

**MEDITERRANEAN AND BLACK SEAS
HYDROGRAPHIC COMMISSION**

XXI CONFERENCE

CONTRIBUTION BY MALTA



Transport Malta

**Cadiz, Spain
11 June - 13 June 2019**

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Item 1 **Hydrographic Office**

1.1 General

Transport Malta is an autonomous corporate body with one clear strategic vision of serving as a holistic regulator of the transport sector in Malta. The Authority is made up of different Directorates, one being the Ports and Yachting Directorate which has a regulatory role. To achieve its objective the Ports and Yachting Directorate monitors the maritime activities which take place within the internal and territorial waters of Malta and manages port facilities which are under the control of the Authority, including yachting and mooring facilities.

The Hydrographic Office forms an integral part of the Ports and Yachting Directorate. The Chief Officer responsible for the Ports and Yachting Directorate who is also the Harbour master, acts as Director of the Hydrographic Office. The Maltese Hydrographic Office (MHO) performs a wide variety of roles in support of Transport Malta that include the gathering and providing hydrographic data, compiling and disseminating navigational charts, and providing maritime safety information to mariners, in compliance with the requirements of the International Convention for the Safety of Life at Sea (SOLAS).

The Hydrographic Office is based at the Transport Malta Port Operations Centre 23/25 Xatt I-Ghassara tal-Gheneb, Marsa MRS 1917. Malta

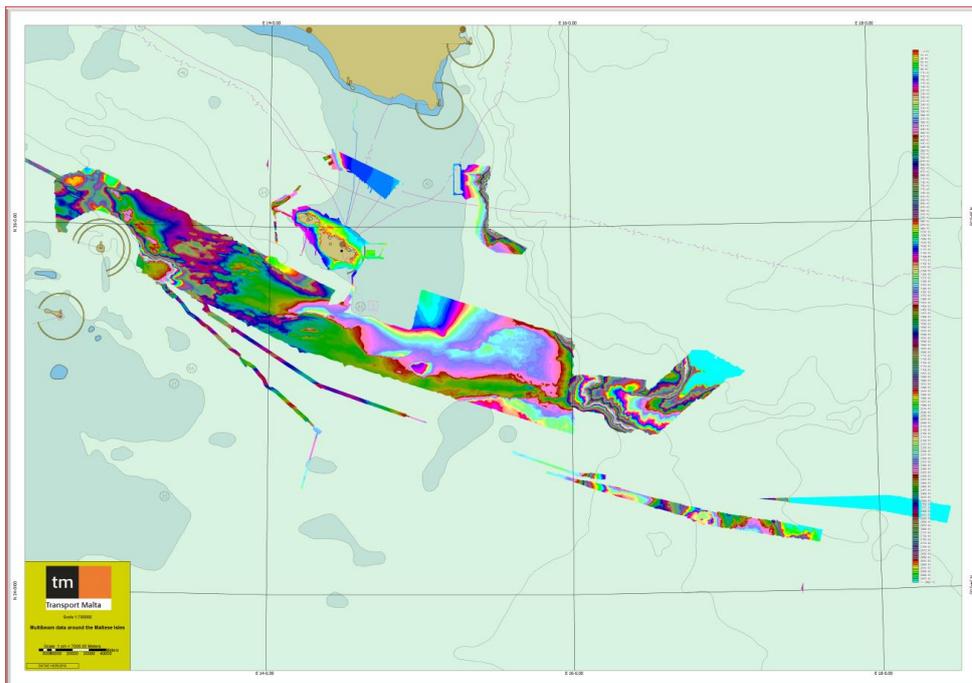
1.2 IHO Convention

For many years, the MHO has maintained active links with the international hydrographic community and complied with conventions that came into force. The Malta Hydrographic Office became a full member of the International Hydrographic Office (IHO) in January 2017.

Item 2 **Surveys**

2.1. Surveying: The MHO's survey capability meets the requirement for large-scale surveys in port and harbour areas. Regular surveys have been carried out in ports and harbours to maintain Navigational Charts of Maltese waters. To perform this function the Hydrographic Office utilises a 13m survey boat equipped with a newly acquired Norbit WBMS multibeam system complete with two Trimble GNSS antennas for positioning this is mounted over the side of the vessel. A portable single beam echo sounder ELAC HYDROSTAR and GPS Trimble DSM 12 for positioning. Bathymetric surveys are carried out using sophisticated hydrographic hardware and software, The MHO also monitors tidal gauges and issues water level information.

2.2 The below is the chart showing survey coverage with multibeam.



Present survey coverage

Item 3 **New Charts and Updates**

Navigational Charts of Maltese waters are available in both paper and digital formats. Maltese Paper charts are produced by UKHO. Malta has a bilateral agreement with UKHO to provide the necessary data. With regards to Digital charts, these are produced by the MHO who also assumes the responsibility of updating electronic navigational charts to support the VTS system and also produce limited paper charts and diagrams for specialist local purposes such as navigational warnings. Nautical cartography is limited but otherwise covered by the MHO's close links with UKHO.

At present MHO has 6 ENC's and another 3 ENC's that are in the process to be released.

Malta is in the process to produce 2 more ENC's. The UKHO is collaborating with Malta for the production of more ENC's of the Maltese waters.

Item 4 **Publications**

MHO has a major role in providing Maritime Safety Information (MSI) data to users of the marine environment: This information varies from the immediate notification of the failure of lighthouses or buoys, to the routine administration of marinas and notification of temporarily prohibited areas, to changes affecting navigational charts.

Notices to Mariners are published on the government Gazette and Transport Malta website as they come in. These are categorised as local and coastal. Below is a list of these Notices to Mariners. The Coastal Notices to Mariners and Navigational warnings are sent to NavArea 3 Coordinator (Spain), Italy, and the UKHO

Malta		
Year	Coastal Notices	Local Notices
2017	52	137
2018	45	138
2019 (Until May)	39	42

Information is sent to the UKHO in instances where the Mediterranean Pilot Sailing Directions NP 45, List of Lights and fog signals NP 78, Admiralty list of Radio Signals NP 286(3) and Maritime Communications NP 289, are being updated with the latest Maltese information.

Besides the above several project publications are available from the Physical Oceanography Research Group. These are presented as item 8.8

Item 5 **MSI**

Navigational warnings are promulgated by NAVTEX and VHF transmissions via the Malta Coast Radio Station (MCRS) that is operated by the Armed Forces of Malta (AFM) who also operate the Coastal VTS. The AFM are also responsible for the search and rescue operations

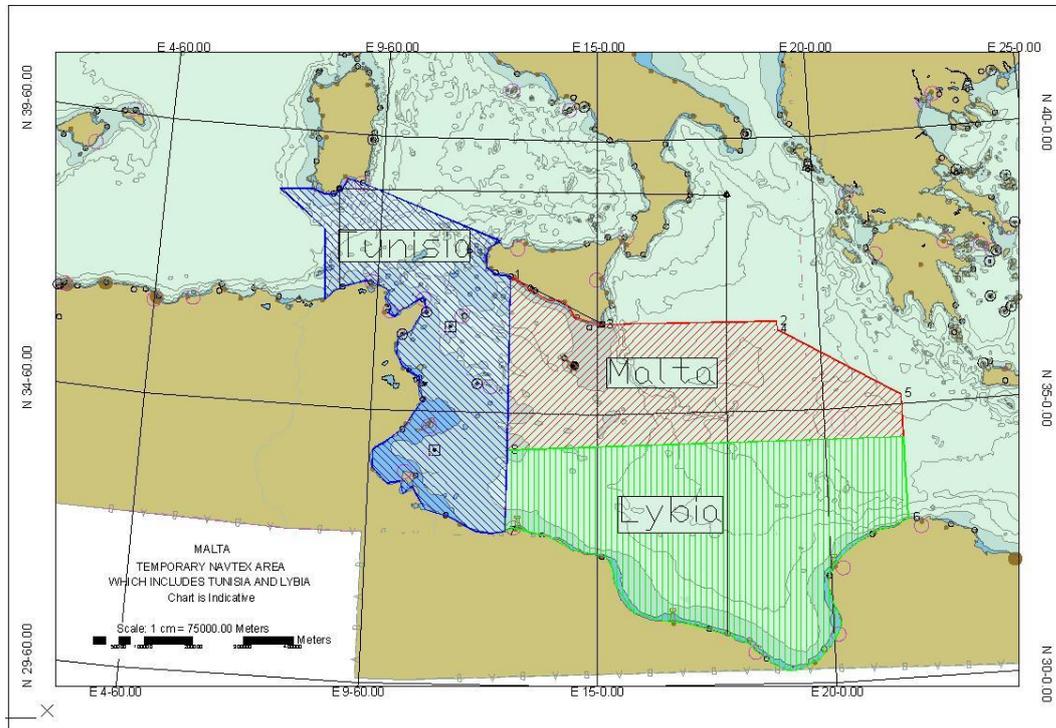
Contact details of Armed Forces of Malta Coast Radio Station are as follows:

Malta Radio
Operations Centre
Armed Forces of Malta (AFM)
C2S COY, 4 Regt
Luqa Barracks
Luqa VLT 2000
Malta
TF : +356 22494203 / 8 / 9 / 10
TF : +356 22494202
TF : +356 21257267
FAX : +356 21809860
EMAIL : rccmalta@gov.mt
SAT : 421599999

For the past four years the NAVTEX service area has been reassigned to cover the west coast of Tunisia and the coast of Libya. This was agreed with Tunisia and the Navarea III Coordinator in 2015. The below is a list of Notices to Mariners that were promulgated in the Tunisian time slots.

Tunisia	
Year	Notices (Through Malta)
2017	110
2018	116
2019 (Until May)	12

The below is an Indicative chart showing the current coverage by the NAVTEX service in Malta.



National Focal point:

Malta Hydrographic Office
 Ports and Yachting Directorate
 Transport Malta Port Operations Centre
 23/25 Xatt I-Ghassara tal-Gheneb,
 Marsa, MRS 1917
 Malta

GMDSS Master Plan has been implemented and is operational in A1 and A2. A fully compliant coast radio system is incorporated into the Coastal VTS (Malta VTS) that is operated by the AFM. This includes a NAVTEX transmitter with a complete re-location of all transmitters and antennae that took place in 2010.

Since 2015, following an agreement between the IMO Chairman of the NAVTEX Committee and the Maltese and Tunisian authorities, the MCRS has officially taken over the Tunisian transmissions, utilising Tunisian MSI time slots to broadcast MSI information on behalf of the Tunisian Coast Radio Station Kelibia until the latter station is operationally capable to resume the required transmission in its MSI area. To this extent, the MCRS is conducting 12 transmissions daily rather than 6 transmissions, along with additional transmissions in the Libyan MSI areas as required in the absence of the Libyan Coast Radio Station.

Therefore, due to the above mentioned commitments and an increase in transmissions on the MCRS' antennae, it is imperative that the Maltese authorities have a clearer picture on the operational status of the Tunisian Coast Radio Station. This shall allow MCRS to better plan and conduct its financial planning projections in regards to the station's maintenance and upkeep.

In 2018 one officer from Malta Hydrographic Office and one Officer from Malta Coast Radio Station, attended the 10th World Wide Navigation Warning System meeting Held in Monaco.

Item 6 **S-55 Latest Update** – no update

Item 7 **Capacity Building** –

Title	Technical Aspects of Maritime Boundaries
Place	Istanbul Turkey 2017
No of Attendees	1
Sponsored by	IHO

Title	Port and Shallow water Survey Course
Place	Genoa Italy 2018
No of Attendees	1
Sponsored by	IHO

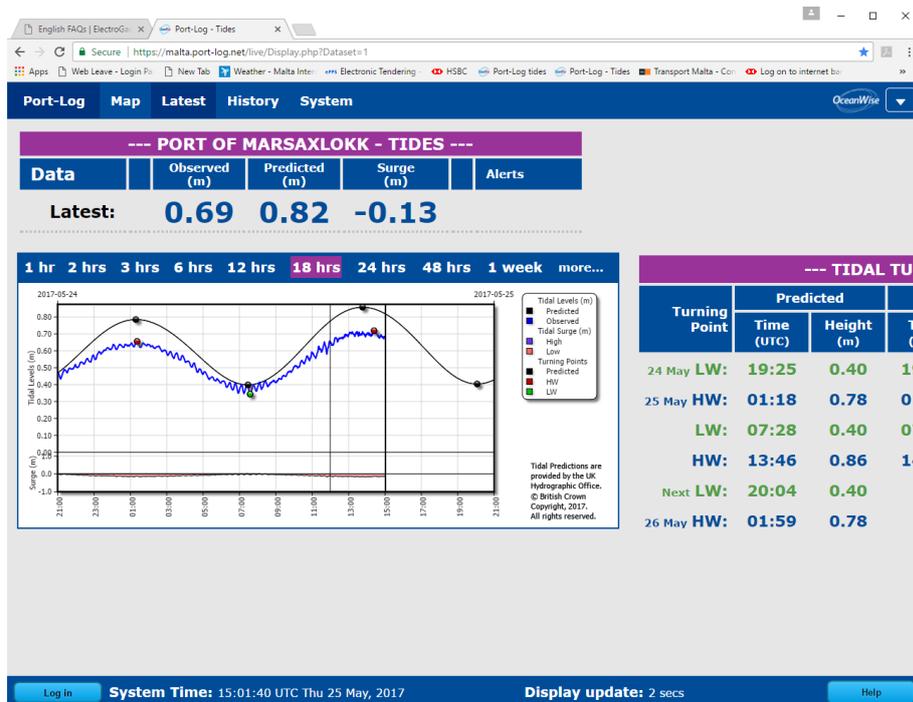
Title	Cat B Cartographic Course
Place	Taunton UK
No of Attendees	1
Sponsored by	Transport Malta

A new staff has been enrolled with the Malta Hydrographic Office it is the intention that he carries out both of the Cat B Courses of Cartography and Hydrography when these are made available. The Hydrographic Office has applied for other short course that the IHO may organise in the near future.

Item 8 **Oceanographic Activities**

Tide Gauge Network

A tide gauge was setup in the southern port of the Island to transmit tide data in real time. The site can be accessed by the following weblink :<https://malta.port-log.net/live/Display.php?Dataset=1>



Another tide gauge was established by the Physical Oceanography Unit which is set up at PortoMaso. It is intended to establish another tidegauge in the near future.

Activities performed by the Physical Oceanography Research Group during the academic year 2015-2016

The programme of activities of the Physical Oceanography Research Group (PO-Res.Grp) during the reporting period focused on the following elements:

- oceanographic research**, in a holistic perspective, including operational observations and forecasts, specialised data management and analysis, with the participation in international cooperative ventures;
- academic support to various University courses and a dedicated M.Sc. course in Applied Oceanography** which deals with technical and theoretical aspects related to meteo-marine observations, operational monitoring platforms, numerical modelling and forecasting and other methods related to ocean research and applications;
- promoting awareness on the sea**, on its naturalistic, scientific and cultural connotations, especially with the younger generation, including raising public awareness;
- promoting an inter-sectorial approach in marine affairs at a national level** by supporting the interaction between local institutions that are active in marine affairs.

8.2. Training and Education

8.2.1 Master of Science in Applied Oceanography

Operational Oceanography and Marine Studies within the University of Malta organised an MSc course in Applied Oceanography. The postgraduate course which was offered as a one year full time course in scholastic year 2016-2017 and 2017-2018

University of Malta

Number of Students: 5

Course Co-ordinator: Prof. Aldo Drago



The PO-Res.Grp offered this one-year full time course for the second year running. The course builds on the core principles of oceanography in coastal and open sea domains, and the versatile and broad spectrum of disciplines and offshoot applications related to it. This specialized course spans and merges the legal, socio-economic, scientific and environmental elements into one whole to offer students a wide-ranging vision to marine affairs, linking science to management, putting technology at the service of users and stakeholders, and providing tools for more efficient service oriented applications.

8.2.2 JERICO Next Summer School

“Operational Oceanography for Blue Growth” was a week long summer school organised by the JERICO-NEXT project, hosted by the Physical Oceanography Research Group, Department of Geosciences. It was held between 9th and 14th July 2018 and delivered by an international range of renowned experts.

This activity formed part of the JERICO-NEXT WP8 capacity building activities and supported by the Copernicus Marine Environment Monitoring Service (CMEMS) and the European Marine Data and Observation Network (EMODnet).

8.3. Information and Dissemination

The major additions in oceanographic services developed during the reporting period consisted of the following:

- **The Oil Spill Bulletin**

The major additions in oceanographic services developed during the reporting period consisted of the following:

The Oil Spill Bulletin for the Maltese Islands was developed as part of the work conducted under the MEDESS-4MS MED programme strategic project.

It is also a contribution to the MyOcean FO project. The online bulletin generates a forecast of an oil spill evolution in time alongside a complete meteo-marine forecast for a requested number of hours. In 2017 and 2018 the bulletin was used during the MALTEX exercise.

8.4. Major Projects

8.4.1 CALYPSO South



CALYPSO SOUTH commenced on March 1, 2018. The project addresses the challenges of safer marine transportation, protection of human lives at sea, and safeguarding of marine and coastal resources from irreversible damages. It is a commitment to put technological advancement and

scientific endeavour at the service of humanitarian responses, reducing risks in sea faring, and protecting the marine environment.

CALYPSO SOUTH follows the trail of the previous CALYPSO and CALYPSO FOLLOW ON initiatives.

Main outputs consist of weather stations for integrated port safety applications, additional HF radar stations to improve the coverage, quality and availability of data for targeted downstream services. The project is a further building block towards the phased creation of permanent structures encompassing a comprehensive Marine Electronic Highway in the area.

8.4.2 JERICO-NEXT

JERICO-NEXT is an on-going Horizon 2020 project. The overall aim of this project is to improve the cooperation between coastal observatories in Europe, thereby providing better information services to the research community and society in general. The Physical Oceanography Research Group is charged with creating a 2-way channel of communication with groups of operational oceanography data users. Following a dedicated call for expressions of interest a User Panel composed of selected experts representing different user categories has been set up.



8.4.3 AMAre

AMAre is a project funded by Interreg Mediterranean 2015. It is led by the National Inter-University Consortium for Marine Sciences (CoNISMa), and includes 12 partners from 5 Mediterranean countries – Italy, France, Greece, Malta and Spain.

The ultimate aim of this project is to create strategies and recommendations at transnational level adopting an ecosystem-based approach to Maritime Spatial Planning (MSP), considering the goals of the Marine Strategy Framework Directive (MSFD) across Marine Protected Areas (MPAs).

The Physical Oceanography Research Group is responsible for coordinating Work Package (WP) 4. The objective of this work package is to use guidelines, methodologies and indicators for the assessment and management of present and future multiple stressors (e.g. marine litter).



8.4.4 EMODnet Data Ingestion



EMODnet Data Ingestion is a Horizon 2020 project which targets to develop a central ingestion web portal into which various external data providers can submit their marine-related data packages. The data is submitted through an ISO19115 based submission form, thereby ensuring that the data provided by different entities is harmonised.

The role of the Physical Oceanography Research Group in this initiative is to facilitate machine-to-machine transfers from monitoring stations and data sources in the Maltese Islands to the relevant repositories. This project is a further endeavour of the PO Res. Grp. in promoting visibility, sharing and management of marine data, using ISO standards. It also facilitates local users to have access to data on international oceanographic data frameworks.

8.4.5 GLIDER South



GLIDER South is another major physical oceanography research initiative, in which the Physical Oceanography Research Group will be collaborating with CNRS-INSU (Centre National de la Recherche Scientifique – Institut National des Sciences de l'Univers). This project was proposed, and will be coordinated,

by Prof. Aldo Drago, within the JERICO NEXT Trans National Access activities. An underwater remotely manned glider will be deployed close to Malta and along transects to the south, providing very pristine datasets in the stretch of sea up to the Libyan shelf area. Gliders are torpedo-like autonomous vehicles which dive into the sea making adaptive measurements of the water column with a payload of interdisciplinary sensors and communicating data in real time via satellite as they surface intermittently during their data acquisition expeditions.

8.4.6 Other projects

Other projects in which the Physical Oceanography Research Group is participating and which were commenced in the reporting period include:

SeaDataCloud: This is an H2020 project aiming to build on the achievements of its predecessor, SeaDataNet II, which saw the development of a pan-European infrastructure for managing, indexing and providing access to marine-related data products from various observational activities in the European coastal marine waters, regional seas and global oceans. The Physical Oceanography Research Group is the national node that will be actively involved in increasing the amount of marine metadata and data

available by seeking out data providers and facilitating their inclusion in the international SeaDataNet framework.

SPOT THE JELLYFISH: This citizen science campaign was continued for the sixth year running. It is intended to engage children and youngsters, their teachers and parents to help the marine environment by recording the presence and location of various jellyfish species in Maltese coastal waters. The Spot the Jellyfish initiative aims to increase awareness, especially amongst younger generations, about the local diversity of jellyfish species, through a hands-on exercise involving the reporting of sightings of jellyfish that often swarm close to our shores and beaches.

BYTHOS (Biotechnologies for Human Health and Blue Growth) project, funded within the framework of the Interreg Italia-Malta 2014-2020 Operational Programme I, officially kicked off in Palermo on 26 June 2018. The project brings together six partners from Sicily and Malta, with the Maltese partners being the University of Malta, the Department of Fisheries and Aquaculture and the SME Aquabiotech Limited. Prof. Alan Deidun, resident academic at the Department of Geosciences within the Faculty of Science, is lead investigator for the University.

The aim of the project is the isolation of BAMs (Biologically Active Molecules, such as collagen, for which there is a high market demand) from waste fish biomass which is normally discarded. Such waste fish biomass could originate from bycatch, from the processing of fish sold at markets, restaurants and shops or even from the offal (the interns of butchered animals) of caged fish.

HARMONY aims to suggest a set of monitoring and control measures between the two cross-border regions of Sicily and Malta. The project will work on the integrity of marine seafloor and the inhabiting species. By integrating these two aspects, HARMONY seeks to reach a better understanding of marine ecosystem functioning in a cross-border context and will directly contribute to the monitoring obligations for Descriptor 2 (Non-indigenous species do not adversely alter the ecosystem) and for Descriptor 6 (The sea floor integrity ensures functioning of the ecosystem) within the MSFD (Marine Strategy Framework Directive).

8.5. Operational activities

- The **collection of sea level data** from the station in the marina at the Malta Hilton Portomaso, which forms part of a regional network of sea level stations (MedGLOSS)
- The **operational running of the real-time coastal meteo station** on the breakwater of Marsaxlokk Bay for the delivery of observations of wind, wind gust, air temperature, air pressure and relative humidity at high sampling intervals, and the operational collection of **atmospheric heat flux** data at the University of Malta station

- The **operational running and upgrading of the ROSARIO II marine forecasting systems** which provide routine online meteo-marine forecasts for the area around the Maltese Islands
- The **upgrading and operational running of the MARIA/ETA atmospheric and MARIA/WAM and SWAN wave forecasting systems**
- Use of hydrodynamical model forecast fields for **oil spill drift and tracking on the shelf area around the Malta Islands and Malta Channel**;
- Identification and **recovery of oceanographic data** sets from third parties for the area round the Maltese Islands;
- Implementation of **operational services and value-added products** derived from numerical models and observations developed specifically for various entities in the Maltese Islands (such as the AFM, and MEPA).
- The **operational running of the HF-radar systems** installed within the ambit of the CALYPSO project for the delivery of real-time surface currents and waves in the Malta Channel.
- **Deployment of Lagrangian drifters and ARGO floats** to study circulation in the Malta Channel and beyond
- **Collection of delayed mode observations including sea currents and temperature**

8.6. Collaboration and networking

The COST Action ES1402, Evaluation of Ocean Syntheses, aims to establish and consolidate a network of European scientists working on the generation and evaluation of ocean syntheses by improving the understanding of the value and use of ocean syntheses and promote their use. The Physical Oceanography Research Group contributes as an MC member to this Action by collaborating in improving the coordination of the European efforts in the evaluation of ocean syntheses, to optimize their use and value, to ease their access, to promote their improvement and to raise confidence in their quality. This COST Action is providing an optimal framework for integrating several prominent European oceanographic centres. Recommendations and guidelines will be provided on the evaluation, quality and applications of ocean syntheses to end users. These evaluations require cross-disciplinary meetings with experts in Earth Observation, ocean and atmosphere syntheses, air-sea flux measurements and modelling and physical oceanography.

The PO-Res. Grp is a partner to several international networks, amongst which:

- **MonGOOS**, the Regional Alliance for GOOS (Global Ocean Observing System) in the Mediterranean
- Committee on the **International Oceanographic Data and Information Exchange** (IODE/IOC)
- **CIESM initiatives** namely HYDROCHANGES, Tropical Signals, JellyWatch and MedGLOSS

The PO-Res. Grp is a member of the national team responsible under Transport Malta for oil spill response and emergency activities. Participated in the oil pollution exercise MALTEX2015 where forecast data and oil spill modelling is provided.

8.7. Meetings and conferences

During the reporting period, staff from the PO-Res.Grp participated in the following international meetings:

- EMODnet Data Ingestion 2nd Plenary Meeting in Limassol, Cyprus held from the 10th to 12th April 2017;
- SeaDataCloud 1st Annual Meeting in Athens, Greece held from 18th to 19th October 2017;
- AMAre Project Progress Meeting held in Malta from the 30th to 31st October 2017;
- EMODnet Data Ingestion 3rd Plenary Meeting in Barcelona, Spain held from the 16th to 17th April 2018;
- CALYPSO Kick Off Meeting held in Malta on the 19th April 2018;
- SeaDataCloud 1st Training Workshop in Oostende, Belgium held from 25th to 27th June 2018;
- AMAre Project Progress Meeting held in Ibiza, Spain from 27th to 28th June 2018;
- JERICO Next Summer School held in Malta between 9th and 14th July 2018.
- CALYPSO Project Progress Meeting held in Malta on October 4, 2018

SeaDataCloud 2nd Annual Meeting in Barcelona, Spain held from 8th to 9th November 2018

Item 9 Other activities

- a) During the past 2 years extensive maintenance dredging took place at the Southern Port and the Malta Hydrographic Office kept regular monitoring of dredging operations here and in Grand Harbour.
- b) Assisting the Chief Officer and Harbour Master in decision making for the berthing of vessels and safe passage around Malta and in Ports and Harbours.
- c) Monitoring Navigational Aids and issue Notices to Mariners and Navigational warnings.
- d) Provide charts in connection with mooring areas in the Maltese coastal waters.
- e) The Malta Hydrographic Office also attends the IHO council meetings regularly.

9.1 Marine Data Spatial Infrastructure - Malta

The Planning Authority in Malta incorporates the national Mapping Agency and is also a major data repository at a national level. In 2017 the Planning Authority has embarked on a national project with the support of EU funding for the development and implementation of a national spatial data infrastructure aimed at the creation of a strategic approach to spatial data and creation of critical base data sets covering the

national territory. The SIntegraM project is expected to provide Malta with the necessary infrastructure in terms of aerial, terrestrial and marine technologies. Partnering with all Ministries, this project is expected to lay the foundations for enhanced governance of spatial data at a national level. To-date all the marine equipment has been delivered and is being utilised. The strategy has also been finalised and is pending formal acceptance for dissemination. By the third quarter of 2019, the new national basemap, dissemination portal and projection tools should be finalised.

The Planning Authority is also the designated Competent Authority for the implementation of the Maritime Spatial Planning Directive through the national MSP Regulations under Planning Law. Through the SIMWESTMED project, the Planning Authority undertook a desk study to evaluate the potential of developing an MSP portal that would support policy development and implementation. The outcome of this work will feed into the deliverables of the SIntegraM project. In parallel, the Planning Authority chairs the MSP Technical Committee aimed at supporting the implementation of the MSP Directive. During 2019 efforts will be made towards improved governance in the MSP process including data management, amongst relevant government entities.

Item 10 **Conclusions**

The Maltese Hydrographic Office now comprises of two qualified Hydrographic surveyors and one qualified Cartographer. It is maintaining the Maltese Navigation Charts both paper and ENCs and contributes to safety of navigation in Maltese waters by keeping up to date the Nautical Charts and issues Notices to Mariners and Navigational Warnings to the Mariner.

The MHO is an integral part of the Harbour Masters' Office and is in addition considered as a "value added service" when it comes to tackling issues related to Safety of Navigation.