Geophysical Research Abstracts
Vol. 12, EGU2010-2573, 2010
EGU General Assembly 2010
© Author(s) 2010

Risk Evaluation of Water Shortage in Source Area of Middle Route Project for South-North Water Transfer in China

GU Wenquan (1) and Shao Dongguo ()

(1) State Key Laboratory of Water Resources and Hydropower Engineering Science, Wuhan University, WuHan,China(gwquan@163.com), (2) State Key Laboratory of Water Resources and Hydropower Engineering Science, Wuhan University, WuHan,China(dgshao@whu.edu.cn)

water diversion causes changes in the downstream flow regime, which may intensify the crisis of water shortage. The effect of diversion on water shortage depends on the volumes of water transferred and water demand of source area, the upstream flow and the way the reservoir is operated. This paper reports the findings of a study to assess the impact of water diversion from Danjiangkou reservoir on middle and lower Hanjiang River, part of the source area of South-North Water Transfer Project, China. The model consists of three parts: a reservoir inflow and water demand simulation model, a reservoir operation model and a risk evaluation model with uncertainty analysis. Thomas–Fiering model and Mont-Carlo method are performed to simulate monthly reservoir inflow data and a 12-dimensional random vector is used to describe the 12-month water demand in middle and lower Hanjiang River. A self-optimization simulation model (SSM) is established for optimum operation of Danjiangkou reservoir. The model runs several scenarios, including water inflow, water diversion, water demand scenarios, whose output provides valuable information for decision making.