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INTEGRATED HYDROLOGICAL WATERSHED MODELING INCLUDING SPATIOTEMPORAL PARAMETERIZATIONS

NAWAHDA AMIN
Water Resources Research Center, Kyoto University
Uji, Kyoto 611-0011,Japan

TOSHIHARU KOJIRI
Water Resources Research Center, Kyoto University
Uji, Kyoto 611-0011,Japan

A method with multi-layer and mesh-typed runoff model using Hydro-BEAM (Hydrological River Basin Environment Assessment Model) is proposed to analyse the integrated hydrological processes. The spatiotemporal simulation is calculated with the kinematic wave model for surface runoff, Richard's equation for unsaturated subsurface flow and the unconfined flow for groundwater. The initial loss of rainfall due to interception by depression storage reprocess is considered here. Moreover the basin division and land use dynamics are introduced to encounter reservoir operation and land utilization with human activities. The proposed model is calibrated for different initial conditions and parameters, and applied into the Yasu River to verify the dynamic linkage between surface and groundwater.

Keywords: Distributed runoff model, Parameterization, Saturated and unsaturated flow, Spatiotemporal distribution.