

Inferring on the seismogenesis of the Sannio-Irpinia border region (Southern Italy).

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The Sannio and Irpinia seismogenic regions fall in the axial-frontal sector of the Southern Apennine belt. The border between these areas experienced several historical destructive earthquakes with $I_0 \geq IX$ MCS, as in 1456, 1702, 1732, and last but not least, in 1962 (Ariano Irpino Earthquake, $MW=6.2$). Although the location, geometry and kinematics of the causative faults of these earthquakes are still matter of debate, at present almost three main hypotheses of active faults related to these strong earthquakes have been proposed: the Miranda-Apice, the Pago Veiano-Montaguto and the Ufita Valley (DISS Working Group, 2015). These three faults cross the Sannio-Irpinia seismogenic border. In order to characterize the seismicity of the border, we analysed the present-day seismicity recorded by the Italian National Seismic Network of the INGV. In detail, we study the seismicity occurred in the area enclosed in latitude $40^{\circ}50' - 41^{\circ}45'$ and longitude $14^{\circ}45' - 15^{\circ}45'$ in the 2013-2015 time interval. Waveforms of all the earthquakes have been collected, also for low magnitude events ($2 \leq M \leq 3$). Data were re-picked for P and S phases in order to obtain accurate hypocentral distributions and reliable fault plane solutions. With respect to the analysed time interval, the spatial distribution shows that the seismicity mainly consists of isolated events. Additionally, a low magnitude seismic swarm ($M < 2.5$) occurred in July 2015. All the analysed events are roughly aligned along NW-SE (i.e. the axis of the Southern Apennine Chain) with hypocentres located in the upper crust. These preliminary results suggest that the analysed seismicity cannot be directly associated to any of the seismogenic faults proposed for the area. We provide new information on the seismogenesis of a high seismic hazard region as the Sannio-Irpinia border.