



Assessing watershed health with a physically based hydrologic and water quality model

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The purpose of this study is to identify healthy watersheds and characterize relative watershed health in a large forest-dominated basin. Water balance and water quality for watershed health assessment was investigated for Geum River Basin in South Korea using Soil and Water Assessment Tool (SWAT), which is a physically based hydrologic and water quality model. In order to predict the reliable available water quantity of the basin, The SWAT model was established by dividing the basin into 78 subbasins as standard watersheds and the water resource facilities of 2 multi-purpose dams and 3 multi-function weirs were considered. The SWAT model was spatially calibrated (2005-2009) and validated (2010-2015) using daily observed dam and weir inflows, evapotranspiration, soil moisture and water quality data. For the calibrated model, patterns and simulations of hydrology and water quality will be evaluated by analyzing the hydrologic responses (infiltration, evapotranspiration, streamflow, percolation, soil moisture, baseflow, and groundwater recharge) and influences of water quality (sediment, TN, and TP) change. The watershed analysis will be carried out to assess the watershed health.