The Vallo di Diano Range-Bounding Fault System (Southern Italy): New Evidence of Recent Activity From High-Resolution Seismic Profiling


1. Istituto Nazionale di Geofisica e Vulcanologia, viale della Scienza, 11B, 80820 Napoli, Italy; 2. Università Roma 3, Largo S. Lorenzo Mercantile, 1, 00184 Roma, Italy; 3. Department of Science, University of Teramo, Via Umberto I, 06100 Teramo, Italy; 4. Department of Earth Sciences, University of Firenze, Via di Stiatta, 56, 50123 Firenze, Italy

*Corresponding author: giovanni@geofisica.it

**Abstract**

Recent high-resolution seismic surveys targeting the Vallo di Diano basin structure have revealed new insights into its tectonic evolution. The basin, located in the Apennines (Italy), is one of the most active seismic regions in the Mediterranean area. Historical earthquakes and instrumental seismitey, 1981-2002 (earthquakes depth < 30 km), have significantly increased our understanding of the basin's seismic potential.

**2 - Purposes and Methods**

High-resolution seismic surveys provide crucial data for understanding the basin's structure and tectonic evolution. The Vallo di Diano basin is characterized by a complex interplay of extensional and transpressional tectonics. The new data set allows for a more detailed understanding of the basin's internal structure and its tectonic evolution.

**3 - Seismic imaging of the VDFS along the eastern border of the Vallo di Diano**

The Vallo di Diano Range-Bounding Fault System (VDFS) is a transpressional structure that delineates the basin's eastern border. High-resolution seismic surveys along the SALA4 and SALA3 lines have revealed significant faulting and deformation, indicating recent activity along the VDFS.

**4 - Seismic imaging of the Vallo di Diano Basin: Padula Line**

The Padula seismic line, acquired along the Padula Fault, provides additional insights into the basin's structure. The line reveals a complex interplay of extensional and transpressional tectonics, with significant implications for the basin's seismogenetic potential.

**5 - Summary and Conclusions**

High-resolution seismic surveys in the Vallo di Diano basin provide new constraints on its structure and tectonic evolution:

- The Vallo di Diano basin is a large alluvial fan sequence (Vallo di Diano) that has accumulated since the Late Pleistocene.
- The VDFS is a transpressional structure that delineates the eastern border of the basin.
- Recent seismic activity along the VDFS is indicated by high-resolution surveys, suggesting significant implications for the basin's seismogenetic potential.
- The Padula seismic line provides additional insights into the basin's structure, reinforcing the complexity of its tectonic framework.

**References**