



Fire effects on soil properties and post-fire recovery in a Mediterranean area

A. Canu (1), B. Arca (1), A. Ventura (1), G. Ghiglieri (2), D. Pittalis (2), and M. Deroma (2)

(1) Institute of Biometeorology, CNR, Sassari, Italy (a.canu@ibimet.cnr.it), (2) University of Sassari, Italy

Despite the large number of works on fire effects on soil and post-fire recovery in Mediterranean areas, several aspects need to be established. The study area is located in north-western Sardinia. The climate is sub-arid Mediterranean, with a mean annual temperature of about 16.8 °C and mean annual precipitation ranging from 600 mm to 700 mm, with an autumn maximum. The area is mainly covered by the typical shrubland Mediterranean vegetation.

The object of this study is: i) to compare burned and unburned soil in order to evaluate the effect of fire on physical and chemical soil properties; ii) to analyse the vegetation recovery of the main Mediterranean maquis species. The analysis was carried out in a human caused fire occurred in North-West Sardinia (Italy) immediately after fire in 2006, and during the 2007 and 2008 summer seasons. Several pedological samples were collected from various depths (0-5, 5-15 and 15-25 cm) and under the canopy of different species (*Chamaerops humilis* L., *Pistacia lentiscus* L. and *Calycotome spinosa* L.), both in burned and in unburned plots. The soil organic matter content, total and available element concentrations, and soil texture were then determined in laboratory. Different statistical parameters were calculated to describe the relationships between soil properties and species composition comparing burned and unburned plots.