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Investigating the rainfall-runoff relationship in several watersheds of Balochistan

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Abstract

These days, it is very important to estimate the runoff in each region in order to accurately monitor and detect the changes in surface water resources and its effect on groundwater resources, as well as the management of integrated water resources. Therefore, many methods and models are presented and used to estimate runoff. One of these models is the SCS-CN experimental model of the United States Department of Soil Conservation Service, which was noticed because of its simplicity and widespread use. In this research, this model was used in order to estimate the runoff and calculate the relationship between rainfall and runoff in four watersheds of Kehir, Pishin, Pir Sohrab and Bahuklat in Sistan and Baluchistan province of Iran. After examining the land use maps and soil type of the studied areas, the values of the infiltration curve number (CN) were extracted from the reference tables and used to calculate the storage capacity, watershed moisture and runoff amount. The results showed that the average runoff of Kehir, Pishin, Pir Sohrab and Bahuklat catchments were: 4.40, 4.13, 7.66 and 10.03 cubic meters per second respectively. The calculated values compared to the observed runoff show that calculated runoffs are much less than that of observed ones. The differences between calculated and observed values are due to non-homogeneous observed data, inaccurate and incomplete data of runoff.

Keywords: rainfall-runoff, SCS curvr number method (CN), catchment area.