



A functional-oriented assessment of environmental criticality due to anthropic actions along the hillslopes of the Somma-Vesuvio volcano (Naples, Italy).

Nunzio Romano (1), Melania De Falco (1), Giuseppe Speranza (2), and Paolo Tarolli (3)

(1) Department of Agriculture - Division of Agricultural, Forest and Biosystems Engineering, University of Naples Federico II, Portici (Naples), Italy (nunzio.romano@unina.it), (2) Interdepartmental Research Center for Environment – C.I.R.A.M., University of Naples Federico II, Napoli, Italy (giuseppe.speranza70@gmail.com), (3) Department of Land, Environment, Agriculture and Forestry, University of Padova, Legnaro (Padova), Italy (paolo.tarolli@unipd.it)

Mediterranean environments are characterized by a climatic regime with a strong seasonal variability. More uniform precipitations usually occur during the winter season, whereas short and very intense rainfalls occur during the fall and early spring that, in turn, trigger surface runoff and severe soil erosion phenomena. When this typical seasonality interacts with a territory substantially altered by anthropic actions, conditions can easily arise for environmental imbalances with serious risks for flash floods and landslides. Many of the degradation dynamics recorded during the last decades in western countries are also the result of the socio-economic changes after the II world war which yielded land-use changes with the urban sprawl process and the increase in human settlements of the natural environments. We are also witnessing a change in the perception of the natural environment and the relevant values.

This study benefits from the availability of historical maps and rainfall time series to analyze the profound landscape changes occurred during the last century along the hillsides of the Somma-Vesuvio volcano, in the renowned piedmont area located at east of Napoli city. We are specifically interested in the changes and disturbances made to the hydrographic network to evaluate the increasing potential risks for flood and landslides along these hillslopes characterized by the presence of highly vulnerable volcanic soils, the construction of roads, and other negative alterations of the natural overland flow patterns.