Agricultural terraces montoring and modeling: a field survey in Chianti region, Firenze, Italy – Second part

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The two abstracts present the design and set-up of an experimental campaign which aims at sup-porting the modeling (conceptual and numerical) of water circulation in a terraced slope, and its in-fluence on stability of retaining dry stone walls. The case study is located at "Fattoria di Lamole" (Greve in Chianti, Firenze, Italy). At Lamole site both ancient and recently restored or rebuilt (with different techniques) dry stone walls are present. Furthermore the intense vineyards cultivation makes it very representative in terms of range of external stresses that affect both hillslopes and wall.

The survey is developed within the bigger framework of landscape preservation as a way to prevent hydrogeological instabilities and landslide risks.

Second Part

A second effort is devoted to couple hydrological, hydraulic and geotechnical modeling:

- Flow directions and the drainage area have been derived from DTM (high-resolution digital terrain model obtained by a terrestrial laser scanner.), and served for the RPII index calcula-tion (Tarolli et al., 2013), that is coherent with the critical spots observed in situ and marked with GPS.

- Direct shear test on undisturbed and reconstituted soil samples will offer an estimation of the Mohr-Coulomb failure envelope parameters (friction angle and cohesion).

- Retention curves related with different depths have been derived.

- Geoelectric analysis in order to locate the bedrock and to determine the subterranean water flows originated from controlled infitration tests (1 l/s discharge).

- A simple dry-wall stability model has been carried out; this model analyses the wall stability with finite elements method, evaluating pressures derived from uphill water infiltration, stone friction and buoyancy in retaining wall layers: simulated deformation are suitable with the observed ones.