

عنوان مقاله:

Impacts of global warming on extreme temperatures in west of Iran

محل انتشار:

فصلنامه پژوهشهای تغییرات آب و هوایی، دوره 1، شماره 4 (سال: 1399)

تعداد صفحات اصل مقاله: 9

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خلاصه مقاله:

Studying global warming and assessing its impacts is very important due to economic and social consequences and financial losses. Changes in extreme temperatures can cause enhancement of demands for energy, increase mortality, reduce biodiversity and damage to crops, which makes it essential to be studied. The aim of this study is predicting the changes of extreme temperatures in west of Iran during 2015-2045 period under climate change conditions according to the RCP emission scenarios. To this purpose, the SDSM model under the RCP 8.5 scenario is used for statistical downscaling and data generation of future period, using the GCM models of the CanESM2 and Mann-Kendall nonparametric test is used to analyze trends. From 27 extreme indices of climate change which are defined by ETCCDI, 6 indices of extreme temperatures were selected including diurnal temperature range (DTR), warm and cold days, warm and cold nights, and number of summer days. The results showed that in the predicting period (2015-2045), except Shahr-e-Kord station, the DTR index has a decreasing trend. There was an increasing trend in number of summer days index in all stations, except Hamedan station. In cold night index a decreasing trend is observed in all stations except Shahr-e-Kord station. A significant decreasing trend is observed in number of cold days index in all stations except Sahr-e-Kord. In warm days index, a significant increasing trend is observed in all station. Generally it was found that the significant trend of cold extreme and warm extreme temperatures were decreasing and increasing respectively. Also in most of the studied indices the rate of changes were associated with latitude of the weather station.

کلمات کلیدی:

Extreme Temperatures, Global warming, CanESM2, SDSM

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