

# TEMPORAL AND SPATIAL ASSESSMENT OF DROUGHTS IN AEGEAN REGION, TURKEY

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Drought is a normal, recurrent feature of climate. Unlike other natural hazards, drought evolve slowly in time and their impacts generally span a long period of time. Such features do make possible a more effective drought mitigation of the most adverse effects, provided a timely monitoring of an incoming drought is available.

Among the several proposed indices for drought monitoring, the Standardized Precipitation Index (SPI) is now widely accepted and used throughout the world for describing and comparing droughts among different time periods and regions with different climatic conditions. Also, due to its intrinsic probabilistic nature, the SPI is the ideal candidate for carrying out drought risk analysis.

Drought monitoring and forecasting are essential tools for implementing appropriate mitigation measures in order to reduce negative impacts. Knowledge of transition probabilities from a drought class to another, for a given site or region, as well as the availability of forecasts of drought indices, and of the related confidence intervals, can help to improve the decision making process for drought mitigation, since appropriate measures can be selected based on the risk associated with the possible evolution of a current drought condition.

Droughts have significant agricultural, environmental and socio-economic impacts in Turkey in the recent decades. Significant drought conditions were observed during years of late 1980s and the trend conditions in the late 1990s. Agricultural sector, in particular, and water resources have been under severe constraints from the recurrent droughts in Aegean region.

In this study, spatial and temporal assessment of drought in Aegean region have been investigated. For this purpose, the SPI methodology is used. The analysis is made using the long term record of precipitation from 1938 to 2007 for Aegean region at 1-3 and 12 month time scales. This study shows that the main drought episodes were identified at the scale of the entire region, and droughts were more severe at coastal recording stations than the inner Aegean region stations. Also, the most severe and intense droughts were recorded in the years of 1956, 1957, 1973, 1989, 1990, 2000 and 2007.

