Performance Evaluation of the IHACRES Hydrological Model in Wet Areas (Case Study: Navrud Basin, Gillan)

S. H. Sadeghi[1], H. Ghasemieh[1*] and S. J. Sadatinegad[2]

(Received: Jan. 22-2015; Accepted: May 26-2015)

Abstract

Surface runoff is one of the main causes of erosion and loss of soil fertility, sedimentation in reservoirs and reduction of river water quality. Therefore, the accurate prediction of basin response to precipitation events is very important. Hydrological models are simplified views of the actual watershed systems that can help study watershed functions in response to various inputs, and understand hydrological processes better. Due to the variety of Rainfall - Runoff models, choosing a suitable model for the basin is important for water resource planning and management. Thus, the abilities and limitations of basin hydrological models are important to consider in the selection of model. In this study, the performance of IHACRES model in daily runoff simulation of Navroud basin was investigated using evaluation criteria of Nash – Sutcliffe Index (NSH) and the mean total error and the data of Khlyan and Khrjgyl stations during the Water years 2006 - 2011. 36 months from September 2006 and 36 months from September 2009 to September 2011 were selected for calibration and test of model, respectively. Finally, results showed that Nash – Sutcliffe Index and Bias in calibration stage were 0.57 and 8/53, respectively and in verification stage, they were 0.48 and 14/9, respectively. So, the used model has an acceptable accuracy in simulating the studied basin flow.

Keywords: IHACRES Hydrological Model, Navrud Watershed, Daily Flow, Wet Areas.

1. Dept. of Watershed Management, Univ. of Kashan, Kashan, Iran.
2. Dept. of New Energies & Environ., Univ. of Tehran, Tehran, Iran.
*: Corresponding Author, Email: h.ghasemieh@kashanu.ac.ir

[DOR: 20.1001.1.24763594.1394.19.73.5.7]
[DOI: 10.18869/acadpub.jstnar.19.73.73]