



## **In search of criteria for the integrated hydrological model NHI to adequately support national decisions on climate adaptation in the Netherlands**

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What makes a prediction by a complex, integrated, national, hydrological model good for long term decision making? In The Netherlands, this question to be answered on the basis of criteria dedicated for results good for purpose (national decision making) in addition to general criteria on model outcome.

The integrated hydrological model of the Netherlands (NHI) aims to support national policy decisions on adaptation to climate changes of the fresh water distribution system in The Netherlands. It is a long term development and includes saturated and unsaturated groundwater flow, regional and national distribution of fresh water and computes changes in heads, fluxes, etc. with focus on (very) dry, average and wet years in a recent 30 year period. All results aim to be derived in a nationwide consistent manner.

In order to judge the model results by all parties (national government, provinces, waterboards, etc) involved in the decision-making process, criteria have been set that have to be met by NHI. In the first year 2010 of use, these criteria have been relatively "wide" with respect to expectations; in 2011 and 2012 the criteria are narrowed. Although these criteria cover a major and accepted part of the model judgment, they are not sufficient for use of NHI in the national decision-making process requiring straight forward acceptance of model results by regional authorities. For that aim, the major decisions to be made at national level have been analyzed; the decisive keys and measures affected by NHI results have been identified and coupled with the underlying hydrological processes and the domain of occurrence of these processes. On the basis of the latter two items, the national constraints to NHI have been translated to the criteria in the output for these hydrological processes in the domains (regions) of occurrence. At the moment of writing, the concrete criteria are proposed to the national and regional authorities. In June, NHI will be judged with respect to both lists of criteria mentioned above.