



A map of the geomorphological characteristics of the Italian seas

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Geomorphological maps of the seabed constitute a knowledge base used to understand the basin genesis, its evolution and sediment dynamics. Depending on the scale of observation and representation, the description of the geomorphological elements makes it possible to verify the alterations induced by natural or anthropic events, or to serve as a support for habitat mapping.

A first version of the geomorphological map of Italian seas at the 1:1,000,000 scale was carried out in 2014, to support the Marine Strategy Framework Directive (MSFD). Later the database was updated and enriched with new elements at 1:250,000 scale, in the frame of the EMODNET-Geology Project (2013-2018).

The bathymetry used is a high resolution DTM (grid resolution of 115m x 115m) realized within the EMODnet-Bathymetry Lot. It was obtained with different sources data such as single and multibeam surveys, echo sounders and integrating the gaps with the GEBCO digital bathymetry. From the interpretation of the DTM, and on the basis of maps and data of national projects (Italian geological mapping project-CARG, MAGIC Project, EMODnet Geology-WP6 "Geological Events and Probabilities") it has been possible to add new geomorphological elements and improve the existing ones.

Linear morphologies (edge of the continental shelf, canyons and ridges) and polygonal morphologies (intraslope basins, deep basins, seamounts and banks) have been represented. The identification and distribution of seamounts derives from a study of Italian submarine volcanoes (Atlas of Italian Submarine Volcanic Structures, in press).

The result is a digital map, consisting of GIS layers and accompanied by a specific database, which describes the physiographic asset of Italian Seas from shallow to deepest areas and the main morphotypes (canyons, shoals, seamounts, ridges, intraslope basins).

The map created gives an overview on a national scale of geomorphological characteristics of marine basins and is the base of knowledge required in all those disciplines that have as their object the study of the sea and coastal environments. The reference database of the map has been created by means of a GIS, since the objective is to have a knowledge base with national coverage updated with data from subsequent studies and new oceanographic cruises.

Citations:

<http://www.emodnet-bathymetry.eu/> last login Jan 2019

<http://www.emodnet-geology.eu/> last login Jan 2019

<https://www.gebco.net/> last login Jan 2019

<http://www.isprambiente.gov.it/Media/carg/index.html> last login Jan 2019

Atlas of Italian Submarine Volcanic Structures, Mem. Descr. della Carta Geologica d'Italia, V. 104, in press