Calibration - Beyond GLUE: Sampling the parameter space -Optimization and Formal Bayesian analysis

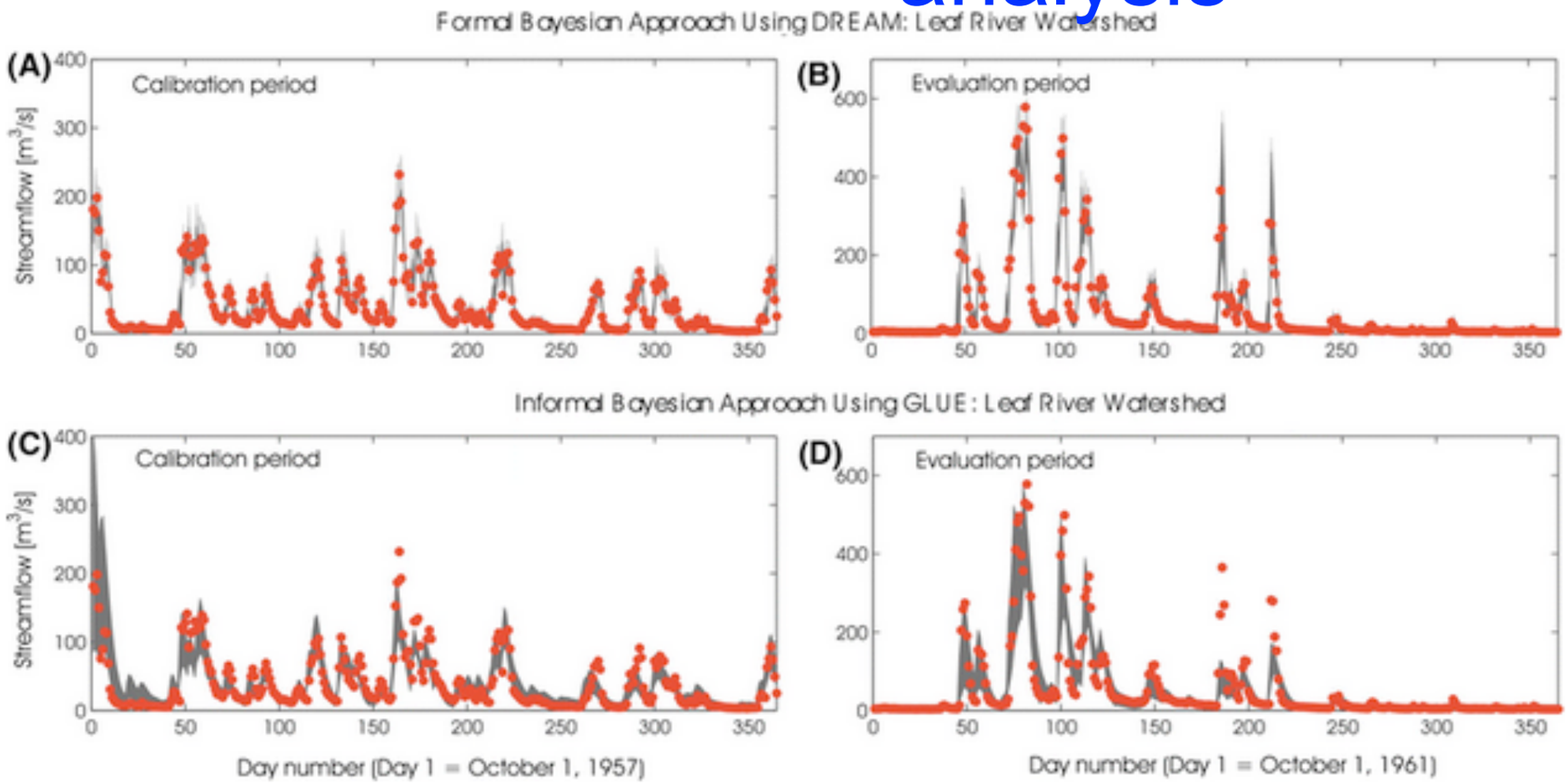


Fig. 5

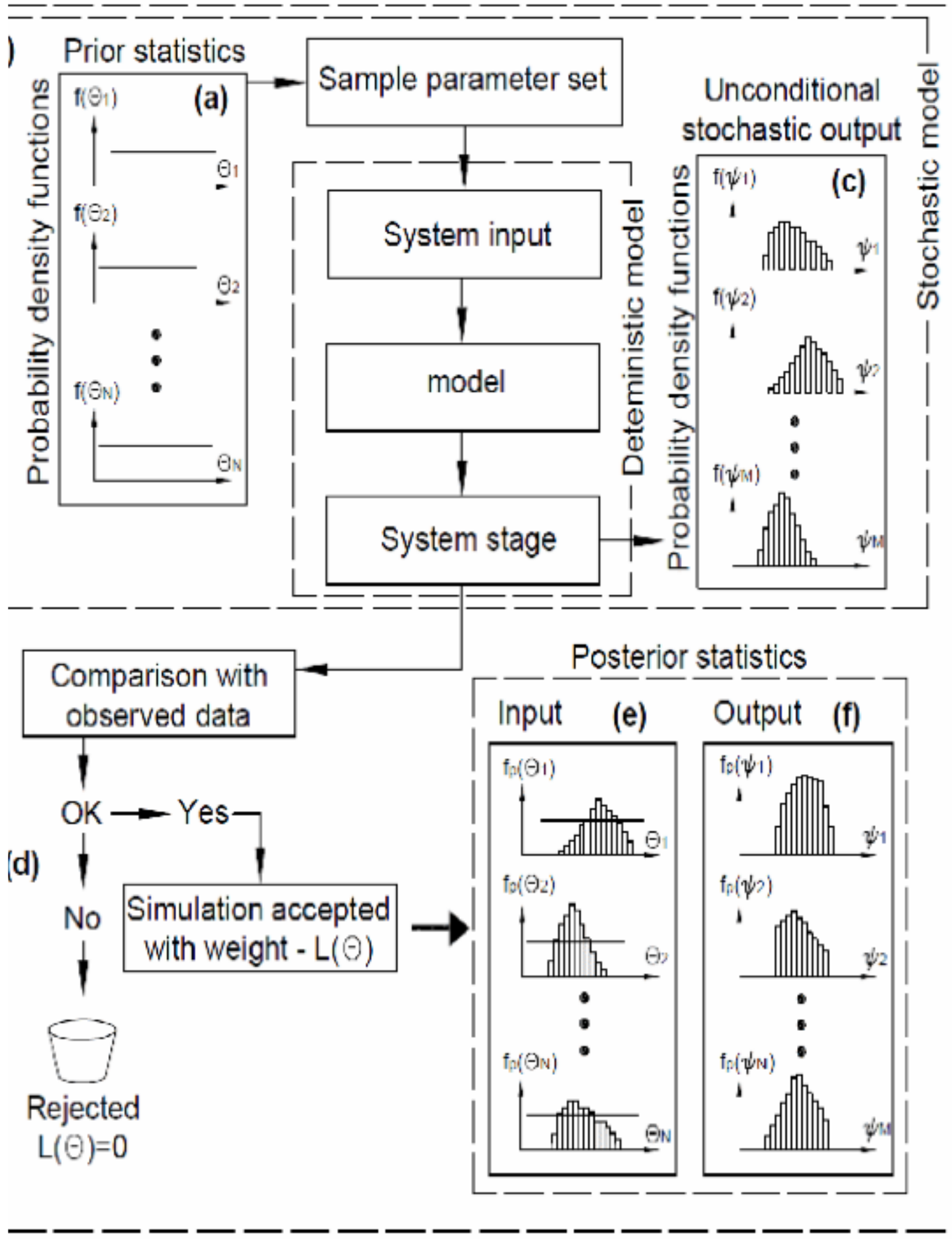
Streamflow prediction uncertainty ranges derived with DREAM (*top panels*) and GLUE (*bottom panels*) for a representative portion of the calibration (*left column*) and evaluation period (*right column*) for the Leaf River watershed. In each DREAM graph, the *dark gray* region represents the 95% confidence intervals of the output prediction due to parameter uncertainty, whereas the *light gray* region represents the additional 95% ranges of the prediction uncertainty. For GLUE the 95% prediction quantiles are presented. The *solid circles* denote the streamflow observations

J.A. Vrugt, C.J.F. ter Braak, H.V. Gupta, B.A. Robinson Equifinality of formal (DREAM) and informal (GLUE) Bayesian approaches in hydrologic modeling? Stochastic Environmental Research and Risk Assessment, 44 (2008)http://dx.doi.org.proxy.library.ucsb.edu:2048/10.1007/s00477-008-0274-

Generally found similar results using GLUE and formal MCMC calibration and uncertainty estimation

GLUE: Generalized Likelihood Uncertainty Estimation

K. Beven and A. Binley, “The future of distributed models: model calibration and uncertainty prediction,” Hydrological Processes, vol. 6, no. 3, pp. 279–298, 1992. View at Scopus



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