



Regional climate model projections for the upper Danube and upper Brahmaputra river basin

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Large-scale ECHAM5 projections with about 2° grid resolution are dynamically downscaled with the regional climate model CLM to a grid resolution of 0.44° . This is done in two major river basins: (1) the upper Danube river basin (UDRB) covering an area of 76'653 km² in the European Alps and (2) the upper Brahmaputra river basin (UBRB) with about 500'000 km² in the Himalayas. This paper focuses on hydrological impact analyses in the two river basins based on projected changes from different IPCC SRES scenario runs carried out with the CLM.

Besides annual and seasonal temperature and precipitation amounts, daily precipitation indices are calculated for four seasons during the simulation period 1960-2100. The UBRB is further split into three smaller areas of interest with regard to altitude: The high Tibetan plateau, the low floodplains and the mid-latitude region in between. The following indices are tested for statistically significant linear trends: rain day frequency, rain day intensity, maximum 5-day precipitation amount, and longest period of consecutive dry days. The last two indices are used as indicators for possible trends in flooding and dry spells in the UDRB and the three sub regions of the UBRB.