



# **EMODnet – Bathymetry (HRSM)**

**By**

**Dick M.A. Schaap – Technical Coordinator EMODnet HRSM**

**SeaDataCloud Plenary meeting – October 2017 – Athens - Greece**

# Process flow and services

Adoption of SeaDataNet standards and services

Common method and software (Globe) used by all data providers and regional sea coordinators

## Survey data sets

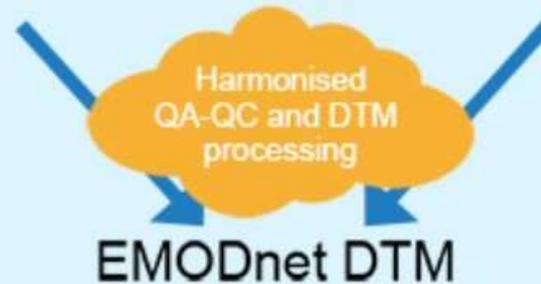


[Go TO: CDI Data Discovery and Access service](#)

## Composite DTM's



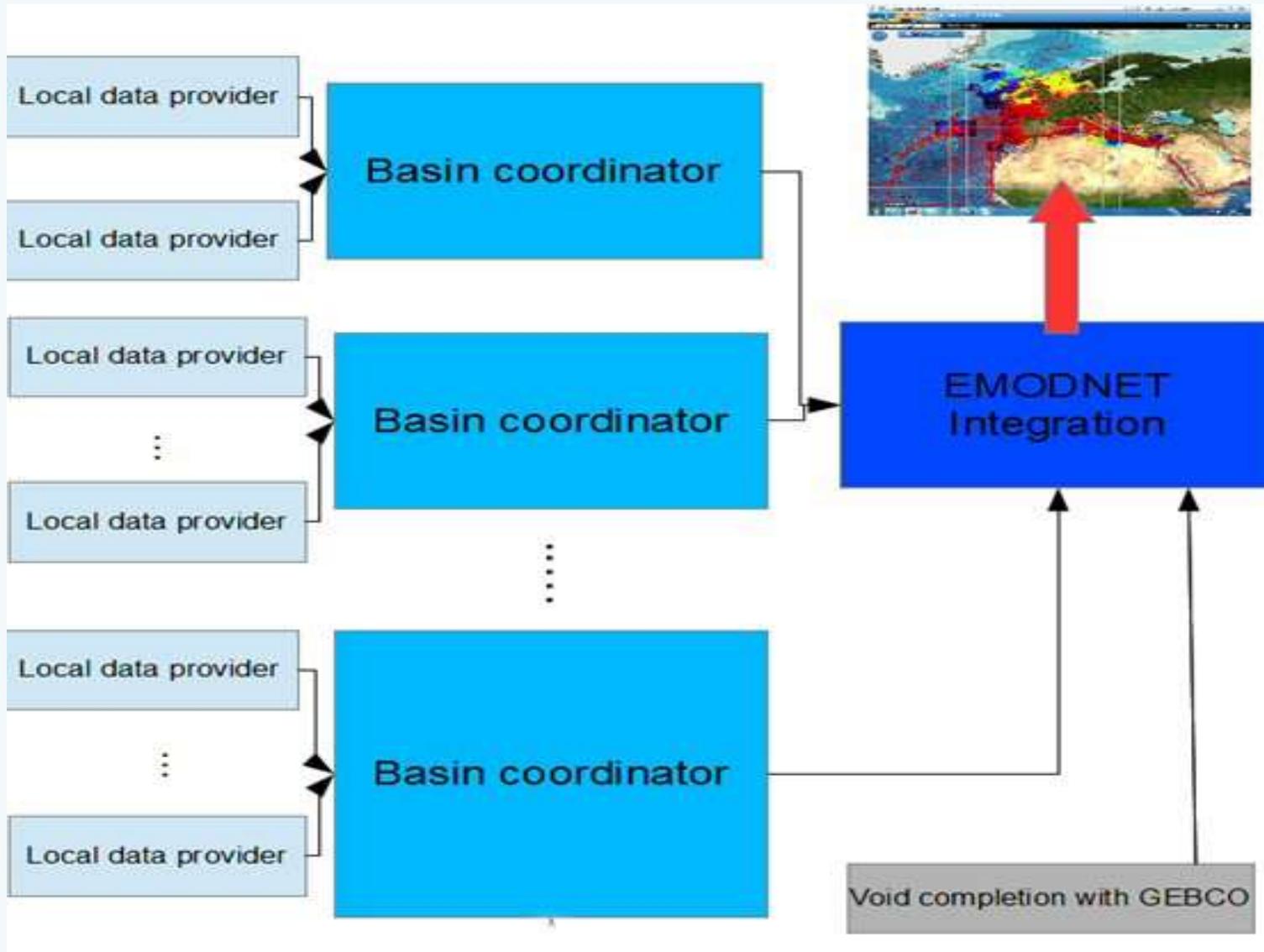
[GO TO: Sextant Catalogue service](#)



[GO TO: Bathymetry Viewing and Download service](#)

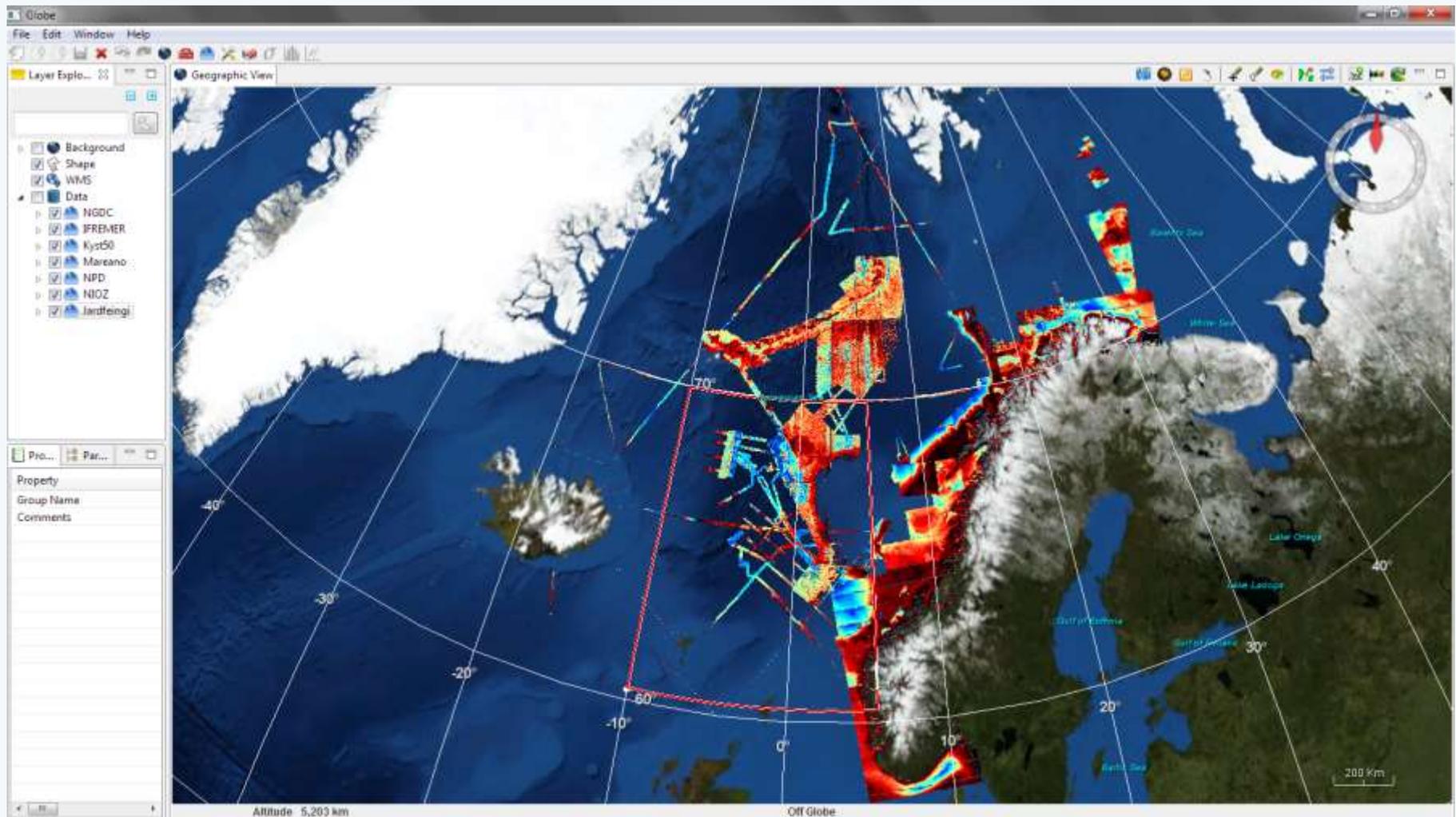
# Common Methodology

October 2016



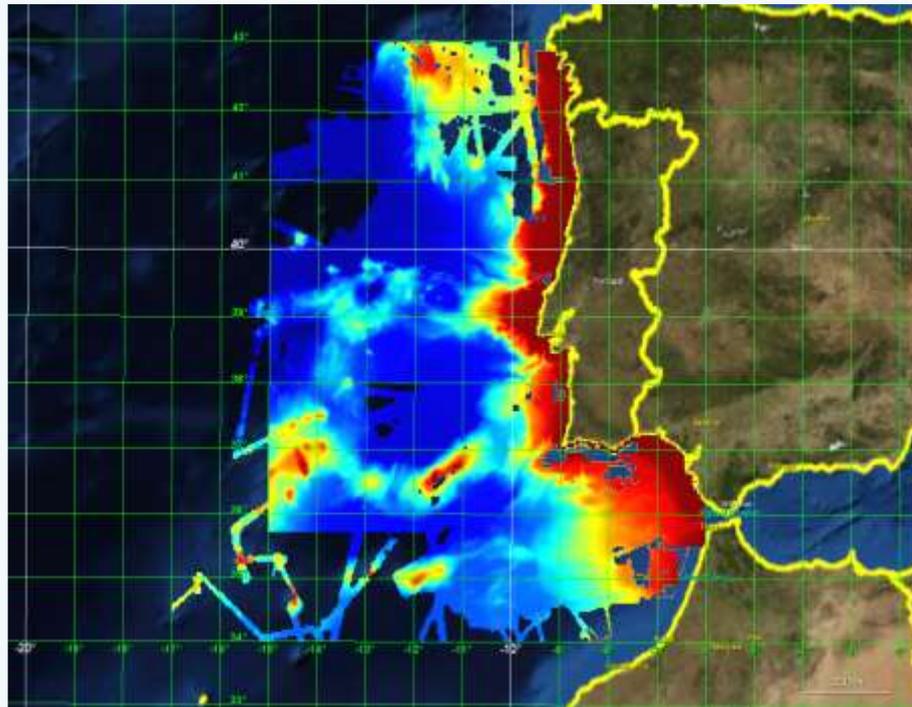
From local data to regional DTMs to EMODnet DTM

# Use of *GLOBE* software

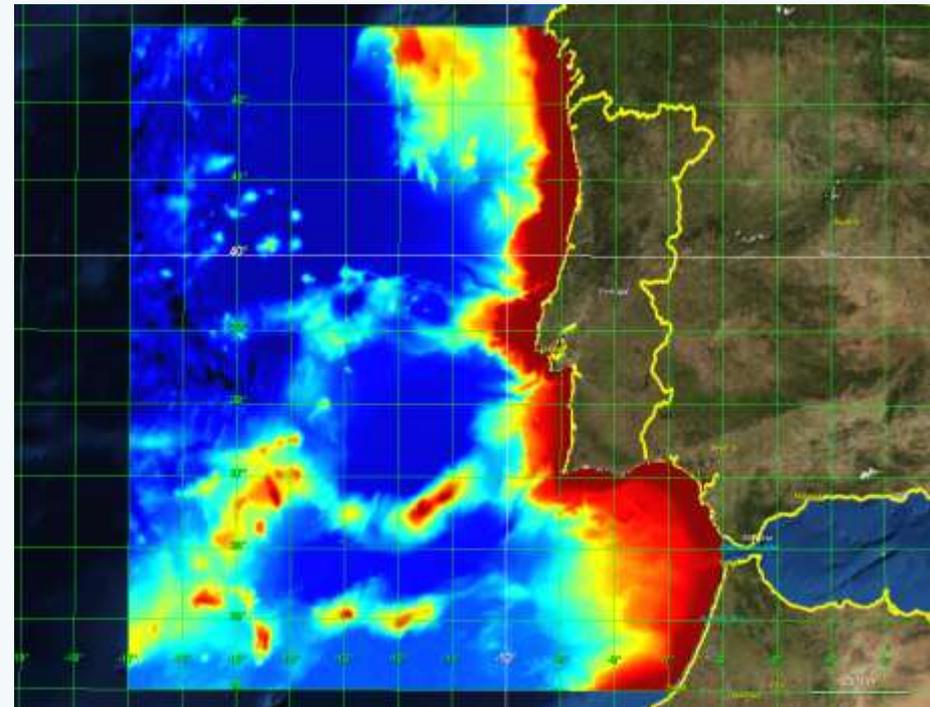


Norwegian and Icelandic seas – Arctic – example

## *Regional DTM production, including GEBCO for gaps – example Atlantic near Iberian peninsula*



Average depth for the interpolated DTM (using survey data & CDTM's)



Resulting DTM with average depth after GEBCO integration and smoothing

# Data gathering results

- Up till today, **20740** survey CDI metadata records from **30** data centres and **221** data originators **from 1816 to 2017** have been collated and imported into the dedicated EMODnet Bathymetry CDI data discovery and access service.
- The SeaDataNet Data Products Catalogue service (Sextant) gives **79** metadata records about composite DTMs that have been used next to survey data sets

EMODnet Portal for Bathymetry  
CDI Data Discovery and Access service

Search by:

- Geographical line
- Time period
- Measuring area type

Data set name	Description - Parameter groups	Instrument / gear type	More
8281334900-4	Passive geology > Gravity, magnetica and bathymetry > Terrestrial	multi-beam echosounders	
8281334900-8	Passive geology > Gravity, magnetica and bathymetry > Terrestrial	multi-beam echosounders	
8281330800-1	Passive geology > Gravity, magnetica and bathymetry > Terrestrial	multi-beam echosounders	

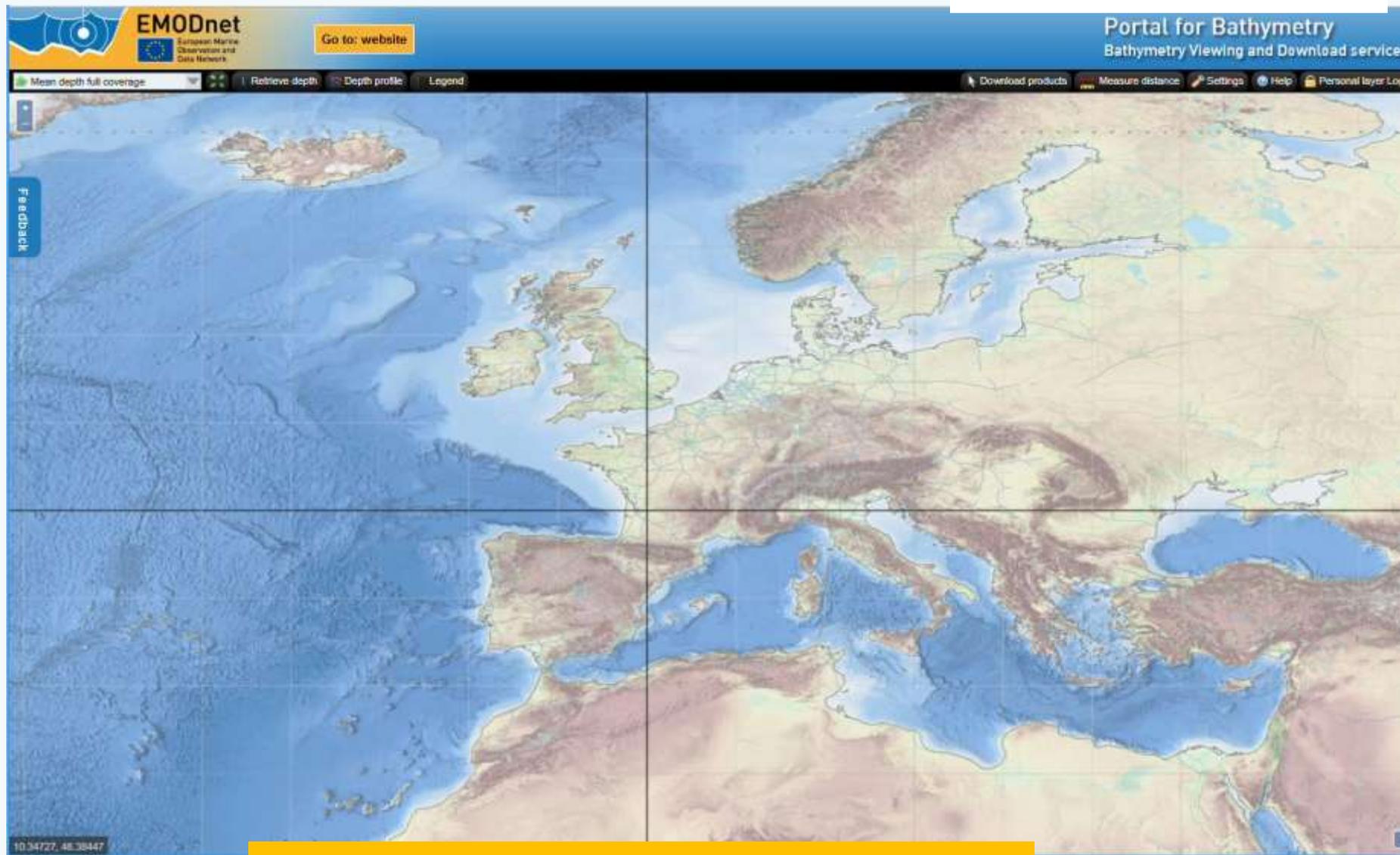
EMODnet Portal for Bathymetry  
Sextant Catalogue service

363\_291007-Baker Islands Margin  
Composite DTM of the Baker Islands Margin, (Mediterranean Sea, East Spain)

363\_291005-Spot of Gibraltar  
Composite DTM of the Spot of Gibraltar, at approximately 130m of resolution

2978\_EMENC2011\_West Continental Shelf, Portugal  
DTM derived from bathymetry surveys performed within the scope of the Portuguese Continental Shelf Extension Project (EMODnet)

# Bathymetry Viewing and Download service with EMODnet DTM

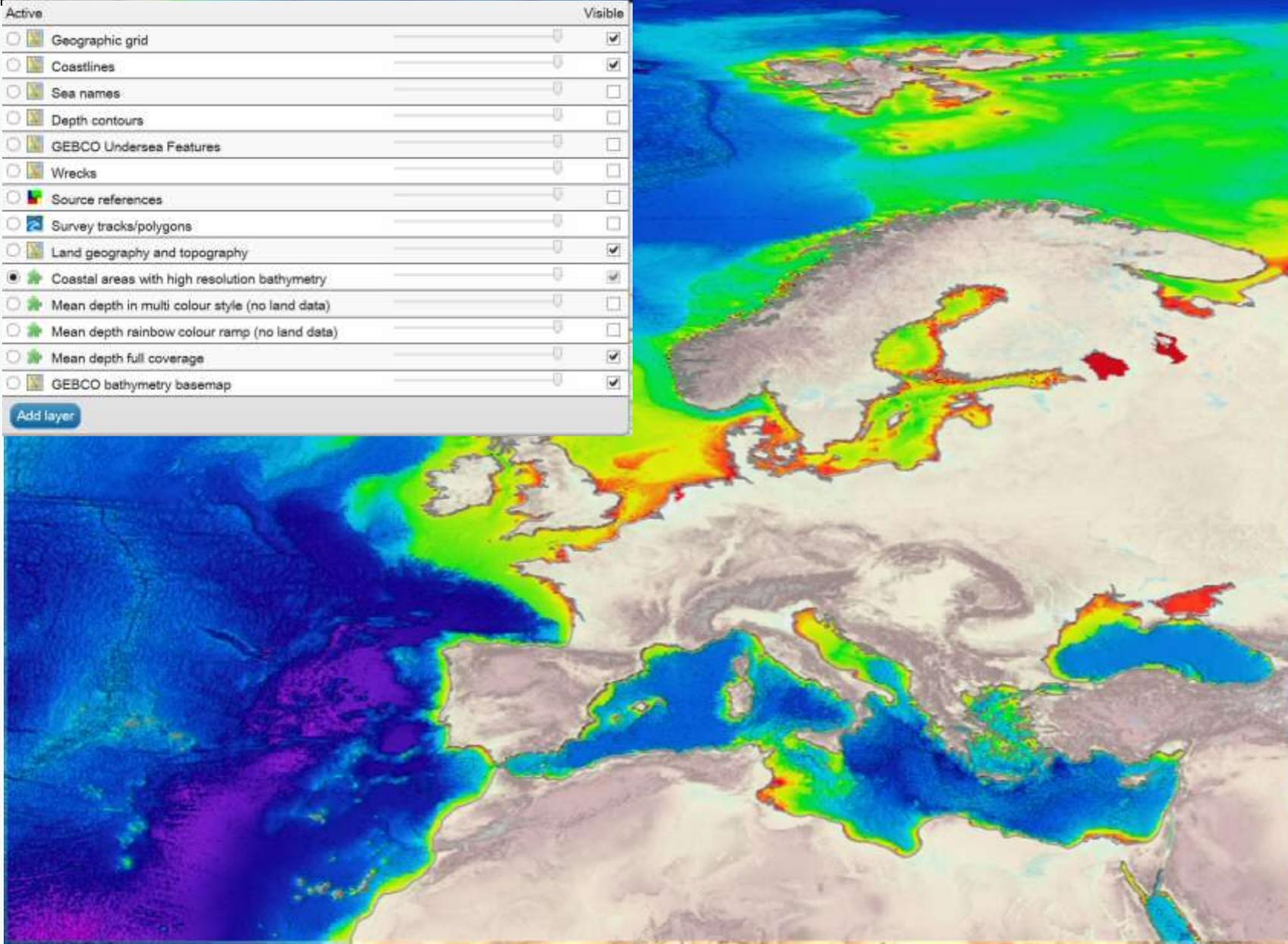


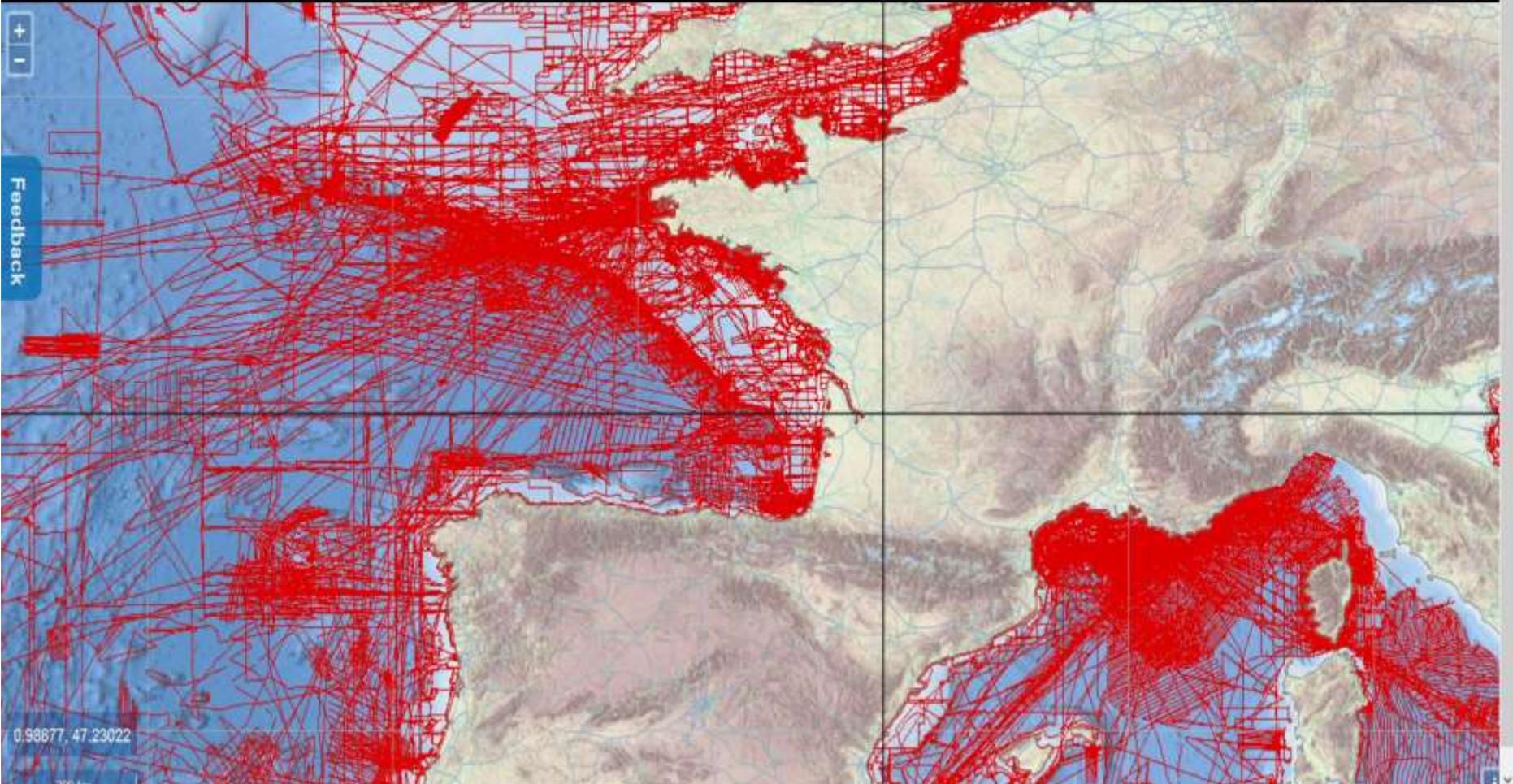
<http://www.emodnet-bathymetry.eu>



Active	Visible
<input type="checkbox"/> Geographic grid	<input checked="" type="checkbox"/>
<input type="checkbox"/> Coastlines	<input checked="" type="checkbox"/>
<input type="checkbox"/> Sea names	<input type="checkbox"/>
<input type="checkbox"/> Depth contours	<input type="checkbox"/>
<input type="checkbox"/> GEBCO Undersea Features	<input type="checkbox"/>
<input type="checkbox"/> Wrecks	<input type="checkbox"/>
<input type="checkbox"/> Source references	<input type="checkbox"/>
<input type="checkbox"/> Survey tracks/polygons	<input type="checkbox"/>
<input type="checkbox"/> Land geography and topography	<input checked="" type="checkbox"/>
<input checked="" type="radio"/> Coastal areas with high resolution bathymetry	<input checked="" type="checkbox"/>
<input type="radio"/> Mean depth in multi colour style (no land data)	<input type="checkbox"/>
<input type="radio"/> Mean depth rainbow colour ramp (no land data)	<input type="checkbox"/>
<input type="radio"/> Mean depth full coverage	<input checked="" type="checkbox"/>
<input type="radio"/> GEBCO bathymetry basemap	<input checked="" type="checkbox"/>

[Add layer](#)



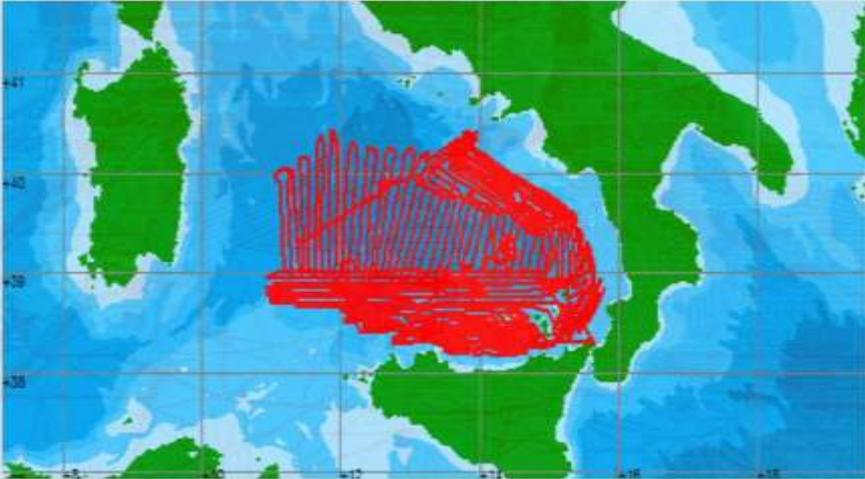


Layer with CDI data references

Survey tracks/polygons

Retrieve metadata Order survey data

Survey tracks/polygons

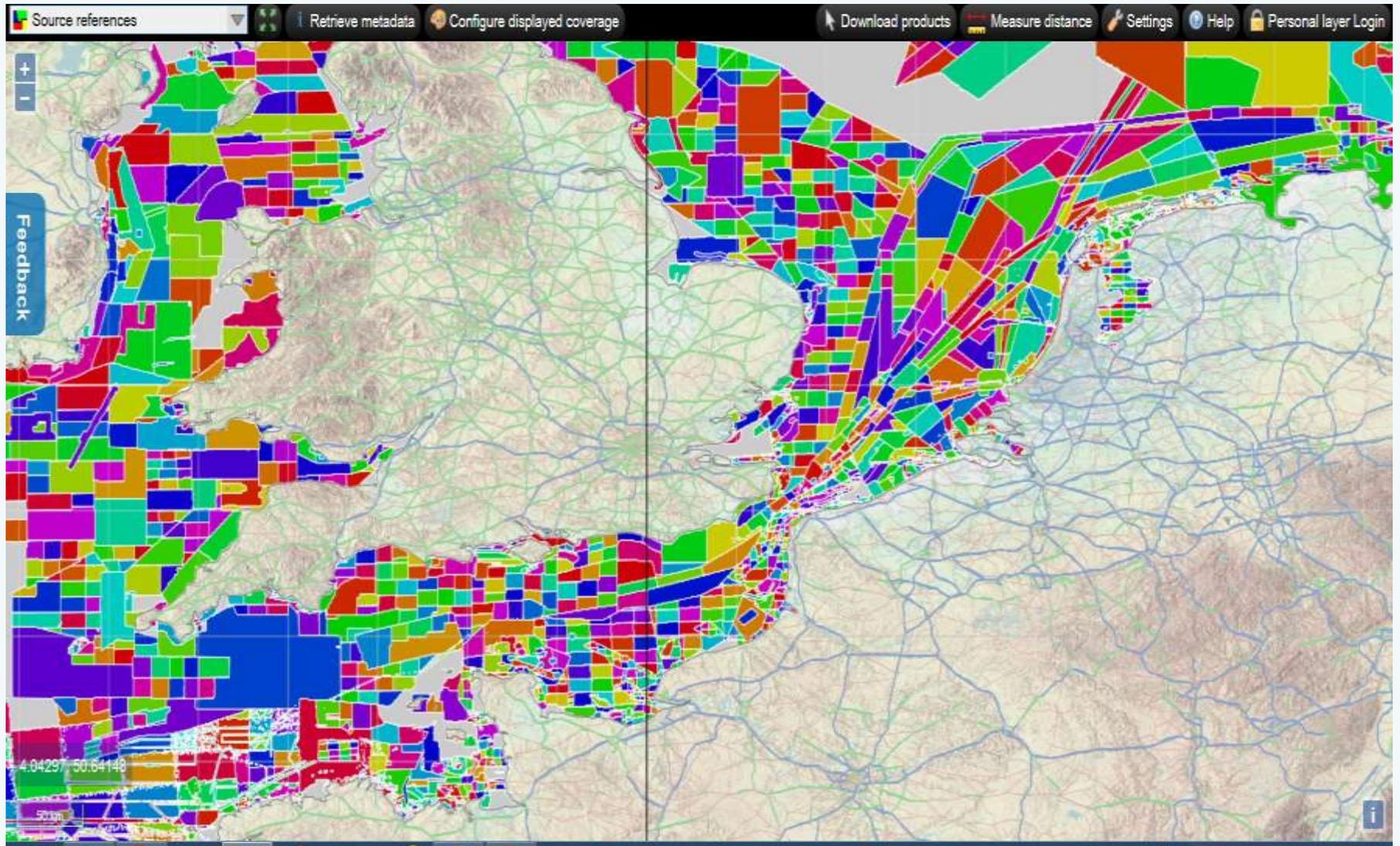
GEMET-INSPIRE themes	Oceanographic geographical features
Abstract	The data were acquired with a Simrad EM120 S Multi Beam echosounder aboard the Russian R/V Gelendzhik in order to cover the central-southern Tyrrhenian sea for geological reconnaissance in the framework of an Italian project funded by CNR and APAT (Geological Survey Agency).
Data format	Climate and Forecast NetCDF <b>Version 3.5</b>
Data set creation date	20101027
<b>WHERE?</b>	
Map	



200 km

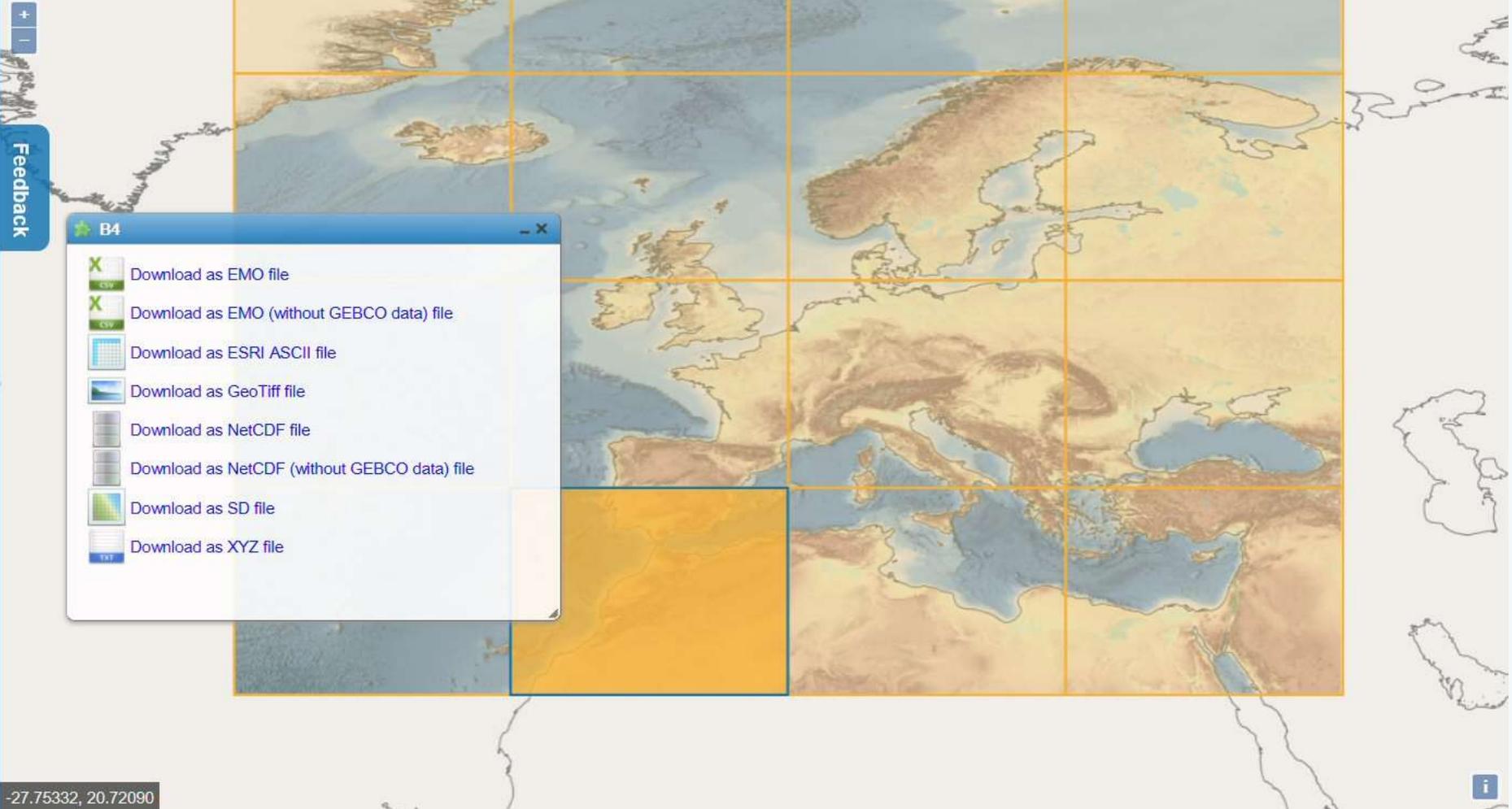
Layer with CDI data references and retrieving details

[sdn-userdesk@seadatanet.org](mailto:sdn-userdesk@seadatanet.org) – [www.seadatanet.org](http://www.seadatanet.org)



Layer with source references of used data sets and their coverage

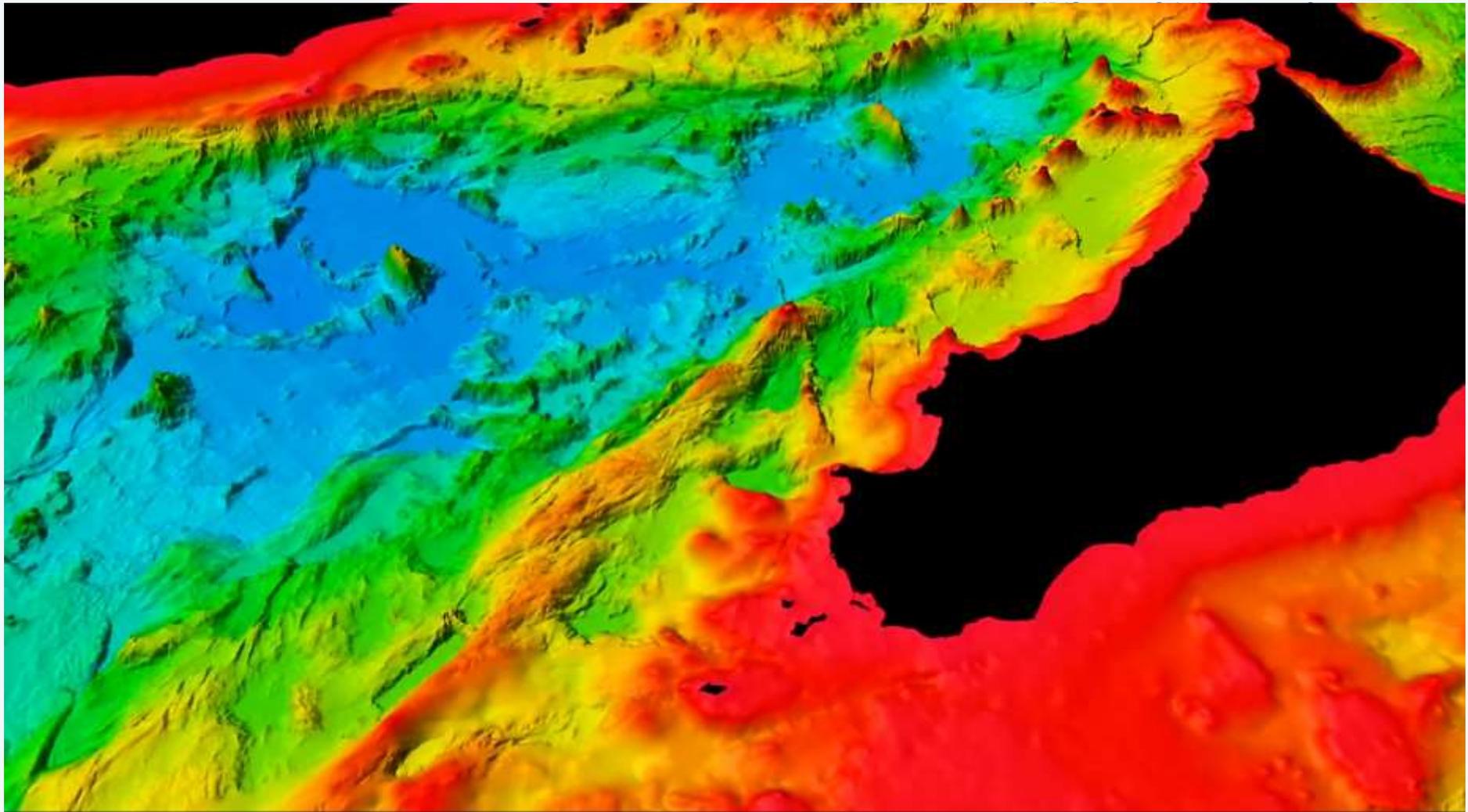
[sdn-userdesk@seadatanet.org](mailto:sdn-userdesk@seadatanet.org) – [www.seadatanet.org](http://www.seadatanet.org)



Download DTM in tiles in various formats

[sdn-userdesk@seadatanet.org](mailto:sdn-userdesk@seadatanet.org) – [www.seadatanet.org](http://www.seadatanet.org)

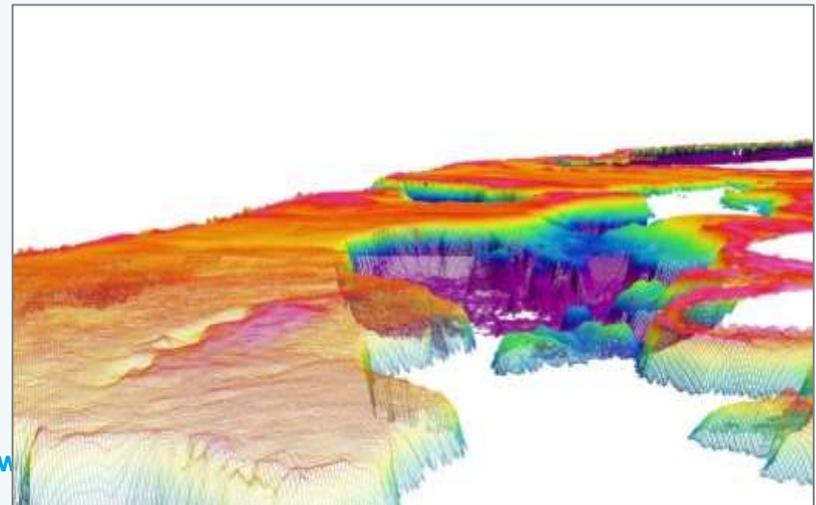
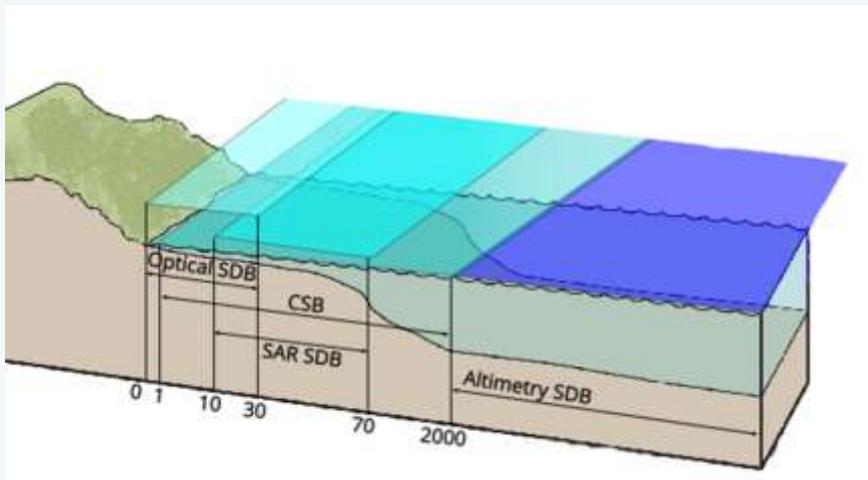
# *Bathymetric DTM – 3D-Viewer*



DTM near Sicily loaded in 3D-viewer

# EMODnet HRSM

- Expanding consortium
- Expanding North to polar area, including the Barents Sea and synergy with IBCAO
- Expanding DTM including coastal areas
- Increasing overall resolution to 1/16 arc minute and inserts of higher resolution where possible and provided
- Including alternative data sources (Satellite Derived Bathymetry)



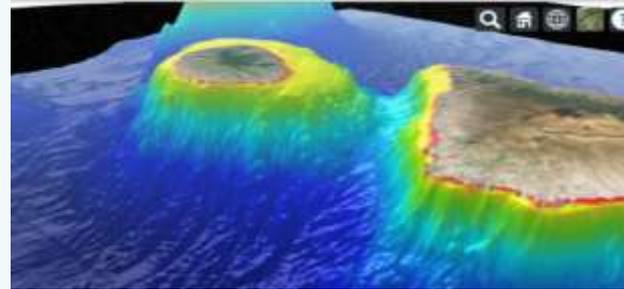
# EMODnet HRSM

## Innovation:

- Upgrading of the portal and adding extra functionalities to the viewing portal such as more delivery options, 3D viewing in the browser,



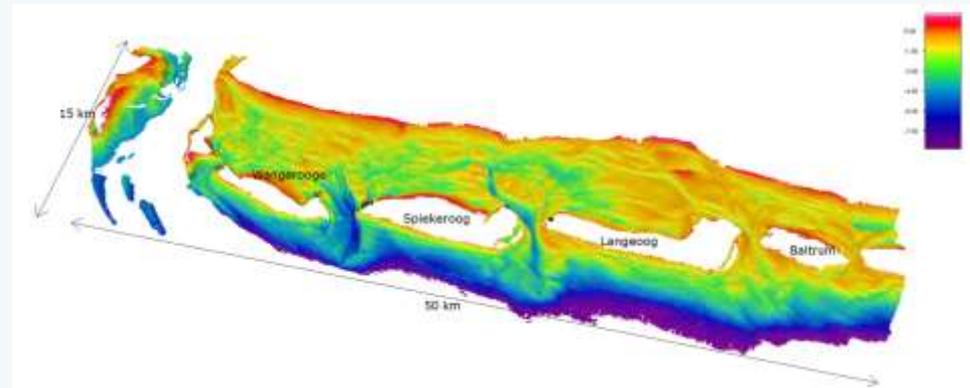
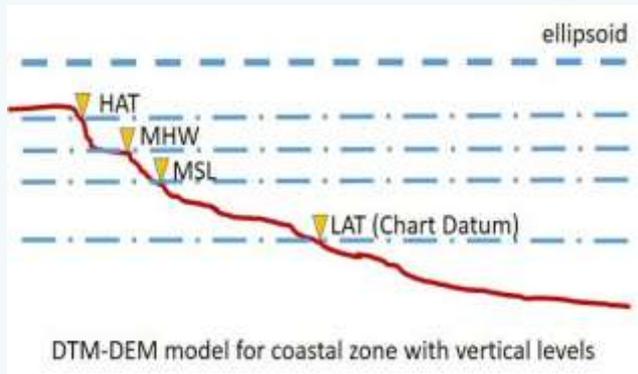
versioning of DTMs with DOIs



- Latest DTM uses > 7.700 survey data sets and composite DTMs from 31 data providers from 18 countries and GEBCO\_2015
  - Latest DTM contains 1.092.115.678 data points (28.799 rows x 37.922 columns)
- ⇒ Big data issues => developing cloud process and VRE around GLOBE for higher performance of computations and improved quality by more interaction between regions and extra viewing and qc services

# EMODnet HRSM

- Determining best European coastline, also using European tidal model for vertical referencing



- International cooperation with GEBCO, IBCAO, IHO, NOAA and others



The screenshot shows the homepage of the EMODnet Bathymetry website. At the top left is the EMODnet logo, which includes the European Union flag and the text "EMODnet European Marine Observation and Data Network". To the right of the logo is a search bar with the text "Free search" and a magnifying glass icon. Below the search bar is a navigation menu with the following items: Home, Approach, Metadata & Data, Data products, News, Promotion, Partners, and Helpdesk. The main content area features a large blue background image of a yellow autonomous underwater vehicle (AUV) on the water's surface. Overlaid on this image is the word "Bathymetry" in a large, bold, orange font. Below the title, the text "providing services for discovery and requesting access to bathymetric data" is displayed in white. At the bottom of the page, there are three service cards. The first card, titled "SURVEY DATA SETS", features a magnifying glass icon and the text "CDI Data Discovery and Access service" with a blue "READ MORE" button. The second card, titled "EMODnet DTM", features a bathymetric map of the Mediterranean region and the text "Bathymetry Viewing and Download service" with an orange "READ MORE" button. The third card, titled "COMPOSITE DTM", features a globe icon and the text "Sextant Catalogue service" with a blue "READ MORE" button.

**EMODnet**  
European Marine Observation and Data Network

Free search 

[Home](#) [Approach](#) [Metadata & Data](#) [Data products](#) [News](#) [Promotion](#) [Partners](#) [Helpdesk](#)

## Bathymetry

providing services for discovery and requesting access to bathymetric data

© HCMR

### SURVEY DATA SETS

CDI Data Discovery and Access service

[READ MORE](#)

### EMODnet DTM

Bathymetry Viewing and Download service

[READ MORE](#)

### COMPOSITE DTM

Sextant Catalogue service

[READ MORE](#)