

**INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION
(of UNESCO)**

**Twentieth Session of the IOC Committee on International Oceanographic Data
and Information Exchange (IODE-XX)
Beijing, China, 4-8 May 2009**

OceanTeacher and Training Activities

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Summary of the document

The OceanTeacher training resources are in the process of being completely re-written and converted to a “wiki” system (similar in concept to Wikipedia) that allows for maximum flexibility in the creation of new documents. The wiki framework is also optimally suited to the coordination of multiple authoring assignments, checking and approval of content, and progress monitoring, among a physically widespread team of participants. The existing content structure of OceanTeacher has been subjected to a critical re-evaluation, based on nearly a decade of use, and has been re-drawn to reflect current training goals and changing interests and needs of the client community. In view of these two major changes to the OceanTeacher training paradigm, the entire concept of holding training workshops responsive principally to current perceptions of education needs in particular regions at specific points in time, has been scrapped in favor of a long-range, permanent “academy” strategy, consisting of annual cycles of standard (and some specialized) courses, offered universally. The academy system includes course sequences, pre-requisites and credit concepts similarly to typical university practices.

Appendices:

- A. *IODE Training Courses after IODE 19*
- B. *Topical Outline of Data Management Components in OceanTeacher*
- C. *Topical Outline of Information Management Components in OceanTeacher*
- D. *Course Types to be Offered by the IODE Academy*
- E. *Prioritization of Course Topics for 2009*

DRAFT TEXT FOR INCLUSION IN THE SUMMARY REPORT

Intersessional Training Accomplishments

The IODE marine data and information management training program has continued its story of successful workshops and courses, using the OceanTeacher 1.0 materials. The list of sessions held in the intersessional period is contained here in Appendix A. The activities involved 92 students, involving 124 individual training opportunities.

Development of the Academy Concept

Based on informal discussions and input from students and trainers, the Secretariat developed a new program plan, in 2008, to advance all data and information training along a new path. The resulting proposal can be consulted here: *OceanTeacher Academy: a human capacity development framework for IOC/IODE Ocean Data and Information Networks* (proposal submitted to FLANDERS UNESCO SCIENCE TRUST FUND (FUST) SC-15) [see http://ioc-unesco.org/index.php?option=com_oe&task=viewDocumentRecord&docID=2688] The proposal was submitted to FUST in September 2008, and subsequently approved. The course types that will be offered by the new Academy are listed in Appendix C.

Conversion of OceanTeacher Resources to Wiki Format

One of the highest priority items in the Academy program proposal was the conversion of the existing 'content management system' (CMS) format of OceanTeacher to the 'wiki' format, which is becoming a widely used web standard for document publication. The former CMS approach was very inflexible for purposes of authoring, and highly limiting in terms of content format. The new OceanTeacher in wiki format can be viewed at <http://www.oceanteacher.net/index.php/OceanTeacher>.

Restructuring and Revision of OceanTeacher Content

Simultaneous with the conversion to wiki format, the entire contents of OceanTeacher were reviewed, with an eye toward eliminating materials that have not been useful for training, and adding new materials requested by newer course offerings. The new outline for Data Management (DM) components (top two levels only) can be seen in Appendix A. This exercise has effectively resulted in a new typology of topics related to marine data management. The Information Management (IM) outline is also attached in Appendix C.

To streamline OceanTeacher, the policy has now been adopted of eliminating the massive inclusion of external documents, in favor of external web links to the original sources. This reduces the total volume to approximately 300-400 definitive "articles" listed in the DM and IM outlines, approximately 100 tutorials, and a library of example data files. We feel that current bandwidth improvements throughout the globe support this new paradigm.

Survey of Training Needs

In October/November 2008, the Secretariat developed and circulated a survey of training needs, in both the DM and IM areas, requesting all IODE-concerned persons and groups to respond online. The survey was well received with 109 respondents to Data Management and 118 respondents to the Marine Information Management

survey. The results of the survey can be accessed online through the following URLs:

DATA MANAGEMENT -

http://www.surveymonkey.com/sr.aspx?sm=BUrNrp9EwsKKGN_2fldbc3rOtRMxJedUE_2ff0xUqGveDAo_3d

INFORMATION MANAGEMENT -

http://www.surveymonkey.com/sr.aspx?sm=hQnEqjS4Axj7d209OJX_2bmRT_2bwfcETYcChq2eslabhXI_3d

A password is required to access either result . You can obtain the password by contacting p.pissierssens@unesco.org

Based on these results, the OceanTeacher editors and trainers are now proposing the initial list of courses in Appendix D, for development in 2009.

Initiation of the OceanTeacher Training Corps

A 'training corps' of two dozen volunteers has been developed by the Secretariat, from nearly as many countries. After initial planning meetings by the OceanTeacher editors in early 2009, members of the training corps will be organized into authorship and training positions, according to the new OceanTeacher and Academy models.

Coordination and Cooperation with Other Programs & Agencies

MARINE DATA MANAGEMENT - Close ties and specific common training projects are being pursued with the Joint WMO-IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM), Partnership for Observation of the Global Oceans (POGO), UNESCO's Bilko satellite imagery training program, The European Union's marine data management initiatives, and Belgian and Flemish academic groups. Most of these groups are represented by at least one proposed joint course in 2009.

MARINE INFORMATION MANAGEMENT – Partnerships with marine information professional societies, the International Association of Marine and Aquatic Sciences Libraries and Information Centers, graduate schools of library science, Belgian, Flemish and other European academic groups are being developed for the next training phase of OceanTeacher.

Appendix A. IODE Training Courses after IODE 19

ODINECET Training Course on Marine Information Management

3 - 7 Nov 08, Oostende, Belgium

IODE Training Course on Mapserver for the Caribbean Marine Atlas

2 - 6 Jun 08, Oostende, Belgium

IODE Training Course on Marine Information Management towards the Ocean Data and Information Network for the Pacific Island region

13 - 17 May 08, Oostende, Belgium

IODE Workshop on Data Mining and Assimilation for the Caribbean Marine Atlas

21 - 27 Apr 08, Port-of-Spain, Trinidad and Tobago

Introduction to Ocean Data Management for University Students

17 - 18 March 2008, Oostende, Belgium

IODE Training Course on Oceanographic Data Management for the Caribbean Marine Atlas

13 - 20 Feb 08, Oostende, Belgium

ODINECET Marine Information Management Training Course

19 - 23 Nov 07, Oostende, Belgium

ECOMAMA GIS Training Course

5 - 9 Nov 07, Oostende, Belgium

Training on the management of the End to End data Management (E2EDM) prototype system

22 - 25 Oct 07, Oostende, Belgium

ODINAFRICA Marine Biodiversity Data mobilization workshop

4 - 15 Jun 07, Oostende, Belgium

ASCABOS Training Course

23 - 27 Apr 07, Oostende, Belgium

E-repository Training Course

23 - 28 Apr 07, Oostende, Belgium

IODE/MarBEF Biodiversity Data Management Course

19 - 23 Mar 07, Oostende, Belgium

Appendix B. Topical Outline of OceanTeacher 2009 (Data Management Components)

1. Quality Management
 - 1.1. Quality Control
 - 1.2. General QC
 - 1.3. Quality Flags
 - 1.4. Quality Assurance
2. Data Infrastructure
 - 2.1. Marine Data Standards
 - 2.2. Metadata
 - 2.3. Numerical Data
 - 2.4. Data Format Types
 - 2.5. Data Format Examples
 - 2.6. Geospatial Concepts
 - 2.7. Remote Sensing Concepts
 - 2.8. Marine Concepts
3. Transmission and Distribution
 - 3.1. General Communications
 - 3.2. GEOSS
 - 3.3. WMO Systems
 - 3.4. JCOMM Systems
 - 3.5. OPeNDAP
 - 3.6. OGC Web Services
 - 3.7. IODE Ocean Data Portal
 - 3.8. Early Practices
4. General Reference Shelf
 - 4.1. Marine Sciences
 - 4.2. Marine Education
 - 4.3. Organizations, Agencies and Programs
5. Data and Products
 - 5.1. Data Availability and Access
 - 5.2. Ocean Surveys
 - 5.3. Oceanographic Research
 - 5.4. Data Centers
 - 5.5. Operational Oceanography
 - 5.6. Operational Meteorology
 - 5.7. Data Websites and Catalogs
6. Analysis and Management
 - 6.1. Applied Analysis
 - 6.2. Format Conversion Tools
 - 6.3. Database Systems
 - 6.4. Datafile Management Tools
 - 6.5. Manipulation and Visualization Tools
 - 6.6. Metadata Tools
 - 6.7. Roadmap Exercises
 - 6.8. Geographic Information Systems
 - 6.9. Marine GIS

Appendix C. Topical Outline of Ocean Teacher 2009 (Marine Information Management Components)

1. Knowledge and Science in General
2. Information Technology
 - 2.1 Information Technology: General
 - 2.2 Computer Architecture
 - 2.3 Computer Hardware
 - 2.4 Computer Software
 - 2.5 Man –Machine Interaction
 - 2.6 Data and Databases
 - 2.7 Computer Networks
 - 2.8 Artificial Intelligence
 - 2.9 Computer Applications
3. Organization of Knowledge
 - 3.1 Metadata
4. Libraries and Information Centres
 - 4.1 Library and Information Science : General
 - 4.2 Libraries: Functions, Value , Cooperation
 - 4.3 Libraries as Physical Places
 - 4.4 Library Personnel
 - 4.5 Libraries in Relation with Users
 - 4.6 Operation of Libraries and Information Centres
 - 4.61 Information Technology in Libraries
 - 4.62 Library Management Systems
 - 4.63 Authentication and Access Management
 - Digitisation
 - Multilingual Access
 - Pricing in Digital Libraries
 - Searching Digital Libraries
 - Digital Libraries: General
 - Open Science Directory
 - Directory of Open Access Journals (DOAJ)
 - Digital libraries in marine science
 - ASFA Database
 - Repositories
 - Repositories: General
 - Digital Repositories and Copyright
 - General Deposit Agreement (example)
 - Open Access and Document Repositories
 - OceanDocs program - Repository (network)
 - Standards
 - Policy Development
 - Software
 - Harvesters in Marine Science
 - Evaluating Digital Sources
5. Library Administration and Management
 - 5.1 Library Acquisitions
 - 5.2 Collection Development
 - 5.3 Cataloguing

5.4 Subject Analysis and Classification

5.5 Services to Library Users

5.6 Circulation Services and Document Delivery

5.7 Preservation

5.8 Maintenance of Library Collections

5.9 Bibliometrics and Scientometrics

5.91 Assessing the Influence of Scientific Journals

5.92 Bibliographic Citations

Appendix D. Course Types to be Offered by the IODE Academy

1. **Basic Courses** – Survey courses of fundamental principles in data or information management.
2. **Advanced Courses** -- Courses beyond the survey level that tackle complex topics beyond the basic concepts.
3. **Applied Courses** – Courses that directly tackle very specialized treatment of specific data types, or data for specific applications.
4. **Accredited (University) Courses** – Courses, sometimes very similar to the above, developed specifically to meet formal university course requirements of coordinating institutions.
5. **Continuing Professional Development (CPD) Courses** – Courses designed to provide professional information and data managers with updated information, new information, or re-fresher information on selected topics of interest.

Appendix E. Prioritization of Course Topics for 2009

Roughly half of all all survey participants requested the following courses, which provides the OceanTeacher trainers with the best notion of the essential core courses on which to build the eventual complete curriculum, as well as the initial requirements for training in 2009. An approximately equal number of lower-scoring other course titles are still under consideration.

INFORMATION MANAGEMENT

Basic Courses:

- 1- Literature of the Marine Sciences
- 2- Establishing a Marine Information Center - Level 1

Advanced Courses:

- 3- Developing your Library Website
- 4- In-depth Training on DSpace for the Development of an e-Repository

Specialized Courses:

- 5- Archiving and Preserving Digital Media

DATA MANAGEMENT

Basic Courses:

- 6- Ocean Data Products and Synthesis
- 7- Developing an Ocean Data Collection

Advanced Courses:

- 8- Marine GIS

Specialized Courses:

- 9- Ocean Modeling and Related Data Management
- 10- Web-Based Data Services Development

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