

Abstract

Although, general circular models provide information about changes the climatic variables at the global scale, these information are not useable at the local scale due to their coarse spatial resolution and it is necessary to downscale them at the local scale by the use of available methods. This research was done with the aim of evaluating the climate change at the Khash synoptic station scale in the future using the monthly and annual sub-models of the SDSM. For this purpose, available daily precipitation and temperature data of the Khash synoptic station were prepared. Also, the outputs of large scale climatic model of CanESM2 related to the fifth report of the International Panel on Climate Change were prepared. Then, the correlation between the NCEP variables and the observed data was explored for the monthly and annual sub-models. Results indicate that the performance of the monthly sub-model is better than the annual sub-model and therefore, the monthly sub-model was used to downscale the climatic variables of precipitation and temperature at the Khash synoptic station and climate changes in the future (2020-2100) were predicted under the RCP2.6, RCP4.5, and RCP8.5 scenarios of the CanESM2 model. Drawing the trend of annual changes of the explored variables and also comparing their annual average values indicated that in terms of the trend, precipitation trend in the future and under three scenarios of RCP2.6, RCP4.5, and RCP8.5 is decreasing and the temperature trend is increasing. In terms of the average, the average of precipitation in the future and under the RCP2.6 and RCP4.5 is without change and decreases under the RCP8.5. Also, the average of mean temperature in the future and under the RCP2.6, RCP4.5, and RCP8.5 scenarios will decrease a little than the past period.

Keywords: Climate Change, Daily Precipitation, Daily Temperature, Khash



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**The Thesis Submitted for the Degree of Master of Science
(in the field of watershed Science)**

**Climate Change Assessment in the Future Using
Statistical Downscaling Model (SDSM) in the
Khash Synoptic Station**

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winter2020