

UCAR at a glance

NATIONAL CENTER FOR ATMOSPHERIC RESEARCH

Office of the NCAR Director
303-497-1110
Director: Timothy Killeen

Advanced Study Program (ASP)

303-497-1602
<http://www.asp.ucar.edu>

Director: William "Al" Cooper

Sponsors recent Ph.D. scientists and students in Ph.D. programs, bringing them to NCAR to expand their own studies and enrich the center's research. ASP also offers seminars, workshops, and colloquia on areas of particular importance to the atmospheric sciences.

Atmospheric Chemistry Division (ACD)

303-497-1401
<http://www.acd.ucar.edu>

Director: Daniel McKenna

Focuses on global- and regional-scale air quality and problems related to the complex interactions among the oceans, ecosystems, and atmosphere. Researchers study the cycles of chemicals in the atmosphere, ways in which the composition of the air evolves, and the impact of human activities on atmospheric chemistry.

Topic areas and goals for NCAR's large-scale initiatives

Biogeosciences

- Understand the role of biological processes in the dynamics, chemistry, and evolution of the climate system on time scales from days to millennia
- Identify and understand the processes in the physical climate system that most strongly affect the functioning of biological systems
- Understand the interactions of human society and biogeoscience dynamics at multiple scales and analyze their implications for assessments, policy decisions, environmental management, and education

The Wildland Fire Collaboratory

- Create a highly interactive international forum to exchange information on research and development associated with wildland fire
- Assess related R&D priorities and build advocacy for them
- Accelerate the transfer of technology from research to operational communities

Advancing the Science of Weather and Climate Impact Assessment

- Improve the characterization of uncertainty in impact assessment science
- Integrate atmospheric science, statistics, and social science to improve understanding of impacts of and vulnerability to extreme climate and weather events
- Investigate the interactions among climate and human health factors, with a focus on attributing impacts to climate perturbations

Data Assimilation

- Create a community that will produce leading-edge research on data assimilation, focus disparate NCAR efforts, and support operational efforts within and beyond NCAR
- Develop a software environment for data assimilation research and evaluation—the Data Assimilation Research Testbed—along with software for use in undergraduate and graduate education
- Provide a mechanism for collaboration with selected university and government partners and an infrastructure for communicating research and application advances to a broad community

Whole Atmosphere Community Climate Model

- Develop a comprehensive numerical model spanning the range of altitude from Earth's surface to the thermosphere
- Using this model, investigate stratosphere-troposphere coupling, the effects of solar variability on the middle and upper atmosphere, and physical and chemical processes in and near the mesopause

Fundamental Issues in Geophysical Turbulence

- Study surface wave–air interactions near the coast, land–air interactions over heterogeneous surfaces, and turbulent structures in the entrainment zone at the top of marine stratocumulus clouds
- Develop a program of turbulence modeling, observation, and validation

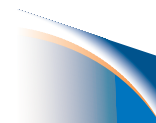
- Develop a three-dimensional, incompressible, homogeneous turbulence code using state-of-the-art numerical techniques

The Water Cycle across Scales

- Understand how water vapor, precipitation, and land-surface hydrology interact across scales to define the hydrological cycle
- Using this information, improve both large- and small-scale weather prediction and climate models

Outreach and Education

- Hold workshops on undergraduate leadership and on geoscience education in climate and global change.
- Continue (and augment where appropriate) highly valued postdoctoral and graduate fellowship programs. Develop an early-career faculty fellowship program
- Implement a new Web site for the Education and Outreach Program
- Develop a bidirectional sabbatical program (university visits to and from NCAR)
- Develop and deploy new science exhibits and displays at NCAR



NCAR

Atmospheric Technology Division (ATD)

303-497-8833

<http://www.atd.ucar.edu>

Director: David Carlson

Provides observing facilities and instrumentation, including advanced radars, research aircraft, flux measurement systems, and integrated sounding systems, to researchers in the atmospheric and related sciences. These facilities allow investigators around the globe to conduct research programs in weather, climate, and air quality.

Climate and Global Dynamics Division (CGD)

303-497-1320

<http://www.cgd.ucar.edu>

Director: Maurice Blackmon

Contributes to better prediction of weather and climate through the development of models that promote understanding of the physical causes of past, present, and future climates and large-scale atmospheric and oceanic dynamics.

Environmental and Societal Impacts Group (ESIG)

303-497-8117

<http://www.esig.ucar.edu>

Director: Robert Harriss

Improves understanding of the interactions among the atmosphere, environmental processes, and society and communicates information related to atmospheric science to a broad community of researchers and decision makers through research and workshops. ESIG staff assess how societies might better understand and cope with climate shifts and severe weather.

High Altitude Observatory (HAO)

303-497-1527

<http://www.hao.ucar.edu>

Director: Michael Knölker

Carries out research into the solar interior, the influence of magnetic fields on the structure and dynamics of the solar atmosphere, and the links between the variable solar output and Earth's magnetosphere and outer atmosphere. Because some solar changes influence Earth's space environment and its climate, understanding solar variability is fundamental to understanding and potentially predicting the variability of Earth's atmosphere.

Mesoscale and Microscale Meteorology Division (MMM)

303-497-8908

<http://www.mmm.ucar.edu>

Director: Robert Gall

Investigates the basic physical processes that govern the weather: how the atmosphere and Earth receive incoming radiation, scatter and absorb it, and retransmit it; how weather and climate are affected by terrain and the characteristics of soil and vegetation; how severe storm systems develop and die; and how precipitation processes occur.

Research Applications Program (RAP)

303-497-8390

<http://www.rap.ucar.edu>

Director: Brant Foote

Conducts directed research on disruptive phenomena such as thunderstorms, icing conditions, snowstorms, and turbulence and transfers relevant technology to such weather-sensitive activities as aviation, water resource management, agriculture, and surface and marine transportation.

Scientific Computing Division (SCD)

303-497-1272

<http://www.scd.ucar.edu>

Director: Al Kellie

Provides supercomputing resources, scientific visualization tools and facilities, high-speed networks, and associated data-processing capabilities on a variety of computing machines. In close collaboration with other NCAR divisions, SCD assists in advancing atmospheric research across a broad front. SCD's data archives included over 500 terabytes as of mid-2002. Its Advanced Research Computing System places over 2,000 IBM Power 3 and Power 4 processors at the disposal of university and NCAR scientists.

UCAR OFFICE OF PROGRAMS

Office of the UOP Director

303-497-8647

<http://www.uop.ucar.edu>

Director: Jack Fellows

Constellation Observing System for Meteorology, Ionosphere, and Climate (COSMIC)

303-497-2600

<http://www.cosmic.ucar.edu>

Director: Ying-Hwa "Bill" Kuo

Leads a collaborative science project between the United States and Taiwan to launch a constellation of six microsatellites. Upon its deployment in 2005, COSMIC will collect atmospheric remote-sensing data for weather prediction, climate, and ionospheric and gravity research.

Cooperative Program for Operational Meteorology, Education and Training (COMET®)

303-497-8470

<http://www.comet.ucar.edu>

Director: Timothy Spangler

Improves the weather services of the nation by involving research scientists and academic scholars in the continuing education of weather forecasters and the development of new forecast techniques. The COMET program offers courses, symposia, and workshops and produces interactive computer-based learning systems.

Digital Library for Earth System Education (DLESE) Program Center

303-497-8354

<http://dpc.ucar.edu>

Director: Mary Marlino

Offers educators and learners easy access, through a community-governed digital library, to high-quality information, tools, and services that facilitate learning about Earth at all educational levels. DLESE will include peer-reviewed collections of instructional materials, interfaces to data sets, and computer- and human-mediated services for collaboration and sharing.

GPS Science and Technology (GST) Program

303-497-8045

<http://www.gst.ucar.edu>

Director: Randolph “Stick” Ware

Investigates ground- and satellite-based Global Positioning System (GPS) data as a tool for observing the atmosphere. Part of GST, the University NAVSTAR Consortium (UNAVCO) facility provides technical support and equipment to investigators using measurements to better understand such phenomena as earthquakes and volcanoes.

Joint Office for Science Support (JOSS)

303-497-8683

<http://www.joss.ucar.edu>

Director: Karyn Sawyer

Provides scientific, technical, and administrative support services to the research community for planning, organizing, and implementing research programs and associated field projects worldwide. Most JOSS services and products fall in three broad categories: (1) community support, including planning advice, meeting management, program office administration, publications, and visitor programs; (2) field program support, including program planning and design, site surveys, and field operation logistics and management; and (3) data management, including system design and the collection, quality control, formatting, and customized delivery of scientific project data.

National Science Digital Library (NSDL)

303-497-8651

<http://www.nsdlib.org>

Director: David Fulker

Offers a nationwide, Internet-based intellectual commons with on-line educational resources for students, teachers, and professionals at all levels across the full range of scientific disciplines. The NSDL is headquartered in UOP; operations and other components of the NSF-funded effort are distributed among numerous partners.

Unidata Program Center

303-497-8643

<http://my.unidata.ucar.edu>

Acting director: Benedict Domenico

Helps university departments, working as a community, to acquire and use atmospheric and other environmental data for research and teaching, along with software tailored for visualization and analysis of these data.

Visiting Scientist Programs (VSP)

303-497-8627

<http://www.vsp.ucar.edu>

Director: Meg Austin

Operates programs designed to support and broaden education and research in the atmospheric, oceanic, and related sciences through fellowships to researchers at graduate, postgraduate, and more advanced levels. VSP also supports advisory panels and review teams, workshops, and summer institutes for the university community and federal-agency sponsors.

OTHER UCAR ACTIVITIES

Office of the UCAR President

303-497-1650

<http://www.ucar.edu/pres>

President: Richard Anthes

Office of Development and Government Affairs

303-497-2102

<http://www.ucar.edu/oga>

Director: Cynthia Schmidt

Advocates for federal budgetary, legislative, and policy issues of importance to the UCAR community. Monitors the activities of the U.S. Congress and keeps the UCAR community informed on budgetary, legislative, and policy developments involving UCAR, NCAR, UOP, NSF, and other agencies of importance to the atmospheric and related sciences. Communicates with Congress concerning the services provided to society through the UCAR community's research, research applications, education, and training activities. Promotes the growth and well-being of UCAR's programs and activities by supporting grant-seeking activities in the public and private sectors.

Office of Education and Outreach

303-497-2591

<http://www.ucar.edu/ucar/edout.html>

Director: Roberta Johnson

Coordinates and carries out activities that further the UCAR goal of promoting scientific literacy and advancing all levels of education and training in subjects related to Earth's atmosphere. Activities are focused on facilitating integrative learning across disciplines, with an emphasis on inquiry-based learning environments for students, faculty, and the public that connect research and education.

Significant Opportunities in Atmospheric Research and Science (SOARS®)

303-497-8623

<http://www.ucar.edu/soars>

Director: Thomas Windham

Conducts a ten-week summer program at NCAR and other national laboratories as part of a four-year undergraduate and graduate program designed to increase the diversity of students pursuing careers in the atmospheric and related sciences. SOARS was established by UCAR through partnership with NSF. Other program sponsors include the U.S. Department of Energy, NASA, NOAA, and the UCAR university community.

UCAR Communications

303-497-8601

<http://www.ucar.edu/communications>

Director: Lucy Warner

Provides news and information about UCAR, NCAR, and UOP activities to the UCAR community, journalists, and the public; serves as a resource for internal and external communication policies and practices.

UCAR Foundation

303-497-8898

<http://www.fin.ucar.edu/ucarf>

President: R.C. Mercure

Acts as UCAR's exclusive agent for commercial endeavors. The nonprofit UCAR Foundation includes officers and a board of directors drawn from UCAR, universities, and the private sector. Revenue flows to the foundation through equity positions, license fees, and royalties on the sale of resulting commercial products. A substantial portion of the revenue generated is returned to UCAR for the advancement of its scientific programs.

UCAR Governance Office

303-497-1658

<http://www.ucar.edu/ucar/governance.html>

Governance liaison: Susan Friberg

Administers the process by which UCAR member institutions, academic affiliates, and international affiliates govern UCAR research, service, and administrative activities through the UCAR Board of Trustees, members' representatives, and their committees.

