1107-15-300 **Christopher Jones*** (ckrtj@unc.edu) and **Naratip Santitissadeekorn** (ckrtj@unc.edu). *A Bimodality Trap in Model Projections.*

We expose a phenomenon that can occur in the process of joint state and parameter estimation. Such estimation is crucial in tuning parameters for climate models and offline parameterizations used in the models. We show how a bimodal distribution can temporarily appear during this process and that a scheme relying on linear and Gaussian approximations may cause it to get trapped in the wrong mode and hence lead to faulty estimation. We propose a practical and effective resolution using a two-stage filtering process. (Received January 18, 2015)