Making Reanalysis Available through the Earth System Grid Federation

Gerald L. Potter

NASA Goddard Space Flight Center

Dean N. Williams

Lawrence Livermore National Laboratory

We propose that the available reanalysis products (CFSR, JRA, MERRA, ECMWF Interim, etc.) be formatted and organized in a similar way and distribution throughout the climate research community by means of the Earth System Grid Federation (ESGF). By using the ESGF, the various reanalysis products would be presented in the same way as the Coupled Model Intercomparison Project phase 3 (CMIP3) and the subsequent CMIP5 projects. There are several benefits of making the availability of these data uniform:

1) Researchers will easily be able to pick any combination of the reanalysis products available from different centers.

2) The common access will allow researchers to compare reanalysis products and/or prepare ensembles of various fields.

3) Although various reanalysis products have been use by the climate research community for years, providing them with access identical to the CMIP3 and CMIP5 will invite new users that haven't previously been accustomed to using reanalysis in their research.

Contributing authors to the IPCC AR4 made extensive use of the CMIP3. CMIP5 will be an integral part of the IPCC AR5. One of the reasons the CMIP3 was so successful was that the model simulation output was formatted and distributed through the ESGF in an equivalent manner, with standardized variable names and metadata. Researchers using this data have written more than 1,000 papers largely because the data was standardize and easily accessible. In addition to the model output prepared for the CMIP5 and the IPCC AR5, a group at NASA has added satellite observations to the ESGF and has formatted and documented the data in a similar manner to the models. This new project "obs4MIPS" provides satellite observations and documentation in a user-friendly format allowing researchers access to the most recent and relevant data versions.

Beginning with monthly averages, the addition of a suite of reanalysis products would greatly enhance the data availability to the climate research community. This effort has already been initiated at NASA's GSFC where we have prepared monthly averaged MERRA fields and have matched the standardized model output variable names and formats with CMIP5 published on the ESGF.

Corresponding Author:

Name: Gerald L. Potter
Organization: NASA Center for Climate Simulation (NCCS)
Address: NASA Goddard Space Flight Center (GSFC:606.2)

8800 Greenbelt Road
Greenbelt, MD 20771
Email Address: gerald.potter@nasa.gov