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Future changes over the Himalayas: Mean temperature

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Abstract

An assessment of the projection of near surface air temperature over the Himalayan region from the COordinated Regional Climate Downscaling EXperiment- South Asia (hereafter, CORDEX-SA) regional climate model (RCM) experiments have been carried out for different Representative Concentration Pathway (RCP) scenarios. The purpose of this study is to assess the probable future changes in the mean temperature climatology and its long term trend for different seasons under greenhouse gas forcing scenarios for different seasons till the end of 21st century. A number of statistical measures such as changes in mean climatology, long term trend and probability distribution function have been used in order to detect the signals of changes in climate. Moreover, the associated uncertainties among different model experiments and their ensemble in space, time and different seasons in particular have been quantified. Despite of strong cold bias in the model experiments over Himalayan region (Nengker et al., 2017), statistically significant strong rate of warming (0.03-0.09°C/yr) across all the seasons and RCPs have been projected by all the models and their ensemble. Season specific response towards the warming is indicated by ensemble under future climate while ON season shows comparable magnitude of warming than DJF. Such warming intensifies with the increase

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