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PARALLEL SESSION C : IMPACTS AND APPLICATIONS
C3: REGIONAL SCALE HYDROCLIMATE: FROM OBSERVATIONS TO MODELLING TO APPLICATIONS

Understanding the propagation of uncertainties in CORDEX and GCM derived hydro-climatic projections

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General Circulation Models (GCMs) form the basis for any study pertaining to climate change impact assessment. In order to understand the cascade of impacts at various levels, projections of climatic variables are at first derived from parent GCMs. However, because of its coarser resolution, it is difficult to use GCM outputs directly at regional scale; which necessitates a need for downscaling by either statistical and/or dynamical technique. Hence, present study involves bias correction of GCM outputs by applying widely used quantile-based remapping technique, to project climate change impacts over the entire India. To compare the climatic projections derived from two different scales, here, bias corrected dynamically downscaled Regional Climate Model (RCM) outputs obtained from COordinated Regional Downscaling EXperiment (CORDEX) framework and bias corrected GCM outputs have been considered. Furthermore, changes in climatic variables serve as a major driving force for disturbing the hydrological cycle, and hence hydrological impacts at a meso-scale have been assessed by simulating Variable Infiltration Capacity (VIC) model considering bias corrected meteorological GCM and RCM outputs. Since current objective here is to analyse the impacts derived from different scales, changes in hydro-climatic variables have been assessed and uncertainties lying in their projections have been estimated. Quantification of these uncertainties plays a significant role in strategizing different watershed management practices which may change with the model outputs used, and hence should be considered in order to reduce adverse impacts of future climate change more precisely.

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