



Geophysical investigations of the Southeast Tyrrhenian Sea (Italy): volcanic features of the Palinuro Seamount enhanced by high resolution DTM

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The Palinuro Seamount is a volcanic edifice located in the southeastern Tyrrhenian Sea, the small extensional back-arc basin in the Central Mediterranean Sea. Although several geophysical studies have been performed in the Tyrrhenian Sea, the Palinuro Seamount has not yet been subjected to intensive geophysical exploration, despite its global extension, thus representing the less known Seamount of the area. Previous studies on this Seamount focused on volcanic products, magnetic profiles, single beam data and, recently, multibeam swath bathymetry describing, the latter two, the general physiographic asset of the volcanic complex. On November 2007, a geophysical survey was performed by IAMC-CNR research institute (Naples, Italy) in the southeastern Tyrrhenian Sea within the "Aeolian_2007" cruise onboard the Urania oceanographic vessel. During the second Leg of the survey, detailed multibeam data acquisition was carried out in order to obtain high resolution DTM of the major Seamounts in the study area. Here we report a new, very high resolution Digital Terrain Model (DTM) of the Palinuro Seamount, resulting by multibeam swath bathymetric data. More than 1.000 squared Km of new high resolution multibeam sonar data have been processed and interpreted from IAMC – CNR of Naples. The processed bathymetric data of the seamount cover a depth range -3200 / -84 meters and unreported topographic features were detected both below 1000 m in depth and at the summit. The DEM evidences a global extension larger than that expected, characterized by a roughly elliptical shape extending about 55 km along E-W and 25 km in the N-S direction. The morphology reveals a very articulated summit consisting in a group of overlapped and/or coalescent volcanic cones inside collapsed calderas. Relic domes of calderic collapses are identifiable both in the western and in the central sectors of the Palinuro Seamount.