UNIVERSITÀ DEGLI STUDI DI PAVIA
DIPARTIMENTO DI SCIENZE DELLA TERRA E DELL'AMBIENTE

Project title

Integrative assessment of soil erosion dynamics in the Oltrepo area

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5. Abstract

(Max.1.500 characters with spaces)

Soil erosion represents one of the most important global issues with serious effects on agriculture and water quality. Due to climate change and socio-economic dynamics, a higher pressure on soil resources is expected, especially in Mediterranean areas as stated e.g. by the last report of the Intergovernmental Panel on Climate Change (IPCC, report AR5 2014). The Northern Apennines and in particular the Oltrepo area are characterized by a variety of soil erosion features like surficial areal erosion, rills and small gullies as well as badland areas. Moreover, translational mass movements often contribute to the sediment budget of the drainage systems. Soil erosion processes have different spatio-temporal domains and connectivities to the drainage network. Thus, they are difficult to assess in an integrative, holistic way.
In this PhD-proposal state of the art methods will be applied to identify, quantify and simulate the single processes. Therefore, advanced sediment fingerprinting methodologies will be applied. Special emphasis will be also given to the development of an integrative spatial modelling concept taking into account the specific soil erosion domains. Finally, future changes of soil erosion dynamics will be assessed defining specific scenarios that will be simulated with the integrative approach.