



Intermediate-field hydrogeological response induced by the 2009 L'Aquila earthquake, central Italy.

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Using groundwater level data recorded by six piezometers in the Acque Albule Basin (Tivoli, central Italy) and in the Cornicolani Mountains (Pozzo del Merro shaft) the intermediate-field hydrological response to the 6th April 2009 L'Aquila earthquake (Mw 6.3) have been studied. The hydrogeological setting of the Tivoli area is characterised by two superimposed aquifers: a deep aquifer in carbonate and a shallow aquifer in travertine. It has been observed that the groundwater level started to decrease contemporary in five piezometers located in the Tivoli travertine quarry area exactly at the time of the L'Aquila earthquake occurrence, while there was a slight increase of the water level in the Pozzo del Merro karst lake located in the carbonate aquifer. A possible conceptual model to explain those variations is proposed, assuming that the variations in groundwater level are given by variation of permeability in the aquifers caused by the dynamic stress at the seismic waves passage.