



Application of regional climate model with glacier parametrization scheme for Central Asia

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Simulations of Central Asia climate were performed with 25 km resolution setup of regional model REMO with dynamical glacier parametrization scheme. Here we investigate the effects introduced by inclusion of this scheme. The simulations are performed in a nested way, where high resolution simulation is forced by results obtained by simulation over the larger domain (CORDEX South Asia), which is in turn forced by historical run of NorESM climate model, performed in the framework of CMIP5 project.

The main focus of the setup is Himalaya region, that is included entirely, and were dynamical glacier scheme (DGS) is used. This scheme accounts for direct feedbacks between the atmosphere and vast areas covered by Himalayan glaciers. The glacier mass balance is simulated and surface fraction of the glaciers for each grid box is dynamically adjusted depending on accumulation and ablation conditions.

We perform experiments with and without DSG in order to isolate effects related to glaciers. Results are compared in terms of different atmospheric and land variables, such as near surface air temperature, precipitation, mass balance, area change etc. Results of the simulations are also compared to available limited observations, in order to determine if use of DGS has positively affected the ability of the model to reproduce atmospheric conditions on local or regional scale.