



Earthquakes and seismogenic sources in the Trentino region (central-eastern Alps, Italy)

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The Trentino region (NE Italy) shows moderate-to-low instrumental seismicity, mainly concentrated in its southern (Lake Garda and Lessini) and eastern portions (Venetian southern alpine front), as also confirmed by historical earthquakes. This area is characterized by a complex crustal structure, where dominant fault systems (namely Valsugana, Giudicarie, and Schio-Vicenza) control past and present tectonic deformations. Here we present and discuss a set of earthquake hypocentral solutions, accurately revised by means of a validated procedure based on a regionally-suited local earthquake tomography (Lomax et al., 2000; Viganò et al., 2013). Computed solutions show significant differences with respect to the original seismic catalogue data and have realistic location errors, permitting to obtain a new and robust interpretation of seismogenic sources at depth (Viganò et al., 2015). Earthquakes are close to active faults and show different spatial distributions depending on different domains, which are defined by geology, focal mechanisms and rheological constraints (also related with seismogenic depths). The largest relocated earthquakes are more extensively discussed, also in terms of their representativeness of the local seismic potential. Some examples regarding the ability of the location procedure in recognizing non-tectonic events are also presented (e.g., explosions). The proposed seismotectonic model shows regional deformation and related strain partitioning compatible with Adria indentation and the related stress distributions.

References

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