

Investigating the trend of Precipitation changes in Khuzestan province and its impact on Shadegan wetland

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Abstract

Considering climate change in recent years has become increasingly important due to economic, social and financial consequences of climate events. Understanding climate change trends, and in particular rainfall trends, has been a topic of interest to climate scientists and hydrologists in recent years. Precipitation is one of the climate elements that changes greatly in time and space. Precipitation is very important due to its deleterious and damaging effects. The Shadegan Wetland is located in the lower reaches of the Karouni and Karun Rivers Basin between the cities of Abadan, Mahshahr, Ramhormoz and Ahvaz and joins the Persian Gulf at the bottom. Shadegan Wetland is the 22nd in the world in terms of ecological, scientific, aesthetic, economic and hydrological aspects. For doing this research, meteorological data of daily, monthly and annual scale of precipitation data for selected synoptic stations in Khuzestan province for 30 years (1987-2006) were used. To investigate the trend of precipitation changes, the precipitation indices defined by the Expert Team on Climate Change Detection Monitoring (ETCCDMI) with RCLimdex software and the Mann-Kendall nonparametric test to monitor the trend and display of change points as well as the precipitation time series. The study area was used. The results showed that all of the rainfall-related indices have a decreasing trend, which is for daytime maximum (Rx1day), 5-day maximum (Rx5day), number of days with heavy rainfall (R10mm), number of days with very heavy rainfall (R20mm), Wet days (R95P), the annual amount of rainy days (PRCPTOT), for Ramhormoz Station decreased significantly by 5%. Also, the number of days with heavy rainfall (R10mm) for Ahvaz station and annual amount of rainy days (PRCPTOT) for Mahshahr station decreased significantly by 5%. The dry consecutive days (CDD) at all stations except for Abadan have been increasing and the consecutive days (CWD) at all stations have been decreasing, which is in line with the decrease in rainfall in recent years. In areas where the P-value is less than 0.05 indicates that those levels have significant variations.

Keywords: Precipitation changes, Trend, Precipitation, Shadegan Wetland.