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S. Lakshmivarahan (varahan@ou.edu), School of Computer Science, University of Oklahoma, Norman, OK 73019, and **S. Crowell*** (scrowell@ou.edu), Department of Mathematics, University of Oklahoma, Norman, OK 73019. *Detection and Correction of Forecast Bias Due To Parameter and Initial Condition Errors.*

We present a variational framework for detecting biases and errors in model forecast due to unknown errors in initial conditions and model parameters. The model output at a particular time is compared to a state observation, and the difference is explained to first or second order by variations in parameters and initial conditions. Once these explanatory variations are found, the original model can be corrected to yield a forecast error of approximately zero. (Received September 17, 2008)