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SYMPOSIUM "MEDITERRANEAN EROSION"

PROGRAM

AND

ABSTRACTS OF PAPERS

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INFLUENCE OF SOIL, REGOLITH AND PARENT-MATERIAL MICROSTRUCTURE ON BADLAND DEVELOPMENT UNDER MEDITERRANEAN CLIMATE.

A.Solé, R.Josa, G.Pardini, F.Gallart, F.Plana & R. Aringhieri

The aim of this project is to investigate the relationships between processes presently active on badland slopes and some properties of the materials in which badland are developping.

The badland topography of the Vallcebre area (Pyrenees region, NE Spain, at about 1000 m a.s.l., under cold mediterraenan climate) is dissected by gullies and is developping on smectite-rich mudrocks. Active processes on the hillslopes are the scouring of beds and mass movements. Bare regoliths and mudrocks strongly contrast with well vegetated soils developped on them.

From the many soil and regolith properties that have been studied in attempt to expain various aspects of badland development, the following are choosen, with emphasis in all related aspects of the mechanical behaviour of these materials:

- the mineralogy of the clay fraction in different sub-fractions,
- particle-size analysis,
- B.E.C. and exchangeable cations,
- specific surface,
- bulk density and porosity
- structurall porosity,
- structural stability,
- shear strenght and clay rheology.

All these properties are being correlated with morphological data obtained from soil and regolith micromorphology (optical and S.E.M.), studied under different humidity contents.

The first results show the importance of vegetation and organic matter in surface soil stability. Controversial results among particle size, exchange properties, specific surface and water stability tests might be explained by porosity and micromorphological data.