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Future climate assessment over I. R. of Iran during 2071-2100

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Abstract

Future climate of Iran has been studied during 2017-2100 by using PRECIS regional climate model driven by HadAM3P data of A2 and B2 emission scenarios. Validation and skill of the model has been analyzed over 1961-1990. Study is focused on precipitation, temperature and runoff. The spatial resolution of the model is set on 0.44 degree. A significant decrease of precipitation is found over different regions of Iran including western parts (wind ward side) of Zagros range and south-eastern beaches of Caspian Sea. As the origination of the precipitation over the above mentioned regions is mostly Mediterranean Sea, it seems that the average cyclone intensity and activity over Mediterranean Sea will be decrease during 2071-2100.Despite the South-eastern beaches of Caspian Sea and Western Zagros range, mean annual amount of precipitation over South-western beaches of Caspian Sea and parts of south-east of Iran will be increased. Considerable decreases are also found in the monsoonal rainfall over Pakistan and southern parts of Iran, near Indian Ocean. Total modeled snowfall of 2071-2100 is less than snowfalls modeled in control run of 1961-1990 both over Elborz and Zagros ranges and the overall snowfall decrease A2(up to -0.4 mm/day) is smaller than B2(up to -1.2 mm/day) scenario over Elborz range. Amount of runoff change in A2 and B2 is same and equal to 1.4 mm/day, with maximum increase in the provinces located in south-western parts of Caspian Sea. The greatest increases in temperature are modeled over central Kevir dessert and north-west of Iran by 5-6oC, both in A2 and B2 emission scenarios.