

## EMODnet - Hydrography European Marine Observation and Data Network

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The European Commission has concluded service contracts for creating pilot components of the European Marine Observation and Data Network (EMODnet). The overall objective is to create pilot portals and to migrate fragmented and inaccessible marine data into interoperable, continuous and publicly available data streams for complete maritime basins. The results will help to define processes, best technology and approximate costs of a final operational European Marine Observation and Data Network.

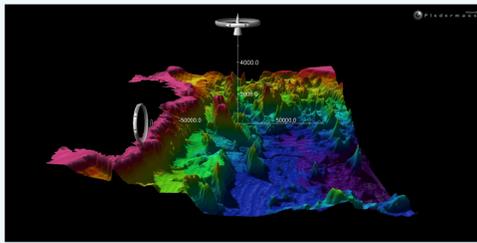


Figure 1: Fledermaus 3D view of digital bathymetry of the Tyrrhenian Sea

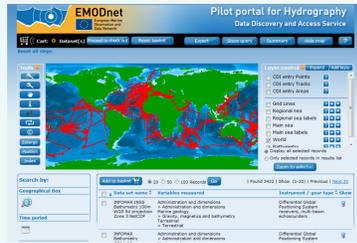


Figure 2: The CDI Data Discovery and Access Service for querying and requesting access to bathymetric surveys that are managed by distributed data providers

The EMODnet-Hydrography portal is one of the portals that is being developed. The portal has been launched in June 2009 and is providing an increasing level of services and products. Very good progress is being made in compiling an inventory of available bathymetric surveys (plummets, single and multibeam surveys) that is provided as a Discovery and Data Access service, adopting the SeaDataNet Common Data Index (CDI) infrastructure. Moreover survey data are gathered and processed as input for producing a higher resolution digital bathymetry for the following sea regions in Europe:

- the Greater North Sea, including the Kattegat and stretches of water such as Fair Isle, Cromarty, Forth, Forties, Dover, Wight, and Portland
- the English Channel and Celtic Seas
- Western Mediterranean, the Ionian Sea and the Central Mediterranean Sea
- Iberian Coast and Bay of Biscay (Atlantic Ocean)
- Adriatic Sea (Mediterranean)
- Aegean - Levantine Sea (Mediterranean).

Through a dedicated Data Products viewing service users have public access to the following geographical information system layers:

- water depth in gridded form on a DTM grid of a quarter a minute of longitude and latitude
- water depth in vector form with isobaths
- option to view QC parameters of individual DTM cells and references to source data
- option to view depth profiles along track lines
- coastlines
- option to add layers through OGC WMS protocol, such as the tracks of bathymetric surveys as included in the CDI Discovery service

Users can download the digital bathymetry as DTM tiles in xyz and a number of other formats including the Fledermaus SD format. This is fit for viewing the bathymetry in 3D with the free iView4D Fledermaus viewer. Additionally users can retrieve the metadata of original surveys and can submit requests for access of these data sets to their distributed data managers. The OGC WMS support also enables users to use the digital bathymetry in combination with data products from other portals including the other portals developed as part of the EMODnet preparatory actions for marine biology, marine chemistry, marine geology, physics and marine habitats.

Various organisations are engaged in the acquisition and provision of hydrographic data and data products. These comprise:

- Hydrographic Offices, responsible for surveying the navigation routes, fairways and harbour approach channels and producing from these the nautical charts on paper and as Electronic Nautical Charts (ENC), that are used for navigation.
- Authorities, responsible for management and maintenance of harbours, coastal defences, shipping channels and waterways. These authorities operate or contract regular bathymetric monitoring surveys to assure that an agreed nautical depth is maintained or to secure the state of the coastal defences.
- Research institutes, collecting multibeam surveys as part of their scientific cruises.
- Industry, especially the energy industry, that contracts multibeam surveys for pipeline and cable routes (in case of windfarms) and the telecommunication industry for phone and internet cable routes.

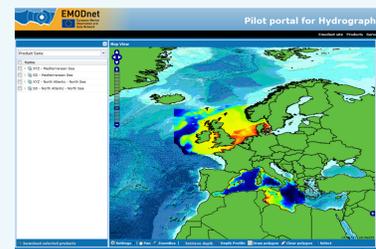


Figure 3: The Data Products Viewing Service to view and download the EMODnet high resolution digital bathymetry and supporting functionalities such as retrieving depth info parameters of a DTM grid cell

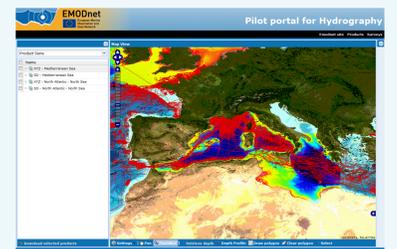


Figure 4: the Data Products Viewing Service zooming in on the Central Mediterranean Sea with WMS overlay of CDI metadata of original surveys

The EMODnet Hydrography and Seabed mapping partnership is actively seeking cooperation from these organisations for additional data sets (single and multibeam surveys, sounding tracks, composite products) to support a good geographical coverage and high quality of the hydrographic data products. The received data sets are used for producing regional Digital Terrain Models (DTM) with specific resolution (0.25 minute \* 0.25 minute) for each geographical region. The data sets themselves are not distributed but described in the CDI metadata, giving clear information about the background survey data used for the DTM, their access restrictions, originators and distributors and facilitating requests by users to originators. This way the portal provides originators of hydrographic data sets an attractive shop window for promoting their data sets to potential users, without losing control.

### Partners



### Associate partners



#### Acknowledgments:

The EMODnet - Hydrography and Seabed mapping project is developed under an agreement of the partnership with the European Commission DG MARE in the framework of EMODnet.