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ABSTRACT BOOK

a cura della Società Geologica Italiana



The Geoscience paradigm:
resources, risks and future perspectives



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Pillow-lavas and pillow-breccias covered by red-green radiolarian cherts and reddish marly limestones (Middle-Upper Jurassic) in the Timpa delle Murge ophiolitic sequence (Pollino Massif, Basilicata) (Photo courtesy of G. Prosser).

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Land use effects on soil characteristics in Fiuggi basin ecosystem

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Chestnut forest ecosystems cover an area of about 35,000 hectares in the Lazio Region. Compared to the conventional context, the Fiuggi chestnut forest provides an “unconventional” ecosystem service, produced by the complex interaction “chestnut coppice-litter-soil.” The forest ecosystem has been credited with a direct responsibility for enriching the waters with humic substances with remarkable therapeutic properties.

The Fiuggi basin is and its delicate hydrogeological balance are extremely sensitive to the geological, hydrogeological and ecological characteristics of the area. The particular susceptibility and fragility of the natural system is due to the high variability of vegetation cover types. In this specific case, the complex ecosystem involved contains more than just chestnut forests: the complex ecosystem that lies on the aquifers is characterised by the presence of an extensive wooded area overlying the aquifers, of the conterminous natural grasslands and a meadow managed for recreational activities.

This research aims to study how different land covers and land uses influence the chemical, physical and biochemical properties of the soil. In particular, it studies the effect of different types of cover (natural grassland - chestnut forest - managed grassland) on soil quality in Anticolana Valley ecosystem.

To this end, soil sampling was performed identifying 3 parallel transects and 9 different samples were taken on each transect. Results that will be shown and discussed include: soil physico-chemical characteristics, elemental and isotopic composition of distinct fractions of carbon (and nitrogen) and membrane phospholipid analysis (EL-FAME) to characterize the soil microbial community from the three areas.