

**INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION
(of UNESCO)**

**Nineteenth Session of the IOC Committee on International Oceanographic Data
and Information Exchange (IODE-XIX)
Trieste, Italy, 12-16 March 2007**

ACTION PAPER

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1. OPENING

Dr Lesley Rickards, Chair of the IOC Committee on International Oceanographic Data and Information Exchange (IODE) will welcome 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 will thank the local hosts and dignitaries for hosting and sponsoring the Session.

The Meeting will then be addressed by the representatives of the local hosts.

2. ADMINISTRATIVE ARRANGEMENTS

2.1 ADOPTION OF THE AGENDA

The Committee will be invited to review and adopt the provisional agenda (**Document IOC/IODE-XIX/1 prov.** – available from the web site http://www.iode.org/index.php?option=com_oe&task=viewEventAgenda&eventID=73). The Committee will be requested to note that the core working documents (Agenda, List of Documents) are now only available as on-line documents.

ACTION: review and adopt Agenda.

2.2 DESIGNATION OF A RAPPORTEUR

The Committee will be invited to elect a Rapporteur for the Session.

ACTION: elect Rapporteur

2.3 SESSION TIME TABLE AND DOCUMENTATION

The Committee will be invited to review and adopt the Timetable ([Document IOCIODE-XIX/1 Add.Prov.](#)).

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

He will then inform the Committee about the working hours for the Session and other details relevant to the conduct of the Session.

ACTION: review and adopt Timetable

2.4. ESTABLISHMENT OF SESSIONAL WORKING GROUPS

The Technical Secretary will invite the Committee to establish sessional working groups. Suggested groups include

- (i) Sessional working group on work plan and budget;
- (ii) Sessional working group on capacity building requirements.

He will remind the Committee that each Sessional Working Group should nominate a Chair who will report back to the Committee at the time the relevant agenda item is discussed in plenary. In exceptional circumstances the Committee may decide to re-arrange the timetable to accommodate a sessional working group.

ACTION: establish sessional working groups

2.5. LOCAL ARRANGEMENTS

The representative of the local host institutions will inform 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 will be presented to give an overall overview of the IODE system, its activities and implementation of the programme at the national, regional and global levels.

3.1 CHAIR'S REPORT

This Agenda Item will be introduced by the Chair, referring to **Document IOC/IODE-XIX/6 (Chair's Report)**.[Note that this document was not available at the time of publication of the Action Paper]

Dr Rickards will provide 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 will provide an update on inter-sessional activities since the Eighteenth Session of the Committee. She will also report on her specific actions undertaken as Chair. Her report will also focus briefly on the developments and achievements in the IODE programme and also on issues and external activities that benefit or impact IODE in some way.

The Chair will also provide 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 will further describe the progress made by IODE's global and regional projects, including further development of the Ocean Data and Information Networks (ODINs), Groups of Experts and joint IODE-JCOMM Expert Team.

The Chair will note the progress made and successes with the IOC Project Office for IODE, and comment on future activities. Implementing the recommendations of the IODE Review has been an important activity in the inter-sessional period, but there is more to do.

She will also look at future direction and developments. As IODE continues to go through a period of change and some critical decisions are needed to drive IODE forward. She will focus 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](#)).

The Report of the Chair will be followed by discussions and comments on the IODE programme *in general*.

ACTION: The Committee will be requested to consider the Chair's report, together with discussions on other Agenda items, in order to discuss and decide upon future directions of the IODE programme.

3.2 IMPLEMENTATION STATUS OF THE IODE-18 WORK PLAN

This Agenda Item will be introduced by the Technical Secretary, referring to [Document IOC/IODE-XIX/7](#) (*Implementation Status of the IODE-XVIII work plan*). He will note that the Action Sheet had been reviewed at the IODE Officers Meeting held 6-7 February 2006 in Ostend, Belgium and that corrective action had been recommended for uncompleted items. The Technical Secretary will report 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](#)).

ACTION: The Committee will be invited to provide guidance on (noting that other items will be covered under the referred agenda items):
- items 82, 94, 112

3.3 REPORT ON INTER-SESSIONAL MEETINGS OF THE IODE OFFICERS

This Agenda Item will be introduced by the Chair, referring, *inter alia*, to [Document IOC/INF-1124](#) (*IODE Officers Meeting 2006*).

The Chair will recall 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 had concluded that, due to the taking place of the SeaDataNet meeting immediately after IODE-XIX, this 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 of the work plan and budget based upon the decisions of the Assembly. In this regard she will remind the Committee that at the time of IODE-XIX no information will be available on funds available to IODE from the UNESCO regular programme for the 2008-2009 biennium. Referring to Agenda Item 8 she will remind the Committee that multiple scenarios will 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 will urge 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 Ostend as a possibility. As far as the inter-sessional meeting of the Officers is concerned, the Chair will recommend that this be held jointly with the GSSC. In this regard the Chair will make reference to Agenda Item 5.1 (and [Working Document IOC/IODE-XIX/46](#) (Options for the organization of future Sessions of the IODE Committee)).

ACTION: the Committee will be requested to:

- **endorse the proposal to hold the next Officers Meeting soon after the 24th Session of the IOC Assembly (18-28 June 2007)**
- **endorse the proposal to hold the 2008 Officers Meeting jointly with the GSSC (as proposed in Document IOC/IODE-XIX/46)**
- **urge Member States contributing IODE Officers to provide funding for participation in Officers Meetings**

3.4 REPORTS OF NODCs AND DNAs

This Agenda item will be 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 will recall 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.

The Committee will be 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.

Mr. Gelfeld will report that for IODE-XIX thirty-four National Reports were received for Data Management and twenty-two reports for Marine Information. This is approximately 40% and 25% of the total National Reports expected. 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. The poor showing for the submission of the National Reports make a detailed analysis incomplete.

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

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

He will report that an overwhelming number of Member States now provide their service online. The Member States continue to collect and archive all types of oceanographic data. More of these data are available online and the majority of Member States have a metadata catalogue - though the reports indicate that these need to be made available online. The range of data types handled by Member States showed that 92% of the existing data centers 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 centers process delayed-mode data and 30% real-time data. About 50% consider they deal with data relevant to GOOS. Most data centers 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.

Mr. Gelfeld will report 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.

He will report 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.

Mr. Gelfeld will report that the Member States felt that the IODE Project Office in Oostende, Belgium has become a very important oceanographic data and information management center. 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.

He will report that IODE should concentrate on improving existing programs including OceanTeacher, OceanExpert. The current ODINAFRICA program should continue to be enhanced and the newer ODIN programs (ODINCARSA, ODINBLACKSEA, ODINCINDIO, ODINECET, ODINWESTPAC, and ODINBLACK) 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 practises in the Member States which would in turn improve interoperability of data. Consolidation of a set of standards would benefit every member of IODE.

He will report that the development of the OceanDataPortal should be 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 training people to manage these systems.

He will report that the IODE capacity building strategy implemented through the ODINAFRICA and ODINCARSA projects had substantially increased the capacity of the participating country as reflected in the national reports. The newer ODIN programs (ODINBLACKSEA, ODINCINDIO, ODINECET, ODINWESTPAC, and ODINBLACK) should continue to develop.

Mr. Gelfeld will report that the Member States all felt that participation in IODE has raised the profile of Member States as leading oceanographic data centres on a worldwide platform, 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 has hosted scientists and data managers from IODE Member States 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 Member States in the long run in contrast to project data centres, which are only alive for a short period.

ACTION: the Committee will be requested to:

- **Encourage Member States to adhere to document deadlines set for future IODE sessions**
- **Expand and develop its OceanPortal (<http://www.oceanportal.org>) to help Member States provide links for their online services**
- **Encourage Member States to make their metadata catalogues available online**
- **Encourage each Member State to review the 'IOC Oceanographic Data Exchange Policy by and enact it as part of their Oceanographic Data Policy**
- **Encourage all Member States to assist in strengthening the IODE Project Office through secondments, extra-budgetary monetary contributions and participation in IODE training courses**
- **Concentrate on improving existing programs including OceanTeacher, OceanExpert and the ODIN Programs**
- **Coordinate International Polar Year (IPY) activities for Member States**

3.5 REPORT OF THE IODE PROJECT OFFICE

This Agenda Item will be introduced by Dr Vladimir Vladymyrov, Head of the IOC Project Office for IODE, Ostend, referring to [Document IOC/IODE-XIX/9](#) (*Report of the IOC Project Office for IODE*). He will recall the history of the Project Office creation, the main Project Office objectives, and the Project Office activities to achieve these objectives. The Committee will be reminded that unexpected additional financial recourses were made available to the Project Office by the Government of Flanders 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 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 they are 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.

The Committee will be 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 Ostend);
- 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;

A comprehensive overview of the Project Office activities in 2005-2006 and the budget distribution will be presented to the Committee.

The Committee will be 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 (eg 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 will need to be covered from extra-budgetary projects.

The Committee will be 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 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.

The Committee will be 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 which 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.

The Committee will recall 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.

The Technical Secretary will inform the Committee about arrangements beyond 2007.

ACTION: The Committee will be requested to:

- **Comment on the Project Office development and activities.**
- **Revise and complete the Project Office work plan (2007, 2008-2009) based upon planned IODE activities (global, regional) and bearing in mind available resources**
- **Identify necessary human resources for the IODE Secretariat (including the IODE project Office) and recommend ways and means to obtain/secure these resources.**

3.6 ACTIVITIES OF THE RNODCS AND THE WORLD DATA CENTRES

This Agenda item will be introduced by Mr Robert Gelfeld referring to [Document IOC/IODE-XIX/10](#) (*Reports on Activities of the RNODCs and World Data Centres*).

Regarding the former RNODCs Mr Gelfeld recalled that IODE-XVIII had adopted Resolution IODE-XVIII.2 which had abolished the system of RNODCs, but 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.

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.

Mr Gelfeld will report 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 on the IOC Strategic Plan for oceanographic data and information management and invited the Chair to intervene at this point.

Mr. Gelfeld will report that for IODE-XIX only two reports were received from the WDCs. 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 make a detailed analysis incomplete. As the positive body for management and service of global oceanographic data, the WDCs Oceanography cover all the types of oceanographic data. The WDCs have a history of 50 years and has 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.

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 Center 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.

Mr. Gelfeld will report the lack of coordination between the WDCs Oceanography. With the development of scientific research and the implementation of more and more international cooperative projects and programs, some terms of reference should be revised to fit for the changes. For example, strengthening of capacity building, perfection of WDCs management and service mechanism, improvement of WDCs management and service function should be written down in the terms of reference. Suggestions and recommendations on it should be asked for abroad. It should be discussed and finally approved at relevant meetings.

He will report 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 oceanography are the world data centers and should be responsible for all the types of oceanographic data. The WDCs perform entry level of quality control. There exists certain difference in the quality control of the WDCs and it recommended that the WDCs participate in any IODE led quality control discussions. The WDCs need to be involved in any discussions on long-term data management.

The Directors of World Data Centres Oceanography will then be invited to provide short reports on their inter-sessional activities.

ACTION: the Committee will be requested to:

- **Establish an inter-sessional working group to propose concrete ways to implement the decision of IODE-XVIII on RNODCs and bear in mind the IOC strategic plan for oceanographic data and information exchange. The group will report to the next Officers Meeting (March/April 2008)**
- **Encourage The World Data Centers to adhere to the deadlines set for future IODE sessions**
- **Ask the IODE Secretariat to contact ICSU to review the current terms of reference for the WDCs**

3.7 FOLLOW UP TO THE IODE REVIEW

This Agenda Item will be introduced by the Technical Secretary, referring to [Document IOC/IODE-XIX/11](#) (*Follow-up to the IODE review*). He will recall that out of the 17 recommendations formulated by the Review, nearly had had been followed by the IODE Committee at its eighteenth Session. He will provide a summary of the Recommendations that require further action by IODE-XIX:

Review Recommendation 1: The IODE review recommended the modification of objectives of the IODE Committee

The Committee needs to identify a long-term strategy that defines how the IODE objectives will be achieved (see [Agenda Item 8.2](#)).

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 eg responsibilities in JCOMM, GOOS, etc) and the unbalance between the tasks of the Chair and Vice-Chair, the Committee is invited to consider the revision of the management structure by electing two Co-Chairs rather than Chair and Vice-Chair.

ACTION: The Committee will be invited to review and adopt the proposed Draft [Resolution IODE-XIX.1](#) (The IODE Chairs)

Review Recommendation 3: The review recommended that that the Groups of Experts be abolished

Discussion on this item is referred to [Agenda Item 4.2](#)

Review Recommendation 4: Regarding Distributed national data management systems the IODE review recommended a more distributed system in each country.

Discussion on this Agenda Item is referred to [Agenda Item 4.3](#)

Review Recommendation 5: regarding Responsible National Oceanographic Data Centres (RNODCs) recommended to abolish the RNODCs.

The Committee will be informed that former RNODCs had been requested to include information as an annex to their National Report. Discussion on this Agenda Item is referred to [Agenda Item 3.6](#).

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.

ACTION: The Committee will be requested to recommend ways to guide Member States interested in developing national oceanographic data and marine information management capacity. This may require the revision of the Guide “Guide for Establishing a National Oceanographic Data Centre” (IOC Manuals and Guides No. 5) published in 1997. This revision may also take into consideration the input received for Recommendation 4 (see above).

Review Recommendation 7: regarding Quality Control, the IODE Review recommended that IODE make a strong endeavour to ensure a better quality of oceanographic data

Whereas the IODE review considered quality control as an important and essential element of the IODE programme, the results of the survey indicated a wide variety of reference documentation and software used for the quality control of oceanographic data.

Reference is also made to [Agenda Item 3.9](#)

ACTION: The Committee will be requested to discuss the need of a revision of the Guide “Manual of quality control procedures for validation of oceanographic data” (IOC Manuals and Guides No. 26) published in 1997. This revision may wish to take into consideration the publication of related documentation by recent relevant international projects.

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 Agenda Item is referred to [Agenda Item 5.5](#) and [Agenda Item 6.2.13](#) (related to the development of an Ocean Data Portal).

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.

ACTION: The Committee will be requested to:

- recommend further action regarding the building of a global data set ;
- review the web page of WDC products and services.

Review Recommendation 10: regarding MEDI the IODE review recommends that the IODE reviews the need and resources required for...

Discussion on this matter is referred to [Agenda Item 6.2.6](#) (MEDI)

Review Recommendation 11: the IODE review recommended to abolish the system of IODE Regional Coordinators

It will be 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 is required by IODE-XIX in this matter.

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 will be invited to note that IODE now counts 84 (of which 76 could be verified) IODE National coordinators for oceanographic data management, but only 33 IODE National Coordinators for marine information management. Despite numerous email reminders and Circular Letters this number has not increased substantially since 2005.

ACTION: The Committee will be requested to recommend action to increase the number of IODE national coordinators in general, and the number of IODE national coordinators for marine information management in particular.

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 are referred to [Agenda Item 8.1](#)

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 are referred to [Agenda Item 4.1](#)

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 are referred to [Agenda Item 9](#) as well as to relevant agenda sub-items under Agenda Item 6.2.

Review Recommendation 16: The IODE review recommended that the IOC websites should be simplified and should have a common style and navigational system

This Agenda Item will be discussed under [Agenda Item 7.1](#)

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 are referred to [Agenda Item 6.1.3](#)

3.8 IODE DATA FLOW

This Agenda Item will be introduced by the Chair, referring to [Document IOC/IODE-XIX/12](#) (IODE Data Flow). She will recall 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.

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.

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).

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.

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.

The Chair will suggest 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.

Action: The Committee is requested to:

- **comment on the rejuvenation of the IODE NOP/CSR system through development of system for POGO**
- **propose action regarding the global extension**
- **comment on the desirability of developing a global IODE portal**

3.9 QUALITY CONTROL/ QUALITY ASSESSMENT

This Agenda Item will be 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*).

He will recall that during IODE-XVIII , the report of the IODE Review Group to IODE-XVIII emphasized the QC/QA issue as a precedence task and one on which minimum quality control procedures for oceanographic data must be a core activity of the IODE programme. Accordingly, the Committee adopted resolution IODE-XVIII.4 to establish an intersessional 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; and (iii) prepare a report on (i) and (ii) above.

Mr. Rojas will report that the Committee decided that the Group would be composed of Sydney Levitus (USA), Nikolay Mikhailov (Russia), Loic Petit de la Villeon (France), Candida Seta (Mozambique), Hae-Seok Kang (Korea), Ruguang Yin (China) , Joon-Yong Yang (Korea), Scot Tomlinson (Canada), Ricardo Rojas (Chile), Catherine Maillard (France) and Edward Vanden Berghe (Belgium), Anis Diallo (Senegal) and Murray Brown (Chief Editor OceanTeacher) . The 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.

He will inform the Committee that in order to assist the Group with its deliberations an online survey was prepared by the IODE Secretariat and opened for input on 17 May 2006. All IODE National Coordinator for Oceanographic Data Management were requested to fill the questionnaire. A total of 32 responses were received. A detailed list of the respondents as well as a full listing of the survey question are added in Annex I and I of [Document IOC/IODE-XIX/13](#) (*Report on the QC/QA Survey*)

Mr. Rojas will report that due to time constraints of the main participants, the intersessional 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 responding to the questionnaire.

Referring to the questionnaire, Mr. Rojas will mention that the countries responding were well distributed geographically, but a number of countries with large data centres did not respond, however their input was needed to aid the assessment. Mainly , because some of these countries are participants in the EU funded SeaDataNet project, which has a quality control task, so input has been acquired through that route.

He will report 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 respondents have 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.

The Committee will be 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, often no further details are given. Thus the extend 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. However, there are some areas of a more consistent approach. These include use of the Manual of Quality Control Procedures for Validation of Oceanographic Data, GTSP 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

Furthermore, Mr. Rojas will report 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.

Mr. Rojas will also summarize the input from EU-funded SeaDataNet project on which there is a task as part of the standards development "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 will mention how SeaDataNet relates to other IODE programs such as GTSPQ and GOSUD projects, through test 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 IODE community.

Mr. Rojas will also mention some recommendations by Dr. Syd Levitus, Director of WDC for Oceanography (Silver Spring) and Leader of the GODAR project, regarding the goals that the QC/QA group should finally have, among others: a) compiling a bibliography of all quality control publications and making these available on *via* web site (e.g. OceanPortal, OceanTeacher); b) requesting papers from marine data centres, institutes, and projects (e.g., JGOFS, WOCE, etc.) regarding QC issues they face or have faced. Even more, this issue 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).

Mr Rojas suggested that the final document to be produced by the QC group 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. ISDN, 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.

Finally Mr. Rojas will comment on a 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 pseudo-course in oceanteacher environment (<http://ioc.unesco.org/oceanteacher/OceanTeacher2/CoursesHome.htm>) which covers from initial planning to detailed QC procedures for specific data types. As QC/QA group completes the collection of primary documents -- and provides other discussions and papers -- Dr. Brown will convert this pseudo-course into a real training course to be offered to Oceanteacher international students.

Mr Rojas will close stating that it is clear that quality control is an important issue to IODE and needs to have further effort put in. It becomes even more important if we progress with the OceanDataPortal concept (e.g. marine data ATM) that we have commonality in our quality control procedures. The aim is for convergence to a standard way to carry out QC on a suite of variables.

ACTION: The Committee will be requested to:

1. Agree to continue the life of the inter-sessional working group for one further period, provided a suitable chair/leader and members can be identified, to carry out the original remit of:

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

A draft of the report should be submitted to the 2008 IODE Officers meeting for review and a final report submitted to IODE-XX. This should also include a bibliography of all quality control publications.

2. Agree to organising (or jointly organising) a QC Workshop, in collaboration with JCOMM (JCOMM-II recommendation 7.6.2). There is a possibility to use the opportunity of the forthcoming International Conference on Marine Data and Information Systems (IMDIS-2008) Conference in Spring 2008 for this; a QC session is already planned. IOC and the EU are jointly sponsoring this Conference and allocate financial resources to this event (US\$ 10,000)

4. STRUCTURAL ISSUES

4.1 RESTRUCTURING OF THE IOC AND ITS IMPACT ON IODE

This Agenda Item will be introduced by the Technical Secretary. He will inform 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. In terms of impact, in the 33 C/5 (UNESCO work plan for 2006-2007) the IODE programme is no longer a Major Line of Action (MLA) but an Action. The immediate impact of this is that the IODE programme is no longer "visible" within the C/5. It is yet unclear whether the restructuring of the IOC Secretariat will also lead to further re-organization of the programmes (e.g. merger of IODE and GOOS, IODE and JCOMM,...).

4.2 IMPACT OF THE IODE REVIEW AND FOLLOW-UP

This Agenda Item will be introduced by Ms Suzie Davies, Chair GE-MIM, referring to Document IOC/IODE-XIX/19 ([Document IOC/IODE-XIX/19](#) (*Future Strategy and Structure for IODE groups of Experts: Report to IODE-XIX by Chairs of Groups of Experts*)). The Committee will recall 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. This document has been made available as the above mentioned Document IOC/IODE-XIX/19.

ACTION: The Committee will be requested to review and comment on Document IOC/IODE-XIX/9.

ACTION: The Committee will be invited to review and adopt the proposed Draft [Resolution IODE-XIX.2](#).

4.3 ROLE OF NODCs AT THE NATIONAL LEVEL

This Agenda Item will be introduced by the Vice-Chair, Mr Ricardo Rojas. He will invite participants to report on their national arrangement for oceanographic data and information management specifically referring to a distributed model, and identifying gaps in the current arrangements.

5. COOPERATION WITH OTHER PROGRAMMES

The Chair will introduce 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 will further recall 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 will view 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

This Agenda Item will be introduced by the Chair. She will provide an overview of the cooperation between IODE and GOOS since the last session. In this regard she will mention IODE involvement with GSSC, GRA and I-GOOS meetings. She will note as examples the cooperation existing between ODINAFRICA and GOOS-Africa and the developing cooperation within the ODINCARSA region. In addition, she will note that there are opportunities to cooperate, together with the JCOMM DMPA, with the coastal component of GOOS. In particular she will draw 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.

The Chair will request 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.

5.2 COOPERATION WITH JCOMM

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

The Committee will then be 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*).

The Argo program in JCOMM has almost 2800 profiling floats operating in the world's oceans. Argo has developed a standard procedure for carrying out delayed mode quality control of the data returned from these instruments. This quality control is greatly helped by gaining access to the most recent CTD data collected by nations. Argo has requested all nations and ocean data centres to strive to improve the submission of recent CTD data to help. They are hoping to have access to CTD data as quickly as 6 months after data collection. Whatever steps can be taken to assist are appreciated. Contact can be made directly with the Argo Data Management Team co-chairs or through the Argo Technical Coordinator.

5.3 COOPERATION WITH WMO

This Agenda Item will be introduced by Dr. Georgi Kortchev / Mr Etienne Charpentier. He will inform the Committee that many aspects of the existing or future cooperation between IODE and WMO will take place through JCOMM. JCOMM and IODE interactions and cooperation are proposed and detailed in the JCOMM Data Management Strategy. A number of recommendations have been made in this regard that are worth being considered by IODE-XIX. From a WMO/JCOMM perspective, one key aspect is to work and progress on interoperability between the present and future data management systems, including with the WMO Information System (WIS). The JCOMM data management strategy explores a number of possibilities including the definition of common metadata profiles for discovery. DMCG-2 requested the Chair of the ET-DMP, in consultation with the Chair of the DMCG to prepare a checklist of technical requirements for participation in the Ocean Data Portal, for consideration by IODE-XIX. The DMCG is preparing a checklist for candidate WIS Data Collection and Production Centres (DCPC) for review and adoption by the IODE-XIX.

The JCOMM Data Management Strategy addresses data discovery and it is recommended that IODE and JCOMM work together on this. One way will be through cooperation with WIS. Another will be to improve other data discovery capabilities.

Transition to GTS Table Driven Code forms for time critical observations is also an issue that will impact the delivery of ocean data to IODE, and in the provision or access to metadata that describes the instrumentation used. The DMCG has established a Table Driven Codes Task Team that includes IODE experts. The team will be reviewing and suggesting changes to appropriate BUFR templates.

The JCOMM Strategy also discusses cooperation with archive centres, and therefore with IODE, in assisting in the development of climatologies. IODE support of GODAR is a prime example of this. JCOMM DMPA has been asked to assist in the development of an extreme wave event database. In this case, the objective is not to develop a climatology, but rather to identify extreme wave events and improve access to the data to assist with improving wave models.

Requirements for platform/instrument metadata are now clearly expressed for a number of applications including (i) data assimilation and ocean field analysis; (ii) ocean modeling; (iii) ocean modeling validation; (iv) climate forecasting; (v) seasonal to decadal climate variability; (vi) numerical weather prediction; (vii) satellite calibration; (viii) satellite validation; (ix) SST analysis; (x) operational activities (e.g. weather forecasters, disaster response) (xi) quality assurance activities serving above applications, and (xii) diagnostics for platform operators. Active participation from both IODE and JCOMM communities will be needed to avoid duplication of work and make sure that common standards are adopted, and the required metadata are collected and eventually made available to end users. The Water Temperature metadata Pilot Project (META-T) is a good example of where such cooperation can take place.

The JCOMM data management strategy is calling for better efficiencies in the operations of former SOCs and RNODCs. Things will have to be eventually integrated in this regard.

Quality Management is an area where much cooperation between IODE and JCOMM should take place. JCOMM is already collaborating in the development of the WMO Quality Management Framework and is in the process of documenting all of its related publications and making sure that they comply with Quality Management terminology. IODE could engage in a similar process. WMO is working at enhancing its cooperation with ISO so that some standards might eventually be published as common WMO/ISO standards. IODE will be able to participate in the development of ocean related standards through its cooperation with JCOMM.

Another good example of cooperation is now developing between WMO, JCOMM and IODE through the use of the OceanTeacher.

5.4 COOPERATION WITH GEO/GEOSS

This Agenda Item will be introduced by Mr Robert Keeley.

5.5 COOPERATION WITH IOC SCIENCE AND MONITORING PROGRAMMES

This Agenda Item will be introduced by the Chair. She will report 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

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

The IOC Harmful Algal Bloom Programme has over the past 10 year established a number of data products.

1. HAE-DAT is 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)

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/>.

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 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.

The 'Harmful Algal Event Information System' is a data product unique to IOC and its development is an IPHAB priority as regards data management.

Objectives:

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.

Deliverables:

A one point entry at 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.

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 List, or, integration of List into existing larger scale taxonomic information system.

2007, 2008-2013

- Expansion of geographical coverage of all system components.

ACTION: The Committee will be requested to:

- review and comment on the proposed cooperation between IODE and HAB.
- Approve the cooperation project on the development of a harmful algal bloom event information system
- Identify the necessary financial resources for the implementation of the project (2007: US\$ 15,000; 2008-2009: US\$ 30,000)

ACTION: The Committee will be invited to adopt the proposed Draft [Recommendation IODE-XIX.1](#) (A HARMFUL ALGAL EVENT INFORMATION SYSTEM)

5.5.2 CDIAC: The New Data Management Projects and Data

Dr Alex Kozyr (Carbon Dioxide Information Analysis Center, Oak Ridge National Laboratory, USA) will be invited to make a short presentation on "CDIAC: New Data Management Projects and Data".

Dr Kozyr will inform the Committee that, in terms of **Data Management Support for the International Global Ocean Carbon and CLIVAR Repeat Hydrography Program** 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. In similar fashion 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 rapidly rising atmospheric CO₂ levels. Reoccupations of WHP sections form a key component of these ocean carbon strategies. 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 programs and data centers 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 IOCCP web site http://ioc.unesco.org/ioccp/Hydrography/Hydro_Map.htm

Dr Kozyr will further inform the Committee that regarding **Data Management Support for the Global Volunteer Observing Ship (VOS) Program Data** the IOCCP hosted a workshop in January 2003 called "Ocean Observations from Ships of Opportunity", where participants developed the first global compilation of programs 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 programs. 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

Dr Kozyr will inform 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.

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 girded 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.

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. The interface has only one front page and all on-screen results are shown in a new window. Main page is divided in sections that help to navigate and keep different types of parameters grouped. In Query Parameters section users can set up search criteria's and limitations. Single parameters, for example temperature from/to: 25 °C, can be used as well as a range of parameters, e.g. temperature from: 20 °C to: 25 °C. The data location coordinates can be entered manually or dragging a box on the map (icon with "i"). Map is tightened to Geographical Region, Section, and Cruise ID drop-down-menus and all changes are reflected on the map. Output parameters section has list of all variables that can be extracted from the database. Clicking a checkbox next to the variable name users may choose parameters that they need or chose all parameters clicking on "Check All" box. Format in which requested information will be presented is set up in the Output Form section. Users have options to get it as an on-screen table, as a downloadable file (CSV, TSV, NetCDF formats) or as an on-screen property-property plots. Interactive map is designed to provide the metadata information which displayed in the clickable Metadata section by using an Information mode (icon with "i") Users can receive metadata information by clicking on a cruise line, or dragging a box in the research area of the map. The access to metadata provided through the same interface using the background connection to metadata search engine Mercury. Map has also a Navigation mode (icon with palm). In Navigation mode users can move map around (by dragging) Also users could zoom it in (icon with +), zoom it out (icon with -) the map, and see the whole extend (icon with an arrow). Architecture of WAVES is based on the following components: php engine, MySQL database, Subsys_JsHttpRequest library, Minnesota Map server, and ka-Map server. Php engine with DHTML and JavaScript is used as the main tool for interface creation, data extraction and forming results pages. The "Underway" part of WAVES (slide 28) is under construction and will be available in April, 2007.

ACTION: The Committee will be requested to:

- **Consider the data management activities of CDIAC and consider possibilities for cooperation between IODE and CDIAC**

5.6 COOPERATION WITH IPY

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

ACTION: The Committee will be invited to adopt the proposed Draft Recommendation IODE-XIX.2 (Cooperation with IPY)

5.7 OTHERS

5.7.1 OBIS.

[Note: At the time of publication of the Action Paper, it was unclear who will introduce this Agenda Item. The text included in the Action Paper has been submitted by Dr Edward Vanden Berghe and Dr Mark Costello]

A brief overview of the objectives and achievements of OBIS will be presented, and a summary of some of the technological issues given.

The Ocean Biogeographic Information System (OBIS) is the information component of the Census of Marine Life (CoML), a growing network of more than 1000 researchers in 73 nations engaged in a 10-year initiative to assess and explain the diversity, distribution, and abundance of life in the oceans - past, present, and future. OBIS is a web-based provider of global geo-referenced information on marine species and provides a variety of spatial query tools for visualizing relationships among species and their environment. OBIS strives to assess and integrate biological, physical, and chemical oceanographic data from multiple sources.

OBIS is structured as a federation of organizations and people sharing a vision to make marine biogeographic data, from all over the world, freely available over the World Wide Web through the OBIS Portal. OBIS participants agree to develop and promote standards and interoperability in concert with the standards and protocols being developed for other environmental data systems around the world. It is not a project or programme, and is not limited to data from CoML-related projects. It is a truly federated system, with multiple sources of funding, but united by a common ambition to make biogeographical data freely available through the WWW. OBIS is governed through its International Committee, that meets two times a year.

Global cover is achieved through collaboration with a series of Regional OBIS Nodes (RONs), which solicit data from their region and contribute it to the international OBIS portal. Currently there are 10 RONs. The Managers' Committee consists of the managers of these regional nodes, and discusses topics such as regional gaps in the OBIS cover, overlaps, sharing of experiences and data. Some RON are Ocean Data Centres and all are keen to

collaborate with members of IODE so as to provide scientists, policy makers, ocean managers, and the public greater access to marine biological data.

On 27 February, the International OBIS portal contained information on 12.9 million distribution records, on 77,000 different species, from over 200 databases.

Plans for the future are

- the expanding RON and sub-node network and related evolving governance,
- growth in number of datasets published and species represented, with the objective of having the vast majority of marine species to be represented by at least one distribution record by 2010
- improve OBIS portal functionality (visualize time-series and individual animal tracks, mapping, fishery data, discovery metadata),
- to have a first draft of a World Register of Marine Species (WoRMS) available for marine species data management in this Linnaeus Tricentenary year (noting that some taxa will be incomplete but we will provide a framework and mechanism to facilitate their completion).

The efforts of the IODE GE-BICH group are noted with interest; the results of the GEBICH pilot projects, on sharing taxonomic information and on valorizing the UNESCO Register of Marine Organisms, are potentially of high significance and looked forward to.

OBIS is looking forward to collaborate with IODE on the organization of the Ocean Biodiversity Informatics (OBI) conference planned for Halifax, Canada later this year, as agreed during the IODE XVIII meeting.

OBIS is eager to collaborate with IODE, and to form partnerships with NODCs with relevant data holdings, and advise NODCs on biodiversity data management where appropriate. RONS are seen as the preferred mechanism, but not the exclusive one, to realise this synergy. OBIS also hopes to locate relevant datasets through the NODC network, even if they are not managed by an NODC.

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)

This Agenda Item will be introduced by Dr Sergey Konovalov, Co-chair GE-BICH, referring to [Document IOC/IODE-XIX/20](#) (*Group of Experts – Biological and chemical data management and exchange practices (GE-BICH)*)

Dr Konovalov will recall that the IODE GE-BICH has been founded aiming to improve 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.

At the Third session of the group, held in Oostende, Belgium in November 2006, it has been proposed to include additional objectives:

- to create and keep updated 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 GEBICH activity to OceanTeacher making results from the GE and from other programmes available to education of data managers and data users.

Following the previous decisions of the group on the need to look 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 have been elected co-chair of GE-BICH for the next inter-sessional period which will enable better balancing biological and chemical issues and activities.

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

1. Set up a GE-BICH web “portal” for biological and chemical data management;
2. Implementation of the Ocean Biodiversity Informatics-II conference (or OBI’07);
3. Promote and instigate the creation of a marine XML registry or repository;
4. Continue promoting the submission of biodiversity data to OBIS through the OBI’07 conference but also through GE-BICH web pages and through the network of IODE data centres;
5. Maintain a close relationship with OBIS, ICES, FAO, TDGW/GBIF, ITIS, and the MarBEF and SeaDataNet communities; promote the work of these groups/organisations, and collaborate as required;
6. Extend GEBICH 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;
7. Liaise with the marine genomics community;
8. Liaise with CIESM and PICES, ICES counterparts for the Mediterranean sea and the Pacific Ocean;
9. Centralise information on on-going initiatives, and existing or new tools, guidelines, ontologies, gazeteers, metadata standards and processing protocols relevant to biological and chemical data management;
10. Populate the GEBICH web pages and contribute to relevant sections of Ocean Teacher.

In order to support this ambitious work plan, it is proposed to establish a GE-BICH web portal, as a part of 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.

ACTION: The Committee will be requested to:

- adopt the summary report of the third Session of the IODE Group of Experts on Biological and Chemical Data Management and Exchange Practises (GEBICH), and recommendations included therein;
- allocate US\$ 10,000 for the organization of the OBI 07 conference in 2007
- allocate US\$ 10,000 for the development of the GE-BICH web portal in 2008
- allocate US\$ 10,000 for GE-BICH-IV in 2008
- allocate US\$ 10,000 for the updating of the GE-BICH web portal in 2009
- allocate US\$ 10,000 to cover small scale projects and to make the results of GEBICH and other international programs a part of OceanTeacher system and IODE teaching courses

ACTION: The Committee will be invited to adopt the proposed Draft [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))

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

This Agenda Item will be introduced by Ms Suzie Davies, Chair GE-MIM. In her introduction Ms Davies will recall 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 will note with regret that, due to budgetary restrictions, GE-MIM was unable to meet in 2006, as initially planned. She will inform that GE-MIM now proposed to hold its Ninth Session in Ostend, Belgium in September or October 2007.

Ms Davies will focus on major achievements of 2005 to date; recommended 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 will note 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.

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

This Agenda Item will be introduced by Dr Nicolay Mikhailov, referring to [Document IOC/IODE-XIX/22](#) (*JCOMM/IODE Expert Team on Data Management Practices*) Dr. Mikhailov will report 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.. Dr Mikhailov will describe then the results of the ETDMP pilot projects.

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.

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.

The Committee will be 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/JCOMM Ocean Data Portal concept and ODIN Black Sea E2EDM proposals were formulated.

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

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

ACTION: The Committee will be requested to comment on the ETDMP achievements and plans.

6.2 PROJECTS

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

6.2.1 Aquatic Sciences and Fisheries Abstracts (ASFA)

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

Mr Odido will provide 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 Reposities; 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.

The 2006 Annual ASFA Board meeting was held at the IODE Project Office in Ostend, 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.

The ASFA Board accepted an invitation to hold the next Meeting at the Kenya Marine and Fisheries Research Institute in Mombasa, Kenya in September 2007.

ACTION: The Committee will be requested to review collaboration with ASFA and recommend ways in which this can be strengthened.

6.2.2 Global Oceanographic Data Archaeology and Rescue (GODAR)

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

6.2.3 Global Temperature and Salinity Profile Programme (GTSP)

This Agenda item will be introduced by Mr Robert Keeley, referring to [Document IOC/IODE-XIX/25](#) (*Global Temperature and Salinity Profile Programme (GTSP)*). Mr. Keeley will report 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 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 to nearly the end of 2006 was 27,063. The number of TESACS is steadily increasing. In 2005, we received more than 868,000 and more than

968,000 to nearly the end of 2006. Much of this increase is due to Argo exceeding the 90% level compared to the 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.

The GTSPP 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 GTSPP also offers the advantage of combining Argo profiles with all of profile data collected in a common data structure and with common processing. The GTSPP is collaborating with the GODAE QC Intercomparison project along with colleagues from Coriolis and the GODAE Data Server in Monterey. The GTSPP 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.

The Committee will be 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 GTSPP, and has been implemented by the US SEAS programme on a trial basis. Preliminary results are very positive. GTSPP 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 GTSPP 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. GTSPP is also collaborating with the Marine Metadata Initiative in the area of metadata issues.

The GTSPP is moving forward in a number of directions. It has developed software to read and write BUFR messages. This is confined at present to the templates that support Argo, but as this is a replacement for TESAC 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 GTSPP 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.

Mr Keeley will underline that the most serious setback in GTSPP operations has been the withdrawal of centres from performing scientific quality assessments of the data. He will present the detailed GTSPP work plans for 2007 and 2008-2009 identifying the assistance requested from IODE.

ACTION: The Committee will be requested to:

- **comment on the Programme development**
- **assist in identifying candidates for a Science centre that will take over scientific QC.**
- **assist in identification of candidates for a new chair for GTSPP and hold a meeting.**

6.2.4 Global Ocean Surface Underway Data Pilot Project (GOSUD)

This Agenda item will be introduced by Mr Robert Keeley. Mr Keeley will inform the Committee that the work of the past year of the Global Ocean Surface Underway Data (GOSUD) Project has been focused largely at IFREMER which operates the Global Data Assembly Centre (GDAC) for the Project (see <http://www.ifremer.fr/gosud/>). The GOSUD 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 broadly 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.

After some delays it appears that at least some of the data being collected by the SeaKeepers organization are at least making it to 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.

In 2006, GOSUD held a joint meeting with the SAMOS (Shipboard Automated Meteorological and Oceanographic System) Project) in Boulder. 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 a 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, separate sessions for GOSUD, and for SAMOS and then 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)

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 code form to BUFR. The work is being lead by the 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 Bob 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.

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. It is expected that informal discussions will take place to refine what will be done this year and into the future.

Thierry Delcroix, one of the original co-chairs of GOSUD has resigned. It is been recommended by the other co-chair, Bob Keeley, that Loic Petit de la Villeon be confirmed as a co-chair. Loic 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 is located, is able to influence its operations. It is also important for IODE to begin looking for a replacement for Bob 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.

Mr Keeley will then give 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 will list the following: (i) Identify a replacement for Bob Keeley as co-chair of GOSUD; and (ii) Complete annual reports for 2007, 2008.

ACTION: The Committee will be requested to:

- **comment on the GOSUD development**
- **ratify Loic Petit de la Villeon as co-chair of GOSUD (2007)**
- **allocate US\$ 10,000 to assist with participation in GOSUD meetings (2007)**
- **assist in finding a replacement for Robert Keeley (2008)**

6.2.5 Development of a marine XML (marineXML)

This Agenda Item will be introduced by the Chair on behalf of Dr Roy Lowry (Chair, SG XML). She will refer to [Document IOC/IODE-XIX/27](#) “*Project Report: Development of a marine XML (marineXML)*”

She will recall 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 application 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”.

The 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 centred on progressing these 12 recommendations.

The Chair will note 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”.

The terms of reference and operational rules of the system are summarised 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.”

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

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 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 utilised 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.

Action: The Committee is requested to:

- **comment on the MarineXML report and progress made;**
- **endorse the work plan for the MarineXML Steering Group, which includes plans for a face-to-face meeting in early 2008 (costing not provided)**

6.2.6 Marine Environmental Data Inventory (MEDI)

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

Mr. Reed will recall 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).

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 will summarize 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.

Mr. Reed will outline 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 a compliant metadata authoring tool;
- (iv) continue to use and promote MEDI in IODE capacity building activities and encouraged the use 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.

ACTION:

The Committee will be requested to:

- **Continue the SG-MEDI for the next inter-sessional period**
- **Review and adopt the work plan submitted by the Third Session of the IODE Steering Group for MEDI;**
- **Review and adopt the proposed budget of US\$ 15,000 for the period 2007-2009**

6.2.7 Global Directory of Marine and Freshwater Professionals (OceanExpert)

This Agenda Item will be introduced by Dr Wouter Rommens. Reference will be made to [Document IOC/IODE-XIX/29](#) (*Report on the global directory of Marine and Freshwater Professionals: OceanExpert*). The report provides a detailed overview of the history and development of OceanExpert and its predecessor GLODIR. The reports lists 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 is given.

In 2002 OceanExpert started with an inherited database of over 13,500 records from the GLODIR directory. At that time basic functionalities of OceanExpert included (i) an easy registration with a 'forgot my password' function (2) email service for registered experts and (iii) a citation alert. At that time it was decided to remove experts without (valid) email-addresses.

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

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
- Linking Expert records with ASFA unique author identifier
- Financial resources to maintain OceanExpert.

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

The alumni database is available at <http://www.iode.org/alumni>. It contains information on IODE alumni since 1997.

Dr Rommens will also highlight that the OceanExpert database is now used as the “people” database for the IODE, GOOS and JCOMM web sites, thereby becoming a “clearing house” system for IOC ocean experts.

Dr Rommens will note that there is a continuing need for quality control of the OceanExpert database. In order to obtain this a regular update request to members of OceanExpert will 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.

Several additional new features were installed 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

Dr Rommens will note that there is a need for local or regional administration and quality control of the database and requests the national coordinators to assist in this. He will further note that there is a need to actively extend the geographical coverage of OceanExpert since many countries (especially Eastern Europe, Asia and the Pacific) are currently underrepresented in OceanExpert.

ACTION: The Committee will be requested to

- **comment on, and approve the implemented features of OceanExpert;**
- **review and adopt the 2008-2009 workplan and allocate the proposed budget of US\$ 20,000 for the biennium 2008-2009.**
- **actively promote OceanExpertm at the national and regional level**

6.2.8 Development of e-repositories (OceanDocs)

This Agenda Item will be introduced by Mr Marc Goovaerts, referring to [Document IOC/IODE-XI/30](#) (*OceanDocs: Repository Network on Oceanography and Marine Science*). Mr Goovaerts will recall that the OdinPubAfrica developed a repository for scientific literature of African marine science. During the project other ODIN groups, in the first place ODINCARSA were interested to develop 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>).

ODINPubAfrica has been funded through a small scale activity project of FUST (Government of Flanders) 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.

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 will be 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

In view of the success and experience gained during the OdinPubAfrica project and the interest shown by other regions it is proposed to undertake a 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](#))

ACTION: The Committee will be requested to

- **comment on the work implemented by OdinPubAfrica;**
- **approve the development of the OceanDocs project proposal, including its 2008-2009 workplan and allocate the proposed budget of US\$ 90,000 for the biennium 2008-2009.**
- **actively promote OceanDocs at the national and regional level**

ACTION: The Committee will be invited to adopt the proposed Draft [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>)

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

Dr Rommens will recall 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 4,682 + records in eight super-categories/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.

He will report that during the inter-sessional period, the IODE OceanPortal websites database was enlarged by approximately 1,000 new records. Two annual house-cleaning efforts have been done 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.

The complete OP site was moved from the servers at the UNESCO office in Paris to its permanent location at the Project Office website in Ostend. OceanPortal has been edited by Dr Murray Brown (until the end of 2005) and Dr Wouter Rommens (2006 till present).

There have been 2.4 unique outgoing record abstracts, since records were begun in July 2001. Using those abstracts, users have selected and used 200,000 website pages. There are approximately 500 page views per weekday, at the present time. On average, 130,000 visits were recorded per year during the intersessional period. There are 92,200 citations of OceanPortal in Google (from non-OP web pages) which explains the very high score Google assigns to OP records. It is non uncommon to find OP records about resources to be placed before the actual resource, during Google searches. This confirms OP's position as the premier ocean data and information index today.

ACTION: The Committee will be requested to:

- **comment on the delivered work in, and provide guidance on future priorities for the global OceanPortal**
- **review and adopt the 2008-2009 workplan**
- **allocate the proposed budget of US\$ 22,000 for the biennium 2008-2009 for maintaining the global OceanPortal.**
- **actively promote OceanPortal at the national and regional level**

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

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

Mr Martinez will inform the Committee that the Regional Ocean Portal for Latin America and the Caribbean: Portal Oceanico (URL: <http://www.portaloceanico.net>) has compiled more than 5,123 knowledge objects related with 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 with the portal during this year and have assisted on the promotion of the Portal. A total of more than 85,000 visits to the portal have been registered. Visitors came from 102 different countries with 80 % of them from Latin America and the Caribbean and 17,7 % from the USA, Canada and Europe.

Until the middle of 2006, the average number of daily visits was near 100, however, a significant fall of them has been evidenced during the last months of 2006. Despite of the significant efforts to keep an active contribution of volunteer editors and promotion, the proposed goal has not been accomplished.

He will report that in order to get sustainability in the PortalOceánico and increase the number of visitors, there is need for establishment of institutional mechanisms to get the support of relevant Marine institutions from the regions. This way, the Portal will stay useful to visitors offering usable information about the Ocean. He will report 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.

Mr Odido will inform 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.

The COSMARNEWS newsletter is published quarterly since 2006 to publish 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.

ACTION: The Committee will be requested to :

- **comment on the delivered work in, and provide guidance on future priorities for the regional OceanPortals**
- **review and adopt the 2008-2009 workplans**
- **allocate the proposed budget of US\$ 24,000 for the biennium 2008-2009 for maintaining the PortalOceánico regional portal**
- **allocate the proposed budget of US\$ 23,000 for the biennium 2008-2009 for maintaining the AfricanOceans regional portal**
- **actively promote the regional Ocean Portals at the national and regional level**

6.2.10 OceanTeacher (see 6.3.2.2)

This Agenda Item will be discussed under [Agenda Item 6.3.2.2](#).

6.2.11 SeaDataNet (and related)

This Agenda item will be 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 will report 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, acting as National Oceanographic Data Centres (NODC), Satellite Data Centres (SDC), two expert modeling centres and three international bodies including IOC/IODE.

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 the following EU marine environment projects. The recent developments made during Sea-Search were focused on metadata and have designed and populated an array of Pan-European directories (ED) of marine data & information resources.

The Committee will be 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 the 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 the 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.

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.

Dr Maillard will report further that SeaDataNet is also developing common regional products for five pilot regions: 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 numbers 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 insure a common level of expertise in data management and inter-compared basic equipment to 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.

ACTION:

- The Committee will be requested to comment on the SeaDataNet project development.
- The Committee will be requested to discuss the applicability and possible use of the standards and systems developed within the SeaDataNet project for entire IODE community.

6.2.12 SIMORC

This Agenda item will be 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 will report that a very substantial volume of metocean in situ data is collected by or under contract to major oil & gas companies. This is done all over the world and over many years a large volume of data sets has been acquired, often at substantial cost. These data are currently managed by the metocean departments of the oil & gas companies and stored in various formats. They are exchanged on a limited scale between the oil & 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 & results of field studies for other parties, in particular the scientific community.

The Committee will be 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 & 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 & 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).

He will report that scientific and academic organizations are invited to register to 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 & gas companies worldwide, that are being included in the SIMORC database.

ACTION: The Committee will be requested to:

- **comment on the SIMORC project development and results.**
- **distribute widely and advertise information on the SIMORC facility among research and academic institutions in the member countries.**

6.2.13 New initiatives: The Ocean Data Portal

This Agenda item will be introduced by Dr Nikolay Mikhailov, ETDMP chair, referring to [Document IOC/IODE-XIX/15](#) (*The IODE Ocean Data Portal: Concept Paper*) who will inform the Committee of the objectives of the IODE Ocean Data Portal (ODP). The ODP will facilitate and promote the exchange and dissemination 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.

Dr Mikhailov will explain 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 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.

The Ocean Data Portal 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 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.

ACTION: The Committee will be requested to:

- review and comment on the Document
- establish the project working group and define its terms of reference, taking into consideration the information included in the Document
- consider the establishment of an IODE Ocean Data Portal Pilot Project

ACTION: The Committee will be invited to adopt the proposed [Draft Recommendation IODE-XIX.4 on the Ocean Data Portal Project](#)

6.2.14 Other

The Chair will invite the Committee to report on other projects or activities, as relevant to IODE.

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)

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

Mr Odido will recall 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.

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 Ostend, 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.

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 data 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, modeling 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.

The second ODINAFRICA Seminar was held at the IODE Project Office in Ostend, 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.

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 program 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>.

Mr Odido will inform the Committee that the current phase of ODINAFRICA will end in December 2007. It is expected that the ODINAFRICA Seminar, planned to take place between in November 2007 (Nairobi, Kenya) and ODINAFRICA Project Steering Committee, to be held immediately after (Nairobi, Kenya) will prepare a proposal for a fourth phase of ODINAFRICA.

ACTION: The Committee will be requested to:

- review the progress made by the ODINAFRICA-III project
- provide guidance on the need for a fourth phase of ODINAFRICA

ACTION: The Committee will be invited to adopt the proposed Draft [Recommendation IODE-XIX.5 on ODINAFRICA](#)

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

This Agenda Item will be 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 Martine will recall 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.

Mr Martinez will inform 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 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;
- ODINCARA 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, IAMSLIC, IAI, CPPS, JCOMM, ASFA and ICAM.

Mr Martinez will call attention of the Committee to a number of important challenges remaining in the region: the level of implementation of ODINCARSA in the Caribbean region is quite modest, and solving this will require partnerships, national involvement and additional funding. It is highly recommended to establish close interaction with different IOC Programs and other relevant organizations in order to achieve the proposed Action Plan for the Caribbean region.

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 the Operational Oceanography, Coastal Management and Disaster Reduction Programs in the regions.

ACTION: The Committee will be requested to:

- review the progress made by the ODINCARSA project
- review and comments on the proposed work plan for 2007 and 2008-2009 and allocate US\$ 11,000 for 2007, and US\$ 22,000 for 2008-2009
- recommend strategies to foster closer collaboration between ODINCARSA and other programmes and projects
- recommend strategies to improve participation of Caribbean and Central American countries in ODINCARSA

ACTION: The Committee will be invited to adopt the proposed Draft [Recommendation IODE-XIX.6](#) on ODINCARSA

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

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

In his presentation Dr Zaker will outline the accomplishments of ODINCINDIO, since its establishment at the 18th session of IODE in April 2005. Experts and scientists from the ODINCINDIO/IOCINDIO region 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 could participate in these courses/workshops. All the training activities were hosted by the IODE project office in Ostende, 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, September 18-23 2006, and (vi) Second Combined Modeling and Data Management Training Workshop, 9-14 October 2006

Dr Zaker will further inform 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. The Regional Committee stressed the need to increase the level of financial support for the ODINCINDIO so that it can achieve the planned objectives. The Regional Committee 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 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.

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 in 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.

Dr Zaker will outline 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 will provide useful reference materials for management of the marine and coastal areas of the region. Collaboration with other programme such as Indian Ocean GOOS and ODINAFRICA will be important in achieving the identified objectives.

ACTION: The Committee will be requested to:

- review the progress made by the ODINCINDIO project
- review and comments on the proposed work plan for 2007 and 2008-2009 and allocate ... for 2007, and US\$...for 2008-2009
- ...

ACTION: The Committee will be invited to adopt the proposed Draft [Recommendation IODE-XIX.7](#) on ODINCINDIO

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

This Agenda item will be introduced by Ms Oleksandra Sergeyeva on behalf of Ms Olga Akimova, who recently took over from Maria Kalenchits as ODINECET coordinator, referring to [Document IOC/IODE-XIX/38](#) (*Ocean Data and Information Network for European Countries in Economical Transition (ODINECET): PROGRESS REPORT 2005-2006*). Ms. Sergeyeva will report 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 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.

The Committee will be 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 will be presented.

Through funding from the IODE Project Office a training session in basic marine information management (MIM) could be organized as a contribution towards ODINECET, jointly by the IOC/IODE and EURASLIC (IODE Project Office, 13-24 March 2006). Among the 14 participants there were aquatic librarians and information specialists from Bulgaria, Croatia, Estonia, Latvia, Poland, Russia and 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.

Ms. Sergeyeva will report 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 Ukraine, working languages are Russian and English (training is planned for Russian speaking group of trainees to help them to overcome language barrier). A partial support for this event (\$4,500) will be requested from the Committee. The Intermediate level MIM training is planned for the ODINECET countries in autumn 2007 in the IODE Project Office, Ostend, Belgium.

ACTION:**The Committee will be requested to:****- review and adopt the work plan and budget for 2007 and for the biennium 2008-2009 (US\$ 5,300 for 2007; US\$ 6,800 for 2008; US\$ 1,300 for 2009)**

ACTION: The Committee will be invited to adopt the proposed Draft [Recommendation IODE-XIX.8](#) on the Establishment of ODINECET.

6.3.1.5 Ocean Data and Information Network for the Western Pacific region (ODINWESTPAC)

This agenda item will be 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*).

Mr. Okano will recall 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 provide, 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 will further inform 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 objective of the preparatory meeting was, *inter alia*, to assess the available resources and needs for data and information management capacity building in the region and how these needs can be met; to identify ODIN services and products that need to be developed; to start the preparation of an ODINWESTPAC work plan for 2007-2008.

The preparatory meeting 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 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).

Mr Okano will then briefly introduce the Work Plan of the ODINWESTPAC Pilot Project, included as Annex I in Document IOC/IODE-XIX/39. It is 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) eEstablish an ODINWESTPAC pilot project web site and mailing list(s); (iv) start the preparation of national and regional metadatabases 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); (ix) 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.

He will then introduce the proposed Recommendation on the Establishment of a Pilot Project for the Ocean Data and Information Network for the Western Pacific Region (ODINWESTPAC). He will call 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.

ACTION:

The Committee will be requested to:

- review the progress made with the preparations for ODINWESTPAC
- review and comments on the proposed work plan for 2007- 2008 and allocate US\$ 30,000 for 2007, and US\$ 20,000 for 2008
- recommend strategies to facilitate the implementation of the ODINWESTPAC Pilot Project

ACTION: The Committee will be invited to adopt the proposed Draft [Recommendation IODE-XIX.9](#) on the Establishment of the ODINWESTPAC Pilot Project.

6.3.1.6 Black Sea Region

This Agenda item will be introduced by Dr Atanas Palazov on behalf of the Black Sea riparian countries, 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 will report 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 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.

The Committee will be 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). First the ODIN idea was 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 project 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).

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 details 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.

Dr Palazov will describe briefly the proposed activities associated with each Project objective with the results expected as a result of each activity. It is proposed that project will be directed, monitored and supervised by the Project Steering Committee. Members of the Project Steering Committee are IODE national coordinators from the Black Sea countries. It is recommended that the Steering Committee will meet once a year. Project Coordinator will be elected by the Steering Committee and will manage day-to-day activity of the project. It is recommended as well to set up project office equipped with all needed communication tools to support everyday activities.

He will inform 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, donors money, and IOC support for the Project steering committee meetings.

ACTION: The Committee will be requested to:
- review and adopt the work plan and budget for 2008 (US\$ 5,000)

ACTION: The Committee will be invited to adopt the proposed Draft [Recommendation IODE-XIX.10](#) on the Establishment of ODINBLACKSEA

6.3.1.7 Pacific Islands

This Agenda Item will be 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) .

Ms Davies will recall 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 IAMSLIC, 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 has resulted in no proposal being 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-MM proposes to continue its efforts to assist the Pacific region to develop a proposal for an ODIN network to be completed by 2008.

ACTION: The Committee will be requested to:

- **instruct the GE-MIM to continue its efforts to encourage the Pacific Island region to develop a proposal for the development of a region-based ODIN, which will incorporate existing programmes in marine information management and data management.**
- **instruct the GE-MIM Chair to approach agencies such as SOPAC, PIMRIS, and SPC to form a working group to jointly develop such a proposal.**
- **Instruct the GE-MIM investigate possible opportunities for an ODIN associated with the Pacific Islands Regional Ocean Framework for Integrated Strategic Action (PIROF-ISA)**

6.3.1.8 Other regions

The Chair will invite Dr Nicolay Mikhailov to report on his initiative to set up an E2EDM pilot project for the Caspian Environment Programme (CEP).

The Chair will request the sessional working group on capacity building to take needs of the Caspian Sea region into account in their work plan.

6.3.2 **IODE Training Programme**

6.3.2.1 Training activities at the IOC Project Office for IODE

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

He will report 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 Ostend (<http://www.iode.org/projectoffice>). The IOC Project Office for IODE was inaugurated on the 25th of April 2005.

He will recall 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 will note that in order to obtain this specific objective the IOC Project Office provides the following:

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

He will report 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.

Dr Rommens will report that 29 training courses and workshops were organised in 2005-2006. These training events were attended by 270 trainees from 79 different countries. The training events were either organised 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 organised jointly with other institutions or organisations.

He will recall 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).

He will announce 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>).

The Committee will be 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 quality of the training events. Training materials are provided on CD-ROM or DVD to the participants.

The Committee will be 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 with video lectures will be further extended with new courses.

The Committee will be 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.

Dr Rommens will inform the Committee that training activities at the project office will 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.

Dr Rommens will recall 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 send out in 2007 among the IODE community.

ACTION: The Committee will be invited to

- **comment the training activities at the Project Office**
- **comment on the proposed workplan for Training Activities at the Project Office for 2007and 2008-2009**
- **provide guidance on future needs for training.**

ACTION: The Committee will be invited to adopt the proposed Draft [Recommendation IODE-XIX.13](#) on SUPPORT TO THE IOC PROJECT OFFICE FOR IODE FOR CAPACITY BUILDING

6.3.2.2 OceanTeacher

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

Dr Rommens will recall 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 will recall 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, ODINCINDIO) as well as for various specialized training courses such as Geographic Information Systems (GIS). Dr Rommens will inform the committee that the size of OceanTeacher currently exceeds 1.8 GB: 6000 files, 3600 illustrations, 14,500 internal cross linking and 13,800 links to external resources.

Dr Rommens will inform the Committee that 253 new content items have been added to the digital library in 2006. A number of video lectures are also being made available through the OceanTeacher website (see [Agenda Item 6.3.2.1](#)).

Dr Rommens will inform the Committee that OceanTeacher has been used in 16 training events at the Project Office in the past 2 years (2005-2006). This number includes 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 will also note that it is already being used by national participants in their own local training programs in their home institutions.

Dr Rommens will inform 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. 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 developing new courses with a minimum of effort, providing 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 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 will inform the Committee that the migration exercise was completed recently and the new version will be launched on 9 March 2007 on <http://www.oceanteacher.org>.

Dr Rommens will inform the Committee about planned developments in 2007 and 2008-2009 (if funds can be identified, beyond 2007). This will include cooperation between IODE and WMO to include topics on Marine Meteorology. He will note 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 modeling, 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.

Dr Rommens will note that there is a need for the development of an external authors pool for the further development of the digital library.

Dr Rommens will recall that the ODIMEX Project has been managed by the Steering Group for Ocean Teacher (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, Ms Pauline Simpson, Dr Wouter Rommens, Dr Edward Vanden Berghe and Dr Vladimir Vladymyrov. One Steering Group meeting was organized in 2005-2006 in Ostend, Belgium. The full report of this Steering Group Meeting is available in [Document IOC/IODE-SGOT-IV](#).

Dr Rommens will inform the Committee that 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). Chief editor for Marine Data Management is Dr Murray Brown (Phoenix Training Consultants, USA). Managing editor for Biology is Dr Edward Vanden Berghe (Flemish Marine Institute, Belgium). Managing editor for Operational Oceanography is Ms Regina Folorunsho (Nigerian Institute for Oceanography and Marine Research, Nigeria). Management editor for Geographic Information Systems is Mr Greg Reed (Australian Ocean Data Centre Joint Facility, Australia).

Dr Rommens will note 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 will note that the FUST-supported ODIMEX project will end on 31 December 2007.

ACTION: The Committee will be requested to:

- **comment on the delivered work in OceanTeacher**
- **advise on the further development of OceanTeacher beyond 2007.**

ACTION: The Committee will be invited to adopt the proposed Draft [Recommendation IODE-XIX.12](#) on OceanTeacher

6.3.3 New requirements in regional capacity building

This Agenda Item will be introduced by Mr Mika Odido. He will report on the discussions of the sessional working group on capacity building. 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.

ACTION: The Committee will be requested to:

- **comment on the report of the sessional working group on capacity building**
- **include recommended actions regarding new requirements for regional capacity building in the 2008-2009 work plan, as relevant**

6.3.4 National data and information management capacity building requirements

This Agenda Item will be introduced by Mr Robert Gelfeld. He will inform 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*). [This document was not available at the time of publication of the Action Paper]

Mr Gelfeld will inform 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.

ACTION: The Committee will be requested to:

- **comment on the report of the sessional working group on capacity building regarding national requirements**
- **include recommended actions regarding national requirements in the 2008-2009 work plan, as relevant**

6.3.5 IODE capacity building strategy (see also 8.2)

This Agenda Item will be introduced by the Chair. She will note that the need for an IODE capacity building strategy will also be discussed under [Agenda Item 8.2](#) but the Committee will be invited to discuss the need for a specific IODE Capacity Building Strategy. In this regard she will inform the Committee that an "IOC Principles and Strategy for

Capacity Building” ([Document IOC/INF-1211](#)) has been developed and published, and a JCOMM Capacity Building strategy is being revised based upon the decisions of JCOMM-II.

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

ACTION: The Committee will be requested to:

- **Provide guidance on the need for the development of an IODE capacity building strategy**

7. IODE PUBLIC AWARENESS

7.1 IODE WEB SITES

This Agenda Item will be introduced by Dr Wouter Rommens.

Dr Rommens, referring to para 549 of the IODE-XVIII Summary Report, 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 had 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 the Chair DMPA to contribute to the list. Dr Rommens will report 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 will note 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.

ACTION: The Committee will be requested to:

- **endorse the new IODE web site**
- **decide on whether the IODE calendar should include only events organized by IODE or in which IODE is involved, or whether other events related to oceanographic data and information management should also be covered. If the latter then the Committee is invited to provide guidance to the Secretariat on ways and means.**

7.2 IODE BROCHURES, POSTERS AND PUBLICATIONS

This Agenda Item will be introduced by Dr Wouter Rommens.

7.3 NATIONAL IODE AWARENESS ACTIVITIES

This Agenda Item will be introduced by the Chair. She will invite the participants to briefly report on national activities organized to promote IODE.

7.4 OTHER

This Agenda Item will be introduced by the Chair. She will invite interventions on other issues related to IODE public awareness.

8. IODE VISION AND STRATEGY

8.1 IOC OCEANOGRAPHIC DATA EXCHANGE POLICY: IMPLEMENTATION BY MEMBER STATES

This Agenda Item will be introduced by Mr Robert Gelfeld. Mr. Gelfeld will report 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.

He will report 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.

ACTION: the Committee will be requested to:

- **Encourage each Member State to review the 'IOC Oceanographic Data Exchange Policy' by and enact it as part of their Oceanographic Data Policy**

8.2 IOC STRATEGIC PLAN FOR OCEANOGRAPHIC DATA AND INFORMATION EXCHANGE

This Agenda Item will be introduced by the Chair, referring to Document **IOC/IODE-XIX/45** (*IOC Strategic Plan for Oceanographic Data and Information Management*). [This document was not available at the time of publication of the Action Paper]

Dr Rickards will recall 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.

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”.

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 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.

The Chair will outline 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;
- Standardisation of discovery metadata, converging to the use of ISO19115/19131;
- Use of common standardised 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.

Action: The Committee is requested to:

- review and comment on the Draft Strategy;
- instruct the Officers (including Dr Rickards as Past Chair) to further finalize the Strategy and submit it to the 24th Session of the IOC Assembly;
- approve the organization of an extraordinary meeting of the Officers ((including Dr Rickards as Past Chair)) prior to IOC-XXIV and include a cost item in the 2007 budget for this purpose.

ACTION: The Committee will be invited to adopt the proposed Draft [Recommendation IODE-XIX.14](#) on IOC Strategic Plan for Oceanographic Data and Information Management

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

This Agenda Item will be introduced by the Chair, referring to [Document IOC/IODE-XIX/14](#) (*Report on IODE Financial and Human Resources 2006-2007 and Provisions 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*).

She will recall 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 will note that the work plan for 2007 had been adopted at IODE-XVIII but could be revised by IODE-XIX.

The Committee will be 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 will be 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).

The Committee will also be 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.

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

ACTION: The Committee will be invited to adopt the proposed Draft [Recommendation IODE-XIX.15](#) on Programme and Budget

10. ELECTIONS OF CHAIR AND VICE-CHAIR

This Agenda Item will be 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 will recall 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 will recall that the Committee had been requested to adopt Resolution IODE-XIX.1.

The Technical Secretary will inform the Committee that three candidatures had been received for the two positions of IODE Co-Chair. The candidates were: Ms Malika Bel-Hassen Abid (Tunisia), Mr Gregory Reed (Australia) and Mr Ahmed Moustafa Hassan El Nemr (Egypt). Their curriculum vitae and IODE position paper has 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

The Technical Secretary will invite the Committee to elect the two co-chairs through a secret ballot. The Technical secretary will remind the Committee that only IOC Member States are entitled to vote. Each Member State has one vote.

The Committee elected and as Co-Chairs.

The outgoing Chair and Vice-Chair will be invited to address the Committee.

The newly elected Co-Chairs will be invited to address the Committee.

11. DATE AND PLACE OF IODE-XX

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

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, recalling that this Document had proposed to organize IODE-XX and I-GOOS jointly in China in 2009.

The Committee

12. ADOPTION OF THE SUMMARY REPORT

The Committee will be invited to adopt the draft Summary Report of the Session, the Resolutions and Recommendations.

The Committee will request the IODE Co-Chairs to present the Executive Summary with all Resolutions and Recommendations therein to the Twenty-Fourth Session of the IOC Assembly that will take place in June 2007 at the UNESCO headquarters in Paris, France.

13. CLOSURE

The Chair will close the Session on Friday 16 March 2007.

DRAFT RESOLUTIONS

DRAFT RESOLUTIONS

Draft Resolution IODE-XIX.1

THE IODE CHAIRS

This proposal for a resolution is provisional and will require discussion and drafting at the Session

Draft Resolution IODE-XIX.2

STRATEGY AND STRUCTURE OF IODE GROUPS OF EXPERTS

This proposal for a resolution is provisional and will require discussion and drafting at the Session

DRAFT RECOMMENDATIONS

Draft 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: 15.000 USD

2008-2009: 30.000 USD

(estimates based on quotes and work made in 2006)

Draft Recommendation IODE-XIX. 2

COOPERATION WITH IPY

This proposal for a recommendation is provisional and will require discussion and drafting at the Session

Draft 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 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.

Draft Recommendation IOE-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 Pilot 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 Pilot Project;

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

Annex to Recommendation IOE-XIX.4

Terms of Reference of the IODE Ocean Data Portal Pilot Project

Objectives of the Pilot 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 Pilot 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 Pilot 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:

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

Draft Recommendation IODE-XIX.5

OCEAN DATA AND INFORMATION NETWORK FOR AFRICA (ODINAFRICA)

This proposal for a recommendation is provisional and will require discussion and drafting at the Session

Draft 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 CPPS¹ Institutional framework,

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: US\$ 11,000 for 2007 (UNESCO RP)
US\$ 22,000 for 2008-2009 (UNESCO RP)

¹ Permanent Commission for South East Pacific

Draft Recommendation IODE-XIX.7

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

This proposal for a recommendation is provisional and will require discussion and drafting at the Session

Draft Recommendation IODE-XIX.8

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

This proposal for a recommendation is provisional and will require discussion and drafting at the Session

Draft 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 (Ostend, 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/WESTPAC 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 Mr. Kunikazu Nishizawa, 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;

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:

US\$ 30,000 for 2007

US\$ 20,000 for 2008

Draft 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

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.

Draft Recommendation IODE-XIX.11

ESTABLISHMENT OF THE OCEANDOCs PROJECT

This proposal for a recommendation is provisional and will require discussion and drafting at the Session

Draft 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 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 sustainance 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.

Draft 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 and the City of Ostend to host the IOC Project Office for IODE and for the substantial additional support of € 500,000/year, provided by the Government of Flanders 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.

Draft Recommendation IODE-XIX.14

**IOC STRATEGIC PLAN OR OCEANOGRAPHIC DATA AND INFORMATION
EXCHANGE**

This proposal for a recommendation is provisional and will require discussion and drafting at the Session

Draft Recommendation IODE-XIX.15

PROGRAMME AND BUDGET FOR 2007-2009

This proposal for a recommendation is provisional and will require discussion and drafting at the Session

[end]