KNOWLEDGE FOR A COMPETITIVE AMERICA

NATIONAL CENTER FOR ATMOSPHERIC RESEARCH

IMPACTS AT A GLANCE

WHAT IS NSF NCAR?

The National Center for Atmospheric Research (NCAR) is the National Science Foundation's oldest and largest federally funded research and development center. Founded in 1960, NSF NCAR has provided weather intelligence services to the public by carrying out complex research using supercomputers, computer models, research aircraft, and large Earth system datasets, then translating this into more accessible information, educational tools, and community resources.

NSF NCAR LABORATORIES

NSF NCAR is home to eight laboratories and programs which collectively cover critical research topics in Earth system science from the effect of the sun on Earth's atmosphere, to the role of the ocean in weather intelligence and advanced forecasting, and robust directed research to discover solutions relevant to society, facilitating the transfer of information, expertise, and technology to the public and private sectors

AMERICAN STRENGTH AND PROSPERITY DEPENDS ON THE NATIONAL CENTER FOR ATMOSPHERIC RESEARCH

NSF NCAR PRODUCTS:

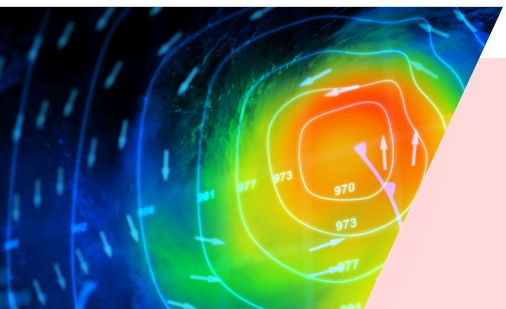
Help farmers make informed decisions about managing their crops

Advance ocean monitoring and models to support coastal economies

Provide advanced weather models as the backbone of hurricane forecasts

Support solutions that make travel safer for pilots and passengers, and the traveling public in general

And much more...

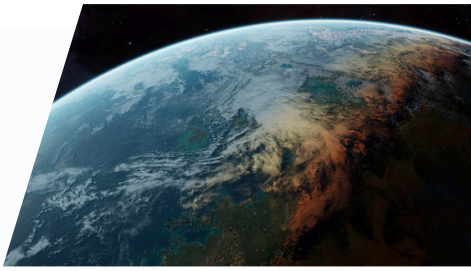


AMERICANS ARE MORE SECURE, COMPETITIVE, AND PROSPEROUS BECAUSE OF REASONABLE AND MEANINGFUL INVESTMENTS IN FEDERAL EARTH SCIENCE AND WEATHER INTELLIGENCE.

HOW DOES NSF NCAR SUPPORT THE NATION?

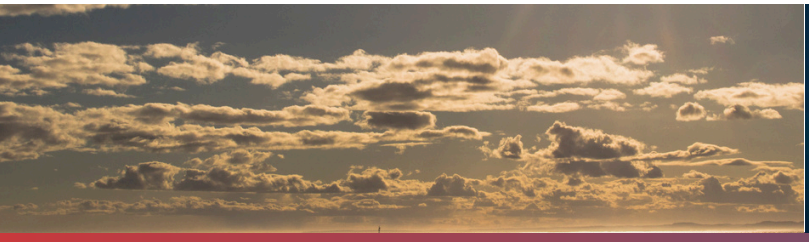
Hundreds of scientists at NSF NCAR, along with hundreds more scientists and researchers from over a hundred University institutions from all over the country, work together to understand the complex relationships between Earth's atmosphere and the rest of the Earth system – including the oceans, land surface, and the Sun. By better understanding these relationships, NSF NCAR serves the public by providing predictive capabilities and applications used by a range of public and private groups, including farmers, retailers, resource managers, and even the military.

NSF NCAR develops, maintains, and supports world-famous computer models simulating planetary and solar processes and changes in global conditions and weather. These models and the datasets they produce are publicly accessible and usable by researchers across the country and around the world to support improvements to weather intelligence products and services that keep the public informed of looming threats to their safety and financial interests. For example, the Community Earth System Model (CESM) has been used for more than 40 years, constantly evolving and improving, to enable research on the land surface, ocean, and sea ice, across time and spatial scales. The Weather Research and Forecasting (WRF) model is used as the backbone of weather intelligence gathering, exploring how broad-scale environmental activities impact regional weather, improving prediction of extreme weather events and outcomes for water and energy resources.



Thorough, precise, and consistent observations are essential to improving our understanding of the intricacies of the Earth system. NSF NCAR helps scientists take new observations as well as access a wealth of observational datasets, some of which have been years (or decades) in the making. Whether studying storms on the Great Plains or storms on the Sun, researchers have access to observational platforms which include specialized research aircraft, solar-observing instruments, and atmospheric profiling systems, among many others.

NSF NCAR also supports transitioning research into applications across diverse industrial sectors. For example, the NSF NCAR Aviation Applications Program has partnered with the Federal Aviation Administration (FAA) to create custom aviation weather models that have effectively eliminated commercial airliner crashes and deaths due to wind shear and other weather hazards in the United States. National security decisions are also informed by NSF NCAR research. In particular, tailored meteorological decision-support applications enhance the Department of Defense's chemical, biological, radiological, and nuclear (CBRN) hazard prediction toolsets, including the Joint Effects Model (JEM) which provides warfighters with credible modeling to predict downwind hazard areas.



WANT TO GET INVOLVED?

Reach out to
info@usacompetes.org

Learn more on our website:
usacompetes.org

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