

Document Control Sheet

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18. abstract This study tries to assess the reliability of water supply and crop yields in the German part of the Elbe river basin for the next 50 years. A challenge was to reproduce also small-scale local changes within the entire, large-scale model area. A global scenario of climate and agro-economic change has been regionalized to generate transient climate forcing data and land use boundary conditions for an eco-hydrological model integrating hydrology, nutrient transport and vegetation growth at the catchment scale. The model is used to transform the climate and land use changes into altered evapotranspiration, groundwater recharge, crop yields and river discharge. Particular emphasis was given to assessing the significance of the impacts on the hydrology, taking into account in the analysis the inherent uncertainty of the regional climate change as well as the uncertainty in the results of the model which is used to assess the impacts. The concluding result of the study is that natural environment and communities in parts of Central Europe will have considerably lower water resources under scenario conditions, while crop yields can benefit from increases in Co2-concentration and temperature, where the water availability is high enough.		
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