

Abstract

Development of urban and residential areas in margin of rivers and flood water plains bed without attention to hydrologic and hydraulic condition that is dominated on upper watershed and river causes danger increase of flood water. Therefore, flood water study for planning, optimum exploitation and management of this natural event is one of the important problems in water resource management. Considering to Iran geographic condition and locating in semi-arid and arid climate, having information and adequate data is often possible. Therefore, in this ground different models for flood water resembling, is presented that Hydrologic model HEC – HMS is the most applying model. On the other hand, having information and adequate data in this matter can increase accuracy of implementation plans. Present study proceeds to land use change and its effect on flood water incidence in Birjand watershed is located in east of country, in area of 57.96 KM^2 , in geographic limit $53^{\circ} 09'$ to $58^{\circ} 09'$ of east longitude and $32^{\circ} 56'$ to $33^{\circ} 32'$ of north latitude by using Hydrologic model HEC-HMS and geographic information system. This research tries to study land set satellite images and aerial photos, the rate of land use change during years of 1979, 1987 and 2010 years in this watershed and determine the effects of this use change on flood water increase. For this work, in the first stage, satellite images were interpreted and aerial photos were proceed and land use changes of watershed was specified and the amount of soil's CN was calculated. Then, with the help of HEC_ HMS, flood water rain phenomenon is resembled in this watershed and the amount of flood water peak discharge with different returns period in every period obtained and finally watershed flood hydrographic was estimated and with the help of SPSS software analyzed and the result showed that with increase of urban impenetrable levels in the study area, discharge rate of flood water peak and run off volume has had 44.47% increase.

Key words: Land use change, climax discharge, remote sensing, HEC – HMS model, Birjand watershed



University of Zabol

Faculty of Natural Resources
To Department of Range and Watershed Management

**The Thesis Submitted to fulfill Degree of M.Sc
in the field of Watershed Management**

Effect of Land Use Change on Hydrological Characteristics of Surface Water Birjand Watershed

Supervisors:

Dr. A. Shahriyari

Dr. A. Fakhire

Advisors:

Dr. M. Azarakhshi

Dr. F. Hasanpoor

By:

S. BARZGAR

November ۲۰۱۲