



The instability of Montemesola-Monte Salete (south Italy). A study area to predict landslides through the Bradanic Trough.

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Within a vast territory between Puglia and Basilicata regions (south Italy) a number of towns and productive areas are located on the top of the so called “Bradanic Trough series”, especially near terraced-like slope breaks due to difference of erodibility between pelites (Argille Azzurre group) and upper calcarenitic units belonging to the same aforementioned series or to the “marine terraced deposits”. These places had been selected at least since the Neolithic Age owing to their topographic dominating position as well as the presence of contact springs just along the pelites and calcarenites stratigraphic boundaries. Because of landslides, historical settlements had been repeatedly damaged up to be completely evacuated during mediaeval or modern ages.

The case study of the destroyed pre-Roman Monte Salete village and the present neighbouring Montemesola town (Taranto province) offer the possibility to examine two different stages of the evolution of the extensive hydrogeological instability which involve the slopes of both ancient and modern settlements. As a consequence, some basic aspects of the evaluation of the hazard and of the mass movements forecasting can be focussed.

The landslides recognized mainly consist of rock falls, rock slides and rock spreads and usually appear to be stabilized. As show the field evidences, falling of blocks of upper calcarenites from the edge of the terraces have repeatedly occurred and appear to be the most frequent type of landslide of the area. Moreover, several incipient block falls have been identified, especially where the base of the terrace’s edges are weathering weakened and deeply eroded. Tectonic fractures inside the upper calcarenites drive the surfaces of the detachment of the blocks. Other blocks overlay sheared and squeezed silty-marls, and have been recognized as translational rock slides displaced along planar or slightly curved surfaces with travel angles comprise between 25° and 40°. Several blocks of top calcarenites result moderately subsided into underlying softer yellowish grainstone and pelites. These blocks are dissected by cracks developed along joints which are partially filled with flowed and squeezed soft materials. They are classified as rock spreads, whose increasing of original linear dimension can be estimated between 5 and 10 %. Finally, pelitic block topples, delimited by joints and rebound fractures, frequently occur in the quarries of Montemesola-Monte Salete area.