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Climate change effects on groundwater resources (case study: Doroodzan dam basin)

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In order to study climate change effects on ground water basin, especially to study the drought condition of the Doroodzan dam basin, the Standardized Precipitation Index (SPI) has been used. In general, to study the draught condition with SPI, different factors should be considered. The study focuses on the longest drought period, the number of drought months and drought magnitude factors. Furthermore, SPI diagrams in periods of 12, 24 and 48 months, piezometric head and its mean value have been studied to determine the effects of drought on groundwater resources. The results revealed that in a statistical period of 36 years in all three time scales, the studied area is affected by numerous draughts with different length and severities. In all three time scale, weak droughts had the most and very severe droughts had the least occurrences. Besides, piezometric data also showed the reduction in groundwater resources shortly after the draught in the specified region. In addition, piezometric data also shows the reduction of groundwater resources shortly after the drought in the specified region. Another finding of this study is more correlation between the piezometric head amounts and SPI on the 48-months scale in more than 55% stations compared with other time scales.

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