

EVALUATION OF HYDROLOGICAL DROUGHTS
**WITH THE STANDARDIZED INDICES APPROACH IN BEYŞEHİR AND KONYA-ÇUMRA-
KARAPINAR SUB-BASINS**

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ANKARA-2017

EXPERTISE THESIS ABSTRACT

Konya Basin is encountering drought disasters quite often so it is very important to determine the historical drought history from the basin. For this reason, Beyşehir Sub-Basin (16/1) and Konya-Çumra-Karapınar Sub-Basin (16/2), which have relatively different hydrological characteristics in the Konya Basin, were selected as the study area and standardized drought indices were used in hydrological drought analysis. Standardized Precipitation Index (SPI) carried out with the aim of determining to the effect of drought on the precipitation, Standardized Run-Off Index (SRI) carried out with the aim of determining to the effect of drought on the run-off, Standardized Groundwater Index (SGI) carried out with the aim of determining to the effect of drought on the groundwater and Standardized Reservoir Storage Index (SRSI) carried out with the aim of determining to the effect of drought on the storage. The main reason for performing the SPI, SRI, SGI and SRSI indices analysis; because these indices are standardized and the classification systems are the same, so they can be displayed and compared on a single graph. The purpose of this comparison is to show how run-off, groundwater, storage change in precipitation deficit or excess, and the relationship between them, depending on this change. The 12-month basin averages of the analysis results obtained from 4 different hydrological drought indices studied in the thesis are plotted on a graph. Thus, the relation between precipitation, run-off, groundwater and storage could be compared on a single graph in relation to drought. Against the trends of increasing or decreasing the values, the reaction of the other has been revealed and interpreted. When a general assessment is made for sub-basins; In Beyşehir Sub-Basin, the need is met from surface water sources and deposits during the periods where precipitation is sufficient; when the precipitation is not enough, it seems that the need is met by groundwater shots, in Konya-Çumra-Karapınar Sub-Basin regardless of

the presence of precipitation, it is observed that the attraction of the groundwater is intense, especially when the precipitation is low, the attraction of the groundwater especially increases.

Keywords: Beyşehir Sub-Basin, Konya-Çumra-Karapınar Sub-Basin, Drought, Hydrologic Drought Analyses, Standardized Precipitation Index(SPI), Standardized Run-Off Index(SRI), Standardized Groundwater Index(SGI), Standardized Reservoir Storage Index(SRSI)