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Map of submerged volcanic structures in Italy

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A large part of the post-orogenic volcanism in Italy is preserved in subaqueous domains of the Tyrrhenian Sea and along the Sicily Channel. Over the years, several works, such as the DSDP-ODP Project (Deep Sea Drilling Project, <http://deepseadrilling.org/>; Ocean Drilling Program (<http://www-odp.tamu.edu/>) and detailed bathymetric surveys (Marani et al., 2004 [1]), allowed a significant improvement of the knowledge of these volcanic environments. However, a comprehensive approach to the volcano types classification, based on the available data and on the integration of different datasets, has not been attempted yet.

The present work is aimed at homogenizing and validating existing data on the Quaternary subaqueous volcanism in Italy in the frame of the EMODnet-Geology Project (<http://www.emodnet-geology.eu/emodnet/srv/eng/home>), whose task is the realization of a web GIS service collecting geological data of submerged areas harmonized at European level.

Up to now, preliminary results allowed a classification of different edifices, based on morphology, chemistry, ages and main structural lineaments. Where possible, the age and style of the most recent eruptions, as well as the presence of active fluid emissions, have been listed in a shapefile attribute table which might also support the evaluation of the volcanic hazard. Significant effort has been dedicated to identify the extent of each volcanic edifice (so far very poorly defined) on the most detailed available bathymetric maps; this also allowed a computation of the erupted volumes.

The new map produced for EMODnet-Geology represents the most updated cartographic representation of the subaqueous volcanic structures in Italy. This map allows to better evidence the main volcanic features outlining the recent geodynamical evolution of the Tyrrhenian Sea, such as the Eolian insular arc and back-arc basins and seamounts.

References:

[1] Marani MP, Gamberi F and Bonatti E (Eds) (2004) - *From seafloor to deep mantle: architecture of the Tyrrhenian backarc basin*. Mem Descr Carta Geologica d'Italia, 64. Servizio Geologico d'Italia, Roma.

