

Calibration and validation of soil water assessment tool for Poondi Micro-Watershed

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ABSTRACT

The sustainable management of watershed requires an accurate estimate of different hydrological parameter affecting the watershed. Surface runoff is an essential feature of watershed's hydrological process. The evaluation runoff volume of a watershed can be helpful for analyzing the flood risk and efficient design of hydraulic structures. The present study focus on modeling of rainfall runoff using ArcSWAT model where soil water assessment tool (SWAT) model was incorporate into ArcGIS software for Poondi Micro-Watershed, Thiruvallur, Tamil Nadu. The validation and calibration and of ArcSWAT version was done with SUFI-2 within SWAT-CUP for every month time periodic. And the calibration in the model was carried out during the years 2007 to 2014 and validated for the period of 2015–2018. The Nash–Sutcliffe value (NS) and determination in the co-efficient (R^2) are used to analyze in the correlation between the design model calibration and validation and it shows significant values greater than 0.70 in both the cases. Overall the performance the SWAT model was good and can be used for simulation of runoff.

Keywords: ArcSWAT software; Calibration; SWAT-CUP software; Runoff; Validation.

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