



Future impacts of population and climate change on water scarcity exposure in Europe

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Growing human water demands due to population growth, socio-economic developments and climate change causes pressures on freshwater resources in many countries. Here we present a state-of-the-art integrated model assessment to estimate the impacts of the 1.5oC and 2oC global mean temperature increase on water scarcity in Europe. The LISFLOOD hydrological model is forced by 11 climate models using different greenhouse gas emission scenarios (Representative Concentration Pathways). The Water Exploitation Index Plus (WEI+) is used as an indicator to estimate future water scarcity and calculate the number of people exposed to water scarcity due to climate change.

Despite model and data uncertainties, it is likely that climate change exacerbates already existing water scarce areas and that new water scarce areas are created resulting in an increase of people living under water scarcity. Apart from climate change alone, the effect of future population change is disentangled as well. Moreover, the consequence of exceeding the 1.5oC global mean temperatures by half a degree in terms of people exposed to water scarcity is shown.

While preparing for times of increased pressures on the water supply, this work can highlight regions in Europe where it would be advisable for several economic sectors to explore and implement water efficiency measures.