



## **Adaptive observations and ensemble filtering**

**C. Johnson** (1,2)

(1) National Center for Atmospheric Research, Colorado, USA, (2) Now at the Met Office, UK  
(cjohnson@ucar.edu)

Adaptive observation strategies are used to determine the regions of the atmosphere that are important to observe, for example in placing targeted observations and in satellite data thinning. Such strategies must consider which regions of the atmosphere are dynamically sensitive and also consider that the adaptive observations are subsequently assimilated into a forecast model using statistical information. For example, in the data assimilation method known as the *ensemble Kalman filter*, observations are combined with an ensemble of forecasts to generate ‘flow-dependent’ analysis-increments.

Measures for the *information-content* of observations are currently used in determining optimal subsets of satellite channels. In this presentation, we investigate whether information-content based strategies could also be useful for numerical weather prediction. An ensemble Kalman filter is applied to a barotropic vorticity equation model and used within identical twin experiments. The optimal observation configurations are selected using the singular values of the observability matrix. The optimal configurations are verified by determining the effects of a variety of observation configurations on forecast errors.