Geophysical Research Abstracts,
Vol. 10, EGU2008-A-02492, 2008
SRef-ID: 1607-7962/gra/EGU2008-A-02492
EGU General Assembly 2008

Seasonal rainfall trends in Mediterranean Iberian Peninsula during 1951-2000 period

M. de Luis (1), J.C. González-Hidalgo (1), L.A. Longares (1), P. Stepanek (2).

(1) Department of Geography, Zaragoza University, Spain, 50009, (2) Hydrometeorological Service, Brno División, Chezck Republic, (*) Contact Author (mdla@unizar.es)

In this study, we used the recently developed MOPREDA$_{MES}$ dataset that includes 1113 complete, homogeneous monthly rainfall series of the Mediterranean Iberian Peninsula (IP) for 1951-2000 period. The time series of annual and seasonal rainfall were used to test for trends. The intensity of observed changes both on mean values and variability were estimated by using linear regression techniques. The significance of these changes was assessed using the non-parametric Spearman rank test.

Decreases in seasonal and annual rainfall predominated in the eastern Iberian Peninsula during the period 1951-2000, although there was high variability in rainfall regimes and conditions. Thus, on an annual scale, precipitation diminished over 90.1% of the territory, and decreases have also been observed over most of the area at a seasonal level (85%, 82%, 64% and 61% of territory where rainfall decreased in summer, spring, winter and autumn respectively). To sum up, and taking the study area as a whole, seasonal ordered precipitation decreases affected summer (-22.5%), spring (-19.3%), winter (-7.3 %), and autumn (-5.2%), with a decrease in the value of the global mean annual precipitation of -12.4%.

Given that rainfall and water resources in the Mediterranean IP are of critical importance from an economic point of view, if decreases in rainfall (as observed) are maintained in the 21^{st} century there may be serious consequences for human activity in the social context of population increase and demand for water. Also, from an ecological perspective, observed decreases may impact on the sustainability of many Mediterranean ecosystems, with a probable increase in disturbances, such as forest

fires or erosion, in an area currently under serious threat of desertification.