Geophysical Research Abstracts
Vol. 14, EGU2012-13052-1, 2012
EGU General Assembly 2012

Changes in Land Use and Soils

A. Paz-González (1), A. Tarquis (2), C. A. de Abreu (3), K. Olechko (4), A. Sáa (2), A. Gobin (5), J. A. Gómez (6), and M. Kutilek (7)

(1) Facultad de Ciencias, Universidade da Coruña, Spain, (2) ETSIA, Universidad Politécnica de Madrid, Spain, (3) Instituto Agronômico de Campinas, SP, Brazil, (4) Instituto de Geología, Universidad Autónoma de México (UNAM), México, (5) VITO, Environmental Modelling, Mol, Belgium, (6) Ias, CSIC, Spain, (7) Technical University Prague, Czech Republic

Land use change is one of the main drivers of many processes of environmental change, as it influences basic resources of the landscape including the soil. Poor land management can rapidly deteriorate vast amounts of land, which frequently becomes a major threat to rural subsistence in many developing countries. Conversely, impact of land use changes on soil also can occur so unnoticed that land managers hardly contemplate initiating ameliorative measures. Subsequently, changes in land use affect soil properties and processes at a variety of scales. For example, forest conversion to cropland and reduction of tillage intensity can prevail as main changes of land use in some regions, whereas abandon of agricultural fields can be a major concern in other regions. In non-agricultural context, changes of land use of major interest are driven by urbanization, landscaping, engineering, mining, contamination, etc. Disturbed soils are not necessarily lost to agriculture, forestry, amenity or other alternative uses. Knowledge and understanding of soil properties and processes ensures remediation or reclamation of disturbed or damaged soils. Therefore, we focus mainly on how soil properties and processes can be managed and controlled to mitigate the impact of changes in land use. Moreover, land use changes occur at different spatial and temporal scales. Currently, the most promising approaches to evaluate the complex interaction between land use and soil heterogeneity at various scales apply advanced statistical and mathematical methods.