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Results of integrated hydrologic modeling for national policy making in the Netherlands

Joachim Hunink (1), Emiel van Velzen (2), and Judith ter Maat (3)

(1) Deltares, Utrecht, Netherlands (joachim.hunink@deltares.nl), (2) Deltares, Delft, Netherlands (emiel.vanvelzen@deltares.nl), (3) Deltares, Delft, Netherlands (judith.termaat@deltares.nl)

In the Netherlands both national and regional authorities are using integrated hydrological models for water management. The national distribution system concerns the interchange of surface water between regional and national systems on the basis of transport capacity and water availability. The increasing pressure on the national water distribution system under climate change and social economic changes requires consensus on the outcome of the models for support of policy analysis. For this aim, the models should represent the potential water availability during drought that depends on the availability of groundwater and the capability for supply of surface water from the main water system.

On the national level, the National Hydrological Instrument, NHI, is used for prediction of changes in the water system. NHI comprises a linked system of time dependent models for saturated and unsaturated groundwater flow, for local and regional surface waters and for water distribution at national level. The water deficit in the upper soil layers is a measure for loss of agricultural production and loss of nature and forms the basis for the water demand in the country. In 2012 results of the NHI are used for de national Delta Program for exploring the problems in de future using climate and socio-economic scenario's. In 2013 the models will be used to for calculating the effects of possible solutions.