



Trend Analysis of Golestan's Rivers Discharges Using Parametric and Non-parametric Methods

Abolfazl Mosaedi (1,2) and Nasrin Kouhestani (1)

(1) Gorgan University of Agricultural Science and Natural Resources, Dep. of Water Eng., Gorgan, Islamic Republic of Iran +98 171 4420438), (2) Now in: Ferdowsi University of Mashhad, Faculty of Natural Resources and Environment

One of the major problems in human life is climate changes and its problems. Climate changes will cause changes in rivers discharges. The aim of this research is to investigate the trend analysis of seasonal and yearly rivers discharges of Golestan province (Iran). In this research four trend analysis method including, conjunction point, linear regression, Wald-Wolfowitz and Mann-Kendall, for analyzing of river discharges in seasonal and annual periods in significant level of 95% and 99% were applied. First, daily discharge data of 12 hydrometrics stations with a length of 42 years (1965-2007) were selected, after some common statistical tests such as, homogeneity test (by applying G-B and M-W tests), the four mentioned trends analysis tests were applied. Results show that in all stations, for summer data time series, there are decreasing trends with a significant level of 99% according to Mann-Kendall (M-K) test. For autumn time series data, all four methods have similar results. For other periods, the results of these four tests were more or less similar together. While, for some stations the results of tests were different.

Keywords: Trend Analysis, Discharge, Non-parametric methods, Wald-Wolfowitz, The Mann-Kendall test, Golestan Province.