The Marsili Seamount, the biggest European volcano, could be still active!

The Marsili Seamount, measuring about 70 km in length, 30 km in width and rising about 3500 m from the bathyal plain, is the biggest European volcano. Despite its size and importance in the understanding of the dynamics of the spreading and back-arc lithosphere formation in the Tyrrhenian Sea, until now it was regarded as an unknown giant. However, in the last decade, several multidisciplinary studies have been carried out and new geophysical and geochemical data suggest that the Marsili Seamount could be still active.

The first signs of the possible activity of the submarine volcano came from a monitoring campaign carried out in 2006. During an oceanographic campaign[1], an ocean bottom seismometer with hydrophone was deployed on the flat top of the Marsili Seamount at a depth of 790 m. In just a few days several hundreds of seismo-volcanic events and several tens of high-frequency events of clear hydrothermal origin were recorded. Evidence of hydrothermal activity on Marsili also comes from sea water helium isotope ratio anomalies just above the summit[2]. Modelling new magnetic and gravity data, Caratori Tontini *et al.*[3] suggest the occurrence of a magmatic reservoir within the seamount. In 2010, a new submarine monitoring campaign lasting nine months, confirmed the presence of a persistent seismo-volcanic activity on the Marsili Seamount[4]. Iezzi *et al.*[5] documented that deep submarine explosive eruptions occurred in historical time at the Marsili Seamount by the analysis of new stratigraphic, textural, geochemical and geochronological data.

In light of these new data, it can be inferred that the Marsili Seamount is an active volcano. Hence, it should be continuously monitored and the hazards related to explosive eruptions properly evaluated.

1. D'Alessandro, A., D'Anna, G., Luzio, D. and Mangano, G., *J. Volcanol. Geotherm. Res.*, 2009, **183**, 17–29.
2. Lupton, J. *et al.*, *J. Geophys. Res. B: Solid Earth*, 2011, **116**(B2).
3. Caratori Tontini, F. *et al.*, *Geophys. Res. Lett.*, 2010, **37**, L03305.
4. D'Alessandro, A., Mangano, G. and D'Anna, G., *Ann. Geophys.*, 2012, **55**, 213–214.
5. Iezzi, G. *et al.*, *Gondwana Res.*, 2013, **25**, 764–774.

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Smile with Science

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