested the IODE national coordinators to discuss this matter [restructuring of IOC and its impact on IODE] with their IOC action addresses (and delegates to the forthcoming 24 th Session of the IOC Assembly) with the view of ensuring the continuation of the IODE programme as a programme within IOC, and to express Member States' strong support for the IODE programme.	Expression of concern and support for IODE programme at IOC-XXIV	Continued support for IODE	IODE national coordinators and IOC-XXIV delegates	June 2007
19	159	The Committee adopted Recommendation IODE-XIX.2 (Strategy and Structure of IODE Groups of Experts): Encourages IOC Member States to nominate experts with expertise relevant to the subject areas of the IODE groups of Experts; Invites IOC Member States to submit information on relevant national experts to OceanExpert, as a further source of expertise for the Groups of Experts; Urges IOC Member States to support the work of the IODE Groups of Experts by financially supporting the participation of their national experts in Sessions of the IODE Groups of Experts.	Experts nominated Information submitted to OceanExpert GE-MIM members supported financially for participation in GE-MIM sessions	GE-MIM populated with relevant experts Improved access to information on national MIM expertise through OceanExpert Regular meetings of GE-MIM resulting in more effective implementation of GE-MIM work plan	Member States Member States Member States	January 2008 January 2008 September 2007

20	191	The Committee recommended the organization of joint meetings of the IODE Officers and GOOS Scientific Steering Committee as a mechanism (i) to enable GOOS to benefit from IODE data and information management and exchange services; and (ii) for IODE to better respond to operational oceanography user needs.	SEE ACTION 1	SEE ACTION 1	SEE ACTION 1	
21	194	The Committee further instructed the IODE Co-Chairs to report its recommendation to the upcoming IOC Assembly in June 2007.	Report on recommendation including in report by Co-Chairs to IOC-XXIV	SEE ACTION 1	Co-Chairs	June 2007
22	207	The Committee agreed with the recommendations by the WMO Representative regarding (i) developing interoperability between the different data management systems being developed in both oceanographic and meteorological communities, and with the WMO Information System (WIS) in particular, (ii) cooperating through JCOMM with the WMO Quality Management Framework, for documenting and updating IODE publications that are of interest to JCOMM, (iii) updating the draft IOC Strategic Plan for Oceanographic Data and Information Exchange in such a way that it is compatible with the JCOMM Data Management Strategy, (iv) collaboration of IODE Members with the META-T Pilot Project if appropriate.		Improved cooperation and coordination between IODE and WMO through JCOMM	IODE Officers	2007-2009
23	211	The Committee invited WMO to make recommendations for a representative from the ETDMP to participate in the Inter Programme Expert Team on Metadata implementation (IPET-MI) in order to discuss and define common standards with the OceanDataPortal and other IODE data management systems.	Representative of ETDMP participates in IPET-MI	Improved coordination with IPET-MI regarding common standards	WMO	May 2007
24	234	The Committee strongly supported the proposed	Harmful Algal Event	Access to high-	IPHAB; IOC Project	See para 233 in

		cooperation with the Harmful Algal Bloom Programme and endorsed the Project Proposal. The Committee decided to include the provision of seed funds in the 2007 and 2008-2009 work plan, although the source is yet to be defined, and invited Member States to identify extra-budgetary funds to enable the full implementation of the Project.	Information System developed as a joint IPHAB-IODE activity;	quality oceanographic data and information, product and service for scientific, observation and ocean based disaster warning and mitigation programmes of the Commission, by member States, the private sector and other users	Office for IODE; GE-BICH	summary report
25	242	The Committee noted with appreciation that there were already many ongoing activities with CDIAC. These include rescue and recovery of historical CO2 measurements. The Committee recommended that further joint activities could include CO2 data and metadata available through the IODE OceanDataPortal.	Data/metadata available	Improved access to CO2 data and metadata through cooperation with CDIAC	Ocean Data Portal project leaders and CDIAC	2007-2009
26	250	The Committee welcomed the invitation of the IPY Subcommittee on Data Policy and Management and strongly urged IODE National Oceanographic Data Centres to actively participate in, and contribute to the IPY activities as proposed.	Cooperation with IODE NODCs in IPY activities	Improved access to data relevant to IPY through NODCs	NODCs and IPY programme office	
27	266	The Committee recommended that the Project Office continues training activities related to biodiversity. (see also para 61)	Training courses held	Improved expertise in NODCs regarding ocean biodiversity	IOC Project Office for IODE; IODE Officers (training requirements)	2007-2009
28	268	The Committee further recommended support for the organization of the OBI 2007 conference	Support provided		Secretariat	October 2007
29	272	The Committee welcomed cooperation between WCRP and IODE and instructed the Officers to investigate ways to collaborate with WCRP	Cooperation established	Cooperation with WCRP	IODE Officers	December 2007
30	287	The Committee adopted Recommendation IODE-XIX.3	-	-	GE-BICH	GE-BICH-IV
31	291	The Committee welcomed the success of the marine	Specialized	Improved	IODE National	2007-2009

		information management activities but called on the marine information experts to focus also on issues such as climate change or programme such as IPY, suggesting. the development of specialized bibliographies or even the establishment of subject specific ODINs. In this regard the Committee welcomed such initiatives of some marine libraries (e.g. USA NOAA) and called for wide publicizing.	bibliographies prepared; specialized ODINs	dissemination of research publications related to issues such as IPY, climate change,...	coordinators for marine information management; GE-MIM; IODE Officers	
32	292	The Committee requested the Officers to investigate ways to address the need for translation of training and reference materials into languages other than English	Training and reference materials translated from English into other languages	Improved penetration of IODE training and reference materials in non-English speaking member states	IODC Officers/ Member States (funding)	March 2009
33	309	The Committee strongly supported the continued participation of IOC in the ASFA Advisory Board, and its activities.	Participation of IODE in ASFA Advisory Board Sessions	Improved access to ASFA by Member States, with special attention to developing countries	Secretariat	2007-2009
34	316	The Committee strongly commended WDC Oceanography, Silver Spring with the work accomplished within GODAR and the WOD and recommended the continuation of these projects	GODAR, WOD projects continued	Continued rescue of historical data and continued updating of world ocean database	WDC Oceanography, Silver Spring	2007-2009
35	323	The Committee encouraged additional organizations to participate in the [GTSP] Programme	Additional organizations participating	Improved global participation in GTSP	Other organizations	2007-2009
36	324	The Committee requested Member States to consider a replacement for Robert Keeley as the GTSP chair according to his request to step down from this position	Robert Keeley replaced as the GTSP chair	Robert Keeley replaced as the GTSP chair	Member States	End 2007
37	325	The Committee requested the Member States to help the Programme in identification of candidates for Science centers that will take over scientific QC of the collected data	Science centers that will take over scientific QC of the collected data	Science centers that will take over scientific QC of the collected data	Member States	2008
38	334	The Committee strongly encouraged other organizations to participate in the [GOSUD] pilot project	Additional organizations participating	Improved global participation in GOSUD	Other organizations	2007-2009
39	336	The Committee requested Member States to consider a replacement for Robert Keeley as the GOSUD co-	Robert Keeley replaced as the GOSUD co-chair	Robert Keeley replaced as the	Member States	2008

		chair after he steps down from this position in 2008		GOSUD co-chair		
40	345	The Committee instructed the Secretariat to create a section on [MarineXML] best practices, recommended by IODE, on the IODE web site, while noting with appreciation that the ISO19135-compliant registry, planned to be hosted by at the IODE Project Office, will provide a robust environment for sharing such information	section on [MarineXML] best practices, recommended by IODE, on the IODE web site,	Improved understanding and use of best practises related to marine XML	Secretariat	End of 2007
41	346	The Committee invited JCOMM and WMO to continue participating in the deliberations of the SG-MEDI	JCOMM and WMO to continue participating in the deliberations of the SG-MEDI	Best coordination between JCOMM, WMO and IODE regarding metadata management	WMO, JCOMM, SG-MEDI	2007-2009
42	351, 352	The delegate of Canada, Mr Keeley, informed the Committee that his data centre had developed a metadata authoring tool (in English and French) that can be provided to the SG-MEDI. The tool can also be modified if needed. The Committee thanked Canada for its kind offer and instructed the SG-MEDI to investigate this matter further	Metadata authoring tool available	Improved preparation and quality of metadata by member states	SG-MEDI	2007-2009
43	354	The Committee reviewed and adopted the work plan submitted by the Third Session of the IODE Steering Group for MEDI and allocated funds for the implementation of the work plan within the available budget	Workplan: see para 350	Improved preparation and quality of metadata by member states	SG-MEDI	2007-2009
44	369	The Committee invited cooperation between the International Polar Year (IPY) and OceanExpert for management of experts information. The Committee requested Mr Taco De Bruin to pass on this question to the IPY Programme Office	Information on IPY related experts included in OceanExpert	Improved access to information on expertise related to IPY	IPY programme office; IOC Project office for IODE	May 2007
45	371	The Committee reviewed and adopted the 2008-2009 work plan and allocated funds in the 2007-2009 work plan and budget.	Workplan: see document IOC/IODE-XIX/29	Improved access to information on marine and freshwater professionals expertise	IOC Project office for IODE	2007-2009
46	372	The Committee invited member states to actively	Additional	Improved access to	Member States	2007-2009

		promote OceanExpert at the national and regional level	OceanExpert submissions; maintenance of national/regional inputs by countries/regions	information on marine and freshwater professionals expertise		
47	381, 382	The Committee noted the close collaboration that has been established between IOC and IAMS LIC and requested the secretariat to work closely with the IAMS LIC working group [related to e-repositories] that has been set up to explore avenues for further collaboration. The Committee stressed the importance of ensuring that OceanDocs and the Aquatic Commons complement each other to ensure that resources are utilised optimally	Global e-repository of research publications established	Improved access to publications, with special attention to materials published in developing countries	Secretariat/ IAMS LIC/ Chair GE-MIM	2007-2009
48	383	The Committee adopted Recommendation IODE-XIX.11 (Establishment of the OceanDocs Project)	Work plan available in Document IOC/IODE-XIX/30	Improved access to publications, with special attention to materials published in developing countries	Project team	2007-2009
49	389	The Committee congratulated the IOC Project Office for IODE with the continued success of the IODE OceanPortal and decided to set aside funding in the inter-sessional work plan for the continued maintenance of OceanPortal	Work plan available in Document IOC/IODE-XIX/31		IOC Project Office for IODE	2007-2009
50	397	The Committee welcomed the success of the regional OceanPortals as information tools to disseminate information on ocean and coastal research to a wide audience. Taking into consideration the termination of the current funding source for these initiatives but bearing in mind the objective of these products, the Committee called on the Chief Editors of the regional OceanPortals to discuss continued funding with relevant national, regional or international organizations with an interest in public information related to coastal and marine environment	Work plan available in Document IOC/IODE-XIX/31	Improved dissemination of information on marine and coastal matters to a wide range of stakeholders	Chief Editors regional OceanPortals	2008
51	412	The Committee called for more oil and gas companies	Data from oil and gas	Improved access by	Oil and gas companies	2007-2009

		to make their data available to SIMORC.	companies available to the IODE community	member states to data collected by oil and gas companies		
52	413	The Committee instructed the IODE Steering Group for the OceanDataPortal Project to investigate the issue of the name of this new initiative as IODE has developed several other “Portals” (OceanPortal, regional OceanPortals) which could cause confusion for the users	Decision on naming of Ocean Data Portal	Avoidance of confusion between different IODE portals	SG-ODP	August 2007
53	414	The Committee adopted Recommendation IODE-XIX.4 (The IODE Ocean Data Portal Project)	Work plan available in Document IOC/IODE-XIX/15	Facilitation of access to marine data and services by providing access to collections and inventories of marine data in NODCs (distributed data system)	SG-ODP and partners	2007-2009
54	427, 428	<p>The Committee called for the preparation of a proposal for the next phase of the project which will cement ODINAFRICA as a sustainable network of African NODC’s addressing the increased demands for data and information products and services required by ocean based industry and coastal populations in Africa. The proposal should focus on development and dissemination of data and information products to assist in the sustainable management of marine and coastal areas, and include further development of the African Marine Atlas, as well as specialized skills necessary for trend analysis and scenario development.</p> <p>The Committee welcomed the close collaboration that ODINAFRICA has developed with other organizations such as WIOMSA, UNEP Regional Seas programme, NEPAD/COSMAR, African LME projects, GOOS Africa, OBIS, ACEP and other organizations and programmes, and called on these organizations and programmes to collaborate in the preparation of the proposal for ODINAFRICA-IV</p>	Proposal for ODINAFRICA-IV	Development and dissemination of data and information products to assist in the sustainable management of marine and coastal areas, and include further development of the African Marine Atlas, as well as specialized skills necessary for trend analysis and scenario development, with a strong focus on capacity building.	ODINAFRICA-III cooperating member states/ cooperating partner organizations	September 2007

55	429	The Committee thanked the Government of Flanders, Belgium for their continued support for the ODINAFRICA project and requested that they continue support for the next phase of ODINAFRICA. The Committee also urged other Member States to extend their support to the project.	ODINAFRICA-IV project funded	See action 54	Government of Flanders, other Member States	January 2008
56	430	The Committee adopted Recommendation IODE-XIX.5 (Ocean Data and Information Network for Africa (ODINAFRICA))	See action 54	See action 54	See action 54	See action 54
57	438	The Committee adopted the ODINCARSA work plan for 2007 and 2008-2009	Work plan available in Document IOC/IODE-XIX/36	Development and dissemination of data and information products to assist in the sustainable management of marine and coastal areas in the Caribbean and South America with a strong focus on capacity building.	ODINCARSA cooperating member states/ cooperating partner organizations	2007-2009
58	439	The Committee adopted Recommendation IODE-XIX.6 (Ocean Data and Information Network for the Caribbean and South American Regions (ODINCARSA))	See action 57	See action 57	See action 57	See action 57
59	446	The Committee endorsed the ODINCINDIO work plan for 2007-2009 and urged Member States from the region to play an active and supportive role in order to ensure the establishment of a reliable network.	Work plan available in Document IOC/IODE-XIX/37	Development and dissemination of data and information products to assist in the sustainable management of marine and coastal areas in the Central Indian Ocean region with a strong focus on capacity building.	ODINCINDIO cooperating member states/ cooperating partner organizations	2007-2009

60	447	The Committee adopted Recommendation IODE-XIX.7 (Ocean Data and Information Network for the Central Indian Ocean (ODINCINDIO))	See action 59	See action 59	See action 59	See action 59
61	454	The Committee adopted the ODINECET work plan for 2007 and 2008-2009	Work plan available in Document IOC/IODE-XIX/38	Development of national capacity for the development and dissemination of information products	ODINECET cooperating member states/ cooperating partner organizations	2007-2009
62	455	The Committee adopted Recommendation IODE-XIX.8 (Establishment of the Ocean Data and Information Network for European Countries in Economic Transition (ODINECET)).	See action 61	See action 61	See action 61	See action 61
63	464, 466	The Committee welcomed the proposal to establish the ODINWESTPAC Pilot Project and endorsed it. The Committee decided to allocate funds in the 2007 and 2008-2009 work plan and budget	Work plan available in Document IOC/IODE-XIX/39	Development and dissemination of data and information products to assist in the sustainable management of marine and coastal areas in the Western Pacific region, with a strong focus on capacity building.	ODINWESTPAC cooperating member states/ cooperating partner organizations	2007-2009
64	465	The Committee adopted Recommendation IODE-XIX.9 (Establishment of the ODINWESTPAC Pilot Project)	See action 64	See action 64	See action 64	See action 64
65	475	The Committee adopted the ODINBLACKSEA work plan for 2007 and for 2008-2009	Work plan available in Document IOC/IODE-XIX/40	Development and dissemination of data and information products to assist in the sustainable management of marine and coastal areas in the Black Sea region, with a strong focus on capacity building	ODINBLACKSEA cooperating member states/ cooperating partner organizations	2007-2009

66	476	The Committee adopted Recommendation IODE-XIX.10 on the establishment of Ocean Data and Information Network for the Black Sea (ODINBLACKSEA)	See action 65	See action 65	See action 65	See action 65
67	481	The Committee instructed GE-MIM to continue its efforts to assist Pacific Islands region to develop a proposal for a region-based ODIN which builds on existing networks (e.g. PIMRIS , PEIN). In this regard, the GE-MIM Chair should approach relevant agencies such as SOPAC, PIMRIS and SPC to form a working group to jointly develop proposal. GE-MIM should also investigate the possible opportunities for the ODIN to be associated with the Pacific Islands Regional Ocean Framework for Integrated Strategic Action (PIROF-ISA).	ODIN for Pacific Islands proposal prepared	Development of national capacity for the development and dissemination of information products	GE-MIM	March 2008 (IODE Officers Meeting)
68	483	The Committee welcomed the proposal to establish the Distributed Marine Data Management System for the Caspian Sea, and noted the need to take the capacity building needs of the Caspian Sea region into account while developing the work plan for the coming intersessional period.	Include Caspian Sea students in relevant IODE data management training courses	Students from Caspian Sea region trained in ocean data management	IODE Officers, IODE Co-Chairs	2007-2009
69	502	The Committee adopted Recommendation IODE-XIX.13 (Support for the IOC Project for IODE for Capacity Building): Calls on IOC member states and other organizations to provide additional support to promote, facilitate and strengthen the capacity building activities of the IOC Project Office for IODE to ensure the long-term sustainability of the IOC Project Office for IODE in general, and its capacity building activities in particular. Invites other programmes and organizations to organize joint capacity building activities at the IOC Project Office for IODE.	Funding received from other IOC Member States for IOC Project Office for IODE	IOC Project Office for IODE funding base widened with more member states providing support	IOC Member States/ Other Organizations	2007-2009

70	513	The delegate of France informed the Committee that IFREMER/SISMER staff provide lectures to university students (in French language) on the relevance of oceanographic data exchange with the objective to promote awareness for the benefit of data management and exchange. He informed the Committee that the lecture materials can be provided to IODE for inclusion in OceanTeacher.	Lecture materials provided for inclusion in OceanTeacher	Promotion of IODE and ocean data and information management to University Students with the view of ensuring their active participation in data management throughout their career	IFREMER/SISMER	July 2007
71	514	The Committee welcomed the success of OceanTeacher and invited member states to contribute to OceanTeacher through making available resource persons as lecturers or content providers.	Resources received for further development of OceanTeacher	Further development of OceanTeacher as an integrated training tool that can be used during IODE, JCOMM and GOOS training courses but also as a tool for continuous professional development and for the promotion of data and information management in a University environment	Member States	2007-2009
72	515	The Committee adopted Recommendation IODE-XIX.12 (OceanTeacher)	See action 71	See action 71	See action 71	See action 71
73	517, 518	The Committee thanked the sessional working group for the good work it had done in compiling the regional capacity building requirements and endorsed them. <ul style="list-style-type: none"> The group stressed the importance of follow up mechanisms for students after the training, preferably with some long term implementation at national level. A web site should be set-up where 	Distance learning system enabling interaction with	See deliverables	IOC Project Office for IODE; Member States	2007-2009

		<p>the further tasks of trainees can be monitored and ensure the application in the beneficiary institutions.</p> <ul style="list-style-type: none"> • The sessional working group proposed that the core training courses should be developed as “training of trainers” courses so that those who are trained can train other people in their countries. Those trainees who have demonstrated their competence as trainers at the local level should be invited to assist in training at the IODE Project Office. • The group stressed the importance of identifying other relevant international or national partners that can share financial support in the regions and co-sponsor training activities at the IODE Project Office. • The group welcomed the initiative by the IODE Project Office to prepare audio-visual materials to assist in local training, and proposed the translation of materials to other languages to facilitate their greater use at the national level. • The sessional working group also emphasized the need to enhance the connection of the ODIN networks to ongoing IODE activities on standards developments, QC and End-to-End technologies. 	<p>lecturers to be developed</p> <p>Courses organized as training of trainers events</p> <p>Additional donors identified for training courses</p> <p>Training materials translated into other IOC work languages</p> <p>IODE project results integrated in ODIN activities and related training</p>			
74	519	The delegate of Italy informed the Committee that the facilities at the International Centre for Theoretical Physics (ICTP), through an agreement with OGS, can be used for IODE training courses and workshops. ICTP could also consider co-funding some of the training courses;	Courses co-organized between ICTP/OGS and IODE at ICTP	Wider IODE training programme	ICTP; OGS; IODE Secretariat	2007-2009
75	520	The representative of IOI drew the attention of the Committee to the training course on Remote Sensing and GIS Applications that was organized jointly with IODE in 2006. This course had proved popular and	Courses co-organized between IOI and IODE at IOC Project Office for IODE	Wider IODE training programme	IOI; IODE Secretariat	2007-2009

		complements the other courses on Ocean Governance organized by IOI. In this regard IOI would be ready to co-organise another similar course with IODE and would provide resource persons as well as support some participants.				
76	527	The Committee strongly recommended for IODE to publish its Capacity Building strategy	Strategy published	Continuation of IODE capacity building activities based upon clearly formalized and documented strategy document	IODE Secretariat; Training Coordinator of the IOC Project Office for IODE; IODE Co-Chairs; IODE former Chair	First draft: March 2008 (IODE Officers Meeting); Final draft for IODE-XX (March 2009)
77	529,	The Committee noted further that it was essential to showcase the achievements of the ODIN projects at the regional as well as national level and recommended the publication of brochures or specialized audio/visual products. In this regard the Committee was informed that ODINAFRICA will publish such a brochure in 2007 and the Committee recommended that other ODINs follow this example.	Brochures published and disseminated	Wide awareness for the achievements of, and importance to participate in ODIN projects to increase national involvement of all stakeholders.	ODIN project coordinators; IODE Co-Chairs; IODE Secretariat	2007-2009
78	530	The Committee further invited member states participating in ODIN projects to promote these important IODE initiatives on all occasions, and especially to donors to mobilize resources for sustained support to these networks. In this regard the Committee strongly urged member states to show strong commitment to the data and information centres that have been established through ODIN projects by committing resources to these facilities.	ODIN projects promoted, national commitments made	Full involvement and commitment in ODINs at national and regional level	Member States	2007-2009
79		The Committee , while welcoming expressions of success, noted that it would be more productive to identify indicators of impact and thus to assess the success of IODE capacity building through objective performance assessment methods. In this regard the	Set of performance indicators available	To identify indicators of impact and thus to assess the success of IODE capacity building through	ODINAFRICA project coordinator	March 2008 (IODE Officers Meeting)

		Committee was informed that the ODINAFRICA project was preparing a set of indicators.		objective performance assessment methods		
80	536	The Committee congratulated the IODE Secretariat and IOC Project Office for IODE with the new web site, which it described as a user friendly communication tool. While the Committee expressed its appreciation especially for the event management system that was used for the preparations of IODE-XIX, it requested the Secretariat to investigate the possibility to make working documents available as one downloadable (zip) file.	Function in web site to download all event documents as one compressed (zip) file	To facilitate downloading of documents by event participants	IOC Project Office for IODE	December 2007
81	537	The Committee requested further to move the section “Popular IODE Sites” up higher on the home page and to consider adding links to all important IODE sub-sites and projects.	Move the section “Popular IODE Sites” up higher on the home page and to consider adding links to all important IODE sub-sites and projects.	To improve user friendliness of IODE web site	IOC Project Office for IODE	April 2007
82	539	The Committee requested the Secretariat to allow submission of any ocean related event in the IODE web site calendar but enable a filtering option to select only IOC, GOOS and/or JCOMM events.	Allow submission of any ocean related event in the IODE web site calendar but enable a filtering option to select only IOC, GOOS and/or JCOMM events	To improve user friendliness of IODE web site	IOC Project Office for IODE	July 2007
83	546	The Committee welcomed the brochures prepared by the IOC Project Office for IODE and requested that electronic templates be made available to enable Member States to customize the brochures or to provide versions in other languages.	Electronic templates made available to enable Member States to customize the brochures or to provide versions in other languages	Improve visibility of the IODE programme at the national level	IOC Project Office for IODE	2007-2009
84	557	The Committee encouraged each Member State to review the 'IOC Oceanographic Data Exchange Policy and enact it as part of their Oceanographic Data Policy. [see also para 48]	IOC Oceanographic Data Exchange Policy enacted as part of national oceanographic	See para 48	See para 48	See para 48

			data policy			
85	564, 565, 566	<p>The Committee, while expressing its great appreciation to the Chair for drafting the Strategy, and taking into consideration that the Strategic document was commissioned by an IOC Governing Body, recommended the following [list]</p> <p>The Committee invited Dr Rickards, Mr Michailov, Mr Reed and Mr Keeley to continue the drafting of the Strategic document during the next few days in Trieste and then forward the revised version to the IODE Officers for finalization and approval.</p> <p>The Committee tasked the IODE past Chair, Dr Lesley Rickards, with the formal submission of the Document, on behalf of the IODE Committee, to the 24th Session of the IOC Assembly. The Committee was informed that the deadline for submission of working documents to the Assembly was end of April 2007.</p>	IOC Strategic Plan for Oceanographic Data and Information Management prepared	A comprehensive and integrated ocean data and information system, serving the broad and diverse needs of IOC Member States, for both routine and scientific use.	Dr Rickards, Dr Michailov, Mr Reed and Mr Keeley	Dr Rickards to submit the Document, on behalf of the IODE Committee, to the 24 th Session of the IOC Assembly (June 2007) – document submission date: 30 April 2007
86	575	<p>Committee instructed the Officers to prepare a table stating:</p> <ul style="list-style-type: none"> • Activities that are of strategic importance (as relevant to the strategic plan) but will need to be shut down due to shortage of funds; • Activities that are of strategic importance but will be covered by the UNESCO regular programme (and indicating whether these funds suffice for effective implementation); • Activities that are of strategic importance and are covered by extra-budgetary contributions 	Table prepared	To provide guidance to the Assembly regarding priorities assigned by the IODE Committee to work plan items, with the view of assuring their implementation through UNESCO regular programme or extra-budgetary funds, and to invite Member States to provide extra-budgetary funds and other resources	IODE Officers	Table to be presented by IODE Co-Chairs to IOC-XXIV as part of their report on IODE-XIX
87	576	The Committee instructed the Co-Chairs to bring the above-mentioned table to the attention of the IOC Assembly at its twenty-fourth session, requesting Member States to consider funding activities that are	See action 86	See action 86	See action 86	See action 86

		of strategic importance but cannot be covered by the UNESCO regular programme.				
87	577	The Committee adopted Recommendation IODE-XIX.14 (Programme and Budget for 2007 and 2008-2009)				
88	593	The Committee thanked the People's Republic of China for the kind offer to host the twentieth Session of the IODE Committee and accepted it. The Committee instructed the Secretariat, in consultation with the Co-Chairs, to follow-up on the offer	IODE-XX held in China	-	IODE Secretariat; Government of China	Start preparations as from January 2008
89	596, 597	The Committee considered the presented options as well as some other such as running parallel sessions (e.g. one for data management and one for information management), grouping activities into the four groups utilized for the work plan and budget (data management, information management, ODIN and governance), grouping all ODIN activities into one presentation and discussion, and use of posters as alternative to plenary presentations. The Committee instructed the Officers to further consider this issue and propose a small number of suitable options to the Committee, by email, not later than June 2008.	Options prepared	Improved efficiency and use of time of IODE Sessions	IODE Officers	June 2008
90	598	The Committee commended the Secretariat with the production of the Action Paper and instructed the Secretariat to continue preparing such a document for future Sessions. The Committee further instructed the Secretariat to further improve the Action Paper through a more concise summary of the issues that require decisions or action by the Committee.	Action paper prepared for IODE-XX and further improved through a more concise summary of the issues that require decisions or action by the Committee	Improved efficiency and use of time of IODE Sessions	IODE Secretariat	January 2009
91	599	The Committee requested that for future meetings the meeting report introductory text should be limited to approximately one page, allowing more room to report	Item introductory text in Action paper and summary report limited	Improved efficiency and use of time of IODE Sessions	IODE Secretariat; Authors of working documents for the	January 2009

		on discussions and without inflating the size of the summary report.	to approximately one page		Session	
92	600	The Committee instructed the Co-Chairs to include in their report a brief review (preferably as a diagram) of the relationship of IODE with other organizations, as well as the relationships of the various IODE subsidiary bodies, projects and activities.	Brief review (preferably as a diagram) of the relationship of IODE with other organizations, as well as the relationships of the various IODE subsidiary bodies, projects and activities.	Improve guidance of IODE Committee regarding cooperation between IODE subsidiary bodies and other projects, programmes, organizations		January 2009

ANNEX VII

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ANNEX VIII

LIST OF ACRONYMS

ADCP	Acoustic Doppler Current Profiler
ADSL	Asymmetric Digital Subscriber Line
AFRIDIR	African Directory of Marine & Freshwater Professionals
AODCJF	Australian Ocean Data Centre Joint Facility
ASCABOS	A Supporting Programme for Capacity Building in the Black Sea Region towards Operational Status of Oceanographic Services
ASFA	Aquatic Sciences & Fisheries Abstracts
ASFIS	Aquatic Sciences & Fisheries Information System
BODC	British Oceanographic Data Centre
BSERP	Black Sea Ecosystem Recovery Project
BSH/DOD	Bundesamt für Seeschifffahrt und Hydrographie/Deutsches Ozeanographisches Datenzentrum
CDIAC	Carbon Dioxide Information Analysis Centre
CEP	Caspian Environment Programme
CIESM	Commission Internationale pour l'Exploration Scientifique de la Mer (France)
CLIVAR	Climate Variability and Predictability Programme
COINet	China Oceanic Information Network
CoML	Census of Marine Life
CPPS	Permanent Commission for the Southeast Pacific
CSIRO	Commonwealth Scientific & Industrial Research Organization (Australia)
CSR	Cruise Summary Reports
CTD	Conductivity-Temperature-Depth Probe
DA	Data & Architecture
DBCP	Data Buoy Cooperation Panel
DCMS	Dynamic Content Management System
DCPC	Data Production & Collection Centre
DIF	Data Interchange Format
DiGIR	Distributed Generic Information Retrieval
DMAC	IOOS Data Management & Communication
DMCG	Data Management Coordination Group (JCOMM)
DMPA	Data Management Programme Area (JCOMM)
DNA	Designated National Agency
E2E	End-To-End
E2EDM	End to End Data Management
ECET	European Countries in Economic Transition
ECMWF	European Centre for Medium-Range Weather Forecasts
EDMED	European Directory of Marine Environmental Datasets
ERFEN	Programa Regional para el Estudio Regional del Fenómeno El Niño en el Pacífico Sudeste
ESONET	European Seafloor Observatory Network
ETDMP	Expert Team on Data Management Practices (JCOMM/IODE)
ETMC	Expert Team on Marine Climatology (JCOMM)
EU	European Union
EURASLIC	European Association of Aquatic Sciences Libraries & Information Centres
EURONODIM	European Network for Oceanographic Data & Information Management
FAO	Food & Agriculture Organization of the United Nations
FGDC	US Federal Geographic Data Committee
FMDC	Flemish Marine Data & Information Centre (Belgium)
FUST	Flanders UNESCO Science Trust Fund
GBIF	Global Biodiversity Information Facility
GCMD	Global Change Master Directory

GCOS	Global Climate Observing System
GDAC	Global Data Assembly Centre
GE	Group of Experts
GE-BICH	IODE Group of Experts on Biological & Chemical Data Management & Exchange Practises
GE-MIM	IODE Group of Experts on Marine Information Management
GEO/GEOSS	Global Earth Observations/Global Earth Observation System of Systems
GEWEX	Global Energy & Water Cycle Experiment
GLODIR	Global Directory of Marine (& Freshwater) Professionals
GLOSS	Global Sea Level Observing System
GODAE	Global Ocean Data Assimilation Experiment
GODAR	Global Oceanographic Data Archaeology & Rescue
GOOS	Global Ocean Observing System
GOSUD	Global Ocean Surface Underway Data Pilot Project
GRASP	GOOS Regional Alliance for the South Pacific
GSSC	GOOS Scientific Steering Committee
GTS	Global Telecommunication System
GTSP	Global Temperature & Salinity Profile Programme
HAB	Harmful Algal Bloom Programme
HABMAP	Habitat Mapping for Conservation & Management of the Southern Irish Sea
HAE-DAT	Harmful Algal Events Database
IAEA	International Atomic Energy Agency
IAI	Inter-American Institute for Global Change Research
IAMSLIC	International Association of Aquatic & Marine Libraries & Information Centres
ICAM	Integrated Coastal Area Management
ICES	International Council for the Exploration of the Sea
ICSU	International Council for Science
ICTP	Abdus Salam International Centre for Theoretical Physics
IFREMER	Institut Français de Recherche pour l'Exploitation de la Mer (French Institute of Research & Exploitation of the Sea) (France)
IGOSS	Integrated Global Ocean Services System
IOC	Intergovernmental Oceanographic Commission (of UNESCO)
IOCCP	International Ocean Carbon Coordination Project
IODE	International Oceanographic Data & Information Exchange
IOGOOS	Indian Ocean Global Ocean Observing System
IOI	International Ocean Institute
IOTWS	Indian Ocean Tsunami Early Warning System
IPET-MI	Inter-Programme Expert Team on Metadata implementation
IPHAB	Intergovernmental Panel on Harmful Algal Blooms
IPY	International Polar Year
ISDM	Integrated Science Data Management
ISOM	International Research Ship Operators' Meeting
JAFIC	Japan Fisheries Information Centre
JAMSTEC	Japan Marine Science & Technology Agency
JASIN	Joint Air Sea Interaction Project
JCOMM	Joint Technical Commission of Oceanography & Marine Meteorology
JFA	Japan Fisheries Agency
JGOFS	Joint Global Ocean Flux Study
JODC	Japan Oceanographic Data Centre
JPOTS	Joint Panel on Oceanographic Tables & Standards
KODC	Korea Oceanographic Data Centre
LIFDC	Low Income Food-Deficit Countries
LME	Large Marine Ecosystems

MARIS	Marine Information Services (Netherlands)
MARPOLMON	Marine Pollution Monitoring System
MDC	Marine Data Centres
MEDAR-MEDATLAS	Mediterranean Data Archaeology & Rescue
MEDI	Marine Environmental Data Inventory
MEDS	Marine Information Data Service (Canada)
MIM	Marine Information Management
MLA	Major Line of Action
MMI	Marine Metadata Interoperability Project
MONDAT	HAB Monitoring Database
MOTIIVE	Marine Overlays on Topography
MOU	Memorandum of Understanding
NASA	National Aeronautics & Space Administration (US)
NCAR	National Centre for Atmospheric Research
NCEP	National Centres for Environmental Protection
NC-MIM	National Coordinator for Marine Information Management
NC	National Coordinators
NEAR-GOOS	North-East Asia Regional Global Ocean Observing System
NEPAD/COSMAR	New Partnership for Africa's Development on Coastal & Marine Programmes
NERC	Natural Environment Research Council (UK)
NMDIS	National Marine Data & Information Service
NMHS	National Meteorological & Hydrological Services
NOAA	National Oceanic & Atmospheric Administration
NODC	National Oceanographic Data Centre
NOP	National Oceanographic Programmes
OBIS	Ocean Biogeographic Information System
ODAS	Ocean Data Acquisition System
ODIMEX	Integrated Expert & Training System for Oceanographic Data & Information Management
ODIN	Ocean Data Information Network
ODINAFRICA	Ocean Data & Information Network for Africa
ODINBLACKSEA	Ocean Data & Information Network for the Black Sea Region
ODINCARSA	Ocean Data & Information Network for the Caribbean & South America Regions
ODINCINDIO	Ocean Data & Information Network for the Central Indian Ocean Region
ODINEA	Ocean Data & Information Network for Eastern Africa
ODINECET	Ocean Data & Information Network for European Countries in Economic Transition
ODIN-WESTPAC	Ocean Data & Information Network for the Western Pacific Region
ODP	Ocean Drilling Programme
OGP	International Association of Oil & Gas Producers
OGS	Oceanography & Experimental Geophysics
OOPC	Ocean Observation Panel for Climate
OOS	Ocean Observations & Services
PEIN	Pacific Environment Information Network
PICES	North Pacific Marine Science Organization
PIMRIS	Pacific Island Marine Resources Information System
PIROF-ISA	Pacific Islands Regional Ocean Framework for Integrated Strategic Action
POGO	Partnership for Observation of the Global Oceans
QARTOD	Quality Assurance of Real-Time Ocean Data
QC	Quality Control
RIHMI	Russian Institute of HydroMeteorological Information (Russia)
RNODC	Responsible National Oceanographic Data Centre
RON	Regional OBIS Nodes
ROSCOP	Report of Observations/Samples Collected by Oceanographic Programmes

RP	Regular programme
SAMOS	Shipboard Automated Meteorological & Oceanographic System
SCAR	Scientific Committee for Arctic Research
SCAR-MARBIN	SCAR-Marine Biodiversity Information Network
SCOR	Scientific Committee for Oceanic Research
SEAGOOS	SouthEast Asian Global Ocean Observing System
SESAME	Southern European Seas: Assessing and Modelling Ecosystem changes
SG-OT	Steering Group for OceanTeacher
SIBEMA	Scientific and institutional capacity building for implementing European marine policy in the Black Sea Region
SIMORC	System of Industry Metocean Data for the Offshore & Research Communities
SISMER	Système d'Informations Scientifiques pour la Mer (France)
SOLAS	Surface Ocean - Lower Atmosphere Study
SOPAC	Scripps Orbit & Permanent Array Centre (US)
SOT	Ship Observations Team
SOOP	Ship-of-Opportunity Programme
TDWG/GBIF	Taxonomic Database Working Group/ Global Biodiversity Information Facility
TESAC	Temperature, Salinity & Current Report
UNEP	United National Environment Programme
UNESCO	United Nations Education, Science & Cultural Organization
VLIZ	Vlaams Instituut voor de Zee (Flanders Marine Institute) (Belgium)
VOS	Volunteer Observing Ship
WAVES	Web-Accessible Visualization & Extraction System
WCRP	World Climate Research Programme
WDC	World Data Centre
WDC-MARE	World Data Centre for Marine Environmental Sciences
WESTPAC	IOC Sub-Commission for the Western Pacific Region
WHP	World Hydrographic Programme
WIS	WMO Information System
WMO	World Meteorological Organization
WOCE	World Ocean Circulation Experiment
WOD	World Ocean Database
WoRMS	World Register of Marine Species

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