Geophysical Research Abstracts
Vol. 16, EGU2014-1294, 2014
EGU General Assembly 2014

Regional Frequency Analysis of Droughts in Andalucia (Spain) by using L-moments

Jose L. Ayuso-Muñoz, Francisco Rodríguez, Patricia Ayuso-Muñoz, Encarnación V. Taguas, Amanda García-Marín, and Javier Estévez

University of Córdoba, Agronomist and Forest Engineering School, Rural Engineering, Cordoba, Spain (ir1aymuj@uco.es))

In this work, a regional frequency analysis of droughts is presented in the region of Andalusia (in Southern Spain) for the period 1945 to 2005. Monthly precipitation data from 505 rain gauges distributed across the region were considered. The drought events were characterized using the Standardized Precipitation Index (SPI) on the time scale of 1, 3, 6 and 12 consecutive months. In addition, the analisys of the most appropriate distribution functions for the SPI values was also carried out.

Finally, a regional frequency analysis of drought magnitudes based on the SPI time scale series was undertaken using L-moments. Several regions were identified by cluster analysis and homogeneity tests. The results of this work allowed determining the magnitudes and durations of the droughts characterized by several SPI time scales and return periods.