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Upper Mantle structure in the Central Mediterranean region from P and S receiver functions

Stephen Monna (1), Caterina Montuori (1), and Lev Vinnik (2)

(1) Istituto Nazionale di Geofisica e Vulcanologia, Rome, Italy, (stephen.monna@ingv.it), (2) Institute of physics of the Earth, B. Grouzinskaya 10, 123995 Moscow, Russian Federation

In this study we apply the P and S Receiver Function (RF) techniques to investigate the upper mantle discontinuities in the Central Mediterranean region. The RF are calculated on waveforms coming from selected broadband stations located in the southern Italian peninsula, Sicily, Sardinia and Corsica. We were able to identify the P410s signal from below Sardinia-Tyrrhenian basin and southern Apennines-Adriatic basin, with a small delay ($\sim$1.2 s) with respect to the standard time. The SRF show the Lehmann discontinuity below the western Ionian, and Tyrrhenian basins. Models for the upper 300 km, obtained from the joint inversion of P and S RF, show the Moho, Lithosphere-Asthenosphere Boundary topography, and Lehmann discontinuity ($\sim$200 km depth). A strong signal from a non-standard discontinuity in the transition zone is observed in the SRF at several stations. This signal can be explained with a high velocity layer below a broad region which encompasses northern Italy - eastern Alps, the Adriatic basin, Carpathian-Pannonian region and the Dinarides-Hellenic arc.