



EMODnet



European Marine
Observation and
Data Network

Your gateway to marine data in Europe



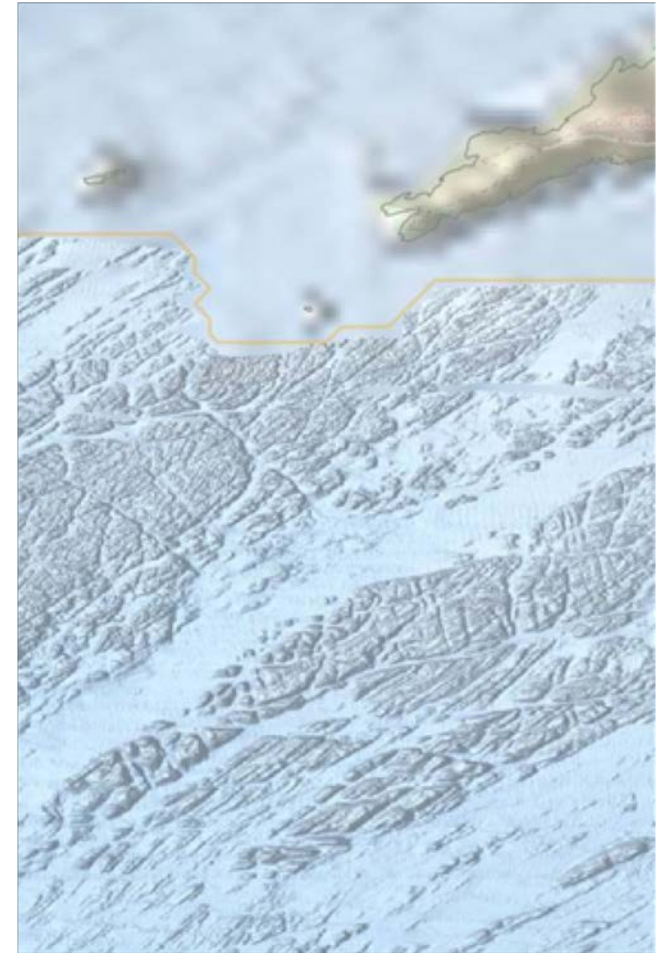
EMODnet Bathymetry : recent progress towards Seabed 2030 goals

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On behalf of the EMODnet High Resolution Seabed
Mapping Consortium

EMODnet Bathymetry: Global objectives

- European **M**arine **O**bservation and **D**ata **n**etwork project: « Bring together fragmented and widely distributed data sources describing the marine physical environment (Marine Knowledge 2020) »
- 7 domains: **Bathymetry**, Geology, Seabed Habitats, Chemistry, Biology, Physics and Human activities
- **EMODnet Bathymetry:**
 - Bring together bathymetric data of European seas
 - Engage data contributors to share their data
 - Publish and serve interoperable data and metadata
 - Generate a harmonised Digital Elevation Model at 1/16 of arcminute (~115m)



EMODnet Bathymetry: Consortium

- 41 collaborating European organizations

➤ Hydrographic Offices



➤ Research Institutes

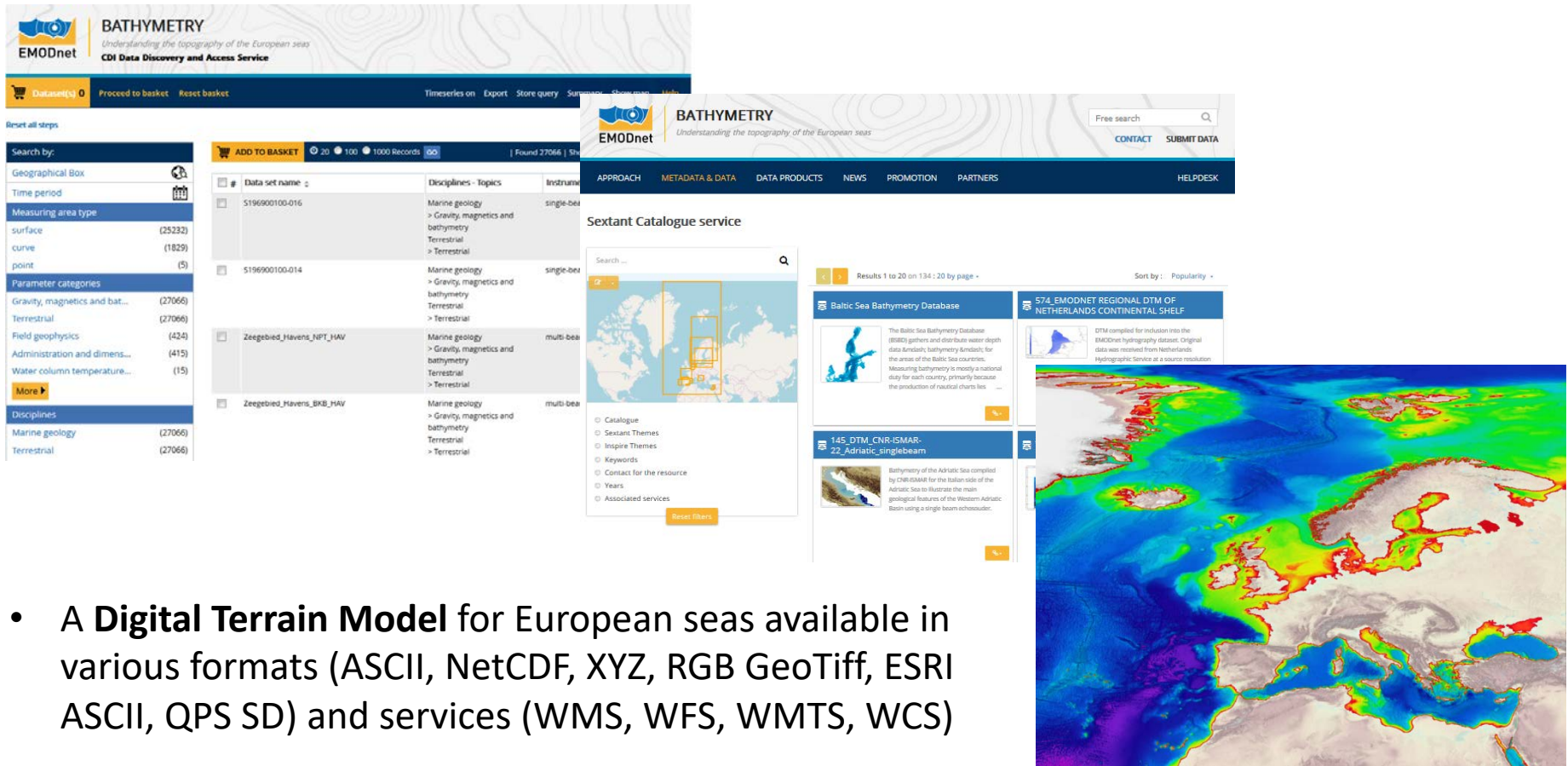


➤ Small and medium-sized enterprises



EMODnet Bathymetry: Products

- **2 Catalogues** for Survey Data sets and Composite DTM
 - ~ **27 000** INSPIRE compliant metadata using the SeaDataNet common vocabulary



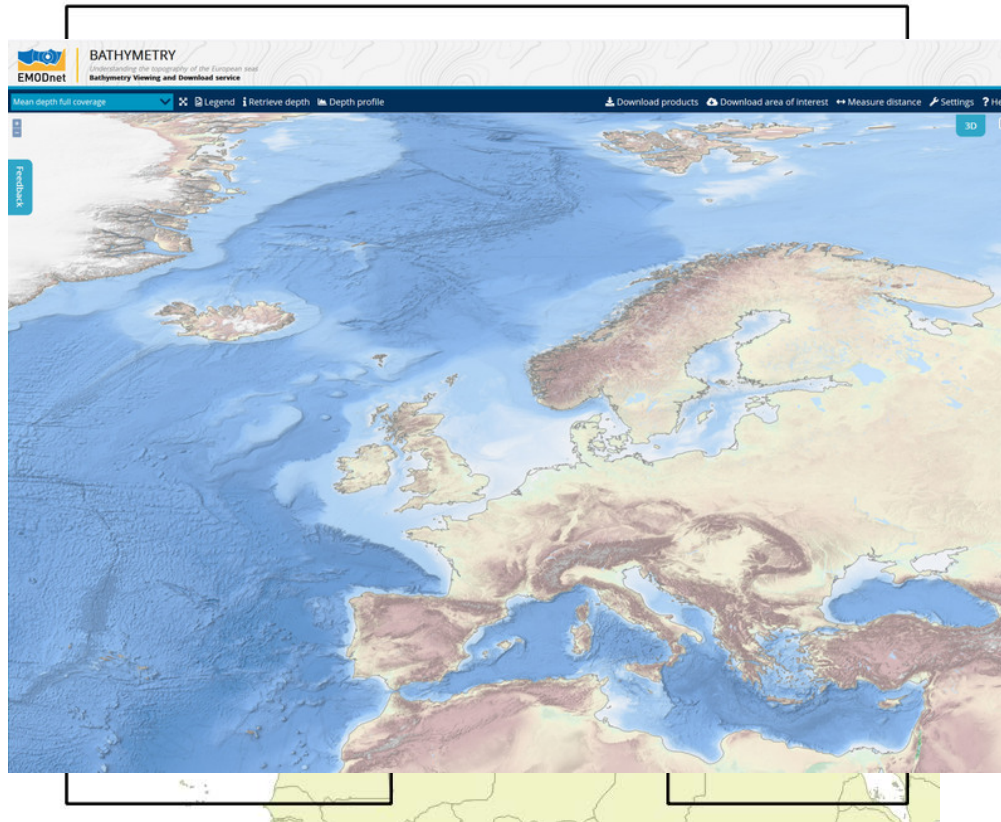
The screenshot displays the EMODnet Bathymetry website interface. The top navigation bar includes the EMODnet logo and the text "BATHYMETRY Understanding the topography of the European seas CDI Data Discovery and Access Service". Below the navigation bar, there are several sections:

- Search by:** A sidebar with filters for Geographical Box, Time period, Measuring area type (surface, curve, point), Parameter categories (Gravity, magnetics and bathymetry, Terrestrial, Field geophysics, Administration and dimensions, Water column temperature), and Disciplines (Marine geology, Terrestrial).
- ADD TO BASKET:** A section showing a list of data sets with columns for Data set name, Disciplines - Topics, and Instruments. The list includes items like "S196900100-016" and "Zeegebied_Havens_NPT_HAV".
- Sextant Catalogue service:** A section with a search bar and a map showing the location of the data sets.
- Results:** A section showing search results for "Baltic Sea Bathymetry Database" and "574 EMODNET REGIONAL DTM OF NETHERLANDS CONTINENTAL SHELF".
- DTM Visualizations:** A large map showing the Digital Terrain Model (DTM) for the European seas, with a color scale ranging from blue (shallow) to red (deep).

- A **Digital Terrain Model** for European seas available in various formats (ASCII, NetCDF, XYZ, RGB GeoTiff, ESRI ASCII, QPS SD) and services (WMS, WFS, WMTS, WCS)

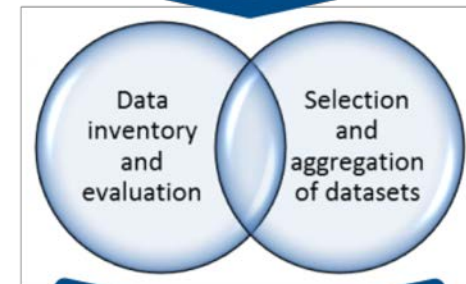
Bathymetry Digital Terrain Model

- Distributed role with unified method and common tools



- A common origin: $0^{\circ}\text{N}/0^{\circ}\text{E}$
- Pixel centered values
- Geodetic system: WGS84
- Vertical reference frame: Lowest Astronomical Tide

Data providers



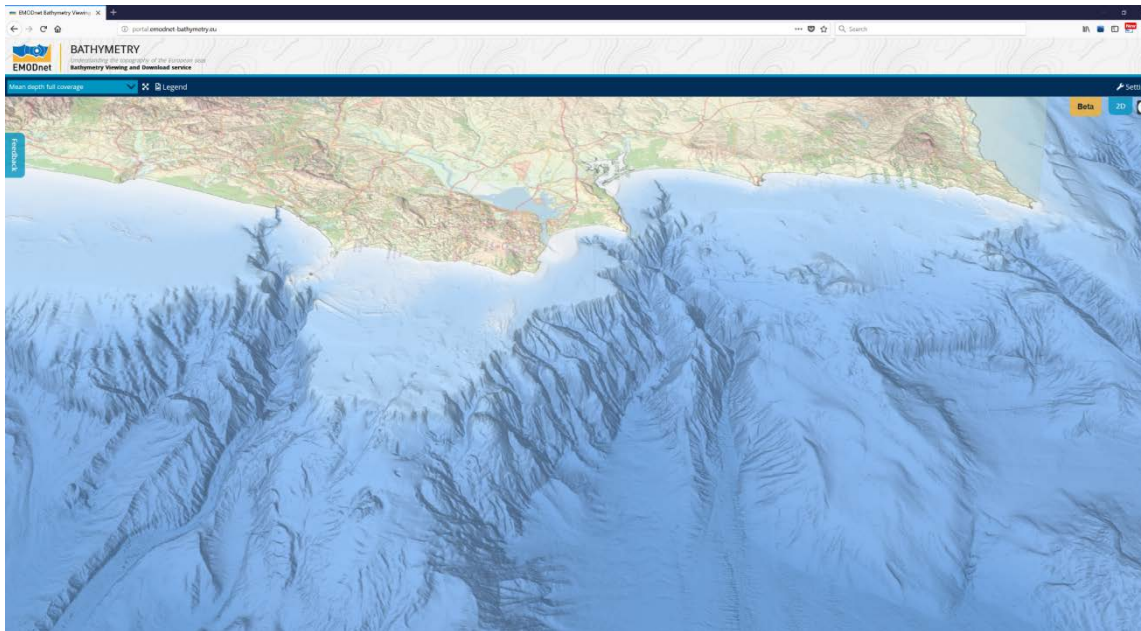
Basin Coordinator



Integration

Bathymetry Digital Terrain Model: Delivering

- Embedded 3D viewer
- Downloading facilities (multiple formats)
- System allows for the inventory and access of all the bathymetric data made available (catalogues)



Product selection

Tile	DTM	Product format
D4	2018	ESRI ASCII
D5	2018	ESRI ASCII
E5	2018	ESRI ASCII
E4	2018	ESRI ASCII

Complete the order form. After submission you will receive an email with the download links.
Registered in Marine-ID? then authenticate to pre-fill part of the form

[Authenticate via Marine-ID](#)

Name

Email

Country

Organisation

Organisation type

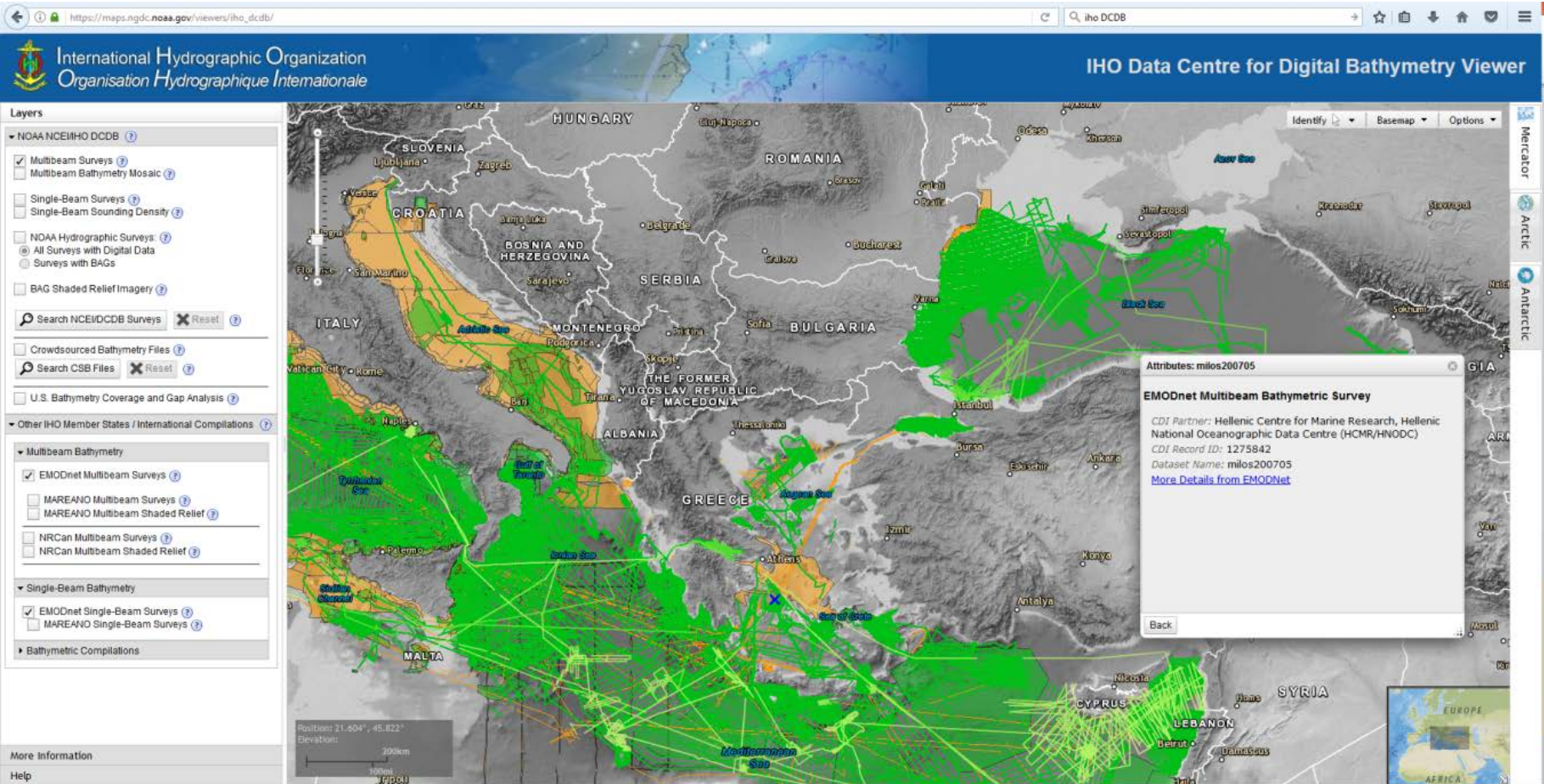
Usage

[Submit request](#)

[Back](#)

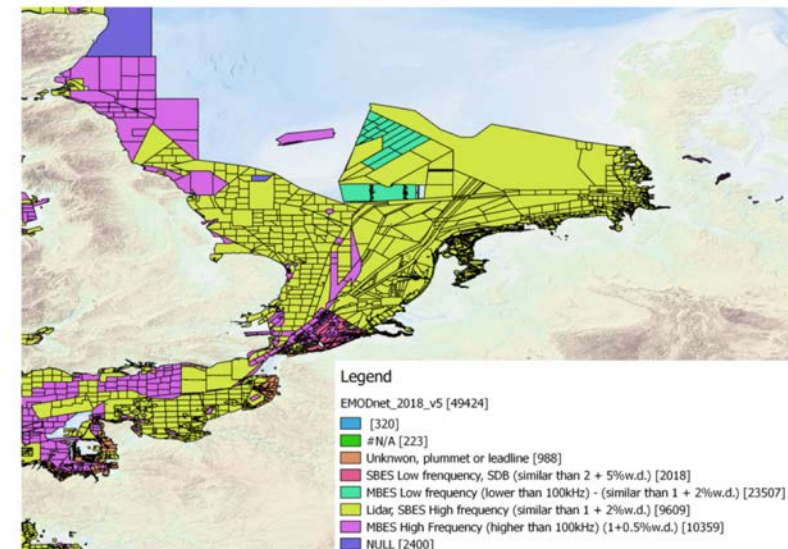
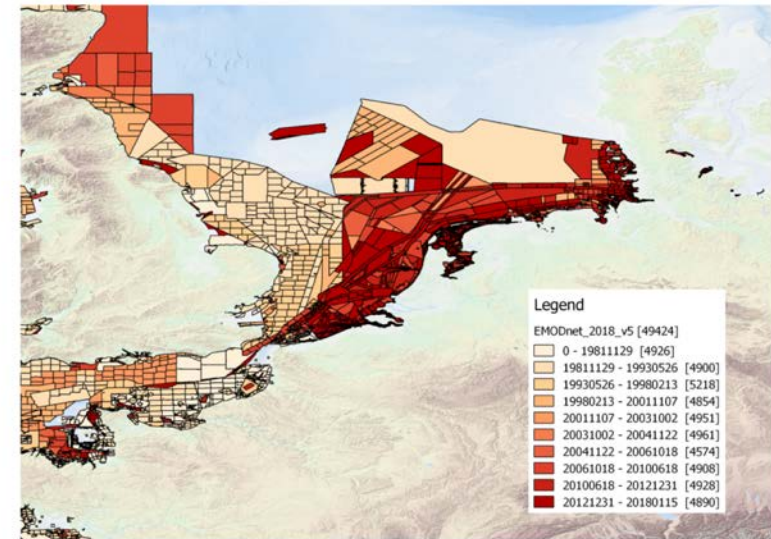
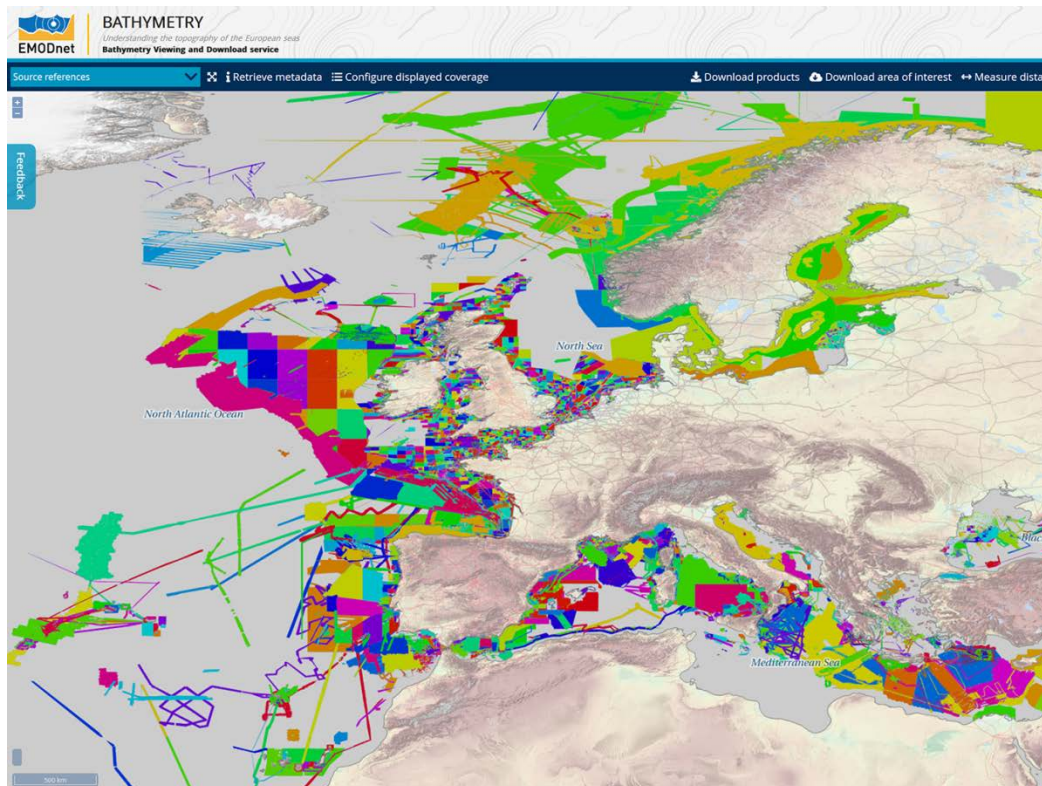
Bathymetry Digital Terrain Model: Delivering

- Web services (WMS, WFS, WCS, REST)



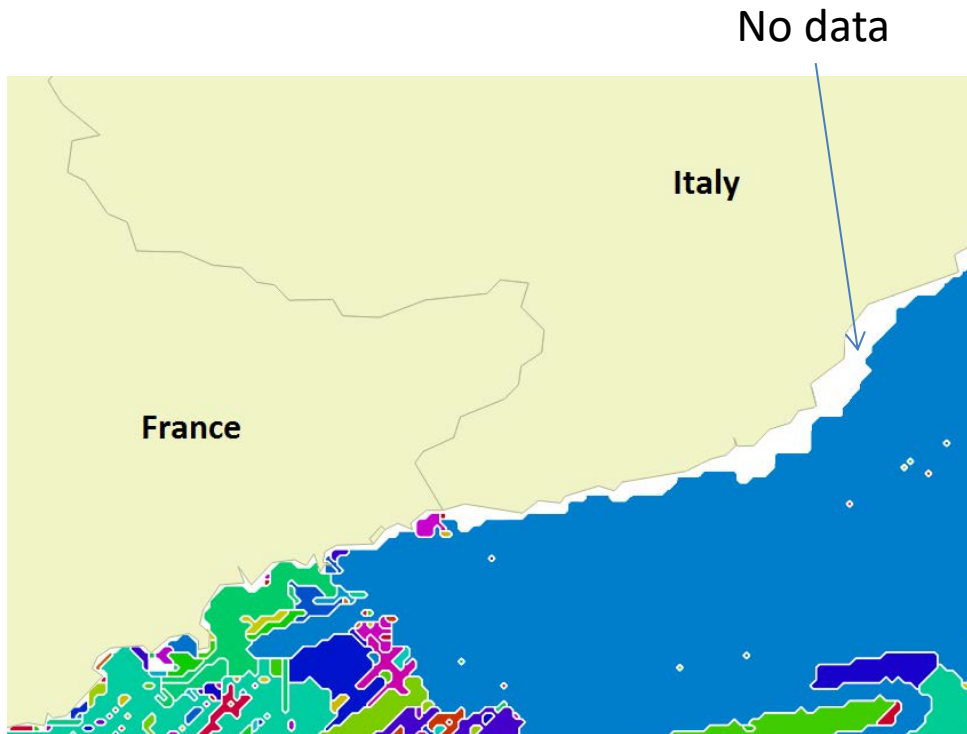
Bathymetry Digital Terrain Model: Quality assessment

- Source reference map
- Direct relation to each survey and their qualitative description (Vertical, Horizontal, Age, Purpose)

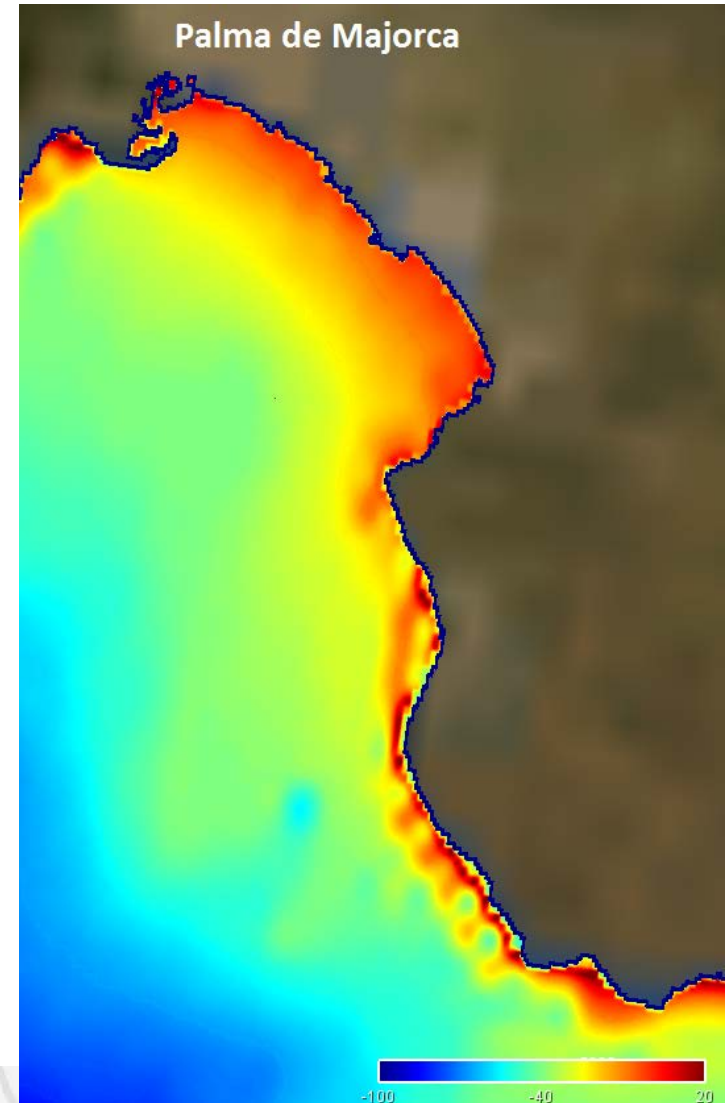


Limitations in coastal areas

- There is often a lack of data in coastal areas

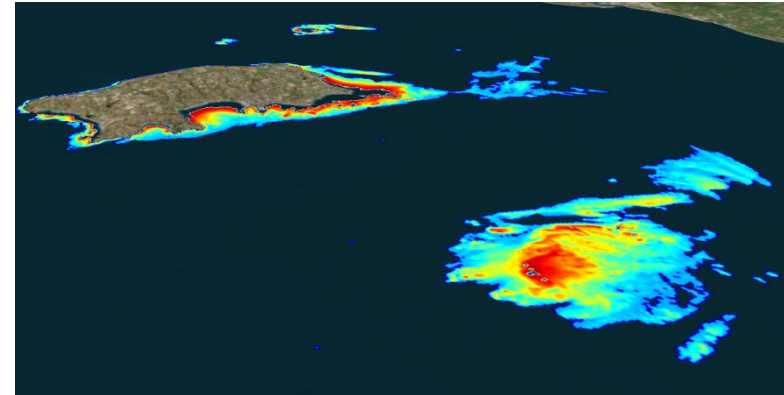


- GEBCO and Interpolation to 0m coastline **not always give satisfactory** results



SBD performances

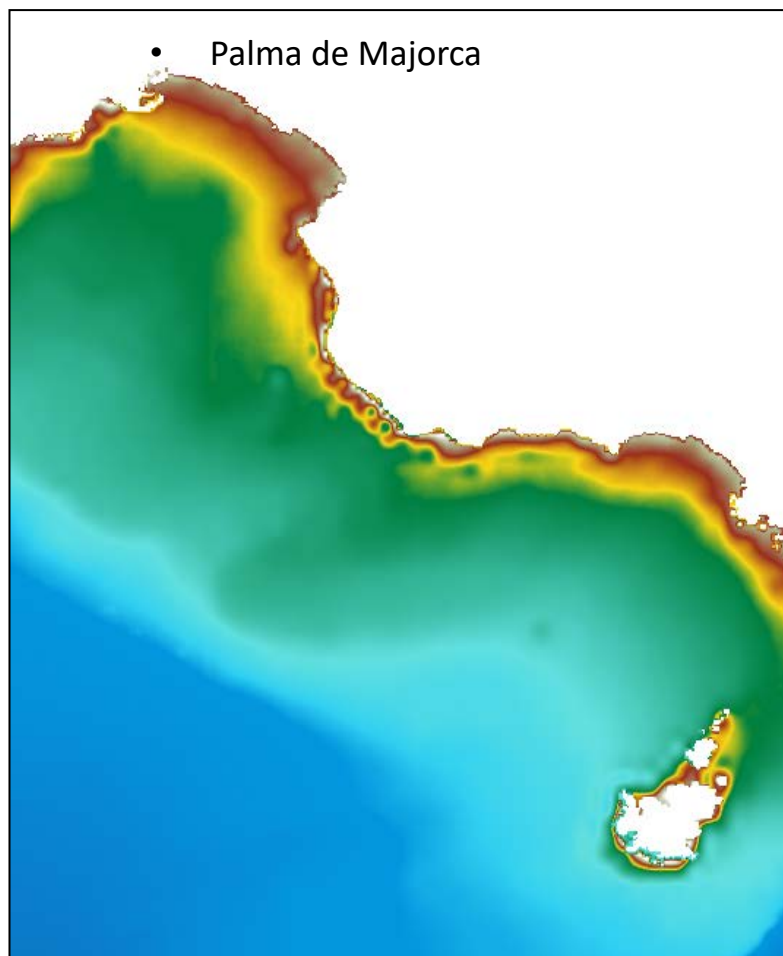
Area	Maximum depth reached
Channel islands	12m
Spain Mediterranean coast	15m
Aegean Sea and Peloponnese	18m
Lybia, Tobruk area	20m



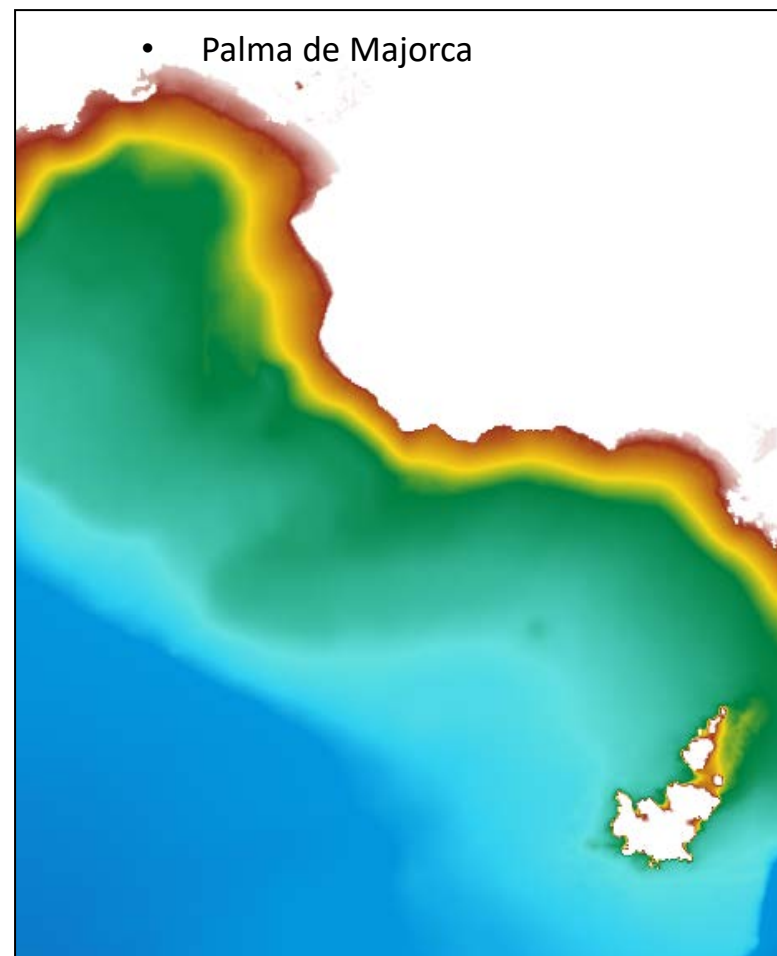
- Horizontal resolution of SDS grids: 1.3m to 2m using commercial satellite data
10m using Europe's Sentinel-2 fleet
15/30m using US Landsat mission
- Time to create 15/30m SDB grids: ~70-90 km² / person / day
- Cost: function of the resolution => 15 to 125 € / km²

SDB Improves areas covered by GEBCO and Interpolation

- EMODnet Bathymetry DTM 2016 with Interpolation to 0 coastline

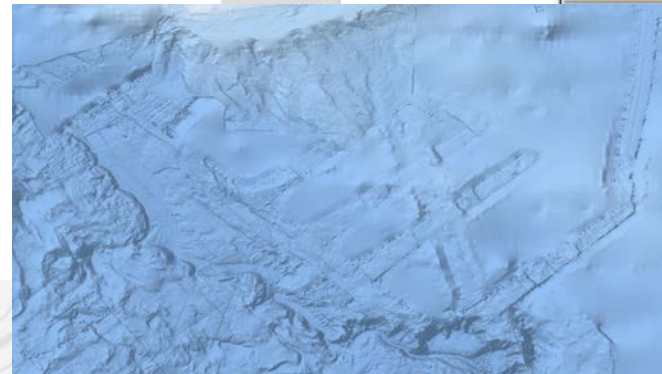
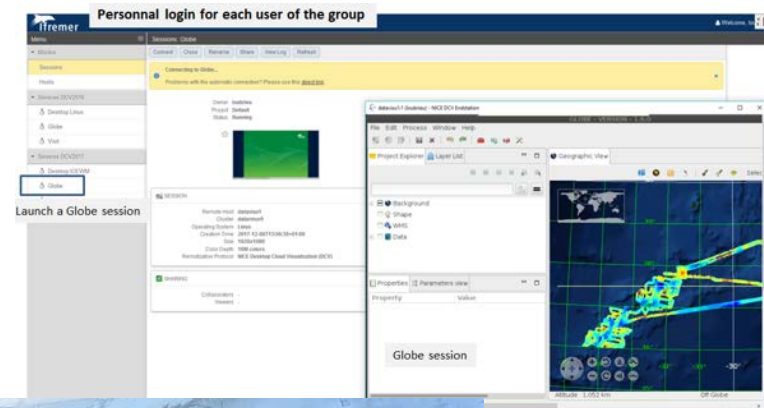
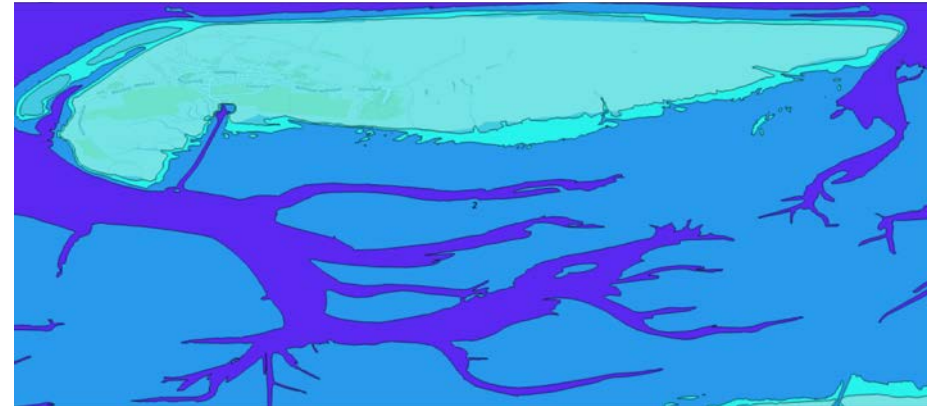


- EMODnet Bathymetry DTM 2018 with SDB



Envisioning the future

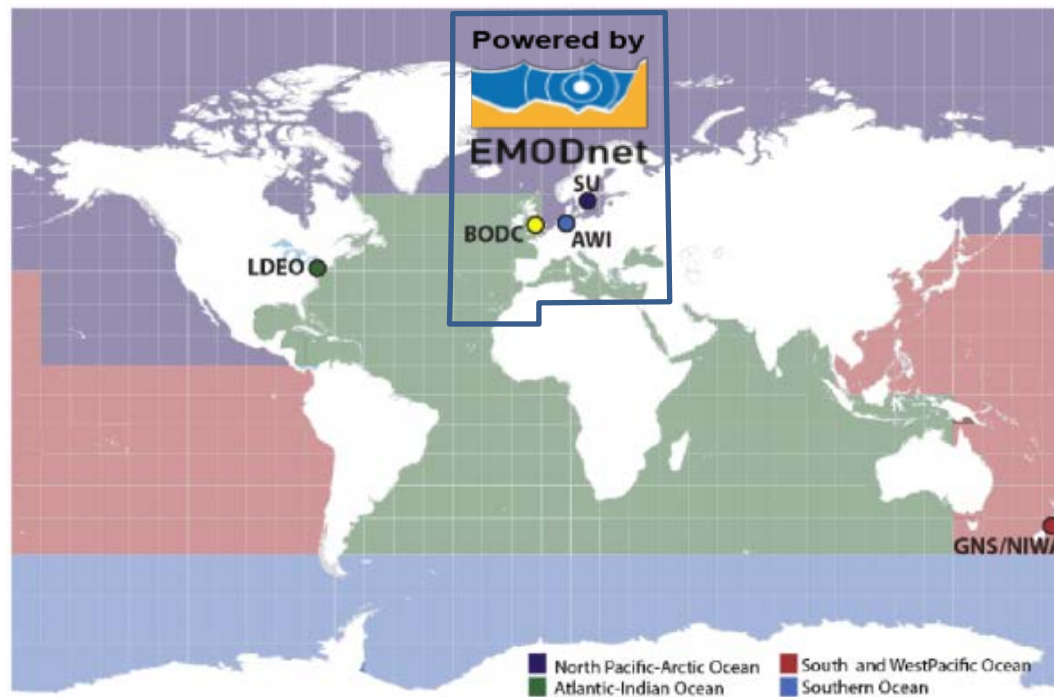
- Improving the coastline definition using Satellite imagery and tidal modelling
- Designing a shared processing environment in the cloud
- Deep sea : refreshing the altimetry derived bathymetry



Conclusions and Future works

EMODnet Bathymetry is providing ways to:

- **Discover bathymetric data:** inventory of existing data in EU and from EU organizations worldwide, with associated metadata.
- **Share data:** Access to source data is ensured. EMODnet Bathymetry provides the facility for the provider and the user to set the conditions of the use of the bathymetric data.
- **Find gaps and fill them:** using for example satellite derived bathymetry near the coast



The screenshot shows the EMODnet Bathymetry website. At the top left is the EMODnet logo and the text 'BATHYMETRY Understanding the topography of the European seas'. To the right is a search bar with the text 'Free search' and a magnifying glass icon, and two buttons: 'CONTACT US' and 'SUBMIT DATA'. Below this is a dark blue navigation bar with the following links: 'APPROACH', 'METADATA & DATA', 'DATA PRODUCTS', 'NEWS', 'PROMOTION', 'PARTNERS', and 'HELPDESK'. The main content area features a large image of a yellow autonomous underwater vehicle (AUV) on the surface of the ocean. Overlaid on this image is the text: '© HCMR Developing and providing a harmonised Digital Terrain Model (DTM) for the European sea regions'. Below the main image are three service cards. The first card, 'SURVEY DATA SETS', has a light yellow background and features a magnifying glass icon; it describes a 'CDI Data Discovery and Access service' and has a 'READ MORE' button. The second card, 'EMODnet DTM', has a dark blue background and features a bathymetric map of the Mediterranean region; it describes a 'Bathymetry Viewing and Download service' and has a 'READ MORE' button. The third card, 'COMPOSITE DTM', has a light yellow background and features a hand holding a glowing globe with a network overlay; it describes a 'Sextant Catalogue service' and has a 'READ MORE' button.

THANKS !



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