Geophysical Research Abstracts
Vol. 15, EGU2013-3600, 2013
EGU General Assembly 2013
© Author(s) 2013. CC Attribution 3.0 License.

Short term changes of organic matter content in experimental plots with different treatments (Málaga, Southern Spain)

Paloma Hueso-Gonzalez (1), Juan F Martinez-Murillo (1), Jose D Ruiz-Sinoga (1), Miguel A Gabarron-Galeote (1,2)

(1) University of Málaga, Department of Geography, Málaga, Spain (phueso@uma.es), (2) Université Catholique de Louvain, Department of Geography, Louvain-la-Neuve, Belgium (miguel.gabarron@uclouvain.be)

Organic matter (OM) influences positively in soil aggregation, permeability and water retention capacity and, thus, increases water availability and survival of vegetation. Because of this OM constitutes an indicator of soil degradation and of its recovery after the negative impact of a deforestation process.
This study presents the short term effects of the application of different treatments and amendments on OM for soils included in several sets of closed plots located in the experimental area of Pinarillo (Nerja, Spain).The period of soil sampling and OM analyses were October 2012 to May 2012.The organic matter content was analyzed by the AFNOR method spectrometry (AFNOR, 1987). In order to verify possible differences, we applied the test of Mann-Whitney U in corroboration with the previous homogeneity test of variance.
Before the treatment, most sets of plots had an organic matter content of around 3.5%, with no significant differences between them due to the initial conditions were similar. After application of the treatments, the largest increases in OM were registered in the plots of prescribed fire, polymers and application of manure. For a significance level of $p < 0.05$, the differences organic matter content between pre-and post-treatment were significant for most plots and treatments. Just it was not significant in the untreated - reforestation plot. On short term, both prescribed fire and the different treatments applied over the experimental plots show a significant increase in organic matter in the first 5 cm of soil. The increases in OM could indicate an improvement in soil surface conditions regarding water erosion and soil physical degradation. This hypothesis is being confirmed subsequent through the analysis on aggregate stability and by the study of the water and sedimentological response in the experimental plots.