The Temporal Scale Effects of Rainfall on Flood Hydrograph in Takht-e-Malek Watershed

Abstract

Application of rainfall- runoff methods was used for unavailability to acdual pattern of time dispersal of rainfall and estimation amount it. These estimation amount usually are very alternative. This reaserch was done on watershed area of Takhte Malek. This area is about 168 Km2 and it is one of important areas in Balouchestan region. In this research was used from mathematical model HEC-HMS. In beginning, among rainfall in 1997- 2005 , 6 showers according to each other was selected. So that considerd 3 showers for calibration and 3 showers for validation. In calibration stage, rainfall in range of 15 minute and its flood- water calibrated with HEC-HMS model. Interrace methods of direct runoff measurement in model of SCS and CLARK with different target function in model of HEC-HMS was calibrated and validated. Then by model validated average of output cofficiencies for 3 shower latter. In final stage evaluated 3 showers early in time scale 15 and 30 minute and 1,2.3 and … hours.

After study of output graphs from model and use of testes RME, RRMSE, CRM and d , the results showd that among methods of direct runoff measurement, method of CLARK is the best hydrograph and among abjective functions, peak Weighted Root Mean Square Error is the best objective function in this watershed area. The result of validated is shower this model ability in simulation of rainfall- runoff proces in this watershed. With attention to output graph of model and RME of volume and peak of flood, can get result that using rainfall with short continuous time is usefull is disining hydraulic and hydrolojic, and using more than one houre continuous can make calculated a significant error in the desigening building and calculated of discharje and peak time of flood.

Key words: Temporal Scale Of Rainfall, Flood Hydrograph, Takhte-Malek Watershed, HEC-HMS

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