

Department of Atmospheric Sciences



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The faculty and students in the Atmospheric Sciences Department use physics, chemistry, and mathematics to better understand the atmosphere and improve the prediction of its future state, both over several days (weather) and over much longer periods (climate). We study phenomena ranging in size from a single cloud droplet to the global-scale circulation. We offer information and expertise to the citizens of Washington while also providing leadership in many national and international research programs.

AREAS OF RESEARCH INCLUDE:

- Aerosol & cloud microphysics
- Arctic, tropical & mountain meteorology
- Atmospheric chemistry
- Atmospheric fluid dynamics
- Biosphere interactions
- Climate variability
- Clouds & storms
- Radiative transfer
- Snow & ice physics
- Weather forecasting

Research Highlights

The Department of Atmospheric Sciences plays a leadership role in planning and executing regional, national, and international scientific research programs relating to weather, climate, and air quality. Major research foci within the department are listed to the left. Faculty and student research is based on the analysis of observational data, on computer simulation, and on theoretical deductions.

Observational data is collected by instruments built in the Department, by international networks that regularly monitor the weather and the climate, and by state-of-the-art national facilities (aircraft, satellites, radar) operated by NSF, NOAA, NASA and DOE.

Computer simulations of key atmospheric processes, weather forecasts, and models of the global climate system are run on local departmental and UW computers, and on very large machines at national centers.

Faculty

FACULTY

- 19 Academic Faculty
- 3 Research Faculty
- 1 Senior Lecturer
- 12 Emeritus Professors
- 6 Adjunct Faculty
- 13 Affiliate Faculty
- 10 Research Associates

The faculty continue to uphold the tradition of excellence and distinction that have long characterized our department. Members of our faculty have received major awards from the leading professional societies, including the AMS's Meisinger and Rossby Awards (Houze, Wallace), the Houghton Award (Wood), the Stommel Award (Rhines), and the AGU's Macelwane and Revelle Medals (Wallace). Our faculty includes two Fellows of the National Academy of Sciences, two Fellows of the American Academy of Sciences (Rhines and Wallace in both cases), three Fellows of the American Association for the Advancement of Science (Ackerman, Hartmann, Warren), four AGU Fellows and nine AMS Fellows. Our younger faculty members have received three NSF CAREER awards (Frierson, Jaegle, Thornton) and the Royal Meteorological Society's L.F. Richardson Award (Wood).

Education

The Department grants Bachelor of Science, Master of Science, and Doctor of Philosophy degrees and offers a minor in Atmospheric Sciences. It offers the only atmospheric sciences undergraduate program in the Pacific Northwest. Faculty in the department have authored more than a dozen textbooks currently used for instruction around the world.

The Department strives to provide undergraduate majors with the finest education in the atmospheric sciences by emphasizing breadth of knowledge, depth in understanding, and the acquisition of fundamental skills. We encourage undergraduate participation in faculty-led research. We offer our graduate students unsurpassed education at the cutting edge of the atmospheric sciences and seek to create future leaders who are prepared for interdisciplinary collaboration, both with natural scientists from other disciplines and with a broader range of researchers and practitioners working on a wide range of environmental problems. We contribute to science literacy in our state and nation by providing information about fundamental atmospheric processes and the state of the atmosphere through our courses for non-majors, our website, and public outreach.

Outreach

The Department of Atmospheric Sciences has maintained a volunteer-based Outreach Program since 1989. Graduate students share their knowledge with K-12 students by judging science fairs, hosting groups wanting to learn about meteorology, visiting schools for hands-on demonstrations and lectures, and other outreach activities. We receive approximately 70 requests per year, and 20 of our graduate students donated their time to these efforts during the past year.

Fiscal Information

Funding for 2011

Research grants:	\$8,604,000
State funding:	\$2,261,000
Gifts & endowment income:	\$345,000
National fellowships:	\$310,000

Total funding: \$11,520,000

Undergraduate majors may apply for the Bruce Caldwell Memorial Scholarship and/or the Richard J. and Joan M. Reed Endowed Scholarship. Awards are granted annually based on academic merit and financial need. Graduate students in most cases are paid from federally funded research grants as research assistants.

Professor Steve Warren at Dome C, Antarctica, measuring transmission of sunlight into snow, to infer the spectral absorption coefficient of pure ice.

Photo by Steve Hudson.



STUDENTS (AUTUMN 2010)

45 undergraduate majors

71 graduate students

DEGREES AWARDED (JULY 2009–JUNE 2010)

17 Bachelor of Science degrees

4 Master of Science degrees

4 Ph.D. degrees

STUDENT AWARDS (2009)

1 American Meteorological Society Graduate Fellowships

2 National Science Foundation Graduate Fellowship

2 Achievement Rewards College Scientists (ARCS) Awards

1 NASA Earth System Science Fellowship

1 DOE Science Graduate Fellowship (SCGF)

National Defense Student Education Fellowships (NDSEG)

3 UW Program on Climate Change (PCC) Fellowships

CONTACT INFORMATION

Department of Atmospheric Sciences
Box 351640
University of Washington
Seattle, Washington
98195-1640

Voice: (206) 543-4250

Fax: (206) 543-0308

<http://www.atmos.washington.edu/>

last update: August 2011