

Project Summary

The hydrological system of Northern India is based on two main phenomena, the monsoon precipitation in summer and the growth and melt of the snow and ice cover in the Himalaya, also called the “Water Tower of Asia”. However, climate change is expected to change these phenomena and it will have a profound impact on snow cover, glaciers and its related hydrology, water resources and the agricultural economy on the Indian peninsula.

It is a great challenge to integrate the spatial and temporal glacier retreat and snowmelt and changed monsoon pattern in weather prediction models under different climate scenarios. Furthermore, the output of these models will have an effect on the input of the hydrological models. The retreat of glaciers and a possible change in monsoon precipitation and pattern will have a great impact on the temporal and spatial availability of water resources in Northern India.

Besides climate change, socio-economic development will also have an influence on the use of water resources, the agricultural economy and the adaptive capacity. Socio-economic development determines the level of adaptive capacity. It is a challenge to find appropriate adaptation strategies with stakeholders for each of the sectors agriculture, energy, health and water supply by assessing the impact outputs of the hydrological and socio-economical models.

The principal aim of the project is to assess the impact of Himalayan glaciers retreat and possible changes of the Indian summer monsoon on the spatial and temporal distribution of water resources in Northern India and to provide recommendations for appropriate and efficient response strategies that strengthen the cause for adaptation to hydrological extreme events.