

DI028-0006 - Seismicity and seismic imaging of the Sicily Channel (Central Mediterranean Sea)



Wednesday, 16 December 2020



13:00 - 05:59

Abstract

The Sicily Channel, located on the north-central African plate foreland between Sicily, Tunis and Libya, is characterised by a seismically and volcanically active rift zone. This rift extends for more than 600 km in length offshore from the south of Sardinia to the south-east of Malta. Much of the observations we have today are either limited to the surface and the upper crust, or are broader and deeper from regional seismic tomography, missing important details about the lithospheric structure and dynamics. The project GEOMED (<https://geomed-msca.eu>) addresses this issue by processing all the seismic data available in the region in order to understand better the geodynamics of the Central Mediterranean.

A recently compiled earthquake catalogue for the eastern part of the Sicily Channel Rift Zone (SCRZ) will be presented highlighting offshore active faults in the region, and new results from seismic tomography give an insight of what lies beneath. We measure seismic velocities from across the region using ambient seismic noise recorded on more than 50 stations located on Algeria, Italy (Lampedusa, Linosa, Pantelleria, Sardinia, Sicily), Libya, Malta, and Tunisia. The phase-velocity dispersion curves have periods ranging from 5 to 100 seconds and sample through the entire lithosphere. We find that slow and fast seismic velocities coincide with regional tectonic and topographic features. At short periods, Africa and Italy have slower velocities indicating these areas have thick continental crust in contrast to areas beneath Tyrrhenian and Ionian basins. The central area of the SCRZ has relatively faster velocities suggesting that there is a thinner crust. At longer periods the central area of SCRZ is characterised by slower velocities indicative of warmer temperatures than the surrounding.

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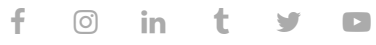
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