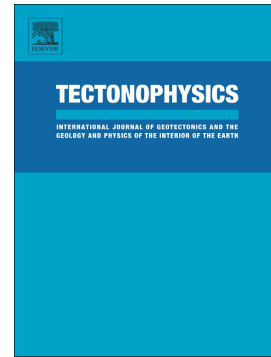


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CRUSTAL STRUCTURE OF CENTRAL SICILYMichela Giustiniani^a, Umberta Tinivella^a, Rinaldo Nicolich^a^a Istituto nazionale di Oceanografia e di Geofisica Sperimentale - OGS**ABSTRACT**

We processed crustal seismic profile SIRIPRO, acquired across Central Sicily. To improve the seismic image we utilized the wave equation datuming technique, a process of upward or downward continuation of the wave-field between two arbitrarily shaped surfaces. Wave equation datuming was applied to move shots and receivers to a given datum plane, removing time shifts related to topography and to near-surface velocity variations. The datuming procedure largely contributed to attenuate ground roll, enhance higher frequencies, increase resolution and improve the signal/noise ratio. Processed data allow recognizing geometries of crust structures differentiating seismic facies and offering a direct image of ongoing tectonic setting within variable lithologies characterizing the crust of Central Sicily. Migrated sections underline distinctive features of Hyblean Plateau foreland and above all a crustal thinning towards the Caltanissetta trough, to the contact with a likely deep Permo-Triassic rifted basin or rather a zone of a continent to oceanic transition. Inhomogeneity and fragmentation of Sicily crust, with a distinct separation of Central Sicily basin from western and eastern blocks, appear to have guided the tectonic transport inside the Caltanissetta crustal scale syncline and the accumulation of allochthonous terrains with south and north-verging thrusts. Major tectonic stack operated on the construction of a wide anticline of the Maghrebian chain in northern Sicily. Sequential south-verging imbrications of deep elements forming the anticline core denote a crust wedge indenting foreland structures. Deformation processes involved multiple detachment planes down to decoupling levels located near crust/mantle transition, supporting a presence of high-density lenses beneath the chain, interrelated to a southwards push of Tyrrhenian mantle and asthenosphere.

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