



## Multidisciplinary approach to the study of a crustal tectonic discontinuity: an example from the Central Mediterranean offshore (Sicily channel)

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The central Mediterranean is a geodynamically very complex area included in the convergence zone between the European plate and the African plate. We investigated the western sector of the Sicily Channel, which shows, according to literature data, different deep and shallow tectonic structures than the eastern sector. Structural data show the presence of a crustal-scale discontinuity that has generated major seismic events such as the Belice earthquake of 1968. This structure has been identified as a wideband roughly oriented N-S from the San Vito Lo Capo to the Sciacca area (SVCS band, San Vito Lo Capo - Sciacca band) (Di Stefano et al., 2015) and continuing offshore to the Pantelleria area. In this work, through multidisciplinary data analysis, we aim to investigate the correlation between the surface structures highlighted onshore and the offshore continuation. For this purpose, we considered offshore data from the Sicily Channel including: gravimetric data, which show negative anomalies in the Pantelleria graben (Palano et al., 2020) and in the Sciacca offshore and velocity models showing the lateral variation of the Moho with values ranging from 30 to 33 km depth and values ranging from 20 to 23 km depth respectively west and east of the Pantelleria graben (Finetti, 2005). These data were compared with our interpretation of crustal reflection seismic profiles and seismic events (since 2005 with  $M \geq 2$ ). The results show an alignment of seismic events with roughly N-S direction from offshore Sciacca to Lampedusa. Moreover, the seismic profiles show a lateral variation of the Moho depth deepening eastward. From the joint analysis of these data we obtained a geological model of the investigated sector defining the offshore prosecution of the SVCS band present onshore. The present work may be useful for understanding the geodynamic evolution and for studying the seismic hazard of this area.

### References

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