



Shallow earthquake activity vs. geological features in the Calabrian Arc region, Southern Italy

A. Gervasi (1, 2), I. Guerra (1), A. Moretti (3), G. Neri (4), B. Orecchio (4), D. Presti (4), G. Valensise (2)

(1) Dept. of Physics, University of Calabria, Arcavacata di Rende (CS), Italy
(a.gervasi@unical.it)

(2) National Institute of Geophysics and Volcanology, Rome, Italy

(3) Dept. of Environmental Sciences, University of L'Aquila, Italy

(4) Dept. of Earth Sciences, Messina University, Italy

An analysis of the shallow seismicity occurred in the Calabrian Arc region between 1978 and 2005 has been performed by hypocenter location and focal mechanism estimates in an updated version of the local, 3D tomographic structural model obtained by inversion of both earthquake and controlled source data.

After a first analysis of the whole 28-years dataset, we focused on specific swarms characterized by datasets rich enough to justify separate, more detailed investigations. High quality of hypocenter locations obtained for most of the investigated earthquake phases allowed us to perform comparisons between hypocenter distributions, focal mechanisms and fault data available from the local geology and other methods. Correspondence between hypocenter trends and known fault surfaces has been found for several activity phases.

Finally, a joint analysis of all geophysical and geological information available from the literature and resulting from the present study has been performed with the purpose of understanding the dynamic processes leading to the generation of the individual seismic phases and of testing the current seismotectonic models of the study region.