Effects of ILFs on DRAM algorithm in SURR model uncertainty evaluation caused by interpolated rainfall using different methods

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Abstract

Evaluating interpolated rainfall uncertainty of hydrological models caused by different interpolation methods for basins where can not fully collect rainfall data are necessary. In this study, the adaptive MCMC method under effects of ILFs was used to analyze the interpolated rainfall uncertainty of the SURR model for Gunnam basin, Korea. Three events were used to calibrate and one event was used to validate the posterior distributions of unknown parameters. In this work, the performance of four ILFs on uncertainty of interpolated rainfall was assessed. The indicators of p_factor (percentage of observed streamflow included in the uncertainty interval) and r_factor (the average width of the uncertainty interval) were used to evaluate the uncertainty of the simulated streamflow. The results showed that the uncertainty bounds illustrated the slight differences from various ILFs. The study confirmed the importance of the likelihood function selection in the application the adaptive Bayesian MCMC method to the uncertainty assessment of the SURR model caused by interpolated rainfall.

Keywords: Uncertainty of interpolated rainfall, SURR model, Informal likelihood functions, DRAM algorithm, Bayesian MCMC method.

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