

BATHYMETRY

Producing a high resolution digital bathymetry for European sea basins



In 2008 EU DG-MARE took the initiative for an overarching European Marine Observation and Data Network (EMODnet) as part of the “EU MARINE KNOWLEDGE 2020” and “EU BLUE GROWTH” agendas which consider ocean and marine data as important input for driving scientific, environmental and economic developments.



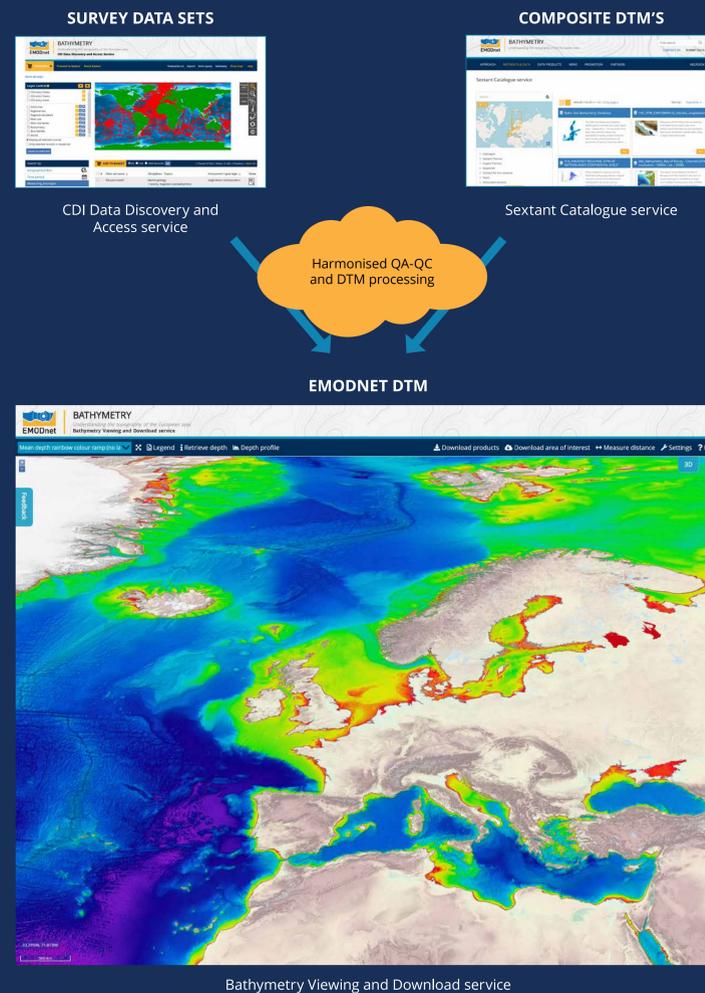
EMODnet Bathymetry successive projects with an expanding partnership have established the highly successful EMODnet Bathymetry portal which provides overview and access to available bathymetric datasets and to a harmonised digital bathymetry (DTM) for Europe's sea basins. The EMODnet consortium nowadays involves many hydrographic services, research institutes, authorities, and private companies.

They have brought together already > 27.000 bathymetric survey datasets, managed by 42 data centres from 21 countries and originated from > 250 institutes. These can be searched in the EMODnet Bathymetry Data Discovery and Access service, adopting SeaDataNet standards.

In addition several data providers have delivered > 140 composite DTMs as alternative to survey data sets and these are described in the EMODnet Bathymetry Sextant Catalogue service.

First launched in 2010, the EMODnet Digital Bathymetry (DTM) has become a reference for government, science and industry, being by far the most popular EMODnet product. Regularly visited by over 10.000 persons per month with over 3.000 downloads per month, it provides the most detailed publicly available gridded bathymetry model for all European marine waters.

Each DTM grid cell contains a reference to the predominant source dataset used and its INSPIRE compliant metadata. The Source Reference map indicates which data sets have been used for the resulting DTM. Gaps are completed by using the GEBCO (General Bathymetric Chart of the Oceans) – 2014 DTM data. GEBCO, IBCAO, Baltic Sea Hydrographic Commission, and North Sea Hydrographic Commission are partners, while EMODnet Bathymetry is also considered as a regional



Workflow and provision of discovery, downloading and viewing services

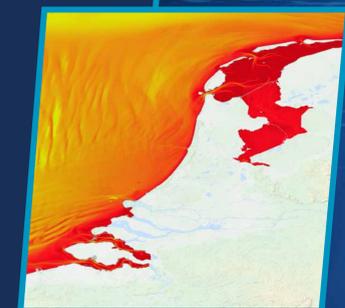
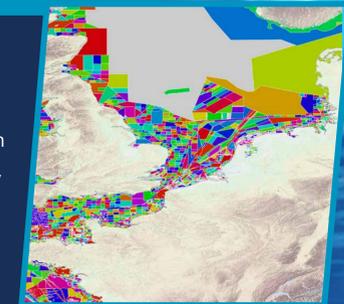
project in the Seabed 2030 initiative.

The latest EMODnet Digital Terrain Model (DTM) for the European Seas has been released in September 2018. This bathymetry product now offers higher resolution, powerful 3D visualisation functionality and extended coverage of Europe's seas. It is available free of charge for viewing and downloading, and sharing by OGC web services from the EMODnet Bathymetry portal.

The advanced EMODnet DTM offers many benefits to users:

- A resolution increased from 1/8 * 1/8 arc minutes to 1/16 * 1/16 arc minutes (circa 115 * 115 meters). Altogether the EMODnet DTM contains 113892 x 108132 = circa 12.3 billion data points;
- A powerful 3D visualisation functionality of the bathymetry that can be used in the browser without the requirement of plugins;
- An expanded coverage including all European seas as well as the European part of the Arctic Ocean and Barents Sea;
- The number of bathymetric survey data sets and composite DTMs, used as data sources, has increased from about 7.200 to about 9.400. These come from 48 data providers. All related metadata can be retrieved through a source reference layer;
- The inclusion of Satellite Derived Bathymetry data products, in particular for coastal stretches of Spain and Greece.

The EMODnet DTM is used for a whole range of applications in marine science, sustainable ocean governance, and blue economy activities such as planning of pipeline trajectories, siting offshore wind farms or evaluating port extensions. In science, the DTM supports oceanographers in providing a base geometry for hydrodynamic models, marine geologists for studying morphological processes, and biologists in contributing to the generation of seabed habitat maps. An improved DTM also contributes to reducing risks for damage to coastal and offshore installations and public safety by improving our ability to forecast storm surges, for example.



Research institutes



Hydrographic surveys



Private companies

