Climate Modeling End Station at ORNL To Support Major Global Climate Studies

A Climate Modeling End Station – an important part of the U.S. effort to simulate and study global climate – is being established at the National Center for Computational Sciences (NCCS) at Oak Ridge National Laboratory.

Warren M. Washington, chair of the National Science Board

This designation and allocation of resources allows the nation's climate modeling effort – led by National Science Board Chair Warren Washington – to complete cutting-edge climate simulations at ORNL. Oak Ridge scientists, along with other Department of Energy, NASA, National Science Foundation, Duke, and Georgia Tech researchers, are serving as co-principal investigators on the project.

The "EVEREST" PowerWall in ORNL's Visualization Center can be used to display complex and extensive climate modeling data in a high-resolution format.

ORNL also has secured a five-year NASA grant that augments the NCCS computational activity with a creative interagency project to measure CO_2 and other atmospheric trace gases from satellites and simulate their distributions in the Earth's atmosphere. This allows for a unique application of high performance computing to complement satellite observations.

Use of the NCCS resources will enable much greater fidelity and complexity in simulations of the global climate, providing more accurate predictions of climate change to inform major policy decisions. Increased resolution will resolve important dynamical processes in clouds and ocean eddies. New physical processes, such as enhanced atmospheric chemistry and a full carbon cycle, will not only increase accuracy but also open new avenues for scientific inquiry and prediction.

"End station" projects at the National Center for Computational Sciences are domain-specific projects that are coordinated around breakthrough scientific challenges and integrated model and software development. These also have a substantial development effort targeted at new functionality and performance optimization.

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