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IOC/INF-1187
Paris, 7 May 2003
Original: English

INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION
(of UNESCO)

IODE Project Office – Business Plan

(SC-2003/WS/19)

Executive Summary

The IODE programme must meet the new challenges related to ocean data and information management. The IODE community is organizing itself to lead the way in coordinating 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. Whereas in the past IODE data centres focused mainly on delayed-mode, physical oceanography data, the IODE Programme now is addressing all ocean related data including physical, chemical, and biological oceanographic data, and most importantly to operational data streams in addition to delayed mode data. IODE now closely collaborates with, and services the needs of the other IOC and related programmes such as Ocean Sciences, GOOS and JCOMM.

In order to respond to these challenges and in view of the generous offer of the Kingdom of Belgium through the Government of Flanders, it is proposed to establish a decentralized ***IODE Project Office*** in the premises of the Flanders Marine Institute with the following objectives:

(i) to establish an operational unit facilitating the further development and maintenance of IODE and partner data and information management 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; and
(ii) to assist in strengthening the capacity of Member States to manage oceanographic data and information and to provide ocean data and information products and services required by users.

To achieve these objectives the IODE Project Office will:

- further develop, strengthen and maintain IOC/IODE ocean data and information management training programmes and training tools;
- create a centre with an appropriate working environment where ocean data and information experts and students from different regions of the world can work, meet and discuss;
- develop, host and maintain IOC/IODE's ocean information systems and related public awareness tools, including provision of access to distributed oceanographic data servers, replica and mirrors of key ocean databases;
- promote collaboration between all expert levels active in ocean data (and data product) and information management, including scientists, data managers and users.
- host specialized short-term training courses in ocean data and information management; and
- provide a laboratory environment for the development and beta testing of ocean data and information management technology;
- function as a clearinghouse with the capacity to provide specific data-sets at the request of member states and other UN agencies.

The 17th Session of the IODE Committee, in March 2003, received a formal offer from the Government of Flanders (Kingdom of Belgium) to host the IODE Project Office in Oostende, Belgium. In this offer, the Government of Flanders will cover the cost of rental office space with an approximate floor space of 1100 m^2 including basic infrastructure (value €40,000/year), the cost of all utilities (value approx. €10,000/year) and the cost of provision of 2 Mbit/sec Internet connection (value approx. €10,000/year). The Government of Flanders will host the IODE Project Office for a period of 3 years (renewable) and will provide the equivalent of one full

time support staff for the Project Office. Operational costs of the Project Office will be covered from extra-budgetary resources.

In response to this formal offer, the 17th Session of the IODE Committee adopted Recommendation IOC/IODE-XVII.4, Establishment of the IODE Project Office. The establishment of the IODE Project Office was also welcomed by I-GOOS-VI.

The IODE Project Office will provide an operational working environment facilitating the further development of IODE Projects and services, assisting Member States to increase their ability to manage oceanographic data and information. The Project Office will be responsible for the technical aspects of current IODE projects as well as the new activities associated with the cross-cutting Ocean Information Technology (OIT) Project. The Project Office will directly service the data and information management requirements of all IOC programmes. This will be fully in line with the IODE objectives that aim to serve all IOC programmes in the area of ocean data and information management.

The proposal submitted by the Government of Flanders (Kingdom of Belgium) to host the IODE Project Office, including all establishment and operational costs, is consistent with the proposed *Draft Guidelines for the establishment of decentralised offices (IOC-XXII/2 Annex 6).*

Résumé

Le programme de l'IODE doit faire face aux nouveaux défis en matière de gestion des données et de l'information océaniques. La communauté de l'IODE s'organise pour montrer la voie en coordonnant l'accès aux données et à l'information marines de façon à répondre aux vastes besoins des scientifiques, des décideurs et des gestionnaires des ressources marines ainsi que du secteur commercial et du grand public. Alors que dans le passé, les centres de données de l'IODE axaient leurs efforts principalement sur les données d'océanographie physique transmises en différé, aujourd'hui le programme de l'IODE s'intéresse à toutes les données concernant l'océan, notamment physiques, chimiques et biologiques, et surtout aux flux de données opérationnelles en plus des données en différé. A l'heure actuelle, l'IODE collabore étroitement avec les autres programmes de la COI ou s'y rattachant, tels que le programme d'Océanologie, le GOOS et la JCOMM, et s'efforce de répondre à leurs besoins.

Pour relever ces défis et compte tenu de l'offre généreuse du Royaume de Belgique formulée par le biais du Gouvernement des Flandres, il est proposé d'établir, dans les locaux de l'Institut océanographique des Flandres, un ***Bureau des projets de l'IODE*** qui aurait pour objectifs :

(i) d'établir une unité opérationnelle chargée de promouvoir la mise au point et la maintenance des projets, services et produits de gestion des données et de l'information de l'IODE et de ses partenaires en s'attachant en particulier à améliorer l'efficacité et l'efficience du flux de données et de produits/services entre l'étape d'échantillonnage et l'utilisateur ;

(ii) d'aider à renforcer la capacité des Etats membres de gérer les données et l'information océanographiques et de fournir les services et produits d'information et de données océanographiques dont les utilisateurs ont besoin.

Pour atteindre ces objectifs, le Bureau des projets de l'IODE devra :

- affiner, développer et entretenir les programmes et outils de formation en matière de gestion des données et de l'information océanographiques de l'IODE/COI ;

- créer un centre qui offre un cadre de travail approprié où les experts et étudiants en données et information océanographiques venant de différentes régions du monde peuvent travailler, se réunir et discuter ;

- mettre au point, héberger et entretenir les systèmes d'information océanographique de l'IODE/COI et les outils d'information du public y relatifs, permettant entre autres d'accéder à des serveurs de données océanographiques répartis des sites-réplications et des miroirs des principales bases de données océanographiques ;

- promouvoir la collaboration entre experts en gestion des données (et produits de données) et de l'information océanographiques à tous les niveaux, incluant les scientifiques, gestionnaires des données et utilisateurs ;

- accueillir des cours de formation spécialisée de brève durée en gestion des données et de l'information océanographiques ;

- fournir des installations de laboratoire pour la mise au point et l'expérimentation bêta de technologies de gestion des données et de l'information océanographiques ;

- servir de centre d'échange d'information capable de fournir des jeux précis de données sur demande des Etats membres et des autres institutions des Nations Unies.

A sa 17e session, tenue en mars 2003, le Comité sur l'IODE a reçu une offre officielle du Gouvernement des Flandres (Royaume de Belgique) d'accueillir le Bureau des projet de l'IODE à Oostende, en Belgique. Dans cette offre, le Gouvernement des Flandres s'engage à prendre en charge les frais de location de locaux d'une superficie au sol de près de 1.100 m^2 incluant l'infrastructure de base (valeur 40.000 euros par an), le coût de tous les équipements (valeur approximative 10.000 euros par an) et le coût d'une connexion Internet à 2 Mbit/sec (valeur approximative 10.000 euros par an). Le Gouvernement des Flandres accueillera le Bureau des projets de l'IODE pour une période de trois ans (renouvelable) et mettra à sa disposition l'équivalent d'un membre du personnel de soutien à temps plein. Les autres frais de fonctionnement du bureau seront financés par des ressources extrabudgétaires.

En réponse à cette offre officielle, le Comité sur l'IODE a adopté, à sa 17e session, la recommandation IOC/IODE-XVII.4, relative à la création du Bureau des projets de l'IODE. A sa sixième session, l'I-GOOS a salué la création de ce bureau.

Le Bureau des projets de l'IODE offrira un cadre de travail concret pour développer les projets et services de l'IODE et aider ainsi les Etats membres à améliorer leur capacité de gestion des données et de l'information océanographiques. Il sera chargé des aspects techniques des projets de l'IODE en cours ainsi que des nouvelles activités liées au projet intersectoriel concernant les applications des technologies de l'information à l'océanographie (OIT). Il répondra directement aux besoins de gestion des données et de l'information de tous les programmes de la COI. Ce mandat va entièrement dans le sens des objectifs de l'IODE qui sont de desservir tous les programmes de la COI dans le domaine de la gestion des données et de l'information océanographiques.

La proposition faite par le Gouvernement des Flandres (Royaume de Belgique) d'accueillir le Bureau des projets de l'IODE, en prenant en charge tous les frais d'établissement et une part des frais de fonctionnement, est conforme au projet de Principes directeurs applicables à la création de bureaux décentralisés *(IOC-XXII/2 Annexe 6)*.

Resumen

El Programa de Intercambio Internacional de Datos e Información Oceanográficos (IODE) debe responder a los nuevos desafíos que plantea la gestión de datos e información oceanográficos. La comunidad del IODE se está organizando para liderar la coordinación del acceso a los datos e información marinos a fin de atender las amplias necesidades de los científicos, los responsables de la formulación de políticas, los administradores de recursos marinos, el sector comercial y el público en general. Mientras que en el pasado los centros de datos del IODE se centraron principalmente en los datos relativos a la oceanografía física transmitidos en modo diferido, el Programa del IODE se ocupa ahora de todos los datos relativos a los océanos, comprendidos los datos oceanográficos físicos, químicos y biológicos y, lo que es más importante, las corrientes de datos operacionales además de los datos en modo diferido. El IODE colabora estrechamente con otros programas de la COI y conexos como Ciencias Oceánicas, el GOOS y la JCOMM, y atiende sus necesidades.

Con objeto de responder a estos desafíos y habida cuenta de la generosa propuesta del Reino de Bélgica, por conducto del Gobierno de Flandes, se propone establecer una ***Oficina de Proyectos del IODE*** descentralizada en los locales del Instituto Marino de Flandes, con los siguientes objetivos:

i) establecer una unidad operacional que facilite el mantenimiento y la expansión de los proyectos, servicios y productos de datos e información del IODE y sus asociados, haciendo hincapié en mejorar la eficiencia y eficacia de la circulación de los datos y productos/servicios entre la fase de acopio y el usuario; y

ii) contribuir al fortalecimiento de las capacidades de los Estados Miembros para administrar datos e información oceanográficos y proporcionar los productos y servicios de datos e información oceanográficos requeridos por los usuarios.

Para lograr estos objetivos la Oficina de Proyectos del IODE se encargará de:

- seguir elaborando, fortaleciendo y manteniendo programas de formación y materiales didácticos COI/IODE sobre la gestión de datos e información oceanográficos;

- crear un centro dotado de un entorno de trabajo apropiado en que especialistas y estudiantes en materia de datos e información oceanográficos de distintas regiones del mundo puedan trabajar, reunirse y debatir;

- crear, acoger y mantener sistemas de información oceánica COI/IODE y material conexo de sensibilización del público, comprendido el suministro de acceso a servidores de datos oceanográficos distribuidos y réplicas de bases de datos oceanográficos fundamentales;

- promover la colaboración entre especialistas de todos los niveles que trabajan en el ámbito de la gestión de datos (y productos de datos) e información oceanográficos, comprendidos científicos, administradores y usuarios de datos;

- acoger cursos breves de formación especializada en gestión de datos e información oceanográficos y

- proporcionar un entorno de laboratorio para la elaboración y experimentación piloto (pruebas beta) de tecnología de gestión de datos e información oceanográficos;

- cumplir la función de centro de intercambio de información con capacidad para proporcionar conjuntos de datos específicos a petición de los Estados Miembros y otros organismos de las Naciones Unidas.

En la 17ª reunión del Comité sobre IODE, celebrada en marzo de 2003, el Gobierno de Flandes (Reino de Bélgica) propuso oficialmente acoger la Oficina de Proyectos del IODE en Ostende (Bélgica). Con arreglo a su propuesta, el Gobierno de Flandes sufragará los costos del alquiler de espacios de oficinas de una superficie aproximada de 1.100 m^2 que comprenderá infraestructuras básicas (por un valor de 40.000 € por año), el costo de todos los servicios públicos (por un valor aproximado de 10.000 € por año) y el costo del suministro de una conexión Internet de 2 Mbit/segundo (por una cuantía aproximada de 10.000 € por año). El Gobierno de Flandes albergará la Oficina de Proyectos del IODE por un periodo de 3 años (renovable) y aportará a la Oficina de Proyectos el equivalente de los servicios de un funcionario de apoyo en jornada completa. Los demás gastos de funcionamiento de la Oficina de Proyectos se financiarán con recursos extrapresupuestarios.

En respuesta a esta propuesta oficial, el Comité sobre IODE aprobó en su 17ª reunión la Recomendación IOC/IODE-XVII.4, relativa al establecimiento de la Oficina de Proyectos del IODE. El I-GOOS, en su sexta reunión, también acogió con satisfacción la creación de esta Oficina.

La Oficina de Proyectos del IODE proporcionará un entorno de trabajo operacional que facilitará la expansión de los proyectos y servicios del IODE, y ayudará a los Estados Miembros a aumentar su capacidad para administrar datos e información oceanográficos. La Oficina se encargará de los aspectos técnicos de los actuales proyectos del IODE así como de las nuevas actividades vinculadas al proyecto transversal sobre aplicaciones de las tecnologías de la información a la oceanografía (OIT). La Oficina de Proyectos atenderá directamente las necesidades de todos los programas de la COI en materia de gestión de datos e información. Esta actividad será plenamente consonante con los objetivos del IODE que consisten en prestar servicios a todos los programas de la COI en el ámbito de la gestión de datos e información oceanográficos.

La propuesta presentada por el Gobierno de Flandes (Reino de Bélgica) de ser sede de la Oficina de Proyectos de la COI y sufragar todos los gastos de establecimiento y parte de los gastos de funcionamiento correspondientes, se ajusta al Proyecto de directrices para el establecimiento de oficinas descentralizadas contenido en el documento IOC-XXII/2 Anexo 6.

Рабочее резюме

Программа МООД должна решать новые задачи, связанные с управлением океанографическими данными и информацией. Сообщество МООД стремится возглавить работу по координации доступа к данным и информации о морской среде для удовлетворения широких потребностей ученых, лиц, занимающихся разработкой политики и управлением морскими ресурсами, представителей коммерческого сектора и широкой общественности. Тогда как в прошлом центры данных МООД сосредоточивали усилия главным образом на данных физической океанографии, поступающих в режиме запаздывания, сегодня программа МООД охватывает на все океанические данные, включая физические, химические и биологические океанографические данные и, что особенно важно, потоки оперативных данных наряду с данными в режиме запаздывания. В настоящее время МООД тесно сотрудничает с другими программами МОК и такими смежными программами, как «Науки об океане», ГСНО и ОКОММ, и удовлетворяет их потребности.

Для решения этих задач и с учетом щедрого предложения Королевства Бельгии, поступившего через правительство Фландрии, предлагается учредить децентрализованное ***Проектное бюро МООД***, которое будет размещаться в помещениях Фламандского морского института, в следующих целях:

(i) создание оперативного подразделения, содействующего дальнейшему развитию и поддержке МООД, а также партнерских проектов, служб и продуктов, связанных с управлением данными и информацией, с уделением особого внимания повышению действенности и эффективности потоков данных и продуктов/услуг от стадии взятия проб до конечного пользователя; и

(ii) содействие укреплению потенциала государств-членов в области управления океанографическими данными и информацией и предоставление продуктов и услуг, связанных с океаническими данными и информацией, которые требуются пользователям.

Для достижения этих целей проектное бюро МООД будет обеспечивать:

- дальнейшее развитие, укрепление и поддержку программ и средств МООД по подготовке специалистов в области управления океаническими данными и информацией;

- создание центра с соответствующими рабочими условиями, где эксперты и студенты, занимающиеся вопросами океанических данных и информации, из различных регионов мира могут работать, встречаться и проводить обсуждения;

- разработка, размещение и поддержка систем океанической информации МОК/МООД и соответствующих средств повышения осведомленности общественности, включая обеспечение доступа к распределенным серверам океанических данных, дублирующим и зеркальным сайтам ключевых океанографических баз данных;

- содействие сотрудничеству между экспертами всех уровней, занимающимися вопросами управления океаническими данными (в том числе продуктами данных) и информацией, включая ученых, специалистов по управлению данными и пользователей;

- предоставление помещений для краткосрочных учебных курсов в области управления океаническими данными и информацией;

- предоставление лабораторных возможностей для разработки и предварительного опробования технологии управления океаническими данными и информацией;

- выполнение функции центра обмена информацией для предоставления конкретных наборов данных по просьбе государств-членов и других учреждений ООН.

На 17-й сессии Комитета МООД в марте 2003 г. от правительства Фландрии (Королевство Бельгия) поступило официальное предложение разместить Проектное бюро МООД в Остенде (Бельгия). Согласно этому предложению, правительство Фландрии будет обеспечивать оплату аренды служебных помещений площадью приблизительно 1 100 кв. м, включая базовую инфраструктуру (40 000 евро в год), оплату всех коммунальных расходов (приблизительно 10 000 евро в год), а также подсоединение к Интернету – 2 Мбит/сек. (приблизительно 10 000 евро в год). Правительство Фландрии предоставит помещение для Проектного бюро МООД на период в три года (возобновляемый), а также обслуживающий персонал, эквивалентный одной полной ставке. Прочие расходы на функционирование Проектного бюро будут покрываться за счет внебюджетных средств.

В связи с этим официальным предложением 17-я сессия Комитета МООД приняла резолюцию IOC/IODE-XVII.4 об учреждении Проектного бюро МООД. Создание Проектного бюро МООД приветствовалось также участниками шестой сессии М-ГСНО.

Проектное бюро МООД обеспечит оперативные рабочие условия, что будет способствовать дальнейшему развитию проектов и служб МООД и оказанию государствам-членам помощи в расширении их возможностей управления океанографическими данными и информацией. Проектное бюро будет отвечать за технические аспекты нынешних проектов МООД, а также за новые мероприятия, связанные со сквозным проектом в области технологии океанической информации (ТОИ). Проектное бюро будет непосредственно обеспечивать удовлетворение потребностей всех программ МОК в области управления данными и информацией. Это будет полностью соответствовать целям МООД, предусматривающим обслуживание всех программ МОК в области управления океаническими данными и информацией.

Поступившее от правительства Фландрии (Королевство Бельгия) предложение о размещении Проектного бюро МООД, включая покрытие всех расходов на создание и некоторых расходов на функционирование этого Бюро, соответствует подготовленному *Проекту руководящих принципов создания децентрализованных бюро (IOC-XXII/2 Annex 6).*

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Annex A. Recommendation IODE-XVII.4 - ESTABLISHMENT OF THE IODE PROJECT OFFICE

1. HISTORICAL BACKGROUND OF THE COMMITTEE ON INTERNATIONAL OCEANOGRAPHIC DATA EXCHANGE (IODE Handbook, IOC/INF-834, 1991)

During the Intergovernmental Conference on Oceanographic Research, 1960, at which the setting up of the Intergovernmental Oceanographic Commission was recommended, certain initial tasks were outlined and amongst these was included the requirement for a structure to co-ordinate international oceanographic data exchange. The first formal establishment of a Working Group on Exchange of Oceanographic Data was made by IOC Resolution I-9 adopted at the First Session of the Commission in October 1961, which stated that:

> "*The mission of this Working Group shall be the facilitating of exchange of oceanographic data, the standardization of forms for reporting and coding data, the encouragement of the preparation of data catalogues, and the assistance of development of national oceanographic data centres*."

The Commission authorized the continuation of this Working Group at its Second Session (September 1962).

At its Fifth Session (September 1967) the Commission (Resolution V-20A) amended the terms of reference of the Working Group by adding the following:

> *"(a) to review and re-appraise the whole international oceanographic data exchange system as recommended by Section 8 of the report 'International Ocean Affairs' (IOC/V-INF.1l1), and as reaffirmed by Recommendation IX of the summary of the recommendations of the Working Group meeting in the Hague in September 1967 (IOC/V-4);*
>
> *(b) to continue and encourage the present work leading towards format standardization for use with automated techniques for data input, storage, retrieval, dissemination and exchange, but recognizing the considerable financial implications inherent in such automation;*
>
> *(c) to continue the development of means whereby geological, geophysical, biological, special air-sea interaction data and data from 'continuously recording' sensors are incorporated into the international oceanographic data exchange system."*

2. TERMS OF REFERENCE OF THE COMMITTEE ON INTERNATIONAL OCEANOGRAPHIC DATA EXCHANGE (IODE Handbook, IOC/INF-834, 1991)

The Eighth Session of the IOC Assembly (November 1973) decided that the Working Group for International Oceanographic Data Exchange be renamed Working Committee (Resolution VIII-31) and it also amended its Terms of Reference (Report of the Eighth Session of the IOC Assembly, Doc. SC/MD/39, Annex V, page 8, Item II:

The Working Committee on International Oceanographic Data Exchange shall:

(i) facilitate exchange of oceanographic data, the standardization of forms for reporting and coding data, the encouragement of the preparation of data catalogues and the assistance of development of national oceanographic data centres;

(ii) facilitate exchange of, and access and referral to, information resulting from, or relating to marine programmes emanating from related activities (ASFIS, MEDI, UNISIST, UNEP, IRS, CODATA, etc.);

(iii) review and re-appraise the whole international oceanographic data exchange system, recommending changes to the Commission, as appropriate;

(iv) continue and encourage format standardization for use with automated techniques for data input, storage, retrieval dissemination and exchange;

(v) continue the development of means whereby geological-geophysical, biological, special air-sea interaction, marine pollution data and data from "continuously recording" and remote sensors are incorporated into the international oceanographic data exchange system;

(vi) take action as necessary to give effect to the Commission's policy decisions, within its prescribed terms of reference;

(vii) make recommendations to the Commission on policy matters within its terms of reference and on the need for Consultants and/or temporary Groups of Experts to deal with special scientific and technical matters connected with the Commission's programmes;

(viii) report regularly and make recommendations to the Commission of the work accomplished and on future action required and prepare with the assistance of the Secretary, a draft two-year programme of the work and financial requirements for submission to each Assembly;

(ix) maintain close collaboration with World, National, Regional and Responsible Data Centres, with the other Working Committees, with the International Co-ordination Groups for the Co-operative Investigations, and with international organizations, within its terms of reference;

(x) have the right to form ad hoc task teams to carry out specific parts of the work of the Committee during intersessional periods provided no costs fall on the Commission;

(xi) make recommendations to the Assembly and the Executive Council regarding the provision of technical guidance and for the formulation and execution of the marine science programmes of UNESCO relating to marine data and information management, and, when appropriate, to facilitate co-ordination with related programmes of other ICSPRO agencies.

The Fourteenth Session of the IOC Assembly (Paris, 17 March - 1 April 1987) *"noting the increasing interest in marine scientific information* [...] *recalling also the decision of the Executive Council at its Nineteenth Session, on the Guidelines for the Structure and Responsibilities of the Subsidiary Bodies of the Commission"*, changed the name of the Technical Committee on International Oceanographic Data Exchange to the **Committee on Oceanographic Data and Information Exchange**, retaining the acronym IODE.

3. FUTURE DIRECTIONS FOR IODE

The **Sixteenth Session of the Committee** (Lisbon, Portugal, 31 October – 8 November 2000) provided a change of direction for IODE. Whereas in the past IODE data centres focused mainly on delayed-mode, physical oceanography data, the IODE Programme now needed to give more attention to all ocean related data including physical, chemical, and biological oceanographic data, and to operational data streams in addition to delayed mode data. IODE-XVI welcomed close collaboration with other IOC and related programmes such as Ocean Sciences, GOOS and JCOMM.

During the IODE-XVI to IODE-XVII inter sessional period IODE made significant advances in a number of areas:

- IODE became an active member in the JCOMM Management Committee (MC), the JCOMM Data Management Coordination Group (DMCG) and the JCOMM Expert Team on Data Management Practices (ET-DMP);
- IODE became an active member of the GOOS Steering Committee and the GOOS Capacity Building Panel;
- the IODE Group of Experts on Biological and Chemical Data Management and Exchange Practices (GEBCDMEP) was established and had its first Session in 2002;
- IODE co-sponsored the *Colour of Ocean Data Symposium* (Brussels, 25-27 November 2002) bringing together the ocean science (biological and ecological research) and ocean data management communities to exchange views on the requirements to improve relationships and services;
- IODE joined JCOMM in the establishment of the Oceans Information Technology (OIT) Pilot Project spearheaded by Dr Neville Smith;
- IODE took the initiative to coordinate efforts in the development of a Marine XML standard that will transform data exchange in the next decade. IODE is collaborating in the joint ICES/IOC Study Group on the Development of Marine Data Exchange Systems using XML (SGXML) as well as with several EU institutions in the framework of an EU-funded project on the development of a Marine XML;
- the MEDI metadata authoring tool, developed jointly with NASA's Global Change Master Directory, has been released and future collaboration is planned with the UK NERC-GRID project to provide ISO 19115 compatibility.

IODE-XVII (Paris, France, 3-7 March 2003) confirmed the re-direction of IODE through the following decisions and recommendations:

- noting the changing user needs of the scientific, research, operational forecasting and assessment communities for historical and real-time oceanographic data, and the impact of rapidly changing technology on the acquisition, processing and dissemination of oceanographic data, IODE-XVII established an "inter-sessional working group to examine the future role of WDCs, RNODCs and NODCs" (Resolution IODE-XVII.1);
- noting that IODE centres are considered to be integral components of the ocean element of the end-to-end global observing system, and 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, IODE-XVII established the "*ad hoc* working group on the implications of GOOS and JCOMM development on IODE" (Resolution IODE-XVII.2);
- noting with satisfaction the successful implementation of the ODINAFRICA and ODINCARSA projects as examples of the new IODE capacity building strategy that links provision of equipment, training and operational support, IODE-XVII recommended the continuation of the ODINAFRICA and ODINCARSA projects calling on Member States for support (Recommendation IODE-XVII.1 and Recommendation IODE-XVII.1)
- recognizing the increased strong cooperation between IODE and JCOMM, the need to avoid duplication and to maximize available human and financial resources, and noting the similarity of the terms of reference for the IODE Group of Experts on Technical

Aspects of Data Exchange (GETADE) and the JCOMM Expert Team on Data Management Practises (ETDMP), IODE-XVII recommended that the GETADE and ETDMP be merged and be renamed to the JCOMM/IODE Expert Team on Data Management Practises (Recommendation IODE-XVII.3);

- recognizing the emphasis on complementary collaborative agreements with other projects that deal with ocean data and information, such as JCOMM and GOOS, and developments of global standards for ocean data and information exchange, considering the strong involvement of IODE in the Ocean Information Technology (OIT) project and the technical, infrastructural and management requirements ensuing, and noting the priorities set by the Committee for its capacity building programme, the Committee strongly supported the establishment of an IODE Project Office (Recommendation IODE-XVII.4);
- 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, IODE-XVII recommended that the Ocean Information Technology (OIT) Pilot Project be implemented as an initiative of the IODE, jointly sponsored with JCOMM and GOOS (Recommendation IODE-XVII.5).

IODE-XVII has therefore clearly confirmed the reorientation of IODE towards closer, collaboration with, GOOS and JCOMM. IODE-XVII stressed that IODE and its member data centres need to adapt their structure and functions to include not only delayed-mode, but also operational oceanography data covering physical, chemical and biological data types.

4. MAIN ACTIVITIES OF IODE

The IODE programme activities can be divided into the following:

- Expertise
- Projects
- Training and Regions
- Information dissemination and networking
- Cooperation with other programmes

4.1 EXPERTISE

The IODE community has established a number of small groups to provide expert advice to the IODE Committee and to guide specific projects. These are the IODE Groups of Experts and the IODE Steering Groups respectively and are called IOC Secondary Subsidiary Bodies.

The following IODE related IOC Secondary Subsidiary Bodies are currently active:

(i) JCOMM/IODE Expert Team on Data Management Practices (ETDMP)[1]

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

(iii) IODE Group of Experts on Biological and Chemical Data Management and Exchange Practices (GEBCDMEP)

[1] Note that the IODE Group of Experts on Technical Aspects of Data Exchange (GETADE) was merged with the JCOMM Expert Team on Data Management Practises (ETDMP) following Recommendation IODE-XVII.3

(iv) IODE Steering Group for the MEDI project (SG-MEDI)

(v) IODE Steering Group for the OceanTeacher Project (SG-OceanTeacher)

(vi) IODE Steering Group for Global Underway Data Archiving Pilot Project (SG-GOSUD)

4.2 PROJECTS

IODE manages and co-sponsors a number of international projects related to ocean data and information management and exchange. These include:

- **Aquatic Sciences and Fisheries Abstracts (ASFA)** is an abstracting and indexing service covering the world's literature on the science, technology, management and conservation of marine, brackish water and freshwater resources and environments. IOC's role in ASFA as a 'founding agency' is limited to participation in annual meetings of the ASFA Board and to promote access by developing countries to the ASFA products.
- **Global Oceanographic Data Archaeology and Rescue (GODAR)**. This project seeks to increase the volume of historical oceanographic data available to climate change and other researchers by locating data sets not yet in digital form and ensuring their submission to one of the national data centres.
- **Global Temperature and Salinity Profile Program (GTSPP)** is a cooperative international project to develop and maintain a global ocean Temperature-Salinity resource with data that are both up-to-date and of the highest quality.
- **MarineXML** is an XML specification to support ocean data exchange. IODE is currently involved in three marine XML initiatives: (i) ICES/IOC Study Group on the Development of Marine Data Exchange Systems using XML (SGXML); (ii) the EU-funded MarineXML: a pre-standardization development for marine data interoperability using XML; and (iii) marine XML initiative within the framework of the JCOMM Data Management Coordination Group. (More at http://www.marinexml.net).
- **Global Ocean Surface Underway Pilot Project (GOSUD):** The main objective of this project is to collect, process, archive and disseminate in real time and delayed mode, sea surface salinity and other variables collected underway, by research and opportunity ships.
- **OceanExpert** (Global Directory of Marine and Freshwater Professionals) is a directory containing information on individuals active in matters related to the marine and freshwater environment (More at http://www.oceanexpert.net);
- **Marine Environmental Data Information Catalogue (MEDI)** is a directory system for marine related datasets and data inventories. The MEDI project, lead by the IODE Steering Group for the MEDI Project, has developed a software tool for on- or offline creation of metadata records.
- **OceanPortal** is aimed at assisting users in locating web-based data and information sources as well as to promote exchange of information and experience between users. The OceanPortal system is based upon a catalogue database holding metadata of ocean data and information related sites. (More at http://www.oceanportal.org).
- **OceanTeacher**: IOC's capacity building programme for ocean data and information management. (see also 4.3)

- **BeeBox** is IOC/IODE's open source Dynamic Content Management System enabling to: (i) quickly set up web sites that have a uniform structure and functionality; (ii) 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 web sites) and events (calendar); (vi) utilize multiple languages (initially E, F, S); and (vii) be freely available to Member States at little or no cost.

Many of the IODE Projects are guided and managed by Project Steering Groups.

4.3 TRAINING AND REGIONS

Capacity Building has traditionally been a cornerstone of the IODE Programme since the inception of IODE in 1960. In 1998 the IODE Programme has developed a new capacity building strategy based upon linking equipment, training and operational support in a regional context. This new model is called ODIN (Ocean Data and Information Networks). ODIN networks have been successfully implemented in Africa (ODINEA, ODINAFRICA) and South America (ODINCARSA). The ODIN projects provide equipment, training as well as expert follow-up support by email and web and operational support.

The following is a summary of IODE capacity building projects:

- **OceanTeacher** is a collection of training tools for Oceanographic Data and Information Exchange. These tools are used during IODE Training Courses but can also be used for self-training and continuous professional development. Ocean Teacher is guided by the IODE Steering Group for the OceanTeacher project. (More at http://www.oceanteacher.org).
- **ODINAFRICA** (Ocean Data and Information Network for Africa). This project, involving 20 countries in Africa, aims to provide assistance to develop NODCs and establish their networking in Africa; to provide training opportunities in marine data and information management applying standard formats and methodologies as defined by IODE; to assist the development and maintenance of national, regional and Pan-African metadata, information and data holding databases; and to assist the development and dissemination of marine data and information products responding to the needs of a wide variety of user groups using national and regional networks. (More on http://www.odinafrica.net) .
- **ODINCARSA** (Ocean Data and Information Network for the Caribbean and South America regions). This project is being developed as a mechanism to optimize the potential and facilities of existing NODCs in the region; to assist Member States to establish oceanographic data and information centres; and to promote the exchange of data, information and knowledge through regional networking in the context of South America and the Caribbean. (More on http://www.odincarsa.net)
- **UNESCO/IOC OceanPortal.** The development of regional portals will provide access to information and data on all aspects of ocean and coastal research and management for the benefit of various communities such as decision makers, the private sector, the research and education community and the general public and will enable a more targeted focus on national and regional issues. The project will build on and assist the regional data and information networks developed under, for

example, the ODINAFRICA project and the ODINCARSA project. (More on http://www.africanoceans.net and http://www.portaloceanico.net)

4.4 INFORMATION DISSEMINATION AND NETWORKING

An important activity of the IODE programme is the development of web-based information services. The IODE Secretariat has spearheaded the development of IOC's web presence and was one of the first UNESCO web sites. Since 2002, IODE has embarked on a new challenge with regard to Internet technology with the migration of static web sites to dynamic web sites where each page is created by the server 'dynamically' each time it is requested by the browser. In this regard IODE has developed open source 'dynamic content management' software called *BeeBox*. This tool can be provided to IOC Member States free of charge and training courses can be organized as required. IODE currently hosts and maintains the following web sites at UNESCO Headquarters:

IODE main site	http://www.iode.org
OceanExpert site	http://www.oceanexpert.net
OceanTeacher site	http://www.oceanteacher.org
OceanPortal site	http://www.oceanportal.org
MarineXML site	http://www.marinexml.net
Oceans-IT site	http://www.oceans-it.net

In addition, the ODINAFRICA Project Office maintains the following web site:

ODINAFRICA site	http://www.odinafrica.net

4.5 COOPERATION WITH OTHER PROGRAMMES

- **JCOMM**. The Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM) is an intergovernmental body of technical experts in the field of oceanography and marine meteorology. IODE is a member of the JCOMM Management Committee, the JCOMM Data Management Coordination Group, the JCOMM Expert Team on Data Management Practices and the JCOMM Expert Team on Marine Climatology. The 17th Session of the IODE committee recommended that the IODE Group of Experts on the Technical Aspects of Data Exchange be merged with the JCOMM Expert Team on Data Management Practices. IODE also provides advice and assistance to the JCOMM Education, Training and Capacity Building Coordination Group. (See also 3)
- **GOOS**. Collaboration between IODE and GOOS has been strengthened during the past two years and IODE has participated in Sessions of the GOOS Steering Committee and GOOS Capacity Building Panel, and has offered its extensive experience in capacity building through regional networking. In Africa, Indian Ocean, Caribbean and South America regions cooperation between GOOS and IODE is being initiated to ensure an integrated approach to ocean data and information management for delayed-mode as well as operational data. IODE is also a partner in MAMA, a MedGOOS project involving major institutions from all the Mediterranean countries which focuses on the sustainable use of the coastal zone, on the interaction with end-users and raising awareness on the benefits of ocean forecasting with dissemination of results and products. (See also 3)

- **UN Atlas of the Oceans**. This is an Internet portal providing information relevant to the sustainable development of the oceans and is designed for policy-makers who need to become familiar with ocean issues and for scientists, students and resource managers who need access to databases and approaches to sustainability. IOC is a UN Partner in the Atlas and provides content to the Atlas. The IODE Secretariat coordinates IOC's participation in the UN Atlas.
- **EurOcean**. The European Information Centre for Marine Science and Technology (EurOcean) is a joint French – Portuguese initiative. The main objective is to implement the recommendations of the report - *Towards a new marine dimension for Europe through research and technological development* - prepared by a group of European experts set up at the initiative of Portugal in 1999. A key activity will be the development of a European Internet Portal. Four main functions are targeted by the EurOcean Portal: (i) Metadata directory of catalogues: a gateway to existing repertories and other relevant sources of information; (ii) Dedicated search engine on marine science and technology information in Europe. (iii) Monitoring/watching services: personalised user's profile; automated compilation of information on specific topics; (iv) Interactive communication: discussion forum; hosting web pages; virtual offices. In view of its extensive experience in the field of dynamic content management, IOC has been requested by EurOcean to participate in the development and hosting of the Portal and will be coordinated by the IODE Secretariat.

5. RATIONALE FOR A PROJECT OFFICE

5.1 CORE ELEMENTS OF THE IODE PROGRAMME

IODE clearly faces new challenges related to ocean data and information management. The IODE community must take the lead in coordinating access to marine data and information to support the broad needs of the scientists, policy makers, marine resources managers, the commercial sector and the general public. The core elements of the IODE programme must include the following:

(i) providing data and information management support for other IOC programmes under Ocean Science and GOOS;

(ii) re-establishing and reinforcing linkages between ocean science and observation programmes and IODE data and information centres by strengthening the service to scientists;

(iii) emphasizing complementary, collaborative agreements with other projects and programmes that deal with ocean data and information management (including GOOS, JCOMM, Argo, and others);

(iv) strengthening the IODE capacity building programme through:

a) the further development of OceanTeacher including modules for 'beginners', advanced data and information managers, as well as for university students in oceanography;

b) the establishment of a "train the trainer" facility;

c) the establishment of a "continuous professional development" programme and facility;

d) the further strengthening and development of regional networks (ODIN strategy);

(v) establishing IODE's as an authority in the development of global standards for ocean data and information exchange through, for example, Marine XML and OIT;

(vi) assisting different communities of users to adopt new technologies by developing relevant technological applications and systems;

(vii) assisting communities of users by providing access to suitable data and information products and services.

5.2 IODE SECRETARIAT ROLE AND FACILITIES

The IODE Secretariat will need to play an active role in coordinating, and, implementing a number of activities, especially at the demonstration level, that support the above core elements. Current resources available to IODE do not offer the necessary technical infrastructure and there is little scope for growth within IOC Headquarters for the development of this new phase of the Programme. . To achieve the full development of these core elements of the programme, we will require additional resources. IOC/IODE Member States will be invited to outpost relevant experts on short to long-term basis. Additional extra-budgetary funding sources must also be identified to implement these new initiatives.

The facilities for new-technology based training for the data and information management training component of the IODE programme will make it difficult and expensive to host such sessions in occasional venues in Member States. Furthermore, there is a clear advantage in developing an IOC test bed facility where prototyping of hardware and software designed for and adapted to the working conditions in most data centres of IODE can be done. A permanent host location, fully equipped and part of the IODE Secretariat will be the most effective and efficient solution.

The difficulties currently faced by the IODE Secretariat in the implementation of the core activities can be summarised as:

(i) **Shortage of technical staff**. There is currently only one in-house software developer responsible for all technical software maintenance and software development. Outsourcing has been used to develop certain applications but some advanced applications require in-house support.

(ii) **No equipped training facilities are available**. All IODE training courses are currently organized at venues provided by Member States. This is appropriate for regional courses but less so for update courses that will include participants from many different countries. UNESCO does not have the necessary facilities required for technology based training for data and information management.

(iii) **Limitations in bandwidth at UNESCO Headquarters**. The UNESCO bandwidth load is approximately 95% throughout a 24-hour day. Accordingly UNESCO does not permit video-conferencing, audio and video streams are blocked and, since August 2002, IODE has been unable to operate the regular indexing service of Ocean Portal.

(iv) **Difficulties in organizing meeting room facilities**. Small meetings of experts held at regular intervals either face-to-face, by videoconference or a combination of both can substantially increase the effectiveness of project implementation. This has been demonstrated already with the Steering Groups (OceanTeacher,

MEDI). UNESCO does not have sufficient numbers of meeting rooms to satisfy these needs.

(v) **Lack of sufficient technical 'critical mass'**: the Secretariat currently has two staff members that are involved in technical development. In order to be able to fully develop and maintain the wide variety of services and products that are required in order to support the project activities more substantial technical 'critical mass' is required. These could be out posted experts, students (science or technical), contractors, etc. UNESCO Headquarters does not have the necessary office space to host additional staff.

5.3 THE IODE PROJECT PROPOSAL INITIATIVE

The intrinsic limitations of UNESCO Headquarter facilities to host the new type of activities required by the renewal of IODE have become apparent especially since the second semester of 2001. These problems have been discussed informally at several occasions and most recently during a mission to the Flanders Marine Institute (VLIZ) in May 2002, when VLIZ was officially opened. During this mission the Head, Ocean Services Section IOC was informed that the building that houses VLIZ still has additional space that could be renovated. It was at this junction that the Director of VLIZ, Dr Jan Mees offered to investigate the possibility to host an IOC office. 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) that IOC was informed, informally, that Flanders/Belgium could possibly host an IOC/IODE Project Office. They further informed us that due to budgetary reasons they would need to make the formal offer before the end of 2002 and possibly during the Colour of Ocean Data Symposium (COD), 25-27 November 2002.

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 Coordinators (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.

On 22 November 2002 IOC was informed that due to administrative reasons Flanders/Belgium would not able to make the formal offer during the COD Symposium. During the COD Symposium the IOC Secretariat was able to meet with a few Flemish/Belgian officials. They informed IOC that the official offer would be made during IODE-XVII (3-7 March 2003) provided the final agreement to make the offer was obtained by that time.

An information document was provided to the IOC Officers for consideration at their meeting in January 2003.

The formal offer by the Government of Flanders and City of Oostende was submitted to the Executive Secretary IOC on 3 March during IODE-XVII (see 8.1)

6. BUSINESS PLAN OF THE IODE PROJECT OFFICE

6.1 MISSION STATEMENT

The Project Office will technically support and backstop project activities of the IOC Committee on International Oceanographic Data and Information Exchange (IODE).

6.2 GOALS

Taking into account all considerations mentioned in previous chapters, the MAIN GOALS of the IODE Project Office have been defined as follows:

(i) to establish an operational unit facilitating the further development and maintenance of IODE and partner data and information management 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; and

(ii) to assist in strengthening the capacity of Member States to manage oceanographic data and information and to provide ocean data and information products and services required by users.

6.3 OBJECTIVES

To achieve the above goals, the objectives of the IODE Project Office will be as be follows:

(i) further develop, strengthen and maintain IOC/IODE ocean data and information management training programmes and training tools;

(ii) create a centre with an appropriate working environment where ocean data and information experts and students from different regions of the world can work, meet and discuss;

(iii) develop, host and maintain IOC/IODE's ocean information systems and related public awareness tools, including replica and mirrors of key ocean data-bases from WDC's;;

(iv) promote collaboration between all expert levels active in ocean data (and data product) and information management, including scientists, data managers and users.

(v) host specialized short-term training courses in ocean data and information management; and

(vi) provide a laboratory environment for the development and beta testing of ocean data and information management technology.

(vii) function as a clearinghouse with the capacity to provide specific data-sets at the request of member states and other UN agencies

7. CONSIDERATION OF THE IODE PROJECT OFFICE PROPOSAL BY IOC PROGRAMMES/SUBSIDIARY BODIES AND RELATED PROGRAMMES

- The **Ocean Information Technology Pilot Project leader** (Dr. Neville Smith) stated during IODE-XVII that the IODE Project Office would be an appropriate facility to provide support for the development of the OIT Pilot Project. This was endorsed by **IODE-XVII** (para. 298 of the IODE-XVII Summary Report);
- **IODE-XVII**, regretting the bandwidth limitations at UNESCO HQ, recommended

that the server hosting OceanExpert be relocated to the proposed IODE Project Office. (IODE-XVII Summary Report, para. 191);

- **IODE-XVII**, 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 (IODE-XVII Summary Report, para. 199);
- **IODE-XVII** 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 (IODE-XVII Summary Report, para. 334);
- **IODE-XVII** requested the Secretariat to ensure that the business plan [i.e. this document] 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. (IODE-XVII Summary Report, para. 336);
- **IODE-XVII** 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 organizations. 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. (IODE-XVII Summary Report, para. 337);
- **IODE-XVII** adopted Recommendation IOC/IODE-XVII.4 (See Annex A)
- **I-GOOS-VI** (Paris, France, 10-14 March 2003) welcomed the recommendation of IODE to establish an IODE Project Office.

8. OFFER TO HOST THE IODE PROJECT OFFICE

8.1 FORMAL OFFER BY THE GOVERNMENT OF FLANDERS AND THE CITY OF OOSTENDE

In response to the proposal to establish an *IODE Project Office*, the Director of the Flanders Marine Institute (VLIZ), Dr. Jan Mees, offered to investigate the possibility to host the IOC Project Office, taking into consideration that space would be available at the current location of VLIZ. The city of Oostende offered the maritime location, including the buildings adjacent to these of VLIZ, in their present state; rental costs (below commercial rates) will be used to fund the renovation of the buildings.

Subsequently, the Government of Flanders (Kingdom of Belgium) submitted a formal offer to the 17th Session of the IODE Committee to host the IODE Project Office in Oostende, Belgium. In this offer, the Government of Flanders will cover the:

- cost of rental office block (two floors) with an approximate floor space of 1100 m^2 (configuration to be agreed upon) including basic infrastructure (painting of walls, floor covering, light fixtures, electrical outlets, plumbing, heating installation) (value €40,000/year);
- cost of all utilities (water, power, heating) (value approx. €10,000/year);
- cost of 2 Mbit/sec Internet connection – shared with VLIZ (value approx. €10,000/year);

The host country will also provide the equivalent of one full time support staff for the Project Office (one half time secretary and one half time technician).

8.2 LOCATION

The proposed IODE Project Office will be located in the city of Oostende, Belgium. Oostende is situated approximately one hour west of Brussels and is served by a regular train service. Oostende is also serviced by a direct train service to Paris, a 2½-hour journey.

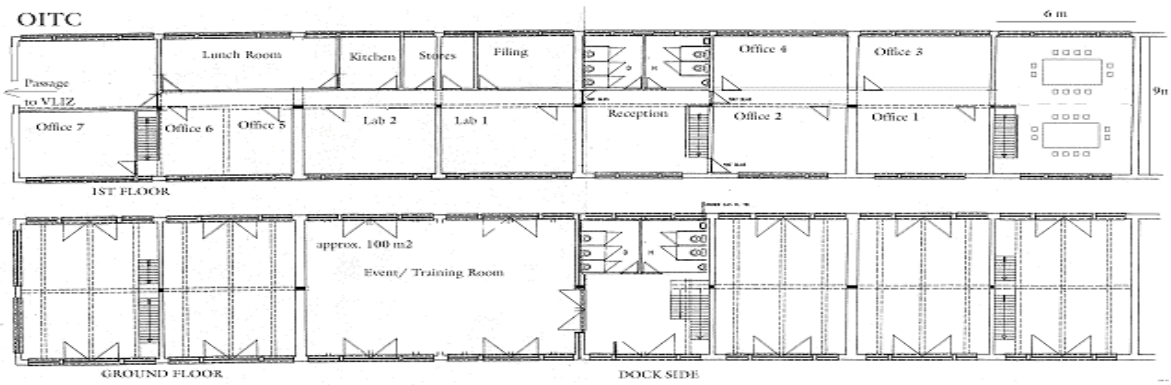
The Project Office will be housed in the former 'Oostende Vismijn' located 5 minutes north of the city of Oostende, Belgium. VLIZ is presently housed in the same block of buildings. VLIZ hosts the NODC for Flanders, and participates in IODE activities through membership of GE-BCDMEP and the SGXML. Proximity will enable close collaboration between the two organizations. VLIZ will provide internet connectivity for the IODE Project Office and will also provide secretarial and technical support. The oceanographic research vessel, *Zeeleeuw*, operated by VLIZ can serve as a test-bed for on-board technologies developed by the Project Office.

8.3 FACILITIES

The total floor space will be approx 1100 m^2, distributed over 2 floors. The floor space consists of 8 blocks, each measuring 6 m x 9 m. The ground floor will house one large event and training room (approx. 110 m^2) which will be used for medium size events and training courses. In auditorium configuration the room will offer seating for up to 96 people. When configured for training courses the room will offer seating to approximately 20 participants. Additional space will be available on the ground floor for future expansion to include laboratory space.

FIRST FLOOR

block 1 *block 2* *block 3* *block 4* *block 5* *block 6* *block 7* *block 8*



block 1 *block 2* *block 3* *block 4* *block 5* *block 6* *block 7* *block 8*

GROUND FLOOR

Figure 1

The first floor will house all offices as well as two small meeting rooms. A total of 7 offices are proposed. Each office will (ultimately) be equipped with a desk and chair, computer, printer, telephone, bookshelf and cupboard. Two open plan offices, each with the capacity to seat four people, will be available for short term visiting experts, students and interns. We propose a total of 2 meeting rooms on the first floor (block 8). Each meeting room will have seating capacity for 12 persons. The two meeting rooms can be combined, if required, with a seating capacity of 16 persons. The first floor will also accommodate a reception area, filing room, storeroom, kitchen and lunchroom.

A 2 Mbit/sec Internet connection, to be shared with VLIZ, will be provided through Belnet. Each office and meeting room will be pre-wired and equipped with RJ-45 wall sockets with access to the fileserver, Internet server and Internet. The first floor meeting room should have at least six network connections and the ground flor training room will have approximately 25 connections.

9. PRINCIPAL ACTIVITIES OF THE PROJECT OFFICE

The activities to be administered by the IODE Project Office will include ongoing IODE projects and activities, as well as the new activities that build and reinforce collaboration between IODE and ocean science and monitoring programmes, GOOS and JCOMM. Examples of these are the Ocean Information Technology Pilot Project (OIT) in support of the development of Operational Oceanography and the OceanTeacher in support of capacity Building. These projects can be classified according to the IODE programme activities described in Section 3.

9.1 EXPERTISE

The IODE Project Office will also be able to host meetings of Groups of Experts and project Steering Groups. Such Subsidiary Bodies meet either once a year or once every two years. The number of participants varies between 10 and 15 (group members plus observers). The IODE Project Office will be a cost-effective meeting facility where small expert groups can meet.

The IODE Project Office will have the technical infrastructure required including broadband Internet access, video conferencing and video projection. Hosting meetings at the IODE Project Office will avoid costs incurred by local organizer for special meeting room and equipment rental. In addition, affordable and convenient accommodation for participants is widely available in Oostende. International access is expedient: train connection from Brussels (including its airport) is 1 hr and is 2½ hrs from Paris.

9.2 PROJECTS

The Project Office will provide a creative environment where ocean data and information experts from IOC Member States will be invited to collaborate in an extensive range of IODE projects. To facilitate this, the Project Office will provide all necessary infrastructure, communication tools and meeting facilities. The Project Office will coordinate ongoing IODE projects and will actively support the following projects:

- **OceanExpert.** The Project Office will host, maintain and further develop the OceanExpert database system. The database has been hosted at UNESCO headquarters since 1997, however since 2002 bandwidth has become a problem for UNESCO and this has resulted in unsatisfactory access for users. In addition, the IODE Committee, at its 17th Session, recommended that the server hosting OceanExpert be relocated to the proposed IODE Project Office;
- **Marine Environmental Data Information Catalogue (MEDI).** The Project Office will host, maintain and further develop the MEDI system. The IODE Committee, at its 17th Session, recommended that MEDI should be ISO 19115 compliant and future collaboration is planned with the UK NERC-GRID project to provide this ISO compatibility;
- **OceanPortal**. The Project Office will host, maintain and further develop the OceanPortal service. Regular indexing of Ocean Portal, which IODE has been unable

to operate since August 2002, will be possible using the high-speed internet connection at the project office;

- **MarineXML**. IOC has established a MarineXML Consortium to ensure that the global marine community can make best use of the benefits afforded by XML technology. The MarineXML consortium now contains two XML initiatives: SGXML and the EC MarineXML project. SGXML consolidates the work at IODE and ICES to lead the way in agreeing standards to parameter dictionaries of oceanographic terms and taxonomies. The EC MarineXML project is focused on the process of development and management of a "Marine mark up language" (MML) schema. IODE heads the Exploitation and Dissemination Work Package of the EC MarineXML and these activities will be relocated to the Project Office. The www.marinexml.net site, currently hosted and maintained by IODE will be moved to the Project Office. The Project Office will also host the MarineXML discussion forum and host expert meetings related to the marine XML projects.
- **BeeBox**: The Project Office will further develop BeeBox as well as provide user support. The availability of students from nearly technical colleges is an added advantage as they will be able to develop additional BeeBox modules at low cost;
- **Ocean Information Technology (Pilot) Project**: See 9.6

9.3 TRAINING AND REGIONS

The further strengthening of the IODE Capacity Building programme will be one of the cornerstone activities of the Project Office. The Project Office will integrate the different components that have been developed since 1998 towards:

(i) supporting the establishment and strengthening of national oceanographic data and information centres;

(ii) assisting in the development of regional data and information centre networks that promote the sharing of data and information holdings, products and services;

(iii) providing training opportunities for ocean data and information management professionals from Member States, at the start-up level or for continuous professional development;

(iv) promoting the sharing of ocean data and information at the global level to contribute to global ocean research and services.

ODIN networks have been successfully developed in Africa and the Caribbean/South America regions and the new IODE capacity building strategy will aim at benefiting all IOC Member States. To meet these aims, the Project Office will provide an efficient and cost-effective infrastructure that includes in-house expertise and training facilities that can act as a centralized training and education facility in ocean data and information management. This facility will complement occasional national or regional training events but will be able also to bring together experts from different regions to ensure inter-regional collaboration.

In support of the ODIN strategy, IODE has developed a standard training curriculum, the **OceanTeacher** system. OceanTeacher can be used as a mechanism to streamline ocean data and information management training in Europe, including training for students in universities (which has identified as one of the weak points in academic training that leads to lack of awareness for the importance of data and information management amongst the science community). The IODE Committee, at its 17th Session, 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. 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 and requested the SG-OceanTeacher to prepare a draft curriculum that could be used in graduate courses in marine science/oceanography. Specifically, the Project Office will:

(i) investigate a technology solution that enables submission/editing of the content by multiple editors in different locations;

(ii) develop a technology solution to provide distance education;

(iii) encourage more content providers and content editors to submit material to Ocean Teacher;

(iv) expand the coverage to include operational oceanography and remote sensing training packages such as Bilko;

(v) develop introductory courses on Data and Information Management for marine science university curriculum.

The Project Office can bring together professionals from different regions to enable effective interaction between the OceanTeacher development team and the users/students to improve the system.

In view of the long-term, ambitious and resource intensive nature of this undertaking additional extra-budgetary funding (and human resources) will be sought from donors and Member States.

9.4 INFORMATION DISSEMINATION AND NETWORKING

The *BeeBox* dynamic content management system software is now used for many IOC sites including IODE, marineXML, IOCMS, OceanSciences, ODINAFRICA, ODINCARSA, and others will soon start implementing the software. Some Member States have also requested copies of the software for the development of institutional or national web sites. The IODE Committee, at its 17th Session requested the Secretariat to develop a *BeeBox* 'training package' for distribution to interested Member States and for use by IODE and other projects.

The Project Office will provide *BeeBox* user support and software distribution. The Project Office will have or obtain the necessary in-house expertise, server space and bandwidth to host web sites for Member States, and IOC projects. The Project Office will also develop technology that will enable cross posting and cross searching between dynamic web sites, thus enabling the development of globally interconnected web sites.

9.5 COOPERATION WITH OTHER PROGRAMMES

Whereas the proposal to establish a project office is an initiative of IODE, the project office should be seen as a service to all IOC programmes. This will be fully in line with the IODE objectives that aim to serve all IOC programmes in the area of ocean data and information management.

The Project Office will have the facilities to host technical and coordination meetings of JCOMM and GOOS. It will have the technical facilities and infrastructure to organize and host training courses for the MAMA project (MedGOOS) and to host and further develop the MeDIR

directory for the MedGOOS secretariat. The Project Office will host and maintain the submission and editing functions of the UN Atlas of the Oceans. The Office will also develop, host and maintain the EurOcean Portal site.

9.6 NEW CROSS CUTTING PROJECTS

As indicated earlier, one of the objectives of the IODE Project Office will be:

> *"to establish a creative environment facilitating the development of a technology framework that will dramatically improve the efficiency and effectiveness of the data stream between the stage of sampling and the user"*

To achieve this objective an integrated cross-sectoral approach is needed to examine successful data management systems from other sectors. It is important to ensure that ocean data and information management moves in parallel with the development of new technologies, especially those related to telemetry, communication, standards and formats and distributed databases.

This innovative approach will be combined into the Ocean Information Technology (OIT) Project. The project rationale will embrace:

- the demand for effective telecommunications;
- the need for common standards, practices and protocols;
- the need for data and product services matched to the users;
- the need for innovative data query, access and delivery mechanisms; and
- the need for intra-operability and interoperability.

The project will initially focus on a 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. IODE will be a sponsor of OIT through existing expertise and projects such as GODAR, WOD, GTSPP, GOSUD, GE-BCDMEP.

The OIT Pilot Project will be an important contribution to the resolution of ocean data management issues and to enhancing the overall capacity and functionality. The IODE Committee, at its 17th Session endorsed the Project as a component of the IODE work plan and recommended that the proposed IODE Project Office would be an appropriate facility to provide support for the development of this important initiative. The Project Office will have the required communication technology, office and laboratory space, as well as meeting facilities to host the OIT Secretariat.

The Project Office will be able to host short-term experts, as well as the Project leader, to launch the Project, initiate and develop the technical modules of OIT. Especially in the initial phases of the project, concentrated and full-time work will be required for which the Project Office can provide the ideal environment. It is hoped that Member States will enable the project to develop effectively and efficiently by supporting the short- to medium-term secondment of relevant experts.

10. PROJECT OFFICE COSTS AND STAFFING

10.1 ESTABLISHMENT COSTS

The host country will meet the cost of all construction work and renovation associated with the establishment of the IODE Project Office. This includes provision of all electrical, heating and plumbing works. (See 8.1)

The IODE Project Office will be developed in two phases:

- Phase I will provide the essential core infrastructure and office furniture for the initial essential staff. Phase I will provide office space for up to 6 staff, the two meeting rooms and event/training room. It is planned that this be implemented during the first year of operation
- Phase II will add the remaining infrastructure and office furniture to complete the office configuration. Phase II will include the installation of the remaining offices and will be completed during the second year of operation.

Establishment costs to be met by IOC are:

	Phase I	Phase II
Telephone exchange and telephones	$2,500	$2,000
Office furniture for 6 offices	$9,000	
Office furniture for 10 staff		$1,5000
Meeting room furniture for meeting rooms	$3,000	
Event/training room furniture	$10,000	
AV equipment (meeting rooms, event room)	$2,000	$6,000
Miscellaneous office equipment	$1,500	
Photocopier		$1,000
Fax machine	$500	
PC equipment for 6 offices	$15,000	
PC equipment for 10 staff		$25,000
PC equipment training room		$30,000
Web server		$ 5,000
Relocation of facilities	$3,000	
Relocation of IOC Staff	$4,000	
Total Establishment Costs	**$50,500**	**$84,000**

Note: If necessary Phase 2 can be spread over more than one year.

In order to avoid a strain on the already limited IODE RP budget it is clearly stated that all costs for establishing the Project Office will be covered by extra-budgetary funds.

10.2 OPERATIONAL COSTS

The host country will cover the costs of office rental, building maintenance, utilities (water, electricity, heating), taxes and insurance. VLIZ will also cover the cost of provision of broadband 2Mb Internet connection.

The host country will also provide the equivalent of one full time support staff for the Project office (one half time secretary and one half time technician).

Annual operational costs to be met by IOC will be are:

Telephone calls, line rental and maintenance	$4,500
Office cleaning	$6,180
Office consumables	$1,500
Mailing	$2,500
Total Annual Operational Costs	**$14,680**

In order to avoid a strain on the already limited IODE RP budget it is clearly stated that all costs for maintaining the Project Office will be covered by extra-budgetary funds. These will be sourced from Project overhead costs. The decision to maintain the Office (and its staff) will need to depend, *inter alia*, on the Project's ability to attract extra-budgetary projects.

10.3 STAFFING

It is proposed that two staff from Headquarters be transferred to the IODE Project Office:

- Mr Greg Reed (Manager)
- Mr Benjamin Sims (Software developer)

The offer from host country also includes the provision of the equivalent of one full time support staff for the Project Office (one half time secretary and one half time technician).

In addition, the Project Office staff will be complemented by interns and visiting experts. New projects generated from the Project Office will also include a staffing component and IOC/IODE Member States will be invited to outpost relevant experts on short to long-term basis. Students and interns will be invited to work at the Project Office and this will contribute to their training by hands-on experience in a new technology environment.

11. ISSUES AND RISKS

The impact of a partial decentralization of the IOC/IODE Secretariat on the Ocean Section of IOC must be considered in the process of establishing the IODE Project Office. Issues to be consider include:

- The estimated annual operational cost of US$ 15,000 carries the risk of reducing the financial base of the IODE Programme. However it is clearly stated that these costs will be covered by extra-budgetary sources through project overhead. The IOC Secretariat will carefully monitor and audit the cash flow of the Project Office.
- The decentralization of operations carries the risk of the decentralized office developing and implementing actions that are not following agreed-upon work plans. This is a risk of all decentralized offices. However telecommunication facilities that will link the Project Office to IOC Headquarters and the geographic proximity of the proposed office to the IOC Headquarters should avoid this problem. In addition the Project Office will implement technical aspects of the IODE programme and will not be involved in policy and strategy which will remain at IOC Headquarters.

- The decentralization of operations carries the risk of ineffective management of the decentralized office: It is important that a suitably senior professional with proven management capabilities heads a decentralized office. It is proposed that Mr Greg Reed (P-4) who has worked for the Ocean Services section for last two years will head the Project Office and prior to this had extensive management responsibilities at his previous position at the AODC in Australia.
- The transfer of two Secretariat staff to the Project Office carries the risk of bringing the programme to a below-critical mass situation. However the affected staff are involved in programme implementation and not in strategy and policy. Strategy and policy will remain the responsibility of the Head, Ocean Services. In addition steps have been taken to add a P-4 staff (through Member State support) that will strengthen the linkage IODE-GOOS and reinforce the JCOMM role in IODE. The decentralized staff will focus on technical programme aspects related to capacity building and ocean information technology. The Ocean Services section will remain at IOC Headquarters. It will include responsibilities for the IODE programme, Ocean Mapping and ITSU. Dr Dmitri Travin manages Ocean Mapping and this will remain unchanged. Mr. Peter Pissierssens will remain directly involved in IODE (strategy and policy) and ITSU (strategy, policy and technical implementation).

ANNEX A

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) organizing 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) organizing 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.

[end]