



Since 1960, UCAR—the University Corporation for Atmospheric Research—has served as a national hub for research, education, and advanced technology development from the atmospheric and related Earth sciences.

On behalf of the National Science Foundation (NSF) and the university community, **UCAR manages the National Center for Atmospheric Research (NCAR) and the UCAR Community Programs (UCP).**

Mission: Support, enhance and extend the capabilities of the university community, nationally and internationally; understand the behavior of the atmosphere and related systems and the global environment; and foster the transfer of knowledge and technology for the betterment of life on Earth

Membership: More than 100 North American colleges and universities offering degrees in the atmospheric and related Earth system sciences

Budget: About \$250 million, with roughly half provided by NSF and the rest from other agencies, other national governments, and the private sector

Staff: About 1,400, across U.S. locations in Boulder, Colorado; Cheyenne, Wyoming; and Washington, DC

The National Center for Atmospheric Research

NCAR is a federally funded research and development center (FFRDC), conducting a wide range of weather, climate, and solar science and related applications research.

At the heart of this work is improving predictions about our atmosphere—how it behaves from moment to moment, day to day, and decade to decade, and the risks and opportunities associated with these changes.



Each year, hundreds of people from universities, labs, and the weather enterprise collaborate with NCAR staff, and rely on NCAR resources, in order to carry out vital research and applications.

UCAR Community Programs

UCP provides innovative services to support education and research in the atmospheric and related sciences. UCP

- trains new and experienced weather forecasters
- brings real-time data and software into university classrooms
- develops K-12 STEM education programs and resources
- manages complex scientific field projects
- supports satellite-based Earth and atmospheric monitoring

A few highlights

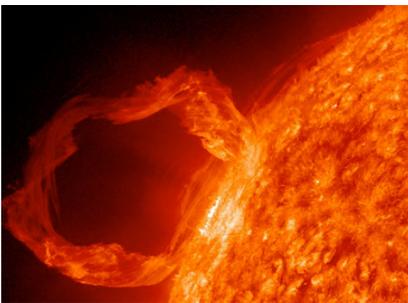
Protecting airports from wind shear. Thunderstorm-related winds killed many hundreds of people in a string of U.S. aviation disasters in the 1970s and '80s. To get at the cause, NCAR built the first portable Doppler research radars, which helped diagnose how microbursts produce dangerous wind shear. NCAR scientists and colleagues then created a system to detect and warn pilots and controllers. Since 1995, no major U.S. aircraft has been brought down by a microburst.



Investigating Earth's sensitive ozone layer. The first high-altitude balloon flight to measure fluorocarbons produced by human activity took off in 1973 from an NCAR launch facility. In 1987, shortly after the ozone hole was discovered, NCAR scientists collected and analyzed the first samples of stratospheric air in and around the ozone-depleted region. NCAR researchers continue to analyze the lifecycles of ozone and other key airborne chemicals.

Parachute-borne sensors to monitor hurricanes. For over 30 years, NCAR has designed innovative instrument packages dropped from aircraft to measure high winds, moisture, and other key aspects of hurricanes and other storms. No other method can gather such precise observations, vital for predicting hurricane strength and motion. Dropsondes can be automatically launched from high-flying stratospheric balloons and remotely piloted aircraft such as NASA's Global Hawk. They are also a mainstay of field experiments that deploy the NSF/NCAR Gulfstream V jet.

World-class models of weather and climate. NCAR was among the first laboratories to develop software depicting the evolution of Earth's atmosphere over months and years. Refined through years of collaboration with universities and other research labs, the open-source Community Earth System Model helps researchers worldwide to simulate past, present, and future climate. NCAR is also a key partner in the multiagency Weather Research and Forecasting model, which helps guide weather forecasts nationally and globally. A research version—based at NCAR—allows scientists to explore ways of predicting weather with richer detail and greater accuracy.



Uncovering the physics that drive solar storms toward Earth. Communication devices, satellites, and other technologies are vulnerable to damage and disruption from bursts of magnetism emerging from the Sun. NCAR's world-class research on solar processes has produced many landmark accomplishments, including the first detailed observations of solar magnetic fields and the first comprehensive 3-D model of sunspot behavior. Insights from NCAR research are paving the way toward improved predictions of both "space weather" and "space climate."

Predicting the weather that allows disease to thrive. NCAR is at the forefront of new research linking weather to the factors that shape epidemics, from the spread of plague-carrying fleas to the dust associated with bacterial meningitis and the mosquitoes that carry dengue virus. Working with collaborators in public health, NCAR has developed decision-making tools with customized weather and climate forecasts that can help put life-saving medicines—often in short supply in developing nations—where they can do the most good.

Contact

Scott Rayder, UCAR Senior Advisor for Development and Partnerships
+1 303-497-1673 | rayder@ucar.edu | president.ucar.edu/development