

Autumn 2010

# Atmospheric Circulation

Newsletter of the University of Washington Atmospheric Sciences Department

## Past, Present, Future



*Aerial photo of UW campus from the UW Library Special Collections Division, ca. 1937–1938.*

The last issue of *Atmospheric Circulation* showed the move of Cunningham Hall, which is now located at the south end of the Parrington Lawn, the demolition of the Johnson Annex, and the empty site where the new molecular engineering building is currently rising. If you were wondering what the site looked like in an earlier era, the image above was taken around 1937 and was found in the UW Library Special Collections Division.

In the past year, the molecular engineering building has risen, our loading dock has been

torn apart in order to merge it with the new building's dock area. The work on our dock, which was started in mid-June, was only to take about two weeks. However, it was started and then put on hold for months due to an existing acid waste line that served the QRC basement area. The removal of our bike racks to the north of our building has given rise to a bike rack on the south side off the first floor. The covered bike rack, hopefully, will be completed soon.

Thanks to John Stamets for sending us images of the construction progress and providing

explanations. We now know about “import” and “export” dirt, vapor barriers, ground floors versus basements, power trowels, bangers and knockers, and rodbusters, which are the ironworkers who work with rebar. We know why the electrical room has aluminum walls and ceilings—to shield sensitive scientific equipment. We’ve seen miles of electrical conduit and drainage pipes. A few images of the construction and building design can be found on page 2.

*(Continued on page 2)*

## Chair's Column



*Atmospheric Circulation* is coming out a bit late this year because, toward the end of the summer, the office staff and I were busy compiling a self-study report for a decadal review of our department. The department has certainly seen a lot

of changes since the last self study was written by Jim Holton in 1999. The untimely losses of Jim and of Peter Hobbs come immediately to mind, along with a few retirements, including most recently those of Research Professors Dave Covert and Tom Grenfell. Over the past 11 years the department has nevertheless maintained its strength through the systematic and strategic hiring of eight new tenure-track professors, all of whom are making very significant impacts on our field. One of these new professors, Rob Wood, will be honored with the Henry Houghton Award at the upcoming AMS annual meeting.

Another major change that has occurred between 1999 and the present is the transfer of our department from the College of Arts and Sciences to the newly formed College of the Environment. The College of the Environment was guided during its formation by our previous departmental chair, Dennis Hartmann, who while serving as Interim Dean, helped establish it as a world-leading institution for the study of our physical and human environment. Further development of the College is occurring under the very capable leadership of our new permanent Dean Lisa Graumlich. It seems clear that the Atmospheric Sciences Department will play a more significant role in this more focused College than it ever could in the much larger College of Arts and Sciences.

Yet another major change between 1999 and the present is the economic condition of our state and our nation. The dot-com bubble had not yet burst in 1999 and the state of Washington was riding high. The dot-com crisis now seems minor in comparison to the current recession. These difficult economic times are really forcing state universities to rethink their funding models. The tuition paid by students now provides more money for the University of Washington than does its support from the general state budget. Current in-state tuition remains reasonable (\$8,701 for the nine-month 2010–2011 academic year), but future cuts in state funding are likely to put significant upward pressure on tuition.

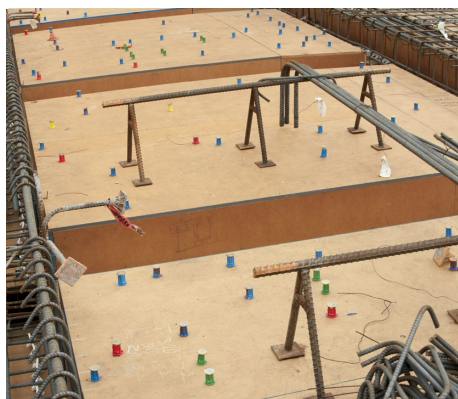
We always greatly appreciate the donations that have been given to the department by our alumni and friends. Particularly during these difficult budget times, your help makes a tremendous difference. One area we are trying to

focus on is increasing our financial aid to our undergraduate majors.

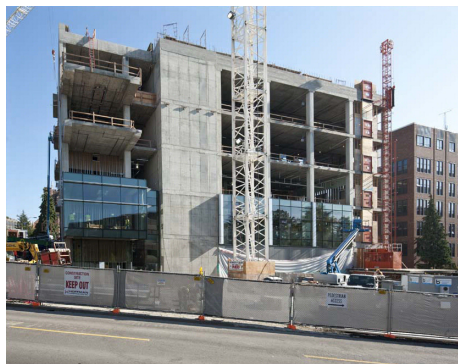
Thanks very much to those of you who have sent us information about your activities, which we have collected on page 5. It is always great to hear from you. Please help us share news about you and your family with your classmates by sending us your updates.

Best wishes,  
Dale Durran

### *Past, Present, Future, cont. from page 1*



*Bangers or knockers—in color they make it look like a giant pinball game (May 2010).*



*Glass curtain wall at Level 1 (October 2010). To see current construction, go to the Department web cam at [www.atmos.washington.edu/images/webcam1/](http://www.atmos.washington.edu/images/webcam1/).*



*Molecular engineering building design.*



## Department News

**Robert Wood** has been selected to receive the Henry Houghton Award of the American Meteorological Society (AMS) at the 2011 Annual Meeting. Rob was recognized for advancing the understanding of the interactions of cloud droplets, aerosols, radiation, and precipitation in marine stratocumulus. Rob was also promoted to the rank of Associate Professor in September 2010.

**Professor Qiang Fu** has been selected as a Fellow of the AMS. Only 0.2% of all AMS members attain this standing. He also received a Distinguished Alumnus Award in 2010 from the Department of Atmospheric Sciences, University of Utah.

**Professor Dennis Hartmann** will be the next Haurwitz Lecturer. The news was announced by the AMS Council and the citation for the award reads: “for his many important and fundamental contributions to our understanding of atmospheric and climate dynamics.”

**Professor Daniel Jaffe** became a joint professor with our department in May. His primary appointment is with the Science and Technology Program at UW Bothell.

**Professor Cliff Mass** was the cover story “Critical Mass” in the *Seattle Weekly* (Nov. 17, 2009, Mike Seely). The article should still be available at [www.seattleweekly.com/2009-11-18/news/cover-story-critical-mass/](http://www.seattleweekly.com/2009-11-18/news/cover-story-critical-mass/). The winner of the *Seattle Weekly's* category for “Best Online Presence - Outdoors” was Cliff Mass’ Weather Blog. More information can be found at [www.seattleweekly.com/2010-06-02/news/and-the-winner-is/](http://www.seattleweekly.com/2010-06-02/news/and-the-winner-is/).

**Professor Steve Warren**, his student **Regina Carns** (ESS), and Staff Scientist **Richard Brandt** worked in Antarctica during August and September 2009 investigating processes in cold sea ice that may be relevant to “Snowball Earth” episodes.

Postdoctoral scholar **Ruzica Dadic** from Switzerland worked with **Steve Warren** and **Bonnie Light**. She studied the migration of air bubbles in ice with application to Snowball Earth.

In January–February 2010 **Profs. Qiang Fu** and **Steve Warren** participated in an expedition to measure light-absorbing impurities in snow (dust and soot) in a wide area of northern and northeastern China. The other members of the expedition were professors and students from Lanzhou University.

**Emeritus Professor Robert Charlson** was selected by the Faculty of Science at the University of Stockholm to present the 3rd Bert Bolin Lecture on Climate Research.

**Lisa Graumlich** became the first dean of the College of the Environment on July 1. For more information, see [coenv.washington.edu/about/graumlich.shtml](http://coenv.washington.edu/about/graumlich.shtml).

**Baby News**—Rick Steed and Clarise Gavin welcomed Owen Christopher Steed with great joy into their lives. Owen was born on October 11, 2009. Wade Everett Sues was born on

*(Continued on page 4)*

## Visit to India and China

by John M. Wallace

In February 2008 Susie and I were invited on a 2-week tour of India organized by my long term friend and research colleague, J. Shukla, along with Tim Palmer and his wife Jill, Peter Webster, and Ken Mooney. The highlight of the tour was an overnight stay in Mirdha in the state of Uttar Pradesh (UP), the village in which Shukla was born and brought up and in which his family has lived for six generations. We stayed in what is now known as the Ken Mooney Guest House and we were hosted by Shukla's remarkable extended family. We were also warmly greeted by the faculty and students at Gandhi College (<http://www.iges.org/gandhicollege/>), which was founded by Shukla in 2000 for the primary purpose of raising the educational level and status of young women in Mirdha and the neighboring villages. This intimate snapshot of life in Shukla's village made a deep impression on us and on Susie in particular, who recognized that her 25 years of experience in directing programs to teach English to speakers of other languages could be of use there. With Shukla's moral support and encouragement, we started planning for a return trip to the village. Susie enrolled in the beginning Hindi course in the Department of Asian Languages and Literature at UW and I applied for sabbatical leave.

We returned to the village January 20 of this year accompanied by Shukla and his daughter, Sonia, and our neighbor, Marylynn Evans, who volunteered to work with Susie on the teaching project. It was cold (13°C) and foggy the afternoon we arrived: several hundred people died of the cold that week in UP. Through the damp, chilly weeks that followed, Susie and Marylynn (referred to as "elderly ladies" in a front page article in the *Times of India*) were sustained by the warm hospitality of Shukla's family, the long underwear that they'd had the foresight to buy at REI, and the countless cups of hot tea that were offered to them by the Shukla family and many of the other villagers. Sonia remained with them for about 10 days and helped out with the classes while she was getting reacquainted with her extended family. The number of students in the English classes ranged up to 60, not including the monkeys who occasionally dropped in. About 15 of the Gandhi College students attended the classes faithfully and made substantial progress in improving their English comprehension and speaking. (In contrast to the language-oriented teaching that Susie and Marylynn offered, the regular English courses offered at the College, which prepare students for national examinations, tend to focus on English literature).

The village is on the brink of major changes. Electric power is available 4 hours a day now. The power is usually available only at night, but the community center has batteries capable of storing enough electricity to keep a few laptops



Arrival in Mirdha in late January. Left to right: Susie Wallace, K. Shukla, Sonia Shukla, Mike Wallace and Marylynn Evans.

running during the daytime. Cell phone service is widely available and the road that passes through the village has finally been paved. Not all the changes are for the good. Once or twice an hour a truck careens down the paved road at 50 mph, terrifying pedestrians, bicyclists, and cows. Sometimes during the late night hours, loudspeakers broadcasting holiday and wedding celebrations from nearby villages drown out the howls of hyenas and the barking of the village dogs. So far, the values and customs of the villagers don't seem to be very much affected by the encroachment of modern civilization.

While Susie and Marylynn were struggling to stay warm and communicate with their hosts in the old India, Shukla and I were venturing about in the new India, in comfortable aircraft flying between modern domestic airports in which all announcements are repeated in the most polite English. Stops included research institutes in the high-tech centers in Bangalore (IISc) and Pune (IITM) and extended stays at the Indian International Center in Delhi adjacent to Lodi Garden and the India Met. Department. We gave numerous lectures and we had the opportunity to meet with many students and faculty members to discuss their research. We also participated in workshops on the current state of the Himalayan glaciers and in prediction of the Indian summer monsoon. Traveling with Shukla, there were days when I felt like a foreign dignitary, meeting high level government officials and getting to go behind the scenes. Especially memorable was the foggy afternoon at the airport at Delhi when, faced with the prospect of spending 3 hours in the waiting room listening to the announcer ex-

press her deep regret for the inconvenience caused by each and every one of the dozens of delayed flights, including our own, Shukla took out his cell phone and quickly arranged for us to be whisked away to the local weather forecast office, where we became so engrossed in discussions about fog forecasting that we nearly missed our flight.

I was impressed with the quality of much of the research that I was briefed on, and I was fascinated with problems relating to weather forecasting and the characterization of climate change over India. I am especially intrigued with winter air pollution and fog, which has been increasing in recent decades. I came away from the experience regretting that I hadn't come to India earlier in my career and hoping that it might nonetheless lead to some productive research collaborations with Indian students and scientists. I also came away impressed with the gravity and immediacy of the environmental issues that countries like India will be facing in the next few decades with the depletion of ground water and topsoil. Witnessing these problems first hand prompted me to write an op ed piece in the *Seattle Times* ([http://seattletimes.nwsourc.com/html/opinion/2011453141\\_guest28wallace.html](http://seattletimes.nwsourc.com/html/opinion/2011453141_guest28wallace.html)) and to resolve to make sustainability of life on this planet (including climate-related issues) the focus of my future outreach efforts, rather than climate change in and of itself.

On the way home I stopped in China while Susie and Marylynn and her friend, Catlin Goss, traveled to Dharamsala, in the shadow of the Himalayas. My China visit began with a day

(Continued on page 4)

*Visit to India, cont. from page 3*

of lectures at the University of Lanzhou, followed by an overnight train ride westward to the start of the Silk Road, enjoying the lively company of Qiang Fu and Siyu Chen, a graduate student at Lanzhou University. We stopped at Jiayuguan in the morning to view the western terminus of the Great Wall covered with a layer of fresh snow and to taste some very good local wines at a luncheon banquet hosted by the deputy mayor. The next day we rode camels, climbed enormous sand dunes, and enjoyed a wonderful guided tour of the caves of Dunhuang, the site of some of the world's greatest art treasures. Next on the agenda was a week lecturing at Beijing University, where I was

hosted by Yongyun Hu, one of K. K. Tung's former postdocs. The final stop was the beautiful city of Qingdao, justifiably famous for its oceanographic university and institutes and its German style beer. I was absolutely dazzled by the changes that have taken place since I last visited China in 1984: the modernization of the cities, the massive public investments in transportation, education, and health care, which were accompanied by a dramatic improvement in the standard of living. Despite the increasing attractions of consumerism, the students I met on this trip seemed no less passionate about learning than the students I met when I last visited China a generation ago.



*With Jianping Huang (Dean) the day of my centennial lecture at Lanzhou University. I was impressed with the signage.*

## Peter V. Hobbs Memorial Endowed Lecture in Experimental Meteorology Presented May 21, 2010

The second Peter V. Hobbs Memorial Endowed Lecture was presented May 21, 2010 by Professor Greg M. McFarquhar. The talk was entitled "Use of In-situ Observations to Examine Aerosol Impacts on Mixed-Phase Arctic Clouds, Radiation and Climate."

### About the Lecture

Comprehensive data on arctic boundary layer aerosol and cloud microphysical and radiative properties were collected during the 2004 Mixed-Phase Arctic Cloud Experiment (M-PACE) and the 2008 Indirect and Semi-Direct Aerosol Campaign (ISDAC). During M-PACE, data from in-situ microphysical sensors were collected that characterize how cloud particle shape, size, phase and bulk properties varied with height. A much more comprehensive dataset was obtained during ISDAC, in which an unprecedented suite of 42 cloud and aerosol instruments was employed to study the influence of aerosols on clouds affected by ice. In-situ data obtained during ISDAC above, below, and within single-layer stratus are leading to a process-oriented understanding of how aerosols affect the microphysical and radiative properties of arctic clouds. Ultimately these data will be used to improve the representation of cloud and aerosol processes in models covering a variety of spatial and temporal scales, and to determine the extent to which long-term surface-based measurements can provide retrievals of aerosols, clouds, precipitation, and radiative heating in the Arctic.

### About the Speaker

Dr. McFarquhar is a leading authority on Cloud Physics, especially the physics of ice particles in clouds. In the tradition of Peter Hobbs, McFarquhar has led many field experiments using aircraft to make detailed measurements in clouds. His scholarship and teaching have been honored by the University of Illinois and the Canadian Meteorological and Oceanographic Society. He is a professor at the University of Illinois.

### The Hobbs Lectures

The Peter V. Hobbs Endowed Lectures bring distinguished atmospheric scientists to the Department of Atmospheric Sciences. This lecture series is made possible by a generous gift made in loving memory of Professor Peter V. Hobbs by his family.

### *Departmental News, cont. from page 2*

January 13. The proud parents are Becky Alexander and Dave Suess, along with sister Dayna. Matt and Jeralyn Brewer, as well as their daughter Leah, welcomed Grant Lincoln Brewer on May 24. Samantha Scherer and Jason Huff were proud to introduce their daughter, Georgia, on

*(Continued on page 8)*

## John Seinfeld 2010 Graduate Students Distinguished Visiting Lecturer

John Seinfeld was invited to visit the department as the Graduate Students Distinguished Visiting Lecturer. He gave a public lecture on April 8, 2010 entitled "Aerosols and Climate" and the Colloquium on April 9 entitled "Atmospheric Organic Aerosols."

Seinfeld is the Louis E. Nohl Professor and Professor of Chemical Engineering at the California Institute of Technology. He and his research group are divided into three overlapping areas: 1. laboratory chamber studies of the formation and evolution of atmospheric organic aerosols; 2. airborne field measurement of atmospheric aerosols and clouds; and 3. urban, regional, and global modeling of air quality and climate.

## World Premiere of a New Film by Norbert Untersteiner and Frans van der Hoven

A Special Colloquium was held on November 18, 2009, which featured the film documenting the trials and travails of Arctic Ice Station Alpha during the International Geophysical Year (IGY, 1957-58). Emeritus Professor Norbert Untersteiner was on hand to introduce the film and to talk more generally about how the IGY brought new vitality to the earth sciences at this university and throughout the world. The program included a panel discussion of how our knowledge of Arctic sea ice has advanced over the 50 years since the IGY: What have we learned and what are the major unresolved issues?

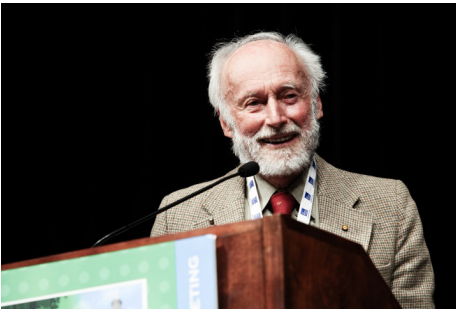
The program was followed by a reception in the Walker Ames Room at Kane Hall with entertainment by Prof. Dargan Frierson and The Blue Ice Ensemble.

## Alumni News

The 2011 UW Atmospheric Sciences Alumni Reunion will be held on Tuesday, January 25, in Seattle in conjunction with the AMS Annual Meeting (Jan. 23–27). The location will be at the UW Club where there will be hors d'oeuvres and a no-host bar at 6:00 pm and dinner at 7:00 pm. Registration information will be posted late this fall at <http://www.atmos.washington.edu/outreach/news.shtml>. To ensure you receive your email invitation, please send your current email address to [debbie@atmos.washington.edu](mailto:debbie@atmos.washington.edu) or call the main office at 206-543-4250.

**Jimmy Booth** ('10, Ph.D.) was in the “Research Highlights” of *Nature Geoscience* ([www.nature.com/ngeo/journal/v3/n1/full/ngeo742.html](http://www.nature.com/ngeo/journal/v3/n1/full/ngeo742.html)) for a paper submitted with UW colleagues on analysis of wind data from reanalyses of past observations.

**Steven Businger** ('86, Ph.D.) sent in the following news. Joost Businger (Emeritus Professor, Atmospheric Sciences, UW) received Honorary Membership in the AMS and I was elected Fellow at the 2010 AMS meeting in Atlanta. Fun serendipity for us.



Joost Businger at the 2010 AMS meeting.



Joost and Steven Businger at the AMS meeting in Atlanta.

**Amy Haase** ('02, B.S.) has completed graduate school at NCSU (May 15, 2010) earning a Master's Degree in Physical Oceanography and accepted a federal position at the National Weather Service—Meteorological Development Laboratory in Silver Spring, MD. She welcomes all to celebrate with her. Her new work email address is [amy.haase@noaa.gov](mailto:amy.haase@noaa.gov).

**Edward Hindman** ('75, Ph.D.) retired from teaching, research and service at The City Col-

## John M. Wallace Hall



Although it may not be on campus maps yet, the Academic Computer Center (ACC) has been renamed John M. Wallace Hall since February, 2010. The College of the Environment's Dean's Office, along with the Joint Institute for the Study of the Atmosphere and Ocean and the Program on the Environment occupied the Academic Computer Center, a building which no longer housed a computer center. This caused confusion for students and visitors, especially those who were looking for computer

support or access. As a result, a request was put forward seeking approval to change the name. The University's space naming policy stipulates that in order to name a building after a person, they must have provided “distinguished service to the University” or have “made a substantial contribution to society.” Professor John “Mike” Wallace's long-standing service both to the UW and to the field of climate studies fulfilled both of these criteria.

lege of New York in September 2007. He is the editor and publisher of *Technical Soaring* ([journals.sfu.ca/ts/](http://journals.sfu.ca/ts/)).

**Jennifer Francis** ('94, Ph.D.) and family made it back safe and sound from their yearlong ocean voyage in the northeast Atlantic aboard the *Saphira*, their “atlantic 55” catamaran, and returned to New England in summer of 2010.

**Andrew Legear** ('94, B.S.; AFROTC), F-15 pilot, Portland, Oregon. According to Andrew, he has the most credibility when arguing about the flying weather with his fellow pilots thanks to his UW B.S. in Atmospheric Sciences. He's planning on attending the January 2011 reunion during the AMS convention in Seattle.

**Joel Norris** ('97, Ph.D.) was promoted to full professor at the Scripps Institution of Oceanography. During July 2010–August 2011, he will be on sabbatical at NASA Langley Research Center.

**James Renwick** ('95, Ph.D.) co-leads the climate research group at NIWA in Wellington, New Zealand. He was elected President of the NZ Association of Scientists in November 2009, and was recently selected to be a Lead Author on the IPCC 5th Assessment Report due out in 2013.

**David Reidmiller** ('10, Ph.D.) will be the 2010–11 AMS-UCAR Congressional Fellow following in the footsteps of our department's own Kevin Rennert (Mike Wallace's student, now on the staff of Senator Bingaman), who held the same fellowship 2 years ago.

**William Sites** ('82, B.S.) retired from the NOAA Corps in 2005. Bill is now a civilian hydrologist with the NOAA National Weather Service North Central River Forecast Center in Chanhassen, Minnesota. He lives in Waconia, Minnesota with his wife, Kellie, and their two daughters, Haley (16) and Claire (13).

**George Vassiliou** ('87, M.S.). After having a career working on contract at the Naval Research Lab in Air-Sea Interaction and Laser Radar, at NASA in Satellite Remote Sensing, and at NOAA in Satellite Applications and Data, George moved on to Finance and Investments. He is Vice President at Merrill Lynch and lives in Washington, DC, with his wife Sarah and their two children. He always fondly remembers the Department, his professors, fellow students, and the friends he made while in Seattle, and he hopes to visit sometime soon.

## Congratulations to Graduates

### Doctor of Philosophy

- Booth, James F.**, *The Influence of the Gulf Stream on Midlatitude Storms* (Thompson/Patoux)
- Casola, Joseph H.**, *On the Variability of the Snowpack of the Washington Cascades* (Wallace)
- Harris, Lucas M.**, *On the Relative Performance of One-way and Two-way Grid Nesting* (Durran)
- Minder, Justin R.**, *On the Climatology of Orographic Precipitation in the Mid-latitudes* (Durran)
- Reidmiller, David R.**, *The Long-range Transport of Asian Air Pollution: Its Variability and Impacts on Western North America* (Jaffe/Koenig)

### Master of Science

- Alrick, Daniel M.**, *Mesoscale Modeling of a Narrow Cold-Frontal Rainband to Assess the Mechanisms Responsible for the Core/Gap Structure* (Stoelinga)
- Eastman, Ryan M.**, *Interannual Variations of Arctic Cloud Types in Relation to Sea Ice* (Warren)
- George, Rhea C.**, *Subseasonal Variability of Low Cloud Radiative Properties over the Southeast Pacific Ocean* (Wood)
- McCormick, Hafen S.**, *Observations and Modeling of Snow over the Washington Cascades* (Stoelinga)
- Pendergrass, Angeline G.**, *Time-Averaged Data Assimilation for Midlatitude Climates: Towards Paleoclimate Applications* (Hakim)
- Virts, Katrina S.**, *Cirrus in the Tropical Tropopause Transition Layer: Formation Mechanisms and Influence of the Local and Planetary-Scale Environment* (Wallace)
- Wolcott, Reid**, *A Case Study of Doppler Radar Radial Velocity Assimilation with an Ensemble Kalman Filter* (Hakim/Mass)

### Bachelor of Science

- Paul A. Barnard  
Jonathan D. Brandel  
Jason D. Brown  
Edward Carter  
Farranne A. Guiler  
David C. Hiestand  
Maya Itagaki  
Steven M. Jones  
Roxanne J. Little  
Felipe D. Lopez-Hilfiker  
Robert Marshall  
Mark Robinson  
Naoko Sakaeda  
Jayson D. Stemmler  
Nicholas E. Wayand  
Christopher Wenzel  
Aya Yakura

## Welcome to New Graduate Students for 2010–2011

- Angel Adames**, University of Puerto Rico  
**Hannah Barnes**, University of Wisconsin  
**Paulo Ceppi**, Swiss Federal Institute of Technology  
**Jennifer DeHart**, University of Michigan  
**Felipe Lopez-Hilfiker**, University of Washington  
**Luke Madaus**, University of Oklahoma  
**Elizabeth Maroon**, Massachusetts Institute of Technology  
**Daniel McCoy**, New Mexico Institute of Mining & Technology  
**Xiaoming Shi**, Lanzhou University  
**Nicholas Siler**, Harvard University (Second Year Graduate: transferred from ESS)  
**Nathan Steiger**, Brigham Young University  
**Chen Zhang**, Peking University



## Scholarships and Awards

2010 Program on Climate Change Fellowship:

**Chen Zhang**

2010 Holton Scholarship:

**Luke Madaus**

2010 Top Scholar Award:

**Hannah Barnes, Paulo Ceppi, Elizabeth Maroon, Nathan Steiger**

2010 Leovy Scholarship:

**Daniel McCoy**

2010 National Defense Science and Engineering Graduate (NDSEG) Fellowship:

**Elizabeth Maroon, Nicholas Siler**

2010 Christine Mirzayan Science and Technology Policy Fellow:

**David Reidmiller**

2010 DoE Science Graduate Fellowship:

**Beth Friedman**

2010 Air and Waste Management Associate Graduate Scholarship:

**Reddy Yatavelli**

2010 National Science Fellowship (NSF):

**Stephen Po-Chedley, Nicole Wigder**

2010 ASR Science Team Meeting Student Poster Award:

**Tyler Thorsen, Stuart Evans**

2010 Outstanding Student Oral Presentation Award, 2nd Place, AMS Conference on Mountain Meteorology:

**Justin Minder**

2010 Phil Church Award:

**Robert Marshall**

The Phil Church Award is given to the graduating senior in the Department of Atmospheric Sciences with the most outstanding record of scholarship, leadership and service. Professor Phil Church was the founder and first Chair of the Department of Atmospheric Sciences.

2010 Atmospheric Sciences Achievement Awards:

**David Hiestand, Robert Marshall, Naoko Sakaeda**



## Undergraduate and Faculty Research

The following undergraduate students and faculty member worked together during the past year:

**Tyler Burns** / Robert Houze: NASA Cloud Satellite Ice.

**Jason Stemmler** / Robert Wood: CALIPSO lidar analysis of clouds, aerosols, and albedo.

**Naoko Sakaeda** / Robert Wood: Climate modeling of biomass burning aerosols effect on radiative forcing.

**Helen Amos** / Becky Alexander: Atmospheric chemistry.

**Nick Davis** / **Josh Smith** / Dargan Frierson: Characterizing Global Changes in Tropopause Height and Jet Stream Location.\*

**Robert Marshall** / Dargan Frierson: Moist Convection and Extratropical Static Stability in Aquaplanet GCM Simulations\*

\* Presented at 2010 UW Undergraduate Research Symposium.



## Donor Recognition

The Department of Atmospheric Sciences gratefully acknowledges the donors who have generously supported us during the past fiscal year July 1, 2009 through June 30, 2010.

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(Continued on page 8)

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**Alumni Reunion**

The 2011 UW Atmospheric Sciences Alumni Reunion will be held on Tuesday, January 25, in Seattle in conjunction with the AMS Annual Meeting (Jan. 23–27). The location will be at the UW Club where there will be hors d'oeuvres and a no-host bar at 6:00 pm and dinner at 7:00 pm. Registration information will be posted this fall at <http://www.atmos.washington.edu/outreach/news.shtml>. To ensure you receive your email invitation, please send your current email address to [debbie@atmos.washington.edu](mailto:debbie@atmos.washington.edu) or call the main office at 206-543-4250.

*Departmental News, cont. from page 4*

May 31. Brian and Heidi Magi, along with their daughter Anja, are glad to announce the safe and healthy delivery of Soren on July 15. Socorro Medina and Robert Wood are happy to welcome their daughter Leonora on August 13.



**Contact Us**

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Debra Wolf, Editor

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Please send alumni news, comments, questions, corrections and address updates to [alumni@atmos.washington.edu](mailto:alumni@atmos.washington.edu) or call (206) 543-4250.