

Can we make a model for a large basin by **only** using globally available datasets?

The objective is to use globally available datasets to build large scale groundwater models for data-poor regions.

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Large scale groundwater modeling using globally available datasets: A test for the Rhine-Meuse basin

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Average calculated groundwater head 1975-2008

*) All maps are plotted in the "Latitude/Longitude" coordinate system.





PCR-GLOBWB and MODFLOW:

Future work:

- and storage coefficients).

- Model calibration.

Selected references:

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Spatial resolution: 30 arc-seconds – approximatively 1 km.

The land surface PCR-GLOWB model consists of two unsaturated soil stores (1 and 2) and a linear **groundwater store** (3).

The local drainage components are **direct runoff** (QDR), **interflow** (QSf), and **baseflow** (Qbf). **Exchange fluxes between stores** (P) are also defined.

Loosely coupling with MODFLOW: The linear groundwater store (3) is replaced by a MODFLOW groundwater model. This is done by the following procedure: The PCR-GLOBWB is used to calculate groundwater recharge and water levels. > The calculated recharge and water levels are used to force the MODFLOW.

Sensitivity analysis, by varying aquifer properties (transmissivities

Use remote sensing (e.g. AMSR-E soil moisture) to evaluate the model.

Dynamic (fully) coupling between the PCR-GLOWB and MODFLOW.



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