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Detection and Statistical Analysis of Severe Drought Events Using Standardized Precipitation Index and Reconnaissance Drought Index, Case Study: Central Aegean Sea, Greece

D.F. Lekkas, S. Anastasiadis, and K. Mammas

Analysis and Simulation of Environmental Systems Research Group, Department of Statistics – Actuarial and Financial Mathematics, University of Aegean, Samos Greece (dlekkas@env.aegean.gr)

Drought is a natural hazard that can affect regions for months or years resulting to both environmental and socio-economic impacts. Different drought definitions (meteorological, agricultural, hydrological and socioeconomic) can be found in literature that can be linked to spatial and temporal characteristics of an event as well as to the corresponding impacts of a drought event.
The objective of this paper is to increase understanding of the development of droughts in small scale regions by studying droughts in a number of stations around the Aegean Sea and investigate differences in regions with similar characteristics (proximity to sea, altitude, annual rainfall etc.). In this paper detection of drought events is performed for the period 1955-2010 focusing on recent events using drought index method; drought events are characterized using Standardized Precipitation Index (SPI) and Reconnaissance Drought Index (RDI). Possible drought anomalies, their duration and their spatial extend and possible trends are examined. Trends are calculated by the slopes of the Kendall-Theil robust line for annual (SPI & RDI 12), as well as for summer and winter (SPI 3 &RDI 3) periods and a comparison of the performance of indices in detecting drought events at small scales is performed.