Intergovernmental Oceanographic Commission
Training Course Reports

18

ROPME-IOC Regional Training Course on Management of Marine Data and Information on Microcomputers for the ROPME Region

Kuwait, 18-28 October 1992

UNESCO

IOC Training Course Reports

No.	Title	Language versions
1.	IOC Indian Ocean Region Training Course in Petroleum Monitoring Perth, 18 February-1 March 1980	English
2.	IOC Regional Training Course for Marine Science, Technicians Cape Ferguson, Queensland, 1-28 June 1980	English
3.	ROPME-IOC-UNEP Training Workshop on Oceanographic Sampling Analysis, Data handling and Care of Equipment, Doha, Qatar, 3-15 December 1983	English
4.	Stage COI d'initiation à la gestion et au traitement de l'information scientifique et technique pour l'océanologie, Brest, France, 28 novembre - 9 décembre 1983	French
5.	Curso mixto COI-OMM de formación sobre el Sistema Global Integrado de Servicios Oceánicos (SGISO), Buenos Aires, Argentina, 15-26 de octubre de 1984	Spanish
6.	UNESCO-IOC-NBO Training Course on Tidal Observations and Data Processing Tianjin, China, 27 August - 22 September 1984	English
7.	Stage COI sur la connaissance et la gestion de la zone côtière et du proche plateau continental Talence, France, 18 september - 4 octobre 1984	French
8.	IOC Regional Training Course on Marine Living Resources in the Western Indian Ocean Mombasa, Kenya, 27 August - 22 September 1984	English
9.	IOC-UNESCO Summer School on Oceanographic Data, Collection and Management Erdemli, Icel, Turkey, 21 September - 3 October 1987	English
10.	IOC-UNESCO Regional Training Workshop on Ocean Engineering and its Interface with Ocean Sciences in the Indian Ocean Region, Madras, India, 17 March - 5 April 1986	English
11.	IOC-UNESCO Training Course on the Use of Microcomputers for Oceanographic Data Management Bangkok, Thailand, 165 January - 3 February 1989	English
12.	IOC Advanced Training Course on Continental Shelf Structures Sediments and Mineral Resources Quezon City, Philippines, 2-13 October 1989	English
13.	IOC/IODE Training Course on GF3 Data Formatting System Obninsk, USSR, 14-24 May 1990	English
14.	IOC Training Course on Microcomputers and Management of Marine Data in Oceanographic Data Centres of Spanish-speaking Countries, Bogotá, Colombia, 21-30 October 1991	English Spanish
15.	IOC Advanced Training Course on Nearshore Sedimentation and the Evolution of Coastal Environments, Kuala Lumpur, Malaysia, 17-29 February 1992	English
16.	First IOC Training Course on the Applications of Satellite Remote Sensing to Marine Studies Caracas, Venezuela, 24-28 September 1990	English
17.	IOC-KMFRI-RECOSCIX (WIO) Regional Training Course on Microcomputer-based Marine Library Information Management, Mombasa, Kenya, 10-21 August 1992	English
18.	ROPME-IOC Regional Training Course on Management of Marine Data and Information on Microcomputers for the ROPME Region, Kuwait, 18-28 October 1992	English

Intergovernmental Oceanographic Commission
Training Course Reports
18

ROPME-IOC Regional Training Course on Management of Marine Data and Information on Microcomputers for the ROPME Region

Kuwait, 18-28 October 1992

UNESCO

TABLE OF CONTENTS

1. INTRODUCTION

After the liberation of Kuwait, only limited capabilities existed to assess the full impact of the war on the environment. Because of this, hardly any immediate measures for combatting and mitigation of pollution could be taken. As one of the elements of a solution to this problem, it was recognized that an adequate infrastructure would be needed for the management of marine data and information on the national and regional levels in the ROPME sea area. Such an infrastructure would be able to strongly support marine research and related activities forming the basis of an effective management of marine resources of the ROPME sea area.

This requirement was first indicated during the meeting on the IOC Plan of Action for the Gulf region, held in Paris, 12-14 June 1991. At several subsequent meetings with IOC representatives, the Regional Organization for the Protection of the Marine Environment (ROPME) stated its readiness to act as the host for a training course on marine data and information management for experts from the ROPME countries. This course forms a first step towards an improvement of the management and exchange of marine data and information in the region. In due time it could lead to the establishment of national and regional oceanographic data centres as components of the International Oceanographic Data and Information Exchange (IODE) system.

The course was organized in close collaboration between the Secretariats of IOC and ROPME. The course programme, the required logistics and the required profile of the participants and the lecturers, were discussed in detail and agreed upon.

2. PARTICIPANTS

Through a letter of 22 March 1992 the National Focal Points for ROPME were invited to present nominations for the participants. The following minimum criteria for the participants were indicated:

- background in marine science;
- experience with PC usage.

This resulted in the list of participants as given in annex II. There were large differences between the participants. Most of them had a background in marine science, one was an expert in atmospheric science. Some had little or no experience with PC's, others were already quite experienced and attended the course to gain more knowledge of specific subjects.

3. LECTURERS

Course lecturers were Paul Geerders, IOC Consultant from the Netherlands, and Jan Szaron, oceanographer/data manager working at SMHI, Sweden. Their full addresses are given in annex III.

Mr. Talaat Al-Farhan (ROPME) made a presentation on the ASAP system and on a proposal for a regional ROPME data network. He also conducted demonstrations on the ASAP system and on electronic mail.

4. COURSE PROGRAMME

The course programme had been prepared by correspondence and was finalized during the preparatory days at ROPME (see annex I). It was adapted on a day by day basis, in view of the local situation and available logistics. During the whole course, strong support was provided by the staff of ROPME.

4.1 OPENING

The participants were welcomed by His Excellency Dr. Abdul Rahman A. Al-Awadi, Executive Secretary ROPME. He especially welcomed Paul Geerders from the Netherlands and Jan Szaron from Sweden, who would be the lecturers during this course on behalf of IOC.

In his speech he strongly emphasised the value of proper marine data management for research and management of the ROPME sea area. In his opinion, the training course formed a good start to make marine data managers and marine scientists aware of existing data management possibilities, procedures and guidelines.

The decision making mechanisms in the various countries need to be made aware of the benefits that proper data management can bring, both for marine science and for marine environment management, in the region and elsewhere. In this context, he recalled the current serious problems of marine pollution in the ROPME Sea Area and that little or nothing is known about the impact and fate of the pollutants.

He mentioned that the course should lead to an increased submission of data from the region to the ASAP system, A System for Assessment of Pollution, developed by Delft Hydraulics under contract with UNEP and installed at ROPME. For this process, national nodes in the ROPME countries will be needed to carry out the required data management and exchange procedures, not only within the region but also in the framework of the worldwide IODE system.

He noted that a range of useful software packages had been installed on the PC's provided by ROPME for the course. This would enable the participants to gain ample practical experience with data management. He urged the participants to utilise their time and the time of the lecturers as much as possible. This course would form a unique opportunity for the participants to work together on the regional level and to learn from each other.

His Excellency welcomed this initiative of IOC and thanked IOC for providing the two lecturers and for its role in the preparations of this course. He expressed his confidence that this course will be followed up by other, more specific courses.

Paul Geerders, on behalf of Secretary IOC, thanked Dr. Al-Awadi for his kind words and joined him in his welcome of the participants. He stated the interest of IOC in strengthening the exchange of marine information and data in the ROPME sea area leading to an increased participation of the ROPME Sea Area countries in the IODE system.

4.2 PROGRAMME

4.2.1 Presentations

During the course, presentations were given on the following subjects:

- importance of data and information management;
- IOC, IODE (including presentation of the IODE slide show);
- specific IODE related matters such as NOP, CSR/ROSCOP, MEDI and GF3 (including GF3-Proc);
- general aspects of microcomputers;
- dBase-III+, Lotus 1-2-3 and Excel 4.0 (for Windows), WordPerfect 5.1;
- data quality control procedures;
- operation, responsibilities and relations of NODC's;
- expert systems, also referring to the ETI project;
- Remote Sensing (with a video presentation);
- the ASAP system (with a demonstration);
- marine information systems and related matters such as ASFA/ASFIS;
- a proposal for a regional network;
- electronic mail (with an on-line demonstration).

The participants were provided with copies of most of the overheads shown. They also received a booklet published by ROPME on the ASAP system. A number of documents related to the presentations was provided for information to the participants (see annex IV). Most participants expressed their wish to obtain copies of certain documents for their own use. ROPME agreed to collect these after the course for distribution to the participants. From the documents provided by IOC the ROPME Secretariat compiled a number of documentation sets for distribution to its focal points in the various ROPME member countries.

4.2.2 Practical exercises

The participants had the opportunity to acquire hands-on experience with different software packages during the practical exercises; these exercises covered about 40% of the effective duration of the course. The availability of ten PCs (AT level) and one laserprinter, connected to some of the PC's, strongly facilitated this part of the course programme.

Besides the above mentioned software packages, the following more specific programmes were used:

(i) visualization of a world-wide current meter data inventory (from BODC, UK);
(ii) the GLOSS inventory, developed for IOC by BODC, UK;
(iii) OCEAN-PC: a series of programmes for data input, editing, quality control, presentation and format conversion, including input of ROSCOP forms (developed by ICES);
(iv) Seaplot: a simple GIS programme to plot stations and tracks, coastlines and other information on a PC screen;

(v) NOAAPC: a programme to demonstrate image enhancement techniques on NOAA Remote Sensing images of the North Sea (from KNMI, The Netherlands);
(vi) Remote Sensing training module I on diskettes (from IOC/MRI, UNESCO, Paris, MARINF/70).

On some of the PC's, the ASAP system was installed. This system includes modules for input of meta-information and numerical data, quality control, graphical presentation (GIS) and data analysis. Some of the participants worked with this system, especially with the GIS part of it; this gave them the opportunity to get acquainted with some of the ASAP functions. The possibilities, however, were limited due to (i) the low speed of the PC's used and (ii) the restricted hard-disk space available on these machines.

4.2.3 Technical excursion

On 26 October 1992, a technical excursion was organised to the Kuwait Ministry of Planning and to the Kuwait Institute for Scientific Research, KISR.

At the Ministry of Planning, the participants were shown the new computer configuration, installed after the liberation. This system serves all Kuwait government services with about 800 users. Utmost attention is paid to reliability and continuity. A special satellite link is established with IBM France for on-line diagnosis and maintenance. A 'special' was the mass storage robot system, storing data on small tape cassettes.

KISR at present works from its 'old' premises, just besides this new building. The participants were informed about the developments concerning the computer system of KISR. This system will be focused around a mainframe computer and a large number of PC's of different levels, sometimes in a Local Area Network (LAN). The link between these LAN's and the mainframe will be established through an optical fibre 'backbone'. Completion of the system is expected mid-1993 which will include the availability of links to international data networks.

With regard to the data policy of KISR it was stated that agreements will be necessary for every outside access to information and data in KISR's databanks.

At the information centre of KISR, NTSIC (National Technical and Scientific Information Centre) the participants examined and discussed the collection of periodicals, reports and books. NTSIC provides a wide range of services to its users, including access to international databases, often in the USA. Because of a lack of information and the language problem (no knowledge of French or Spanish), limited contacts exist with European databases, although recently a first contact was established with ECHO, the EC database manager.

The lecturers were informed about a recently started project of NTSIC with the company Intergraph, to develop a system for access to reports (including grey literature) through a GIS system. A strong interest was expressed for possible IOC support of the establishment of a regional organisation for Marine Information Management (MIM) and for a regional course on MIM.

Finally, a short visit was made to the marine fisheries information centre of KISR, which is still in a build-up phase after the liberation. Access to ASFA/ASFIS on CD-ROM was demonstrated to the participants. At the same premises, a short guided tour of KISR's aquaculture research laboratory was organized. This laboratory is unique for the ROPME region.

4.2.4 Case study

In view of the significant differences in background, experience and profession of the participants, the group was divided into three subgroups each with a specific case study task to carry out.

The **first group** was requested to write a dBase-III+ programme. Since no appropriate data from the ROPME region were available, hydrographical and hydrochemical water bottle data in ICES format from a recent Swedish monitoring cruise in the Baltic were used as a basis. The following characteristics were specified:

(i) the programme should present each station and its related measurements;
(ii) the programme should allow the user to enter new data;
(iii) quality control should be possible on each field using user-specified minimum and maximum values for that field;
(iv) it should be possible to save specified minimum and maximum quality control values for later usage;
(v) the programme should work interactively and be menu-driven.

The work of this group led to a programme that fulfilled most of the requirements above. However, there was too little time to include a functioning module on quality control. It is intended to include this module at a later stage as a result of a collaboration between Mr. Salman from Bahrein and Paul Geerders. With this module included, the total programme will be proposed for inclusion in IOC's OCEAN-PC programme package.

The **second group** was requested to review a number of Remote Sensing photographic images from a survey late August 1991 with a Canadian aircraft over the Saudi and Kuwaiti coasts. The group would identify relevant features and describe them with the following information:

(i) reference number of photograph
(ii) date/time
(iii) latitude/longitude (in case of extended features the centre was used as a reference point)
(iv) area name
(v) feature code (a separate but related list was used for feature codes and descriptions, including a quantitative assessment like number and size where appropriate).

The results of this group were stored into a small dBase-III+ database which later was successfully used to create a layer in the GIS system of ASAP. In this way, the photographs concerned have at least been given a first interpretation and the results have become accessible through the ASAP system.

The **Third group** was requested to draft for each software package shown during the course, a short description containing general information on the aims and possibilities of the package. These descriptions refer to the packages mentioned under 4.2.2.

The group compiled these descriptions in WordPerfect 5.1 using the available documentation and by working with the programmes themselves.

The case study work was continued during subsequent practical work sessions. The results were reviewed by all participants, which led to interesting and useful discussions. Each participant received a copy of the results of the subgroup work.

4.2.5 Videos shown

During breaks in the course, two videos were shown: one from NOAA about the ROPME-NOAA-IOC RV MOUNT MITCHELL oceanographic cruise in the ROPME Sea Area in 1992 and one from ESA on the recently launched ERS-1 satellite.

4.2.6 Closure

The closing ceremony was performed by H.E. Dr. A. Al-Awadi. In his speech, he specifically thanked IOC for its contributions and the lecturers for their efforts. He emphasised that ROPME looks forward to the follow-up of this course and to a continuing collaboration with IOC. On behalf of Secretary IOC, Paul Geerders thanked ROPME for its extensive support to this course and expressed his agreement with the need for an adequate follow-up. Subsequently, Dr. Al-Awadi presented the certificates to the participants (see Annex V for example).

The closure session was recorded by Kuwait TV for transmission as the first item in the evening news that day.

5. COURSE EVALUATION

An evaluation was carried out towards the end of the course. This evaluation was made both in a handwritten form and orally during a special session, partly attended by H.E. Dr. A. Al-Awadi, who personally inquired the participants about their experiences during the course.

5.1. BY PARTICIPANTS

All participants completed the evaluation form included in this report as annex VI. In general, the participants rated the course good to very good. Related to the initially large differences in level between the participants, some had expected more specific training in database development, others had assumed that more basic support would be given in handling PC's and software.

Several suggestions were made for the future. These have been included in the recommendations in chapter 7.

5.2 BY LECTURERS

The lecturers experience from this course was very positive although the large differences in backgrounds between the participants required a considerable flexibility in the practical implementation of the course. The available technical infrastructure and the support by ROPME were excellent.

6. GENERAL CONCLUSIONS

This course has been a success, taking into account the knowledge gained by the participants. A large number of subjects was presented, relevant to IOC and IODE, many of which were accompanied by practical exercises. The participants received a basic training, which the majority will almost immediately apply in their working environment. The contacts established will lead to an increased collaboration in the region.

However, a number of follow-up actions will be required to develop the regional capabilities for marine data and information exchange according to IODE procedures and guidelines. These actions should be undertaken in a close relation to the relevant on-going and planned programmes and activities in the region, especially to those coordinated by ROPME.

7. RECOMMENDATIONS

It is **recommended** that IOC investigate, where appropriate in close concert with ROPME, the possibilities of implementing the following recommendations:

7.1 INFORMATION DISTRIBUTION

It appeared that the participants had little or no awareness on the procedures and guidelines of the IODE system. The implementation of these procedures and guidelines will be essential for an effective participation of future NODC's in this region in the IODE network. A **regular transmission of information** on the developments and achievements of IODE to ROPME, as a regional focal point and possible future RNODC for the ROPME sea area, could strongly improve this situation.

7.2 THE ASAP SYSTEM

The ASAP system was installed at ROPME by Delft Hydraulics, under contract with UNEP, as a system for the assessment of pollution. This system will form an essential element in a regional infrastructure for the exchange of marine data and information. A proposal for such an infrastructure in the form of a regional network around the ASAP system at ROPME, was presented to the participants during the course. In view of this:

(i) Delft Hydraulics is invited to finalize **full documentation of the ASAP system**, including a user manual, and make it available to ROPME;

(ii) ROPME with the assistance of UNEP and IOC is requested to designate appropriate persons for scientific and technical management of the ASAP system and to arrange for the necessary training to be provided by Delft Hydraulics;

(iii) The advantages of an ASAP system should be advertized among ROPME States by all interested parties.

7.3 TRAINING REQUIREMENTS

Several participants voiced their requirements for training, related to specific national marine data management problems, such as the **development and usage of marine databases**. Such training sessions could probably effectively be combined with **regional workshops**, e.g., dealing with the processing and interpretation of specific data sets of regional interest.

A requirement was noted for more specific training opportunities such as on managing GF3 and on handling of specific types of data. This could be realized in the form of **individual training courses** at a centre outside the region, a procedure earlier supported by IOC in similar cases.

Furthermore, regional training on data management should be organized as **training courses for specific communities** such as: port authorities, coastal managers and fisheries experts. This would allow to focus presentations and practical work on the specific field of work and problems of these communities and thus to increase the effectiveness of the course.

7.4 ELECTRONIC MAIL

Electronic mail facilities, including SCIENCEnet, form a good basis for an increased exchange of marine data and information between the marine centres in the ROPME countries. This facility would also form an effective support for the ROPME plan for a regional network of nodes for the ASAP system in the ROPME countries. IOC could play an important role in **informing** its member states in the ROPME region of the **value of electronic mail**.

7.5 MARINE INFORMATION MANAGEMENT

In relation to marine information, several participants voiced the need for an improved regional collaboration between marine science libraries and information centres. This requirement was confirmed during the visits to NSTIC and the Marine Fisheries Information Centre. A **regional course on marine information management** could form an initial step towards the future establishment of a ROPME Association of Marine Science Libraries and Information Centres (RAMSLIC) along the model of EURASLIC and similar networks elsewhere.

7.6 GUIDE FOR ESTABLISHING A NATIONAL OCEANOGRAPHIC DATA CENTRE

The participants were provided with a copy of the present IOC Guide for Establishing a National Oceanographic Data Centre. This guide however is not up to date (1975!): **a new version should be published as soon as possible**. This will assist future NODC's in the region and elsewhere in their establishment and operations.

7.7 REGIONAL MISSION

To initiate the implementation of the above recommendations, **a regional mission to the ROPME Sea Area** is proposed with the following terms of reference:

(i) provide information to representatives at the government level on IOC, the IODE network and its procedures;

(ii) discuss available and planned facilities for marine data and information management, relevant to national and regional needs as well as to IODE.

As basic information for this mission, the ROPME report: 'A survey of oceanographic instrumentation and data handling facilities within the KAP region' (Kuwait 1988, ROPME/GC-6/002) could be of interest.

ANNEX I

COURSE PROGRAMME

ROPME/IOC (Unesco) Regional Training Course on Marine Data and Information Management on Microcomputers for the ROPME Region, Kuwait, 18-28 October 1992

PROGRAMME & TIMETABLE

Sunday, 18 October 1992

09.00 - 09.30	Opening speech of His Excellency Dr. Abdul Rahman A. Al-Awadi, Executive Secretary ROPME. Importance of marine data and information management for the ROPME region.
09.30 - 10.15	Introduction of participants and lecturers
10.15 - 10.45	Introduction of the aims of the course (P.Geerders, IOC)
10.45 - 11.15	Coffee break
11.15 - 12.30	IOC, activities and programmes; relations with global bodies and their programmes such as WMO, UNEP, FAO (P.Geerders, IOC)
12.30 - 13.00	IODE, aims and programmes (P.Geerders, IOC)
13.00 - 13.30	IODE Slide Show and discussion (P.Geerders, IOC)
13.30 - 15.00	Lunch at ROPME
15.00 - 15.30	Microcomputers, basics (P.Geerders, IOC)
15.30 - 16.30	Various archival systems (P.Geerders, IOC)
16.30	Return to hotel

Monday, 19 October 1992

09.00 - 10.15	Databases (P.Geerders, IOC)
10.15 - 11.15	Spreadsheets (J.Szaron, IOC)
11.15 - 11.45	Coffee break
12.00 - 13.00	Wordprocessors (P.Geerders, IOC)
13.00 - 13.30	Various systems for data exchange, networks (J.Szaron, IOC)
13.30 - 15.00	Lunch at ROPME
15.00 - 18.00	Practical work
18.00	Return to hotel

Tuesday, 20 October 1992

09.00 - 10.15	Specific IODE procedures: Information (P.Geerders, IOC)
10.15 - 11.15	Specific IODE procedures: Data (J.Szaron, IOC)
11.15 - 11.45	Coffee break
11.45 - 13.00	Specific IODE procedures: Data ctd. (J.Szaron, IOC)
13.30 - 15.00	Lunch at ROPME
15.00 - 18.00	Practical work
18.00	Return to hotel

Wednesday, 21 October 1992

09.00 - 10.15	Data Quality Control (J.Szaron, IOC)
10.15 - 11.15	Practical work
11.15 - 11.45	Coffee break
11.45 - 13.30	Practical work
13.30 - 15.00	Lunch at ROPME
15.00 - 18.00	Practical work
18.00	Return to hotel

Thursday, 22 October 1992

09.00 - 10.15	National Oceanographic Data Centres: operation, activities, responsibilities, relations (P.Geerders, IOC)
10.15 - 11.15	NODC's, the Swedish experience (J.Szaron, IOC)
11.15 - 11.45	Coffee break
11.45 - 13.30	NODC's, the Netherlands experience (P.Geerders, IOC)
Afternoon Free	

Friday, 23 October 1992

Whole day Free

Saturday, 24 October 1992

09.00 - 11.15	Case study introduction (P.Geerders, IOC)
11.15 - 11.45	Coffee break
11.45 - 13.30	Case study subgroups
13.30 - 15.00	Lunch at ROPME
15.00 - 16.00	Case study subgroups
16.00 - 18.00	Case study, reporting session (P.Geerders, IOC)
18.00	Return to hotel

Sunday, 25 October 1992

09.00 - 09.30	Presentation on marine information systems (P.Geerders, IOC)
09.30 - 10.45	Expert systems, basics and examples (P.Geerders, IOC)
10.45 - 11.15	Coffee break
11.15 - 13.30	Proposal for a regional network in the ROPME region (T. Al-Farhan, ROPME)
13.30 - 15.00	Lunch at ROPME
15.00 - 15.30	Electronic mail, presentation and demonstration (P.Geerders, IOC and T. Al-Farhan, ROPME)
15.30 - 18.00	Practical work
18.00	Return to hotel

Monday, 26 October 1992

09.00 - 13.30	Technical excursion
13.30 - 15.00	Lunch at ROPME
15.00 - 15.30	Remote Sensing (P.Geerders, IOC)
15.30 - 18.00	Practical work
18.00	Return to hotel

Tuesday, 27 October 1992

09.00 - 11.15	Discussion with H.E. Dr. Abdul Rahman A. Al- Awadi on the course
11.15 - 11.45	Coffee break
11.45 - 13.30	Evaluation session (P.Geerders, IOC)
13.30 - 15.00	Lunch at ROPME
15.00 - 16.30	Presentation and demonstration of ASAP system (T. Al-Farhan, ROPME)
16.30 - 18.00	Practical work
18.00	Return to hotel

Wednesday, 28 October 1992

09.00 - 11.15	Practical work
11.15 - 11.45	Coffee break
11.45 - 13.30	Closing ceremony, presentation of certificates
13.30	Return to hotel

ANNEX II

LIST OF PARTICIPANTS

STATE OF BAHRAIN

Mr. Abdulwahid Mohammed Ali
AL-AHMED
Hydrographic Surveyor
Ministry of Housing
Survey Directorate
Hydrographic Section
P.O. Box 11802
Tel: (973) 725373

Mr. Hussain Abdulla SALMAN
Environmental Technician
Environmental Protection Committee
P.O. Box 26909
Tel: (973) 293693
Fax: (973) 293694

ISLAMIC REPUBLIC OF IRAN

Mrs. Shahla Farsi MONFARED
Limnologist
Department of the Environment
P.O. Box 5181
Postal Code 15875
Teheran
Tel: (98) 21 898198

STATE OF KUWAIT

Dr. Abdul Nabi A. AL-GHADBAN
Geological & Physical Oceanography
Associate Research Scientist
Environmental Science Department
Kuwait Institute for Scientific Research
(KISR)
P.O. Box 24885
13109 Safat
Tel: (965) 4830988/4508
Fax: (965) 4830432

Dr. Mohsen S.M.H. ALHOSSAINI
Associate Researcher
Mariculture & Fisheries Department
Kuwait Institute for Scientific Research
(KISR)
P.O. Box 1638
22017 Salmiya
Tel: (965) 5732571
Fax: (965) 5711293/4830432

Mr. Hamza A.A.H. KAREM
Laboratory Technician
Marine Pollution Control Unit
Ministry of Public Health
Environment Protection Department
Environment Protection Council
P.O. Box 24395
13104 Safat
Tel: (965) 2456834/5611741
Fax: (965) 2421993/4835483

Mr. Hani M.A. AL-WAYEL
Laboratory Technician
Marine Pollution Control Unit
Ministry of Public Health
Environment Protection Department
Environment Protection Council
P.O. Box 24395
13104 Safat
Tel: (965) 2456834/5611741
Fax: (965) 2421993/4835483

Mrs. Ibtisam K. AL-KHAMEES
Laboratory Technician
Al-Bedia Marine Laboratory
Ministry of Public Health
Environment Protection Department
Environment Protection Council
P.O. Box 24395
13104 Safat
Tel: (965) 5611741
Fax: (965) 2421993/4835483

SULTANATE OF OMAN

Mr. Salim Bin A. Bin H. AL-JUFAILY
Marine Pollution Inspector
Directorate General for Environmental Affairs
Ministry of Regional Municipalities & Environment
P.O. Box 323
Muscat
Tel: (968) 696444 Ext. 306
Fax: (968) 602320

Mr. Musalam Mubarak M. AL-JABRI
Ministry of Regional Municipalities & Environment
P.O. Box 221
Muscat
Tel: (968) 696444 Ext.309

KINGDOM OF SAUDI ARABIA

Mr. Taha M.H. RASHEED
Environmental Specialist
Meteorology & Environmental Protection Administration (MEPA)
P.O. Box 10002
Jeddah 21433
Tel: (966) 2 6512312 Ext. 2210
Fax: (966) 2 6511124

Mr. Zuhair Safi S. AL-SARRAJ
Environmental Specialist
Meteorology & Environmental Protection Administration (MEPA)
P.O. Box 1358
Jeddah 21431
Tel: (966) 2 6512312/2670
Fax: (966) 2 6513640/6511124

ANNEX III

LIST OF LECTURERS

INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION (IOC)

Dr. Paul J.F. GEERDERS
IOC Consultant
c/o KNMI
P.O. Box 201
NL-3730 AE De Bilt
THE NETHERLANDS
Tel: (31) 30 206641
Fax: (31) 30 210407

Dr. Jan J. SZARON
SMHI, Oceanographic Laboratory
P.O.Box 2212
S-40314 Gothenburg
SWEDEN
Tel : (46) 31 607732
Fax : (46) 31 130447

ANNEX IV

LIST OF COURSE MATERIALS AND INFORMATION DOCUMENTS

1. ASAP - A System for the Analysis of Pollution. Scope and Capability. ROPME.

2. Guide to Satellite Remote Sensing of the Marine Environment. IOC Manuals and Guides 24. 1992, UNESCO.

3. Guide for Establishing a National Oceanographic Data Centre. IOC Manuals and Guides 5. 1975, UNESCO.

4. Manual on International Oceanographic Data Exchange. IOC and ICSU Panel on World Data Centres. Manual and Guides 9. Revised Edition 1991. 1991, UNESCO.

5. IODE Handbook - Committee on International Oceanographic Data and Information Exchange. IOC. 1991, UNESCO.

6. IOC Committee on International Oceanographic Data and Information Exchange. 13th Session, New York, USA, 17-24 January 1990. IOC Reports of Governing and Major Subsidiary Bodies.

7. Ocean Colour - The Potential for Commercial Applications.

8. SCIENCEnet - 1991 Directory of Subscribers and Catalog of Services. Omnet.

9. UNESCO - Applications of Marine and Coastal Image Data from Satellite, Airborne and *In situ* Sensors. Third Computer-based Learning Module. A Contribution to International Space Year - 1992 (MARINF/83, Paris, Feb. 1992).

10. Remote Sensing of the Oceans - The Potential Benefit of Satellite Systems to Marine Science and Applications. Institute of Oceanographic Sciences.

11. Ocean Colour - esa SP-1083. Report by: The ESA Ocean Colour Working Group, Villefranche-sur-Mer, November 1986.

12. The Future of Spaceborne Altimetry - Oceans and CLimate Change - A Long-term Strategy. March 1992.

13. World Ocean Circulation Experiment. Newsletter No.11, September 1991.

14. International Council of Scientific Unions (ICSU) Committee on Data for Science and Technology (CODATA) Newsletter No.59. March 1992.

15. International Council of Scientific Unions (ICSU) Committee on Data for Science and Technology (CODATA) Membership Directory 1992.

16. Integrated Global Ocean Services Sytem Products Bulletin. June 1991. IOC/WMO.

17. OCEAN-PC Inventory of Software and Products for the Display and Analysis of Marine Data - The Shoebox (IOC/INF-878, Paris, 13 April 1992).

18. World Climate News No.1, June 1992. WMO.

19. Sun Report - IAPSO Publication Scientifique No.31. December 1979.

20. Some Contacts for Digital Data Communications networking in the ROPME Region.

ANNEX V

Regional Organization for the Protection of the Marine Environment

Intergovernmental Oceanographic Commission

Certificate

This is to certify that

attended and successfully completed the ROPME/IOC(UNESCO) Regional Training Course on "Marine Data & Information Management on Microcomputers for the ROPME Sea Area" organized at ROPME, Kuwait 18 - 28 October 1992.

A. Al-Awadi
Executive Secretary ROPME

G. Kullenberg
Secretary IOC(UNESCO)

ANNEX VI

BLANK QUESTIONNAIRE FOR ASSESSMENT BY TRAINEES

QUESTIONNAIRE FOR ASSESSMENT BY TRAINEES

Note: The purpose of this questionnaire is to collect information for overall assessment of the training course and to improve future training and related activities. Please check as appropriate and write your comments and suggestions.

1. How were the local arrangements?

	poor				excellent
(1) accommodation	1	2	3	4	5
(2) teaching conditions including facilities and classroom	1	2	3	4	(5)
(3) transportation, etc.	1	2	3	4	5

comments:

2. Are the objectives of the course well specified? Have they been successfully met?

1	2	3	4	5

comments:

3. Were the lectures given by instructors, and practical exercises adequeate to meet the objective?

1	2	3	4	5

comments:

4. Do you think that the course programme was too advanced, just adequate or too low?

- too advanced [ ] adequate [ ] too low [ ]

comments: (Did the activity meet your expectations as far as standard is concerned?)

5. Was the course useful to you? Did you learn anything that is new and useful for you?

1	2	3	4	5

comments: (If so, what?)

6. Was the duration of course adequate?

- too long ☐ adequate ☐ too short ☐

comments:

7. Do you feel a need for modification of the course programme?

- yes ☐ no ☐

comments: (If so, please specify the need. What additional areas should be covered?)

8. Have you attended a Unesco- or IOC short-term course before?

- yes ☐ no ☐

If yes, please specify:

9. In what way do you plan to apply the knowledge and experience gained during the training course when you go back home?

10. In your workplace, do you have adequate facilities in terms of equipment, trained personnel, publications, etc? If not, what are the needs of your institution/country?

11. What do you think of the equipment that was provided?
    (1) Hardware:

    (2) Software:

12. Any other comments and suggestions regarding the course including the following: (use additional paper, if needed.)
    (1) Were all subject of specific interest to you covered?
    (2) Did you have adequate opportunity to work in specific areas or obtain specialized help?
    (3) What do you think IOC/Unesco should do as a follow-up in this region?
    (4) Do you think other regions could benefit by training course such as this?
    (5) other comments.

13. How do you rate this activity?

- unacceptable ☐
  poor ☐
  adequate ☐
  good ☐
  very good ☐
  outstanding ☐

Name of participant_____
(optional)

ANNEX VII

ACRONYMS

ASAP	A System for Assessment of Pollution
ASFA	Aquatic Sciences and Fisheries Abstracts
ASFIS	Aquatic Sciences and Fisheries Information System
BODC	British Oceanographic Data Centre
CD-ROM	Read-only optical disk
CSR	Cruise Summary Report
EC	European Communities
EURASLIC	European Association of marine and freshwater Libraries and Information Centres
ERS-1	European Remote Sensing satellite nr. 1
ESA	European Space Agency
ETI	Expertsystem for Taxonomic Interpretation
FAO	UN Food and Agriculture Organization
GF3	General Format 3
GIS	Geographic Information System
GLOSS	Global Sea Level Stations
ICES	International Council for the Exploration of the Seas
IOC	Intergovernmental Oceanographic Commission
IODE	International Oceanographic Data and Information Exchange
KAP	Kuwait Action Plan
KISR	Kuwait Institute for Scientific Research
KNMI	Royal Netherlands Meteorological Institute
LAN	Local Area Network

MEDI	Marine Environmental Data Inventory
NOAA	National Oceanic and Atmospheric Administration (USA): also name of series of earth observing satellites
NODC	National Oceanographic Data Centre
NOP	National Oceanographic Programme
NTSIC	National Technical and Scientific Information Centre (KISR)
PC	Personal Computer
RNODC	Responsible NODC
ROPME	Regional Organisation for the Protection of the Marine Environment
ROSCOP	Report on Observations and Samples Collected during Oceanographic Programmes
SMHI	Swedish Meteorological and Hydrological Institute
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organisation
WMO	World Meteorological Organization