



Relationships between seismogenic structures and seismicity patterns in the Umbria region, northern Apennines, Italy

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We present a review on the seismotectonic features of the northern Apennines (Umbria region, Italy), in the area included between Sansepolcro and Norcia, by means of the analysis of the earthquake focal mechanisms and the distribution of seismicity. To outline the distribution and character of the seismicity of this area of the Apennines, we provide, at the regional scale, a synthesis of all seismic sequences occurred in the area. The Umbria region has been extensively investigated from the seismological point of view, especially by means of the study of the major recent earthquakes. In this work, we integrate previous studies by including the minor sequences in the discussion in order to obtain a more complete picture of the seismogenic potential of northern Apennine's faulting. Because the analysis of earthquake fault-plane solutions is a basic tool to understand the present state of deformation of a region, we present 79 fault-plane solutions of earthquakes occurred in the area and the study of the main seismicity patterns. We used the Centroid Moment Tensor (CMT) data for earthquakes with magnitude $M > 5.0$ and Regional Centroid Moment Tensor (RCMT) for moderate magnitude earthquakes (M between 4.5 and 5.5), integrating the pre-existing datasets. We analyze the main features of the seismicity, considering the present tectonic regime in which the earthquakes occur, in order to relate the seismicity patterns to the seismogenic structures in northern Italy. In particular, we discuss the influence of the pre-existing crustal structures inherited from the former compression and the important role played by the Altotiberina Fault, a major low-angle normal fault, in controlling the crustal seismicity in this region.