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Drought Prediction in Iran during Next 30 Years

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The effects of climate changes, especially due to increasing of greenhouse gasses, caused a lot of problems that affect different sections of society. One of the most important of these effects is the increasing of natural disasters such as flood, drought, tropical cyclones, raising sea level, dust storm, etc. Drought and flood are the most prevalent of these disasters in Iran. Because of the geographical location of Iran and the synoptic systems that affect this region, it is clear that dry is one of the characteristics of this region, and drought is one of the most important of natural disaster that affect this country. Drought affects the different sectors of society such as water resources, agriculture, industry, economy, health, etc therefore drought monitoring is necessary for planning in future. For this purpose, the climate data should be simulated for future period by using outputs of Atmospheric-Ocean General Circulation Model. In this paper precipitation data during 2010-2039 is simulated by downscaling via LARS-WG model. Then, drought situation is estimated according to DI and SPI, by using these data in Iran. The results of this study have showed that during next 30 years, drought conditions will be increase in Iran, and it confirms climate change event in this region. In addition, the most parts of Iran will experience severe and extreme drought in 2011, 2025, 2032, 2034, 2035, 2039, and among these years 2039 will have more critical drought situation.

Keywords: Atmospheric General Circulation Models, Downscaling, LARS-WG, Drought, Decile Index, Standard Precipitation Index.