Geophysical Research Abstracts
Vol. 13, EGU2011-12787, 2011
EGU General Assembly 2011

Description of suspended sediments and three phosphorus forms concentrations at the outlet of an agroforestry catchment by multifractal parameters

Patricia Sande , José Manuel Mirás Avalos, and Antonio Paz González
Soil Science Unit, University of Coruña, Spain. Email: psande@udc.es

Suspended sediment and total, sedimentary and soluble phosphorus concentrations were sampled at irregular intervals at the outlet of the Valiñas agroforestry catchment, during ten years, from 2000 to 2009. The Valiñas catchment is located near La Coruña, Spain and its surface is 35 km^2.The yearly number of samples was between 59 and 193. The main characteristics of sediment and phosphorus transport were as follows: i) a few events of intensive precipitation are responsible for most of the yearly transport of suspended sediment and particles, mobilising sediments from different source areas, ii) peaks of particulate P concentration occur at the beginning of each event and decrease before the maximum of water discharge, iii) the total P exported during stormflow is mainly composed of particulate-P and iv) During base flow periods dissolved P the ratio dissolved P / total P increased. All the four variables series showed multifractal behaviour at the scale of one year. There were significant differences between multifractal parameters obtained for the three studied phosphorus forms. For example, in general the entropy dimension, D_1, was higher for dissolved phosphorus and lower for sedimentary phosphorus. We tried to relate the resulting multifractal parameters with erosion factors such as rainfall and soil surface cover.