INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION
(of UNESCO)

Fifteenth Session of the IOC Committee on
International Oceanographic Data and Information Exchange
(Athens, Greece, 23-31 January 1996)

ANNOTATED PROVISIONAL AGENDA

1. OPENING

The official opening of the Session will be held at 10:00 on Tuesday, 23 January 1996 at the Zappeion International Conference Centre in Athens, Greece.

The Session will be inaugurated by Dr. J.R. Wilson, Chairman of the IOC Committee on IODE and will be followed by the welcoming addresses of the representatives of the host country and IOC.

2. ADMINISTRATIVE ARRANGEMENTS

2.1 ADOPTION OF THE AGENDA

The Provisional Agenda (Doc.IOC/IODE-XV/1 prov) will be considered for adoption. The Agenda may be amended at any stage during the Session in accordance with the procedures presented in Rule No. 9 of the Revised Rules of Procedure (Doc.IOC/EC-XXVII/Inf.1).

2.2 DESIGNATION OF RAPPORTEURS

The Session will designate Rapporteurs under Rule No. 253 of the IOC Rules of Procedure (Doc.IOC/INF-785).

2.3 CONDUCT OF THE SESSION, TIME-TABLE AND DOCUMENTATION

The Technical Secretary of the Session will propose a Time-Table for the Session (Doc.IOC/IODE-XV/1 add. prov) and present the List of Documents (Doc.IOC/IODE-XV/4 prov), and briefly review the documentation.

The working hours for the Session, establishment of ad hoc sessional working groups to deal with particular items and any other details relevant to the conduct of the Session will be determined.

The working languages of the Session will be English, French, Spanish and Russian. Ad hoc groups will work in English only.

2.4 LOCAL ARRANGEMENTS

The Representative of the local Organizing Committee will inform the Session on local arrangements.

3. STATUS OF THE GLOBAL DATA AND INFORMATION EXCHANGE

3.1 REPORT OF CHAIRMAN ON INTERSESSIONAL ACTIVITIES

The Chairman will present his report on intersessional activities and will identify challenges and requirements for new directions which the Committee may wish to consider for the future (Doc.IOC/IODE-XV/6).
The Committee will also be presented with the updated summary as of November 1995, of actions taken during the intersessional period for implementation of the decisions and recommendations of IODE-XIV (IOC/IODE-Consultative/3 and IOC/IODE-Consultative/3 Addendum 1).

The Committee will keep this information in mind for discussion of the relevant agenda items.

3.2 MONITORING GLOBAL OCEAN DATA FLOW

Three instruments have been developed by IOC to monitor global ocean data flow: the National Oceanographic Programmes with an aim of informing other IOC Member States of the intention to conduct research cruises or research programmes. NOPs can serve as an early notice to the IODE system that the data can be expected and also provide an opportunity for the development of co-operative programmes; the Cruise Summary Report (CSR, former ROSCOP form) with the general purpose of reporting on measurements and samples collected at sea. This report should be completed and sent to one of the addresses mentioned in the CSR form as soon as possible after completion of the cruise or observation programme. By completing and submitting the CSR, a Member State informs the IODE system that data has been collected; the MEDI Referral System contains technical descriptions of the marine data holdings of the IODE data centres and other participating organizations.

The Technical Secretary will inform the Commission on the submission of NOPs by the IOC Member States during the intersessional period, will identify shortcomings and propose ways to overcome them (Doc.IOC/IODE-XV/7). The representative of ICES and WDCs Oceanography Directors will report on the submission of CSR to their respective centres and on the procedures established in their centres for increasing accessibility to, and usage of information contained in CSR.

The Representative of the IOC Secretariat will inform the Committee on the progress achieved in the development of the MEDI Referral System and suggest new approaches (Doc.IOC/IODE-XV/8).

The Committee will be invited to suggest solutions for making monitoring mechanisms more effective.

3.3 ACTIVITIES OF WORLD DATA CENTRES

The Directors of the World Data Centres for Oceanography (A,B and D) will inform the Committee of the activities of their respective centres (Doc.IOC/IODE-XV/9). Two meetings of the IODE Officers were held with the participation of WDCs, Oceanography Directors: one in Ottawa, Canada, 22-24 November 1993 and the other in Paris, France, 16-17 March 1995.

Participation of WDCs in ocean data flow monitoring activities, improvement of co-operation between WDCs, Oceanography, usage of electronic bulletin boards for distribution of WDCs updates on data holdings and other issues targeted on the upgrading of WDCs activities were in the agenda of these meetings.

The Chairman of the ICSU Panel on WDCs will be invited to present the ICSU views on the place and role of WDCs in the changing world (Doc.IOC/IODE-XV/10). The document will contain a discussion as to the role that is seen for IODE by WDCs and what IODE can do to assist the WDCs in meeting new needs and requirements for ocean data of the global scientific community.

The Committee will be requested to take note of the information and provide guidance and advice for further actions needed to identify the role and responsibilities of WDCs (Oceanography) in the light of present plans for climate and global change experiments. The Committee will identify actions to be taken for improving and further developing the IODE-WDC partnership with a view to better sharing the increasing workload and to help in finding additional resources so as to meet the requirements for close and effective co-operation of all types of data centres of the IODE system.

3.4 NATIONAL DATA AND INFORMATION MANAGEMENT ACTIVITIES

The letter of invitation for IODE-XV of 11 April 1995 contained a request to submit reports on national activities in marine data and information management to the IOC Secretariat by the end of October. Available reports will be compiled by the Secretariat in Doc.IOC/IODE-XV/9 and open for discussion. Any Delegation wishing to provide additional information on national activities will be welcome to do so. The Committee will be informed on the successful implementation of the Regional Co-operation in scientific information exchange on Eastern Africa.
(RESCIX-WIO) and will be presented with a project proposal for the development of a regional data exchange system in the IOCINCWIO region (Doc.IOC/IODE-XV/13).

The Committee will be invited to comment on the reports and proposals and provide advice on how to increase governmental support for management of marine data and information at the national level; how IODE can help national centres; how to increase the involvement of national centres in the implementation of IODE regional commitments; and how to facilitate further co-operation between data and information centres on regional and global scales.

3.5 IODE AND THE GLOBAL OCEAN OBSERVING SYSTEM (GOOS)

Data management, data distribution and products and services are key areas of GOOS.

There is an international consensus that the future GOOS will be developed where possible from existing meteorological and oceanographic service programmes. The possibility to do this for the areas of data management and dissemination is considerable, given a relatively well-established international infrastructure of IGOSS and IODE. The Vice-Chairman for IGOSS will present a paper on IGOSS and IODE Data Management goals to support GOOS for decisions and comments (Doc.IOC/IODE-XV/11). The Committee will consider the ways along which IODE is going to provide its structure, experience and talents to meet GOOS objectives.

An update of the GOOS planning activities will be presented to the Committee by the Director of the GOOS Support Office. The Chairman of the Global Climate Observing System Data Management Panel will inform the Committee on the progress achieved by this Group and present the GCOS Data Management Plan for information.

The reports of the I-GOOS meetings in Melbourne, Australia (May 1994) and Paris (June 1995) will be provided for information.

The Committee will be invited to suggest mechanisms to strengthen IODE to better support the GOOS requirements.

4. PROGRAMME MATTERS

4.1 IODE GROUPS OF EXPERTS

4.1.1 Group of Experts on RNODCs and Global Programmes

The Chairman of the Group of Experts on RNODCs and Global Programmes will present the Summary Report of the Third Session of the Group which will take place at the Centre IFREMER de Brest, France in October 1995 (Doc.IOC/IODE-CD-III/3). He will describe the main activities of the Group during the intersessional period (Doc.IOC/IODE-XV/12) and focus attention on the deliberations and decisions of the Third Session.

The Group will discuss the current status of the development of new structures of data management, access and distribution within the different RNODCs (WEB servers, on-line Internet access, CD-ROM production). Results of the consideration of requests and offers for new RNODCs will be also reported.

The concept of globally distributed databases has been widely accepted under the auspices of the global programmes and/or observing systems, such as GOOS and GCOS. Concern was expressed concerning the ability and appropriateness of RNODCs to deal with the diversity of new data types collected within these programmes necessary to properly address the issue of long-term climate change (CO2, chemicals, tracers) and to satisfy the new demands of users with respect to oceanic products and the timeliness of their availability. This may require a new generation of RNODCs based on a distributed network of data centres providing specific skills and expertise.

The Group will examine the progress of the work of the GCOS data and information management panel and the results of the planned survey of identifying the match of the functionality of existing centres to GCOS needs. The conclusions that the Group draw from this survey will be brought to the attention of the Committee.

The Heads of RNODCs will be invited to give reports on activities of their centres, identify problems in the implementation of the Terms of Reference and give recommendations for overcoming them (Doc.IOC/IODE-XV/9).
WDCs, Oceanography have been called to accession as much historical data as possible in order to augment the databases required for support of Climate Research and Global Change Programmes. The Heads of the WDCs will report the progress.

The Committee will consider the Summary Report of the Third Session of the Group and adopt Recommendations. The Committee will provide guidance on the enhancement of the RNODC component of the IODE system and discuss proposals for new RNODCs, if any.

4.1.2 Group of Experts on Technical Aspects of Data Exchange (GE-TADE)

The Chairman of the Group of Experts on Technical Aspects of Data Exchange will inform the Committee on intersessional activities and present the Summary Report of the Sixth Session of GE-TADE (Doc.IOC/TADE-VI/3) held in Geneva, Switzerland, 22-29 June 1994, for consideration and approval.

In reference to the Recommendations of the joint IOC-WMO Committee for IGOSS and the Committee on IODE, the Sixth Session was arranged jointly with the IGOSS Group of Experts on Operational and Technical Applications to discuss issues of mutual interest. Those issues of joint interest to IGOSS and IODE included a discussion of the Binary Universal Forms of Representation (BUFR), data monitoring, quality control procedures, GF3 format, as well as co-operation with other international programmes. The Head of RNODC-Formats will inform the Meeting on the progress made by the Centre in 1993-1995 with the new Terms of Reference and recommend future actions (Doc.IOC/IODE-XV/9) especially on the usage of GF3 format.

The Committee on IODE at its Fourteenth Session, "recommended to have the next Workshop in 1995 on the topics related to technologies development which can considerably improve data management". The Chairman of the Group will inform the Committee on the actions taken in implementing this recommendation.

The work of this Group of Experts must change to respond to the new realities of electronic data exchange made possible by the use of Internet. This must include a consideration of data formats appropriate for this form of data exchange and presentation of information, data and products by data centres using the World Wide Web. In addition, new instrumentation will require a greater flexibility and responsiveness in the development of formats. Likewise, the manipulation puts greater demands on data centres to respond to a blossoming variety of data submission forms. Because of these changes, the Terms of Reference of this Group need to be changed. Draft terms are presented in Doc.IOC/IODE-XV/12 and will be presented by the GE-TADE Chairman.

The Committee will be requested to accept the GE-TADE Summary Report, approve the recommendations of the Sixth Session and those presented by the GE-TADE Chairman, and provide guidance for the future activities of the Group.

4.1.3 Group of Experts on Marine Information Management (GE-MIM)

The Chair of the Group of Experts on Marine Information Management will present the report of the Fourth Session of GE-MIM held in Washington DC, USA, 6-9 October 1993 (Doc.IOC/IODE-MIM-IV/3) and the Executive Summary of the Fifth Session of GE-MIM held in Athens, Greece, 17-19 January 1996 (Doc.IOC/IODE-XV/12).

The Committee will be informed of the Group's publications policy and in particular its achievement of defining standards for directories and bibliographic databases. Attention will also be given to its wide-ranging investigations into electronic communication, document delivery and electronic publishing, taking into consideration the needs of developing countries. The Committee may also wish to use this information for discussions under Agenda item 5.2.2.

The Committee will hear of the Group's activities on the development of regional marine information networks in developing countries and regions, in promoting support to developing countries by information-rich communities and of the progress of co-operative projects within IODE to produce integrated data and information projects such as the GTSPPP CD-ROM. Taking into consideration the importance of new technologies in dissemination, and exchange of information and data, the Committee will be presented with a demonstration of intersessional pilot projects utilizing the World Wide Web (Doc.IOC/IODE-XV/14).
Relevant parts of the National Reports of activities of Member States in Information Management will be presented to the Committee by representatives of Member States.

The Committee will be requested to approve recommendations of the GE-MIM meetings in Washington and Athens, comment on project proposals and recommend the IODE Chairman and the Secretary IOC, actions to make marine information management more effective.

The IOC staff member responsible for the co-ordination of the IOC MIM-related activities will refer the Committee to the implementation of Resolution XVII-7 'Development of ASFIS/ASFA and the IOC Future Role in it' to the results of the inter-secretariat consultations on ASFA which took place in Rome in March 1993, and to the ASFA Advisory Board meetings of 1993 (Paris, France), 1994 (Tianjin, China) and 1995 (Hamburg, Germany). The negotiations with FAO and other UN agencies to secure the future development of ASFIS/ASFA have been successfully implemented and a new structure of co-operation with UN agencies, National partners and the publisher has been organized. A report on the ASFISIS software for computerized preparation of ASFA input recommended by GEMIM-IV will also be presented under this Agenda item.

The Committee will note the discussion, as well as the decisions of the 1994 and 1995 ASFA Advisory Board meetings and will provide guidance to the Secretary IOC regarding expansion of the ASFIS system, especially in developing countries, and the further promotion of ASFIS through IOC mechanisms.

4.2 PRODUCTS AND SERVICES

4.2.1 Global Temperature and Salinity Pilot Project (GTSPPP)

The implementation of GTSPPP has started from 1990 and since then, a substantial amount of progress has been made.

The joint IOC-WMO Steering Group on Global Temperature-Salinity Pilot Project met during the intersessional period in Ottawa, Canada, 15-19 November 1993 (Doc.IOC/INF-979). However, the GTSPPP development was on the agenda of many IODE and IGOSS meetings, e.g., of OceanPC, OTA and GE-TADE, and GTSPPP was also represented at several meetings of subgroups of the WOCE Upper Ocean Thermal Experiment. The progress in GTSPPP was also reported to the IOC Assembly at its Seventeenth Session (Doc.SC/MD/101) which, "considered its development as an outstanding achievement".

At the Assembly, "some delegates expressed the wish to have GTSPPP datasets available for the international community without delay". In 1995, the publication of the GTSPPP CD-ROM series has been started as a joint effort between MEDS, US NODC and the IODE GE on MIM. In July 1995, up to 250 copies of the first CD-ROM were sent free of charge to the GTSPPP participants and developing countries.

The Chairman of the Steering Group will present a progress report (Doc.IOC/IODE-XV/12) to the Committee for consideration. The Committee will give comments on the activities and the content of the CD-ROM and guidance for the future development of the project.

4.2.2 Global Ocean Data Archeology and Rescue Project (GODAR)

The IOC Committee on IODE at its Fourteenth Session proposed a new project on Global Ocean Data Archeology and Rescue (GODAR) which was approved by the Seventeenth Session of the IOC Assembly in March 1993.

The GODAR project emphasizes importance of the digitization of data now known to exist only in manuscript and/or analog form, rescue of digital data that are at danger of being lost and performing quality control on all data, and making all data accessible on various media including CD-ROMs, as well as standard magnetic tapes. The project is focussing on physical chemical and biological oceanographic data, as well as surface marine meteorological observations.

Since March 1993, 4 regional GODAR Workshops have been arranged in Obninsk, Russian Federation for Eastern and Northern Europe; in Tianjin, China for WESTPAC countries; in Goa, India for the countries bordering the Indian Ocean; in Valletta, Malta for countries bordering the Mediterranean Sea; the relevant IOC Workshop Report will be available for information.
The two-year effort resulted in the publication of the World Ocean Atlas 1994, available in hard copy form and on a set of 9 CD-ROMs. The publication of Reports on Oceanographic Records made available through the NODC and IOC Oceanographic Data Archeology and Rescue projects were started in 1994. Approximately, 1.5 million temperature profiles and 500,000 salinity profiles have been archived at the WDC-A as a result of the GODAR project.

A direct scientific result of the GODAR project was the creation of datasets that allow the intersessional research community to describe the inter-annual variability of upper ocean thermal structure. In addition, enough data is now available to begin construction of yearly upper ocean thermal anomaly fields for large parts of the World Ocean for selected time periods.

The Project Leader will describe project results to date and present plans for the future (Doc.IOC/IODE-XV/12).

The Committee will be invited to express it's views on the progress achieved and recommend future actions.

4.2.3 Publications and Information Products

The Committee will be given an overview of the new MIM Publication Series and the utilization of new technologies to network MIM Information Products. Progress on some MIM initiatives: the MEDI Catalogue, the Infobase of IOC Publications, the Global Directory of Marine Scientists and Electronic Document Delivery, will be described with some suggestions on capacity building to enable developing countries to participate in the information revolution where full text and images are available on computer networks such as World Wide Web.

The Committee will be requested to (i) provide guidance on the efficiency of IOC's publications and information products in reaching the target audiences in the Member States and on ways to improve it through the use of new technologies such as CD-ROMs and Internet; (ii) recommend ways of facilitating access to Internet for developing countries and provide guidance on information gaps perceived by the data community, where co-operation between the data community would provide an information product for utilization by both developed and developing countries.

4.2.4 Quality Control of Oceanographic Data

The Committee at the Fourteenth Session, "decided to continue the activities of the Task Team on Oceanographic Data Quality Control with revised Terms of Reference and adopted Resolution IODE-XIV.5". In accordance with this Resolution, the main activity of the Task Team during the intersessional period was to finalize and distribute the IOC-CEC Manual on Quality Control Procedures for Validation of Oceanographic Data and keep it updated. The Manual was published by IOC with support from CEC (IOC/CEC Manual No. 26, UNESCO 1993, 436 pp). It contains quality control procedures for almost 20 data types and it is expected to publish the updates and materials on other parameters in later editions.

The editor of the Manual will provide detailed information on the publication, updates to the Manual and future plans. The Committee will comment on the document and consider further steps to be taken for the improvement of quality control practices.

The Committee may wish to consider the future role of the Task Team, taking into account the need in supporting the regular updating and maintenance of the Joint IOC-CEC Manual on Quality Control Procedures and noting that quality control issues are being covered by several bodies. The Chairman of the GE-TADE will be invited to report on activities concerning quality control issues addressed during the intersessional period. He will report on the results of investigations by an IGOSS Group of Experts into XBT fall-rate problems (IOC Technical Series No. 42) and actions arising from GTSPP and WOCE co-operation.

4.3 CAPACITY BUILDING

4.3.1 OceanPC and Software Development

OceanPC has made steady progress over the intersessional period. In spite of the fact that the programme suffered from a low level of funding until recently when several opportunities opened up for new funding (recent contributions were received from the USA, NOAA, from the CEC-MAST and SAREC), the Project Leader and the IOC Secretariat succeeded in organizing 3 OceanPC Co-ordination meetings resulting in the production of the initial software package and a subsequent update.
To date, over 50 requests for the OceanPC software have been received from 27 countries. A regular column in the IMS Newsletter has been developed to highlight software of interest to the oceanographic community and plans to expand to other newsletters are underway.

OceanPC training activities were conducted for Southeast Asia, Eastern Africa, with segments in data management courses in Northern Africa and the Islamic Republic of Iran. A new initiative of training of instructors in OceanPC was implemented jointly and with the support of ICES, in March 1995.

A detailed programme review was accomplished in the spring of 1995 in conjunction with an IODE Think Tank Meeting. The Meeting strongly recommended expansion of the OceanPC activity as the IODE user interface with efforts to make it more interesting to potential funding agencies such as the World Bank. The Meeting noted that this would require a major development effort to provide a more marketable item including not only software but also equipment. This will require a significant increase in programme funding to make the necessary preparations and contacts in Trondheim, Norway, 20-24 March 1995. Reference will be made to Doc.IOC/IODE-XV/15 describing the results of the Think Tank Meeting.

The OceanPC Project Manager will present documents describing the progress to date, training course results and the results of the recent co-ordination meeting (Doc.IOC/IODE-XV/12).

The Committee will be requested to provide advice on further development and implementation of OceanPC. In particular, to identify resources needed for the product development recommended by the Think Tank Meeting.

4.3.2 Training Programmes in Marine Data and Information Management

The IOC Assembly at its Seventeenth Session approved Recommendation IODE-XIV.8 on the IODE Programme and Budget for 1993-1995. Annex I of this Recommendation includes, inter alia, description of the major efforts of the Committee in the intersessional period and among them, "to undertake a training programme which will include, not only traditional IODE subjects, but also new initiatives like data archeology and OceanPC".

Thanks to support from the IOC Member States and from international organizations and bodies (ICES, ICSU, CEC, SAREC) the Committee succeeded in implementing a wide range of training courses and workshops in ocean data management of a special and general nature. More than 50 trainees received training and almost 15 training exercises were carried out in Africa, Asia, Europe and South America. The course Summary Reports will be made available to the Committee. Advisory missions have been arranged to a few Member States of Africa, Asia and Europe, to help them in establishing marine data collection and management infrastructures. As a result, new data centres have been established.

The Vice-Chairman of the IOC Committee on IODE will inform the Committee of the implementation of the training programme specified in Annex II of the above-mentioned Recommendation. He will identify benefits and constraints in using a regional approach in the training programme, will present an idea of training key people and recommend new approaches for increasing course effectiveness (Doc.IOC/IODE-XV/16). The deliberations of the Consultative Meeting on TEMA held in Paris, 22-24 March 1995, will be brought to the attention of the Committee (Doc.IOC-XVIII/2 Annex 6).

A set of draft standard modules for courses in marine data and information management will be presented for approval to the Committee (Doc.IOC/IODE-XV/17) by the Chairman of the Group of Experts on Marine Information Management. Training materials were also produced in a video cassette form and a prototype cassette will be demonstrated to the Committee by a representative of Argentina.

The Committee will be requested to consider the training activities accomplished, to review the various constraints that have hampered the effective participation of developing countries in the regional implementation of the programmes and to provide guidance for training activities to be planned for the next intersessional period.

4.3.3 Voluntary Co-operation Programme (VCP) and IODE Needs

One of the mechanisms to assist IOC Member States in capacity building is a Voluntary Co-operation Programme (VCP). The need to strengthen the VCP support for the IODE system was noted at the Fourteenth Session of the IODE Committee. However, during 1993-1995, very little support has come through the VCP. In some cases when the VCP support was provided, it has consisted of out-dated equipment that was difficult to repair or effectively use
for ocean data and information management. To meet new requirements and needs for ocean data, the equipment
given through the VCP need to be the state-of-the-art PCs capable of managing a wide variety of data by running
the OceanPC, GODAR and GTSSP software effectively.

The Committee will be invited to provide guidance on the enhancement of VCP support, particularly in the
 provision of equipment and software.

5. RESULTS OF THE THINK-TANK MEETING

The IODE Think-Tank Meeting was held at UNESCO Headquarters in Paris, 13-15 March 1995. The Meeting was
well attended with participants and experts from IOC ocean programmes and a wide variety of client programmes,
in the oceanographic and meteorological communities. Under this Agenda item, the Meeting will consider the
recommendations and ideas that were developed at the Think-Tank Meeting for several aspects of the IODE
programme (Doc.IOC/IODE-XV/15).

5.1 NOT YET ROUTINELY EXCHANGED DATA TYPES - STATUS AND WAYS OF ACCOMMODATION

The Think-Tank Meeting noted that the science programmes of the present and future decades have a clear need for
data and information services that encompass a broad variety of data types that are not routinely handled in IODE.
IODE has a historical pre-disposition towards physical oceanographic data that will have to be expanded. There is
an urgent need to increase the skills and capabilities of IODE data centres in handling additional chemical,
biological and remotely-sensed data types. In particular, it was noted that this building of skills in the IODE Data
Centres should best be accomplished by entering into partnerships with the programmes gathering the data. These
partnerships would result in improved communications and understanding between the scientists and data managers
in the programme producing the new data type and the IODE data centre staff.

Under this Agenda item, the Committee will be informed on the progress in the intersessional period towards
handling new data types and will be invited to provide guidance on improving exchange of data and information for
new data types.

5.1.1 Remote-sensed Data

The Seventeenth Session of the IOC Assembly, "noted the important contribution of satellites to both ocean
research and operational oceanography" and "stressed the need for further efforts to promote the utilization of
remotely-sensed data by all countries through training courses and symposia".

During the intersessional period, IOC continued to work to promote the utilization of remotely-sensed data by all
countries in various fora, including the Committee on Earth Observing Satellites (CEOS). In particular, IOC
promoted this viewpoint at the CEOS Workshop on Developing Country Activities (San Jose dos Campos, Brazil,
9-12 May 1994). As a result, the Workshop concluded that, "CEOS members are committed to assist developing
countries", that "a number of CEOS members, observers and affiliates currently have activities underway that
support developing countries" and that the "successful plan of action must identify the needs of the developing
country to create user demand rather than technology push". The goal was to, "contribute to achieve sustainable
economic development and environmental management through expanded research, application and operational
use of earth observation data in developing countries". IOC has followed up on these conclusions by approaching
the National Space Development Agency of Japan, the US National Aeronautics and Space Administration and the
Community of European Communities/European Space Agency, for support for network and product development,
as well as training in developing countries. The results of these communications will be reported to the Committee.

In order to more adequately respond to the needs of the ocean community, the IOC in co-operation with WMO,
established the joint CMM-IGOSS-IODE Sub-group on Oceanic Satellites and Remote-Sensing. This Group held
its first meeting in Paris, 19-22 September 1994, and laid the framework for publication of an annual report
covering a wide range of material related to ocean remote-sensing. In particular, it reviewed the preliminary list of
ocean satellite requirements and set up the framework for maintenance and development of this list. This list of
requirements is a direct input to CEOS and was incorporated in Volume III of the CEOS dossier. The Group also
began the task of assembling a list of potential instructors for training activities. The Chairman of the Group was
made a member of the WMO Working Group on Satellites and the IOC was invited to be an observer of that
Group. As a result, IOC and WMO will co-operate in the development of specialized Regional Meteorological
Training Centres that will conduct training in oceanographic, as well as marine meteorological remote-sensing
activities. A proposal for development of these centres was also submitted to CEOS for funding by its members. The Representative of WMO will be invited to inform the Committee on the progress in this field.

Data and information management and distribution are key aspects of the IOC remote-sensing programme. Recent events within CEOS indicate that data management is of high interest to the satellite community. In particular, there is a need for joint activities with in situ collection programmes for data systems and product development. Efforts within IODE must be increased and resources identified to take advantage of this opportunity to increase the utilization of remotely-sensed data, especially in developing countries.

The Secretariat will present the report of the First Session of the CMM-IGOSS-IODE Sub-group on Oceanic Satellites and Remote-sensing and call to the attention of the Meeting any recent events of interest.

The Committee will be requested to provide advice on further development and implementation of the data and information management with respect to IOC ocean remote-sensing activities.

Member States with space-faring capabilities will be invited to co-operate with IOC in the development of proposals to national space agencies for support in developing country activities.

5.1.2 Carbon Dioxide, Biological and Pollution Data

At the IODE-XIV Meeting, the offer of the US NODC to take the lead in developing requirements and suggestions for exchange of CO₂ and new types of chemical data was accepted with appreciation. The Chairman of an Ad hoc Group of Rapporteurs on chemical and carbon dioxide data will report on the progress achieved in the intersessional period (Doc.IOC/IODE-XV/12). Under this Agenda item, the Committee will also be informed of the progress on biological and pollution data.

The Committee will be requested to consider available information and recommend steps needed to meet the requirements of scientific communities in CO₂, biological and pollution data. The Committee will consider ways of improving co-operation with IGBP, OSLR and GIPME, so as to respond to their requests for support in data management effectively.

5.1.3 Marine Data from Coastal Areas

The IODE Think-Tank Meeting discussed the need for management and exchange of coastal zone data in meeting UNCED, UNCLOS decisions and GOOS requirements. The IODE Programme is now involved in some types of coastal zone data such as water levels, waves and some temperature and salinity data. However, the Meeting expressed the view that it was time to undertake a review of the IODE role in managing and exchanging coastal zone data in order to extend it and make it more effective. The IODE Chairman will present a discussion document (Doc.IOC/IODE-XV/18) prepared jointly with LOICZ experts.

The Committee will review the recommendations of the document and give guidance on development of the IODE programme in regard to coastal zone data and information.

5.2 IMPLEMENTATION OF NEW TECHNOLOGIES IN THE IODE SYSTEM

5.2.1 Extent of Network Access

Since the last session of the Committee on IODE, the use of Internet and the technology for exchange of data and information has advanced to the point that there has been a significant change in the way modern data centres provide data, information and services. The user community has adapted to this new technology and now expects and demands its use. It is therefore more important than ever for IODE data centres to be connected to Internet.

Internet also offers a way to provide much better data and information to developing countries. If the developing countries can be connected up, then they will have the same access as do the developed countries, as new systems will concentrate on Internet.

Internet e-mail has replaced Sciencenet since the last IODE Meeting and provides access to a much larger community.
The IODE Think Tank Session considered these facts and recommended increased use of the Internet and in particular, World Wide Web Home Pages. Thus, it is very important for IODE data centres to be connected up and to implement home pages that include their IODE activities. These home pages and the supporting documents and facilities will not only enable the centres to provide much improved and more timely service, but will also provide needed visibility to IODE activities.

The parts of Doc.IOC/IODE-XV/15 that discuss network access will be presented and the Committee will be asked to consider the recommendations that relate to this access.

At the Meeting, Member States will be asked to provide their Internet address and the Universal Resource Locators for their home pages, so that a directory can be compiled on the IOC Home Page to be set up at IOC Headquarters.

Demonstrations of some Home Pages already available are planned for the Meeting.

5.2.2 New Technology for Data, Documents, Products, Imagery, and Delivery

Over the last few years there has been enormous increases in capabilities in handling data and information in electronic forms. Internet permits worldwide access without the need for centralization and consolidation, although there is still the need for co-ordination. Likewise, CD-ROM technology provides a low-cost medium for delivering large volumes of both data and information.

The biggest challenge to this increasing capability is still that of efficient integration of data and information from independent sources. The hypertext markup language used by World Wide Web servers to deliver information to users has proven to be flexible and capable. It is necessary to develop an analogue to this for data delivery, so that the constant problem of reformatting to integrate data from different sources can be minimized. An efficient and common exchange format used internationally is becoming increasingly important to provide simplified interchange for data that is needed to support future programmes such as GOOS.

The new technologies provide the capability to deliver instant data centre functions to individuals and developing countries through the vehicle of OceanPC, CD-ROMs and a common interchange format. The Committee will be presented with Doc.IOC/IODE-XV/19 discussing this issue and presenting recommendations for consideration.
5.2.3 Improvements to the Regional Data and Information Exchange

The IODE Think Tank Meeting was concerned that the interchange of data and information between the IOC Regional Programmes and other parts of the IODE system may not be as effective as it needs to be. In addition, it may be that some progress that has been made by IODE in the technology of international data and information exchange may not be available to the regional programmes. The success of Japan and the WESTPAC programme is an example of an exchange that works relatively well. It was not clear to the Meeting that co-operation between other regional programmes and IODE was as successful. Compilation of requests for support in ocean data and information management and relevant recommendations of the IOC Regional Subsidiary Bodies will be brought to the attention of the Committee by the Technical Secretary with a view of looking for responses to their requests (Doc.IOC/IODE-XV/20).

The Committee will review Doc.IOC/IODE-XV/20 and make recommendations as to the actions necessary to improve co-operation and interchange of data and information with the IOC regional programmes.

5.3 EXISTING PARTNERSHIPS AND OPPORTUNITIES FOR NEW ONES

The subject of renewed and expanded partnerships was discussed at length at the Think Tank Meeting. It was noted that IODE needs to expand its expertise, particularly in handling new data types. The best method to accomplish this expansion of expertise would be to work in partnership with the programmes that collect the data and with the science centres that analyze and use it. This is what happened with some of the WOCE programmes and is also happening with the British Oceanographic Data Centre, and the international JGOFS programme. In each case, the IODE centres have quickly learned a lot about handling the new data type, or improved quality control, or the needs of these client programmes for products and services. In addition, such partnerships lead to sharing of the workload with economic benefits to both parties.

It was also noted that there is a continuing need to review and renew existing partnerships as responsibilities and programmes change.

The Committee will be asked to consider the material and recommendations on this subject in Doc.IOC/IODE-XV/15 and give guidance on the matter. In particular, there will be a requirement to address whether IODE can take a more active approach to partnering by adding a responsibility to the Terms of Reference of the Group of Experts on RNODCs and Global Programmes to review the International Science Programmes to identify opportunities for such partnering and recommend on follow-up actions.

5.4 AVAILABLE RESOURCES - STAFF AND FUNDS AND WHAT SHOULD BE DONE TO MEET THE NECESSARY REQUIREMENTS

The Technical Secretary will inform the Committee of the resources (staff and funds) which have been available in 1993-1995 for the IODE programme implementation. In spite of the fact that a new post (P-3) was opened in the Secretariat to deal with marine information management issues, the staff situation continues to be critical. The last few years marked an increased support from Member States which have been allocating funds to the IOC Trust Fund earmarked for IODE support. However, funds allocated for the IODE activities in the UNESCO Regular Budget are not enough to successfully implement any of the IODE projects.

The Think Tank Meeting paid much attention to the key issue of required resources and formulated, in this regard, a number of recommendations which will be brought to the Committee's attention (Doc.IOC/IODE-XV/15).

The Committee will be invited to recommend the level of resources and staff that should be allocated to the IODE programme, taking into account the Think Tank Meeting recommendations, and to assist the Secretary IOC and the IODE Chairman in identifying funds from national sources and international aid agencies for the development of the IODE system.
5.5 WAYS AND ACTIONS TO BE TAKEN TO INCREASE AWARENESS OF THE IODE SYSTEM

Today, when ocean data are needed for many operational and research applications, more attention should be given to the importance of showing feasibility of the system and clear definition of benefits for Member States to participate and contribute to the IODE system's development.

The Think Tank Meeting gave a thorough consideration of this issue and the conclusions of this Meeting will be brought to the attention of the Committee (Doc.IOC/IODE-XV/15).

The Committee will consider ways to increase the IODE visibility and awareness in the IODE system among different user groups. The Committee will consider a range of options including World Wide Web home pages and regular statements or bulletins containing IODE information and products.

6. PLAN OF ACTION FOR 1996 - 1999

The Technical Secretary will inform the Committee on the decisions of the Eighteenth Session of the IOC Assembly (Paris, 13-27 June 1995) relevant to the programme and budget of IOC for 1996-1997 and also on the paragraphs of the IOC programme and budget adopted by the General Conference of UNESCO at its 28th Session related to IODE activities.

Taking into account the findings of the IODE Session and decisions of the UNESCO and IOC Governing Bodies, the Committee will be requested to prepare the Workplan for the next intersessional period, identify priorities and specify resources needed (Doc.IOC/IODE-XV/21). The Committee may wish to establish an ad hoc sessional group to prepare the draft and bring it to the attention of the Committee for discussion and adoption.

The Committee will also formulate a recommendation on its programme and budget to be submitted to the Twenty-ninth Session of the IOC Executive Council for adoption (Paris, 1996).

7. ELECTION OF THE OFFICERS OF THE COMMITTEE

The Technical Secretary will briefly review the rules and practical arrangements for the election of the officers of the IOC Subsidiary Bodies as they are presented in the IOC Manual 1989, UNESCO and in the Revised Rules of Procedure, as of June 1994 (IOC/EC-XXVII/Inf.1).

The Committee will be invited to elect its Chairman and Vice-Chairman along these guidelines.

8. DATE AND PLACE OF THE NEXT SESSION

The Committee will be invited to decide on the date and place of its Sixteenth Session and on any invitation from Member States to host the Session, bearing in mind that the intersessional period should not be less than two years and the Session should be arranged with the lowest possible cost to IOC.

9. ADOPTION OF THE SUMMARY REPORT

The Committee will be requested to adopt the draft Summary Report of the Session with Resolutions and Recommendations contained therein (Doc.IOC/IODE-XV/3).

The Committee will also be invited to authorize the IODE Chairman and the Technical Secretary to submit the Summary Report with all Resolutions and Recommendations to the Twenty-ninth Session of the IOC Executive Council planned for 1996.

10. CLOSURE OF THE SESSION

The Session will be closed by 18:00 on 31 January 1996.