ODINAFRICA II Remedial Training Course in Marine Data Management (Data Short Course)

Supported by the IOC and the Government of Flanders

Accra, Ghana
14-18 April 2003
Abstract
A special workshop has been held in Accra, Ghana from 14-18 April 2003 as part of the ODINAFRICA-II program for ocean data management. This report describes the content and accomplishments of that special workshop. The workshop programme was based on the IOC OceanTeacher capacity building tool - an extensive collation of documents on marine data, formats, software, program and data management procedures, manuals, protocols, and associated tutorials. A set of intersessional assignments was formulated that included a wide range of specific dataset measures and products that will be assigned regularly through the recently established ODINAFRICA.net communication network.
## TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. INTRODUCTION AND OBJECTIVES</td>
<td>1</td>
</tr>
<tr>
<td>2. PARTICIPANTS</td>
<td>1</td>
</tr>
<tr>
<td>3. COURSE PROGRAMME</td>
<td>1</td>
</tr>
<tr>
<td>3.1 Workshop Objectives</td>
<td>1</td>
</tr>
<tr>
<td>3.2 Workshop Technical Outline</td>
<td>2</td>
</tr>
<tr>
<td>4. RECOMMENDATIONS AND ASSIGNMENTS</td>
<td>4</td>
</tr>
</tbody>
</table>

### ANNEXES

I. Course Program and Timetable

II. List of Participants
1. INTRODUCTION AND OBJECTIVES

Two Workshops in Marine Data Management have been organised by the ODINAFRICA II project (Casablanca, April, 2001; and Tunis, May 2002), attended by students from twenty African nations. ODINAFRICA is a data and information project working towards establishing a lasting network of marine and aquatic data and information centres in Africa. Through its information services to the scientific community, the project aims at promoting the scientific capabilities of this continent. The objectives of the ODINAFRICA project are as follows:

1. Provide assistance in the development and operation of National Oceanographic Data (and Information) Centres and establish their networking in Africa;
2. Provide training opportunities in marine data and information management applying standard formats and methodologies as defined by the IODE;
3. Assist in the development and maintenance of national, regional and Pan-Africa marine metadata, information and data holding databases;
4. Assist in the development and dissemination of marine and coastal data and information products responding to the needs of a wide variety of user groups using national and regional networks.

Under the leadership of the IOC, and with funding generously provided by the government of Flanders, the workshop was designed to address the final objective listed above. A complete record of the previous workshops, including detailed descriptions of the training materials, is given in IOC Training Workshop Reports 60 (Casablanca) and 64 (Tunis). Subsequent to intersessional student assignments during 2002, it was determined that several of the IOCEA students were lagging behind, and that it would be desirable to hold a remedial training session to address their individual training needs. A special workshop, addressing those concerns, has been held in Accra, Ghana from 14-18 April 2003, hosted by the Marine Fisheries Research Division (MFRD). This report describes the content and accomplishments of that special workshop.

The marine data management training curriculum developed by the IOC’s International Oceanographic Data and Information Exchange Program (IODE) is based on an extensive collation of international public documents on marine data, formats, software, program and data management procedures, manuals, protocols, and associated tutorials that forms part of the IODE Ocean Teacher product. The main collection, entitled the IODE Resource Kit, is a 650 megabyte CD-ROM that has been under development by the IODE training staff since 1997. The Ocean Data Management Training Manual, a smaller companion documents designed for instructors, accompanies the Resource Kit for Data Management.

2. PARTICIPANTS

Seven students from six countries (Bénin, Cameroon, Côte d’Ivoire, Ghana, Guinée, Nigeria) were identified for the workshop. The list of participants and information about the lecturers are provided as Annex II. An eighth student (Comoros) was unable to attend, due to travel difficulties.

3. COURSE PROGRAMME

3.1 WORKSHOP OBJECTIVES

The ODINAFRICA II Marine Data Management training curriculum has been designed to provide participants with knowledge and skills in the following areas:

- Basic computer skills
- The importance of marine data in general, and particularly within participants’ national and regional environments
- How to set up an oceanographic data centre within the IODE System
- Infrastructure requirements, including hardware and software tools
- How to manipulate and analyze the principal types and formats of marine data
How to produce ocean data products and to disseminate thee products, both over the Internet and by traditional methods

This workshop was designed to address the third, fourth and fifth objectives above (indicated by underlining). A special manual was written to address the specific training needs within these objectives, entitled the Data Short Course Manual, and it has been added to the OceanTeacher website (http://oceanteacher.org) where all marine data management training materials are published.

The timetable for the workshop is presented in Annex I.

3.2 WORKSHOP TECHNICAL OUTLINE

The outline of the workshop was designed to address specific technical capabilities that the invited students have indicated – both individually in communications with the instructors and by their submission of intersessional assignments – to be problematic. In addition, the new Marine Environmental Data Inventory (MEDI) software (which has not been addressed directly in previous workshops) was presented.

<table>
<thead>
<tr>
<th>Workshop Section</th>
<th>Goal(s)</th>
<th>Subdivisions</th>
<th>Goal(s)</th>
<th>Technical Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basics Review</td>
<td>Review some basic concepts that (based on performance) have not been adequately learned in previous workshops</td>
<td>Business Concepts</td>
<td>Review some ordinary PC practices for better computer use and improved communications</td>
<td>WINDOWS Review</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scientific Concepts</td>
<td>To review some of the most important formats, databases and programs in the Resource Kit</td>
<td>Scientific Concepts</td>
<td></td>
<td>Resource Kit Contents</td>
</tr>
<tr>
<td>MEDI</td>
<td>To provide an overview of metadata; and to demonstrate the installation and use of the metadata authoring tool for MEDI (Marine Environmental Data Inventory)</td>
<td></td>
<td></td>
<td>Metadata</td>
</tr>
<tr>
<td>National Data Collection</td>
<td>To show students, &quot;step by step,&quot; how to create a national data collection from the World Ocean Database 2001 (WOD01)</td>
<td>Determine the AOI &quot;Box&quot;</td>
<td>To demonstrate some methods for determining the Area of Interest (AOI)</td>
<td>Area of Interest Tutorials (C-1 to C-8) in the IODE Resource Kit</td>
</tr>
<tr>
<td></td>
<td>Create the Original Data Collection</td>
<td>To demonstrate how to use the AOI to select data from WOD01 to make an preliminary data collection called the Original Data Collection</td>
<td>Area of Interest Tutorials (D-1 to D-3) in the IODE Resource Kit</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Task</td>
<td>Description</td>
<td>Related Content</td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Create the National Collection</td>
<td>To demonstrate how to make the desired National Data Collection from the temporary Original Data Collection</td>
<td>Creation of Data Collections (D-4) in the IODE Resource Kit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Make an Inventory</td>
<td>To demonstrate some basic methods for managing your ODV collection</td>
<td>Collection Housekeeping (G-2) in the IODE Resource Kit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Add Your Own Data</td>
<td>To demonstrate the basic methods to digitize &quot;hard copy&quot; data into a spreadsheet</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Data ABCs                                                          | To provide a review of some important concepts about ocean data measurements                                                                                                                                          | • Oceanographic Parameters  
• Parameter Units  
• Conventions                                                                                                       |
| Spreadsheet Work                                                   | To demonstrate how to make a spreadsheet for data entry, and to digitize a "hard copy" dataset into that spreadsheet                                                                                                    | Adding Other Data (H1-H4) in the IODE Resource Kit                                  |
| Analysis, Quality Control & Exporting                              | To demonstrate some basic Quality Control (QC) methods for marine data, using analysis procedures in Ocean Data view (ODV), and to demonstrate how to make data products (files and figures) with ODV                              | • Integrated Formats Documentation  
• Analysis and Quality Control (I1-I4) in the IODE Resource Kit  
• Exporting ODV Products (J1-J2) in the IODE Resource Kit                                                                 |
| Gridding and Contouring                                            | To demonstrate the basic concepts in gridding and contouring a set of scattered data points                                                                                                                                 | Gridding and Contouring Data in SURFER (K1-K6) in the IODE Resource Kit           |
| Data from Images                                                    | To demonstrate some basic methods for extracting usable data from images (especially satellite images)                                                                                                                                                               | Managing HDF Files (M1-M8) in the IODE Resource Kit                                 |
| Data from HDF                                                      | To demonstrate how to extract an ASCII data grid from an HDF file, and to convert it to XYZ data for gridding                                                                                                                   |                                                                                |
4. RECOMMENDATIONS AND ASSIGNMENTS

This workshop included 5 students who have attended previous training sessions (Bénin, Cameroon, Côte d’Ivoire, Ghana, Nigeria), one student who is entirely new to the program (Guinée; due substitution of a previous student), and an observer (Ghana). This mix presented some challenges, also because the students from Guinée and Côte d’Ivoire speak only limited English. The language of instruction for the program is English as agreed by the project partners. Returning students did quite well, generally, and the instructors are convinced that in 3 cases (Ghana, Nigeria, Bénin) problems in student progress have been adequately addressed. The Francophone students stand now at approximately the same stage in their training as all “first-course” students: time and experience with the training materials (the Kit and its manuals) are needed to bring them on par with the extended IOCEA group.

Further investigation has revealed that many of the problems faced by some of the students were caused by inadequate access to the computer equipment supplied by the ODINAFRICA program and/or to the Internet. A large part of the ODINAFRICA training is based on exercises and assignments delivered by email over the Internet, and on the use of Internet website resources. In cases where the students were actually not able to use their computers or to access the Internet, they were in effect isolated from the intersessional activities and could not either follow the lessons or develop national data resources. Recent improvements in their access to ODINAFRICA resources have resulted in remarkable gains in some cases.

The students were encouraged now to catch up with the set of class assignments, published on a special Internet website (http://oceanteacher/DataTeacher/). In addition, they were informed of the need to work toward the presentation of results in the upcoming ODINAFRICA II workshop session in Belgium (September 2003).
ANNEX I

COURSE PROGRAM AND TIMETABLE

MONDAY
Introduction
Workshop Information
Basics Review

TUESDAY
MEDI
National Data Collection

WEDNESDAY
National Data Collection (Continued)
Add Your Own Data

THURSDAY
Analysis & Quality Control
Gridding & Contouring

FRIDAY
Data from (HDF) Images
I. TRAINEES

Mr. Zacharie Sohou
Centre Béninois de la Recherche Scientifique et Technique (CBRST)
Centre de Recherches Halieutiques et Océanologiques du Bénin (CRHOB/CBRST)
03 BP 1665 Cotonou
BENIN
Tel: +229 32 62 14 or 32 12 63
Fax: +229 32 36 71
Email: z.sohou@odinafrica.net

Mr. Bakayoko Souleymane
Center de Recherches Oceanologiques
29, Rue des Pecheurs
BP V 18 Abidjan
COTE D'IVOIRE
Tel: +225 21 355014 / 21 355880
Fax: +225 21 351155
Email: b.souleymane@odinafrica.net

Mr. Charles Gabche
MINREST-IRAD
Fisheries and Oceanography Research Station
Limbe, PMB 77
CAMEROUN
Tel: +237 333 20 71 or 775 89 03 (Mobile)
Fax: +237 333 20 25
Email: c.gabche@odinafrica.net

Mr. Emmanuel Dovlo
Directorate of Fisheries
Marine Fisheries Research Division
P. O. Box BT 62
Tema
GHANA
Tel: +233 22 20 23 46
Fax: +233 (22) 20 29
Email: e.dovlo@odinafrica.net

Mrs. Hawa Yaqub (MFRD Observer)
Directorate of Fisheries
Marine Fisheries Research Division
P. O. Box BT 62
Tema
GHANA
Tel: +233 22 20 23 46
Fax: +233 (22) 20 29
Email: mfrd@africaonline.com.gh

Mr. Satigui Diakite
Centre de Recherche Scientifique de Conakry - Rogbane (CERESCOR)
BP 1615
Conakry
GUINEE
Tel: +224 42 38 38
Fax: +224 41 38 11
Email: s.diakite@odinafrica.net

Mr. Mathew Adekanmbi
Nigerian Institute for Oceanography and Marine Research.
P. M. B. 12729
Victoria Island
Lagos
NIGERIA
Tel: +234 1 261 95 17
Fax: +234 1 261 95 17
Email: m.adekanmbi@odinafrica.net

II. RESOURCE PERSONS

Mr. Greg Reed
UNESCO/IOC
1, rue Miollis
75732 Paris Cedex 15
FRANCE
Tel: +33 1 45 68 39 60
Email: g.reed@unesco.org

Dr. Murray Brown
Phoenix Training Consultants
834 Elysian Fields Ave.
New Orleans, Louisiana 70117
UNITED STATES OF AMERICA
Tel: +1 (504) 947 2199
Email: murraybr@bellsouth.net