

INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION
(of UNESCO)

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Report of the Regional Co-ordinator for the Mediterranean Sea

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2. IODE Regional Co-ordinator Designation Date: 18 August 1997.

3. Brief History:

In compliance with the general policy of IOC in implementing its programme activities through regional co-operation, the IOC Committee on IODE at its Fifteenth Session decided to appoint IODE Regional Co-ordinators within the Committee, which may help to increase the effectiveness of the IODE support to regional needs. The IODE regional co-ordinators were appointed by means of a circular letter (No IO/av/18.08.1997) of the IOC Executive Secretary. According to the aforementioned letter Dr E. Balopoulos was appointed as the Regional Co-ordinator for the Mediterranean Sea.

4. Role and Responsibilities:

The IODE Regional Co-ordinators for each of the IOC regional programmes were appointed with the following terms of reference:

- (a) keep IOC regional bodies and programmes informed on the IODE data policy and rules of procedure;
- (b) be a link between the IOC regional bodies and the IODE Committee;
- (c) publicize IODE activities;
- (d) help the IODE Committee implement regional activities in data and information management by providing advice and establishing necessary contacts.

5. Activities during the Intersessional Period:

Within the framework of the IOC/IODE Programme several countries of the Mediterranean Sea have established a NODC or DNA for national archiving and international exchange of oceanographic data (Croatia, Cyprus, Egypt, France, Greece, Italy, Spain, Turkey). Three countries (Israel, Malta, Lebanon) have nominated IODE co-ordinators, without establishing a NODC or DNA. Finally, a few countries (e.g., Albania, Algeria, Libya, Monaco, Syria, Tunisia, etc.) have no formal participation in the IOC/IODE Programme. Up to the mid of '80s, regional co-operation in the Mediterranean Sea, concerning oceanographic data management and international exchange, was very limited; perhaps it was not even existent. This situation started to be improved in late '80s due to the establishment of new NODCs in the Mediterranean Sea and the implementation of large-scale regional marine research projects, which included a data management component.

During the intersessional period an effort was made by the regional co-ordinator, to publicize IODE activities in the Mediterranean region and also to assist the IODE Committee to implement regional activities in data and information management. This was mainly attempted through personal contacts and stimulating regional co-operation for the development of co-operative data management projects, organization of training courses, participation in Conferences/Symposia/Workshops, and the development of data products and services. The above efforts lead to the establishment of a new NODC (Cyprus) and the development of close links of co-operation between various NODCs and specialized marine institutes. Through this co-operation less developed NODCs were assisted for the development national infrastructures for oceanographic data and information management, including data archives, inventories, etc. As a result of the joint effort of several NODCs from the region the data flow was greatly increased and very important data products were developed or they are in a developing phase. A short description of the various activities related to oceanographic data and information management in the Mediterranean Sea, during the intersessional period, is given below:

5.1. Regional Projects:

Large-scale regional projects related to the oceanographic data management were implemented in the Mediterranean Sea, during the intersessional period, enhancing regional co-operation through the participation in these projects of several NODCs and specialized marine Institutes.

The MEDATLAS Project was carried out jointly by the NODCs of France (co-ordinator), Greece and Spain and was financially supported by the European Union. The Project using the IOC/IODE channels derived the presently most comprehensive data set of historical temperature and salinity profiles collected in the Mediterranean Sea, since the beginning of the last century by many scientific laboratories and Hydrographic Services (http://www.ifremer.fr/sismer/program/medatlas/gb/gb_medat.htm).

The NODCs of France (co-ordinator), Greece and Italy joint their efforts in order to provide data management support to the basin-scale research Project MATER, financially supported by the European Union (<http://www.ifremer.fr/sismer/program/mater>; <http://doga.ogs.trieste.it/mater/materhome.html>; <http://hnodc.ncmr.gr/programmes/mater/materhome.html>).

The MEDAR/MEDATLAS-II Project is implemented with the participation of the NODCs from several countries of the Mediterranean Sea, such as, France (co-ordinator), Greece, Spain, Italy, Egypt, Cyprus, Croatia, Turkey and marine institutes from other countries of the Mediterranean Sea, such as, Israel, Lebanon, Algeria, Tunisia, Malta. In this, also participate NODCs and marine institutes from the Black Sea, IOC, ICES and WDC-A (advisor). The European Union financially supports the project. Main aims of the Project are: (a) to extend the positive experience gained by the MEDATLAS Project, to the entire Mediterranean and Black Sea communities (b) to enlarge the Mediterranean data base including bio-chemical parameters, and (c) to improve the spatial and temporal resolution of the statistics by adding other data not yet included in the past programmes (<http://ioc.unesco.org/medar/>).

The NODCs of the EU Member States of the Mediterranean Sea (France, Greece, Spain, Italy) participate in the European Project EURONODIM (<http://www.sea-search.net>) in which also participate all the NODCs of the European Union. Aim of the project is to strengthen the quality and service of ocean and marine data and information management in Europe.

5.2. Regional Training – Capacity Building:

During the intersessional period two training courses were organized on “Data and meta-data quality control of the Mediterranean Sea”. Both of them were carried out within the framework of the MEDAR/MEDATLAS Project and were financially supported by IOC. The first training course (22 November – 03 December 1999) took place in the NODC of France, in Brest. In this participated (as trainees or trainers) 19 scientists from 8 countries (of which 7 Mediterranean countries). In the second (29 November – 10 December 1999) which was held in the NODC of Greece, in Athens, participated 31 scientists from 15 countries (of which 10 Mediterranean countries). During the above courses training was provided to data experts for compiling their national data sets into the MEDATLAS format and for carrying out data quality control, using software developed by the NODC of France (SCOOP) and the NODC of Spain (QC-MEDAR).

5.3. Regional Products and Services:

Several data products and tools for data management were developed, by various Mediterranean NODCs and specialized marine institutes, during the intersessional period, mainly within the framework of their participation in regional oceanographic data and information management projects. These include national and regional inventories (<http://www.meteo.ru/nodc/project/ftp/load.htm>) of oceanographic cruises and data sets, databases, software for oceanographic data quality control, etc.

A major data product derived through the cooperation of France, Greece and Spain, is the MEDATLAS hydrological database of the Mediterranean Sea. This represents the presently most comprehensive data set of historical temperature and salinity profiles collected since the beginning of the last century by many scientific laboratories and hydrographic services. It is available as a set of three CD ROMs (http://www.ifremer.fr/sismer/program/medatlas/gb/gb_pubcd.htm). The user-friendly design of the database intends to facilitate its use not only from scientists but also from students, engineers and environmental agencies.

5.4. International Conferences –Symposia – Workshops, etc.:

During the intersessional period data managers of the Mediterranean Sea were stimulated and encouraged, by the regional co-ordinator to participate in various Conferences, Symposia, Workshops, etc., in order to present results of their activities in the field of oceanographic data and information management. In 1999 (23-26 February), the NODC of Greece organised an “Oceanographic Data and Information Management” Session within the framework of a major International Conference on “Oceanography of the Eastern Mediterranean and Black Sea”, held in Athens. This Conference, which was co-sponsored and co-organised by the Institute of Oceanography of NCMR, the IOC/UNESCO and the EU was attended by more than 300 scientists. In the Session devoted to “Oceanographic Data and Information Management” more than 20 papers were presented. These demonstrated, that in both the Mediterranean and Black Seas, a large number of initiatives have been undertaken, within the recent years, which have provided the scientific community with very important data products. A series of recommendations in regard to scientific issues, capacity building, data management and co-operation between the regions was adopted. A list of papers presented by data managers of the Mediterranean Sea in various Conferences, Symposia, Workshops etc., during the intersessional period, is provided in Annex I.

5.5. Regional Meetings:

Several regional meetings, related to data management, took place in the Mediterranean Sea, during the intersessional period, mainly within the framework of regional programmes. In these meetings, the participants were informed, by the regional co-ordinator, on discussions made and decisions taken, during the IOC Assemblies and the IOC Executive Council Meetings, on IODE issues. Particular discussions were made between the participants, concerning the IODE data policy and the recent developments about this issue.

5.6. Publications:

In 1999, an initiative was undertaken by the regional co-ordinator for the publication of a Special Issue of the International Journal “*Oceanographic and Atmospheric Data Management*”. This will be

entitled "Progress in Oceanographic Data Management of the Mediterranean and Black Sea" (Guest Editors: E. Balopoulos & C. Maillard) and will include selected and pre-reviewed papers reflecting the progress made within the recent years in oceanographic data management of the aforementioned interconnected basins. More than 10 papers of high quality have already been submitted for publication in this special issue. The overall effort is now in progress and it is expected that the special issue will be appeared at the end of 2001. Additional papers related to data management of the Mediterranean Sea and prepared through regional co-operation have been submitted for publication in other international journals (e.g., *Journal of Marine Systems*, etc.)

6. Future Perspectives:

Future plans include further expansion and strengthening of the Mediterranean NODCs network and further development of regional co-operation, through the establishment of new data management programmes, the organization of training courses and the production of advanced data products. The very good links of co-operation developed between the Mediterranean and the Black Sea NODCs will be further widened.

ANNEX I

Papers related to data management of the Mediterranean Sea (presented in various International Conferences, Symposia, Workshops, etc.)

1. FICHAUT M., BALOPOULOS E., DOOLEY H., GARCIA-FERNANDEZ M.-J., IONA A., JOURDAN D., BAUDET L., MAILLARD C. (1997). "A common protocol to assemble a coherent database from distributed heterogeneous data sets: The MEDATLAS database experience", MAST workshop on Project Data Management, Institute for Space Applications, JRC, ISPRA, Italy, 11-13 June, European Commission, EUR 18312 EN, 311-327.
2. JOURDAN D., BALOPOULOS E., DOOLEY H., GARCIA-FERNANDEZ M.-J., MAILLARD C., BAUDET L., FICHAUT M. and HASSANI A. (1997). "The MEDATLAS Climatology: Objective Analysis of Temperature and Salinity Fields in the Mediterranean Basin", Proceedings of the International Ocean Data Symposium, Dublin, Ireland, 15-18 October, p 57.
3. MAILLARD C., MANCA B., BALOPOULOS E. and RACAPE J.-F. (1997). "Distributed data structures for scientific programmes: The MTPII - MATER Case", Proceedings of the International Ocean Data Symposium, Dublin, Ireland, 15-18 October, p 33.
4. FICHAUT M., BALOPOULOS E., DOOLEY H., GARCIA-FERNANDEZ M.-J., IONA A., JOURDAN D., BAUDET L., MAILLARD C. (1997). "The MEDATLAS Data Base", Proceedings of the International Ocean Data Symposium, Dublin, Ireland, 15-18 October, p 56.
5. MAILLARD C., MANCA B., BALOPOULOS E., RACAPE J.-F. (1997). "Online Data Inventories Available at SISMER", Proceedings of the International Ocean Data Symposium, Dublin, Ireland, 15-18 October, p 106
6. KARAGEORGIS A., ANAGNOSTOU CH. And LYKIARDOPOULOS A. (1997). "Data Management and GIS in the EU project Metro-Med (MAST-III ELOISE)", Proceedings of the International Ocean Data Symposium, Dublin, Ireland, 15-18 October.
7. MAILLARD C., MANCA B., BALOPOULOS E., RACAPE J.-F. (1997). "A distributed data management for the MTPII-MATER Project", CEC/MAST International Conference on Progress in Oceanography of the Mediterranean Sea, Rome, Italy, 17-19 November, European Commission, EUR 18037 EN, Research in enclosed series -3, 379-383.
8. MAILLARD C., BALOPOULOS E., FICHAUT M., GARCIA M.-J. and JOURDAN D. (1998). "Estimation of the Amplitude of the Seasonal Variations at two Key Sites of the Mediterranean from the MEDATLAS Climatology", Rapp. Comm. int Mer Medit., 35(1), pp 170-171.
9. GIORGETTI A., BALOPOULOS E., FICHAUT M., IONA S., MAILLARD C., MANCA B. and NICOLAS P. (1998). "Oceanographic Data Management within large-scale research Projects in the Mediterranean Sea: EU-MTP II / MATER Project", Illrd MTP-II Workshop on the Variability of the Mediterranean Sea, Rhodos, Greece, 15-17 October, 45-46.
10. FICHAUT M., MAILLARD C., BALOPOULOS E., GARCIA M.-J., JOURDAN D., DOOLEY H. (1999). "MEDATLAS 1997: Climatological Atlas and multipurpose database of observed temperature and salinity profiles of the Mediterranean Sea", "Proceedings International Conference on Oceanography of the Eastern Mediterranean and Black Sea", Athens, Greece, 23-26 February, European Commission, Research in enclosed seas series -8, EUR 19302, p. 426-427.
11. IONA A., GIORGETTI A., FICHAUT M., MAILLARD C., BALOPOULOS E., MANCA B., NICOLAS P. (1999). "Recent advances in multidisciplinary oceanographic data management within basin-scale marine research projects of the Mediterranean Sea", "Proceedings International Conference on Oceanography of the Eastern Mediterranean and Black Sea", Athens, Greece, 23-26 February, European Commission, Research in enclosed seas series -8, EUR 19302, p. 429.
12. LYKIARDOPOULOS A., IONA A., BALOPOULOS E., KARAGEVREKIS P. (1999). "An integrated data management system for multidisciplinary oceanographic data of the Eastern Mediterranean Sea", "Proceedings International Conference on Oceanography of the Eastern Mediterranean and Black Sea", Athens, Greece, 23-26 February, European Commission, Research in enclosed seas series -8, EUR 19302, p. 432.
13. MAILLARD C., GARCIA M.-J., MANCA B., BALOPOULOS E.TH., BECKERS J.-M., BRENNER S., OLIOUNINE I., PINARDI N., MANZELLA G., DOOLEY H., MIKHAILOV N., SUVOROV A., KORTCHEV G., YUCE H., ORBI A., SERMOUD R., DRAGO A., ZODIATIS G., EL-AGAMY S., LAKKIS S. (1999). "Rescuing oceanographic data and strengthening the Mediterranean data

- management structure: The MEDAR/MEDATLAS concerted action (MAS3-CT98-0174/IC20-CT98-0103)", "Proceedings International Conference on Oceanography of the Eastern Mediterranean and Black Sea", Athens, Greece, 23-26 February, European Commission, Research in enclosed seas series -8, EUR 19302, p. 443-444.
14. BALOPOULOS E. TH., IONA A., MAILLARD C., LYKIARDOPOULOS A., KARAGEVREKIS P., FICHAUT M., SOUVERMEZIGLOU A. and KRASSAKOPOULOU E. (1999). "Recent advances in oceanographic data rescue and the development of an oceanographic data archive for the Eastern Mediterranean Sea", Proceedings of the International GODAR Review Conference, NOAA, Silver Spring, MD USA, 12-15 July, 4-6.
 15. FICHAUT M., BALOPOULOS E., GIORGETTI A., IONA A., LATROUITE A., MAILLARD C., MANCA B. and NICOLAS P. (1999). "MTP-II-MATER: Data product and quality assurance", EU-MATER, IVth Workshop, Perpignan, France, 28-30 October, 42-43.
 16. NICOLAS P., BALOPOULOS E., FICHAUT M., GIORGETTI A., IONA A., LATROUITE A., MAILLARD C., MANCA B. (1999). "MTP-II-MATER on line data and meta-data information, planning and overview on the field work", EU-MATER, IVth Workshop, Perpignan, France, 28-30 October, p30.
 17. FICHAUT M., GIORGETTI A., BALOPOULOS E., IONA A., LATROUITE A., MAILLARD C., MANCA B., NICOLAS P. (1999). "The Integrated data sets produced by MTP-II/MATER in the Mediterranean Sea: Quality assurance, availability and on line catalogues", EU-MATER, IVth Workshop, Perpignan, France, 28-30 October, Appendix, 3p.
 18. IONA A., KARAGEVREKIS P., LYKIARDOPOULOS A., BALOPOULOS E. (1999). "Oceanographic data management within the EU-MTP-II MATER Project: The eastern regional data Centre (Aegean, Levantine Sea, S.E. Ionian Basin)", EU-MATER, IVth Workshop, Perpignan, France, 28-30 October, Appendix, 2p.
 19. MAILLARD C., BALOPOULOS E., GIORGETTI A., FICHAUT M., IONA S., LAROUR M., LATROUITE A., MANCA B., MAUDIRE G., NICOLAS P., SANCHEZ-CABEZA J-A. (2000). "MTP-II-MATER Database: Integrated multidisciplinary data set produced from 1996-1999 in the Mediterranean Sea, Sources, Quality Assurance and High Technology Software Tools for data checking and retrieval", Journal of Marine Systems, Special Issue (in press).

(end of report)