



“Our researchers advance understanding of the natural world from the molecular to the global scale in Earth system science.”

Stan Wullschleger,
Director, Environmental Sciences Division



Environmental Sciences

The Environmental Sciences Division is an interdisciplinary research and development organization with more than 60 years of achievement in local, regional, national, and international environmental research. Our vision is to expand scientific knowledge and develop innovative strategies and technologies that will strengthen the nation’s leadership in creating solutions to help sustain Earth’s natural resources.

Addressing Fundamental Challenges

Our scientists conduct research, develop technology, and perform analyses to understand and assess responses of environmental systems at the environment-human interface and the consequences of alternative energy and environmental strategies.

Aquatic Ecology—Advancing aquatic ecosystem science to promote sustainable and secure water and energy resources.

ARM Data Science and Integration—Providing data and computing capabilities to advance understanding of atmospheric radiation

Earth Science—Understanding processes that govern the fate and transformation of trace elements, nutrients, and contaminants in terrestrial and aquatic ecosystems over a broad range of spatiotemporal scales.

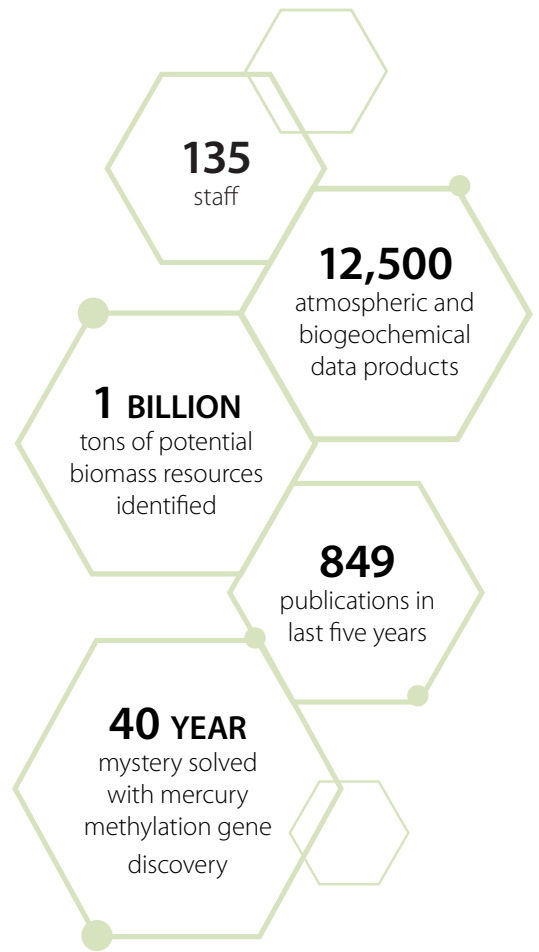
Ecosystem Science—Understanding mechanisms of terrestrial response to environmental change and multiple scales for the projection of the future fate and function of terrestrial biomes.

Remote Sensing and Environmental Informatics—Developing and providing integrated data products, data delivery systems, and data analysis tools.

Renewable Energy Systems—Providing innovative, cost-effective energy solutions for bioenergy and water power applications.

Society, Energy, and Environment—Developing methods, analyses, and assessments useful in the management of human health, environmental, and societal risks associated with emerging technologies and legacy wastes.

Terrestrial Systems Modeling—Understanding the interactions in land ecosystems to predict Earth system dynamics.



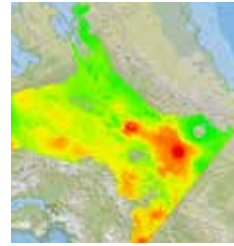


Unique Research Capabilities



Atmospheric Radiation Measurement (ARM) Data Center

Sharing computing resources and data on atmospheric radiation balance to inform models of global climate change.



ORNL Distributed Active Archive Center (ORNL DAAC) for Biogeochemical Dynamics

Providing scientists and stakeholders with access to biogeochemical and ecological data and models.



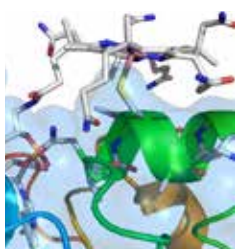
Aquatic Ecology Laboratory

Understanding aquatic ecosystem interactions to develop technologies and solutions that will sustain energy-water resources..



Next-Generation Ecosystem Experiments (NGEE Arctic)

Advancing predictive understanding of the structure and function of the Arctic terrestrial ecosystems in response to climate change.



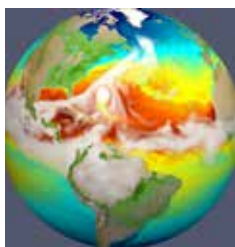
Biogeochemical Transformations at Critical Interfaces

Examining exchange and feedback processes occurring at critical interfaces that control mercury biogeochemical fate and transformation.



Spruce and Peatland Responses Under Changing Environments (SPRUCE)

Assessing the response of northern peatland ecosystems to increases in temperature and exposures to elevated atmospheric CO₂ concentrations.



Climate Change Science Institute

Integrating expertise in measurements, data, and simulation to improve understanding and prediction of a changing climate.

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