Geophysical Research Abstracts,
Vol. 10, EGU2008-A-04781, 2008
SRef-ID: 1607-7962/gra/EGU2008-A-04781
EGU General Assembly 2008

Spatial and temporal variability of consecutive dry and wet days in Greece

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The frequency of heavy precipitation events has increased over most areas and it is very likely future increased trends based on projections for 21st century using SRES scenarios. On the other hand, drought events have deteriorated in most European regions during the last decades in frequency, duration, or intensity. Besides, increased drying linked with higher temperatures and decreased precipitation have contributed to changes in drought, according to the Summary for Policymakers of the IPCC 2007. Precipitation is highly variable spatially and temporally, and data are limited in some regions, so further research is needed to substantiate the observed variability.

The objective of this study is to find out the seasonal spatial and temporal variability of the dry and wet spells in Greece, during the period 1958-2005. The meteorological data with respect to daily precipitation totals acquired from 25 meteorological stations of the Hellenic Meteorological Service, which are uniformly distributed over the country. The dry spells concern consecutive dry days (CDD); the largest number of consecutive days with daily precipitation amount below 1 mm and the wet days concern consecutive wet days (CWD); the largest number of consecutive days with daily precipitation amount above 1 mm, as defined by the joint CCl/CLIVAR/JCOMM Expert Team (ET) on Climate Change Detection and Indices (ETCCDI).

As a result of the analysis the seasonal spatial distributions of both CDD and CWD and their trends within the examined period are presented. The preliminary findings indicate that CDD appear maxima in Cyclades and the Southeastern Aegean Sea, while

minima are found in the Northwestern Greece. On the contrary, the highest CWD are observed in Western Greece and in Crete and less values in the Central and Southern Aegean area. On an annual basis, the variability of CWD shows significant negative trends.