

NCCS Snapshot

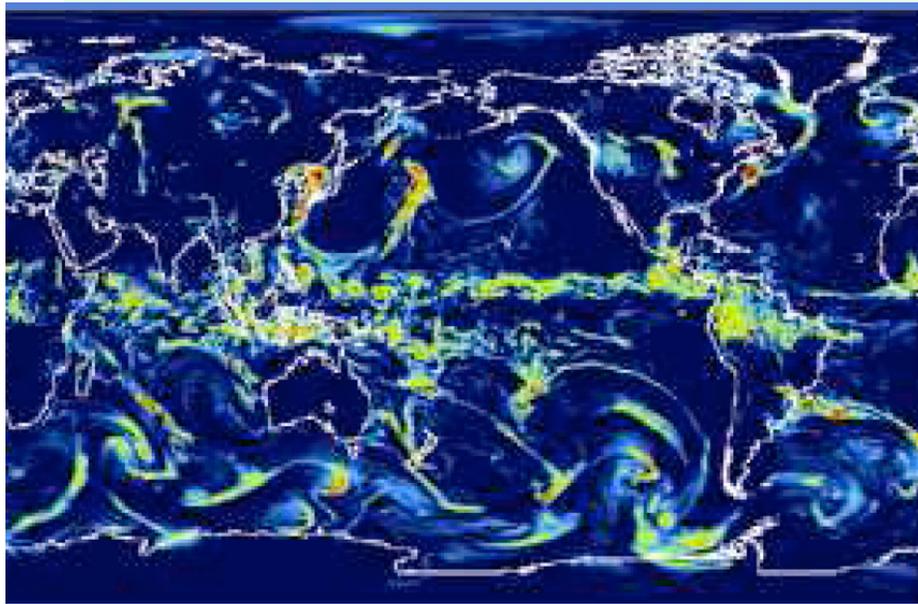
The Week of December 3, 2007

NATIONAL CENTER
FOR COMPUTATIONAL SCIENCES



Oak Ridge National Laboratory
U.S. Department of Energy

NOAA Calls on DOE Supercomputers to Simulate Climate, Weather



At 25-km resolution, we can study the statistics of tropical cyclones under climate change.

“DOE’s proposal to make available the Leadership Computing Facility for this project provides an unprecedented match between capability computing resources and a state-of-the-art model.”

Venkatramani Balaji, NOAA’s Geophysical Fluid Dynamics Laboratory, Princeton University

High-resolution models may improve regional and long-term forecasts

- **The National Oceanic and Atmospheric Administration (NOAA) is using DOE supercomputers to increase its predictive power when it comes to weather and climate**
- **The power of the machines could lead to more sophisticated models for predicting long-term climate variation and severe weather events, saving lives and dollars**

ORNL Successful at SC07

- ORNL's Becky Verastegui was the General Chair of the Conference, and several ORNL researchers served in key committee positions
- The organization's booth featured several keynote speakers and all-electronic content displaying the latest scientific breakthrough
- The booth also introduced the National Institute for Computational Sciences, a collaboration between the University of Tennessee and ORNL



Laboratory front and center at premier supercomputing conference

Jaguar Upgrades Begin in December



New system to be capable of 275 teraflops

- ORNL's Jaguar supercomputer will soon get another boost as upgrades to the system make it capable of up to 275 trillion calculations a second (275 teraflops)
- The upgrade will replace nearly 8,000 dual-core processors with 2.2-gigahertz AMD quad-core processors, bringing the system to more than 31,000 processing cores in 84 cabinets

Forum to Upgrade MPI Standard

- Rich Graham, of the NCCS Technology Integration Group, is leading an effort to update the decade-old Message Passing Interface (MPI) standard for highly parallel computing
- MPI handles data transfer and dynamic-process control for parallel computers
- Graham's group will continue meeting every eight weeks over the next two years to create versions 2.1, 2.2, and 3.0 for the standard
- The group expects to complete the three-step upgrade process by 2010, voting in any agreed-upon corrections and changes as the process proceeds

Facelift due by 2010

NCCS Holds Blue Gene/P Workshop

- NCCS recently held a workshop to educate users on the finer points of its newly-acquired IBM Blue Gene/P supercomputer
- The workshop introduced attendees to the architecture design, programming environment, and possible applications of the Blue Gene/P System

“The workshop was well attended, and all of the participants were eager to hear what the speaker had to say.”

Bobby Whitten, NCCS User Assistance and Outreach Group



New system shows promise for materials, biochemistry