



Holocene activity of the Subequana Valley-Middle Aterno Valley normal fault system, south of the epicentral area of the April 6, 2009 "L'Aquila" earthquake (Mw 6.3): Implications for seismic hazard in central Italy

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Geological and paleoseismological analyses led along the 10 km long Subequana Valley fault, in central Apennines, located about 40 km S of the epicentre of the earthquake that struck central Italy in April 6, 2009 (Mw 6.3), indicate that this structure ruptured twice during the late Holocene, resulting in surface displacement with a slip per event of about 70-80 cm. The last activation occurred after the IV-II century b.C. and before the past millennium (perhaps during the II century b.C.), while the penultimate event occurred between 6381 ± 30 BP and 3511 ± 37 PB. The presence of transtensive faults connecting the SVF with the 15 km long (at least) Middle Aterno Valley fault indicate that these structures belong to the same fault system, ≥ 26 km long, that probably ruptures during $M \geq 6.7$ earthquakes. Lastly, we analyse the possible influence of the Coulomb stress diffusion induced by the April 6 seismic event on the earthquake probability related to the analysed fault system.