

NOAA/National Model Archive and Distribution System (NOMADS), past, present and future

Justin Hnilo[†]; Jeff Budai; D. Michael Grogan; Glenn Rutledge; David Actur

[†] NCDC/CICS-NC, USA

Leading author: jay.hnilo@noaa.gov

The National Operational Model Archive and Distribution System (NOMADS) is a Web-services based project providing both real-time and retrospective format independent access to climate and weather model data. NOMADS was established to specifically address the growing need for this remote access to high volume numerical weather prediction and global climate models and data and to facilitate climate model and observational data intercomparison issues. Currently NOMADS provides open access to existing data that is over 400TB of gridded model data, from numerical weather prediction models, such as the Global Forecast System (GFS), to new reanalysis datasets such as the Climate Forecast System. Newer reanalysis data such as the Coupled Climate Forecast System Reanalysis and Reforecast (CFSRR) dataset and the Climate Prediction Center Reanalysis (CPCR), which is a long time series historical upper-air reanalysis (1850 to Present) also known as CFSR "lite". Additionally we are adding the 20th Century Reanalysis Project, a surface pressure historical reanalysis running at NOAA's Earth System Research Laboratory (ESRL) as well as the complete NCEP/NCAR and NCEP/DOE reanalysis data. Not only reanalysis data is being added but, many new, multi-terabyte gridded data sets are planned for archival and access. With these additions it is projected that NOMADS will soon approach 1PetaByte (PB) (1,000 Terabytes) of openly available data. As a measure of NOMADS success in FY2010 NOMADS served 83,000 distinct hosts, had ~125 million successful requests and had a one day record download of 4.9TB. Given the success of NOMADS we have initiated the National Climate Model Portal (NCMP) which will leverage existing resources associated with NOMADS to provide a unified and consistent suite of climate information. NCMP, will emphasize distributed access, interoperability using format neutral open web based standards and tools, such as Open Geospatial Consortium (OGC) cataloguing, Web Coverage Service, Web Map Service, and others. NCMP will be developed in close coordination with the NOAA Climate Service Portal (NCSP) and will serve as an on-line resource to both improve models for modelers, and to convey key aspects of complex scientific data in a manner accessible to both climate and weather modelers and to non-specialists or other particular user communities.