

A dissertation on the stability conditions of the Sorrento-Amalfi Peninsula: lessons learned from 50 years of research and future perspectives

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The 50-year-long research activity on the slope stability of the Sorrento-Amalfi Peninsula, an area considered as one of the most prone to landslide and flooding risk of Campania, carried out by the School of Engineering Geology of the “Federico II” University is summarized by more than 100 scientific papers. The papers detail several topics including geological, geomorphological, and geostructural features as well as landslide-triggering factors, geotechnical characteristics, hydrogeology, hydrology and anthropic impacts. Although the pioneering studies performed in the ‘60s were mainly based on the geological and geomorphological setting, they were the first to point out the relevant role of the pyroclastic soils in triggering flow-type landslides. Afterwards, the researches focused on triggering factors and propagation of debris flows, rockfalls and slow moving-landslides, in order to define the most likely invasion zones. Furthermore, other studies in the area dealt with karst and the rainfall analyses, which strongly contributed to the hydrogeological risk. In this synthetic overview, it is also relevant to mention the activities carried out on the territory by the local stakeholders (“*Autorità di Bacino*”), which were directly involved in the assessment of the susceptibility and risk areas by the n° 183/1989 and n° 180/1998 laws. More recently, the Civil Protection School of the Campania Region enhanced the former studies by identifying more than 500 warning hotspots. The experience coming from more than 50 years of research coupled with the most innovative investigation techniques provided an updated hazard scenario for the entire Sorrento-Amalfi Peninsula, which represents the benchmark for managing the future challenges, such as the projected climate changes which are exhibiting an increase in the frequency of flash floods.

This paper is dedicated to the memory of the Professors and Colleagues who worked before us with the most sincere acknowledgement for the passion and enthusiasm that they lavished on their research.