Geophysical Research Abstracts
Vol. 19, EGU2017-1002, 2017
EGU General Assembly 2017
© Author(s) 2016. CC Attribution 3.0 License.

Standardized Precipitation Index (SPI) over the Mediterranean region based on high resolution gridded data.

Iliana Polychroni and Panagiotis Nastos

Laboratory of Climatology and Atmospheric Environment, Department of Geology and Geoenviroment, National and Kapodistrian University of Athens, University Campus, GR 15784 Athens, Greece (ipolychroni@geol.uoa.gr)

Mediterranean water resource system is heavily influenced by changes in climate conditions, which in turns affect significantly the socioeconomic development, specifically over coastal areas. Taking into consideration that the surface temperature is projected to rise over the 21st century and the mean precipitation is likely to decrease in mid-latitude dry regions, according to IPCC 2014, we confronted the challenge to study the drought over the Mediterranean region by means of the Standardized Precipitation Index (SPI), defined as the difference from the mean for a specified time period divided by the standard deviation, where the mean and standard deviation are determined from past records. Drought is a long-range phenomenon that affects the Mediterranean. The drought not only affects food production but also has severe environmental, economic and social impacts.

The objective of this study is to assess and analyze the spatio-temporal evolution of the SPI for 3-, 6-, 9-, 12- month timescales, during the period 1950-2015. For this purpose, we processed high resolution gridded daily precipitation datasets (0.25° x 0.25°), based on the E-OBS dataset from ECA&D. Mean SPI patterns and trends for the whole examined period, as well as successive 30-year periods, were assessed by using R-project. Moreover, the influence of the well-known atmospheric circulation index of the wider region of Europe, namely the North Atlantic Oscillation Index (NAOI), on the SPI over the Mediterranean was considered necessary to evaluate, because NAOI strongly modulates precipitation over Europe and the Mediterranean.