

Estimation of flow path in headwater area, using hourly resolution SWAT Model analysis

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This study aimed to compare the water budgets of two headwater areas with different geological conditions using the SWAT model. The simulation results show that NS has been obtained 0.54 and 0.75 respectively during the calibration and validation period in Akamatsu area, and Shimo-akamatsu area result in NS 0.70 and 0.54 respectively in those two periods. Based on the results of the water budget in these two areas, we found that the average annual contribution of deep aquifer recharge as a relative percentage to precipitation in Akamatsu where the granites are widely distributed is less than that in Shimo-akamatsu where rhyolites are widely distributed. And the variation of lateral flow and groundwater in both study areas are also consistent with their geology. It shows that the SWAT hourly simulation is reliable in estimating the water budget for different geological conditions and can be effectively used as a water management policy for the both geologic conditions.

Keywords: SWAT, headwater, hourly simulation, runoff, rock