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NOAA's National Climate Model Portal and the Reanalysis.org Project

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In pursuit of understanding environmental change and impact, scientists and decision makers are challenged by the overwhelming plethora and volumes of data associated with climate variability studies. In response to this challenge, NOAA is developing the National Climate Model Portal (NCMP) to optimize operational access to the next generation, high-resolution weather, reanalysis, and climate models. To reach goals set by this diverse community of users, NCMP is advancing both a research component to better understand the needs of the research community. Under a the new NOAA Cooperative Institute for Climate and Satellites (CICS) in Asheville, North Carolina NCMP will advance research collaborations to fulfill a National Academy of Science, Board of Atmospheric Sciences and Climate (BASC) recommendation to advance multi-model ensemble diagnostics. Further, NCMP will provide model diagnostic tools and a software repository to advance statistical and dynamic downscaling and other user needs at the Regional level and below. NCMP will advance the interoperable and distributed data access philosophy currently employed in the NOAA Operational Model Archive and Distribution System (NOMADS) [Rutledge et al., 2006] such as the Open Geospatial Consortium (OGC) standards, the "Climate and Forecast" (CF) metadata vocabulary, including NetCDF-CF; and the OPeNDAP transport and access standard.

NCMP will be an initial access point to NOAA's suite of model and reanalysis data sets under the emerging NOAA Climate Service Portal (NCSP). Also- a close collaboration with the developing National Climate Prediction and Projection Center prototype (NPCC) at NOAA's Earth System Research Laboratory (ESRL), NCMP will support access to very large data to facilitate downscaling for regional and local users. Finally, NCMP will support intercomparison of model simulations and observations and develop diagnostics tools that will be made available for use for the Intergovernmental Panel on Climate Change (IPCC) Climate Model Intercomparison Project, phase 5 (CMIP-5) Fifth Assessment Report (AR5). NCMP is also working to provide downscaling and data access support under a close collaboration with the next U.S Climate Assessment.

To reach our varied community of users, NCMP will be designed to convey key aspects of complex scientific data in a manner accessible and understandable to both scientists, and non-specialists alike. The NCMP will be designed with three main user groups in mind: 1) the lay person looking for information on how climate will affect their lives in the short-term (seasonal), or long-term (decadal); 2) the sectorial business communities, including energy, water, agriculture, transportation user groups and other regional and local domain specific State and Local users of model data; and 3) the modeling and observational scientific communities.

The NCMP design philosophy will leverage across existing partnerships, such as the Department of Energy's Earth System Grid Federation (ESGF) led by the Lawrence Livermore National Laboratory [Williams et al., 2009]. NCMP will include a Geographic Information System (GIS) component including ESRI's GeoPortal Toolkit; and efforts underway with NOAA's Unified Access Framework (UAF). NCMP will leverage existing partners and capabilities such as the ESGF and the replicated Intergovenmental Panel on Climate Change (IPCC) Climate Model Inter-comparison Project Phase 5 multi-model archive housed at the Program for Climate Model Diagnosis and Intercomparison (PCMDI) at LLNL.

The data sets to be directly available or accessible thru ESFG under NCMP include the suite of NOAA's next generation climate reanalysis products including 1) the NCEP Climate Forecast System Reanalysis and Reforecast (CFS-RR); and 2) ESRL's Twentieth Century Reanalysis Project (20CR), reanalysis dating from 1850 to the present. Under ESGF all or subsets of the entire CMIP5 data holdings will be searchable and available for access. Finally, NOAA's numerical weather prediction model output and ensemble based models generated at the National Centers for Environmental Prediction (NCEP) will also be made available as a service under NCMP.

References:

Rutledge, G.K., J. Alpert, and W. Ebuisaki, 2006: NOMADS: A Climate and Weather Model Archive at the National Oceanic and Atmospheric Administration. *Bull. Amer. Meteor. Soc.*, **87**, 327–341.

Williams, D. N., and Coauthors, 2009: The Earth System Grid: Enabling Access to Multimodel Climate Simulation Data. *Bull. Amer. Meteor. Soc.*, **90**, 195–205.