



## **The Coupling and Modeling of Eco-hydrological Processes in the Upper Reaches of Heihe River**

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Developing new watershed models to couple the ecological, hydrological and social-economical processes for improving the understanding and regulation ability of the processes involved in water resources generation and transformation in the inland watersheds, is one important general scientific target of the NSFC Major Plan of “Integrated Research on the Eco-Hydrological Processes of Heihe Basin”. With aims at this scientific target, the proposed research project will carry out a multi-scales and multi-processes study on eco-hydrology in the upper reaches of the Heihe River, identify the key eco-hydrological processes in the study region, develop a distributed eco-hydrological model for this region, and build a data assimilation and uncertainty analysis system for the developed model. Then this model will be used to assess the impacts of climate change and human activity on the runoff in the upper reaches of Heihe River. This study will improve the ability in simulating and predicting the runoff responses to environment changes in this basin, and also to promote the realization of the target of the NSFC Major Plan. This project will focus on the following three major researches: 1) the identification of key eco-hydrological processes and the overall structure designing of eco-hydrological model; 2) the development of distributed eco-hydrological watershed model; 3) the simulation and prediction of the eco-hydrological changes in the upper reaches of Heihe River. Through this study, it is expected to establish a benchmark eco-hydrological model for the mountainous watersheds with arid-cold climate and high elevation, where there are the most complex landscape, closely coupled ecological and hydrological system, and the most comprehensive hydrological processes. Also a breakthrough in the simulation of coupled eco-hydrological processes is expected.