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

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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

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.

Workshop Section	Goal(s)	Subdivisions	Goal(s)	Technical Topics
Basics Review	Review some basic concepts that (based on performance) have not been adequately learned in previous workshops	Business Concepts	Review some ordinary PC practices for better computer use and improved communications	• WINDOWS Review • EMAIL Review
		Scientific Concepts	To review some of the most important formats, databases and programs in the Resource Kit	• Resource Kit Contents • Format ABCs • Important Formats • Important Databases • Important Software • Integration
MEDI	To provide an overview of metadata; and to demonstrate the installation and use of the metadata authoring tool for MEDI (Marine Environmental Data Inventory)			• Metadata - What are Metadata? - Why use Metadata? - The Role of a Data Directory • MEDI Authoring Tool - Background to MEDI - Install the MEDI Software - Enter your own metadata records • MEDI User Manual
National Data Collection	To show students, "step by step," how to create a national data collection from the World Ocean Database 2001 (WOD01)	Determine the AOI "Box"	To demonstrate some methods for determining the Area of Interest (AOI)	Area of Interest Tutorials (C-1 to C-8) in the IODE Resource Kit
		Create the Original Data Collection	To demonstrate how to use the AOI to select data from WOD01 to make an preliminary data collection called the Original Data Collection	Creation of Data Collections (D-1 to D-3) in the IODE Resource Kit

		Create the National Collection	To demonstrate how to made the desired National Data Collection from the temporary Original Data Collection	Creation of Data Collections (D-4) in the IODE Resource Kit
		Make an Inventory	To demonstrate some basic methods for managing your ODV collection	Collection Housekeeping (G-2) in the IODE Resource Kit
Add Your Own Data	To demonstrate the basic methods to digitize "hard copy" data into a spreadsheet	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)	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	Managing HDF Files (M1-M8) in the IODE Resource Kit

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

ANNEX II

LIST OF PARTICIPANTS

I. TRAINEES

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