



Long-term shifts of low flow periods in the Rhine basin

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Recent heat waves accompanied by long low flow periods have caused extremely low water levels in many European rivers – leading to problems for water supply and distribution as well as inland waterway navigation.

To investigate possible long-term shifts of low flow situations under a changing climate, the regional climate model REMO and the offline coupled hydrological discharge model HD have been used to simulate the discharge of the river Rhine for the period 1961-2050.

REMO simulations have been carried out in 18 x 18 km² horizontal resolution and were used as input for the HD-Model.

The lateral atmospheric boundaries were provided by a transient ECHAM4/OPYC3 simulation, assuming atmospheric greenhouse gas concentrations according to the IPCC SRES B2 Scenario up from 1990. In this study the changes in river discharge and in the frequency of low flow periods at three different gauging stations in the Rhine basin are being quantified.