Simulation of Streamflow using a Hydrological Model-Distributed WetSpa (Case study: Navrud Basin)

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Abstract

Rainfall- runoff modeling and river discharge forecasting are an important step toward flood management and control, design of hydraulic structures in basins and drought management. The purpose of this study was simulating the daily flows in the Navrud watershed using WetSpa model. WetSpa is a hydrological- physical model that can predict flood on the watershed scale with different time steps. This model uses topography, land use and soil texture layers and also, the daily meteorological data to predict the flow hydrograph. In this study, the data of 4 stations (Khlyan, Khrjgyl, Gavkhs, Nav) during the water years 2006-2011 were used. 36 months from September 2006 and 36 months from September 2009 to September 2011 were selected for calibration and test of model, respectively. Simulation results of WetSpa model showed that this model simulates river Daily flow using collective measures of 0.63 and 0.61 in calibration and test periods, respectively. According to this result, it can be stated that the model estimates peak discharge and flow volume in both periods very well. Also, this model could simulate well the water balance of Navrud Basin.

Keywords: Daily Flow, the Water balance, WetSpa model, Navrud Basin.

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