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The effects of climate change on water availability in the Aral Sea region

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Desiccation of the Aral Sea - once the fourth largest inland water body on Earth and now disappearing – is a well-known and drastic example of anthropogenic environmental change. Since the 1960s water demand, especially for irrigation purposes, has expanded and has at times exceeded runoff of the two main tributaries (Amudarya and Syr Darya). Their discharge regimes are strongly dependent on glacier melt and precipitation in the mountainous upper reaches.

This study analyses precipitation patterns to assess the future water availability in the Aral Sea region.

For this purpose the regional climate model REMO has been used to simulate the present-day and future climate conditions. Model simulations have been carried out in 50 x 50 km^2 horizontal resolution. The lateral atmospheric boundaries were provided by a transient ECHAM5/MPI-OM simulation. First results of a regional climate change scenario, assuming atmospheric greenhouse gas concentrations according to the IPCC SRES A1b Scenario, will be presented.