Geophysical Research Abstracts
Vol. 20, EGU2018-16083, 2018
EGU General Assembly 2018
© Author(s) 2018. CC Attribution 4.0 license.

Strategy for land evaluation to address global change impact and future scenarios in mountainous Mediterranean regions (South of Spain).

Juan F. Martinez-Murillo, Paloma Hueso-González, and José D. Ruiz-Sinoga
Instituto de Geomorfología y Suelos, Departamento de Geografia, Universidad de Málaga. (jfmmurillo@uma.es)

The Global Change is referred to the occurrence of great environmental changes associated to climatic fluctuations and human activity as well (Vitousek et al., 1997; Steffen et al., 2004; Dearing et al., 2006). García-Ruiz et al. (2015) indicated that the relief varies very slowly in time while the changes in vegetation, overland flow generation and erosion occurred very rapidly and conditioned by their interactions and the climate variability as well.
Land evaluation implies the process of assessment of the performance of land when it is used for specified purposes, involving the execution and interpretation of surveys and studies of landforms, soils, land use, vegetation, climatic and other aspects of land in order to identify and make a comparison of promising kinds of land use in terms applicable to the objectives of the evaluation (FAO, 1976). The analysis, classification, and mapping often provides a basic input in land evaluation studies (van Zuidam and van Zuidam-Cancelado, 1978). Especially, in the current context of Global Change, implying modifications in climatic conditions interacting with changes in the human activity, evaluation of lands from the eco-geomorphological and soil degradation point of view becomes a key issue in regions dramatically threatened by such processes. This study aims to classify, analyze, and assess the eco-geomorphological processes, especially in water resources and soil erosion and degradation, occurring in lands from mountainous Mediterranean areas with contrasted climatic conditions from South of Spain, in order to determine the effects of Global Change in those processes and defining possible future scenarios of land management.
To do this, a combination of methodologies and spatial scales have been set: i) land evaluation of study sites and mapping according to the terrain analysis and classification proposed by the ITC (van Zuidam and van Zuidam-Cancelado, 1978); ii) inventory of geomorphological processes affecting soil degradation; and iii) soil sampling and analysis of a key soil property to assess soil degradation and water resources (soil aggregate stability). The interactions between the eco-geomorphological variables obtained in the evaluation process were statistically analyzed by means of a factorial analysis which is key to develop future scenarios of land management.

References

Dearing, J. et al., 2006. Human-environment interactions: towards synthesis and simulation. Regional Environmental Change, 6, 115-123.
F.A.O., 1976. A framework for land evaluation. F.A.O. Soils Bulletin, 32, 72.
García-Ruiz et al., 2015. Los efectos geoecológicos del cambio global en el Pirineo central español: una revisión a distintas escalas espaciales y temporales. Pirineos, 170.
Steffen, W. et al., 2004. Global Change and the Earth System: a planet under pressure. Executive summary. The IGBP Global Change Series. Springer-Verlag, New York.
Van Zuidam, R.A., van Zuidam-Cancelado, F.I., 1978. ITC Textbook of phot-interpretaion. Use of aerial detection in geomorphology and geographical landscape analysis. Vol. VII. ITC, The Netherlands.
Vitousek, P.M. et al., 1997. Human domination of earth's ecosystems. Science, 277, 494-499.