

CTB *Seminar*

10:00-11:00am, 18 May 2015

NOAA Climate Test Bed Seminar Series

Speaker:

Prof. Eugenia Kalnay
Dept. of Atmospheric & Oceanic Sciences
University of Maryland, College Park, MD

Time:

10:00-11:00am, 18 May 2015

Location:

National Center for Weather and Climate
Prediction Conference Center
5830 University Research Court
College Park, MD 20740

Remote Access:

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Conference call: 1-888-590-4933

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New Applications of Data Assimilation to Climate Prediction: Strongly Coupled Ocean-Atmosphere Data Assimilation, Model and Observa- tion Improvements, and Surface Flux Es- timations

The data assimilation cycle used for numerical weather prediction (NWP) interpolates a short model forecast and the new observations to create new initial conditions (analysis) for integrating the model through the next cycle. Thus, improvements in NWP have been considered to require improvements in the model, observing systems and in the statistical interpolation scheme. Recently, however, it has become clear that with advanced methods of data assimilation, such as 4DVar and EnKF, the analysis cycle can be also applied in new areas: improving the models, observations, assimilation of new observing systems, and flux estimations. It is plausible that these may become the main tools to develop and improve Earth System models, observation forward models, quality control, and estimation of surface fluxes. In this talk we will focus on applications that are relevant for improving climate prediction.

We will present examples of these new applications: Strongly coupled ocean-atmosphere data assimilation, Optimal estimation of model parameters or surface fluxes by state augmentation, model improvements through the use of analysis increments, and the use of Ensemble Forecast Sensitivity to Observations (EFSO) to estimate the optimal observation error covariance R and detecting flawed observations in the ocean observing system.

