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# New principles for estimating landslide hazard based on strain activity and geotechnical modelling of significant events (left valley of Crati river, Cosenza, Italy)

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Geomorphological, geotechnical and hydrogeological significant characters modifying slope stability of landslide bodies are studied, according to the project Riscmass (Interreg IIIb - Medoc), within an area 100 $km^2$ large and placed in left flank of the valley of Crati river (Cosenza-Italy). In this area postorogenic clayey formations of Calabria region are present. The data allow to point out three significant types of landslide: for each of them, it is possible to choice different geotechnical and hydrogeological significant parameters for the involved materials; also it is possible to recognise common geometries for their bodies.

Now, using a fitted Fem-Code (Plaxis, Flac,..), deformation processes are estimated related to a safe distance from limit equilibrium, as a consequence of changes in border conditions (for example: changes of piezometric level and of geotechnical parameters) and of application of temporary stresses (for example: earthquakes and rains). In the meantime multitemporal maps of theese landslides are processed with satellitic diffSAR applications, in a way of attributing different activity indexes. These activity indexes also in according with geotechnical modelling, will be used for defining the hazard associated to various types of landslides, that is like a less or greater gravity work produced related to less or greater distance from limit equilibrium.

In practice, this means to choose a range for significant geotechnical and hydrogeological parameters and to analyse their effects on slope stability, particularly on strains using numerical modelling: that is to evaluate the sensitivity of strain processes in front of arranging and or rising events. These events depend on constant intrinsic factors

such as: heterogeneity of geo-structural order, permeability and geometry of landslide body, etc., and on variable hydrogeological factors such as: rains, change in supply and capture.

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