

The frequency of droughts in the rivers watershed and wetlands of Khuzestan Province on the basis of different parameters

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Abstract

Iran is an arid country with water crisis. Regarding the role of surface water in the region's ecosystems and the impact of drought on water quantity and quality, the present study was conducted to investigate the frequency of droughts in Khuzestan province. For this purpose, the annual rain fall of statistics synoptic stations were used for Dezful, Shoushtar, Behbahan, Abadan, Masjed Soleiman, Ahvaz and Izeh for a period of 20 years. Data correctness and uniformity test were done on the method of test runs and doubly mass. Then, the occurrence frequency and droughts severity was studied based on five indexes namely, analysis of rainfall data (SPI), normal threshold climate Index (RI), reliable rainfall index (DR) and the methods of Niche and PNPI. Results for SPI index showed that in the stations of Ahvaz, Dezful, Abadan, Masjed Soleiman, Behbahan, Izeh and Shoushtar were 7, 6, 6, 6, 7, 9 and 8 cases of droughts, respectively. On the basis of RI index at selected stations were 10, 3, 4, no drought, 4, 5 and 4 cases of droughts. On basis of DR index at the stations of Ahvaz, Dezful, Masjed Soleiman, Behbahan and Izeh 6 cases and at the stations of Abadan and Shoushtar 5 cases of droughts, based on Niche at the stations of Ahvaz and Dezful 5 cases, at the stations of Abadan and Behbahan 4 cases, at the stations of Masjed Soleiman 3 cases, at the stations of Shoushtar 2 cases and at the station of Izeh one case of drought were observed. However, the results of research based on PNPI index showed that at the stations of Bahaman and Izeh 9 cases of droughts, at the stations of Ahvaz, Masjed Soleiman and Shoushtar 7 cases and at the stations of Dezful and Abadan 6 cases of droughts were occurred. The results showed that in all the studied stations during each year at least 30% drought has occurred.

Keywords: Drought, SPI, Normal indexes of climate, Reliable rainfall index, Niche method, PNPI.