Geophysical Research Abstracts
Vol. 19, EGU2017-15891-2, 2017
EGU General Assembly 2017

Estimation of reservoir inflow in data scarce region by using Sacramento rainfall runoff model – A case study for Sittaung River Basin, Myanmar

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The Sittaung River is one of four major rivers in Myanmar. This river basin is developing fast and facing problems with flood, sedimentation, river bank erosion and salt intrusion. At present, more than 20 numbers of reservoirs have already been constructed for multiple purposes such as irrigation, domestic water supply, hydro-power generation, and flood control. The rainfall runoff models are required for the operational management of this reservoir system. In this study, the river basin is divided into (64) sub-catchments and the Sacramento Soil Moisture Accounting (SAC-SMA) models are developed by using satellite rainfall and Geographic Information System (GIS) data. The SAC-SMA model has sixteen calibration parameters, and also uses a unit hydrograph for surface flow routing. The Sobek software package is used for SAC-SMA modelling and simulation of river system. The models are calibrated and tested by using observed discharge and water level data. The statistical results show that the model is applicable to use for data scarce region.

Keywords: Sacramento, Sobek, rainfall runoff, reservoir