

Incorporation of advanced water abstraction schemes into the H08 global hydrological model

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Water is indispensable resources for the society. However, due to increasing water demand, overexploitation of groundwater, and acceleration of anthropogenic climatic change, it is largely concerned about the sustainability of global water resources in this century. In order to quantitatively analyze such global water resources issues, global hydrological models have been developed and made much success in climate change impact assessments and others. The H08 model is one of such models. H08 consists of six sub-models, namely land surface hydrology, river routing, crop growth, water abstraction, reservoir operation, and environmental flow estimation. It enables us to simulate both natural hydrological cycle and major human activities in an integrated manner. To conduct further advanced analyses including adaptation measures to climatic change, six additional schemes on water abstraction have been developed and incorporated into H08. They include the processes of groundwater recharge, groundwater abstraction, inter-cell water diversion through canals, return-flow and delivery loss, improved reservoir representation, and sea water desalination. This presentation introduces the effects of incorporation of these new schemes on global hydrological simulations and implications for global water resources assessments.

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