



Quantification of climate change impacts on water resources in Central Europe: changes in flow regimes and uncertainty

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Water availability under climate change is one of the major concerns in the Elbe river basin having one of the lowest per capita water availabilities in Europe ($\sim 700 \text{ m}^3 \text{ s}^{-1}$). Central Europe, where the basin is located, is a region in transition, climatically from maritime to continental and in terms of climate change from increasing precipitation in the northern and western parts to regions of decreasing precipitation in central and southern parts.

The basin is representative of humid to semi-humid landscapes in Europe. Water availability during the summer season is the limiting factor for navigation, plant growth and crop yields. The climate projections show that water availability will decrease under scenario conditions. It is therefore necessary to assess the reliability of water supply under climate change for the water-related sectors in the basin. This has to be done considering all relevant actors including the ecology and considering possible feedbacks. Important here is that the Elbe basin is a trans-boundary catchment with its main river flowing from the Czech Republic through Germany into the North Sea.

The study shows the methodological approach, the modeling concept and results for the next 20-50 years, a time scale relevant for the implementation of water and land use management plans. Thereby, the focus is on flow generation under climate change

including uncertainty analysis. The results show that societies and nature in Central Europe will have to deal with severe water shortages under scenario conditions especially during the summer season.