Determining Best Fitting Distributions for Minimum Flows of Streams in Gediz Basin

Authors : Naci Büyükkaracığan

Abstract : Today, the need for water sources is swiftly increasing due to population growth. At the same time, it is known that some regions will face with shortage of water and drought because of the global warming and climate change. In this context, evaluation and analysis of hydrological data such as the observed trends, drought and flood prediction of short term flow has great deal of importance. The most accurate selection probability distribution is important to describe the low flow statistics for the studies related to drought analysis. As in many basins In Turkey, Gediz River basin will be affected enough by the drought and will decrease the amount of used water. The aim of this study is to derive appropriate probability distributions for frequency analysis of annual minimum flows at 6 gauging stations of the Gediz Basin. After applying 10 different probability distributions, six different parameter estimation methods and 3 fitness test, the Pearson 3 distribution and general extreme values distributions were found to give optimal results.

Keywords : Gediz Basin, goodness-of-fit tests, minimum flows, probability distribution
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