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ASSESSMENT OF TREND ANALYSIS METHODS FOR ANNUAL STREAMFLOW

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Abstract

On of the main environmental impact of global warming and climate change on Turkey is the increased frequency and severity of droughts. To enhance water management practices in river basins, it is crucial to analyze hydrological data. Streamflow data collected from nine stations in the Gediz Basin were analyzed using both conventional trend analysis methods and wavelet transformations. The purpose of this study is to integrate conventional trend analysis methods with wavelet transforms in order to determine the variability of streamflow data. Traditional trend analysis includes trend detection tests and change-point detection tests. In order to detect dominant streamflow periodicities, continuous wavelet transforms (CWT) are utilized. The results obtained by CWT were in agreement with those obtained by conventional methods. The results indicated that a dominant negative trend is present in streamflow data and changes in streamflow patterns occurred after the mid-1980s, as well as an interannual organization of streamflow activity.

Key words: continuous wavelet transform, streamflow variability, trend analysis

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