



Soil erosion by water in Mediterranean environment: Italian assessment network of test areas and catchments (EROMED)

G. Rodolfi (1), V. Agnesi (2), P.P.C. Augelli (3), C. Conoscenti (2), M. Del Monte (4), P. Fredi (4), B. Gentili (5), E. Lupia Calmieri (4), **M. Märker** (6), M. Materazzi (5), F. Rapetti (7), C.M. Roskopf (3), M. Spagnolo (7), S. Vacca (8)

(1) Dipartimento di Scienza del Suolo e Nutrizione della Pianta, Università di Firenze, (2) Dipartimento di Geologia e Geodesia, Università di Palermo, (3) Dipartimento di Scienze e Tecnologie per l'Ambiente e il Territorio, Università del Molise, (4) Dipartimento di Scienze della Terra, Università di Roma "La Sapienza", (5) Dipartimento di Scienze della Terra, Università di Camerino, (6) Institut für Geoökologie, Universität Potsdam, Germany (mmaerker@rz.uni-potsdam.de / Fax.: +49 (0) 331 9772092), (7) Dipartimento di Scienze della Terra, Università di Pisa, (8) Dipartimento di Botanica ed Ecologia Vegetale, Università di Sassari

The peninsular Italy is characterized, especially along the coastal hilly belt, by a typical Mediterranean climate, with a high value of fall-spring rainfall and prolonged dry summer. The rainy events affect erodible soils, developed on weakly consolidated substrates. The effects of erosive processes are shown by progressive degradational landforms, tending to extend from North to South and from East to West. The expected climate changes, maybe already under way, are depicting a scenario of increasing erosive processes. Moreover the present agricultural practices, at least two millennia years old, employ cropping techniques that enhances soil losses. Therefore, especially in the southern parts of the Mediterranean basin, including both peninsular and insular Italy, the fear of a rapid evolution towards conditions of desertification already exists. This study, financed by the Italian Ministry of University and Scientific Research (MIUR), intends to reach four main goals: i) the direct appraisal of the level of erosion hazard reached in some "fragile" environments; ii) the improvement of already equipped test-sites, either as a single slopes and/or medium size catchments (50-100 km²); iii) the application and validation of "what if?" type models for soil erosion, based on

a distributed process based modelling framework; iv) the implementation of a monitoring network of the erosive processes, whose benchmarks could be represented by the chosen test-sites. The study is covering different Italian landscape environments from North to South under diverse landuse conditions: 1) hilly terrain south of Florence (Tuscany) with of extensive vineyards; 2) “badlands” between Pisa and Volterra (Tuscany), an “historical” watershed in which research on soil erosion have been carried out since the 1970s; 3) “badlands” in the Orcia and Paglia river basins (Tuscany and Latium) equipped for on-site monitoring 4) Neogene-Quaternary formations in southern Marche and northern Abruzzo regions with accelerated erosion during recent times due to river network evolution and human activity 5) hilly terrain in Molise with accelerated soil erosion measured on watershed and plots scale under different crops 6) central Sardinia (River Temo catchment) with special focus on the relation between soil erosion and soil erodibility 7) northern Imera River (northern Sicily) with quantitative and qualitative soil erosion assessment. In this paper we present results of the first project stage with special focus on scales and factors of soil erosion processes in the test areas.