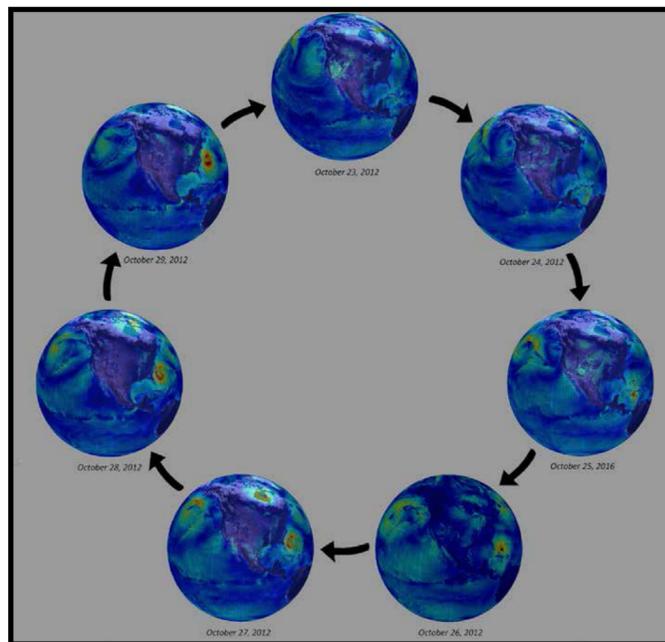




DeMISTifying Climate Informatics: Visualizing Tomorrow's Forecasts Today with Web World Wind

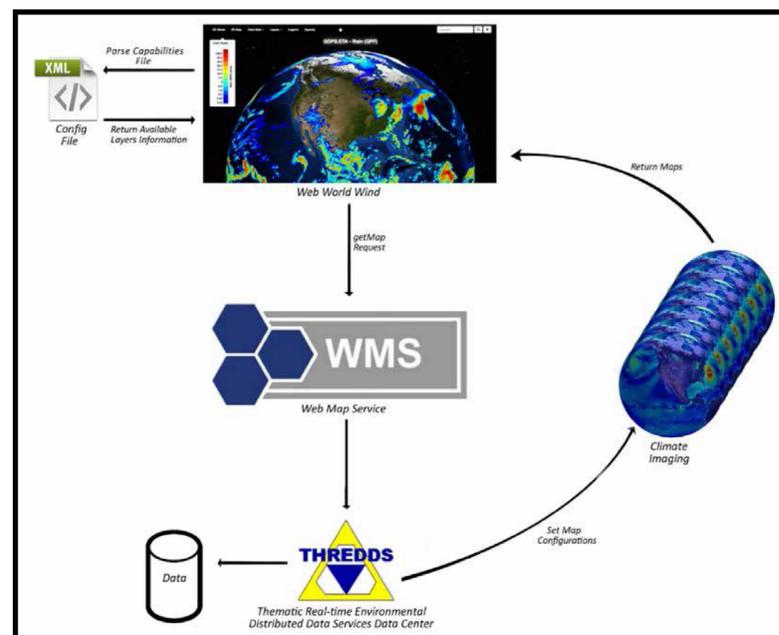


This 7-day wind forecast cycle shows Hurricane Sandy during October 23–29, 2012.
Ben Bledsoe, NASA/Goddard

Developing a rapid and more intuitive means of displaying large-scale simulated atmospheric data will help NASA researchers quickly view model output and improve their understanding of our planet's ever-changing weather and climate. Traditionally, the major hurdle to displaying weather data over a web service has been the sheer amount of data, which inhibits interactive visualization through web browsers. To overcome this barrier, the NASA Center for Climate Simulation (NCCS) has developed an instance of Web World Wind (WWW) working in conjunction with the Web Map Service (WMS) and the Thematic Real-time Environmental Distributed Data Services (THREDDS) Data Server to provide a more logical display of climate informatics.

- Developed by NASA, WWW enables rapid visualization of high-resolution atmospheric data on an interactive 3D virtual globe or a 2D map. Users can easily access it through any web browser.
- WWW makes WMS queries to the THREDDS Data Server (TDS), which can store simulation data in various file types and applications, creating a centralized data library that can be easily accessed and interpreted by WMS protocols.

This architecture diagram depicts Web World Wind and its components, in conjunction with the Web Map Service and THREDDS Data Server.
Ben Bledsoe, NASA/Goddard



The NCCS has enabled several of NASA's Global Modeling and Assimilation Office (GMAO) datasets to be visualized through WWW, including the current Forward Processing model that provides a 25-kilometer (km) resolution global forecast over a 7-day period. In addition, the NCCS has worked closely with the GMAO to display both a 12-km downscaled forecast (~300 million grid points) and an experimental 6-km downscaled forecast (~1.2 billion grid points) using updated two-moment microphysics. Future development to the WWW front end will incorporate a vast collection of reanalysis data (MERRA/MERRA-2) that will allow users to display imagery from the past few decades.

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