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Assessing GlobWat model sensitivity to climate forcing

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Irrigation is crucial for sustaining food security for the growing population around the world. Irrigation affects the hydrological cycle both directly, during the process of water abstraction and irrigation, and indirectly, because of infrastructures that have been built in support of irrigation, such as canals, dams, reservoirs, and drainage systems. For evaluating the availability of freshwater resources in the light of growing food demand, modeling the global hydrological cycle is vital. The GlobWat model is one of the models that have been designed for large scale hydrological modeling, with a specific focus on considering irrigated agriculture water use. Both models' underlying assumptions and the global input data sets used to feed the model could be sources of uncertainty in the output. One of the most challenging input data sets in global hydrological models is the climate input data set. There are several climate forcings available on a global scale like ERA5 and ERA-Interim. In this study, we assess the sensitivity of the GlobWat model to these climate forcing. Pre-processing climate data at a large scale used to be difficult. Recently, this has become much easier by data and scripts provided by eWaterCycle team at the eScience center, Amsterdam, The Netherlands. We will use eWaterCycle's freely available data sources for our assessment and then we will compare the model results with observed data at a local scale.