Geophysical Research Abstracts
Vol. 12, EGU2010-1401, 2010
EGU General Assembly 2010

Vegetation hydrological behaviour along a Mediterranean pluviometric gradient.

Jose Damian Ruiz Sinoga, Miguel Angel Gabarron Galeote, and Juan Francisco Martinez Murillo
University of Malaga, Geography, Physical Geography, Malaga, Spain (sinoga@uma.es)

A pluviometric gradient was defined in South of Spain with a great decreased of rainfall from Western (1100 mm y-1) to Eastern (240 mm y-1), related with changes in vegetation and soil hydrological resources.
This study was carried out in five hillslopes under different pluviometric conditions and their aims were to analyze i) the differences in the moisten and dry up soil processes of the hillslopes, ii) the variability of available water along the gradient since 2002 to 2006, iii) their key factors and the influence on vegetal cover. Several soil properties have been analysed.
Results showed that clay content had a great influence in the topsoil available water for plants, which did not decrease in the drier field sites, where the amount of days with hydric deficit was lower. Have been found important differences in the soil hydrological behaviour of the humid and arid hillslopes, caused by the stronger relations between soil moisture, available water and vegetation in the more humid hillslopes, where existed a feed-back between these properties; these relations are weaker in the arid field sites. This feed-back can be explained by high consumption of water that vegetable species need to survive in the humid hillslopes, which cause a strong dependence water-vegetation, a different kind of vegetation cover depending of the rainfall and a quick consumption of this, once it is in the soil. On the contrary, in the arid hillslopes, vegetable species are better adapted to shortage of soil water content, so they are more independent of the amount of rainfall, the soil moisture and the available water, that remains more time in the soil.