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**IODE NATIONAL REPORT FOR MALTA**

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Version: 24 February 2003

**1. Name of Data Centre:**

The Physical Oceanography Unit (PO-Unit)

**2. National IODE Coordinator:**

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**3. Data Centre Address:**

As above

**4. Data Centre URL:**

[www.capemalta.net/pounit](http://www.capemalta.net/pounit)

**5. IODE Data Centre Designation Date:**

Malta has not yet established an NODC but the PO-Unit is responsible as IODE contact point in the country.

**6. PO-Unit Description**

The Unit undertakes fundamental research in coastal meteorology, hydrography and physical oceanography with a main emphasis on the experimental study of the hydrodynamics of the sea in the vicinity of the Maltese Islands. It offers facilities for the gathering, processing, analysis and management of high quality physical oceanographic observations both for long term and baseline studies as well as for general applications in marine environmental research and assessments. The Unit endeavours to enhance its activity on an operational scale by the installation and maintenance of permanent monitoring systems which provide data for ocean forecasting, and by applying numerical modelling techniques in the study of physical marine systems. It operates in collaboration with international organisations with whom it has expanded its activities through a number of funded research projects. The Unit provides services and technical support to local entities including government departments and private agencies. It organises conferences, seminars, workshops and specialised training programs in order to promote oceanography in Malta and in the Mediterranean.

**7. Brief History**

The PO-Unit was established under the Malta Council for S&T. It was recently transferred to the University of Malta and now constitutes the research arm of the IOI-Malta Operational Centre. In the past the PO-Unit conducted several physical oceanographic surveys especially in the NW coastal area of the Maltese Islands. Subsurface sea currents were also studied at several stations. These measurements were aimed to study the phenomenology of sea currents on the shelf, particularly in connection with expression of coastally trapped waves in the form of strong diurnal signals. The Unit is responsible for the collection of meteo and sea level data at two coastal stations.

In February 2001 the installation of a sea level gauge in the Portomaso marina at the Malta Hilton in St. Julians was completed. It constitutes the first real-time monitoring station for oceanographic data in Malta. The instrument, donated by the International Commission for the Scientific Exploration of the Mediterranean Sea (CIESM), collects sea level data (every half-a-minute), seawater temperature, atmospheric pressure and waves in the marina.

The Unit participated in two EU/MAST (Marine Science and Technology) IVth Framework Programme projects which were funded by the European Commission DGXII. These were the Mediterranean Forecasting System Pilot Project (MFSPP) and the Mediterranean Data Archaeology and Rescue of Temperature, Salinity and Bio-chemical Parameters (MEDAR/MEDATLAS).

Since January 2002, the Unit is technically supporting several activities of the 'Mediterranean network to Assess and upgrade Monitoring and forecasting Activity in the region' (MAMA) project, including the conduction of surveys and assessments on current routine ocean monitoring activities in the Mediterranean.

Starting from November 2002, the PO-Unit is participating in another project related directly to oceanographic data and information management - SEA-SEARCH (<http://www.sea-search.net>). This EU funded project targets (i) to further develop and upgrade the EURONODIM network, (ii) to improve the exchange, availability and accessibility of ocean and marine data and information within Europe, including non-EU countries of Europe, (iii) to improve the transfer of knowledge, exchange of best practices and communications on ocean and marine data and information management in order to strengthen the overall performance of ocean and marine data and information management both on a national and international level in Europe, (iv) to stimulate the overall awareness of potential users of ocean and marine data and information, and (v) to enhance and improve the European competitiveness in the field of ocean and marine data management. The SEA-SEARCH consortium is made up of almost all the NODCs from the EU Member States, Mediterranean NODCs and Marine Institutes of non-EU countries, NODCs from the Black Sea, as well as, Marine Institutes from non-EU countries of Europe.

## **8. Roles and Responsibilities of the Data Centre:**

### **Archival of data and data rescue**

The PO-Unit provides support to local entities involved in marine research and monitoring to collect and maintain oceanographic data according to international standards. The PO-Unit plays the role of keeping track of ocean observations made in the vicinity of the Maltese Islands. Data collected by individual scientists, local agencies and governmental departments is primarily kept under the respective sources, and under different often incompatible formats. The PO-Unit aims to identify these data holdings and to bring the data under one database with standardized formats.

### **Data exchange with other NODCs**

The PO-Unit has followed and promoted the IODE activities in the past years through the organisation of regional meetings and training courses. Contact is kept with local entities involved in marine research and monitoring in order to disseminate IODE products and updates on IODE activities.

The involvement in several projects has further enhanced the expertise of the PO-Unit in ocean data quality control, transcoding and management to international standards. It has also consolidated the role of the Unit to locally promote the IOC/IODE products and activities in Malta. The PO-Unit also plays the role of keeping track of ocean observations made in the vicinity of the Maltese Islands. An initial local ocean database will also be launched soon.

The PO-Unit has participated to the MEDAR/MEDATLAS project which 1) rescued historical data in the Mediterranean including coastal data; 2) archived bio-chemical parameters in addition to temperature and salinity; 3) provided support for the operational oceanography (delayed mode) data. The project was related to the Global Ocean Data Archaeology and Rescue Project (GODAR project) and brought together data centres and scientists from practically all the Mediterranean countries (16 in all) in order to build a more comprehensive database of oceanographic parameters in the Mediterranean. In this project, the Mediterranean data set of physico-chemical parameters and climatology have been greatly updated.

Within the MAMA project the PO-Unit is providing technical support in the compilation of information on present capacities of existing institutions dealing with or underpinning research in relation to the routine monitoring of the marine environment in the Mediterranean. The information is being collected by means of a survey conducted by an online questionnaire covering a comprehensive

overview on the availability of technological infrastructures and equipment; human resources and funding capability; and existing national/international initiatives related to operational oceanography. Within the MAMA WP5 activities the PO-Unit is involved in the preparations for the Marine Data and Information Management Seminar to be held in Rome next June.

During the period 2001/2 the PO-Unit has supported the establishment of the MeDir directory which consists of an online searchable database of marine scientists and professionals working in the Mediterranean region (<http://ioc2.unesco.org/medir>).

In another project entitled SEA-SEARCH, the EU is funding the extension and enhancement of the current online European database on ocean metadata by including non-EU European states and some Mediterranean Partner countries. On a national scale this project will provide a framework to enhance and update the national database of oceanographic data sets, holdings and research projects.

### Data products

The PO-Unit is currently developing an oceanographic database on the internet. The database will allow on-line browsing and selection of data sets for downloading. The database will form the basis of the Malta Blue Pages that is intended to be developed in the future to hold information on oceanographic data holdings in the Maltese Islands.

It is also offering real time access to sea level, sea temperature and atmospheric pressure data collected by the MedGLOSS station at the Portomaso marina (within the new Malta Hilton complex) on the northern coastline of Malta. The data is updated four times daily in the form of charts (<http://www.capemalta.net/pounit/levmalta.html>).

## 9. Description of national data and information management coordination

The PO-Unit keeps contact with all national entities involved in marine research and monitoring. The following table list a brief description of their activities and data holdings.

| Agency                                                               | Research Fields                                                                                                                            | Main Ongoing Projects                                                                                                                                             | Description of Data Holdings                                                                                                                                                                                                                                                                                                                                           |
|----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Physical Oceanography Unit (IOI-MOC)</b>                          | Coastal meteorology, hydrography, physical oceanography and experimental study of the hydrodynamics of the sea around the Maltese Islands. | Sea-level data in the Maltese coastal area<br>MedGLOSS Sea Level Station<br>Meteo station<br>Hydrographic measurements<br>Measurements of subsurface sea currents | Water Level recordings since 1993 at Mellieha Bay<br>Temperature, pressure and sea-level recordings since 2001<br>Meteorological data collected at Ramla Tal-Bir since 1994<br>Physical oceanographic surveys of parts of the NW coast of the Maltese Islands<br>Subsurface currents at stations along the northern coast of the Maltese Islands in the Comino Channel |
| <b>Environment Protection Directorate</b><br><br><b>Biodiversity</b> | Protection and conservation of the Maltese environment, flora in particular                                                                | Biodiversity Monitoring Project (BMP)                                                                                                                             | Database for the BMP, including entries from the Biodiversity Record Sheet Programme<br>Data on threatened flora                                                                                                                                                                                                                                                       |

|                                                                                    |                                                                                                     |                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Protection Section</b>                                                          | Monitoring of water quality                                                                         | National Marine Monitoring Programmes:<br><br>Trend and Compliance                                                                                                                                                                                                                        | and important plant areas<br><br>State of the Environment Report<br><br>Data relevant to bathing water quality gathered for the last 8 years<br><br>Data relevant to quality of offshore coastal waters and heavy metal and hydrocarbon content of marine sediments gathered for the last 4 – 5 years                                                                                                            |
| <b>Marine Pollution Section</b><br><br><b>Pollution Control Co-ordinating Unit</b> |                                                                                                     |                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Malta Freeport</b><br><br>Coastal Management Company Ltd.                       | Marine environmental monitoring                                                                     | Collection of wave data for coastal and offshore zones; Utilisation of above data for hydraulic modelling carried out at the ferry terminal in the north of Malta                                                                                                                         | Data since 1992                                                                                                                                                                                                                                                                                                                                                                                                  |
| Department of Fisheries and Aquaculture<br><br>Fisheries Section                   | Scientific fisheries research and monitoring                                                        | COPEMED (FAO) Project includes the following :<br><br>- Artisanal Fisheries<br><br>- Tuna Population Dynamics<br><br>- The Fishery, Biology and Management of Dolphin–Fish<br><br>- Fisheries Sampling Network<br><br>MEDITS trawl survey exercise                                        | MALTASTAT – A Computerised Fisheries Statistics and Catch Assessment System<br><br><br><br><br><br>Abundance of demersal marine resources on a regional and subregional basis                                                                                                                                                                                                                                    |
| <b>University of Malta</b><br>Department of Biology                                | Marine Ecotoxicology - environmental monitoring related to biological responses to marine pollution | Assessment of Pollution Biomonitoring in the Mediterranean<br><br><br>Airborne Remote Sensing Techniques Simulation for Assessment, Monitoring and Surveillance of South-Mediterranean Maritime Ecosystems<br><br>Environmental Monitoring of Maltese Coastal Waters using Remote Sensing | <br><br><br><br><br><br>Coastal surveillance data (related to oil pollution and fisheries) using satellite and air-borne radar images<br><br><br><br>Data bank on water quality as surveyed in eight coastal inshore areas to monitor eutrophication and transport of land-based discharges. Colour-coded output maps of the sites showing LANDSAT TM-based images of turbidity, suspended solids, surface water |

|                                                              |                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                |
|--------------------------------------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Department of Biology (cont.)                                | Marine research on migratory and pelagic organisms and coastal conservation research | Cetacean project: identification of species found in the Central Mediterranean Region and studies on their distribution and abundance<br><br>Bluefin tuna project: investigation of stock structure and migration of the species<br><br>Faunistics and ecology of the Maltese Islands<br><br>Biodiversity, functional structure and conservation of deeper water benthic assemblages of the Maltese Islands                                                              | solids, surface water temperatures and chlorophyll a levels.<br><br>Photo-ID system project for species found close to the Maltese Coasts<br><br>Measurements (and genetic and environmental analyses) of bluefin tuna individuals in samples gathered over 3 years<br><br>Data on the faunistics and coastal and marine ecology<br><br>Data related to sublittoral marine benthic assemblages |
| Department of Biology (cont.)                                | Coastal and Marine Ecology                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                |
| Euro-Mediterranean Centre on Insular Coastal Dynamics (ICoD) | Meteo / Marine Numerical modelling                                                   | COMPASS, RAMSES, LAND-13                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Near operational 16Km resolution forecasts of Mediterranean Meteo - Marine parameters with option for specific area forecasts at 4km resolution. Historical data access since 1997<br><br><a href="http://www.icod.org.mt">www.icod.org.mt</a>                                                                                                                                                 |
|                                                              |                                                                                      | Remote Sensing                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                |
|                                                              |                                                                                      | Multi-Spectral Scanning of select coastal areas.<br>Thermal Imagery for select Maltese / southern Sicilian coasts with a thermal resolution of 0.03Kelvin.<br>Digital imaging of Maltese Island Coastline and select southern Sicilian coast. with 50cm resolution.<br>Select Satellite Images (Landsat, SPOT, SAR) of coastal areas in the Central & Eastern Mediterranean since 1997. Select In-situ marine water quality for Maltese, Crete & Sicilian coastal areas. |                                                                                                                                                                                                                                                                                                                                                                                                |
|                                                              |                                                                                      | AGRISTAT                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Maltese Islands / coastal wide coverage with aerial digital imagery (25cm resolution).                                                                                                                                                                                                                                                                                                         |
|                                                              | Coastal Zone Management                                                              | Oil Pollution Contingency Plans                                                                                                                                                                                                                                                                                                                                                                                                                                          | Sensitivity maps for the entire Maltese coastline                                                                                                                                                                                                                                                                                                                                              |
| Meteorological Office                                        | Meteorology                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Meteorological data (analogue/digital)                                                                                                                                                                                                                                                                                                                                                         |
| Malta Maritime Authority Hydrographic Office                 | Hydrography                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Coastal Bathymetry (digital); (tides/analogue)                                                                                                                                                                                                                                                                                                                                                 |

|                                                    |             |  |                     |
|----------------------------------------------------|-------------|--|---------------------|
| Office of the<br>prime<br>Minister<br>Oil Division | Geophysical |  | Marine seismic data |
|----------------------------------------------------|-------------|--|---------------------|

**The Coastal Management Company Ltd. (CMC)** is a subsidiary of the Malta Freeport Co. Ltd. CMC provides various services including real-time wave monitoring, hydraulic modelling, environmental impact assessments, feasibility studies and design consultancy services for coastal developments.

**The Fisheries Conservation and Control Division** within the Ministry of Agriculture and Fisheries enforces the ‘Fisheries Conservation and Management Act’ which came into force in June 2001. It is responsible for the management of the local fisheries and aquaculture industries. This division is made up of three units: the Malta Centre for Fisheries Sciences; the Market Structures and External Relations Unit; and the Fisheries Protection Unit. The Malta Centre for Fisheries Sciences conducts research activities on fish vaccines and nutrition trails; environmental monitoring and controls fish health.

**Malta Environment & Planning Authority (MEPA)** is the regulatory authority which includes the Planning Directorate and the Environment Protection Directorate which is responsible for biodiversity protection, waste control and management and pollution control. The latter is responsible for various programmes aimed to control and abate environmental pollution.

**The Euro-Mediterranean Centre on Insular Coastal Dynamics (ICoD)**, *University of Malta*, forms part of a network of specialised Centres pertaining to the Open Partial Agreement of the Council of Europe on Major Natural and Technological Hazards (EUR-OPA). ICoD was established in 1988 within the framework of the Foundation for International Studies at the University of Malta, as the “Euro-Mediterranean Centre on Marine Contamination Hazards” where it initially addressed marine degradation in general; it has subsequently re-oriented its objectives and activities towards a greater focus on the interactive processes which occur at the coastal zone and in particular, of insular areas. Its objectives are: to combat marine and environmental degradation; to carry out research; to contribute to civil protection at the coast and to raise public awareness.

**The Department of Biology**, *University of Malta*, carries out research in the biological sciences. The Department aims to make a direct contribution to the sustainable management of our natural resources, and other national economic developments. The fields of interest of the Department are wide ranging and include the following: fisheries biology and marine aquaculture; marine pollution and environmental quality; local flora, fauna and ecology; population genetics; biodiversity and bioconservation. Over the past decade, the department has developed into a centre of excellence with respect to marine related sciences with most of the research work being centred on marine environmental resources, with fieldwork and diving.

#### 10. Data Centre Projects and Activities during the Intersessional Period:

Services provided by the PO-Unit in relation to its function as an NODC consist of tidal predictions, dissemination of unclassified data, real time access to sea level, sea temperature and meteo data, as well as support on oceanographic data quality control and management

#### 11. Comments:

A national oceanographic data policy needs to be established in order to provide a framework for control on data quality and access.