Intergovernmental Oceanographic Commission
Reports of Governing and Major Subsidiary Bodies

IOC Committee on International Oceanographic Data and Information Exchange

Seventeenth Session
UNESCO Headquarters, Paris, France
3–7 March 2003

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Abstract

The IOC Committee on International Oceanographic Data and Information Exchange held its Seventeenth Session (IODE-XVII) at UNESCO Headquarters between 3 and 7 March 2003. The Session was attended by 72 delegates from Member States, 16 representatives of organisations, programmes and projects, and 5 observers. The Committee reviewed the work of the past inter-sessional period, noting *inter alia* the considerable progress made in cooperation with GOOS and JCOMM, the new IODE Group of Experts on Biological and Chemical Data Management and Exchange Practices (GE-BCDMEP), the new Global Ocean Surface Underway Data Pilot Programme (GOSUD), the development of a marine XML, the Marine Environmental Data Inventory (MEDI), the training system OceanTeacher, the dynamic content management system BeeBox, and the regional networks ODINAFRICA and ODINCARSA. The Committee recommended the merging of the GETADE and JCOMM ETDMP, established an inter-sessional working group to examine the future role of WDCs, RNODCs and NODCs, established an ad hoc working group on the implications of GOOS and JCOMM development on IODE, called for further support for the ODINAFRICA and ODINCARSA networks, and recommended the establishment of the OIT pilot project, jointly sponsored with JCOMM and GOOS.The Committee further defined the terms of reference for the IODE Review and expressed its strong support for the draft policy as prepared by the Intergovernmental Working Group on IOC Oceanographic Data Exchange Policy. The Committee strongly supported the establishment of an IODE Project Office and recommended that the offer of the Government of Flanders and the City of Oostende to host the Office in Oostende, Belgium be accepted. The Committee prepared two Resolutions and six Recommendations for adoption by the IOC Assembly during its 22nd Session.

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

TABLE OF CONTENTS

Page

Page

Page

ANNEXES

1. OPENING

1 The official opening of the Plenary Session was held at 10.00 am on Monday 3 March 2003. The Session was inaugurated by Dr Efstathios Balopoulos, Chair of the IOC Committee on IODE and was followed by the welcoming address by the IOC Executive Secretary.

2 Dr Balopoulos described the significant progress achieved in many areas since the previous session of the IODE Committee in Lisbon in 2000. The focus of IODE has shifted from the traditional delayed-mode, physical data management. A new Group of Experts to develop best practices for the management and exchange of biological and chemical data has been established and the management of operational data has also taken on a higher level of importance to the data community.

3 The Chair highlighted the increased collaboration with other programmes and specifically the close partnerships formed with GOOS and with JCOMM. He noted that IODE is an active member in the JCOMM Management Committee and the JCOMM Data Management Co-ordination Group and has become an increasingly active member of the GOOS Steering Committee and the GOOS Capacity Building Panel. IODE is also collaborating with ICES and the EU on the development of a marine XML through projects that aim to develop a framework and methodology that will improve the interoperability of data for the marine community and specifically in support of marine observing systems.

4 Dr Balopoulos described the important advancement achieved in the area of capacity building, especially in developing countries. The ODIN strategy of linking equipment, training and operational support has proved to be a successful one for the African region and the Central and South American region. He stressed the need to maintain IODE's strong reputation in capacity building and urged the continued development of the OceanTeacher/ODIN combination.

5 The Chair concluded by advising the Committee that, as he had now completed two terms, firstly as Vice-chair of IODE and more recently as Chair of IODE, he would hand over the chairmanship of the Committee to a new Chair during the session. He expressed his thanks to all member states for their continued support and looked forward to working closely with the new Chair and Vice-chair. The full text of Dr Balopoulos' speech is given in Annex V. [The new Chair chaired the meeting as from Agenda Item 4].

6 Dr Patricio Bernal, Executive Secretary IOC welcomed the participants. He recalled that the IODE Committee was one of the first subsidiary bodies of the IOC, established in 1961. The programme has a long path of development and proud of achievements. The exchange of physical oceanographic data has been successful as one of few examples of free and open exchange of data and the IODE community should be proud of its achievements. However, now is a critical phase of development. There is a need to recognize what we have done well and to identify the problems we have had in establishing national institutions and identify the opportunities for IODE. Whereas the emphasis in the past has been on the exchange of physical data, less importance was placed on the exchange of biological and chemical data. One area that IODE may need to explore is the exchange of geophysical and geological data. He noted that there is an important initiative of UNEP to provide worldwide access to geophysical and geological data for developing countries but IODE is missing from this initiative.

7 Dr Bernal emphasised that the challenge faced by IODE is to adapt to a new era of real-time data and products. The system of data exchange is essential and we need institutional backing to achieve this. The Ocean Information Technology Pilot Project could provide an important contribution to ocean data management issues and could offer solutions to some of the challenges. He anticipated IODE would be part of this project.

8 Dr Bernal noted the offer from the Government of Flanders to host the IODE project office in the Flanders Marine Institute and he thanked the Government of Flanders for the offer. However, there is a needed to develop a management plan for the project office to clearly define the activities of the

IODE Programme at Headquarters and the project office to ensure that movement of staff to the project office does not impact negatively on the IODE programme. The management plan should identify required resources to maintain the operation and provide sound arguments to the Assembly that will need to approve the proposal.

9 Dr Eduard Sarukhanian, Director World Weather Watch—Applications Department of the WMO Secretariat, addressed the Session, on behalf of Prof. G.O.P. Obasi, WMO Secretary-General. He recalled that the collaboration between WMO and IOC has been long and remarkable and continues to strengthen. The best example of this collaboration is now the Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM). JCOMM-I (July 2001) stressed that one of its important areas of activity should be data management and that this could be done in close relationship with IODE, in particular with respect to the development of procedures and responsibilities for operational data management. JCOMM-I thus established the JCOMM Data Management Programme Area (DMPA), guided by a Data Management Co-ordination Group, under which an Expert Team on Data Management Practises and Expert Team on Marine Climatology were created. The main tasks of the DMPA will be to develop, recommend and implement principles and practises for the end-to-end data management system for JCOMM as well as to review and assess the effectiveness of data management practises, including integration and consideration of new techniques and approaches. Several IODE experts are members of the DMCG and ETDMP.

10 Dr Sarukhanian referred also to the current review of the IOC Oceanographic Data Exchange Policy. He stated that WMO is keen to retain the fundamental principle of free and unrestricted exchange of meteorological data and products in practise to expand the quantity of data and products exchanged. He expressed the view of WMO that it is important that the policies and practises for the exchange of environmental data and products adopted and applied by IOC and WMO are mutually compatible and reinforcing.

11 The Committee received and noted with appreciation the statements by the Executive Secretary IOC, Dr Patricio Bernal, and the representative of WMO, Dr E. Sarukhanian, on the occasion of the opening of the Seventeenth Session of the IOC Committee on IODE.

2. ADMINISTRATIVE ARRANGEMENTS

2.1 ADOPTION OF THE AGENDA

12 **The Committee adopted** the Agenda (Annex I, hereto).

2.2 DESIGNATION OF A RAPPORTEUR

13 **The Committee accepted** the proposal by France to designate Mr Mustafa Ozyalvac (Turkey) as Rapporteur for the Session.

2.3 CONDUCT OF THE SESSION, TIMETABLE AND DOCUMENTATION

14 **The Committee decided** to establish ad hoc sessional working groups (SWG) to deal with agenda items that required in-depth discussion. The following working groups were established:

- SWG on Training and Capacity Building (Priorities, OceanTeacher) (Item 4.3)
- SWG on the IODE Project Office (Terms of Reference) (Item 7.5)
- SWG on the IODE Review and future plans (Item 7.1)
- SWG on marine XML Development and Co-operation (Item 4.2.4)
- SWG on ODINCINDIO (Item 4.3.1.3)

15 **The Committee adopted** the Timetable (Doc. IOC/IODE-XVII/1Add.Prov.).

16 The Technical Secretary, Mr P. Pissierssens, presented the technical arrangements for the Session and informed the Committee of the technical presentations that would be organized during the Session. These included presentations on GOSUD, GTSPP, MEDAR and on national IODE activities in Turkey. He then introduced the Provisional List of Documents (Doc. IOC/IODE-XVII/4 prov.), attached as Annex IV. The final List of Participants is given in Annex III.

2.4 LOCAL ARRANGEMENTS

17 The IODE Technical Secretary informed the Session on local arrangements. Information and guidelines for participants are provided in Document IOC/IODE-XVII/Inf.1.

3. STATUS OF IODE

3.1 CHAIRMAN'S REPORT

18 The IODE Chair opened this Agenda Item and referred to Document IOC/IODE-XVII/6 '*Report on Intersessional Activities of the Chairman of the IOC Committee on IODE'*. He reported on the significant progress that had taken place on various IODE elements and provided a brief overview of the major activities and implementation of decisions adopted by IODE-XVI. The WDCs, RNODCs, NODCs and DNAs continue to work as the long-term depositories for oceanographic data and associated metadata and to serve the IODE and user community producing a great variety of new data products. The number of data centres has also grown and during the last intersessional period, an additional 7 countries announced the establishment of new IODE centres resulting in a total of 64. This growth provides an increasingly larger community of marine data managers.

19 The Chair noted that on a long-term basis, the staffing situation at the IODE Secretariat is far from satisfactory and the practice of employing short-term consultants cannot be sustained. Despite the request made by IODE-XVI in 2000 to the IOC Executive Secretary and IOC Governing Bodies to *strengthen the IOC's Ocean Services Section, responsible for IODE in the IOC Secretariat, by two additional permanent Professional staff members* … no new permanent professional posts have been created. Therefore, the current resources available at the IODE Secretariat are inadequate to efficiently implement and manage the IODE programme. The Chair had raised the issue of declining resources for IODE on a number of occasions at the IOC Assembly and Executive Council. The Assembly and the Executive Council acknowledged that IODE is a key activity of the IOC and one of its flagship programs. However, when the issue of resources is raised, the member states have not supported any increase.

20 The Chair reported on IODE's long-term data projects and those established at the IODE-XVI Session. He noted the success of the Global Ocean Data Archaeology and Rescue (GODAR) Project, recovering a large amount of oceanographic observations, processing them, and greatly enhancing the size, accuracy and therefore the usefulness of the global databases. Other GODAR related Projects, such as GODAR-WESTPAC and MEDAR/MEDATLAS have also been successful. He also noted the considerable advances made by the MEDI project which is now developed jointly with NASA's Global Change Master Directory (that also collaborates with GOSIC), thus gaining the interest and support of other international programmes.

21 The Chair considered the issue of capacity building to be an essential and critical part of all IODE activities. The relationship between the IODE programme and Member States has always been catalytic and synergistic. He reported that during the inter-sessional period, continuous development and regional expansion marked the capacity building component of IODE. Notable IODE capacity building initiatives such as the Ocean Data and Information Network for Africa (ODINAFRICA) and for the Caribbean and South America regions (ODINCARSA) exhibited significant activity in developing regional infrastructures for data and information management in the aforementioned areas,

and thus, greatly advancing international co-operation, necessary for the sustainable development in these regions.

22 The Chair concluded that initiatives such as the "IODE Review", the "IOC Strategic Plan on Oceanographic Data and Information Management", the "Ocean and Information Technology Project", will redefine the role and objectives of the IODE Programme which must be strongly linked to the requirements of the operational oceanography community. IODE-XVII provides an excellent opportunity to define the future role of IODE and to make real decisions, thus ensuring the future of this important programme.

3.2 ACTIVITIES OF WORLD DATA CENTRES

23 Dr Ferris Webster, in his capacity as Chair of the ICSU Panel for World Data Centres, informed the Committee that the World Data Centres provide geophysical and environmental data and information free or for the cost of reproduction. WDCs assure the long-term archiving and preservation. Today there are 52 centres in 12 countries. The network has been expanding and has been stimulated by environment and climate issues. Mirror sites have been established in partner centres in developing countries (currently in Kenya and Argentina) and linked to established centres. The challenge faced by the WDCs is to ensure they stay relevant and develop a presence in all regions. Technological development, such as the Internet, has changed the WDCs and new tools (catalogues, search engines, common formats) are required to serve users. Dr Webster stressed that the co-operation between IODE and the WDC system is unique and no other discipline has such comprehensive coverage and it could be used as a model for other disciplines. The WDCs looks forward to future co-operative projects with IODE.

24 Mr Sydney Levitus, Director of WDC, Oceanography, Silver Spring reported on his WDC activities referring to Document IOC/IODE-XVII/8.1. He outlined the intersessional activities which centred on the continued leadership role of the IOC Global Oceanographic Data Archaeology and Rescue (GODAR) Project and the World Ocean Database Project (WOD) Project. The WDC also convened and hosted a meeting of the IODE Group of Experts on Biological and Chemical Data Management and Exchange Practices. Data products released during the intersessional period include World Ocean Database 2001 (April 2002), World Ocean Atlas 2001 (February 2003), ODINAFRICA CD-ROM (January 2003), WOCE DVDs (August 2002) and Catalogue of Data and Report of Data Exchange (December 2000).

25 Dr Marsel Shaimardanov, Director of WDC, Oceanography, Obninsk, outlined the functions, activities and products of his WDC. The functions of the WDC include the registration and description of all submitted data, archiving submitted data, digitising data in manuscript form, quality control and reformatting data and metadata to load DBMS, and data management under DBMS/GIS and Web. Intersessional activities included GODAR (about 10 % of data submissions come from WDC, Russia), MEDAR/MEDATLAS-II, and Black Sea MEDAR dataset (Russia, Turkey, Bulgaria, Georgia). Data products released during the intersessional period include WDC inventories, on-line cruise metadata access, on-line IODE data access for IODE data for North-European area (Norwegian, Greenland, Barents seas). WDC future activities include on-line WDC Cruise Metadata Access (English version), on-line data access for all IODE data (English user interface) and a global cruise metadata base developed jointly with other WDCs.

26 He further reported that a metadata system had been set up (in Russian). To advertise the availability of data and to train users a national system is being established (ESIMO), an interdepartmental system involving 40 institutions. This will substantially improve co-operation between the centres. New technologies are fully exploited for this system.

27 Prof. Lin Shaohua, Director of the WDC Oceanography, Tianjin reported on the activities of her WDC, referring to Document IOC.IODE-XVII/8.3. These activities include the establishment of marine metadata base and websites which comprise the China Oceanic Information Network (COINet) (http://www.coi.gov.cn, http://www.coi.gov.cn/eindex.html), Marine Information Sharing Network

Station (http://sdinfo.coi.gov.cn) WDC for Oceanography Tianjin China website (http://wdc-d.coi.gov.cn), Asian Regional Forum Ocean Data and Information website (http://www.arfmarinfo.org), NEAR-GOOS website (http://near-goos.coi.gov.cn) China-America Coastal Management Co-operation website (http://www.coi.gov.cn/projects/us-china), and China National Argo Data Centre website (http://www.argo-cndc.gov.cn). Other activities of the WDC include the development of bilateral co-operation with USA, Korea, Japan, Viet Nam, participation in international marine data exchange and participation in international meetings and co-operation projects.

28 Dr Hannes Grobe (Germany) briefly informed the Session about the World Data Centre for Marine Environmental Sciences (WDC-MARE), established by the Centre for Marine Environmental Sciences (MARUM, Bremen, Germany) and Alfred Wegener Institute Foundation for Polar and Marine Research (AWI, Bremerhaven, Germany). He recalled that WDC-MARE had been established in the 1990s, initially to respond to the need by the PAGES programme. This led to the development of the PANGAEA Information System (http://www.pangaea.de). PANGAEA is a public data library on the Internet aimed at archiving, publishing and distributing geocoded data with special emphasis on environmental, marine and geological research. Data is stored with meta-information in a relational database, accessible through a client/server system. Data can be retrieved via three different Internet clients: (i) PangaVista allows the exploration of the PANGAEA content by a simple search functionality; (ii) with the Direct Download Interface (DDI) data set download can be organized through links on web pages or distributed via email; and (ii) the Advanced Retrieval Tool (ART) is a data-mining tool to retrieve and download individually configured data sets. Since 1996 PANGAEA has been offered to national and international data management projects. The founding organisations (MARUM and AWI) have made a long-term commitment to operate and maintain this system. In 2001 the WDC-MARE was recognized by ICSU as a WDC of the ICSU WDC system.

29 **The Committee welcomed** the establishment of the WDC-MARE and called for close collaboration between this new data centre and the IODE community.

30 **The Committee noted** that the rapid changes in technology, changed user needs and capacity of many science programmes and even users to host their own data on the Internet, posed challenges for the WDCs (as well as for all other IODE and ICSU data centres). It was recognized that the wide variety of data sources on the Internet created confusion to users noting that a simple search in web search engines such as Google or Alta Vista is easier to perform and resulted in many more 'hits' than searching through the specialized WDC websites and catalogues. Users did not necessarily appreciate that data obtained from the WDCs were fully quality controlled and carried the 'seal of quality' of the WDC/IODE system.

31 **The Committee reiterated** the importance of the WDCs as long-term archives of quality controlled oceanographic data, but **stressed** the need to develop appropriate tools for easy user access to the data. **The Committee also called** for the WDCs to jointly consider the important issue of duplicates and version control (data registration). A discussion then followed on how well the WDCs, NODCs, RNODCs and DNAs collectively meet the needs of IODE's current data management requirements, which are very different from when IODE was established. A particular concern was providing timely access to integrated data for operational oceanography while ensuring the long-term archival of known quality and known version.

32 **The Committee decided** to establish a sessional working group, to discuss future roles for the WDCs, as well as RNODCs and NODCs taking into consideration, *inter alia*, the needs of JCOMM and GOOS in terms of operational data. (for further discussions on this item see also Agenda Item 7).

33 **The Committee adopted** Resolution IODE-XVII.1.

3.3 ACTIVITIES OF RNODCs

34 The Chair then referred the Committee to Documents IOC/IODE-XVI/9.1 to 9.8 containing RNODCs reports and invited the representatives of the centres to provide additional information to the above-mentioned documents.

35 **The Committee noted** that through RNODCs, the IODE system has been able to provide considerable support to global programmes, as well as assistance in capacity building in different regions.

36 **The Committee recalled** that, at its 16th Session, it had *strongly endorsed the need for the expansion of the RNODCs network* to meet new demands and had supported the need to strengthen the effectiveness of RNODCs. **The Committee recalled** that it had recommended the implementation of the following actions: (i) all RNODCs should examine their Terms of Reference and make proposal for modification, if appropriate; (ii) RNODCs accept a leading role for the creation of metadata directories at the regional level; (iii) RNODCs should keep close contacts with the scientists and scientific programmes in order to identify data and information requirements and to provide necessary services for the development of marine science in the region; (iv) RNODCs should take a co-ordinating role in the discovery of data that are not yet available in the IODE system; and (v) RNODCs should develop value-added data and information products to meet the requirements of regional scientific research projects. **The Committee noted** that no progress had been reported on the above.

37 **The Committee referred** to Resolution IODE-XVII.1 to create an inter-sessional Working Group to examine, among other matters, the role of RNODCs, and to report its findings to the IODE Review Team.

38 The Chair then requested the representatives of the RNODCs to provide brief reports on their progress.

3.3.1 RNODC-SOC

39 Mr Ariel Troisi reported on progress of the RNODC-SOC, referring to Document IOC/IODE-XVII/9.1. He reported that, following the established terms of reference, efforts were made to identify data sources that allowed a slight increase of existing data files. The development of an Internet-based metadata search service as a means to provide information regarding existence and accessibility of data in the IOCSOC Region was seen also as a contribution to the identification of data and information not yet available to the system (http://www.hidro.gov.ar/Ceado/metadatos/metadatos.asp). In order to increase the services to the community, a web-based Sea-Ice Observations information service was developed

40 Mr Troisi regretted that this inter-sessional period has been one of low activity, and progress has been influenced by the decision by the Twenty-first Session of the IOC Assembly to dissolve the IOCSOC Committee. Notwithstanding, data and information management issues must be addressed within the structures or programmes co-ordinating both operational oceanography as well as basic research in a regional context.

41 It was recalled that during the Thirty-third Session of the Executive Council of IOC (June 2000), the state and evolution of the Regional Committee of the IOC for the Southern Oceans (IOCSOC) was discussed (Agenda item 4.4.5). At that occasion the Chair of the IOCSOC Committee, Dr Max Tilzer, highlighted the considerable changes that had taken place within IOC with the rapid development of GOOS and the creation of JCOMM, making it necessary to revise the IOCSOC structure. The Executive Council recognized that the responsibility of the co-ordination of operational oceanographic activities in the Southern Oceans, one of IOCSOC roles, had been integrated in practice into GOOS and JCOMM. Nevertheless, it also recognized that it was necessary to co-ordinate basic research activities in the Southern Oceans and that this co-ordination could be better achieved by means of a mechanism different to the IOCSOC. The Executive Council had then requested the

Executive Secretary (through Resolution EC-XXXIII.14) to convene an ad hoc working group with representatives of IOC, SCOR, SCAR and WMO so as to propose to the Assembly at its Twenty-first Session "'*ways and means by which IOC would ensure partnership among interested organizations with a view to coordinate basic research in the Southern Ocean*". During its Twenty-first Session, the Assembly agreed that the initial efforts made by the Executive Secretary of IOC in application of the Resolution EC-XXXIII.14 had shown that enough interest existed on the representatives of IOC, SCOR, SCAR, WMO and of the organisations belonging to the Antarctic Treaty system to convene the (now called) Group of Experts. The Assembly agreed that the formation of this Group of Experts, in which all major organisations with Southern Ocean research interests were involved, *effectively replaced the need for continuance of the IOCSOC, which was therefore dissolved.*

42 During its Twenty-first Session, the IOC Assembly had subsequently dissolved the IOCSOC (para. 292 of Document IOC-XXI/3)

43 The Committee was further informed that the Scientific Committee on Oceanic Research (SCOR) addressed this issue during its 35th Executive Committee Meeting held in October 2001, and the discussions were reflected in the meeting's proceedings as follows: "*IOC ended its Southern Ocean Commission (IOCSOC) at its General Assembly in July 2001. IOCSOC's monitoring responsibilities will be assumed by GOOS. IOC staff members have been charged to investigate a possible role for IOC, SCOR, SCAR, WMO, and other organizations in providing a mechanism to coordinate research activities in the Southern Ocean. An informal discussion took place immediately before the Executive Committee meeting, including representatives of the Climate Variability Study (CLIVAR), GLOBEC, International Antarctic Zone program (iAnZone), IOC, SCAR, SCOR, and SOLAS. Participants agreed that a mechanism to share information about Southern Ocean research plans could be useful, as long as it doesn't create new bureaucracy. Intergovernmental organizations should only be involved to the extent that they are needed. One idea was to have a Web site for exchange of information on cruise schedules, meetings, activities, where to find data sets, and other relevant information. Urban expressed his opinion that such a Web site should not be affiliated with a specific existing research program. Establishment of a new Web site would require some funds for a Webmaster. All participants will send URLs for existing sites and other information to Urban to see how the involved organizations might proceed with this activity. Contacts will be made with IMAGES, the Convention on Conservation of Antarctic Living Marine Resources (CCAMLR), and the Council of Managers of National Antarctic Programs (COMNAP) to find out whether they are conducting relevant activities and/or would like to be involved in the proposed activity.*"

44 Mr Troisi stated that the dissolution of IOCSOC does not represent a reduction of activities but just the contrary, as it broadens the scope of co-operation and interaction with other programmes and organisations. On the other hand, even though the co-ordination of operational oceanography has been integrated in the practice in GOOS and JCOMM and the Assembly agreed on the summoning of a Group of Experts to co-ordinate basic research, the co-ordination of data and information management and exchange remains as a mayor issue.

45 **The Committee**, taking into consideration the decisions of the IOC Governing Bodies, **decided** to maintain, at this time, the RNODC for the Southern Ocean until other suitable mechanisms are established.

3.3.2 RNODC for Drifting Buoy Data

46 Mr Scott Tomlinson (Canada) provided information on the RNODC for Drifting Buoys Data, referring to Document IOC/IODE-XVII/9.2. The Marine Environmental Data Service (MEDS) of Fisheries and Oceans Canada has been archiving drifting buoy data since 1978 and was accredited as the RNODC for drifting buoys by the IODE in January 1986. Its roles and responsibilities include quality control and archival of all drifting buoy data distributed on the Global Telecommunications System (GTS), distribution of the data to anyone who requests it, facilitating data exchange between global data centres, and supporting/promoting the activities of the IODE, the Drifting Buoy Co-operation Panel (DBCP) and its action groups.

47 During the inter-sessional period, MEDS focused on software enhancements, products and services, including providing better web access to information, and participation in international meetings. Current software activities include review of the Quality Control (QC) system to ensure an up-to-date processing system, re-writing of the duplicates software to reduce the number of exact and quasi-exact duplicates, and expanding the number of location quality flags to more accurately describe the quality of the data. Products and services developed include an International Arctic Buoy Programme (IABP) CD containing 20 years of IABP data and information, conversion of the Ocean Data Acquisition System (ODAS) paper publication to an easily updateable website, a new QC tool used in the DBCP QC monitoring programme to monitor the quality of location data distributed on the GTS, an animation of drifting buoy tracks overlaid onto sea surface temperature in the equatorial Pacific over a 20 year period and scalable maps of the North Pacific and Arctic to provide daily information about the buoys in those areas. As well, MEDS provided the content for a North Pacific Data Buoy Advisory Panel (NPDBAP) promotional electronic poster displayed at the 2002 PICES meeting and the content for the Surface Velocity Programme (SVP) section of the World Ocean Circulation Experiment (WOCE) DVD. Meetings attended by MEDS as a representative of the RNODC included the DBCP, NPDBAP and IABP. The latest IABP meeting was hosted by MEDS in Ottawa, Canada.

48 MEDS was asked to continue its partnership with Atlantic Oceanographic and Meteorological Laboratory (AOML) as a Data Assembly Centre (DAC) for datasets collected under CLIVAR (Climate Variability and Predictability).

3.3.3 RNODCs in Japan (WESTPAC, IGOSS, MARPOLMON, ADCP)

49 Mr Satoshi Sato (Japan) provided information on the RNODCs in Japan on behalf of Mr Noboyuki Shibayama. The Japan Oceanographic Data Centre (JODC) is in charge of the RNODCs for WESTPAC, IGOSS, MALPOLMON, and ADCP.

50 NEAR (North-East Asia Regional)–GOOS is a regional programme of GOOS, implemented by China, Japan, the Republic of Korea and the Russian Federation as a WESTPAC Activity. JODC has operated the NEAR-GOOS Regional Delayed Mode DataBase (RDMDB) since October 1996. The RDMDB provides 30 types of oceanographic and marine meteorological data through Internet, and the total volume of the data available on the web is about 7,000 MB as of December 2002. The URL of RDMDB is http://near-goos1.jodc.go.jp/.

51 The WOCE DAC (Data Assembly Centre) for Shipboard ADCP is co-located at the University of Hawaii Joint Archive for Shipboard ADCP (JASADCP) and at JODC, RNODC-ADCP. JODC has archived Shipboard ADCP data, which are included in WOCE Global Data Set Version 3.0. And, recently, JODC accepted the request of the International CLIVAR project office to continue the function of WOCE DAC for ADCP.

52 The details of the activities of RNODCs in Japan are presented in the RNODC Activity Report, which is available on the website, http://www.jodc.go.jp/project/WESTPAC/publication.html.

3.3.4 RNODCs in the United States (MARPOLLON and IGOSS (Bathy & TESAC))

53 **The Committee was informed** that this facility was no longer operational. **The Committee noted** that the MARPOLMON RNODC activities were now assumed mainly by JODC.

3.3.5 RNODCs in Russian Federation: MARPOLMON and IGOSS (Bathy & TESAC)

54 Dr Nicolay Mikhailov presented his report as Document IOC/IODE-XVII/9.5. He described the RNODC for the (former) IOC/WMO IGOSS project that has been operated by the National Oceanographic Data Centre of Russian Federation (All-Russian Research Institute of Hydrometeorological Information-World Data Centre–RIHMI-WDC) since 1984. The main data management facilities of the RNODC are (i) systems for collection, primary processing and

accumulation of oceanographic data coming via GTS; (ii) specialized software for QC and preparing the tables and maps for space-time oceanographic data distribution; and (iii) marine data management subsystem for integrating the real-time oceanographic data and providing access to operational data base via Internet. Since 1984 more than 480 000 BATHY, 74 000 TESAC and 17410 000 BUOY reports have been accumulated and archived by WDC Oceanography, Obninsk.

3.3.6 RNODC for JASIN: United Kingdom

55 Dr Lesley Rickards noted that the RNODC for JASIN was established some time ago and refers to the joint air-sea interaction project (1978). The UK was tasked with collating the data collected in that year. Data covered were moored current meter, CTD, surface meteo, shipboard wave, etc. Most of the data were received by the data centre within 3-5 years but unfortunately resources ran out before all data were quality-controlled. Little was done over the last 10 years but during the past 6-8 months quality-control was performed on remaining data and these will be published on CD-ROM and passed on to the WDCs. Accordingly the RNODC will remain until the production of the CD-ROM has been completed.

3.3.7 RNODC-Formats

56 With regard to the RNODC-Formats, Dr Harry Dooley (ICES), referring to Document IOC/IODE-XVII/9.7, explained that the RNODC-Formats had not functioned at all for several years. This was mainly because of the substantial expansion of communication capabilities since 1983 when this RNODC was formed. In addition, the creation of the IODE website, and such tools as the IODE Resource Kit and Ocean Teacher had negated the need for this RNODC. Consequently he recommended to the Committee that consideration should be given to cancelling this RNODC

57 **The Committee decided** to dissolve the RNODC-Formats. It further **tasked** the IOC/IODE Secretariat with taking over the tasks formerly covered by the RNODC-Formats.

3.3.8 RNODC-INDO

58 Mr J.S. Sarupria (India) was unable to attend. Dr Murari Tapaswi presented the RNODC-INDO activities report in the absence of Mr J.S. Sarupria. The activities during the inter-sessional period were focussed on (i) collection of datasets, (ii) providing training to data personnel, and (iii) developing data and information products.

59 During this period, RNODC undertook two important projects (i) development of marine integrated information system for Indian Ocean in collaboration with RIHMI-WDC-B, Obninsk, Russia and (ii) management of project on ocean modelling, coastal research and Argo float deployment by INCOIS (Indian National Centre for Ocean Information Services). As far as information management is concerned, the NICMAS (National Information Centre on Marine Sciences) continued to provide search and access support to the users of the region. It completed retro conversion of ASFA 1972. Under various IOC programmes, NICMAS participated in providing training on conversion of Micro CDS/ISIS databases of ODINAFRICA centres to Inmagic structures.

60 Other activities include (i) participation in the IOC mission to Sri Lanka to assist establishing SL-NODC, (ii) training to Myanmar scientists under Indo-Myanmar co-operation, (iii) MOU with JAMSTEC, Japan, Portugal, etc; and (iv) supply of oceanographic data and data products to over 120 users. During the next two years RNODC proposes to assist in the establishment of NODCs/DNAs in countries of the region, developing metadata directory, coastal oceanographic database and ODIN for the region.

61 RNODC products include (i) biological oceanographic data CD for the Indian Ocean, (ii) data visualization software and (iii) biological oceanographic data quality control software. NICMIS products are (i) a CD of Indian Ocean database of abstracts covering 30,000 items on Indian Ocean and (ii) a website providing information on the Indian Ocean (www.indian-ocean.org).

3.3.9 Other

62 The Committee recalled that it had adopted Resolution IODE-XVI.2 (**Establishment of an RNODC for the Persian Gulf Area (RNODC-P.Gulf))** and had invited the Delegate of the Islamic Republic of Iran to implement all the procedures applied to the process of an RNODC nomination as described in the IODE Guide on the Establishment of RNODCs (*IOC Manuals and Guides No. 9, Annex I*). The Delegate of the Islamic Republic of Iran informed the Session that preliminary actions had been taken and the procedures will be completed soon.

63 At its 16th Session the Committee had also adopted Recommendation IODE-XVI.10 (**Underway Sea Surface Salinity Data Archiving Pilot Project**) that had requested its newly established Steering Group to implement the procedures for the establishment of an RNODC as described in IOC Manuals and Guides No. 9. Through Recommendation XVI.10 the Committee had recommended the establishment of a Pilot Project for the management of these data. Further discussions on this issue are reported under Agenda Item 4.2.5.

3.4 REPORTS OF NODCs AND DNAs

64 The Technical Secretary introduced this item recalling that the letter of invitation to this Session (IOC Circular Letter No. 2044) had included a request to submit reports on national activities in marine data and information management to the IOC Secretariat in accordance with the guidelines provided in Document IOC/IODE-XVII/Inf.2. He welcomed that all Member States that had submitted a report had used this format. He referred to Documents IOC/IODE-XVII/10.1 to 10.38 that included the reports.

65 The Technical Secretary reminded the Committee that due to the shortened duration of the Session it was not possible to invite all Member States to report on their activities during the Session. He reported that out of the 81 IOC Member States with an IODE National Co-ordinator only 38 had submitted a National Report (i.e. 47%). Compared to the 37 reports submitted for IODE-XVI (50%) this was a reduction. He further informed the Committee that all reports thus received had been posted on the IODE website.

66 **The Committee called** on all IODE National Co-ordinators to submit reports as these demonstrated the level of activity of the IODE network of data centres.

3.5 NEW DATA CENTRES

67 The Technical secretary introduced this item referring to Document IOC/IODE-XVII/11 (Establishment of new data centres during the inter-sessional period). During the period November 2000 to November 2002 a total of 8 announcements were received by the IOC/IODE Secretariat with regard to the establishment of new IODE data centres:

1 Designated National Agency (DNA) by Georgia (notification received 8 December 2000)

2 National Oceanographic Data Centre (NODC) by Cameroon (notification received 16 March 2001)

3 National Oceanographic Data Centre (NODC) by Israel (2001)

4 National Oceanographic Data Centre (NODC) by Togo (notification received 5 April 2001)

5 National Oceanographic Data Centre (NODC) by Tunisia (notification received 10 July 2001)

6 National Oceanographic Data Centre (NODC) by Italy (notification received 27 June 2002)

7 National Oceanographic Data Centre (NODC) by Senegal (notification received 31 October 2002)

8 National Oceanographic Data Centre (NODC) by Benin (notification received 31 October 2002)

68 **The Committee welcomed** the new IODE data centres to the IODE family and noted with appreciation that the efforts made through the ODINAFRICA project were bearing fruit as most Member States participating in the project had now formally established an IODE data centre.

69 **The Committee recommended** that Member States that wish to establish a National Oceanographic Data Centre (NODC) or Designated National Agency (DNA) be provided with all relevant documentation and be requested to prepare a Business Plan for review by the IODE Officers. **The Committee tasked** the IODE Officers to provide the candidate centres will all necessary feedback and advice possible.

3.6 REGIONAL CO-ORDINATORS REPORTS

70 The Chair introduced this item referring to Documents IOC/IODE-XVI/12.1 to 12.9. The Chair recalled that, in compliance with the general policy of IOC in implementing its programme activities through regional co-operation, the IOC Committee on IODE at its Fifteenth Session decided to appoint IODE Regional Co-ordinators within the Committee, who may help increase the effectiveness of the IODE support to regional needs. During the period 1996–1997, nine IODE regional co-ordinators, corresponding to the IOC regional interests were appointed, with the following Terms of Reference:

- Keep IOC regional bodies and programmes informed on the IODE data policy and rules of procedure;
- Be a link between the IOC regional bodies and the IODE Committee;
- Publicize IODE activities;
- Help the IODE Committee implement regional activities in data and information management by providing advice and establishing necessary contacts.

71 The Chair recalled that there was currently no Regional Co-ordinator for the IOCARIBE region (see 3.6.5).

72 The Chair then invited the Regional Co-ordinators to provide a short summary of their progress referring to the Terms of Reference mentioned above.

3.6.1 IOC Sub-Commission for the Western Pacific (WESTPAC) Region

73 Mr Satoshi Sato (Japan) introduced this item on behalf of Mr Nobuyuki Shibayama referring to Document IOC/IODE-XVII/12.1. He informed the Committee of the activities concerning capacity building in the region. Since 1982, JODC has organised a training course on oceanographic data management every year, under the auspices of the Japan-UNESCO Fund in Trust. JODC has invited several participants from WESTPAC Member States every year. In 1997, the training course was redesigned to be suitable for the concept of the NEAR-GOOS project, and was named the IOC/WESTPAC Training Course on NEAR-GOOS Data Management.

74 During the inter-sessional period, JODC organized three training courses in Tokyo. The IODE Resource Kit has been used as the training tool in the training course since 2001. JODC invited Mr Greg Reed as a lecturer from IOC/IODE in 2001. He gave lectures on the outline of the IODE system, MEDI and quality control of oceanographic data using the IODE Resource Kit. In 2002, among 28 applicants from 12 countries, 7 persons were selected as trainees from 7 countries: China, Fiji, Indonesia, Malaysia, the Republic of Korea, the Russian Federation, and Thailand. Since 2002, a lecture on marine biological data management has been included in the training course. Prof. Terazaki of the University of Tokyo was invited as a lecturer on marine biological data management in 2002.

75 In addition, Mr Sato reported on activities benefiting the Japanese scientists: JODC translated the "Ocean Data View User's Guide" into Japanese with the co-operation of the Marine Information Research Centre of Japan Hydrographic Association. The Japanese version is now available on the web, http://www.jodc.go.jp/jodc_pub/digitalpub.html.

76 Mr Sato informed the Committee on progress related to GODAR-WESTPAC. The first International Workshop for GODAR-WESTPAC was held in Tokyo during 5–7 March 2002, with support from the Ministry of Land, Infrastructure and Transport (MLIT) Japan. It was attended by representatives from 12 WESTPAC member countries: China, Fiji, France, Indonesia, Japan, the Republic of Korea, Malaysia, Philippines, the Russian Federation, Thailand, USA, and Viet Nam. The workshop adopted the Work Plan for GODAR-WESTPAC, which contains the following items: (i) the project will run between 2002 and 2006; (ii) the project focuses on the data types that are exchanged routinely within the IODE system; (iii) the project establishes a steering Committee; (iv) JODC is in charge of the project office; (v) it is anticipated that assistance with the digitisation of the paper-based data will come from NODCs and DNAs within the region; and (vi) the data policy of the project is in accordance to the IODE data policy "Full and Open Sharing". The project office for GODAR-WESTPAC has published a brochure and developed the website http://www.jodc.go.jp/project/GODAR/index.htm.

3.6.2 IOC Regional Committee for the Central Indian Ocean (IOCINDIO)

77 Dr Murari Tapaswi briefed the Committee on the IOCINDIO regional activities in the absence of Mr J.S. Sarupria, regional co-ordinator, referring to Document IOC/IODE-XVII/12.2.

78 The IOCINDIO Committee is working to enhance IOC regional activities to interpret and use results from field experiments through participation in the IOC regional programmes that include (i) assessment of marine living resources; (ii) integrated coastal and marine area management programme; (iii) monitoring and modelling of coastal and marine processes; (iv) capacity building on coral reefs; (v) Indian Ocean GOOS Programme; and (vi) Indian Ocean GLOSS Programme.

79 Eight workshops/symposia, six training programmes and four meetings were organized/participated in, on different topics related to marine sciences. The ocean observations include (i) drifting and moored data buoys deployed in shallow and deep sea waters of the Indian seas; (ii) Argo floats in northern Indian Ocean; (iii) XBT observations along shipping routes under the Ship Of Opportunity (SOOP) Programme; (iv) deployment of current meter arrays along the equatorial Indian Ocean; and (v) sea truth campaigns for the Indian Remote Sensing Satellite (IRS-P4) sensors.

3.6.3 IOC Regional Committee for the Central Eastern Atlantic (IOCEA)

80 Dr Sekou Cisse presented the report on behalf of the IODE Regional Co-ordinator for IOCEA, Dr Larry Awosika, and referring to Document IOC/IODE-XVII/12.3. The Regional Co-ordinator participated in a number of regional activities of relevance to IODE including ODINAFRICA-II regional co-ordination, the African Process (ICAM), GOOS Africa, GLOSS, African OceanPortal and JCOMM. The Regional Co-ordinator commented on the lack of effective communication and co-operation between the different national data centres in the region due to poor telephone and Internet facilities in the region. He requested that efforts should be made to train more scientists in the region. Funds should also be provided for data centre staff to attend other regional and international data and information exchange workshops and conferences.

3.6.4 IOC Regional Committee for the Co-operative Investigation in the North and Central Western Indian Ocean (IOCINCWIO)

81 Mr H. Ong'anda (Kenya), IOCINCWIO Regional Co-ordinator was unable to attend. Mr Mika Odido presented the report on his behalf (Document IOC/IODE-XVII/12.4). He reported that the fifth session of IOCINCWIO held in Nairobi, Kenya 23–26 September 2002, had expressed its satisfaction with the implementation of the ODINAFRICA project in the region. The project has assisted in the

establishment of NODCs (or DNAs) in Kenya, Madagascar, Mauritius, Mozambique, Seychelles, and Tanzania, as well as a secondary NODC in South Africa. However several areas that need to be addressed were identified. These include difficulty in Internet access because of bandwidth problems, the provision of additional equipment and software to national centres, and the need for continuous and strengthened capacity building within ODINAFRICA for product development. IOCINCWIO-V recommended the preparation of a proposal for a third phase of ODINAFRICA which should focus on the development of specific products for coastal users, in particular coastal area management practitioners such as coastal zoning plans and sensitivity mapping. IOCINCWIO-V endorsed the initiative to develop an African OceanPortal and encouraged Member States from the region to participate actively in the building of the portal by submitting information on national ocean and coastal activities on a regular and sustained manner. IOCINCWIO-V also proposed the organisation of a training course on remote sensing for use in oceanography. With regard to collaboration with other organisations active in the region, the Western Indian Ocean Marine Science Association (WIOMSA) welcomed collaboration with IOC/IODE in the publication and dissemination of information-especially in the development of an electronic journal based on the "Western Indian Ocean Journal of Marine Science" and other forms of publications. The Food and Agriculture Organisation of the United Nations (FAO) called for increased collaboration at the regional level especially between ODINAFRICA and FIGIS (Fisheries Global Information System), and also in the development of African OceanPortal and organisation of remote sensing courses relevant to coastal fisheries. Other organisations such as UNEP and the Drought Monitoring Centre in Nairobi, Kenya expressed an interest in collaboration with the IOC in the field of data and information management.

82 **The Committee noted** with satisfaction the successful implementation of ODINAFRICA in the region, and the collaboration initiated with other organisations.

83 **The Committee recommended** the organisation of a training course on remote sensing and urged Member States to provide support.

3.6.5 IOC Sub-Commission for the Caribbean and Adjacent Regions (IOCARIBE)

84 The Technical Secretary informed the Session that there was no IODE Regional Co-ordinator for the IOCARIBE region during the inter-sessional period.

85 **The Committee elected** Dr Lorna Inniss (Barbados) as IODE Regional Co-ordinator for the IOCARIBE region.

3.6.6 IOC Regional Committee for the Southern Ocean (IOCSOC)

86 Mr Ariel Troisi (Argentina) introduced his report referring to Document IOC/IODE-XVII/12.6. Mr Troisi recalled that the Regional Committee for the Southern Oceans had been created within the IOC in 1967. One of the main reasons for the IOCSOC existence was to address the scarcity of data in the Southern Oceans through the co-operation of researching bodies. This region is recognized as a unique area due to its environmental characteristics. The scientific community is increasingly recognizing the importance of the Southern Oceans relative to possible climate change, air–sea exchange of carbon dioxide, nutrient and biological community dynamics, etc, as shown by new research efforts planned or underway.

87 Reference was made to the discussions on IOCSOC under Agenda item 3.3.1.

88 **The Committee re-iterated** the importance of having an IODE Regional Co-ordinator for the Southern Oceans region and **decided** to maintain the position.

3.6.7 Mediterranean Region

89 Dr Efstathios Balopoulos, Regional Co-ordinator for the Mediterranean region presented his report. Reference was made to Document IOC/IODE-XVI/12.7. Dr Balopoulos reported that during the

inter-sessional period he publicized IODE activities in the Mediterranean region and also assisted the IODE Committee to implement regional activities in data and information management. This was mainly attempted through personal contacts and stimulating regional co-operation for the development of co-operative data management projects, implementation of capacity building activities, participation in Conferences/Symposia/Workshops, and the development of data products. The above efforts lead to the establishment of a new NODC (Italy) and the development of close links of co-operation between various NODCs and specialized marine institutes.

90 Large-scale international projects related to the oceanographic data management as well as research projects with a strong data management component were implemented in the Mediterranean Sea, during the inter-sessional period. The participation in these projects of several NODCs and specialized marine institutes around the Mediterranean Sea enhanced regional co-operation and included EU MATER project, EU/IOC MEDAR/MEDATLAS-II Project; EU EURONODIM Project; EU EDIOS Project; EU SEASEARCH Project; and the preparation of the MEDBLACK-ODN.

91 Short-term on-the-job training (17 October–20 December 2000) was provided by the NODC of Greece to a young scientist (Dr Zurab Savaneli) from the DNA of Georgia, who was supported by IOC. The NODC of Greece also hosted two scientists from the Institute of Oceanology of Bulgaria (BNODC) who undertook a two-week (5–18 March 2002) working visit to the HNODC in order to be acquainted with various elements of data management, which will assist them to further develop the Bulgarian national infrastructure for data management. Other capacity building activities in the region included the donation of surplus computer material by the NODC of Greece to the Institute of Oceanology of Bulgaria (BNODC).

92 During the inter-sessional period data managers of the Mediterranean Sea, participated and presented scientific papers at events in Belgium, Japan, Turkey, Greece, etc. In addition scientific papers were published in International Journals.

93 Future plans include further expansion and strengthening of the Mediterranean NODCs network and further development of regional co-operation, through the establishment of new data management programmes, the organisation of training courses and the production of advanced data products. The very good links of co-operation developed between the Mediterranean and the Black Sea NODCs will be further expanded.

3.6.8 Black Sea Region

94 Dr N. Mikhailov presented the report on behalf of Dr A. Suvorov, Regional Co-ordinator for the Black Sea, referring to Document IOC/IODE-XVI/12.8. Dr Mikhailov reported that activities in this region had been carried out in the framework of MEDATLAS. This project had focused on infrastructure and technology development. All countries of the region had participated in the project and support had also been provided by other countries including Greece and France. During the inter-sessional period training courses had been organized in Russia and Greece. The MEDATLAS project had further produced a CD-ROM containing high quality data and developed a website.

95 **The Committee expressed** its appreciation for the success of the MEDATLAS project **and called on** the involved countries to continue working in this area. In order to assist Dr Suvorov in his task as IODE regional co-ordinator for the Black Sea region, Mr Mikhailov offered the facilities of his institution to host relevant data and services for the Black Sea Region. **The Committee thanked** Dr Mikhailov for his kind offer but requested him to discuss this matter with Dr Suvorov.

96 Dr Mikhailov proceeded by drawing the Committee's attention to the Caspian Sea noting that, despite this region's economic importance little attention was given to this region by IODE. He suggested that it would useful to nominate an IODE Regional Co-ordinator for the Caspian Sea to fill this gap. The Committee was informed that a number of other organisations and projects were active in the Caspian Sea (e.g. CaspCom, CEP, WMO and IOC).

97 **The Committee requested** the Chair to contact Member States, as well as organisations and projects active in the Caspian Sea region to seek close collaboration in relation to oceanographic data and information management. **The Committee agreed** that the matter of an IODE Regional Co-ordinator for the Caspian Sea be further considered on the basis of replies received.

3.6.9 Eastern Pacific (El Niño) Region

98 This item was introduced by Mr Ricardo Rojas, Regional Co-ordinator for the Eastern Pacific (El Niño) region, referring to Document IOC/IODE-XVI/12.9. Mr Rojas reported that, after IODE-XVI he had co-operated with the IODE Secretariat by translating into Spanish a series of brochures related to IODE activities (IODE, E-Library and GLODIR). The most important activity performed by Mr Rojas, after presenting the ODINLAC Initiative Project at IODE XVI, was to perform all the necessary actions and tasks to make the project start as expected. The ODINLAC proposal was thus discussed at the 21st Session of the IOC Assembly in 2001 and endorsed under its new name ODINCARSA. The First Planning meeting of ODINCARSA took place at the INOCAR facilities in Guayaquil, Ecuador in October 2001.During the meeting Mr Rodney Martinez from INOCAR had been elected as the Regional Co-ordinator for ODINCARSA. Mr Rojas has continued co-operating with the project providing advice.

99 Mr Rojas stated that, as an IODE Regional Co-ordinator for the CPPS region, he has tried for a long time to include a Data Management component in the ERFEN project of the CPPS. The efforts have been made at all levels but no real advance has been achieved on this issue so far. He expressed his hope that close collaboration between the ODINCARSA Regional Co-ordinator and the countries of the CPPS region will achieve positive results.

100 Following his election as Vice-Chair of IODE (See Agenda Item 9), Mr Rojas offered to step down as IODE Regional Co-ordinator for the Eastern Pacific (El Niño) region, in order to give full attention to his new position.

101 **The Committee elected** Mr Marfiu Rodriguez (Ecuador) as the new IODE Regional Co-ordinator for the Eastern Pacific (El Niño) region.

102 **The Committee recalled** that it had **"***stressed the need for the Regional Co-ordinators to establish effective 'human networks' that would allow to clearly assess the available resources and needs of the regions, so as to enable the Committee to timely respond to these needs*" (paragraph 126 of the IODE-XVI Summary Report). As a follow-up the Secretariat issued CL-2036—FOLLOW-UP TO IODE-XVI WITH REGARD TO REGIONAL CO-ORDINATORS [Sent 1 August 2002]. In this Circular Letter, the Secretariat had also requested the Regional Co-ordinators to assist the Secretariat in identifying donors. No responses were received by the Secretariat.

103 **The Committee recalled further** that IODE-XVI had called upon the Regional Co-ordinators to co-ordinate the development of capacity building proposals. IODE-XVI had requested that, to facilitate the work of future Sessions of the Committee, to submit such proposals not less than two months prior to the Session. As a follow-up the Secretariat issued CL-2038—FOLLOW-UP TO IODE-XVI WITH REGARD TO SUBMISSION OF REGIONAL PROJECT PROPOSALS – IOCINCWIO REGION [Sent 1 August 2002]. No responses were received by the Secretariat.

104 **The Committee** made no suggestions for further revision of the Terms of Reference of the IODE Regional Co-ordinators (after their revision at IODE-XVI through Recommendation IODE-XVI.2).

105 The regional co-ordinators are now:

1 Mr Nobuyuki Shibayama, IODE Regional Co-ordinator WESTPAC

2 Mr J.S. Sarupria, IODE Regional Co-ordinator IOCINDIO

3 Dr L. Awosika, IODE Regional Co-ordinator IOCEA

4 Mr H. Ong'anda, IODE Regional Co-ordinator IOCINCWIO

5 Mr Ariel Troisi, IODE Regional Co-ordinator IOCSOC

6 Dr E. Balopoulos, IODE Regional Co-ordinator Mediterranean region

7 Dr A. Suvorov, IODE Regional Co-ordinator for the Black Sea region

8 Mr Marfiu Rodriguez, IODE Regional Co-ordinator for the Eastern Pacific (El Niño)

9 Dr Lorna Inniss, Regional Co-ordinator for the IOCARIBE region

3.7 IODE DATA FLOW

106 This Agenda Item was introduced by Dr Harry Dooley (ICES Oceanographer). He recalled that the IODE Committee at its 16th Session had agreed that National Oceanographic Programmes (NOP) are an important and useful tool for the monitoring of data flow and had encouraged Member States to provide NOPs directly to the OCEANIC Research Ship Schedules and Information System. This would provide a more valuable and cost-effective service and the mailing of NOPs to the IOC Secretariat would cease.

107 The Committee had further agreed to consider ways of effective co-operation between ICES and OCEANIC. At the 9th Session of GE-TADE the Group agreed to request that ICES create a link from their Cruise Summary Report web page (http://www.ices.dk/ocean/roscop) to the OCEANIC research schedule page (http://ships.cms.udel.edu/ship_gen.asp). OCEANIC were also requested to link their page to the ICES site. The link from ICES site to OCEANIC is in place, however the link from OCEANIC has yet to be implemented.

108 Dr Ferris Webster in his capacity as representative of University of Delaware informed the Committee that they had not received many NOPs and recommended that the system of NOPs be abolished, as it does not appear to be effective. A link will be added from the OCEANIC website to the ICES website.

109 **The Committee recalled** the request to Member States during IODE-XVI (para. 150 of IOC/IODE-XVI/3) with respect to the submission of NOPs to OCEANIC and **again encouraged** Member States to contribute their cruise programmes and other relevant information to the OCEANIC system.

3.8 IOC OCEANOGRAPHIC DATA EXCHANGE POLICY

110 This Agenda Item was introduced by the Technical Secretary referring to Document IOC/IODE-XVII/14 *'IOC Oceanographic Data Exchange Policy: Status Report'* as well as to Document IOC/INF-1175 *'Second Session of the Intergovernmental Working Group on IOC Oceanographic Data Exchange Policy, UNESCO Headquarters, Paris, France, 17–18 June 2002'* and to the Draft Statement included therein.

111 **The Committee recalled** that it had adopted Recommendation IODE-XVI.5 (IOC Oceanographic Data Exchange Policy) in which it stressed its strong concern that a change to the existing data exchange policy would severely limit exchange and access to data and place additional management and legal burdens and responsibilities on the IODE system and its data centres. IODE-XVI had therefore reiterated is strong support for the existing data exchange policy (that was recommended by IODE as Recommendation IODE-XIV.6 in December 1992 and adopted by the IOC Assembly at its 17th Session in 1993).

112 The First Session of the Intergovernmental Working Group on IOC Oceanographic Data Exchange Policy was held in Brussels, Belgium between 29 and 31 May 2001 and attended by 21 Member States, as well as observers from ESA, EU, ICSU, IODE, SCOR and WMO. During its three

days of deliberations the Group reviewed the results of the ad hoc Group of Experts (2000), discussions during the 33rd Session of the IOC Executive Council, the 16th Session of the IOC Committee on IODE, and been informed on the status of implementation of WMO Resolutions 40 and 25 as well as on the view of ICSU on data exchange policy. Participating Member States had also been given the opportunity to inform the Meeting on national policies. The Meeting then split into three sessional Working Groups: one dealing with the issue of a two tier approach (as used by WMO Resolution 40, distinguishing between 'essential' and 'additional' data), and two dealing with the elements to be included in the revised policy statement. Reports of the groups were collated by the Chair who prepared a composite statement for discussion. After substantial discussion, the First Session of the Intergovernmental Working Group on IOC Oceanographic Data Exchange Policy prepared a draft statement for submission to the 21st Session of the IOC Assembly (Report available as IOC/INF-1163). The Assembly had congratulated the Working Group with the progress made during its first Session, but noted that a second Session would be required to achieve its goals. The Assembly also stressed the importance of ensuring that a new IOC policy should not result in a reduction of data flow.

113 The Second Session of the Intergovernmental Working Group on IOC Oceanographic Data Exchange Policy was held at UNESCO Headquarters, Paris on 17 and 18 June 2002 (i.e. immediately following the 35th Session of the IOC Executive Council). It was attended by 16 Member States as well as by observers from IODE (Dr E. Balopoulos, IODE Chair), European Commission and ICSU/SCOR. The Session adopted a "Draft IOC Oceanographic Data Exchange Policy". This policy will be submitted to the IOC Assembly at its 22nd Session in June 2003 as a Draft Resolution.

114 Several delegates noted that the draft policy takes into consideration the needs of developing countries and expressed their support.

115 The representative of WMO, noted that his organisation has had 10 years of experience with their Resolutions 40 and 25 regarding meteorological and hydrological data exchange, and had worked closely with IOC during this process towards a new IOC policy and he welcomed the progress made.

116 **The Committee expressed its strong support** for the draft policy as prepared by the Second Session of the Intergovernmental Working Group on IOC Oceanographic Data Exchange Policy **and called** on the IOC Assembly to adopt it.

117 **The Committee noted** that any policy is only as effective as its implementation and it **urged** Member States to consider mechanisms for ensuring maximum compliance with the policy, should it be adopted by the IOC.

4. PROGRAMME PROGRESS REPORTS

4.1 GROUPS OF EXPERTS

4.1.1 Group of Experts on Biological and Chemical Data Management and Exchange Practises (GEBCDMEP)

118 This item was introduced by Dr Edward Vanden Berghe (Chair, GEBCDMEP). He referred to Document IOC/IODE-XVII/15.1 *'Group of Experts on Biological and Chemical Data Management and Exchange Practices'*. He recalled that this Group of Experts had been established as requested by Recommendation IODE-XVI.4 (Establishment of a Group of Experts on Biological and Chemical Data Management and Exchange Practices). Circular Letter 1694 (25 May 2001) had invited Member States to submit nominations for membership of this Group. The First Session of the Group was held in Silver Spring, MD, USA from 25–27 June 2002 hosted by WDC Oceanography, Silver Spring.

119 Dr Vanden Berghe noted that the Group currently focuses on biological data. The Group had discussed the need for an inventory of existing databases and agreed to define and distribute a

questionnaire to request information about documenting systems, databases and inventories. The Group also stressed the need to forge links with other initiatives outside IODE (e.g. ITIS, OBIS, ETI). The Group had recommended to adopt ITIS as the reference list for taxonomy. Dr Vanden Berghe informed the Committee that links had now been established with ETI-Caribbean Initiative and OBIS. The process for establishing links with ETI and the UNESCO register of marine organisms has been initiated.

120 The Delegate of Barbados, Dr Lorna Inniss, expressed her country's support for the establishment of the ETI-Caribbean Initiative. She explained that the English speaking Caribbean Islands are still very poor in terms of data holdings and data management expertise. In view of the special interest in biological data she welcomed the progress made by the GEBCMDEP. She noted that there is an imbalance between the Spanish speaking mainland countries and the English speaking small island states in terms of data management expertise. She expected that the ODINCARSA project would be able to increase expertise in data and information management in the Caribbean region.

121 The Group had also proposed to commence planning for an International Workshop that would provide a forum for scientists to be informed of the latest developments in biological and chemical data management. It was proposed to hold the Conference in Hamburg, Germany, Spring 2004.

122 The Delegate of Germany welcomed the proposal and informed the Committee that his country will be prepared to host the Workshop, provided co-sponsoring can be obtained from IOC (and/or other sources).

123 The representative of FAO offered to collaborate with the GEBCDMEP. **The Committee invited** FAO to participate in the GEBCDMEP.

124 **The Committee extended an invitation** to OBIS to actively participate in the activities of the GEBCDMEP. It recalled that OBIS had been invited to IODE-XVII but due to other commitments no representative had been able to attend.

125 The Report of the First Session of the Group is available as Document IOC/IODE-BCDMEP-I/3.

126 **The Committee adopted** the Summary Report of the First Session of the Group and all recommendations contained therein.

127 Dr Vanden Berghe then provided a brief report on the Colour of Ocean Data Symposium (COD), 25–27 November 2002. It brought together oceanographic data managers, marine biologists and decision makers. There were 200 participants from 40 countries and organisations. The symposium had resulted in the following conclusions: (i) physical *vs* biological data management: complexities exist on a different level (physics: high volume, low complexity; biology: low volume, high complexity). (ii) COD identified the need for data products to increase visibility: towards scientists, decision makers and industry and other end users. The Symposium had also noted that scientists in general inadequately know IODE and data management. There is also a strong need for enhanced partnership between data centres and the scientific community

128 The Committee was informed that participants in the Symposium had stated that the inclusion of data and information management in academic oceanography curricula would result in better understanding by scientists of the importance of quality data and information management, and consequently in better data management practices.

129 Noting the importance of promoting IODE in the ocean science community **the Committee recommended** that the GE-BCDMEP should take leadership in assisting ocean biology and chemistry

projects with the development of their data management plans. **The Committee recommended** that the GE-BCDMEP meets prior to the proposed Hamburg meeting in order to discuss this matter.

130 The Delegate of France, Dr Catherine Maillard, offered to host an international conference on data management, focusing on multi-disciplinarity, operational oceanography and geoscience data. The proposed date is May–June 2005.

131 The JCOMM Co-President, Dr Savi Narayanan, expressed interest in this Conference and offered to investigate the possibility to co-sponsor this event.

132 **The Committee thanked** the organisers of the COD Symposium and congratulated them for the excellent results achieved.

4.1.2 Group of Experts on Marine Information Management (GEMIM)

133 This item was introduced by Dr Murari Tapaswi (Chair, GEMIM). He referred to Document IOC/IODE-XVII/15.2 *'Group of Experts on Marine Information Management'*.

134 Dr Tapaswi informed the Committee that, after an inter-sessional period of 3 years (since June 1999) the Seventh Session of GEMIM was organized between 23 and 25 October 2002 at UNESCO Headquarters, France. It was noted that the first year of the inter-sessional period of GEMIM-VI had already been reported on during IODE-XVI. Since then the GEMIM had completed or collaborated in a substantial number of action items in terms of products and services (development of BeeBox, the IODE dynamic content management system; OceanPortal; OceanTeacher; OceanExpert); Capacity Building (initiation of training resources for MIM as a contribution to ODINAFRICA and ODINCARSA); Collaboration with the data community (MEDI); Network development (IAMSLIC, ASFA).

135 GEMIM-VII had adopted two recommendations comprising 32 action items. These covered the further enhancement of OceanPortal and OceanExpert; further development of ODIN networks; co-ordination of continuous professional development in MIM; support to MIM experts from developing countries to attend important conferences; co-operate in the marineXML initiative. The Summary Report of the Session is available as Document IOC/IODE-MIM-VII/3.

136 The representative of IAMSLIC/EURASLIC, Mrs. Pauline Simpson, welcomed the GEMIM report. She expressed IAMSLIC/EURASLIC's appreciation for the information tools and services developed by GEMIM such as OceanExpert, OceanPortal and the training system OceanTeacher.

137 **The Committee re-iterated** its request to Member States to ensure better representation of MIM experts in delegations for IODE Sessions.

138 **The Committee adopted** the Summary Report of the Seventh Session of the Group and all recommendations contained therein.

4.1.3 Group of Experts on Technical Aspects of Data Exchange (GETADE)

139 This item was introduced by Mr Greg Reed (Chair, GETADE). He referred to Document IOC/IODE-XVII/15.3 *'Group of Experts on the Technical Aspects of Data Exchange'*. Mr Reed recalled the medium-term objectives of the Group, as defined at the 8th Session of GETADE (TADE-VIII, 2000), as (i) develop End-To-End Data Management framework strategy and appropriate projects, products and services, based on user requirements, (ii) develop IODE Global metadata management system, (iii) develop marine XML as a mechanism to facilitate format and platform independent information, metadata and data exchange, (iv) develop the IODE Resource Kit as a marine data and information management reference tool for scientists and data/information managers, (v) organize integrated national and regional level capacity building projects and programmes, linking equipment, training and operational activities, (vi) develop a high-quality IODE web presence and

IODE Data/Information Management Portal, as a mechanism to promote IODE, to reinforce the 'IODE family' principle, and to guide users to marine information, metadata and data sources.

140 He then provided an overview of the proceedings of the Ninth Session of the Group held in Helsinki, Finland, from 20–22 April 2002 where the Group reviewed the achievements made during the previous inter-sessional period. Issues discussed at the meeting included the development of a Marine XML and collaboration with the ICES/IOC Study Group on the Development of Marine Data Exchange Systems using XML (SGXML), the development of an end-to-end data management framework and co-operation with other programmes concerned with marine data management, in particular the Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM). The Group adopted a comprehensive work plan for the next intersessional period. The Summary Report of the Session is available as Document IOC/IODE-TADE-IX/3 .

141 The Committee was informed that the JCOMM Management Committee, during its 2nd Session (UNESCO Headquarters, Paris, 5–8 February 2003) had stated that JCOMM has been successful in establishing strong collaborations with IOC/IODE, and participated in discussions on biological data management, global ocean surface underway data, marine XML, Ocean Information Technology, and others. Subsequently, the Management Committee had recommended that the JCOMM's expert team on Data Management Practices and the IODE's GETADE, two expert teams with very similar terms of reference, be merged, and that other relevant data management expert teams of both organisations be jointly sponsored. In addition, the Management Committee recommended that the IODE Secretariat become part of the Joint JCOMM Secretariat and provide the secretariat support to the data management activities of JCOMM. (See also Agenda Item 6.2).

142 **The Committee requested** the GETADE Chair to compare the GETADE-IX work plan (2003–2005) with the JCOMM ETDMP work plan (as available, taking into consideration that the first formal meeting of the ETDMP had not taken place), and to report to the IODE Officers on any action items that could not be addressed by the joint JCOMM/IODE ETDMP.

143 **The Committee adopted** the Summary Report of the Ninth Session of the Group and all recommendations contained therein taking into consideration its recommendation to merge GETADE with the JCOMM ETDMP.

144 **The Committee adopted** Recommendation IODE-XVII.3.

4.2 GLOBAL PROJECTS

4.2.1 Aquatic Sciences and Fisheries Abstracts (ASFA)

145 This item was introduced by Mr Mika Odido (IOC Consultant). He referred to Document IOC/IODE-XVII/16 *'Aquatic Sciences and Fisheries Abstracts (ASFA)'***.** Mr Odido outlined the progress made in the development of ASFA in the intersessional period. The priority of ASFA identified by the ASFA Advisory Board are: (i) expansion of the ASFA Partnership, (ii) improvement of the Coverage, Accuracy, Timeliness etc. of ASFA (iii) co-ordination of the maintenance of the ASFA inputting tools, and (iv) expanding the dissemination and use of the ASFA information products.

146 The ASFA database currently contains nearly 900,000 records, increasing at a rate of 35,000-40,000 records a year. At this rate the ASFA database will reach the 1 million record mark somewhere in the middle of the year 2005. The ASFA Advisory board has provided support through the ASFA Trust Fund to enable the conversion of ASFA printed journals from 1971–1974 to machine-readable format. Regular training in ASFA input methodology, and editorial control of inputs prepared by newly trained partners is provided by the secretariat based at FAO in order to ensure that the quality of the database is maintained. New partners have been recruited from Belgium, Brazil, Bulgaria, Côte d'Ivoire, Italy, Korea, Peru, Tunisia, Uruguay and Viet Nam. The web-based software for ASFA data input and retrieval—www-ISIS-ASFA—was launched in 2002 to replace the DOS-based software

ASFISIS (release-3), which has been used to prepare ASFA input in machine readable format since 1998.

147 The ASFA publishers (CSA), in collaboration with UN co-sponsoring partners FAO and IOC initiated a programme to provide access to ASFA to low-income, food-deficit countries (LIFDC) in Africa on CD-ROM, and via Internet access to all LIFDCs world wide for an initial five-year period (2000–2004). In most of the institutions, ASFA has been a very popular source of bibliographic information. However few institutions opted for the ASFA Internet Database Service- probably because of the limited penetration of fast, reliable and economic, Internet connections in LIFDCs. The publisher and the Board have also provided significant reductions in subscriptions to developing countries, and free use of ASFA records for the development of databases for non-profit usage.

148 **The Committee noted with satisfaction** the improved coverage of the ASFA database, expansion of the ASFA partnership and the expanded dissemination and use of ASFA products. **The Committee called** on ASFA to continue its efforts to include historical material in the database.

149 **The Committee strongly supported** the continued participation of IOC in the ASFA Advisory Board, and its activities **stressing** the need to assist developing countries.

150 **The Committee considered** that pre-1970 citations (currently not held by ASFA) are important resource supporting data archaeology initiatives. It **called** on the ASFA Board to identify such holdings and to convert and add them to the ASFA database.

4.2.2 Global Oceanographic Data Archaeology and Rescue (GODAR)

151 This item was introduced by Mr Sydney Levitus (GODAR Project Leader). He referred to Document IOC/IODE-XVII/17 *'Global Oceanographic Data Archaeology and Rescue (GODAR)'*. As a result of recommendations from IODE-XVI, the IOC GODAR/WESTPAC project was established focusing on countries bordering the western Pacific Ocean with JODC as the project co-ordinator. Work with IOCARIBE and other ODINCARSA nations is also proceeding. Sea level data is now included as a data type for GODAR work.

152 Mr Levitus then described the World Ocean Database 2001 (WOD01) as global, comprehensive, integrated, scientifically quality-controlled with all data in one well-documented format. WOD01 is available on-line and on CD-ROM. Updates to WOD01 will shortly be available on-line at the end of every month. WOD01 contains data from 55,897 cruises, from 3057 ships and other platforms, from 489 institutes, and from 112 countries. He proposed to hold an international meeting on quality control of ocean profile-plankton data, possibly in 2004.

153 **The Committee endorsed** the continued support for the GODAR Project and **noted** that GODAR activities will continue to focus on data rescue as it has during the past years with particular emphasis to be placed on rescue of data from South American countries.

4.2.3 Global Temperature and Salinity Profile Programme (GTSPP)

154 This item was introduced by Mr Scott Tomlinson (MEDS). He referred to Document IOC/IODE-XVII/18 *'Report on GTSPP'*. Mr Tomlinson reported on activities during the last intersessional period including (i) the meetings of the GTSPP Steering Group; (ii) support for WOCE, XBT fall rate correction; (iii) support for the Ship Of Opportunity Programme (SOOP); (iv) the Revised Project Plan; (v) the revised GTSPP brochure; and (vi) discussing the proposed activities for the next inter-sessional period.

155 The proposed activities of the Group for the next intersessional period are: (i) prepare annual reports for SOOP and bi-annual updates to the dataset, (ii) extending the GTSPP dataset backwards from 1990, (iii) explore ways to operate the continuously managed database as a distributed archive, (iv) in co-ordination with the SEAS programme, implementing Unique Identifiers to GTS data to

facilitate reconciliation to the original, high resolution data, (v) co-operation with the Asia-Pacific Data Research Centre (APDRC), and (vi) provide support for CLIVAR.

156 It was noted that at a previous IODE Session, it was recommended that IODE data centres collect XBT probe and fall rate information for new data received and where possible for data already in their archives, but that no action be taken to make corrections. **The Committee noted** the Report of the GTSPP and that there were currently no agreed standard (IODE) procedures for correcting/amending data.

157 **The Committee agreed** that an appropriate strategy for all IODE data centres and other global archives was urgently required.

158 **The Committee tasked** GTSPP to submit to IODE-XVIII a proposal for addressing this problem.

4.2.4 Development of a marine XML (marineXML)

159 This item was introduced by Mr Robert Gelfeld (SGXML Co-chair). He referred to Document IOC/IODE-XVII/19 *'Development of a marine XML: ICES-IOC Study Group on the Development of Marine Data Exchange Systems Using XML (SGXML)'*. Mr Gelfeld recalled the SGXML Terms of Reference and informed the Committee of the first meeting of the SGXML, held in Helsinki, Finland, from 15–16 April 2002. The meeting was attended by 12 participants from ICES and 10 representatives from IODE. It resulted in the initial development of a plan to guide an investigation into how XML technology might best be used in an oceanographic context. From an IODE perspective, the requirement was to design a framework for an XML structure that data centres can use. He reported that the Report of the Session is available as Document ICES CM 2002/C:12.

160 **The Committee established** a sessional working group that was tasked to (i) establish an informal group of interested data centres to evaluate the usefulness of the XML brick structure; (ii) to further develop the XML brick concept and extend the range of data structures to include, for example, time series datasets; and (iii) to explore how the brick structure maps to an object oriented database view of ocean data.

161 The next Session of the SGXML will be held in Gothenburg, Sweden on 26 and 27 May 2003.

162 **The Committee recommended** that an informal group of interested data centres will be invited to work closely with the Canadian XML team on the further development of the XML brick concept. **The Committee invited** interested data centres to contact Dr Bob Keeley (MEDS, Canada) and to map their existing point data to the XML brick structure and to report their findings to the next Session of the SGXML.

163 **The Committee tasked** the SGXML to consider at their next meeting to describe their 'vision' of XML and to report back to IODE-XVIII.

164 Mr Greg Reed then informed the Session about the EU Marine XML project that will demonstrate that XML technology could be used to develop a framework that improves the interoperability of data for the marine community and specifically in support of marine observing systems. The project will develop a prototype of an XML-based Marine Mark-up Language (MML). The project is a partnership involving 10 European and international agencies including IOC. The project is co-funded between the participating partners and the European Commission (providing €457972). The project commenced in February 2003 and the duration of the project will 24 months.

165 The next meeting of the project team will be held in Oostende, Belgium on 20 March 2003.

166 The Committee was informed that a dedicated website with the URL has been established on http://www.marinexml.net.

167 The representative of FAO informed the Session about the FIGIS (Fisheries Global Information System) project that had been involved in the development of an XML-based mark-up language related to fisheries. He proposed for IOC and FAO to collaborate in the field of XML. **The Committee invited** FAO to participate in the SGXML.

168 The representative of WMO and the JCOMM Co-President expressed strong interest in co-operation with the SGXML as this issue is most relevant to some of their activities.

169 **The Committee expressed its high appreciation** for the active role IODE is playing the development of a marineXML. It **stated** that the involvement of IODE in the EU XML project and the SG-XML will avoid the development of several, incompatible standards and called on the different projects to work closely together towards a single standard.

4.2.5 Global Ocean Surface Underway Data Pilot Project (GOSUD)

170 This item was introduced by Dr Catherine Maillard (IFREMER). She referred to Document IOC/IODE-XVII/37 *'IODE Steering Group for Global Ocean Surface Underway Data (GOSUD)'*.

171 Dr Maillard recalled that the IODE Steering Group for Underway Sea Surface Salinity Data Pilot Project (now renamed to the Global Ocean Surface Underway Data Pilot Project, GOSUD) was established during IODE-XVI. The objective of the project is to organize surface underway data that are currently collected and to work with data collectors to improve data collection to meet the benchmarks of spatial and temporal sampling and data accuracies set out by the Ocean Observations Panel for Climate (OOPC).

172 The First Session of the Steering Group was held in Brest, France, from 15–16 November 2001. During its First Session the Steering Group reviewed the current status of collection of *in situ* surface salinity data using the thermosalinograph and addressed each of the functions of the data management process for underway sea surface salinity data—Collection, Transfer, Processing, Archiving and Products. The Summary Report of the meeting is available as IOC/IODE-SG-USSSAL-I.

173 The Second Session of the Steering Group was held in Ottawa, Canada, from 16–17 September 2002. During its Second Session the Steering Group reviewed the draft project plan. The three Working Groups - (i) Products, (ii) Transfer, processing and archiving and (iii) Data Collection - outlined their input to the project. The Summary Report for the meeting, including the revised project plan, is available as Document IOC/IODE-SG-GOSUD-II. Dr Maillard called the attention of the Committee to the project plan included in Document IOC/IODE-XVII/37a and information and products available from the website: http://www.ifremer.fr/sismer/program/gosud.

174 The representative of JCOMM informed the Committee that JCOMM considers GOSUD as an important initiative that should be further supported.

175 **The Committee expressed its strong satisfaction** with the progress of the GOSUD pilot project and invited the Steering Group to continue its work.

176 **The Committee endorsed** the GOSUD project plan and **invited** Member States to actively participate in the pilot project.

4.2.6 Marine Environmental Data Inventory (MEDI)

177 This item was introduced by Mr Greg Reed (Chair, SG-MEDI). He referred to Document IOC/IODE-XVII/20 *'Marine Environmental Data Inventory (MEDI)'*.

178 Mr Reed recalled that MEDI is a directory system for datasets, data catalogues and data inventories within the framework of the IODE programme. It has been set up to ensure the widest

possible coverage of data holdings and includes a review of existing national and international data directory systems as well as implications of inter-operability with similar systems within other international organisations.

179 He further recalled that the Steering Group for the MEDI Project was established as requested by Recommendation IODE-XVI.1. The First Session of the Steering Group was held in Oostende, Belgium from 23–27 April 2001. During its First Session the Steering Group reviewed the current status of the MEDI software tool and previewed the next release of the software that would be an Internet-based system. The Group discussed the changes required to the new version of the software before its release and drafted a list of recommended software changes. The Summary Report for the meeting is available as Document IODE-SG-Medi-I/3. The Second Session of the Steering Group was held in Honolulu, USA from 2–4 April 2002. During its Second Session the Steering Group reviewed the status of the MEDI metadata authoring tool. The Steering Group discussed any further changes required to the current version of the software and drafted a list of recommended software modifications. The Summary Report for the meeting is available as Document IODE-SG-Medi-II/3.

180 Mr Reed described the MEDI authoring tool (version 3.1) which has been developed to encourage data collectors and scientists to produce metadata descriptions for their datasets. Full details of the MEDI project are found on the MEDI wed site at http://ioc.unesco.org/MEDI from which the software can be downloaded and the on-line metadatabase consulted. Mr Reed informed the Committee that the current, fully operational, version of MEDI had been released in 2002 and had been used extensively in the framework of ODINAFRICA. He explained that these descriptions were unique and described national data sets that had not been described before. He further explained that, as MEDI uses the DIF format, MEDI can easily exchange metadata with GCMD or any other DIF-based metadata system. He noted that MEDI, during its development had taken into consideration several existing metadata systems (e.g. FGDC, GCMD, EDMED, Australian Blue Pages) focusing on compatibility with those systems.

181 **The Committee adopted** the summary reports of the First and Second Session of the IODE Steering Group for MEDI.

182 **The Committee recommended** that MEDI should be ISO compliant and **tasked** the Chair SG-MEDI to investigate the requirements and to undertake the necessary work.

183 **The Committee requested** Member States to study the compatibility of their metadata systems with MEDI.

184 **The Committee urged** Member States to utilize MEDI, and to promote its use at the national level in relevant academic and ocean research facilities.

185 **The Committee, noting** the importance of quality metadata, **stressed** the need to ensure that not only metadata are easily available and searchable, but that also the data sets be made easily accessible through the metadata system.

4.2.7 Global Directory of Marine and Freshwater Professionals (OceanExpert)

186 This item was introduced by Dr Murari Tapaswi (Chair, GEMIM). Reference was made to Document IOC/IODE-XVII/21 *'The Global Directory of Marine and Freshwater Professionals: OceanExpert'*. In his introduction Dr Tapaswi gave an overview of the history of OceanExpert since its start in 1997 as GLODIR. He reported that OceanExpert has been totally re-engineered in 2002 and now counts approximately 10,000 records covering experts on marine and freshwater. He noted with regret that very few IODE centres currently include links to OceanExpert (GLODIR) in their website.

187 GEMIM-VII agreed to review and evaluate the new OceanExpert systems. GEMIM-VII also agreed, in collaboration with IAMSLIC and EURASLIC to promote OceanExpert and to recruit

institutional, national and/or regional editors. Dr Tapaswi invited Member States to utilize OceanExpert for the management of their ocean related human resources information. OceanExpert is designed to enable institutional as well as national 'editors' to edit records. OceanExpert has the potential to be used as a mass communication tool (it can perform mass emailing) to inform the ocean research and observation community about IOC's activities. The current 10,000 records cover probably only 1/10th to 1/20th of the total ocean research community. He stated that, if IOC member States adopt OceanExpert as an appropriate tool to advertise IOC then national awareness will need to be created by IOC Action Addresses, IODE National Co-ordinators and other experts involved in IOC activities about OceanExpert. He also noted that the bandwidth limitations at UNESCO HQ were currently hampering the implementation of OceanExpert.

188 **The Committee expressed** its satisfaction with the progress made by OceanExpert.

189 **The Committee thanked** IAMSLIC and EURASLIC members for including a link to OceanExpert in their websites and for providing content.

190 **The Committee urged** IODE data centres to include a link to OceanExpert in their websites so as to promote the service to the ocean data and information community as an IODE service, and **invited** IOC Member States to actively promote OceanExpert at the national level by urging experts in all relevant academic and ocean research facilities to submit records to OceanExpert.

191 **The Committee**, **regretting** the bandwidth limitations at UNESCO HQ, **recommended** that the server hosting OceanExpert be relocated to the proposed IODE Project Office.

4.2.8 OceanPortal

192 This item was introduced by Dr Murray Brown (IODE Contractor). He made reference to Document IOC/IODE-XVII/22 *'OceanPortal'*.

193 In his presentation Dr Brown recalled that IODE-XVI had supported the creation of a global index of Internet websites containing ocean data and information, called OceanPortal. It currently holds 3400+ records, but it is linked to approximately 500,000 web pages with marine-related content. Users can either search the 'catalogue' database (i.e. they can search in the title of the site/page or the summary description): this is the 'search the catalogue'. The user can also browse through this catalogue. Websites in OceanPortal have been categorized into nearly 200 categories and sub-categories. A very powerful function in OceanPortal is the website indexer: once a month OceanPortal 'visits' all sites and pages that were catalogued, and indexes their content. This index is also searchable by the user. This therefore represents a very specialized search engine for ocean data and information on the web. Users can access this service through 'search the sites'. Any user can submit web pages for inclusion in OceanPortal. The OceanPortal editor checks submissions regularly and validates or rejects submissions.

194 GEMIM-VII decided on a full review of OceanPortal including scope, categories and content. It was decided to undertake these actions jointly with IAMSLIC. During its 2002 Conference, IAMSLIC had expressed strong interest in the development of a 'marine information portal' and that co-operation with IODE's OceanPortal in this regard would be welcomed.

195 The Committee was informed that, due to bandwidth limitations at UNESCO HQ, it was no longer allowed to index the sites included in OceanPortal.

196 The representative of IAMSLIC/EURASLIC, Mrs Pauline Simpson, informed the Committee that IAMSLIC and EURASLIC, noting that many librarians had been developing their own portals of ocean related websites and other directories, had agreed to collaborate with OceanPortal to develop one definitive product.

197 **The Committee expressed** its satisfaction with the development of OceanPortal as a unique and focused catalogue of ocean data and information on the World Wide Web.

198 **The Committee requested** IODE data centres to co-operate with OceanPortal by actively submitting sites to the system and by actively promoting the service at the national level (data centre users, websites, academic institutions, libraries, ocean research institutions)

199 **The Committee**, **regretting** the bandwidth limitations at UNESCO HQ, **recommended** that the server hosting OceanPortal be relocated to the proposed IODE Project Office to re-enable the indexing service.

4.2.9 OceanTeacher (see also 4.3.2.3)

200 This item was introduced by Mr Greg Reed (Chair, Steering Group on OceanTeacher). He referred to Document IOC/IODE-XVII/23 *'IODE OceanTeacher'*.

201 Mr Reed recalled that the IODE Steering Group for the IODE Resource Kit was established as requested by Recommendation IODE-XVI.7 to support the IODE Resource Kit Project. The IODE Resource Kit is a follow-up to Ocean-PC and a complement to IODE data and information management capacity building activities. The First Session the Steering Group was held in Miami, USA, from 19–23 March 2001. During its First Session the Group reviewed the current status of the Resource Kit, noting that the Data Modules had been developed and used during the ODINEA project data management courses and would be used during ODINAFRICA data management courses. The Steering Group developed a comprehensive table of contents for the Marine Information Management Module, as well as a programme for standard MIM Training Courses. . The Summary Report of the meeting is available as Document IOC/IODE-SG-ResKit-I/3.

202 Mr Reed described the OceanTeacher website and CD-ROM publication which comprise two segments: marine data management and marine information management. The Kit provides the latest versions of popular public-domain software, documentation for global and regional datasets, documentation for major formats, and links to data sources. Other resources in OceanTeacher for data management include annually written Training Manuals, and specially produced regional datasets (currently five volumes are published online). The Information Management Courses cover the breadth of marine information science from establishing an information centre, building and documenting a collection, to developing professional connections and working with information technology. OceanTeacher is available on-line at http://www.oceanteacher.org.

203 The Ocean Teacher Work Plan for 2003 includes data management training and support, and marine information training and support. The proposed activities for the data management component are (i) to revise and update Year 1 and 2 manuals and complete the Year 3 manual, (ii) to revise and update software materials in the Resource Kit, (iii) to include methods and tools to assimilate real-time data collected from global observing systems, (iv) to prepare workshops for ODINCARSA and ODINAFRICA, and (v) to prepare regional data CD-ROMs. The proposed activities for marine information management training and support are (i) to revise and update Year 1 and 2 manuals and complete the Year 3 manual, (ii) to revise and update MIM Modules, (iii) to secure funds to support Personal Bibliographic Software for developing countries, and (iv) to secure funds for centralized scanning/digitisation of African literature for resource sharing.

204 **The Committee adopted** the report of the First Session of the Steering Group for OceanTeacher.

205 The JCOMM Co-President, Dr S. Narayanan, stated that OceanTeacher is a very valuable project. She informed the Committee that OceanTeacher had been discussed at the Second Session of the JCOMM Management Committee (Paris, 5–8 February 2003). The Management Committee had recommended for the JCOMM Capacity Building programme area to work closely with the SG-

OceanTeacher in identifying modules required for JCOMM and GOOS. A JCOMM expert will be identified to participate, if acceptable by IODE, to participate in sessions of the SG-OceanTeacher.

206 **The Committee welcomed** the nomination of a JCOMM expert to the SG-OceanTeacher.

207 **The Committee noted** that, whereas OceanTeacher was now primarily aimed at, and used by developing countries, more attention should be given to 'continuous professional development' and as such, modules covering advanced data and information management should be developed.

208 **The Committee tasked** the SG-OceanTeacher to develop modules on advanced ocean data and information management, and related technology, covering delayed-mode as well as operational oceanographic data.

209 **The Committee urged** Member States, and **tasked** IODE data centres, to actively participate in the further development and maintenance of OceanTeacher by providing content.

210 **The Committee requested** the SG-OceanTeacher to prepare a draft curriculum that could be used in graduate courses in marine science/oceanography. **The Committee requested** the SG-OceanTeacher that investigations be made how the proposed curriculum could be submitted to, and adopted by national education programmes.

4.2.10 BeeBox

211 This item was introduced by Mr Benjamin Sims, IOC/IODE Internet Information Services Developer. He referred to Document IOC/IODE-XVII/36 *'IODE's Dynamic Content Management System (CMS): BeeBox'*.

212 Recalling previous discussions on the need for effective dissemination of information within the IODE community through web-based information systems, Mr Sims stated that one of the major challenges faced by the IODE Secretariat has always been to keep the IODE community informed about programme progress both in terms of execution of the IODE Session work plans and in enabling the IODE data and information centre community to share knowledge and expertise. Getting the community to regularly visit the IODE site has always been difficult and this often resulted in missed opportunities. It was therefore felt that a more pro-active and interactive technical solution needed to be found. In addition the IODE secretariat found that it was increasingly being asked to produce new websites and offer the kinds of 'community services**'** described above. However, the resources required to design, build and maintain many such sites are extensive. At the same time, it was clear that many other institutions had trouble setting up web pages and regularly updating them due to a similar lack of resources (human, infrastructural and financial). The IODE Secretariat therefore began the search for a tool that would enable us to: (i) quickly set up websites that have a uniform structure and functionality; (ii) enable the adding and updating of content to these sites by non-technical users; (iii) provide 'interactive community services' to the users of those sites, including the ability to discuss online and submit their own material for publishing through an easy-to-use and platform independent GUI; (iv) use 'push' technology (through email 'content informer' services) in order to inform people when the site is updated; (v) manage text, images, documents (Word, PDF), links (lists of websites) and events (calendar); (vi) utilize multiple languages (initially E, F, S); and (vii) be freely available to Member States at little or no cost.

213 After assessing several commercial options that were found too expensive, it was decided to seek a solution in the open source environment. This led to the development in 2001–2002 of BeeBox, the IODE's Dynamic Content Management System. BeeBox responds to all requirements defined above, is developed using open source software applications and can thus be distributed freely to Member States. Additional developments planned for 2003 will enable (i) sharing of information using 'web-services' technology, enabling content produced in one site to be shared with other BeeBox sites

across a local network or the Internet; and (ii) updating of the layout and display using a templating system, enabling web designers to design more 'creative and unique' templates.

214 BeeBox is now used for many IOC sites including IODE, marineXML, IOCMS, OceanSciences, ODINAFRICA, ODINCARSA, and others will soon start implementing the software as well. A few Member States have also requested a copy of the software for the development of institutional or national websites.

215 Minor developments planned for 2003 include simplification of the architecture and set-up programme in order to make updates to the software easier, the possibility to run multiple instances of the site from a single installation, and expanding the content informer feature to include all content types.

216 Several Member States informed the Committee of their positive experience with BeeBox as an excellent tool for web-based content management and dissemination for small, specialized communities.

217 **The Committee congratulated** the IODE Secretariat in general, and Mr Benjamin Sims in particular, with the development of BeeBox.

218 **The Committee requested** the Secretariat to develop a BeeBox 'training package' for distribution to interested Member States and for use by IODE and other projects.

4.3 IODE CAPACITY BUILDING

4.3.1 IODE's regional capacity building programme

4.3.1.1 Ocean Data and Information Network for Africa (ODINAFRICA)

219 This item was introduced by Mr Mika Odido (IOC Consultant, Regional Co-ordinator, ODINAFRICA Project). He referred to Document IOC/IODE-XVII/24 *'Ocean Data and Information Network for Africa (ODINAFRICA)'*. He highlighted some of the activities implemented in the current phase of the project (2001–2003).

220 Five new National Oceanographic Data and Information Centres (or DNAs) have been established in Benin, Cameroon, Senegal, Togo, and Tunisia during the inter-sessional period (see also Agenda Item 3.5) bringing the total number of data centres established within the framework of ODINAFRICA to 16. Support from the project enabled the NODCs in the participating Member States to cater for a wide range of activities such as operational expenses (including Internet connection), development of meta databases and data archives, development of data and information products, and public awareness creation on the project's products and services. In order to improve networking between the ODINAFRICA institutions, databases developed at national level (such as directories, meta databases, library catalogues etc) are now being collected, quality controlled and formatted for access via the Internet in order to encourage broader usage. Two training workshops were organized for data management (Casablanca, Morocco, 2–13 April 2001; and Tunis, Tunisia 29 April–10 May 2002) and another two for marine information management (Cape Town, South Africa 29 October–9 November 2001; and Tunis, Tunisia from 29 April–10 May 2002). The OceanTeacher system described under item 4.2.9 was used during the courses and enabled students to undertake self-study subsequent to group training courses. In addition a small team of experts was contracted to provide Internet-based (email) follow-up and support, including maintaining an 'ODINAFRICA Help Desk'.

221 The report of the External Evaluation of the ODINAFRICA project undertaken in 2002 by a team of two consultants (G. Holland, Canada; and H. Wheater, UK) was positive and recommended a continuation of the project. The report identified a few areas for improvement such as (i) Internet connectivity; (ii) disparities in capacity between the different institutions; and (iii) the need for more equipment for preparation of products for ICAM (e.g. GIS equipment). Actions to address these were

discussed during the third ODINAFRICA Planning and Review workshop in Limbe, Cameroon 18–21 November 2002 (Report of the workshop available as IOC Workshop Report No 184).

222 Mr Odido reported that several actions had already been undertaken to respond to the evaluation recommendations. With regard to improving Internet access he reported that a study was ongoing to assess the possibility to use VSAT. To resolve the disparity between the centres, two remedial courses would be organized in 2003 covering data and information management. The need for GIS capability would be addressed in the planned ODINAFRICA-III proposal.

223 Mr Odido informed the Session that the success of ODINAFRICA has also been confirmed by the strong interest by IOGOOS in ODINAFRICA: presentations by ODINAFRICA data managers from Tanzania, Seychelles and Mauritius clearly demonstrated that the ODINAFRICA project goes far beyond the 'traditional' definition of a data centre: from its inception ODINAFRICA has put strong emphasis on the development of services and products that serve sustainable exploitation and management of the coastal zone (through close collaboration with ICAM groups).

224 **The Committee noted** with satisfaction the positive evaluation that the ODINAFRICA project has received **and called for** the preparation of a proposal for the next phase of the project which will focus on development and dissemination of data and information products to assist in the sustainable management of marine and coastal areas. **The Committee stressed the need** to ensure that ODINAFRICA-III is developed in close collaboration, and serving the needs of, other IOC programmes in Africa such as GLOSS, GOOS-Africa, IOGOOS, HAB, ICAM etc., and called on these programmes to collaborate in the preparation of the proposal.

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

226 **The Committee thanked** the IODE data centres and information centres that have provided in-kind assistance to ODINAFRICA through providing lecturers, data sets, hosting interns and other support and **called** on them to continue these efforts.

227 Several African Member States expressed their appreciation for the support provided to the ODINAFRICA project, stating that the project had substantially increased their nation's capability to manage ocean data and information and for providing access to the global data and information resources. They noted that many donor agencies were active in Africa but needed to be informed about the importance of ocean data and information management.

228 **The Committee requested** the IODE Chair to contact donor agencies such as World Bank, UNDP and relevant foundations and raise their awareness about the importance of ocean data and information management with the view of obtaining funding for data and information centres in Africa.

229 The representative of the European Commission, Dr Alan Edwards, informed the Committee on new funding opportunities of the European Commission within Framework VI. In this regard he referred to (i) the international co-operation programme that is now widened and can involve European as well as other (especially developing) countries. He noted that for Africa, coastal research had been identified as a priority. He stated however that proposals were assessed on a competitive basis. Typical levels of funding amount to US$500,000-US$1,000,000 for projects with a maximum duration of 3 years; and (ii) the training programme that has also been widened allowing experts from developing countries to work in European research institutions (and data centres) for periods ranging from approx. 2 months to 3 years.

230 **The Committee adopted** Recommendation IODE-XVII.1.

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

231 This item was introduced by Mr Rodney Martínez Güingla (Regional Co-ordinator, ODINCARSA Project). He will refer to Document IOC/IODE-XVII/25. *'Ocean Data and Information Network for the Caribbean and South America regions (ODINCARSA)'*.

232 The objectives ODINCARSA are (i) to establish an effective mechanism to identify the potential and current state of development of National Oceanographic Data Centres or equivalent facilities in countries of the Caribbean and South American regions, and (ii) to share experiences and promote the development data and information management in the regions.

233 **The Committee recalled** that ODINCARSA had been initiated by Mr Ricardo Rojas, newly elected Vice-Chair IODE and **expressed its gratitude** to him. **The Committee also congratulated** Mr Rodney Martinez for his considerable efforts co-ordinating the successful implementation of the pilot project, and the ODINCARSA member countries for their active participation.

234 The intersessional activities included (i) the First ODINCARSA Planning Workshop (24–26 October 2001, Guayaquil, Ecuador), attended by participants from fourteen countries in the Caribbean and South America regions; (ii) the First ODINCARSA Training Course in Marine Data Management (20–31 May 2002,Guayaquil, Ecuador); and (iii) the First ODINCARSA Training Course in Marine Information Management (29 September–4 October 2002, Mazatlan, Mexico). The ODINCARSA regional website (http://www.odincarsa.net) was established as a communication tool for the ODINCARSA participating institutions, as well as the PortalOceánico website (http://www.portaloceanico.net), intended to create awareness for ocean matters among the general public, in which more than 800 knowledge objects posted since May 2002. A regional workshop on the Portal Oceánico was organized in Ecuador (19–21 February 2003), with representatives of 10 countries.

235 Mr Martinez concluded by noting the substantial expertise already available in a number of countries in the ODINCARSA region and the intra-regional exchange of expertise and networking of existing data and information sources will result in an advantage for the region.

236 **The Committee adopted** Recommendation IODE-XVII.2.

4.3.1.3 Other Regions

237 Dr Nasser Hadjizadeh Zaker (Islamic Republic of Iran) reported that a Project Proposal had been prepared for the development of an ODIN Network for the IOCINDIO region and made reference to Document IOC/IODE-XVII/38 (PROJECT PROPOSAL FOR THE ESTABLISHMENT OF THE OCEAN DATA AND INFORMATION NETWORK FOR THE CENTRAL INDIAN OCEAN REGION (ODINCINDIO).

238 The Committee was informed that IOGOOS-I (Mauritius, 4–9 Nov, 2002) had also welcomed the proposal taking into consideration the success of the ODINAFRICA project. Dr Zaker explained that due to the limited time between IOGOOS-I and IODE-XVII he had not yet been able to consult with all concerned Member States.

239 **The Committee established** a sessional working group to discuss the proposal in more detail.

240 **The Committee welcomed** the proposal of Dr Zaker, Chair of IOCINDIO, to establish an Ocean Data and Information Network for the Central Indian Ocean Region (ODINCINDIO).

241 **The Committee agreed** that that ODINCINDIO was a worthwhile initiative that requires further consideration as only 5 of the 19 nations with a potential interest in the project were present at the current IODE Session. **The Committee further noted** the importance of working with other

groups with an interest in the area, such as IOGOOS. **The Committee stated** that strong leadership from a key country in the region would be required to ensure the success of the project.

242 **The Committee agreed** on the following actions: (i) utilise the feedback from the IOGOOS meeting in Mauritius (Action 1, Data Management Workshop) which would survey existing capacity in the region, (ii) the regional co-ordinator for IOCINDIO, assisted by the Secretariat is requested to seek an expression of interest from potential member states to join the ODINCINDIO project; and (iii) convene an initial planning workshop to further consider the objectives, outcomes and the work plan of the project and to identify potential funding sources.

243 **The Committee invited** IOGOOS to join IODE in this endeavour.

244 The Delegate of Malta informed the Committee that the MEDGOOS project, funded by the European Union in partnership with Mediterranean countries, also contributes to IODE with training and capacity building related to ocean data management.

4.3.2 IODE Training Activities

4.3.2.1 National initiatives

245 The Chair recalled that Member States had been requested to report on national training activities in relation to ocean data and information management (organisation of national or regional training courses related to IODE and funded by Member States). Reference was made to the NODC National Reports (Document IOC/IODE-XVII/10.1 to 10.28) in this regard.

246 The Chair also recalled that the Committee, during its 16th Session had "*invited those data centres that have surplus equipment to provide these to new IODE data centres … invited the data centres to provide a list of required or available equipment*". The Chair noted that little progress had been reported in this regard.

247 Several delegates reported on national training activities related to IODE. These included national IODE training courses, lectures on ocean data and information management in an academic framework, internships of scientists in data centres, in-house on-the-job induction programmes, training tools to assist voluntary observers (data collectors), etc.

248 **The Committee, noting** the wide variety of national IODE related training activities, **requested** Member States to provide reports and documentation on these activities to the Secretariat, with the objective to possibly include some of the material in OceanTeacher.

4.3.2.2 Regional initiatives

249 This Agenda Item was introduced by the Chair. IODE Regional Co-ordinators were requested to report on regional training activities in relation to ocean data and information management (organised and funded/co-funded by IODE). Note that this is also partially covered by item 4.3.2 and 4.3.3.

250 The IODE Training Course in Ocean Data Management for the Caspian and Black Sea Regions was held in Tehran, Islamic Republic of Iran from 20–30 October 2002, hosted by the Iranian National Centre for Oceanography (INCO). The workshop was attended by students from Azerbaijan, Georgia, Islamic Republic of Iran, Romania, Russia, Turkey and Ukraine. Lectures were provided by resource persons from the Islamic Republic of Iran and the IOC. The workshop programme was based on the IOC OceanTeacher capacity building tool.

251 **The Committee considered** that in the past IODE has mainly organized basic training courses for participants with no or minimal expertise in ocean data and information management**. The Committee questioned** whether this type of training should continue to be the main focus or whether

focus should be placed on 'continuous professional development' concentrating on teaching staff in established data and information centres on new methods and technologies (see also Agenda Item 4.2.9). **The Committee established** a sessional working group to study IODE capacity building priorities.

252 **The Committee recommended** that the following priorities should be addressed during the inter-sessional period in terms of capacity building:

(i) undertake expert missions to Member States, as requested;

(ii) develop a two-track training programme: basic level for untrained students, and advanced level for experienced data/information managers. The latter could also include internships in highly advanced data/information centres;

(iii) organise separate training courses for data and information management;

(iv) contract a marine information management expert to assist with the development, lecturing and follow-up support for, marine information management training;

(v) ensure that the best-qualified students are selected for training courses on the basis of CV and documented experience.

253 **The Committee identified** the following geographic regions as priorities for training activities during the inter-sessional period: Baltic, Black Sea, Mediterranean, Caribbean and South American, IOCINDIO, WESTPAC and IOCEA.

254 **The Committee noted with appreciation** that IODE was a member of the GOOS Capacity Building Panel and of the JCOMM Capacity Building Co-ordination Group (CBCG). The Committee was informed that the JCOMM CBCG is in the process of developing criteria for the selection and implementation of capacity building projects. As mentioned previously the JCOMM CBCG will identify an expert to participate in the SG-OceanTeacher.

255 The Committee was further informed that POGO (Partnership for Observation of the Global Oceans) had identified data management as a focus area and that this offered opportunities for data and information managers from developing countries to obtain POGO-IOC-SCOR visiting fellowships.

256 **The Committee noted** that the Terms of Reference of the IODE Review (See Annex VIII) include consideration of capacity building.

4.3.2.3 OceanTeacher (report on use)

257 This item was introduced by Mr Greg Reed. He recalled that OceanTeacher is the IOC/IODE capacity building system and is intended to provide training tools for Oceanographic Data and Information Management. These tools are used during IODE Training Courses but can also be used for self -training and continuous professional development. The OceanTeacher curriculum forms the basis of the IODE capacity building programme and has been used in the following training activities:

- First ODINAFRICA-II Training Course in Marine Data Management, Casablanca, Morocco, 2–13 April 2001
- First ODINAFRICA–II Training Course in Marine Information Management, Cape Town, South Africa, 29 October–9 November 2001
- Second ODINAFRICA II Training Course in Marine Data Management, Tunis, Tunisia, 29 April–10 May 2002
- Second ODINAFRICA II Training Course in Marine Information Management, Tunis, Tunisia, 29 April–10 May 2002
- First ODINCARSA Training Course in Marine Data Management, Guayaquil, Ecuador, 20–30 May 2002

- First ODINCARSA Training Course in Marine Information Management, Mazatlan, Mexico, 29 September–4 October 2002
- IODE Training Course in Ocean Data Management for the Caspian and Black Sea Regions, Tehran, I.R. Iran, 20–30 October 2002

258 The IODE OceanTeacher website can be found at http://www.oceanteacher.org. It is also available on CD-ROM for off-line use. To date over 180 CD copies have been provided to requesters from 73 countries.

259 Mr Reed noted that the IODE marine data management capacity building programme had, up till now, emphasized the use of existing, large-scale data archives as principal sources for constructing national data collections. Operational oceanographic data have not, however, been as easy to include in the programme, due to the large number of formats involved, and the sporadic nature of the available data transmissions. The recent EuroGOOS Conference, held in Athens, highlighted the various projects collecting operational data around Europe. Despite the large amounts of data collected it is often difficult to assimilate these datasets with existing archived data held within the IODE data centres and as a follow-up to EuroGOOS, the IODE Steering Group for OceanTeacher (SG-OT) was requested by its Chair to examine ways to assimilate and synthesise operational data streams within the IODE capacity building programme.

260 Mr Reed reported that due to recent developments, involving the IODE SG-OT and an informal community of software developers and data archivists, the IODE capacity building programme is now able to access operational data streams. Supplementary tutorials have been added to the IODE OceanTeacher to demonstrate the exact methods involved and, from 2003 these procedures will be included in the IODE capacity building programme.

261 **The Committee expressed** its appreciation for the successful development of OceanTeacher and for its wide use during IODE training courses.

262 **The Committee called** on IODE National Co-ordinators to widely advertise OceanTeacher and for national data and information managers to contribute content.

263 **The Committee noted** that, as OceanTeacher was progressing rapidly, it needed a strategic plan. Further requirements for modules needs to be identified, and quality of existing material needs to be assessed

264 **The Committee requested** Member States to review OceanTeacher and provide feedback to the SG-OceanTeacher

265 **The Committee tasked** the SG-OceanTeacher to identify modules that need to be developed, in close consultation with the JCOMM Capacity Building Co-ordination Group and GOOS Capacity Building Panel, taking into consideration JCOMM and GOOS requirements.

5. IODE PUBLIC AWARENESS

5.1 IODE WEBSITES

266 This item was introduced by the Technical Secretary, referring to Document IOC/IODE-XVII/27 (Public Awareness). Mr Pissierssens reported that during the inter-sessional period IODE's emphasis on developing a prominent and interactive web presence had been continued. In June 2001 a new IODE web presence had been launched, based upon database technology (using the IOC software BeeBox: see Agenda Item 4.2.10), enabling dynamic information publishing and permitting multiple authors to submit content. The new site's concept enables 5 types of content: text, documents, web links, events and discussion forums. The site uses a hierarchical structure based on categories and

subcategories. An especially useful feature is the automatic transmission of emails when new content is added (the content informer). Anyone can register as a member and will then receive short content informer messages including a link to the relevant page in the website. He reported that the new site has seen a continuous increase in visits: from 800 visits/month in June 2001 to 4700 visits/month in February 2003 (corresponding with approx. 400,000 hits/month).

267 Despite the successful implementation of the new IODE web presence the Technical secretary expressed his disappointment with the lack of interest of the Member States in contributing material for the website. He noted that the site is still too much a 'secretariat' site, and not sufficiently an IODE community site that reports on the national, regional and global activities.

268 The Technical Secretary further informed the Committee that, through Circular Letter 2037 (FOLLOW-UP TO IODE-XVI WITH REGARD TO INVENTORY OF DATA PRODUCTS AND TOOLS EXISTING IN IODE CENTRES (para. 275)) [Sent 1 August 2002], the Secretariat had requested Member States to regularly send information on data products and tools for inclusion in the IODE website. Regrettably very few Member States had responded to this request.

269 Circular Letter 2039 (FOLLOW-UP TO IODE-XVI WITH REGARD TO PROMOTING THE VISIBILITY OF IODE [Sent: 1 August 2002]) had requested Member States to inform the Secretariat of the URL of the web page that advertises IODE, and to promote GLODIR. Regrettably very few Member States had responded to this request.

270 **The Committee invited** IODE National Co-ordinators and related experts to actively participate in 'populating' the IODE and related websites through submitting content and/or by assuming the role of 'editor' for categories relevant to their expertise.

5.2 IODE BROCHURES, POSTERS AND PUBLICATIONS

271 This item was introduced by the Technical Secretary, referring to Document IOC/IODE-XVII/27 (Public Awareness). Mr Pissierssens reported that 6 posters had been prepared for promoting IODE: one general IODE poster; one for OceanTeacher; one for OceanExpert; one for OceanPortal; one for ODINAFRICA and one for ODINCARSA. Copies of the posters had been mailed to all IODE National Co-ordinators in August 2002. In addition the posters were advertised in the IODE website (Awareness) from where copies can also be requested. Also, a brochure had been prepared for, and distributed at the WSSD Conference in Johannesburg.

272 **The Committee requested** the Secretariat to continue producing relevant Public Awareness materials.

5.3 NATIONAL IODE AWARENESS ACTIVITIES

273 This item was introduced by the Chair, referring to Document IOC/IODE-XVII/27 (Public Awareness). All IODE National Co-ordinators were requested to report on their activities to promote the visibility of IODE. The Chair noted with concern that no reports were received from the Member States in this regard.

274 Several Member States reported on a wide variety of activities that had promoted IODE at the national level. Reference was made to national conferences and workshops, newsletters (including translation of IODE English materials into non-English national languages), posting IODE information on national websites, displaying the IODE logo on national publications, products and websites.

275 **The Committee noted with appreciation** the many efforts made by Member States to promote IODE. **The Committee stated** that IODE promotion was well served by excellent products and services developed by IODE data centres.

276 **The Committee requested** Member States to keep the Secretariat informed on national promotional activities so as to enable publicizing these activities on the IODE website.

6. CO-OPERATION WITH OTHER PROGRAMMES

6.1 CO-OPERATION WITH GOOS

277 The Director of the GOOS Project Office, Dr Colin Summerhayes introduced this item. He recalled that the links between IODE and GOOS had been considerably strengthened since IODE-XVI in November 2000. IODE now has a representative, the Chair IODE, in the GOOS Steering Committee providing valuable input to GOOS on data and information aspects. Links to JCOMM will be covered under Agenda Item 6.2.1. Dr Summerhayes stated that NODCs are essential and integral parts of GOOS. He welcomed the development of GOOS-relevant training modules in the framework of OceanTeacher. Dr Summerhayes informed the Committee that GOOS now counted 8 regional bodies: for North-East Asia, South East Asia, the Pacific, Indian Ocean, Mediterranean, Europe, the Caribbean and the Black Sea. In a European context, GOOS was able to obtain funding from the European Commission for the MAMA (Mediterranean) and ARENA (Black Sea) projects. One of the objectives of these projects is to improve data and information management and the participating centres are encouraged to collaborate closely with the NODCs. GOOS also invites the regional GOOS bodies (GOOS regional alliances) to collaborate with the regional IODE networks (e.g. ODINAFRICA, ODINCARSA, MEDAR/MEDATLAS). He also referred to the GOOS Data and Information Management Plan (Published as GOOS Report No. 103) and invited IODE Member States to consult it.

278 With regard to the recent sixth Session of the GOOS Steering Committee Meeting (Cape Town, South Africa, 26–28 February 2003), Dr Summerhayes reported a strong endorsement by the GSC of the OIT project.

279 **The Committee noted with satisfaction** the growing co-operation between IODE and GOOS in the area of capacity building (e.g. OceanTeacher).

280 **The Committee noted** that the rapid development of GOOS, JCOMM and related projects create challenges for IODE in terms of facing the new requirements for data and information management.

281 **The Committee adopted** Resolution IODE-XVII.2.

6.2 CO-OPERATION WITH JCOMM

6.2.1 Co-operation of IODE in JCOMM Data Management Programme Area

282 This item was introduced by Dr Savi Narayanan (Co-president of JCOMM). Reference was made to Document IOC/IODE-XVII/29 *'IODE Co-operation with JCOMM'*.

283 Dr Narayanan recalled the JCOMM 'vision' that aims at an integrated ocean observing system; integrated data management; state-of-the-art technologies and Capabilities; new products and services; user responsiveness and interaction; and involvement of all maritime countries. The First Session of JCOMM was held in 2001 in Iceland. JCOMM-II is scheduled for Sept. 2005 in Halifax, Canada. A scientific conference will be organised prior to JCOMM-II. In terms of structure, she informed the Committee that JCOMM has a Management Committee, 2 Co-presidents, 4 Programme Area co-ordinators, and Representatives of Scientific Bodies. The four Programme Areas are Observations, Services, Capacity Building and Data Management. The Data Management Programme area is guided by the Data Management Co-ordination Group (that is Chaired by Prof. Lin Shaohua, China, Director WDC Oceanography, Tianjin, China) and has two subsidiary bodies: the Expert Team

on Marine Climatology (ETMC) and the Expert Team on Data Management Practises (ETDMP) (that is Chaired by Dr Nick Mikhailov, Director of the Russian NODC).

284 The Data Management Co-ordination Group of JCOMM has given the following Terms of Reference to the Data Management Co-ordination Group and the Expert Team on Data Management Practices:

285 The Data Management Co-ordination Group, in close collaboration with IODE and CBS subsidiary bodies and related experts, shall:

(i) develop the strategy, initiate and oversee the implementation of the Data Management Programme Area;

(ii) identify, review, assess and recommend priorities and actions for the Data Management Programme Area;

(iii) in concurrence with the co-presidents of JCOMM, establish and create expert teams, task teams, pilot projects and appoint rapporteurs, as appropriate, to undertake the work of the Data Management Programme Area;

(iv) ensure collaboration, appropriate co-ordination and liaison with data management bodies and other bodies;

(v) ensure full integration and effective co-operation of data management activities within the Commission;

(vi) keep under review, assess and co-ordinate the adoption of appropriate new information technology;

(vii) establish and maintain co-operation with science programmes and assist with their data management activities, as appropriate;

(viii) provide advice and feedback to users of the Data Management Programme Area functions, both through the appropriate JCOMM Programme Area and directly;

(ix) promote the adoption of good data management practices within the Commission and with external partners.

286 The Expert Team on Data Management Practices, in close collaboration with IODE and CBS subsidiary bodies and related experts, shall:

(i) develop, recommend and implement principles and practices for an end-to-end data management system for JCOMM;

(ii) recommend best data management practices for adoption by JCOMM and other related/dependent activities, in particular for:

(a) standards of metadata and formats;

(b) quality control and data assembly;

(c) data and product flow;

(iii) review and assess the effectiveness of data management practices, including integration and consideration of new techniques and approaches;

(iv) provide advice to the Data Management Co-ordination Group and other groups of JCOMM, as required, on data management practices;

(v) in concurrence with the co-presidents of the Commission, propose the establishment of projects and task teams, as required and, if established, oversee them, including the GTSPP, in order to develop effective data management practices;

(vi) develop documentation and guidance material and promote the adoption of JCOMM data management practices;

(vii) liaise and collaborate with other groups, as needed, to ensure access to required expertise and appropriate co-ordination, and to avoid duplication.

287 The Data Management Programme Area and IODE have several common objectives, and consequently, IODE has been taking active part in JCOMM's activities. IODE is a member of the JCOMM management Committee and DMPA co-ordination group. JCOMM members actively participate in many of the IODE Group of Experts's activities. Such collaboration has advanced the data management in general and strengthened both JCOMM and IODE.

288 Dr Narayanan reported to the Committee that the Second Session of the JCOMM Management Committee (Paris, 5–8 February 2003) had discussed the progress made in bringing closer collaboration between IODE and JCOMM, and noted that both organisations will be strengthened if IODE approved the following recommendations that are of immediate importance to IODE: (i) to merge the GETADE and ETDMP in order to avoid duplication, to enable more effective use of scarce resources, and to enable annual meetings of the merged body; (ii) to task the IODE Secretariat with the secretariat duties for the Data Management Programme Area, and (iii) to have the relevant IODE GEs and SGs co-sponsored by both JCOMM and IODE..

289 **The Committee agreed** with the recommendation of the JCOMM Management Committee.

290 **The Committee adopted** Recommendation IODE-XVII.3.

6.2.2 Co-operation of IODE in OIT

291 This item was introduced by Dr Neville Smith (OIT Pilot Project Leader). Reference was made to Document IOC/IODE-XVII/32 *'Ocean Information Technology'*. See also Agenda Item 7.4.

292 Dr Smith, the Project Leader of the Ocean Information Technology Pilot Project, informed the Committee of the background to, and recent developments of the Project. He noted discussions had been taking place for around two years and that initiation of the Project had been cautious, partly because of lack of time to develop the project, and partly in recognition of the complex and changing environment for data management. The project was purposefully packaged as a 'flagship' path-finding initiative, in a manner similar to Argo (observations) and GODAE (modelling, assimilation and prediction) to enhance visibility and prospects for investment. Formally, it was now a Pilot Project of both GOOS and JCOMM and Dr Smith welcomed the opportunity to present the Project to the Committee for possible adoption by IODE.

293 Dr Smith provided some background on the rationale and technical direction of the Project, referring to documentation at the OIT website, http://ioc.unesco.org/OIT/ or http://www.oceans-it.net/ The prospective scope was broad in order to allow for proper integration and full intra- and interoperability.

294 Dr Smith drew the Committee's attention to paragraph 8.5.10-12 of the Report of the First Session of the Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology which discussed the role of Pilot Projects within JCOMM. Both JCOMM and GOOS have adopted formal definitions in order to ensure consistency in terminology and implementation. He suggested that the IODE Committee should consider OIT as such a Pilot, with a possible definition for IODE being "*A pilot project is defined as an organized, planned set of activities with focused objectives designed to provide an evaluation of technology, methods, or concepts within a defined schedule and having the overall goal of advancing the development and capacity of IODE*".

295 Dr Smith informed the Committee that the OIT had held its first meeting next to the Colour of Ocean Data Symposium and immediately following a meeting of the JCOMM ETDMP (Report available as Document IOC/INF-1178 (Steering Team of the Ocean Information Technology Pilot Project (ST-OIT), First Session, Hosted by Research and Development Department, Scientific Technical and Cultural Affairs (OSTC), Brussels, Belgium, 29 November 2002). He noted that, while

the potential scope of OIT is broad, consistent with its sponsorship, the Steering Team had agreed on a focused set of initial activities. These included (a) metadata model and marine metadata standard; (b) data transport and communications; and (c) data set assembly and integrity. The first would be led through ETDMP and GETADE with strong links to existing activities, as noted under Items 4.2.4, 4.1.3 and 6.2. The US Data Management and Communications (DMAC) subsystem of the Integrated Ocean Observing System (IOOS) plans are strong in the area of (b) and the OIT looks to partner with this and related other national initiatives (including within GODAE). For (c), it was concluded that the OIT itself, with appropriate collaboration with activities in IODE, JCOMM and projects such as Argo, would need to take the lead. In this respect, Dr Smith noted the proposal by GODAR (Item 4.2.2) to convene a meeting on quality control and suggested that this meeting could be extended to include issues of quality control and data assembly in general, for both real-time and delayed mode data streams. Potential sponsors include IODE (GODAR, WOD, GTSPP, GOSUD, GEBCDMEP), JCOMM, GODAE and Argo. Dr Smith noted that no action was decided with respect to "new" data types but that, in all likelihood, this would become a fourth strand of the OIT activities. He referred to the decisions under Item 4.1.1.

296 **The Committee agreed** that the OIT Pilot Project was an important contribution to the resolution of ocean data management issues and to enhancing the overall capacity and functionality. **The Committee agreed** that the overall scope and objectives of the Project were both relevant and appropriate as an IODE activity and **endorsed** the Project as a component of the IODE work plan.

297 **The Committee noted with appreciation** the Report of the first meeting of the OIT and the recommended initiatives.

298 **The Committee stated** that the proposed IODE Project Office would be an appropriate facility to provide support for the development of this important initiative.

299 **The Committee also welcomed** the emphasis on quality control and data assembly and **agreed** that a jointly sponsored Workshop would be an effective and appropriate activity for the inter-sessional period. **The Committee proposed** to organize such a meeting during the month July or August 2004

300 **The Committee requested** Dr Smith to work with Mr Levitus (GODAR, WOD), Dr Keeley (GOSUD, Argo), and others as appropriate, to form an Organising Committee and develop a Prospectus for the Workshop. Recalling the endorsement of the OIT Pilot Project by the GOOS Steering Committee at its 6th Session (see Agenda Item 6.1) **the Committee called** for close collaboration with GOOS/JCOMM in this matter.

301 **The Committee adopted** Recommendation IODE-XVII.5.

6.3 CO-OPERATION WITH SCIENCE AND MONITORING PROGRAMMES

302 This item was introduced by Dr Savi Narayanan (JCOMM Co-president). Dr Narayanan reminded the Committee that, through Recommendation IODE.XVI, it had established a Steering Group to establish, maintain, and strengthen IODE's participation in co-operative marine research and monitoring programmes. Due to a heavy agenda during the inter-sessional period, no action had been taken in this regard. Dr Narayanan stated that despite the lack of such a steering group, many positive changes had taken place during the past three years resulting in close co-operation between data managers and scientists. She referred especially to the Colour of Ocean Data Symposium (See also Agenda Item 4.1.1) which had been an excellent opportunity for exchanging information between data managers, scientists and users.

303 **The Committee recalled** that IODE has made significant contributions to many international research programs, including TOGA, WOCE, CLIVAR and JGOFS, and continues to have a prominent role in many regional initiatives, including within Europe.

304 **The Committee urged** members to continue creating and maintaining close collaboration with the science and monitoring communities, especially through the development and implementation of joint projects.

305 **The Committee decided** that the Steering Group should be dissolved in favour of the actions described in the previous paragraph.

306 **The Committee called** for closer co-operation with research programmes, projects of GOOS' COOP and the ocean components of IGBP and WCRP, as well as with the GOOS regional bodies (see also Agenda Item 6.1). It was noted that such alliances offered substantial opportunities for obtaining additional resources for the data centres and other partners.

6.4 OTHERS

307 This item was introduced by Mr Greg Reed (IODE Consultant). He outlined the UNESCO Bilko project initiated in 1987 under UNESCO's then Marine Sciences Training and Education Programme (TREDMAR) to develop training capability in coastal and marine remote sensing through a series of computer-based learning modules. Bilko is currently used by over 1900 registered users in over 70 countries and by 500 international marine science laboratories and educational establishments

308 Mr Reed noted that there has been increasing interest from the IODE community for capacity building in remote sensing and a number of countries have requested training. Over the past six months discussions have taken place between IOC and the Bilko steering Committee on possible collaboration.

309 Mr Reed informed the Committee that the next Session of the IODE Steering Group for Ocean Teacher (April 2003) would include a joint session with the Bilko Steering Committee to discuss collaboration and developing ways of including Bilko modules in Ocean Teacher.

310 Mr Mika Odido (IOC Consultant, Regional Co-ordinator, ODINAFRICA Project) noted that the IOC is involved in the implementation of a UNESCO crosscutting project on "The application of remote sensing for the integrated management of ecosystems and water resources in Africa". This initiative encourages the participating countries to strengthen their infrastructures and capacity so as to facilitate easy access to remotely sensed information.

311 **The Committee requested** Member States to assess the Bilko software and how it could be used to develop capacity in coastal and marine remote sensing.

7. FUTURE OF IODE

7.1 IODE REVIEW (PROGRESS REPORT)

312 This item was introduced by the Chair. Reference was made to Document IOC/IODE-XVII/31 *'IODE Evaluation Progress Report: A proposal for an IODE Review'*.

313 The Committee was reminded that IODE-XVI had tasked the IODE Officers (and, as required, some consultants) to undertake a comprehensive review of the IODE system, and to report to the 21st Session of the IOC Assembly. However, due to the many actions that were undertaken by IODE since IODE-XVI, many of which impacted strongly on the 'nature' of IODE, it was felt that a review during this critical phase of changes (2001–2002) would result in an incomplete and possibly even incorrect representation of "the state and future of IODE".

314 In addition (see also Agenda Item 7.3) the IOC Executive Council, during its 35th Session (4–14 June 2002) adopted Resolution EC-XXXV.2 entitled *IOC Strategic Plan for Oceanographic Data and Information Management. The Resolution calls for the development of an IOC Strategic Plan with*

clearly defined roles for each of its observational and data management elements, for oceanographic data and information management, embracing the requirements, capabilities and infrastructures of its Member States, as well as the needs of their user communities (See Agenda Item 7.3). As such it will require input from IODE, and in particular it will require a (preliminary) version of the IODE Review. The First Session of the Task Team is planned to take place on 23 June 2003 (prior to IOC-XXII). It was therefore essential that the IODE Review is now started and that at least an executive summary with clear statement of 'current' state and 'recommendations; for the future is prepared for use by the Task Team's First Session.

315 The Chair reported that the Secretariat had consulted Dr Ron Wilson (Canada) in August 2002 requesting him to consider assisting with the review process. Dr Wilson had responded positively and had submitted in October 2002 a draft document including details on a possible way forward. The proposal is included in Document IOC/IODE-XVII/31.

316 In order to address these issues in detail the **Committee established** a sessional working group on the IODE Review. The Chair reported the sessional working group based its discussions on Document IOC/IODE-XVII/31 and in particular the actions requested by the IODE Committee.

317 **The Committee noted** that, as far as could be ascertained, there had not been a previous review of IODE and recalled its recommendation for a 'review and evaluation of the IODE' at IODE-XVI (para. 392 of the IODE-XVI Summary Report).

318 **The Committee recommended** that the review team should be independent with experience in data management and users/clients of IODE services

319 To assist in the preparation of a work plan for the Review Team, **the Committee requested** the IODE secretariat to compile background information on the current objectives and structure of IODE.

320 **The Committee requested** that Member states as well as stakeholders should be consulted as part of the review, and that this could be done in a similar way to the GOOS Review by way of a questionnaire.

321 A Proposal for Implementation of the IODE Review is attached as Annex VIII.

7.2 NATIONAL EVOLUTION

322 **The Committee decided** to delete this item from the agenda.

7.3 IOC STRATEGIC PLAN FOR OCEANOGRAPHIC DATA AND INFORMATION MANAGEMENT

323 This item was introduced by the Technical Secretary. He referred to Document IOC/IODE-XVII/35 (IOC Strategic Plan for Oceanographic Data and Information Management: Status Report). He informed the Committee that the JCOMM Management Committee, during its First Session (Geneva, Switzerland, 6–9 February 2002) had recommended that a draft resolution be prepared for the 35th Session of the IOC Executive Council calling for the development of an IOC integrated data management strategy, encompassing all programmes.

324 In order to assist with this task, the JCOMM Management Committee had further requested IODE to *carry out an assessment of data and data product requirements of existing oceanography and marine meteorology programmes/projects, and evaluate whether these were currently met by the various groups of data centres***.** To date, no action has been taken on this matter.

325 It had been recommended also to use the experience gathered in the preparation of the GOOS Data Management Plan (1998–1999) and possibly the GCOS Data Management Plan as examples. A

draft resolution was subsequently prepared and submitted and adopted by the 35th Session of the IOC Executive Council (Resolution EC-XXXV.2: IOC Strategic Plan for Oceanographic Data and Information Management). The Resolution also established a Task Team on the Development of an IOC Strategic Plan for Oceanographic Data and Information Management and defined its Terms of Reference.

326 Due to the heavy schedule in 2002 it was not possible to organize the First Session of the Task Team. In addition it was felt that progress should first be made with the IODE Review (See also Agenda item 7.1), as this document would contribute to the work of the Task Team. The First Session of the Task Team will be organized on 23 June 2003, prior to IOC-XXII.

327 **The Committee tasked** the Chair to inform the Task Team on the proceedings of the IODE-XVII Session using especially Resolution IODE-XVII.1 and Recommendation IODE-XVII.5.

7.4 OCEAN INFORMATION TECHNOLOGY PROJECT

328 This item was discussed under Agenda Item 6.2.2.

7.5 ESTABLISHMENT OF AN IODE PROJECT OFFICE

329 This item was introduced by Dr Efstathios Balopoulos, Past-Chair IODE. He referred to Document IOC/IODE-XVII/34 *'Proposal for the establishment of an IODE Project Office'*. The Committee was informed that the main problems faced by the IODE Secretariat are (i) limitations in bandwidth at UNESCO Headquarters; (ii) shortage of technical staff; (iii) no equipped training facilities are available and (iv) difficulties in obtaining equipped meeting room facilities.

330 In order to respond to these problems the IODE Chair (Dr Efstathios Balopoulos) had proposed to establish an 'IODE Project Office' with the following core objectives: (i) establish a creative environment facilitating the further development and maintenance of IODE Projects, services and products with emphasis on improving the efficiency and effectiveness of the data and product/service stream between the stage of sampling and the user; (ii) assist in strengthening the capacity of Member States to manage oceanographic data and information and to provide ocean data and information products and services required by users.

331 Whereas the proposal to establish a project office was currently an initiative of IODE, this Office should be seen as a service to all IOC programmes. This will be fully in line with the 'new' IODE objectives that aim towards serving all IOC programmes in the area of ocean data and information management. Being aware of the problems, the Director of VLIZ, Dr Jan Mees offered to investigate the possibility to host an IOC office, considering that space would be available at the current location of VLIZ. On the basis of these initial informal contacts Dr Mees requested IOC to prepare a preliminary document that described the requirements and objectives. This resulted in the Document 'The IODE Project Office – Proposal and Terms of Reference' drafted in collaboration with Dr E. Balopoulos, IODE Chair. This document was very well received by the Flemish authorities and it was at that time (September 2002) that IOC was informed, informally, that Flanders/Belgium could possibly host an IOC/IODE Project Office. Based upon this information the IODE Chair (Dr E. Balopoulos) then contacted the IODE Officers by email attaching the above-mentioned draft document. Fourteen out of fifteen Officers responded, all positively. Dr Balopoulos then proceeded with contacting all IODE National Co-ordinators (we could reach 57 by email) and asked their opinion as well. Out of the 57 that were contacted, 44 responded. Out of these 44 responses, 43 were positive.

332 The delegate of Flanders/Belgium formally offered to host the IODE Project Office.

333 **The Committee** decided to establish a sessional working group to detail the Terms of Reference of the Project Office to ensure that it would fully serve the new needs of IODE.

334 **The Committee thanked** the Government of Flanders for its kind offer, **expressed** its strong support for the proposal, and **recommended** that it be submitted to the 22nd Session of the IOC Assembly for approval.

335 **The Committee adopted** Recommendation IOC/IODE-XVII.4.

336 **The Committee requested** the Secretariat to ensure that the business plan for the Project Offices gives due and balanced consideration to both positive and negative aspects of decentralizing IODE Secretariat operations. In this regard reference was made to a communication plan, management, financial implications, risk analysis. It should also include a medium and long-term vision statement.

337 **The Committee stated** that the Project Office should be considered as a meeting venue, laboratory, training centre, communication hub and general forum for IODE and partner projects, programmes and organisations. **The Committee recommended** that one of the first activities to be based at the Project Office should be assisting in the implementation of the OIT project.

8. REQUIRED RESOURCES AND PLAN OF ACTION FOR 2003–2005

338 The Committee drafted a detailed work plan and budget based upon the priorities it has established during the Session (Agenda items 3 to 7). In drafting the work plan and budget the Committee took into consideration the limited funding provide through UNESCO's Regular Programme (approximately US$150,000/year). As detailed in Document IOC/IODE-XVII/7rev. (Budget and Staffing IODE 2001–2003) this amount is not likely to increase substantially. In order to provide to IODE the momentum it requires, as stated repeatedly by the Committee, additional funds will need to be provided to the Programme from extra-budgetary sources. In order to obtain such funds the Secretariat has launched requests for funding during IODE-XVI (one Member State provided US$ 5000—Belgium) and again on 30 October 2002 through Circular Letter 2050. No responses were received.

339 In addition **the Committee noted with concern** that many Member States have been unable to allocate funds for participation in IODE Sessions. Several support requests were received for participation in IODE-XVII.

340 **The Committee reminded** Member States that IOC Manual (IOC/INF-785—page 41) under 'Responsibilities of Member States' states "*For the intergovernmental bodies (Sub-Commissions, Scientific and/or Technical Committees, Regional Committees and Task Teams), the Member States are expected to (i) nominate to their delegations to the meetings thereof appropriately qualified persons, as called for in Rule of Procedure No. 26; (ii) cover the cost of the attendance and participation of their delegates in the meetings thereof; (iii) provide the essential means to the individuals (delegates) or national institutions concerned to give effect to the decisions/recommendations of a give subsidiary body of which they are a member…*".

341 **The Committee noted with concern** that the inability of all Member States to participate in Sessions of the Committee negatively impacts on the effectiveness of the programme and involvement of its Member States.

342 **The Committee recalled** that it had, during IODE-XVI, called on Member States to contribute to the IOC Trust Fund to assist the IODE Programme. **The Committee regretted** that only one Member State (Belgium) had responded positively to this request by providing US$5000 in 2001 and US$5000 in 2002.

343 **The Committee recalled** that it had requested, at IODE-XVI, the IODE National Co-ordinators to provide the Secretariat with an estimate of the in-kind resources made available by their governments for the IODE programme. It was felt that this support is a substantive contribution to extra-budgetary

resources available to the IODE Programme and should therefore be identified as well. The Secretariat reported that no such information had been received.

344 **The Committee noted with serious concern** that the IODE programme is currently still supported by only one permanent Professional staff member.

345 **The Committee thanked** the IOC Executive Secretary for supporting the programme with one full-time consultant P-4 (Mr Greg Reed) and one supernumerary staff P-1 (Mr Benjamin Sims) but **expressed its strong concern** over the long-term sustainability of this arrangement.

346 **The Committee discussed and adopted** the Programme and Budget for the period 2003–2005 as presented in Recommendation IOC/IODE-XVII.6.

9. ELECTION OF THE OFFICERS OF THE COMMITTEE

347 The IODE Technical Secretary reviewed the rules and practical arrangements for the election of the Officers of the IOC Subsidiary Bodies as they are presented in Document IOC/INF-785, IOC Manual of 1989, Part I, Item 5 and in the Revised Rules of Procedure, as of June 1994 (Document IOC/EC-XXVII/Inf.1).

348 The IODE Technical Secretary recalled that Mr Ben Searle (Australia) and Dr Efstathios Balopoulos (Greece) were elected during IODE-XV (Athens, Greece, 1996) as Chair and Vice Chair of IODE respectively. On 14 May 2002 the Secretariat was informed by Mr Ben Searle that he wished to step down as IODE Chair. In accordance with the IOC Manual, Dr Efstathios Balopoulos was then requested to take over from Mr Searle as IODE Chair until the next Session i.e. the 17th Session of the IODE Committee. As Dr Balopoulos had fulfilled two terms (first term IODE-XV to IODE-XVI and second term IODE-XVI to IODE-XVII) he would now step down, in accordance with the IOC manual, at the 17th Session of the IODE Committee. It was therefore the responsibility of the Committee to elect both a new IODE Chair and IODE Vice-Chair.

349 The Technical Secretary reminded the Committee that Circular Letter 2045 (Sent 12 September 2002) had been sent to all Member States inviting them to nominate candidates for the positions of Chair and Vice-Chair of IODE. **The Committee noted** that there was only one candidate for each post of Chair and Vice Chair, and **elected** them by acclamation. The newly elected officers of the Committee are:

- Dr Lesley Rickards as IODE Chair
- Mr Ricardo Rojas as IODE Vice-Chair

350 Several delegates paid tribute to the hard work of the outgoing Chair, Dr Efstathios Balopoulos during his terms as Vice-Chair and Chair, as well as to Mr Ben Searle. Dr Efstathios Balopoulos thanked the Committee members and the Secretariat for the assistance they had given him during the inter-sessional period and he expressed his best wishes and support to the new Chairs.

351 **The Committee**, as well as representatives of organisations **welcomed** the new Chair and Vice Chair.

352 The new Chair and Vice Chair thanked the Committee for electing them and pledged their full commitment to work with the Committee towards achieving the many challenging goals ahead.

10. DATE AND PLACE OF THE NEXT SESSION

353 To keep momentum and to keep abreast with the developments in ocean data and information management in a more effective way, **the Committee decided** to organise its Eighteenth Session during the period March–June 2005.

354 The Delegate of Italy informed the Session that his country was willing to investigate the possibility of hosting IODE-XVIII.

355 **The Committee thanked** Italy for its kind offer and **requested** the Chair to discuss formal and practical arrangements with the Government of Italy.

11. ADOPTION OF THE SUMMARY REPORT

356 **The Committee adopted** the draft Summary Report of the Session, the Resolutions and Recommendations as they are presented in Annex II. **The Committee requested** the IOC Secretariat and its Chair to make editorial corrections as necessary, taking into account the discussions held during the Session.

357 **The Committee requested** the Chair to present the Report, Resolutions and Recommendations to the Twenty-second Session of the IOC Assembly (24 June–4 July 2003, UNESCO Headquarters, Paris, France).

12. CLOSURE OF THE SESSION

358 The Session was closed on Friday 7 March 2003 at 16.45.

ANNEX I

AGENDA

1. OPENING

2. ADMINISTRATIVE ARRANGEMENTS
2.1 ADOPTION OF AGENDA
2.2 DESIGNATION OF RAPPORTEUR
2.3 CONDUCT OF THE SESSION, TIME TABLE AND DOCUMENTATION
2.4 LOCAL ARRANGEMENTS

3. STATUS OF IODE
3.1 CHAIRMAN'S REPORT
3.2 ACTIVITIES OF WORLD DATA CENTRES
3.3 ACTIVITIES OF RNODCs
3.4 REPORTS OF NODCs AND DNAs
3.5 NEW DATA CENTRES
3.6 REGIONAL CO-ORDINATORS REPORTS
3.7 IODE DATA FLOW
3.8 IOC OCEANOGRAPHIC DATA EXCHANGE POLICY

4 PROGRAMME PROGRESS REPORTS
4.1 GROUPS OF EXPERTS
- 4.1.1 Group of Experts on Biological and Chemical Data Management and Exchange Practices (GEBCDMEP)
- 4.1.2 Group of Experts on Marine Information Management (GEMIM)
- 4.1.3 Group of Experts on Technical Aspects of Data Exchange (GETADE)

4.2 GLOBAL PROJECTS
- 4.2.1 Aquatic Sciences and Fisheries Abstracts (ASFA)
- 4.2.2 Global Oceanographic Data Archaeology and Rescue (GODAR)
- 4.2.3 Global Temperature and Salinity Profile Programme (GTSPP)
- 4.2.4 Development of a marine XML (marineXML)
- 4.2.5 Global Ocean Surface Underway Data Pilot Project (GOSUD)
- 4.2.6 Marine Environmental Data Inventory (MEDI)
- 4.2.7 Global Directory of Marine and Freshwater Professionals (OceanExpert)
- 4.2.8 OceanPortal
- 4.2.9 OceanTeacher (see also 4.3.2.3)
- 4.2.10 BeeBox

4.3 IODE CAPACITY BUILDING
- 4.3.1 IODE's regional capacity building programme
- **4.3.1.1 Ocean Data and Information Network for Africa (ODINAFRICA)**
- **4.3.1.2 Ocean Data and Information Network for the Caribbean and South America regions (ODINCARSA)**
- **4.3.1.3 Other regions**
- 4.3.2 IODE Training activities
- **4.3.2.1 National initiatives**
- **4.3.2.2 Regional initiatives**
- **4.3.2.3 OceanTeacher (report on use)**

5 IODE PUBLIC AWARENESS
5.1 IODE WEBSITES
5.2 IODE BROCHURES, POSTERS AND PUBLICATIONS
5.3 NATIONAL IODE AWARENESS ACTIVITIES

6 CO-OPERATION WITH OTHER PROGRAMMES
6.1 CO-OPERATION WITH GOOS
6.2 CO-OPERATION WITH JCOMM
6.2.1 Co-operation of IODE in JCOMM Data Management Programme Area
6.2.2 Co-operation of IODE in DMCG, ETDMP and OIT
6.3 CO-OPERATION WITH SCIENCE AND MONITORING PROGRAMMES
6.4 OTHERS

7 FUTURE OF IODE
7.1 IODE REVIEW (PROGRESS REPORT)
7.2 EVOLUTION OF IODE AT THE NATIONAL LEVEL
7.3 IOC STRATEGIC PLAN FOR OCEANOGRAPHIC DATA AND INFORMATION MANAGEMENT
7.4 OCEAN INFORMATION TECHNOLOGY PROJECT
7.5 ESTABLISHMENT OF AN IODE PROJECT OFFICE

8 REQUIRED RESOURCES AND PLAN OF ACTION FOR 2003–2005

9 ELECTIONS OF THE OFFICERS OF THE COMMITTEE

10 DATE AND PLACE OF THE NEXT SESSION

11 ADOPTION OF THE SUMMARY REPORT

12 CLOSURE OF THE SESSION

ANNEX II

RESOLUTIONS AND RECOMMENDATIONS

RESOLUTIONS

Resolution IODE-XVII.1:	ESTABLISHMENT OF AN INTER-SESSIONAL WORKING GROUP TO EXAMINE THE FUTURE ROLE OF WDCS, RNODCS AND NODCS
Resolution IODE-XVII.2:	ESTABLISHMENT OF THE AD HOC WORKING GROUP ON THE IMPLICATIONS OF GOOS AND JCOMM DEVELOPMENT ON IODE

RECOMMENDATIONS

Recommendation IODE-XVII.1 :	OCEAN DATA AND INFORMATION NETWORK FOR AFRICA (ODINAFRICA)
Recommendation IODE-XVII.2 :	OCEAN DATA AND INFORMATION NETWORK FOR THE CARIBBEAN AND SOUTH AMERICA REGIONS (ODINCARSA)
Recommendation IODE-XVII.3 :	MERGING OF THE IODE GROUP OF EXPERTS ON THE TECHNICAL ASPECTS OF DATA EXCHANGE WITH THE JCOMM EXPERT TEAM ON DATA MANAGEMENT PRACTICES
Recommendation IODE-XVII.4 :	ESTABLISHMENT OF THE IODE PROJECT OFFICE
Recommendation IODE-XVII.5 :	ESTABLISHMENT OF THE OIT PILOT PROJECT
Recommendation IODE-XVII.6 :	PROGRAMME AND BUDGET FOR 2003–2005

RESOLUTIONS

Resolution IODE-XVII.1

ESTABLISHMENT OF AN INTER-SESSIONAL WORKING GROUP TO EXAMINE THE FUTURE ROLE OF WDCS, RNODCS AND NODCS

Noting the changing user needs of the scientific research, operational forecasting and assessment communities for historical and real-time oceanographic data,

Further noting the impact of rapidly changing technology on the acquisition, processing and dissemination of oceanographic data,

Recognizing the impact on IODE of the emergence of global and regional operational oceanographic capabilities now emerging through activities such as JCOMM, GOOS, and other programmes,

Decides to establish an inter-sessional working group to examine present and future roles for WDCs, RNODCs, and NODCs ("the centres") to:

(i) Review and summarize present and planned capabilities and functions of the centres;

(ii) Provide a synopsis of anticipated needs, taking into account:

  (a) Changing user needs;

  (b) Changes brought about by the extensive use of the Internet and other technological changes;

  (c) The needs of IODE, JCOMM, and GOOS;

(iii) Compare and note where present and planned capabilities of the centres are meeting or contributing to meeting the challenges in 2, and identify where significant opportunities exist for meeting gaps, and where unresolved remaining gaps exist. Of particular importance are:

  (a) How the centres are evolving to a broader role while maintaining the essential core functionalities that are provided today;

  (b) Documenting centre capabilities (both present and planned) with attention to unique capabilities (e.g., thematic basic services: discovery, archiving, quality control, access, distribution, etc.);

  (c) Recommended roles of the centres in responding to operational oceanographic services;

Recommends that the Group will be composed of the IODE Officers, and the Chair of the ICSU Panel on World Data Centres;

Instructs the Group to report their findings not later than February 2004 to the IODE Review team.

Resolution IODE-XVII.2

ESTABLISHMENT OF THE AD HOC WORKING GROUP ON THE IMPLICATIONS OF GOOS AND JCOMM DEVELOPMENT ON IODE

Noting that IODE Centres are considered to be integral components of the ocean element of the end-to-end global observing system,

Noting also the rapid development of GOOS since IODE-XVI, with (i) some $20 million invested in

the Global ocean Data Assimilation Experiment (GODAE) (up from $0 in 1998); (ii) some $12-15 million invested in 600 Argo floats (up from $0 in 1998); (iii) the rapid growth of GOOS Regional Alliances, each bringing another ten or more Member States into active participations in GOOS, most recently in the Indian Ocean with the development of IOGOOS; (iv) the imminent publication of the Design Plan for a coastal global observing system; (v) the rapid development of JCOMM (the implementation body for GOOS) since its first meeting in Iceland in June 2001; (vi) the development of the Ocean Information Technology Pilot Project to address data and information management needs for the future,

Recognizing the joint, overlapping and complementary interests of IODE, GOOS and JCOMM in these rapid developments and their implications for the future of data and information management within IOC Member States,

Decides to establish an ad hoc inter-sessional Working Group to consider the Implications of GOOS development for IODE, and the adaptations that IODE may need to consider making to meet GOOS and JCOMM requirements for data and information management in the future;

Invites Neville Smith (Australia), Peter Pissierssens (IODE Secretariat), Lesley Rickards (IODE Chair), Savi Narayanan (Canada, and JCOMM Co-President), Colin Summerhayes (GOOS Project Office), Tom Malone (Co-Chair of COOP), and Thorkild Aarup (COOP Technical Secretary) to participate in the ad hoc Working Group on Implications of GOOS for IODE;

Requests that the first meeting of the Group be held in the margins of the I-GOOS-VI meeting in Paris, 10–14 March 2003, to capitalise on the fact that key IODE, GOOS and JCOMM players will all be present;

Invites the ad hoc Working Group to hold appropriate discussions mainly by e-mail, to avoid duplication of other joint IODE-GOOS or IODE-JCOMM activities, and to report back to IODE-XVIII;

Recommends that the IODE, JCOMM and GOOS Secretariats, together with relevant national experts, work together to prepare, for IODE-XVIII, a comprehensive report on the interactions between GOOS, JCOMM and IODE.

RECOMMENDATIONS

Recommendation IODE-XVII.1

OCEAN DATA AND INFORMATION NETWORK FOR AFRICA

The IOC Committee on International Oceanographic Data and Information Exchange,

Noting with satisfaction the successful implementation of the ODINAFRICA project which has resulted in (i) the establishment and operation of at least 16 National Oceanographic Data centres, (ii) development of meta databases, data archives, directories, library catalogues, etc. (iii) development of data and information products, (iv) public awareness creation of the project products and services,

Further noting the positive external evaluation of ODINAFRICA and its recommendation for a third phase of the project focussing on development of data products and services to assist in the sustainable management of marine and coastal areas, and addressing issues such as Internet connectivity, disparities in capacity between the different institutions,

Taking into account the recommendations of the fifth session of IOCINCWIO (23–26 September 2002, Nairobi, Kenya) which also requested for the development of a next phase of the project,

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

Recommends that a third phase of ODINAFRICA be developed, with special emphasis on the development of products and services that respond to the needs of sustainable marine and coastal management, and contribute to other IOC programmes active in Africa such as GLOSS, GOOS-Africa, IOGOOS, HAB, ICAM etc.; **and calls** on the programmes to collaborate in the preparation of the proposal;

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

Requests the secretariat to assist with the development of the proposal and its submission to potential donors for funding;

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

Recommendation IODE-XVII.2

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

The IOC Committee on International Oceanographic Data and Information Exchange,

Noting with satisfaction the implementation of data and information management activities in the region within the framework of the pilot phase of ODINCARSA,

Further noting the need to involve more Member States from the South America and the Caribbean regions in the activities of ODINCARSA,

Acknowledging the assessment of data and information management capacities in the region undertaken at different meetings and workshops held in the region,

Taking into account the report of the ODINCARSA planning meeting held from 24–26 October 2001, in Guayaquil, Ecuador,

Invites Member States from South America and the Caribbean, in consultation with the IODE Secretariat to prepare a work plan for ODINCARSA for the period 2003–2005;

Recommends that resources be provided to support the implementation of the ODINCARSA work plan for 2003–2005;

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

(i) To co-ordinate the necessary actions with the IOCARIBE Office and ODINCARSA participating Member States to obtain donor support for ODINCARSA;

(ii) To provide funding for the implementation of the ODINCARSA pilot phase (2003–2005);

(iii) To strengthen links with JCOMM and GOOS in terms of capacity building and oceanographic data and information management in the ODINCARSA participating Member States;

Urges Member States and donors to support this project through by providing resources, technology transfer and capacity building to enable the implementation of ODINCARSA.

Recommendation IODE-XVII.3

MERGING OF THE IODE GROUP OF EXPERTS ON THE TECHNICAL ASPECTS OF DATA EXCHANGE WITH THE JCOMM EXPERT TEAM ON DATA MANAGEMENT PRACTICES

The IOC Committee on International Oceanographic Data and Information Exchange,

Recognizing the increased strong co-operation between IODE and JCOMM,

Recognizing further the need to avoid duplication and to maximize available human and financial resources,

Noting the similarity of the terms of reference for the IODE Group of Experts on the Technical Aspects of Data Exchange (GETADE) and the JCOMM Expert Team on Data Management Practices (ETDMP),

Recommends that the IODE Group of Experts on the Technical Aspects of Data Exchange be merged with the JCOMM Expert Team on Data Management Practices;

Further recommends that the funds allocated to the IODE programme for the organisation of GETADE sessions be assigned to the organisation of ETDMP sessions, thereby assuring annual sessions of the Group;

Requests that the JCOMM Management Committee consider renaming the Group to the JCOMM/IODE Expert Team on Data Management Practices to reflect the joint contribution of both bodies;

Further requests that the JCOMM Management Committee consider filling the vacant position on ETDMP with a representative from the IODE community.

Recommendation IODE-XVII.4

ESTABLISHMENT OF THE IODE PROJECT OFFICE

The IOC Committee on International Oceanographic Data and Information Exchange,

Recognizing the emphasis on complementary collaborative agreements with other projects that deal with ocean data and information, including JCOMM and GOOS, and developments of global standards for ocean data and information exchange,

Recognizing the considerable and widely appreciated expertise of the IODE programme in capacity building related to ocean data and information management,

Considering the strong involvement and commitment of IODE in the Ocean Information Technology (OIT) project and the technical, infrastructural and management requirements ensuing,

Noting the priorities set by the Committee for its capacity building programme during the next inter-sessional period that includes, *inter alia*:

(i) developing a two-track training programme based on basic and advance training curricula,

(ii) organising separate courses for data and information management,

(iii) continuing the development and management of ODIN networks, including relevant training activities and electronic help desks,

(iv) continuing the development of OceanTeacher with special emphasis on modules for GOOS and JCOMM, as well as on modules for introducing scientists to ocean data and information management,

(v) organising teacher training courses,

Further noting that the lack of sufficient bandwidth at UNESCO Headquarters is hampering the effectiveness of IODE's electronic communication mechanism,

Strongly supports the establishment of an IODE Project Office**;**

Acknowledging with appreciation the offer of the Government of Flanders and the City of Oostende to:

(i) host the IODE Project Office,

(ii) provide substantial financial support covering utilities and broadband Internet access,

(iii) provide part-time secretarial and technical assistance through the Flemish Marine Institute,

Noting with appreciation that the proposed Project Office will be co-located with the Flemish Marine Institute that hosts the Flanders Marine and Data Information Centre,

Recommends that the offer of the Government of Flanders and the City of Oostende be accepted;

Further recommends that the IODE Secretariat prepare, jointly with the IODE Officers, a business plan for the IODE Project Office, to be submitted, together with this Recommendation, to the IOC Assembly at its 22nd Session.

Recommendation IODE-XVII.5

ESTABLISHMENT OF THE OIT PILOT PROJECT

The IOC Committee on International Oceanographic Data and Information Exchange,

Recognizing the importance of innovative, flagship initiatives in ocean data management, to take advantage of technological advances and to enhance the capacity and functionality of IODE activities, for a wide range of new needs and demands,

Recognizing the importance of forging productive and constructive projects and partnerships with GOOS and JCOMM,

Noting the recommendation of the Fifth meeting of the GOOS Steering Committee to endorse the OIT initiative as a Pilot Project of GOOS, and the decisions of the JCOMM Data Management Co-ordination Group (DCMG-I) and the JCOMM Management Committee (MAN-II) to support the OIT as a JCOMM Data Management PA Pilot Project,

Recognizing the existence of existing projects and Groups of Experts within IODE, and within JCOMM, whose activities are pertinent to the objectives of the OIT,

Noting the decisions of the GOOS SC (GSC-V) and JCOMM to form a Steering Team for the OIT Project, and the provisional Membership of the Team (Inf. 1178), subject to consideration of the IODE,

Acknowledging that the OIT Pilot Project represents an important contribution to the resolution of ocean data management issues and to enhancing the overall capacity and functionality of IODE, and that the overall scope and objectives of the Project as represented in Doc 31 and Inf. 1178 were both relevant and appropriate for IODE,

Recommends that

(i) The *Ocean Information Technology Pilot Project* be implemented as an initiative of the IODE, jointly sponsored with JCOMM and GOOS;

(ii) The *Steering Team* of the Project be responsible for the development and implementation of the Project, including the development of a Strategic Plan and initiation of sub-projects;

(iii) The initial focus of the Project be as agreed at the First Meeting of the OIT, as reported in Document IOC/IODE-XVII/32 (Ocean Information Technology); and

(iv) The *Steering Team* provides a detailed work programme, including a schedule of activities, to the next Session of the Committee;

Further, in consideration of the initial focus on data assembly and quality control, and **recognizing** the significant experience and expertise of IODE in this area, including *inter alia* through the World Ocean Data Base Project and GODAR, the GTSPP, Argo, and GOSUD,

Acknowledging the key role of the joint JCOMM/IODE ETDMP,

Recommends that

(i) The *Ocean Information Technology Pilot Project* in conjunction with the Chairs of GODAR, GTSPP, GODAE and the Argo Data Management Committee, convene a Workshop on quality control and assembly of ocean data, including formation of an Organizing Committee and development of a Prospectus, with the third quarter of 2004 as the tentative target period; and

(ii) The *Ocean Information Technology Pilot Project* be adopted as a component of the work programme of the JCOMM/IODE ETDMP and that this joint group take the lead in developing an appropriate model and standard for ocean metadata;

Further noting that JCOMM and GOOS have both adopted a generic description of Pilot Projects,

Acknowledging that such a definition would be beneficial to the strategic planning of IODE, and that IODE has in the past adopted such terminology,

Recommends that IODE adopt the following as a definition of an IODE Pilot Project: A pilot project is defined as an organized, planned set of activities with focused objectives designed to provide an evaluation of technology, methods, or concepts within a defined schedule and having the overall goal of advancing the development and capacity of IODE.

Recommendation IODE-XVII.6

PROGRAMME AND BUDGET FOR 2003–2005

The IOC Committee on International Oceanographic Data and Information Exchange,

Having reviewed its ongoing and planned programme implementation requirements for the period 2003 through 2005,

Having been informed about the resources allocated to the IODE Programme from the UNESCO Regular Programme for the 2002–2003 biennium and requested for the 2004–2005 biennium,

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

Emphasizing the importance of ensuring high-quality oceanographic data and information, products and services for scientific and observation programmes of the Commission, for Member States, private sector and other users,

Noting the new and important role of IODE in JCOMM,

Noting further the close collaboration with GOOS and the ensuing role of IODE in assisting with the management of operational data,

Expressing great appreciation for the offer by the Government of Flanders to host and support the proposed IODE Project Office,

Appreciating the in-kind support for the IODE Programme received from Member States through the establishment and maintenance of the IODE Data Centres, provision of experts and through the services and products made available to the global community,

Appreciating further the financial support received from Member States for the implementation of projects or through the IOC Trust Fund,

Calls on Member States to provide funding to the IOC Trust Fund, or to specific projects, to strengthen the IODE Programme, and to consider the secondment of national experts to the IOC Secretariat (or Project Office) or other appropriate mechanisms for improving the staffing situation in the IOC/IODE Secretariat;

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

Requests the IODE Chair to bring to the attention of the next Session of the IOC Assembly, the IODE Programme of work and budget for the period 2003–2005, as attached in the Annex to this Recommendation.

ANNEX I to Recommendation IODE-XVII.6

	2003				2004				2005			
	RP	**EB req**	**EB exp**	**TOTAL**	**RP**	**EB req**	**EB exp**	**TOTAL**	**RP**	**EB req**	**EB exp**	**TOTAL**
IODE subsidiary bodies												
GE-MIM meeting				0	10 000	5 000		15 000				0
GE-TADE/ETDMP meeting				0	10 000			10 000				0
GE-BCDMEP meeting				0	10 000			10 000	9 000			9 000
SG MEDI meeting				0	10 000			10 000				0
SG OCEANTEACHER meeting	10 000			10 000				0	10 000			10 000
Capacity Building												
ODINAFRICA			930 000	930 000		20 000		20 000		20 000		20 000
REG TC IOCINDIO (see ODINCINDIO)				0				0				0
REG TC IOCINCWIO (see ODINAFRICA)				0				0				0
REG TC MED (MAMA)			8 000	8 000				0				0
REG TC CAR (see ODINCARSA)				0				0				0
REG TC SAM (see ODINCARSA)				0				0				0
MIM Travel grants	11 000			11 000	5 000	5 000		10 000	5 000	5 000		10 000
ASFA participation	2 000			2 000	2 000			2 000	2 000			
Regional OceanPortal AFR			*53 919*	53 919			*52 200*				*30 000*	
Regional OceanPortal LAC			*28 731*	28 731			*77 500*				*52 500*	
												0
Products and Services												
OCEANTEACHER			13 000	13 000	5 000	5 000		10 000	5 000	5 000		10 000
MARXML	5 000		10 000	15 000	5 000		10 000	15 000	5 000			5 000
MEDI	5 000			5 000	5 000			5 000	5 000			5 000
OCEANPORTAL	5 000	5 000		10 000	5 000			5 000	5 000			5 000
OCEANEXPERT	5 000			5 000	2 000	3 000		5 000	5 000			5 000
BEEBOX		10 000	5 000	15 000	0	10 000		10 000	8 000	2 000		10 000
				0				0				0
Projects				0				0				0
GODAR - WORLD	3 000			3 000	3 000			3 000	3 000			3 000

GTSPP	5 000			5 000	5 000			5 000	5 000			5 000
Events												0
GODAR QC conference					10 000	10 000		20000				0
France data management conf									10 000	10 000		20000
Hamburg data management conf					10 000	10 000		20000				
Pilot Projects												0
ODINCARSA	40 000	5 000		45 000	10 000	10 000		20 000	10 000	10 000		20 000
GOSUD	5 000			5 000	5 000			5 000	5 000			5 000
OIT	4 000			4 000		35 000		35 000		35 000		35 000
ODINCINDIO planning meeting					10 000	10 000		20 000				
Programme management												0
Staff and Officer travel	10 000			10 000	15 000			15 000	15 000			15 000
JCOMM co-operation	1 400			1 400	3 000			3 000	3 000			0
IODE REVIEW costs	5 000	5 000		10 000	5 000	15 000		20 000	5 000			
OFFICERS/IODE Session	30 000			30 000				0	30 000			
IODE project office							20 000			20 000		
Public awareness	5 000			5 000	5 000			5 000	5 000			5 000
TOTALS	**151 400**	**25 000**	**1 048 650**	**1 225 050**	**150 000**	**138 000**	**159 700**	**447 700**	**150 000**	**107 000**	**82 500**	**339 500**
Available	150 000	0	1 048 650	1 198 650	150 000	0	159 700	309 700	150 000	0	82 500	232 500
Difference	-1 400	-25 000	0	-26 400	0	-138 000	0	-138 000	0	-107 000	0	-107 000
%	-0,9%	100,0%	0,0%	-2,2%	0,0%	100,0%	0,0%	-30,8%	0,0%	100,0%	0,0%	-31,5%

RP: UNESCO regular Programme; **EB req**: Extra-budgetary requested from Member States or other donors; **EB exp**: Extra-budgetary expected (confirmed) from Member States or other donors (includes also funds from cross-cutting themes UNESCO RP).; **REG TC**: Regional Training Course

Notes: - A proposal for ODINAFRICA-III will be submitted to donors end of 2003 after drafting by ODINAFRICA Member States. Estimate not available at this time.

- ODINCARSA and ODINCINDIO: additional financial resources will be required. The shown budget includes only core/start-up elements.

ANNEX III

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ANNEX IV

LIST OF DOCUMENTS

Working Document	**Title**
IOC/IODE-XVII/1	Provisional Agenda
IOC/IODE-XVII/1	Provisional Timetable
IOC/IODE-XVII/2	Annotated Provisional Agenda
IOC/IODE-XVII/3	Summary Report
IOC/IODE-XVII/4	List of Documents
IOC/IODE-XVII/5	List of Participants
IOC/IODE-XVII/6	Report on Inter-sessional Activities of the Chairman of the IOC Committee on IODE
IOC/IODE-XVII/7	Budget and Staffing 2001–2003
IOC/IODE-XVII/8	Reports on Activities of the World Data Centres
IOC/IODE-XVII/9	Reports on Activities of the RNODCs
IOC/IODE-XVII/10	Reports on Activities of NODCs and DNAs
IOC/IODE-XVII/11	Establishment of new data centres during the intersessional period
IOC/IODE-XVII/12	Reports of the IODE Regional Co-ordinators
IOC/IODE-XVII/15	Reports on activities of the IODE Groups of Experts
IOC/IODE-XVII/16	Aquatic Sciences and Fisheries Abstracts (ASFA)
IOC/IODE-XVII/17	Global Oceanographic Data Archaeology and Rescue (GODAR)
IOC/IODE-XVII/18	Global Temperature and Salinity Profile Programme (GTSPP)
IOC/IODE-XVII/19	Development of a marine XML (marineXML)
IOC/IODE-XVII/20	Marine Environmental Data Inventory (MEDI)
IOC/IODE-XVII/21	Global Directory of Marine and Freshwater Professionals (OceanExpert)
IOC/IODE-XVII/22	OceanPortal
IOC/IODE-XVII/23	OceanTeacher
IOC/IODE-XVII/24	Ocean Data and Information Network for Africa (ODINAFRICA)
IOC/IODE-XVII/25	Ocean Data and Information Network for the Caribbean and South America regions (ODINCARSA)
IOC/IODE-XVII/27	IODE Public Awareness
IOC/IODE-XVII/28	IODE Co-operation with GOOS
IOC/IODE-XVII/29	IODE Co-operation with JCOMM
IOC/IODE-XVII/31	IODE Evaluation Progress Report
IOC/IODE-XVII/32	Ocean Information Technology Project
IOC/IODE-XVII/34	Establishment of an IODE Project Office

Working Document	Title
IOC/IODE-XVII/35	IOC Strategic Plan for Oceanographic Data and Information Management
IOC/IODE-XVII/36	IODE's Dynamic Content Management System (CMS): BeeBox
IOC/IODE-XVII/37	Global Ocean Surface Underway Data Pilot Project (GOSUD)
IOC/IODE-XVII/37A	GOSUD Project Plan
IOC/IODE-XVII/38	Project Proposal for the Establishment of the Ocean Data and Information Network for the Central Indian Ocean Region (ODINCINDIO)

ANNEX V

OPENING SPEECH BY DR EFSTATHIOS BALOPOULOS, CHAIR IODE

Dr Patricio Bernal, IOC Executive Secretary,
Distinguished Delegates,
Representatives of Governmental Organisations, Non-governmental Bodies and Organisations,
Ladies and Gentlemen,

I would like to call the Seventeenth Session of the Intergovernmental Oceanographic Commission's Committee on International Oceanographic Data and Information Exchange to order.

IODE has made significant advances in many areas since the previous meeting some two and a half years ago. We have successfully implemented, developed or completed a number of projects and activities. Some of the highlights include:

- ✓ The achievements of GODAR and the related activities of MEDAR/MEDATLAS, in rescuing, quality controlling and disseminating tens of thousands of ocean and marine profile observations, in addition to the development of very powerful data products.

- ✓ The continuation of the very successful GTSPP activity.

- ✓ The progress made on the development and introduction of metadata systems with a significant revision of the MEDI Referral Catalogue, in collaboration with NASA. Also the remarkable improvement of the IODE website capabilities.

- ✓ The strengthening of IODE's role in developing and implementing data and information standards for the marine sector, through the initiative to develop, in collaboration with ICES, of a marine XML, with the aim of improving the interoperability of data for the marine community.

- ✓ The important advancement in the capacity building area, especially through the ODINAFRICA and ODINCARSA Projects, and the implementation of an impressive number of training courses, despite the budget limitations.

- ✓ The development of close links of co-operation with GOOS and JCOMM in designing and implementing the necessary end-to-end data management systems to meet the needs of all organisations.

There have been many other successes for the IODE programme, for which we will be hearing about, in much more detail, over the next few days.

Further to the above achievements we have undertaken a number of actions aiming at the forging of strategic partnerships and collaborative arrangements with a number of scientific and monitoring programmes:

- ✓ IODE is now an active member in the JCOMM Management Committee, the JCOMM Data Management Co-ordination Group and the JCOMM Expert Team on Data Management Practices.

- ✓ **IODE has become an increasingly active member of the GOOS Steering Committee and the GOOS Capacity Building Panel.**

- ✓ IODE has joined JCOMM in the establishment of the Oceans Information Technology Pilot Project.

All the above mentioned achievements and initiatives have helped IODE to raise its profile within the marine science community. However, the IODE needs to further develop these new initiatives and continue to improve its ability to provide access to marine data and information in support of global, regional, national and local needs.

Many changes have been made since the last time we met and many more things will change rapidly over the coming years. Our focus has shifted from the traditional delayed-mode, physical data management. Initiatives have been undertaken for the development of best practices for the management and exchange of biological and chemical data. The management of operational data now has taken on a higher level of importance to the data community.

However, one thing is that has remained constant. This is the growing need for the IODE community to lead the way in co-ordinating access to marine data and information to support the broad needs of the scientists, policy makers, marine resources managers, commercial sector and the general public.

IODE-XVII should not be seen as another isolated event. IODE-XVII objective is to define the agenda of ocean data management for the next 5-10 years, relating to the Global Monitoring, Environment and Capacity Building.

Many institutional arrangements for systematic interdisciplinary investigation of the Earth System are in place or are being developed, such as GOOS, IGPB, etc. They are capable of delivering new data to the IODE system with the understanding that the system will be responsive also to their needs.

If the IODE system does not meet the needs of the client programmes, the IODE programme will be undermined and the whole system will become much less effective. It is expected that the results of IODE-XVII will make a major contribution to the formulation of the future directions in ocean data managing in support of world science, industry and society at large.

Technology will be a major feature of the Session. A number of agenda items will be highlighting a range of technologies and frameworks that make a step forward in making data and information available to clients in timely and technically advanced manner.

The rapid development of technology poses a challenge to many of us. Those who have the expertise must share it with those that do not. This brings me to the IODE Project Office. I will not go into details now but I believe that this proposed Office will really help us make a difference: the difference between talking about training and technological development and really making it reality. The Project Office could be our think tank, our school, our laboratory. And when I say our then I mean IOC: I believe we have moved away from the segment approach where IODE, GOOS, ICAM, etc. all work alone.

IODE should continue and further strengthen its efforts in education, training and capacity building. A wider segment of the population should be involved in solving environment and development problems. IODE should be more actively involved in helping to share development. It is gratifying to note that almost half of the participants come from developing countries in Africa, The Arab regions, Asia and South America.

One bottleneck of the system appears to be the lack of qualified data managers and supportive managing infrastructures. This is particularly true for certain regions. Focused capacity building is necessary to permit world wide balanced participation in IODE, as well as, to enable developing countries to strengthen their scientific capabilities for solving local and regional problems and for participating in existing regional networks for research, and training, which should be supported and new ones established.

I have now completed two terms, firstly as vice-chair of IODE and more recently as chair of IODE, and will hand over the chairmanship of the committee to a new chairperson during this session. I would like to thank all member states for their continued support and expect to work closely with the new chair and vice-chair.

I will conclude this opening address by saying that we have a number of major challenges to address during this meeting. I believe that the most significant of these is the process under which the IODE Committee will operate in the coming years.

I look forward with interest to a strong and interesting debate over the future of IODE and also to the reports on the progress made, over the intersessional period, with our existing activities.

I would now like to call on Dr Patricio Bernal, the Executive Secretary of the IOC to address the Committee.

ANNEX VI

IODE-XVI (2001–2003) ACTION SHEET IMPLEMENTATION

IODE-XVI Paragraph	Action	Status
40	Resolution IODE-XVI.1	Done
52	All RNODCs should examine their terms of reference and make proposals for modification, if appropriate RNODC accept a leading role for the creation of metadata directories at the regional level RNODC should keep close contacts with scientists and scientific programmes in order to identify data and information requirements and to provide necessary services for the development of marine science in the region RNODCs should take a co-ordinating role in the discovery of data that are not yet available in the IODE SYSTEM RNODCs should develop value-added data and information products to meet the requirements of regional scientific research projects	Done: CL 2035
53	Establishment of RNODC for the Persian Gulf region (Resolution IODE-XVI.2)	Email sent to Regional Co-ordinator
55	Underway Sea Surface Salinity Data Archiving Pilot Project (Recommendation IODE-XVI.10)	1. First Session of the IODE Steering Group for Underway Sea Surface Salinity Data Archiving Pilot Project, Brest, France, 15–16 November 2001 2. Second Session of the SG, Ottawa, 16–17 September 2002
63	South Africa to report on progress of establishment of an NODC in Namibia	Ongoing
55	Data centres to share information on activities within the framework of national or regional projects, possibly through OceanPortal	CL 2037
123	The Committee called for further co-operation between IODE and the EU in the field of oceanographic data and information exchange and requested the Chairman and the Technical Secretary to bring the Committee's view to the EU DG-XII Director	Done: Meetings with C. Patermann
126	**The Committee stressed** the need for the Regional Co-ordinators to establish effective 'human' networks that would allow to clearly assess the available resources and needs of the region, so as to enable the Committee to timely respond to these needs	CL 2036

IODE-XVI Paragraph	Action	Status
127	**The Committee called** upon the Regional Co-ordinators to co-ordinate the development of capacity building proposals. **The Committee requested** that, to facilitate the work of future Sessions of the Committee, to submit such proposals not less than two months prior to the Session.	CL 2036/CL 2038
128	**The Committee noted** that the financial resources of the IOC are able to provide only seed money, and that additional donors need to be identified to complement these resources. **The Committee requested** the Regional Co-ordinators to assist the Secretariat in identifying these donors.	CL 2036
130	Strengthening of the Regional Co-ordinators Mechanism (Recommendation IODE-XV.2)	Support for RCs allocated in 2001. No requests in 2002
136	**The Committee decided** to cease the mailing of NOPs by the IOC Secretariat while maintaining a closer monitoring of the process. **The Committee acknowledged** with thanks the efforts of JODC in mailing their own NOPs and **invited** other NODCs to follow this example.	
137	**The Committee recommended** that the NOP information be available on-line and Member States were encouraged to provide NOPs directly to OCEANIC	Report from OCEANIC
139	**The Committee further agreed** to consider ways of effective co-operation between ICES and OCEANIC. **The Committee recommended** that the next session of GETADE will include the revision of NOPs and CSRs in its agenda taking into account new scientific demands and modern technological tools of rapid communication and exchange. In their efforts, GETADE should closely co-operate with relevant ICES groups	GETADE agreed to request that OCEANIC create a link from the Oceanic research schedule page to the ICES page and vice versa. ICES have implemented link, request sent to OCEANIC
148	Establishment of the MEDI Programme (Recommendation IODE-XVI.1)	1. First Session of the IODE Steering Group for MEDI, First Session, Oostende, Belgium, 23–27 April 2001 2. Second Session of the IODE Steering Group for MEDI, Second Session, Honolulu, USA, 2–4 April 2002

IODE-XVI Paragraph	Action	Status
157, 158	**The Committee proposed** that the idea of web pages in the data centres be further tested on the data flows that are now operational as part of the GOOS Initial Observing system (IOS), through a GOSIC-IODE project which would have the additional benefit of promoting more GOOS-IODE co-operation. **The Committee invited** GOSIC to co-operate with the IODE data and information centres that participate in the IOS in conducting these tests as much as possible	Report from GOSIC
161	**The Committee felt** that it would be most desirable to have an IODE representative in the [GOSIC] Advisory Committee and invited the IODE Chairman to identify an expert and inform the Steering Committee for GOOS accordingly.	Report from GOSIC
164	**The Committee noted with satisfaction** that the data from China, Japan and the Republic of Korea are now gathered and served using this software. **The Committee recommended** continuing efforts in applying this software to improving NOPs, CSR and the MEDI data flow in the region, and invited NEAR-GOOS countries to assist the KODC in this activity.	Email sent to KODC (1 Aug. 2002)
169	Steering Group on Establishment, maintenance, and strengthening of co-operation between IODE and research and monitoring programmes (Recommendation IODE-XVI.3)	No action in 2001, 2002. Planned for 2003
171,172	Recognizing the importance and volume of data collected by the Argo programme **the Committee recommended** the formation of an IODE/Argo Project Team which will include the IODE data centres currently participating in the programme and others as appropriate, such as the NODC of Chile, recently nominated for the Argo programme. The responsibility of this team will be to provide the data management support to Argo, as well as to facilitate the exchange of Argo data and information among the IODE Member States. Noting that MEDS (Canada) is a key player in the development of standards for data formats, quality control and data exchange, as well as the MEDS experience, **the Committee felt** that it would be desirable to have a representative of MEDS to Chair this project team and lead the formulation of the project from the IODE side. **The Committee requested** its Chairman to pass the Committee's view to relevant Argo bodies to start the development of the joint project.	No action
181	Delegate of Canada (S. Narayanan) to represent IODE at the November 2000 COOP meeting	Report from S. Narayanan
193	Strengthening of IODE involvement in GOOS	IODE participation in GSC, GOOS CB Panel

IODE-XVI Paragraph	Action	Status
203	The IODE Chairman reminded the Committee, that it should determine the appropriate level of interaction with JCOMM. **The Committee noted** that in the past, the Chair of IODE attended IGOSS meetings and vice versa, and **expressed the wish** to have this practice continued.	IODE Chairman member of JCOMM-MC
206	**The Committee decided** that a constructive relationship should be established between IODE and JCOMM.	IODE actively part of JCOMM
209	A number of delegates expressed concern at the lack of access to satellite imagery especially for developing countries. In relation to this, Portugal suggested the formation of a Task Team to further examine the issues of IODE´s relations with the satellite community and to improving access to satellite data that was particularly valuable in the coastal zone for resource management and environmental protection purposes. **The Committee referred** this matter to the next meeting of the IODE Officers	No action by officers but IOC to develop coherent strategy on remote sensing
210	The Delegate of the Islamic Republic of Iran, Prof. H. Zomorrodian called the attention of the Committee to the fact that his country has a NOAA HRPT receiving station. Regrettably, due to changes in the software and political circumstances, the station could no longer receive satellite images. He therefore called on the Committee to ensure that agreements are made with the remote-sensing community and agencies to ensure that IODE NODCs can receive support for acquiring the necessary hardware and software. **The Committee referred** this matter to the next meeting of the IODE Officers.	No action
215	Establishment of a Group of Experts on Biological and Chemical Data Management and Exchange Practices (Recommendation IODE-XVI.4)	Established. First Session held 2002
221	**The Committee tasked** the GEMIM with the documenting of experience within the IODE community in managing and archiving pollution data and in increasing the visibility in the community of this expertise. The collected information should be posted on the IODE website.	Report from GEMIM Chair
226	**The Committee recommended** the strengthening of linkages to other coastal programmes such as COOP of GOOS and LOICZ	No action
237	**The Committee called** on the Member States to increase the participation of national information management experts in the IODE/MIM programme, regretting the poor response of the Member States to the invitation to nominate candidate experts for the GEMIM, and to include in the list, when appropriate, members from data centres with an information component.	No further action

IODE-XVI Paragraph	Action	Status
246	SG on IGOSS/IODE E2E DM: The Committee considered some questions as on how to proceed. The existing Terms of Reference for the new Steering Group is 2 years old. With progress in GOOS they may not meet present needs. Although it is assumed that this new group will be a joint IODE-JCOMM Subsidiary Body, it is not clear how to implement this co-operation and develop an effective work plan quickly. **The Committee therefore recommended** that as a first step in activating the new Steering Group, a small meeting of experts, representing IODE, JCOMM and GOOS, be held, to prepare carefully considered recommendations on joint sponsorship and a work plan that can go forward to the JCOMM meeting in June 2001 and to the next IODE Officers meeting also planned for 2001 as an electronic meeting.	No action taken
247	**The Committee requested** the Chairman of the Steering Group, in consultation with the IODE Technical Secretary and the WMO Secretariat to identify experts who will develop the agenda for the meeting of experts, taking into account the recommendations of IODE-XVI and relevant JCOMM and GOOS decisions. This process should be completed and an agenda developed by the end of 2000.	No action taken
255	**The Committee emphasized** the importance of conclusions and recommendations formulated by the IGRC and **requested** the Secretariat to identify the necessary funding for the urgent publication of the report of the Conference in the IOC Workshop Series.	Report published
258	GODAR sea-level project: **The Committee supported** the proposal and **recommended** that the proposed sea-level data archaeology project should be co-ordinated by the GE-GLOSS, with the GODAR Project Leader acting as advisor to the project.	Report requested from Lesley Rickards. No proposal received
259	**The Committee encouraged** all countries to assess their holdings of historical tide gauge data which can potentially be rescued and convey that information to the Permanent Service for Mean Sea Level (PSMSL), which will act as the contact point. Following this, the GE-GLOSS would undertake action to put countries in communication with each other and with sea-level organisations with regard to collaborative data rescue. The GLOSS and other important sites (e.g., those with long records) should be regarded as priority sites. The Committee noted that sea-level data archaeology has begun in several regions already (e.g., Europe, USA and Canada).	To check with GE-GLOSS)
261	GODAR-WESTPAC: **The Committee supported** the concept of the project and invited developed countries in the region to provide technical assistance for the project implementation. It was advised that assistance be based on existing co-operation schemes and include training courses and technology transfer.	Report by GODAR Project Leader (progressing)

IODE-XVI Paragraph	Action	Status
265	GODAR-IOCARIBE: **The Committee welcomed** the initiative of the IOC Regional Sub-Committee on IOCARIBE and **informed** the NODCs of the lack of national project contacts in some countries and **urged** the IOC/IOCARIBE Regional Office region to support the project. **The Committee shared** the concern of the Regional Project Co-ordinator regarding and the IODE Regional Co-ordinator to help the RPC in this matter.	Check with C. Toro
267	**The Committee adopted** Recommendation IOC/IODE-XVI.6 on the future ways of development of the GODAR programme.	Report by GODAR Project Leader Syd Levitus
275	The Sessional Working Group proposed that IODE develop an inventory of data products and tools that already exist in IODE centres. Such an inventory would be a very valuable tool in promoting the IODE programme and would also improve access to these products for the user community. **The Committee strongly supported** this proposal.	Implemented through OceanPortal but needs more active participation from NODCs
278	Accordingly, **the Committee tasked** the IODE Group of Experts on Technical Aspects of Data Exchange and the IODE Group of Experts on Marine Information Management to develop a comprehensive inventory of (i) data and information products; and (ii) data and information management software and related tools. **The Committee further decided** that these inventories should be disseminated through the IODE website and should be included in the IODE Resource Kit.	Check with GETADE and GEMIM on progress. Relevant free software and related tools are included in OceanTeacher
291	In order to enable the further development of the Kit, **the Committee called** on the IOC Member States to assist the [Resource Kit] project financially, or in-kind.	No support received
292	**The Committee adopted** Recommendation IODE-XVI/7. (Establishment of the IODE Resource Kit Project and Steering Group)	1. First Session of the IODE Steering Group for the Resource Kit, First Session, Miami, Florida, 19–23 March 2001
302	**The Committee recommended** continuing organizing training courses on data and information management in the regions during the next intersessional period	1. First ODINAFRICA-II Training Course in Marine Data Management, Supported by the IOC and the Government of Flanders, Casablanca, Morocco, 2–13 April 2001 2. First ODINAFRICA-II Training Course in Marine Information Management. Supported by the IOC

IODE-XVI Paragraph	Action	Status
302		and the Government of Flanders Cape Town, South Africa, 29 October–9 November 2001 3. Fifth IOC/WESTPAC Training Course on NEAR-GOOS Data Management, Tokyo, Japan, 5–16 November 2001 4. Remedial Training Course in Marine Data Management for Côte d'Ivoire, Abidjan, Côte d'Ivoire, 21–29 March 2002 5. Second ODINAFRICA II Training Course in Marine Data Management, Tunis, Tunisia, 29 April–10 May 2002 6. Second ODINAFRICA II Training Course in Marine Data Management, Tunis, Tunisia, 29 April–10 May 2002 7. First ODINCARSA Training Course in Marine Data Management, Guayaquil, Ecuador, 20–31 May 2002 8. Regional Training Course for the Caspian & Black Sea Regions, Tehran, IR Iran, 20–30 October 2002
306	In order to equip newly established data centres in developing countries, **the Committee invited** those data centres that have surplus equipment to provide these to new IODE data centres. **The Committee further invited** the data centres to provide a list of required or available equipment.	No action

IODE-XVI Paragraph	Action	Status
320	**The Committee welcomed** the offer of the Australian Oceanographic Data Centre to host interns from the ODINAFRICA-II data centres,	Any in 2001?
321	**The Committee also welcomed** the offer of Portugal to assist in the provision of documents and data to institutions participating in the project.	Check with Prof. Ruivo
324	**The Committee … urged** other Member States to assist in capacity building for data centres from developing countries.	No support received
328	**The Committee congratulated** the MEDAR/MEDATLAS Data Centres and especially the Project Leader for these achievements and **considered** the project a good example of co-operation between two international organisations - IOC and the EU - that should be expanded and strengthened. **The Committee invited** the IOC Executive Secretary to bring this view to the attention of the relevant EU structure.	Done
331	The Representative of the UNDP/GEF Caspian Environment Programme (CEP), Dr V.L. Vladymyrov, informed the Committee on the efforts of the CEP to support and facilitate the international environmental data and information exchange in the Caspian Sea region and to create information systems, data inventories and databases for the region. **The IODE Committee expressed its support** for this work **and expressed readiness** to provide its knowledge and expertise to the programme. **The Committee invited** the Caspian Sea countries to support and enlarge data and information exchange in the region.	No action. Contacted Vladymyrov (1 Aug. 2002)
332	**The Committee strongly recommended** that proposals for regional projects, introduced under this Agenda Item, be brought to the attention of the IOC Regional Bodies concerned, and that consultations with Member States be organized and their support sought.	CL 2038
338	Marine XML tasked to GETADE	All GETADE members attended the First Session of ICES-IOC Study Group on the Development of Marine Data Exchange Systems Using XML (SGXML) held in Helsinki from 15–16 April 2002 GETADE. Agreed to work closely with the SGXML and to provide input to their work plan Specifically the group would focus on mapping of the MEDI and CSR metadata systems as part

IODE-XVI Paragraph	Action	Status
338		of the overall XML solution to establish a single metadata system that can present metadata in the form of a CSR or MEDI.
347	**The Committee regretted** the low profile of the IODE programme in many NODC websites and **urged** the Data Centres to either include the IODE template in their website or to ensure the IODE website is clearly and visibly referred to in their website(s).	CL 2039
348	**The Committee further urged** the Data Centres to urgently inform the IODE Secretariat of their URL and to ensure the Secretariat is informed about any changes to the URL.	CL 2039
349	**The Committee called** on the IODE data and information centres to advertise GLODIR within their centres **and invited** data and information experts to enter their information into GLODIR, stressing that the expertise available within the IODE community is substantial and should be publicized through GLODIR (http://ioc.unesco.org/glodir).	CL 2039
358	**The Committee decided** to proceed with further development of the OceanPortal.	Done
359	**The Committee further decided** to continue with the current portal system (static html pages) and enrich the Portal as much as possible, while **tasking** the GETADE and GEMIM with (i) defining the content and technical specifications of the OceanPortal; (ii) identifying possible technical solutions to implement such a portal.	Report from GEMIM
362	**The Committee recommended** that the other United Nations agencies should be informed about the IOC/IODE OceanPortal development through the appropriate co-ordination mechanisms.	Informed FAO in view of UN Ocean Atlas
371	**The Committee encouraged** the IOC to establish special arrangements aimed at facilitating access by developing countries to XML technology.	See marineXML
372	**The Committee recommended** that the IODE Groups of Experts (GETADE and GEMIM) be involved in the XML Consortium.	IODE represented at First Session of ICES-IOC Study Group on the Development of Marine Data Exchange Systems Using XML (SGXML) held in Helsinki from 15–16 April 2002

IODE-XVI Paragraph	Action	Status
373	**The Committee adopted** Recommendation IOC/IODE-XVI.8. (IODE Participation in an XML consortium)	IODE has joined a MarineXML Project consotrium, funded by EU, to demonstrate that XML technology can be used to develop a framework that improves the interoperability of data for the marine community and specifically in support of marine observing systems and to develop a prototype of an XML-based Marine Mark-up Language (MML)
378	Relating to the potential use of new and developing technologies, **the Committee requested** GE-TADE to maintain a close watch on the appropriate technologies, **and recommended** that GIS-related technology be given closer attention at the next meeting of the IODE Committee.	Report from GETADE
379	**The Committee also advised** that the IODE pilot projects (already underway and those proposed at the Sixteenth Session) incorporate these new technologies, especially the marine data framework concept and XML, as was considered appropriate. In this way, these technologies could be tested.	Part of marineXML
388	**The Committee adopted** Recommendation XVI.5.(IOC Oceanographic Data Exchange Policy)	Refer to IWG reports
392	**The Committee recommended** that a review and evaluation of the IODE be initiated for submission to the IODE Officers and to the forthcoming IOC Assembly in July 2001. This should cover the mandate of the Committee and of its Subsidiary Bodies and should consider the respective compositions, *modus operandi*, interactions and other relevant aspects. The review will be made by the IODE Officers and a group of invited consultants, if necessary.	No action
394	Taking into consideration the substantial extra-budgetary support obtained from Member States and different international partners for IODE activities, **the Committee requested** that the regular programme component should appropriately reflect these successful efforts made by IODE to obtain extra-budgetary resources, seen as counterpart contributions by many donors.	IODE Chair to contact Exec Sec IOC
395	The Delegate of Belgium, Ms. S. Jans, informed the Committee that her Government would be able to provide some financial support to the IODE.	Contributions received 2001 and 2002

IODE-XVI Paragraph	Action	Status
396	The Delegate of Sweden, Mr J. Szaron and the Delegate of Mozambique, Mr A.O. Sitoe, informed the Committee that their governments were investigating the possibility to provide financial support to the IODE	No support received
397	**The Committee requested** the IODE National Co-ordinators to provide the Secretariat with an estimate of the in-kind resources made available by their governments for the IODE programme. It was felt that this support is a substantive contribution to extra-budgetary resources available to the IODE Programme and should therefore be identified as well.	None received
399	**The Committee invited the IOC Executive Secretary and IOC Governing Bodies** to strengthen the IOC's Ocean Services Section, responsible for IODE in the IOC Secretariat, by two additional permanent Professional staff members and to hire consultants as required.	1 consultant hired + 1 shared supernumerary
400	**The Committee called** on Member States to support the Programme through the secondment of experts or by allowing national experts to work on IODE Programme activities, on a full or part-time basis, from their home institution, under the guidance of the IODE Chairman and IODE Technical Secretary.	No action: needs CL

ANNEX VII

IODE-XVII (2003–2005) ACTION SHEET

No.	Para.	Action	By whom/ Timing
1	29	Close collaboration with WDC-MARE	All MS / Continuous
2	31	WDCs to develop tools for easy user access to data	WDCs / Continuous
3	33, Res. 1	Intersessional working group discussions and Report to IODE Review Team	Team members/ Feb 04
4	53,54	RNODCs in USA and Russia to discuss MARPOLMON data archiving and RNODC responsibility for pollution data	RNODCs Japan, Russia, USA/ Feb 04
5	57	Secretariat to take over tasks formerly covered by RNODC formats	IODE Secretariat/ Continuous
6	62	Establishment of RNODC-P.Gulf: completion of procedure	I.R. Iran/ As soon as possible
7	63	Establishment RNODC-GOSUD: start procedure	France / As soon as posible
8	66	Submission of national report on inter-sessional activities	Member States who did not submit yet/ As soon as possible
9	69	Member States who wish to establish IODE data centres to be provided with all necessary documentation (Send CL to all IOC Member States that have not yet established data centre)	IODE Secretariat/ May 03
10	69	Member States who wish to establish IODE data centres are requested to prepare business plan for review by IODE Officers. Offcers to provide all necessary feedback and advice	IOC Member States + IODE Officers/ Continuous
11	83	Organisation of a training course on remote sensing (as part of ODINAFRICA)	IOCINCWIO member states/ As soon as possible
12	95	Dr N. Mikhailov to discuss with Dr A. Suvorov his offer of facilities to host relevant data and services for the Black Sea region.	N. Mikhailov, A. Suvorov/ As soon as possible
13	97	Contact Member States, as well as organisations and projects active in the Caspian Sea region to seek close collaboration in relation to oceanographic data and information management.	Chair IODE/ July 03
14	97	Consider nominating IODE Regional Co-ordinator for Caspian Sea region (based upon responses on action para 97)	IODE Officers/ 04

No.	Para.	Action	By whom/ Timing
15	103	Prepare IODE capacity building proposals	IODE Regional co-ordinators/ January 05
16	108	Add link from OCEANIC website to ICES website	OCEANIC/ April 03
17	109	Member States to contribute cruise programmes and other relevant information to OCEANIC system (IODE S3ecretariat to send CL)	Member States + IODE Secretariat/ Continuous
18	117	Member States to consider mechanisms for ensuring maximum compliance with IOC data policy	Member States/ Continuous
19	126	IMPLEMENTATION Work Plan GEBCDMEP	GEBCDMEP/ Continuous
20	129	GEBCMDEP to meet prior to Hamburg meeting to discuss their leadership in assisting ocean biology and chemistry projects with the development of their data management plans	GEBCDMEP/ March–April 04
21	130	International conference on data management, focusing on multi-disciplinary, operational oceanography and geoscience data	France/ May–June 05
22	138	IMPLEMENTATION Work Plan GEMIM	GEMIM/ Continuous
23	142	Compare GETADE-IX work plan with JCOMM ETDMP work plan and report to IODE Officers any action items that can not be addressed by joint JCOMM/IODE ETDMP	GETADE Chair / Aug 03
24	143	IMPLEMENTATION Work Plan	JCOMM/IODE ETDMP/ Continuous
25	144, Rec 3	Merge GETADE and JCOMM ETDMP into JCOMM/IODE ETDMP	GETADE, ETDMP/ As soon as possible
26	151	Identify pre-1970 citations, as an important resource supporting data archaeology initiatives, for inclusion in ASFA (Chair to write Letter to ASFA Secretariat for discussion at 2003 ASFA Board)	ASFA Board/ May 03
27	158	Submit to IODE-XVIII proposal for a strategy on agreed standard (IODE) procedures for correcting/amending data, for all IODE data centres and other global archives	GTSPP/ October 04
28	162	Informal group of interested data centres to work with the Canadian XML team on further development of the XML brick concept. Interested centres to contact Dr Bob Keely (MEDS) and to map their existing point data to the XML brick structure and to report their finding to IODE-XVIII (IODE Secretariat to send out CL to IODE National Co-ordinators)	CL: IODE Secretariat/ April 04 Mapping: Informal group/ As soon as possible Report: October 04
29	163	SGXML to describe ‘vision’ of XML and report back to IODE-XVIII	SGXML/ October 04

No.	Para.	Action	By whom/ Timing
30	167	Invite FAO to participate in SGXML (IODE Secretariat to send letter to FAO)	IODE Secretariat/ April 03
31	176	Member States to actively participate in GOSUD pilot project (IODE Secretariat to send CL to Member States)	IODE Secretariat/ April 03
32	182	Investigate requirements and undertaken necessary work to make MEDI ISO compliant	Chair SG-MEDI/ July 03
33	183	Study compatibility of metadata systems with MEDI	Member States/ As soon as possible
34	184	Member States to utilize MEDI and to promote its use at the national level in relevant academic and ocean research facilities (IODE Secretariat to send CL)	CL: IODE Secretariat / April 03
35	190	Include a link to OceanExpert in websites so as to promote the service to the ocean data and information community as an IODE service	Member States / As soon as possible
36	191	Relocate OceanExpert server to IODE Project, Oostende, Belgium.	IODE Secretariat/ As soon as possible
37	198	IODE data centres to co-operate with OceanPortal by actively submitting sites to the system and by actively promoting the service at the national level.	IODE Data Centres/ Continuously
38	199	Relocate OceanPortal server to IODE Project, Oostende, Belgium to re-enable indexing service	IODE Secretariat/ As soon as possible
39	206	JCOMM to nominate expert to SG-OceanTeacher (IODE Secretariat to send letter to JCOMM Co-Presidents and other JCOMM Secretariats)	JCOMM/ As soon as possible
40	208	Develop modules on advanced ocean data and information management, and related technology, covering delayed mode as well as operational oceanographic data (continuous professional development)	SG-OceanTeacher / As soon as possible
41	209, 262	Actively participate in further development and maintenance of OceanTeacher by providing content	Member States and IODE data & information centres/ As soon as possible
42	210	Prepare draft curriculum to be used in graduate courses in marine science/oceanography; Make investigations how the proposed curriculum can be submitted to, and adopted by national education programmes.	SG-OceanTeacher / December 03
43	218	Develop 'BeeBox' Training Package for distribution to interested Member States and for use by IODE and other projects	IODE Secretariat / June 03
44	224	Prepare proposal for he next phase of the ODINAFRICA project focusing on development and dissemination of data and information products to assist in the sustainable management of marine and coastal areas (in	ODINAFRICA partner countries + IODE Secretariat/ October 03

No.	Para.	Action	By whom/ Timing
		collaboration with GLOSS, GOOS-Africa, IOGOOS, HAB, ICAM, etc)	
45	225	Request Flanders and other Member States to continue/start support for ODINAFRICA (Letter by Exec Sec IOC; CL by Exec Sec IOC)	Letter + CL: IODE Secretariat/ July 03 Support: Member States/ as from 2004
46	226	Hosting of internships for ODINAFRICA	Member States/ Continuous
47	228	Contact donor agencies and raise awareness about importance of ocean data and information management with the view of obtaining funding	Chair / September 03
48	230, Rec 1	ODINAFRICA	Member States / as from 2004
49	236, Rec 2	ODINCARSA support request	Member States / as from 2003
50	242	(i) utilise the feedback from the IOGOOS meeting in Mauritius (Action 1, Data Management Workshop) which would survey existing capacity in the region, (ii) the regional coordinator for IOCINDIO, assisted by the Secretariat is requested to seek an expression of interest from potential member states to join the ODINCINDIO project; and (iii) convene an initial planning workshop to further consider the objectives, outcomes and the work plan of the project and to identify potential funding sources	Chair IOCINDIO; Regional Co-ordinator IOCINDIO; IOGOOS/ June 03
51	248	Provide reports and documentation on national IODE related training activities to the Secretariat, to include in OceanTeacher	IODE national co-ordinators/ continuous
52	264	Review OceanTeacher and provide feedback to SG-OceanTeacher (CL to Member States and IODE National Co-ordinators)	CL: IODE Secretariat/ April 03 Feedback: Member States / September 03
53	265	Identify modules that need to be developed in close consultation with JCOMM DMCG and GOOS CB Panel, taking into consideration JCOMM and GOOS requirements	SG-OceanTeacher / Continuous
54	270	Actively participate in ‘populating’ the IODE and related websites through submitting content and/or by assuming the role of ‘editor’ for categories relevant to their expertise	IODE National Co-ordinators/ Continuous
55	272	Continue producing public awareness materials	IODE Secretariat/ Continuous
56	276	Keep the IODE Secretariat informed on national promotional activities so as to enable publicizing these on the IODE website	Member States / Continuous

No.	Para.	Action	By whom/ Timing
57	281, Res. 2	Establishment ad hoc working group on implications of GOOS and JCOMM development on IODE	Ad hoc group / Report by IODE-XVIII
58	290, Rec. 3	Merging of GETADE and JCOMM ETDMP (see also para. 144)	GETADE, ETDMP/ As soon as possible
59	298	Provide support for the development of OIT by the IODE Project Office	IODE Project Office/ As soon as possible
60	299	Jointly sponsored workshop on quality control and data assembly	JCOMM;IODE/ July, August 04
61	301, Rec. 5	Establishment of the OIT Pilot Project	JCOMM, GOOS, IODE/ as from 2003
62	304	Continue creating and maintaining close collaboration with the science and monitoring communities, especially through the development and implementation of joint projects.	Member States/ Continuous
63	306	Closer co-operation with research programmes, projects of GOOS' COOP and the ocean components of IGBP and WCRP, as well as with GOOS regional bodies.	Chair, IODE National Co-ordinators / Continuous
64	311	Assess Bilko software and how it can be used to develop capacity in coastal and marine remote sensing	Member States / September 03
65	319	Compile background information on the current objectives and structure of IODE	IODE Secretariat / August 03
66	320, Annex VIII	Consult Member States and stakeholders as part of the review through questionnaire	Review Team/ 2003–2004
67	327	Inform Task team (for IOC Strategic Plan for Oceanographic Data and Information Management) on proceedings of the IODE-XVII Session using Resolutions IODE-XVII.1 and Recommendation IODE-XVII.5	Chair / May 03
68	335, Rec. 4	Establishment of the IODE Project Office	IODE Secretariat
69	336	Ensure that business plan for the project office gives due and balanced consideration to both positive and negative aspects of decentralizing IODE secretariat operations.	IODE Secretariat/ May 03
70	353	Organisation of IODE-XVIII during period March–June 2005	IODE Secretariat / 2004–2005
71	355	Discuss formal and practical arrangements with Government of Italy	Chair, IODE Secretariat, Italy/ 2004–2005
72	357	Present Report, Resolutions and Recommendations to IOC-XXII	Chair/ June–July 03

ANNEX VIII

PROPOSAL FOR IMPLEMENTATION OF THE IODE REVIEW

Preamble
A short statement based on the introduction given by the Chair and covered in the background document.

The Review Team
The Committee acknowledged the Decisions of IODE-XVI and the suggestions contained within Document 31.

It is the view of the Committee that the Review Team should be seen as independent of IODE in order to ensure wide acceptance and endorsement of the outcomes of the Review. *It is suggested that an Officer from IODE participate in the Review, either in an ex-Officio capacity or as a member of the Review Team. [IODE XVII to Recommend]*

The Review Team will be selected from nominations provided by Member States and, as appropriate, key sponsoring bodies. In particular, ICSU would be asked for nominations and would participate in the selection of the Review Team.

The selection of the Review Team will take account of:

- Balanced participation from the Member States with a stake in the IODE;
- Expertise in the various technical aspects of IODE programmes and activities;
- Knowledge of the key groups, projects and entities relevant to IODE;
- Balanced representation of the clients and users of IODE services as well as stakeholders.

Need for consultancy
At this point, the Committee does not believe there should be an explicit allowance for consultancy support. However, the financial consideration listed below to make some allowance for additional support to the Review Team.

Conduct of the Review
The Committee recommends that the Review proceed on the basis of a series of questions related to the operation of IODE. These questions would also form the basis for wide consultancy among the Member States and other stakeholders. The Committee does not believe it is appropriate to prescribe the form of the Review Report, as suggested in Doc 31, and leaves this to the discretion of the Review Team in consultation with the IODE Secretariat and Chair.

Question 1. The IOC's International Oceanographic Data and Information Exchange (IODE) was established in 1961 to "*enhance marine research, exploitation and development by facilitating the exchange of oceanographic data and information between participating Member States and by meeting the needs of users for data and information products*".

(a) Is the structure within the Programmes of IOC and the relationship with non-governmental organisations still appropriate?

(b) Are there different arrangements that would be more effective?

(c) Are the linkages to other IOC Programmes and relevant Programmes of other Intergovernmental and Non-Governmental bodies effective and appropriate?

(d) Are the operations of the IODE consistent with agreed Data Policy?

Question 2. The main objectives of the IODE Programme are

(i) to facilitate and promote the exchange of oceanographic data and information;

(ii) to develop standards, formats and methods for the global exchange of oceanographic data and information;

(iii) to assist Member States to acquire the necessary capacity to manage oceanographic data and information and become partners in the IODE network;

(iv) to support international scientific and operational oceanographic programmes of IOC and WMO and their sponsor organisations with advice and data management services.

(a) Are these objectives still appropriate?

(b) If not, what changes and/or enhancements to these objectives are needed?

Question 3. The structure of the IODE is based on *[refer to the past Chair's paper in Document 31 and request a concise summary and schematic from the Secretariat]*.

(a) Is this structure efficient and effective for fulfilling the mission and objectives of IODE?

(b) Are the Terms of Reference of subsidiary bodies, Groups of Experts and Committees appropriate and effective?

(c) Are the procedures for the establishment, review and reporting of these bodies and groups effective and appropriate? What improvements should be considered?

Question 4. The objectives of IODE (Question 2 above) refer to the clients and users of IODE products and services.

(a) Is IODE adequately addressing the needs of its key clients and users?

(b) Are there gaps in the products and services of IODE that should be addressed, and are there uses and/or clients whose requirements are pertinent to the operation of the IODE?

(c) Are the mechanisms for feedback, evaluation and consultation from the users of IODE data and services adequate and appropriate?

Question 5. The IODE system forms a worldwide service oriented network consisting of DNAs (Designated National Agencies), NODCs (National Oceanographic Data Centres), RNODCs (Responsible National Oceanographic Data Centres) and WDCs (World Data Centres – Oceanography). During the past 40 years, IOC Member States have established over 60 oceanographic data centres in as many countries. Collaboration with the ICSU network of World Data Centres has been, and remains close.

(a) Is the network still relevant, effective and appropriate for discharging the objectives and mission of the IODE?

(b) What action should be taken, if any, to strengthen and/or modify this network to improve the services of IODE?

Question 6. Oversight and management.

(a) Are the methods for IODE review and assessment of Programmes and activities effective and appropriate?

(b) Are the structures, procedures and methods of IODE adequately described and documented?

(c) Are the management and oversight arrangements of IODE effective and appropriate?

(d) Are capacity enhancement activities adequately addressing Member State needs?

(e) Does the IODE have an appropriate and effective programme for outreach and communication of its activities?

Question 7. The Secretariat.

(a) Are the present arrangements for providing Secretariat support to the IODE and its various bodies, Groups and Committees efficient and effective?

(b) Is the past and current work programme of the IODE Secretariat adequately addressing the needs of IODE and Member states?

Schedule

March 2003:	Agree on the approach to the Review and the appointment of Review Team members (Action: IODE XVII).
July 2003:	Issue Circular Letter inviting nominations from Member States (Action: Exec Secretary, with replies by 8 weeks).
October 2003:	A Committee comprising the Exec. Sec., the Chair and Vice-Chair IODE, co-Chair of JCOMM and Exec. Director ICSU agree on the Chair and Members of the Review Team.
December 2003:	Initial meeting of Review Team
Late 2003:	Circulation of Questionnaire and beginning of interview process (complete by April 2004).
April 2004:	Initial feedback to IODE Officers (April 2004)
June 2004:	Interim Report to EC
December 2004:	Draft report to IODE Officers. Respond by Jan. 31 2005
March 2005:	Final Draft, for the attention of Member States and the IOC Assembly

Financial Implications

$65,000 support Review Team, meetings and travel and ad hoc consultancy requirements and publication of Final Report.

ANNEX IX

LIST OF ACRONYMS

ADCP	Acoustic Doppler Current Profiler
AOML	Atlantic Oceanographic & Meteorological Laboratory
APDRC	Asia-Pacific Data Research Centre
ARENA	A Regional Capacity Building and Networking Programme to Upgrade Monitoring and Forecasting Activity in the Black Sea Basin
ASFA	Aquatic Sciences & Fisheries Abstracts
AWI	Alfred Wegener Institute (Germany)
BATHY	Bathythermograph Reports
CASPCOM	Co-ordinating Committee on Hydrometeorology and Pollution Monitoring of the Caspian Sea
CBCG	Capacity Building Coordination Group (JCOMM)
CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources
CEP	Caspian Environment Programme
CLIVAR	Climate variability & Predictability
CMS	Content Management System
COD	Colour of Ocean Data Symposium
COMNAP	Council of Managers of National Antarctic Programmes
COOP	Coastal Ocean Observations Panel
CPPS	Comision Permanente del Pacifico Sur (Permanent Commission for the South Pacific)
DAC	Data Assembly Centre
DBCP	Data Buoy Co-operation Panel
DMCG	Data Management Coordination Group (JCOMM)
DBMS	DataBase Management System
DMPA	Data Management Programme Area (JCOMM)
DNA	Designated National Agency
EDIOS	European Directory of the Initial Ocean Observing System
ERFEN	Estudio Regional del Fenomeno El Nino (Regional Study of the Phenomenon known as ‘El Nino’ - Peru, Chile, Colombia, Ecuador)
ESA	European Space Agency
ESIMO	Unified System of Information for the World Ocean conditions (Russia)
ETDMP	Expert Team on Data Management Practises (JCOMM)
ETI	Expert Centre for Taxonomic Identification (Netherlands)
ETMC	Expert Team on Marine Climatology (JCOMM)
EU	European Union
EURASLIC	European Association of Aquatic Sciences Libraries and Information Centres
EURONODIM	European co-operative network for oceanographic data & information management
FAO	Food and Agriculture Organisation of the United Nations
FIGIS	Fisheries Global Information System (FAO)
GCOS	Global Climate Observing System (WMO)
GE-BCDMEP	IODE Group of Experts on Biological & Chemical Data Management & Exchange Practices

GEMIM	IODE Group of Experts on Marine Information Management
GETADE	IODE Group of Experts on Technical Aspects of Data Exchange
GIS	Geographic Information System
GLOBEC	GLOBal ocean ECosystems dynamics
GLODIR	Global Directory of Marine and Freshwater Professionals (OceanExpert)
GLOSS	Global Sea Level Observing System
GODAE	Global Ocean Data Assimilation Experiment
GODAR	Global Oceanographic Data Archaeology & Rescue Project
GOOS	Global Ocean Observing System
GOSIC	Global Observing Systems Information Centre
GOSUD	IODE Steering Group for Global Ocean Surface Underway Data
GSC	GOOS Steering Committee
GTS	Global Telecommunication System (WMO)
GTSPP	Global Temperature-Salinity Profile Project
HAB	Harmful Algae Blooms
IABP	International Arctic Buoy Programme
IAMSLIC	International Association of Aquatic and Marine Science Libraries and Information Centres
ICAM	Integrated Coastal Area Management
ICES	International Council for the Exploration of the Sea
ICSU	International Council of Scientific Unions
IFREMER	Institut Français de Recherche pour l'Exploitation de la Mer (France)
IGBP	International Geosphere-Biosphere Programme – A Study of Global Change
IGOSS	Integrated Global Ocean Services System (now subsumed with JCOMM)
INCOIS	Indian National Centre for Ocean Information Services (Indian)
INOCAR	Instituto Oceanográfico de la Armada (Ecuador)
IOC	Intergovernmental Oceanographic Commission
IOCARIBE	IOC Sub-Commission for the Caribbean & Adjacent Regions
IOCEA	IOC Regional Committee for the Central Eastern Atlantic
IOCINCWIO	IOC Regional Committee for the Co-operative Investigation in the North & Central Western Indian Ocean
IOCINDIO	IOC Regional Committee for the Central Indian Ocean
IOCSOC	IOC Regional Committee for the Southern Ocean
IODE	International Oceanographic Data & Information Exchange
IOGOOS	Indian Ocean Global Ocean Observing System
IOOS	Integrated Ocean Observing System (USA)
ISO	International Organisation for Standardization
ITIS	Integrated Taxonomic Information System (USA)
JAMSTEC	Japan Marine Science & Technology Centre (Japan)
JASIN	Joint Air-Sea Interaction Experiment
JCOMM	Joint WMO-IOC Technical Commission for Oceanography & Marine Meteorology
JGOFS	Joint Global Ocean Flux Study
JODC	Japan Oceanographic Data Centre (Japan)
LIFDC	Low-Income Food-Deficit Countries

MAMA	Mediterranean network to Assess and upgrade Monitoring and forecasting Activity in the region
MARPOLMON	Marine Pollution Monitoring System
MARUM	Centre for Marine Environmental Sciences (Germany)
MATER	Mass transfer and ecosystem response
MEDAR	Mediterranean Data Archaeology
MEDATLAS	Mediterranean Atlas
MEDBLACK	Mediterranean and Black Sea
MEDGOOS	Mediterranean Global Ocean Observing System
MEDI	Marine Environmental Data Inventory
MEDS	Marine Information Data Service (Canada)
MLIT	Ministry of Land, Infrastructure and Transport (Japan)
MML	Marine Mark-up Language
NASA	National Aeronautics and Space Administration (USA)
NEAR-GOOS	North-East Asian Regional Global Ocean Observing System
NICMAS	National Information Centre on Marine Sciences (India)
NODC	National Oceanographic Data Centre
NOP	National Oceanographic Programme
NPDBAP	North Pacific Data Buoy Advisory Panel
OBIS	Ocean Biogeographic Information System (Census of Marine Life)
OCEANIC	Ocean Information Center (USA)
ODAS	Ocean Data Acquisition Systems
ODIN	Ocean Data and Information Network
ODINAFRICA	Ocean Data & Information Network for Africa
ODINCARSA	Ocean Data & Information Network for Central & South America
ODINCINDIO	Ocean Data & Information Network for the Indian Ocean
ODINEA	Ocean Data & Information Network for Eastern Africa
ODINLAC	Ocean Data & Information Network for Latin American Countries
OIT	Ocean Information Technology
OOPC	Ocean Observation Panel for Climate
OSTC	Belgian Federal Office for Scientific, Technical & Cultural Affairs
PAGES	Past Global Changes
PANGAEA	Network for Geological and Environmental Data
PICES	North Pacific Marine Science Organisation
POGO	Partnership for the Observation of Global Oceans
QC	Quality control
RDMDB	NEAR-GOOS Regional Delayed Mode Data Base
RIHMI	All Russian Research Institute of Hydrometeorological Information (Russia)
RNODC	Responsible National Oceanographic Data Centres
RNODC-INDO	Responsible National Oceanographic Data Centre for the Indian Ocean
SCAR	Scientific Committee for Artic Research
SCOR	Scientific Committee for Oceanic Research
ST-OIT	Steering Team of the Ocean Information Technology Pilot Project
SG-OT	IODE Steering Group for Ocean Teacher
SGXML	Study Group on the Development of Marine Data Exchange Systems using XML

SOLAS	Surface Ocean-Lower Atmosphere Study
SOOP	Ship-of-Opportunity Programme
SVP	Surface Velocity Programme
TESAC	Temperature, Salinity, Currents
TOGA	Tropical Ocean & Global Atmosphere
TREDMAR	Marine Science Training & Education Programme
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific & Cultural Organisation
URL	Uniform Resource Locator
VLIZ	Vlaams Instituut voor de Zee (Flanders Marine Institute, Belgium)
VSAT	Very Small Aperture Terminal
WCRP	World Climate Research programme
WDC	World Data Centre
WDC-MARE	World Data Centre for Marine Environmental Sciences
WESTPAC	IOC Sub-Commission for the Western Pacific Region
WIOMSA	Western Indian Ocean Marine Science Association (Tanzania)
WMO	World Meteorological Organisation
WOD	World Ocean Database
WOCE	World Ocean Circulation Experiment
XML	eXtensible Markup Language

In this Series *Languages*

Reports of Governing and Major Subsidiary Bodies, which was initiated at the beginning of 1984, the reports of the following meetings have already been issued:

1.	Eleventh Session of the Working Committee on international Oceanographic Data Exchange	E, F, S, R
2.	Seventeenth Session of the Executive Council	E , F, S, R,Ar
3.	Fourth Session of the Working Committee for Training, Education and Mutual Assistance	E, F, S, R
4.	Fifth Session of the Working Committee for the Global Investigation of Pollution in the Marine Environment	E, F, S, R
5.	First Session of the IOC Sub-Commission for the Caribbean and Adjacent Regions	E, F, S
6.	Third Session of the *ad hoc* Task team to Study the Implications, for the Commission, of the UN Convention on the Law of the Sea and the New Ocean Regime	E, F, S, R
7.	First Session of the Programme Group on Ocean Processes and Climate	E, F, S, R
8.	Eighteenth Session of the Executive Council	E, F, S, R, Ar
9.	Thirteenth Session of the Assembly	E, F, S, R, Ar
10.	Tenth Session of the International Co-ordination Group for the Tsunami Warning System in the Pacific	
11.	Nineteenth Session of the Executive Council, Paris, 1986	E, F, S, R, Ar
12.	Sixth Session of the IOC Scientific Committee for the Global Investigation of Pollution in the Marine Environment	E, F, S
13.	Twelfth Session of the IOC Working Committee on International Oceanographic Data Exchange	E, F, S, R
14.	Second Session of the IOC Sub-Commission for the Caribbean and Adjacent Regions, Havana, 1986	E, F, S
15.	First Session of the IOC Regional Committee for the Central Eastern Atlantic, Praia, 1987	E, F, S
16.	Second Session of the IOC Programme Group on Ocean Processes and Climate	E, F, S
17.	Twentieth Session of the Executive Council, Paris, 1987	E, F, S, R, Ar
18.	Fourteenth Session of the Assembly, Paris, 1987	E, F, S, R, Ar
19.	Fifth Session of the IOC Regional Committee for the Southern Ocean	E, F, S, R
20.	Eleventh Session of the International Co-ordination Group for the Tsunami Warning System in the Pacific, Beijing, 1987	E, F, S, R
21.	Second Session of the IOC Regional Committee for the Co-operative Investigation in the North and Central Western Indian Ocean, Arusha, 1987	E, F
22.	Fourth Session of the IOC Regional Committee for the Western Pacific, Bangkok, 1987	E only
23.	Twenty-first Session of the Executive Council, Paris, 1988	E, F, S, R
24.	Twenty-second Session of the Executive Council, Paris, 1989	E, F, S, R
25.	Fifteenth Session of the Assembly, Paris, 1989	E, F, S, R
26.	Third Session of the IOC Committee on Ocean Processes and Climate, Paris, 1989	E, F, S, R
27.	Twelfth Session of the International Co-ordination Group for the Tsunami Warning System in the Pacific, Novosibirski, 1989	E, F, S, R
28.	Third Session of the Sub-Commission for the Caribbean and Adjacent Regions, Caracas, 1989	E, S
29.	First Session of the IOC Sub-Commission for the Western Pacific, Hangzhou, 1990	E only
30.	Fifth Session of the IOC Regional Committee for the Western Pacific, Hangzhou, 1990	E only
31.	Twenty-third Session of the Executive Council, Paris, 1990	E, F, S, R
32.	Thirteenth Session of the IOC Committee on International Oceanographic Data and Information Exchange, New York, 1990	E only
33.	Seventh Session of the IOC Committee for the Global Investigation of Pollution in the Marine Environment, Paris, 1991	E, F, S, R
34.	Fifth Session of the IOC Committee for Training, Education and Mutual Assistance in Marine Sciences, Paris, 1991	E, F, S, R
35.	Fourth Session of the IOC Committee on Ocean Processes and Climate, Paris, 1991	E, F, S, R
36.	Twenty-fourth Session of the Executive Council, Paris, 1991	E, F, S, R
37.	Sixteenth Session of the Assembly, Paris, 1991	E, F, S, R, Ar
38.	Thirteenth Session of the International Co-ordination Group for the Tsunami Warning System in the Pacific, Baja California, 1991	E, F, S, R
39.	Second Session of the IOC-WMO Intergovernmental WOCE Panel, Paris, 1992	E only
40.	Twenty-fifth Session of the Executive Council, Paris, 1992	E, F, S, R
41.	Fifth Session of the IOC Committee on Ocean Processes and Climate, Paris, 1992	E, F, S, R
42.	Second Session of the IOC Regional Committee for the Central Eastern Atlantic, Lagos, 1990	E, F
43.	First Session of the Joint IOC-UNEP Intergovernmental Panel for the Global Investigation of Pollution in the Marine Environment, Paris, 1992	E, F, S, R
44.	First Session of the IOC-FAO Intergovernmental Panel on Harmful Algal Blooms, Paris, 1992	E, F, S
45.	Fourteenth Session of the IOC Committee on International Oceanographic Data and Information Exchange, Paris, 1992	E, F, S, R
46.	Third Session of the IOC Regional Committee for the Co-operative Investigation in the North and Central Western Indian Ocean, Vascoas, 1992	E, F
47.	Second Session of the IOC Sub-Commission for the Western Pacific, Bangkok, 1993	E only
48.	Fourth Session of the IOC Sub-Cornmission for the Caribbean and Adjacent Regions, Veracruz, 1992	E, S
49.	Third Session of the IOC Regional Committee for the Central Eastern Atlantic, Dakar, 1993	E, F
50.	First Session of the IOC Committee for the Global Ocean Observing System, Paris, 1993	E, F, S, R
51.	Twenty-sixth Session of the Executive Council, Paris, 1993	E, F, S, R
52.	Seventeenth Session of the Assembly, Paris, 1993	E, F, S, R
53.	Fourteenth Session of the International Co-ordination Group for the Tsunami Warning System in the Pacific, Tokyo, 1993	E, F, S, R
54.	Second Session of the IOC-FAO Intergovernmental Panel on Harmful Algal Blooms, Paris, 1993	E, F, S
55.	Twenty-seventh Session of the Executive Council, Paris, 1994	E, F, S, R
56.	First Planning Session of the IOC-WMO-UNEP Committee for the Global Ocean Observing System, Melbourne, 1994	E, F, S, R
57.	Eighth Session of the IOC-UNEP-IMO Committee for the Global Investigation of Pollution in the Marine Environment, San José, Costa Rica, 1994	E, F, S
58.	Twenty-eighth Session of the Executive Council, Paris, 1995	E, F, S, R
59.	Eighteenth Session of the Assembly, Paris, 1995	E, F, S, R
60.	Second Session of the IOC-WMO-UNEP Committee for the Global Ocean Observing System, Paris, 1995	E, F, S, R

CONTINUED ON INSIDE OF BACK COVER

61.	Third Session of the IOC-WMO Intergovernmental WOCE Panel, Paris, 1995	E only
62.	Fifteenth Session of the International Co-ordination Group for the Tsunami Warning System in the Pacific, Papetee, 1995	E, F, S, R
63.	Third Session of the IOC-FAO Intergovernmental Panel on Harmful Algal Blooms, Paris, 1995	E, F, S
64.	Fifteenth Session of the IOC Committee on International Oceanographic Data and Information Exchange	E, F, S, R
65.	Second Planning Session of the IOC-WMO-UNEP Committee for the Global Ocean Observing System, Paris, 1995	E only
66.	Third Session of the IOC Sub-Commission for the Western Pacific, Tokyo, 1996	E only
67.	Fifth Session of the IOC Sub-Commission for the Caribbean and Adjacent Regions, Christ Church, 1995	E, S
68.	Intergovernmental Meeting on the IOC Black Sea Regional Programme in Marine Sciences and Services	E, R
69.	Fourth Session of the IOC Regional Committee for the Central Eastern Atlantic, Las Palmas, 1995	E, F, S
70.	Twenty-ninth Session of the Executive Council, Paris, 1996	E, F, S, R
71.	Sixth Session for the IOC Regional Committee for the Southern Ocean and the First Southern R Ocean Forum, Bremerhaven, 1996	E, F, S,
72.	IOC Black Sea Regional Committee, First Session, Varna, 1996	E, R
73.	IOC Regional Committee for the Co-operative Investigation in the North and Central Western Indian Ocean, Fourth Session, Mombasa, 1997	E, F
74.	Nineteenth Session of the Assembly, Paris, 1997	E, F, S, R
75.	Third Session of the IOC-WMO-UNEP Committee for the Global Ocean Observing System, Paris, 1997	E, F, S, R
76.	Thirtieth Session of the Executive Council, Paris, 1997	E, F, S, R
77.	Second Session of the IOC Regional Committee for the Central Indian Ocean, Goa, 1996	E only
78.	Sixteenth Session of the International Co-ordination Group for the Tsunami Warning System in the Pacific, Lima, 1997	E, F, S, R
79.	Thirty-first Session of the Executive Council, Paris, 1998	E, F, S, R
80.	Thirty-second Session of the Executive Council, Paris, 1999	E, F, S, R
81.	Second Session of the IOC Black Sea Regional Committee, Istanbul, 1999	E only
82.	Twentieth Session of the Assembly, Paris, 1999	E, F, S, R
83.	Fourth Session of the IOC-WMO-UNEP Committee for the Global Ocean Observing System, Paris, 1999	E, F, S, R
84.	Seventeenth Session of the International Coordination Group for the Tsunami Warning System in the Pacific, Seoul, 1999	E, F, S, R
85.	Fourth Session of the IOC Sub-Commission for the Western Pacific, Seoul, 1999	E only
86.	Thirty-third Session of the Executive Council, Paris, 2000	E, F, S, R
87.	Thirty-fourth Session of the Executive Council, Paris, 2001	E, F, S, R
88.	Extraordinary Session of the Executive Council, Paris, 2001	E, F, S, R
89.	Sixth Session of the IOC Sub-Commission for the Caribbean and Adjacent Regions, San José, 1999	E only
90.	Twenty-first Session of the Assembly, Paris, 2002	E, F, S, R
91.	Thirty-fifth Session of the Executive Council, Paris, 2001	E, F, S, R
92.	Sixteenth Session of the IOC Committee on International Oceanographic Data and Information Exchange, Lisbon, 2000	E, F, S, R
93.	Eighteenth Session of the International Coordination Group for the Tsunami Warning System in the Pacific, Cartagena, 2001	E, F, S, R
94.	Fifth Session of the IOC-WMO-UNEP Committee for the Global Ocean Observing System, Paris, 2001	E, F, S, R
95.	Seventh Session of the IOC Sub-commission for the Caribbean and Adjacent Regions (IOCARIBE), Mexico, 2002	E, S
96.	Fifth Session of the IOC Sub-Commission for the Western Pacific, Australia, 2002	E only
97.	Thirty-sixth Session of the Executive Council, Paris, 2003	E, F, S, R
98.	Twenty-second Session of the Assembly, Paris, 2003	E, F, S, R
99.	Fifth Session of the IOC Regional Committee for the Co-operative Investigation in the North and Central Western Indian Ocean, Kenya, 2002 (* Executive Summary available separately in E, F, S & R)	E*
100.	Sixth Session of the IOC Intergovernmental Panel on Harmful Algal Blooms, St. Petersburg (USA), 2002 (* Executive Summary available separately in E, F, S & R)	E*
101.	Seventeenth Session of the IOC Committee on International Oceanographic Data and Information Exchange, Paris, 2003 (* Executive Summary available separately in E, F, S & R)	E*