DART: New Research Using Ensemble Data Assimilation in Geophysical Models


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1. DART...

DART is developed by the Data Assimilation Research Testbed (DART) at NCAR. DART is a research tool for ensemble data assimilation, which has been developed since the late 1990s. It is designed to integrate with and validate the output of any non-linear, non-hydrostatic, atmospheric, oceanic, or land-atmospheric model. DART provides a framework for assimilation of observational data, including satellite data, radar products, and in-situ measurements. DART is currently used in a wide range of research applications, including weather forecasting, climate modeling, and oceanography.

2. OCO-2 Precipitation Water MSSE

Stephanie Wuertz (wuetz@ucar.edu)

In this study, a 15-member ensemble assimilation experiment of assimilating CO observations from OCO-2 into the Community Atmosphere Model (CAM) is performed. The ensemble assimilation results show that the assimilation has effectively moved the ensemble mean towards the truth, reducing the root mean square error (RMSE) of the assimilation.

3. CAM-Chem and MOPITT

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In this study, a 15-member ensemble assimilation experiment of assimilating CO observations from OCO-2 into the Community Atmosphere Model (CAM) is performed. The ensemble assimilation results show that the assimilation has effectively moved the ensemble mean towards the truth, reducing the root mean square error (RMSE) of the assimilation.

4. Teleconnections in WACOM

Lisa Neef (lisa.neef@ucar.edu)

In this study, a 15-member ensemble assimilation experiment of assimilating CO observations from OCO-2 into the Community Atmosphere Model (CAM) is performed. The ensemble assimilation results show that the assimilation has effectively moved the ensemble mean towards the truth, reducing the root mean square error (RMSE) of the assimilation.

5. 6. High Resolution Ocean Studies

Marine processes play a crucial role in understanding and predicting climate variability and change. In this study, a 15-member ensemble assimilation experiment of assimilating CO observations from OCO-2 into the Community Atmosphere Model (CAM) is performed. The ensemble assimilation results show that the assimilation has effectively moved the ensemble mean towards the truth, reducing the root mean square error (RMSE) of the assimilation.

6. Solar Induced Fluorescence in CLM

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Further Information

For more information about DART, please visit the DART website (http://www.doe.amsl.noaa.gov). DART is available for use by researchers and students worldwide. DART is also being used in conjunction with various NASA and NOAA projects to advance our understanding of the earth system.