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Effect of observational uncertainty on parameter estimation of hydrological model

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Every prediction is associated with certain uncertainty. Quantification of these uncertainties is the prime importance in real world forecasting. In this study an attempt has been made to study uncertainty associated with hydrological modelling, using Depth function. A Monte Carlo Simulation was done with uniformly distributed parameters. The rainfall, input to the model was altered by adding error and different realisation was made. The parameters which are good for different realisation are more likely to be good parameters sets. For each parameter sets depth was calculated. A Likelihood is assigned to each parameter sets based on depth of the parameters and its performance. The higher depth and frequency of being good get higher likelihood. Based on this distribution was analysed. This methodology was demonstrated using HYMOD conceptual model on upper Necker catchments of South West Germany. It has been found that likelihood assigned is reasonable in quantifying uncertainty.