Estimation of evapotranspiration for a small catchment as an input for rainfall-runoff model

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One of the methods for determination of floods is application of mathematical rainfall-runoff models. Usually, it is possible to distinguish a number of steps for calculation of hydrograph of the flood. The first step is the calculation of effective rainfall which is a difference between total rainfall and losses (amount of water which do not participate in flood formation like interception, infiltration, evaporation etc.) . One of the most common method for determination of effective rainfall is a USDA-SCS method were losses are connected with type of the soils, vegetation and soil moisture. Those factors includes the Curve Number factor (CN). However there is also different approach for determination of losses were soil moisture is calculated as a function of evapotranspiration. In this study, the meteorological data from year 2002-2012 were used for determination of daily evapotranspiration (ETo) by use of FAO Penmana-Monteitha model for Zagożdżonka river catchment in central Poland. Due to gaps in metrological data, some other simpler methods of ETo calculation were applied like Hargraves model and Grabarczyk (1976) model. Based on received results the uncertainty of ETo was calculated.

Grabarczyk S., 1976. Polowe zużycie wody a czynniki meteorologiczne. Zesz. Probl. Post. Nauk Rol. 181, 495-511