



## **Assessment of Forecast Sensitivity to Observation and Its Application to Satellite Radiances Assessment**

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The Forecast sensitivity to observation provides practical and useful metric for the estimation of observation impact without conducting computationally intensive data denial experiments. Quite often complex data assimilation systems use a simplified version of the forecast sensitivity formulation based on ensembles. In this talk, we first present the comparison of forecast sensitivity for 4DVar, Hybrid-4DEnVar, and 4DEnKF with or without such simplifications using a highly nonlinear model. We then present the results of ensemble forecast sensitivity to satellite radiance observations for Hybrid-4DEnVar using NOAA's Global Forecast System.