Islamic Azad University-Ahar Branch
Geographic Space
An Approved Scientific, Research-based Quarterly

Hamid Nouri[1]
Ali Reza Ildoromi[2]

The Efficiency of Geomorphology and Geomorpho-climatology Instantaneous Unit Hydrograph Models in Estimating Flood Discharges in Ekbatan of Hamedan Watershed

Date received: 21 October 2010 Date accepted: 16 January 2012

Abstract

Forecasting of watershed Hydrologic reaction to rainfall in the form of outlet hydrograph is one of the most important objectives of surface water hydrology in order to manage extreme phenomena, and to create and execute construction programs. The purpose of this research is to investigate the accuracy and precision of the efficiency of geomorphology And geomorpho-climatology instantaneous unit hydrograph models for appointing dimensions of flood hydrograph due to rainfall with determined intensity, duration and to compare them with Nash, Rosso and SCS methods and finally to introduce the most efficient model In Ekbatan of Hamedan

1- Assistant Professor, Department of Range Management, College of Natural Resources, Malayer University, Iran.
2 - Assistant Professor, Department of Range Management, College of Natural Resources, Malayer University, Iran.

[Downloaded from geographical-space.iau-ahar.ac.ir on 2026-11-01]

Watershed. In order to increase the precision and velocity of processes GIS is used and in order to be efficient in precision, MRE and MSE statistical indicators are used. The results show that the efficiency of geomorpho-climatology model ratio to geomorphology, Nash Rosso and SCS are 109/12, 168/56, 137/99, 195/26 percent respectively and geomorphology model ratio to Nash, Rosso and SCS are 156/43, 121/77, 187/23 percent respectively and, Rosso model ratio to Nash and SCS are 164/14, 186/55 percent respectively and Nash model ratio to SCS is 122/24 percent. Therefore, geomorphoclimatology model that is based on geomorphologic and climatic data ratio to geomorphology, Nash, Rosso and SCS can be introduced as the most efficient model for estimating flood discharges.

Keywords: Geomorphology and geomorpho-climatology instantaneous unit hydrograph models, Nash model, Rosso model, SCS model, Hamedan watershed.

[Downloaded from geographical-space.iau-ahar.ac.ir on 2026-11-01]