



## **Regional estimation of response routine parameters**

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Reducing the number of calibration parameters is of a considerable advantage when area distributed hydrological models are to be calibrated, both due to equifinality and over-parameterization of the model in general, and for making the calibration process more efficient. A simple non-threshold response model for drainage in natural catchments based on among others Kirchner's article in WRR 2009 is implemented in the gridded hydrological model in the ENKI framework. This response model takes only the hydrogram into account; it has one state and two parameters, and is adapted to catchments that are dominated by terrain drainage.

In former analyses of natural discharge series from a large number of catchments in different regions of Norway, we found that these response model parameters can be calculated from some known catchment characteristics, as catchment area and lake percentage, found in maps or data bases, meaning that the parameters can easily be found also for ungauged catchments.

In the presented work from the EU project COMPLEX a large region in Mid-Norway containing 27 simulated catchments of different sizes and characteristics is calibrated. Results from two different calibration strategies are compared: 1) removing the response parameters from the calibration by calculating them in advance, based on the results from our former studies, and 2) including the response parameters in the calibration, both as maps with different values for each catchment, and as a constant number for the total region. The resulting simulation performances are compared and discussed.