We foster collaboration
We launch careers
We ignite interest

engage
inspire
explore

SCIENCE EDUCATION
AT THE NATIONAL CENTER FOR ATMOSPHERIC RESEARCH (NCAR)

scied.ucar.edu
www.ucar.edu  scied.ucar.edu
Fostering deeper understanding of the atmosphere, Earth, and Sun

The University Corporation for Atmospheric Research (UCAR) serves as a hub for research, education, and public outreach for the atmospheric and related sciences community.

Education Mission

In partnership with the university community, UCAR creates, catalyzes, and supports world-class science education programs, resources, and communities.

Our Goals

- To develop, deliver, and promote resources, programs, and activities that enhance scientific understanding, skills, and abilities and support education and training from pre-K through post-graduate levels.
- To develop and support inspiring resources and programs about the Earth-Sun system to advance public science literacy and decisionmaking.
- To broaden participation by diverse and historically under-represented populations in our geoscience education programs.

Our Organization

National Center for Atmospheric Research (NCAR)
The National Center for Atmospheric Research provides research, observing and computing facilities, and a variety of services for the atmospheric and related Earth sciences community.  
http://ncar.ucar.edu

UCAR Community Programs (UCP)
UCAR Community Programs provide innovative services in support of the community’s education and research goals. NCAR and UCAR Community Programs are managed by UCAR, a nonprofit consortium of research universities, on behalf of the National Science Foundation and the university community.  www.ucp.ucar.edu

UCAR Center Science Education
Spark serves as the institution’s point of contact for education information, resources, and dissemination. It collaborates with scientists and educational programs and organizations, locally, nationally, and internationally to serve the UCAR community, the general public, and students and teachers at K-12 and post-secondary levels. http://scied.ucar.edu

UCAR Communications
UCAR Communications translates complex scientific content into news and information about the organization and its research on behalf of the UCAR community, staff, journalists, and the public. The Communications’ Web site features UCAR scientific and technical publications, press releases, and an events calendar.  www.ucar.edu/news

UCAR Office of Government Affairs (OGA)
OGA monitors activities of the U.S. Congress and keeps the UCAR university community informed of developments important to the atmospheric and related sciences. OGA oversees a number of outreach activities, including Congressional briefings, public lectures, and Web-based educational resources. www.ucar.edu/oga
K-12 Educational Resources

The Climate Discovery Teacher’s Guide
This teacher’s guide is a companion to the NCAR Climate Discovery exhibit at our Boulder, Colorado laboratory. Each unit contains lessons appropriate for grades 5-9 on a variety of Earth system science topics that facilitate student learning about our planet’s climate system. http://eo.ucar.edu/educators/ClimateDiscovery

Earth Explorers
Earth Explorers mission is to open doors to science and 21st Century skills by educating and mentoring underrepresented youth. Student teams interview and learn about an NCAR scientist and his/her work, then produce a short video about what they have learned. Examples of student-produced videos about NCAR scientists are available at the Web site. http://scied.ucar.edu/events/earth-explorers

LEARN: Atmospheric Science Explorers
LEARN provides a wealth of science content and activities developed during an NSF-sponsored teacher enhancement program in collaboration with NCAR scientists. These resources are appropriate for middle-school educators interested in teaching such topics as climate change and atmospheric chemistry. www.ucar.edu/learn

NCAR Climate Change Resources
Find research-based material from scientific organizations on climate change and its impacts as well as a multimedia gallery and frequently asked questions. www2.ucar.edu/news/backgrounders/global-warming-climate-change-resources

Web Weather for Kids and Kids’ Crossing
Both Web sites feature hands-on science activities for elementary and middle school students and teacher tips for exploring weather ingredients and dramatic weather events such as thunderstorms, lightning, and tornadoes. http://eo.ucar.edu/webweather & http://eo.ucar.edu/kids

Workshops & Presentations for Teachers by Spark Staff
Spark staff offer workshops year round both onsite and at local to national conferences on topics in the Earth and computational sciences. Find out where Spark staff will be next. Join us for a day of learning or simply access our workshop materials online. http://scied.ucar.edu/events

Education Programs

Education at NCAR’s Earth Observing Laboratory (EOL)
EOL knows that weather is fascinating to people of all ages and is committed to inspiring the development of the next generation of observational scientists and engineers. Learn about EOL’s education programs and ongoing scientific field campaigns at their Web site that includes school visits and observational facilities for classroom instruction. www.eol.ucar.edu/discovery/education-and-outreach

GLOBE
GLOBE is an international school-based program funded through NASA and NSF, in which primary through secondary students take scientifically valid measurements in the fields of atmosphere, hydrology, and land cover. Using the Internet, students report, analyze, and display their data, which can be shared with scientists and other GLOBE students around the world. www.globe.gov

MetEd from the COMET® Program
This continually expanding Web site houses hundreds of hours of weather-related training modules from NCAR’s COMET program – a world leader in support of education and training. Many are suitable for anyone interested in learning about various atmospheric science-related topics. Sign up for a MetEd account to freely access these exceptional resources. http://meted.ucar.edu & in Spanish: www.meted.ucar.edu/index_es.php

Unidata Program Center
Unidata provides community leadership for enhanced Earth system education and research. Software and services created and maintained by Unidata enable universities to acquire and use atmospheric and related data, and visualize that data, often in real time, for teaching and research. www.unidata.ucar.edu

College Education

Education & Scientific Computing Classroom Grants
Undergraduate and graduate faculty are awarded access to high performance computers in their college courses through NCAR’s Computational and Information Systems Laboratory. Accounts are provided for individual students to complete modeling or simulation assignments. http://nar.ucar.edu/2011/lar/cisl/3000-cisl-education

Undergraduate Leadership Workshop (Summer)
For junior and senior undergraduates: Explore the laboratories, research aircraft, instrumentation, and supercomputers that support atmospheric research. Meet leaders in the field during this week-long opportunity to learn firsthand about leadership in the atmospheric and related sciences. http://scied.ucar.edu/programs/undergraduate-leadership-workshop

Student Internships

Advanced Study Program (ASP) Graduate Visitor Program
ASP sponsors collaborative visits by graduate students to NCAR to conduct research in pursuit of their thesis. Funding is also available for 1-2 visits by the student’s faculty advisor. Sponsorship of a member of the NCAR scientific staff is required. www.asp.ucar.edu

Careers in Atmospheric & Earth System Science
NCAR’s Careers Web site contains frequently asked questions and links to resources from our current job openings to what it’s like and how to prepare for a career as an NCAR scientist, engineer, or skilled technician. www2.ucar.edu/opportunities/careers-atmospheric-earth-system-science

Pre-College Internship Program
Junior and senior high-school students are invited to apply for a limited number of paid summer internships exploring careers in the atmospheric and related sciences each summer. A writing workshop and college and career counseling are also offered. http://scied.ucar.edu/programs

Earth Observing Laboratory Technical Internship Program (TIP) and Summer Undergraduate Program for Engineering Research (SUPER)
These internships are designed for undergraduate students who are interested in various aspects of developing and improving atmospheric observing systems. Most of the summer is spent working with EOL’s lead engineers focusing on electrical, mechanical, optical and aeronautical engineering challenges. www.eol.ucar.edu/about/opportunities/technical-internship-program www.eol.ucar.edu/about/opportunities/eol-summer-engineering-internships

High Altitude Observatory (HAO) Internships
 Fellowships support collaborative research between HAO scientists and graduate students enrolled in Ph.D. programs involving the Earth’s upper atmosphere and planetary, stellar, and other astrophysical systems related to those of the Sun. HAO’s Summer Undergraduate Internship program provides summer appointments for college students entering their senior year. It fosters interest in graduate studies in solar physics, solar-terrestrial physics, and related astro-physics. www.hao.ucar.edu/people/visitors/newkirk.php

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**Significant Opportunities in Atmospheric Research and Science (SOARS)** SOARS is an undergraduate-to-graduate bridge program for students from groups historically underrepresented in the atmospheric and related sciences. The multi-year program consists of summer research internships, a collaborative learning community, and a multidimensional mentoring program. SOARS offers financial support for summer research, conference travel, and undergraduate and graduate school tuition for up to four years. soars@ucar.edu; www.soars.ucar.edu

**Summer Internships in Parallel Computational Science** Graduate and junior and senior undergraduate students can apply for significant opportunities in high performance computing at NCAR each summer. The program is aimed at those interested in careers in computational science, applied mathematics, statistics, or the computational geosciences. www2.cisl.ucar.edu/siparcs

**Professional Internships**

**ASP Faculty Fellowship Program** This program provides opportunities to foster fruitful and lasting intellectual collaborations and partnerships between university faculty and the NCAR staff by providing resources for university faculty to spend time in residence conducting research and also by providing resources for NCAR scientific staff to spend time in residence at a university. www.asp.ucar.edu

**ASP NCAR Graduate Fellowships** ASP Graduate Fellowships sponsor graduate students completing their Ph.D. thesis in residence at NCAR under the joint supervision of a professor at the degree-granting university and an NCAR scientist. www.asp.ucar.edu

**NCAR Research Experience Teacher’s Institute (RETI)** RETI is a one-year-long teacher internship program, which offers practicing and pre-service secondary teachers an opportunity to develop an advanced level of understanding of global climate change research and partner with climate scientists and other educators to create new curricula for immediate use in the classroom. http://reti.ucar.edu

**UCAR Visiting Scientist Program (VSP)** VSP partners with U.S. universities and government agencies to promote research and education opportunities in atmospheric, climate, geoscience, and other related science areas. Competed appointments are made to graduate students, postdoctoral, and experienced scientists. Appointments are hosted at universities and federal research labs throughout the U.S. VSP also provides support for educational workshops and colloquia. www.vsp.ucar.edu

**Community, School, & Public Events**

**Girl Scouts at NCAR** Girl Scouts at NCAR is a program that brings female scientists and Girl Scouts together for a day of learning about weather and climate through hands-on activities, exhibits and more. It is offered biannually in collaboration with the Girl Scouts Mile Hi Council, NCAR's Advanced Study Program, and Spark UCAR Science Education. http://scied.ucar.edu/events/girl-scouts-ncar-day

**NCAR Visitor Center: Exhibits, Field Trips, and Tours** Exhibits at NCAR’s Mesa Laboratory explain atmospheric science, super computing, NCAR’s research, and the building’s architecture. Free tours are offered Monday, Wednesday, and Friday at noon or by special arrangement. A Tablet Tour and Guide-by-Cell audio tour are also available. School field trip options are offered year round at no cost. http://scied.ucar.edu/visit

**Super Science Saturday** This annual October public event draws thousands of children and their families to the Mesa Lab for hands-on activities, exhibits, and science demonstrations. http://scied.ucar.edu/events/super-science-saturday

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**Digital Libraries & NCAR News Portals**

**AtmosNews** NCAR’s AtmosNews is a portal to current news, features, news releases, opinion pieces, and research briefs from NCAR. AtmosNews is also available via Twitter, Facebook, and YouTube. www.ucar.edu/atmosnews, http://twitter.com/AtmosNews www.facebook.com/AtmosNews & www.youtube.com/NcarUcar

**Digital Library for Earth System Education (DLESE)** DLESE provides universal access to high-quality resources about the Earth system for students of all ages and the general public. DLESE resources include electronic materials for both teachers and learners, such as lesson plans, maps, images, data sets, visualizations, online courses and much more. www.dlese.org

**Digital Library Services (DLS)** DLS is a mission-centered, not-for-profit organization dedicated to improving learning through the use of digital content. It is a joint center of both UCAR and the Institute of Cognitive Science at the University of Colorado at Boulder. www.dlservices.org

**NCAR Multimedia Libraries** Obtain award-winning images of atmospheric and other phenomena from the NCAR Digital Image Library. Find news-related visuals from NCAR, including videos, animations, photos, and more. www2.ucar.edu/atmosnews/visuals-multimedia-gateway

**National Science Digital Library (NSDL)** NSDL provides a significant on-line educational tool for science, math, engineering, and technology. It enables students, educators, and life-long learners to search, browse, and collaborate in developing its content — images, data sets, learning objects, virtual libraries, and other educational resources. NSDL also provides free audio, video, and other multimedia resources for science and math education through iTunes U. http://nsdl.org http://nsdl.org/iTunesU/

**Visualization and Enabling Technologies (VETS) Gallery** The VETS Visualization Gallery showcases scientific animations derived from mathematical model data and created by VETS staff in collaboration with scientific researchers on topics spanning climate and climate change to severe weather to interplanetary disturbances to atmospheric chemistry. This 3D environment is also available to field trip, tour and other groups. www.vets.ucar.edu

**NCAR Wyoming Supercomputing Center**

**NCAR Wyoming Supercomputing Center (NWSC)** Visit NCAR’s new world class center for high performance computing in Cheyenne, Wyoming. Learn about computational science and the important role it plays in helping us understand, predict, validate, and unravel the mysteries of the Earth system.

http://nwsc.ucar.edu

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**For more information contact:**
UCAR Center for Science Education
3090 Center Green Drive, Boulder, CO 80301
(303) 497-1000; spark@ucar.edu

**Visit NCAR in Boulder & Cheyenne:**
1850 Table Mesa Drive
Boulder, CO 80305
http://spark.ucar.edu/visit
(303) 497-1174

NWSC
8120 Veta Drive
Cheyenne, WY 82009
(307) 996.4321