Geophysical Research Abstracts
Vol. 16, EGU2014-1066, 2014
EGU General Assembly 2014

Impact of a low intensity controlled-fire in some chemical soil properties.

Juan F. Martínez-Murillo, Paloma Hueso-González, Francisco Aranda-Gómez, and José Damián Ruiz-Sinoga
University of Málaga, Geography, Málaga, Spain (jfmmurillo@uma.es, 34952131700)

Some changes in chemical soil properties can be observed after fires of low intensities. pH and electric conductivity tend to increase, while C/N ratio decrease. In the case of organic matter, the content can increase due to the massive incorporation of necromass including, especially, plants and roots. The aim of this study is to assess the impact of low intensity and controlled fire in some soil properties in field conditions.
El Pinarillo experimental area is located in South of Spain. Two set of closed plots were installed (24 m2: 12 m length x 2 m width). One of them was remained as control with the original vegetation cover (Mediterranean matorral: Rosmarinus officinalis, Cistus clusii, Lavandula stoechas, Chamaeropos humilis, Thymus baetica), and the other one was burnt in a controlled-fire in 2011. Weather conditions and water content of vegetation influenced in the intensity of fire (low). After the controlled-fire, soil surface sample (0-5 cm) were taken in both set of plots (B, burnt soil samples; C, control soil samples). Some soil chemical properties were analysed: organic matter content (OM), C/N ratio, pH and electrical conductivity (EC).
Some changes were observed in B corroborating a controlled-fire of low intensity. pH remained equal after fire (B: pH=7.7$\pm$0.11; C: pH=7.7$\pm$0.04). An increment was obtained in the case of EC (B: EC=0.45 mScm-1$\pm$0.08 mScm-1; C: EC=0.35 mScm-1$\pm$0.07 mScm-1) and OM (B: OM=8.7%$\pm$3.8%; C: pH=7.3%$\pm$1.5%). Finally, C/N ratio decreased after fire respect to the control and initial conditions (B: C/N=39.0$\pm$14.6; C: C/N =46.5$\pm$10.2).