Autumn 2012
Atmospheric Circulation
Newsletter of the University of Washington Atmospheric Sciences Department

The Weather Challenge

by Lynn McMurdie

The UW Atmospheric Sciences spring forecast contest has been an annual tradition in the department for many years. It's a time when faculty and students alike agonize over whether there will be a marine push or a convergence zone wrecking their forecast for maximum temperature and precipitation probability at SeaTac. The winner earns department-wide recognition with their name engraved on a trophy, and the respect (or envy!) of their fellow forecasters.

Now imagine forecasting for a wide-variety of cities across the United States and competing against thousands of other contestants from many other universities and institutions across the country. That's just what a group of intrepid undergraduate and graduate students did this past year. For the first time, University of Washington entered a team in the national *WxChallenge*.

The *WxChallenge* contest was developed by the University of Oklahoma and officially started in 2006 when it replaced the National Collegiate Weather Forecast contest. The goal of the *WxChallenge* is to make the best forecast of the next day's maximum temperature, minimum temperature, maximum sustained wind, and accumulated precipitation at a designated city. Forecasts are made over a two-week period for each preselected city. The 2011–2012 contest included Miami FL, Riverton WY, Dayton OH, Juneau AL, Erie PA, New Orleans LA, Providence RI, Albuquerque NM, Hilo HI and Lincoln NB. This variety of locations presented our forecasters with practically every weather challenge possible from tropical convection, snowstorms, high wind events, and frontal passages to lake effect snow, dust storms, and sea breezes. Each participant's forecast is scored against verification. Like our local spring forecast contest, the lower the score, the better the forecast. Those individuals with the fewest points for each city and for the entire contest receive trophies. In addition, the school with the best overall team score receives bragging-rights and a trophy that can be displayed at their institution for the year.

Unlike our local spring forecast contest, the *WxChallenge* is a decidedly collaborative affair. In order to facilitate success for all UW team members, there were several group activities. We held weekly meetings to discuss the climatology and forecasting challenges for the current city. A mentor program was set up to match experienced forecasters with novices in order to guide the new forecaster through the forecast process and to talk about the day's challenges. Often impromptu discussions would erupt in the computer lab or someone's office when tricky forecasts were looming overhead ("Should I go 32F or 31F for the min?," "Will there be sea breeze convection at Miami?," "Do I believe the GFS's or NAM's timing on that frontal rain?"). Most importantly, our own local webpage was set up with many valuable links to weather data and numerical model graphics. In particular, Luke Madaus, a 2nd year graduate student, created a very useful verification graphics webpage. It was updated every hour for the current city and included statistics of how the Model Output Statistics (MOS, a statistically produced forecast based on numerical model forecasts generated by the National Weather Service for stations across the country) was performing, and his own ensemble Kalman filter and analog ensemble forecasts.

A few of this year's participants. From left: Xiaojuan Liu, Jack Neukirchen, Hannah Barnes, Jen DeHart, Elizabeth Maroon, Lynn McMurdie, Magdalena Szabo and Ken Dixon.

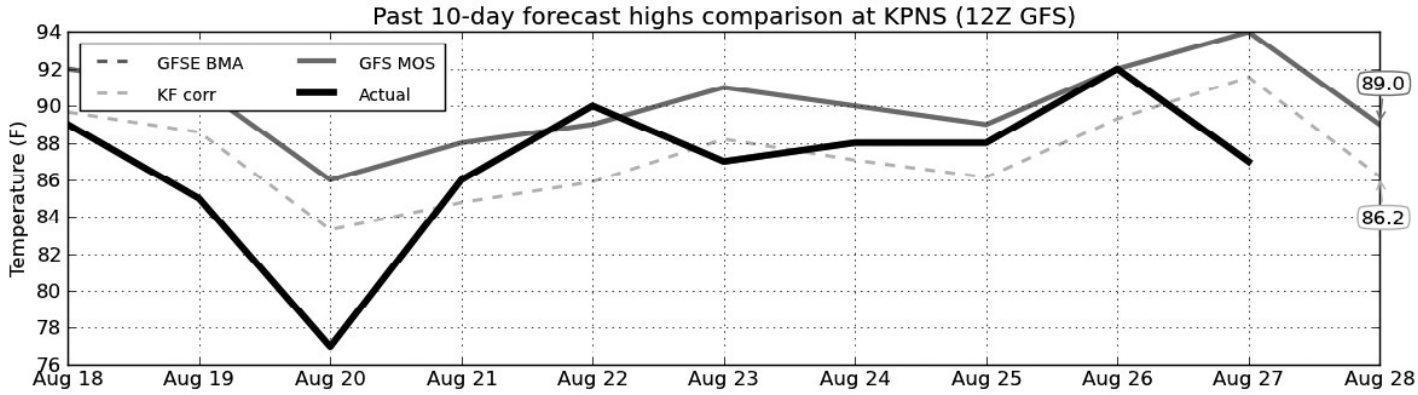
So how did the UW Atmospheric Sciences team fair in this competitive contest? With a group of 10 undergraduate and graduate students (and one lone faculty member) in the fall and 25 team members in the spring, UW placed 10th out of more than 50 institutions, with several individuals doing extremely well at specific cities. Jack Neukirchen, a freshman straight out of Atmos. Sci. 101, nearly won the freshman/sophomore division for New Orleans. The entire team watched the observations hourly hoping Jack's bold forecast for a cold minimum temperature would verify. Alas, Jack's hopes were dashed when the cold air was held up; the temperature failed to drop and he slipped into 3rd place. Aaron Hill, a recent 2012 grad, had the top score in the nation for wind at Riverton, WY. Elizabeth Maroon, a 2nd year graduate student and experienced *WxChallenge* forecaster from her undergraduate days at MIT, was the top finisher for our UW team, finishing 102nd out of more than 1,800 participants.

Plans are in place to enter a team in next year's *WxChallenge*. Our goals are to perform even better than last year, to continue to improve our locally-generated verification graphics, and to recruit dedicated, enthusiastic undergraduate and graduate students. Past participants found it an enjoyable and valuable way to learn the nuances of forecasting and especially appreciated the camaraderie experienced between faculty, graduate, and undergraduate team members. For more information about the 2012–2013 contest, please see the *WxChallenge* webpage at http://wxchallenge.com/index.php or contact Lynn McMurdie (mcmurdie@atmos.washington.edu) or Elizabeth Maroon (emaroon@atmos.washington.edu).

Acknowledgements: Special thanks to Elizabeth Maroon for talking me into taking on the *WxChallenge*, actively recruiting undergraduate and graduate students alike, and for acting as team administrator. Also kudos to Luke Madaus for his verification graphics development and for mentoring undergraduate students in forecasting and computer programming.

(WxChallenge—Continued on page 2)

***WxChallenge**, cont. from page 2*



Comparison of observed high temperature (black) to GFS MOS forecast high temperature (dark gray) and Kalman filter forecast of high temperature (dashed light gray) for the past 10 days at Pensacola, FL. The GFS MOS forecast for the following day is 89°F (top right number in box on figure). The MOS forecast has been experiencing a warm bias for most of the past 10 days since the black line is lower than the gray line. Therefore the forecaster might want to make a cooler forecast than GFS MOS based on it's past performance and indeed, the Kalman filter makes this adjustment and has a forecast of 86.2°F for the following day (bottom right number in box).

Chair's Column

When I first arrived at the University of Washington in Spring 1999, I was given an office on the third floor of ATG. Conway Leovy was in the office next to mine, and next to him was Bob Fleagle. I remember seeing Bob sitting behind a fantastic oak desk, and thinking that he looked like the captain at the helm of a ship. I made some discrete inquiries about the fate of the desk after Bob no longer needed it, and left it at that. Thirteen years later, I bumped into our department administrator, Scott Sipes, who asked if I had any ideas about finding a home for a beautiful old oak desk. A deeply recessed memory immediately came to life–I knew of only one beautiful old oak desk in this department! So I am happy to report that the desk has "come home" to the Chair's office in ATG 408.

Sitting at Bob's old desk inspired me to read his book *Eyewitness: Evolution of the Atmospheric Sciences*. It provides a fascinating account of how the small program on meteorology and climatology developed, in large measure due to Bob's leadership, into the research powerhouse it is today. The department continues to grow in scope, with our newest faculty member, Abigail Swann, bringing research interests in biosphere-climate interactions. Our recent graduates continue to find very successful careers in academia, government labs, and private industry. Looking toward the future, we have plans to increasing the size of our undergraduate program, and to make our graduate program accessible to a larger group of students.

Budget pressures make these plans difficult to realize, as financial support continues to shift from the state to students in the form of increased tuition. We would like to offer students more financial support to help offset this sudden increase in tuition and, at the graduate level, to remain competitive with private institutions that have much deeper pockets for recruiting the best students. If you would like to make a difference with your charitable giving, contributions to support students have a substantial, very real, impact. On that note I would like to thank all of you that have donated in the past. We deeply appreciate your support and interest in our mission of discovery and education in atmospheric sciences. And please stay in touch–we love to hear the latest news from friends and alumni!

Greg Hakim

Greg Hakim behind the Fleagle desk.

Department News

Associate Professor Cecilia Bitz did web casts in Churchill, Canada, on the tundra with polar bear biologists the week of Nov. 8, 2011. A teleconference was arranged for her 501 class as well. Check out *Scientists and Explorers Blog* (Nov. 10, 2011, http://www.polarbearsinternational.org/news-room/scientists-and-explorers-blog/sea-ice-and-polar-bears) and *UW Today* (Jan. 25, 2012, http://www.washington.edu/news/articles/injecting-sulfate-particles-into-stratosphere-wont-fully-offset-climate-change).

Emeritus Professor Robert Charlson was interviewed for *Columns* (June 2012) by Julie Garner entitled "A Patent Success" as the co-inventor of the first UW-held patent that brought royalties to the UW. The article can be found online at http://www.washington.edu/alumni/columns-magazine/june-2012/face-time/. He was also interviewed on KING 5 TV's Evening Magazine, "UW Celebrates 150 Years" on the segment "UW Inventions and Innovations," which was broadcast in May. As the King Carl XVI Gustaf Professor of Environmental Sciences (1999–2000), he was a speaker at The Royal Professors' Symposium on Global Sustainability in Sweden on March 22, 2012.

Faculty Awards and Honors—The very prestigious American Meteorological Society Jule G. Charney Award was given to **Professor Christopher S. Bretherton**. The department's teaching award for 2011–12 was awarded to **Assistant Professor Dargan Frierson** at the spring social. **Professor Robert A. Houze** has been elected as a Fellow of the American Geophysical Union. **Professor Clifford Mass** has been elected as a member of the Washington State Academy of Sciences. **Professor Peter Rhines** was named a 2011–12 Fulbright Scholar in Environmental Sciences. **Professor John M. Wallace** was elected as an Honorary Member of

(Departmental News—Continued on page 3)

Atmos Outreach Broadens Its Horizons

by Jack Scheff and Chris Terai
Grad Students and Outreach Coordinators

Every year, our volunteer K-12 outreach program (www.atmos.uw.edu/~outreach) connects to dozens of schools, camps and events with hands-on science demos and talks. In this respect, the 2011–12 academic year was no exception: at least 19 of our graduate students, two undergrads, one postdoc, and three professors collectively volunteered for 30 different school science nights, career days, class field trips to ATG, and other educational events located anywhere from Edmonds to Renton. The field trips and class visits alone served about 475 K-9th grade students, with hundreds more stopping by and participating during the science nights. Thank you so much to everyone who donated their time and gas to help kids get excited about science, weather and the atmosphere!

However, we also want to highlight two new and exciting developments in Outreach's repertoire and mission this spring. First, we exhibited at four large, multi-hour public science events drawing people of all ages from all over the Puget Sound area. These were the UW "PAWS-On Science" weekend at the Pacific Science Center (pictured), NASA's Climate Day at the Museum of Flight, the Seattle Science Festival, and the HuskyFest (UW's 150th birthday weekend). Visitors were able to try a range of atmospheric activities, including our traditional cloud and air pressure demos, two new climate-change experiments (see below), a suite of chaos and predictability demos developed by Prof. Dale Durran, and a portable, educational rotating tank built by grad student Elizabeth Maroon. We had a great time interacting with kids and adults at these events and hope to return next year!

Second, the invitation to NASA's Climate Day prompted grad students Stu Evans, Bryce Harrop, Ben Hillman, Kelly McCusker, Max Menchaca, and Chris Terai, and Prof. Dargan Frierson to develop two new, hands-on, simple demos relating to climate change, and an accompanying poster illustrating the basic story of CO_2 in the environment. Over the course of a month and a half this spring, they perfected an ocean-acidification activity that uses the participants' breath to acidify regular tap water, plus an infrared demo that shows how visible and infrared light transmit differently through various household materials using IR thermometers. This finally filled the outreach program's long-standing need for easy climate activities, and is very much appreciated. These demos have now been adopted into our core repertoire alongside can-crushing and cloud-in-a-bottle, and we hope they will engage folks for many years to come.

A child at the Pacific Science Center talks to grad student Eowyn Baughman about the double pendulum (at right) and our hard-to-predict weather.

As a final note, the movie team has finished filming its latest YouTube video! Director and grad student Bryce Harrop tells us that it's in post-production and is due out this fall. The topic is Ocean Acidification. For previous films in the series (see the article in last year's newsletter), go to our channel, www.youtube.com/user/UWAtmosOutreach—we now have more than 8,000 views!

Thank you so much again to everyone who has volunteered this year, and we hope next year will be better yet!

Drones over Hurricanes

by Prof. Robert Houze

Professor Houze has recently been funded as a member of NASA's Hurricane Science Team to participate in a groundbreaking program to fly large drone aircraft over the tops of hurricanes. NASA has obtained two Global Hawk aircraft that will be used to investigate hurricanes for the next three years. One Global Hawk is equipped with dropsondes (like balloon soundings except that the instruments are dropped from an aircraft) to observe the environment around the storms. Another Global Hawk is equipped with radar and other remote-sensing instruments to investigate the internal structures of the storms. The Global Hawks fly at 50-60,000 feet and stay in the air for 30 hours at a time, so they can monitor a storm much longer than a piloted aircraft. The pilots and scientists work on the ground by monitoring the aircraft's position and data remotely. This project will forever change the way hurricanes are investigated by aircraft. Professor Houze and his graduate student Jennifer DeHart participated in the first field phase of this project, called the Hurricane and Severe Storm Sentinel mission (HS3), during September 2012.

NASA Global Hawk. Courtesy of NASA.

Public Lectures

The third **Peter V. Hobbs Memorial Endowed Lecture** was given on Feb. 7, 2012. The speaker was Prof. Owen Brian Toon from the Dept. of Atmospheric and Oceanic Sciences, University of Colorado. The lecture was entitled "The Anti-Greenhouse Effect Along the Spiral of Geologic Time." Prof. Richard B. Alley was invited to visit the department as the **Graduate Students' Distinguished Visiting Lecturer**. He gave a public lecture on May 23 entitled "Learning While Burning: Energy, Economy, and Environment." For more information on our public lectures, see http://www.atmos.washington.edu/alumni.update/lectures.shtml.

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the American Meteorological Society.

The Langley Hill Coastal Radar dedication ceremony was attended by Professors Clifford Mass and Dale Durran on September 29, 2011. Mass' web page on the radar is at http://www.atmos.washington.edu/~cliff/Langleyradar.html.

Promotions—David Catling has been promoted to Professor of Earth and Space Sciences and Adjunct Professor of Atmospheric Sciences. **Gregory Hakim** has been promoted to Professor of Atmospheric Sciences and is the department's new chair. **Dargan Frierson** has been promoted to Associate Professor of Atmospheric Sciences with tenure.

Shout Out to the UW AMS Chapter by the OAR Northwest Forecasting! Kristen Rasmussen reported that the UW AMS Student Chapter provided twice daily forecasts for the OAR Northwest Expedition (Vancouver Island circumnavigation) that came to a close on May 1. The students put a lot of time and effort into giving the rowers the best possible weather forecasts for their trip. The team and organizers of the expedition really appreciated our efforts. See the bottom of the blog post for a special shout out to the UW AMS chapter (http://oarnorthwest.com/2012/05/expedition-support/).

In Memoriam
Norbert Untersteiner

by Axel Schweiger, Polar Science Center, Applied Physics Laboratory

The Arctic is losing its sea ice. Arctic research lost one of its giants. Norbert Untersteiner passed away on March 14, 2012.

Reports about changes in the Arctic are all over the news. Norbert wasn't a friend of the media frenzy around every new record. However, it is hard to imagine any serious scientific assessment of these changes without encountering the work of Norbert Untersteiner.

Norbert is the father of modern day sea ice physics. He was the station leader of the 1957 International Polar Year Arctic drifting station Alpha, the first manned drifting ice station conducted by the West. This experience informed and inspired Norbert's leadership of the Arctic Ice Dynamics Joint Experiment (AIDJEX) in the early 1970s. This was truly pioneering research that required an ambitious field campaign with up to four manned camps on the drifting pack ice. It paved the way for subsequent numerical models of sea ice used in modern climate models which are used today to predict and understand global climate change. At the conclusion of AIDJEX, Norbert formed the Polar Science Center (PSC) at the University of Washington. As the Director of PSC from 1981–1988 he inspired the thoughtful integration of logistics, observations, and modeling, used by PSC in advancing Arctic research for more than 30 years.

In 1979 Norbert helped established the Arctic Buoy Program as a contribution to the Global Atmospheric Research Program. This later became the International Arctic Buoy Program (IABP), which has been providing invaluable data on atmospheric temperature and pressure as well as sea ice drift for the past 33 years. This data set has helped reveal fundamental characteristics of sea ice, arctic climate and weather. IABP data have been used by thousands of researchers all over the world and are routinely used in global weather prediction.

Norbert's career involved appointments in Washington, DC, working with NOAA and ONR advancing the cause of U.S. and international arctic research programs. He served as science advisor to numerous Federal agencies. Norbert's dislike for bureaucracy was always outmatched by his ability to maneuver through it and make things work.

In 1988, Norbert left PSC to join the Department of Atmospheric Sciences at the University of Washington as its chairman. During his chairmanship, the University of Washington cemented its international leadership in polar research, bringing together expertise from across its campus.

In the mid-1990s, Norbert was again in the game, helping to get the SHEBA research program launched. His experience and insights helped shape this unique research program which involved an ice-breaking ship frozen into the Arctic sea ice for a year. Research from this program has been an immense contribution to climate research.

Norbert retired in 1997, but his contributions to polar research continued until his death. For the last 15 years he led the U.S. MEDEA Committee tasked with releasing, in cooperation with Russia, formerly classified information describing Arctic climate. This effort produced the U.S.-Russian Atlases that reveal just how much the Arctic environment has changed in recent decades. More recently his work with MEDEA yielded public access to previously classified high-resolution satellite images from U.S. spy satellites. His most recent efforts with this group, until just a few months ago, were dedicated to applying a new autonomous platform, "the wave-glider," to Arctic research. An appointment in 1999 as the Chapman Professor of Physical Sciences at the University of Alaska, Fairbanks, kept his teaching skills honed and allowed him to bring many distinguished scientists to Fairbanks as guest lecturers.

Norbert's work has helped transform early concepts of the role of the ice albedo feedback in climate change to modern climate models. By conducting, guiding, stimulating and coordinating research into the fundamentals of sea ice thermodynamics and dynamics over the course of half a century, he has provided the physical underpinnings for this critical element of the climate system. As a scientist who spent a great deal of time in the field and understood sea ice like no other, he was never satisfied with how climate models represented sea ice. He kept asking hard questions and helped drive improvements.

Norbert remained enthusiastic about science until his death. He was a frequent visitor and regularly called on PSC scientists to talk about some new idea or development. In 2011 he was the co-author of two publications, including a wonderful review about the state of sea ice research for *Physics Today*.

Anyone who had the pleasure of knowing or working with him will remember him as a gifted scientist, with a quick wit, jocular spirit, and a wonderful intuition for how things work and how to get things done.

Houze's Group in the Malidives: A Successful Field Campaign Ended by a Revolution

by Prof. Robert Houze

Kristen Rasmussen (left) and Hannah Barnes (right) with S-PolKa radar in the background.

From the end of September 2011 until the middle of January 2012, Prof. Houze's group was involved in a major international field campaign. They were on a tiny atoll on the equator in the middle of the Indian Ocean. Called Addu, the archipelago where the group was working is about 10 miles long and less than a mile wide, with four little islands connected by one road. They were living on Gan Island in former RAF barracks that have been converted to a low-end resort for scuba divers (metal roofs, just a bed, bathroom, and no tv or phone). The UW group was funded to use the NCAR S-PolKa radar, which was brought in by ship and set up on Hithadoo Island. There they monitored and analyzed the radar data, learning a lot about how convective clouds behave in this equatorial oceanic environment. Prof. Houze was on the atoll for the first 2- months aided by project engineer Stacy Brodzik, and UW graduate students Kristen Rasmussen, and Scott Powell. For the second 2-months, recent UW Ph.D., Deanna Hence led the project on site, aided by UW graduate student Hannah Barnes, Dr. Kaustav Chakravarty from India, and two graduate students from other universities. UW graduate student Angel Adames joined the project for the last month to help with the operation of the Texas A&M SMART-R radar under the direction of Prof. Courtney Schumacher, who received her Ph.D. from UW under Prof. Houze in 2003. The island radar observations were obtained in coordination with two ships, two aircraft, and a network of rawinsonde stations. The goal of the project was to understand how clouds occurring in connection with the Madden-Julian Oscillation (MJO), a major intraseasonal variation of the tropical atmosphere, interact with the larger-scale atmospheric circulation. Prediction of the MJO is a major problem in atmospheric dynamics and better understanding of its interaction with clouds is thought to be needed to improve weather and climate forecasting by global models. The data of the project were collected successfully, documenting at least two occurrences of MJO events, but the project was ended abruptly in February by a political insurrection in the Maldives. All observations were ended at that time, and scientists were evacuated, as government buildings were being burned down all over the atoll. Houze's group had already left by then, having successfully collected the S-PolKa data. Angel was the only one present at the time of the insurrection, and he was flown home safely.

Congratulations to Graduates

Doctor of Philosophy

Barnes-Keys, Elizabeth, *Influence of Meridional Constraints and Eddy Feedbacks on Low-Frequency Variability and Its Response to Climate Change* (Hartmann)

Dinh, Tra Phuong, *Cirrus and Water Vapor Transport in the Tropical Tropopause Layer* (Durran)

Hence, Deanna A., *The Vertical Structure of Precipitation in Tropical Cyclones as Seen by the TRMM Precipitation Radar* (Houze)

Kirkman, Clark H., IV, *The Response of the Southern Ocean to Variable Wind Forcing and the Role of Sea Ice* (Bitz)

Leahy, Louise V., *On the Nature and Extent of Optically-Thin Clouds over Land and Ocean* (Wood)

Master of Science

Brown, Bonnie, *Characteristics of the Variability and Predictability of Three-Dimensional Hurricanes in Steady State* (Hakim)

Hillman, Benjamin R., *Evaluating Clouds in Global Climate Models Using Instrument Simulators* (Ackerman)

Hills, Matthew, *Nonstationary Trapped Gravity Lee Waves in a Time Varying Flow* (Durran)

Goldenson, Naomi L., *Arctic Climate Response to Light-Absorbing Particles in Snow and Sea Ice in the Community Earth System Model* (Bitz)

Luan, Yurong, *Variability in Long-Range Transport of Aerosols from East Asia and North America* (Jaeglé)

Po-Chedley, Stephen D., *Reconciling Tropospheric Temperature Trends from the Microwave Sounding Unit* (Fu)

Zatko, Maria C., *The Influence of Snow Grain Size and Impurities on the Vertical Profiles of Actinic Flux and NO_x Emissions on the Antarctic and Greenland Ice Sheets* (Alexander)

Bachelor of Science

Joshua Best
Marty Bouma
William Burns
Eugene Chan
Andrew Geiss
Aaron Hill
Amy Huang
Ricardo Humphreys
Charles Ironmonger
Jeffrey Langston
Charanjit Pabla
Joshua Smith
Arturo Urquieta
Eric Wachtendorf
Justin Walker

Welcome to New Graduate Students for 2012–2013

Trevor Morgan, Western Washington University
Kimberlee Nighelli, Embry-Riddle University
Lee Picard, University of Miami
Gregory Quetin, University of Washington
Rick Russotto, Yale University
Viral Shah, Indian Institute of Technology Bombay
Matthew Woelfle, North Carolina State University

Scholarships and Awards

2012 Top Scholar Award:

Gregory Quetin, Rick Russotto

2012 American Meteorological Society (AMS) Fellowship:

Kimberlee Nighelli

2012 National Science Foundation (NSF) Graduate Research Fellowship Program (GRFP) Fellowship:

Maximo Menchaca

2012 National Defense Science and Engineering Graduate (NDSEG) Fellowship:

Daniel McCoy

2012 Peter B. Wagner Memorial Award for Women in Atmospheric Science:

Kristen Rasmussen

2012 NOAA Climate and Global Change Postdoctoral Fellowship:

Phuong Tra Dinh, Elizabeth Barnes-Keys

2012 Mindlin-Reed Scholarship:

Cory Tung

2012 Program on Climate Change (PCC) Fellowship:

Gregory Quetin

2012 Weather Research Scholarship:

Steven Brey

2012 Atmospheric Sciences Achievement Awards:

Aaron Hill, Ricardo Humphreys, Justin Walker

2012 Phil Church Award:

Aaron Hill, Richardo Humphreys

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.

Undergraduate and Faculty Research

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

Joshua Best / Dargan Frierson: Static Stability in CMIP5 Simulation.

Steven Brey / Dale Durran: Demonstrating Latent Heating.

Steven Brey / Dargan Frierson: Experiments to Show Condensation as a Source of Latent Heat.

Tyler Burns / Robert Houze: Hurricane Research (RAINEX).

Kenten Danas / Joel Thornton: Understanding the Impact of the Sacramento Urban Plume on the Air Quality of the Sierra Nevada Foothills.

Aaron Hill / Robert Houze: Orographic Precipitation.

Weikun Hu / Dargan Frierson: Precipitation Changes in the 20th and 21st Centurys in CMIP5 Simulations.

Ricardo Humphreys / Robert Wood: Low Cloud Statistics from a Regional Climate Model.

Judy Twedt / Dargan Frierson: Surface Heat Flux Changes in CMIP5 Simulations.

Eric Wachtendorf / Thomas Ackerman: Data Analysis of the Community Collaborative Data Network, State Climatologist Office.

Justin Walker / Robert Wood: Tropical Tropopause Cirrus Structure Using Airborne Lidar.

Xiyue Zhang / Cecilia Bitz: Projected Decline in Snow Depth on Arctic Sea Ice Caused by Progressively Later Autumn Open Ocean Freeze-up This Century.

Donor Recognition

The Department of Atmospheric Sciences gratefully acknowledges the donors who have generously supported us during the past fiscal year July 1, 2011 through June 30, 2012.

Individual Donors

Gerhard Achtelik Jr. & Lauren Achitelik
Andrew Ackerman
Thomas & Linda Ackerman
Rashid Akmaev
Gifford Asher
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John & Vivian Karamanian
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Pamela Keeley
Liz & Ronald Keeshan
Larry Kingsbury
Thomas & Laura Kleespies
Stephen Klein
B. Matthew Knapp
Kevin & Sheri Kodama
Joost Businger & Marianne Kooiman
Karen Kowalewsky
Frank Krentz
Terence Kubar
Walter Kuciej
Lois & Richard Lamb
Robert & Bonnie Landen
Teresa & Tim Lawson
Margaret Le Mone & Peter Gilman
John Leathers
Jonell & Christopher Lee
Andrew LeGear
Martha Lentz & Jonathan Noll
Amanda Lindsey
Karin Link
William Lipscomb
Mario Lopez
Arthur Loring
Janet Lowry
Mark Lutz
Mark Maghie & Julie Barbo
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Clayton Paulson
Jorge Peraza
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John Rehr
Lee & Katherine Reinleitner
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Carol & William Viertel
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Justin Walker
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Stephen Warren & Phoebe Caner Warren
Marvin & Joan Wayne
Mary Wieland (D)
Richard Wieland
Natalie Wilkie
Michael Winter
Michael Winton & Gretel LaVieri
Debra Wolf
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Xiaoli Zhu & Juan Liang
Xun Zhu & Wei Liu

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Alumni News

Ed Boselly ('64, B.S.) was elected the Distinguished Alumnus for 2012 from the Department of Atmospheric Sciences at the University of Utah, where he received his M.S. Degree in 1968.

Ioana Dima-West ('05, Ph.D.) sent in the following news. Career: I'm still at the same company, AIR Worldwide, working as a Senior Research Scientist, but now more focused on climate and climate change projects as well as real-time evaluations of hurricane risk in the Atlantic Basin. Personal: I've had my second baby last year, on August 11. His name is Nicholas, he is super-energetic and almost walking. He and his 3-year-old brother, Paul, are playing together very nice...most of the time. Big change coming up: We are moving to London in October. I've asked for a transfer to our London office and I will continue to work on similar projects there but with more focus on the European market. The best part is that we will be just 3 hours away from my family in Bucharest.

Curtis James ('04, Ph.D., Associate Professor of Meteorology, Embry-Riddle Aeronautical University). In May, he had a mountain biking accident and shattered his left elbow. In June, he conducted a 3-week study abroad course on mountain meteorology in the Swiss Alps with 13 of his students.

Lucas Harris ('10, Ph.D.) took a Physical Scientist position in January 2012 at the Geophysical Fluid Dynamics Laboratory in Princeton, NJ, after a postdoc at Princeton University.

Wayne Huseby ('69, B.S.) taught an *Introduction to Meteorology and NW Weather* class at the Anacortes Sr. College in the Spring of 2012. Prof. Cliff Mass' book, *The Weather of the Pacific Northwest*, was one of the key references used for the course. The class was intended to give students a fundamental grasp of the physics that drive weather in a non-mathematical way. Emphasis was placed on some of the more unusual characteristics of our NW weather. Although Wayne's 32-year professional career was in telecommunications, he has maintained a keen interest in the sciences and education over the years. He is an active member of the community and also tutors mathematics at the local high school.

D. Steven Fox ('92, M.S.) completed his Atmospheric Sciences degree under Norbert Untersteiner. He has earned three other academic degrees (M.D., M.Sc. in Tropical Medicine & Public Health, and M.Phil. in Policy Analysis), and is nearing completion on a fourth (Ph.D. in Policy Analysis at RAND). He wrote, "Most of my professional time is devoted to health policy, both specific analysis topics, such as: understanding the effects of coordination between healthcare providers, and improving healthcare delivery in the developing world, as well as broader solutions, such as developing better decision analysis tools for policy makers. Climate change (and satellite remote sensing) come up a lot, so I am definitely using my UW education. My wife, Susan (also a physician) and I have been married for almost 16 years, and have three rambunctious boys. I continue to travel and enjoy outdoor pursuits—the five of us just returned last week (July) from participating in a 10,000+ person bicycle ride across Iowa (RAGBRAI) in "face melting heat" [Des Moines Register, 07/24/2012]. We enjoy the year-round sunshine here in Malibu, but are considering a move back to the Pacific NW next year if my policy work does not take me instead to Washington D.C. or elsewhere."

Judith Gray ('84, M.S.) has retired from the National Oceanic and Atmospheric Administration (NOAA) after 33 years of service. Judy started with NOAA as an officer in the NOAA Corps in 1978, deploying moorings in the equatorial Pacific that eventually became the TAO array. She joined UW/Atmospheric Sciences when she became a civilian NOAA employee at the Pacific Marine Environmental Laboratory, studying winds along Alaska's mountainous coastlines and air-sea interaction. Her career took her through two tours with NOAA's HQ for Oceanic and Atmospheric Research (OAR) and a long tenure as Deputy Director of the Atlantic Oceanographic and Meteorological Laboratory in Miami (with former UW professor, Dr. Kristina Katsaros). In 2010 and 2011, she was the Acting Deputy Assistant Administrator of OAR. For her service, Judy was awarded a Distinguished Career Award in 2011. She plans to stay involved with NOAA by assisting with the development of leadership training opportunities. Her new e-mail address is grayjud@gmail.com.

Louise Leahy ('12, Ph.D.) is now working at 3TIER.

Bill Lipscomb ('98, Ph.D.) received the 2012 Distinguished Achievement Award for contribu-

(Alumni News—Continued on page 8)

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Alumni News, cont. from page 7

tions to the Community Earth System Model.

Justin Minder ('10, Ph.D.) started a tenure track position in Fall 2012 as an Assistant Professor in SUNY Albany's Department of Atmospheric and Environmental Sciences.

Ralph C. Monis ('90, B.S.) was an undergrad student from 1987–1990. He worked under Prof. Kristina Katsaros from 1990–1995. He helped with research on the SOFIA research cruise onboard the RV Le Suroit from the IFREMER fleet and on the Floating Laboratory Instrumentation Platform (FLIP) based at the Scripps Institute. He worked along with the following people: Serhad Atakturk, Janice DeCosmo, Neal Johnson, Fred Weller and Steve Domonkos. He is now an IT Engineer for Puget Sound Energy, married and living in Redmond.

H. Stuart Muench ('64, Ph.D.) passed away on May 26, 2012, in Brunswick, ME. He obtained his doctorate in Meteorology while serving as an instructor at the UW while taking a leave of absence from his work for the Air Force Cambridge Research Laboratory. After leaving the Air Force research in 1994, he went to work as a technical editor for the AMS and retired in 2010.

Grant Petty ('90, Ph.D.), Professor of Atmospheric Science, has been elected to a 3-year term on the University Committee at the University of Wisconsin-Madison. In other news, he and fellow UW alum Prof. Jon Martin ('92, Ph.D.) recently observed the 10-year mark of playing for weddings and festivals in Wisconsin and surrounding states with their rock band, the Sundogs.

Jeffrey Renner ('88, B.S.) was awarded an Emmy from Pacific Northwest Academy of Television Arts and Sciences for best Weather Anchor in the region. He wrote, "It's the second time I've been fortunate enough to win this ward, and my fourth Emmy overall (the other two were for informational special documentary and news special documentary)."

James Renwick ('95, Ph.D.) sent in the following news. "I was a PhD student at UW during 1991-1995, studying with Prof. Mike Wallace. I returned to NZ after finishing my degree, and I worked for NIWA (the NZ National Institute of Water and Atmospheric Research) for 17 years. In June 2012 I took up a faculty position at Victoria University of Wellington, to teach and do research in large-scale climate dynamics and variability. I am very excited about the opportunities my new position creates. There is very little teaching of climate dynamics in NZ universities and few local students learning about the area. I hope to change that, and to build up a research group at VUW with expertise in Southern Hemisphere circulation and large-sale dynamics. I look forward to sharing with my own students the excitement I felt at UW, discovering some of the mysteries and wonderful characteristics of the atmosphere we all share."

Joe Witte ('65, B.S.; M.S'68, M.S., based on research on ice island T-3) is on his third career… started out in glaciology with the USGS (South Cascade Glacier/Blue Glacier) and then tried TV weather forecasting, starting at KING TV in 1971…ending up with NBC network in New York and WJLA in Washington, DC…after 40 years he finally found the light switch in the studio and switch it off so he could begin a passion to use his theoretical TV media model of science communication based on cognitive multi-media leaning principles on the subject the climate change. He is working on a Ph.D. at the Center for Climate Change Communication at George Mason University in helping the nation's individual local TV forecasters become climate science educators for their viewers. Joe is also working with Adnet/NASA, Goddard, in assisting with NASA climate science outreach to the TV forecasters.

Reid Wolcott ('10, M.S.) was offered and accepted a promotion to General Forecaster with the National Weather Service office in Las Vegas, NV. He began working there at the end of July 2012. Over the past year he has continued to work on numerous projects with the National Weather Service office in Riverton, WY. He has narrowed his focus to providing and improving NWS Decision Support Services and streamlining office operations. In late 2011, he received a local Isaac Cline Award for Program Management and Administrative Services and Support. His photography galleries continue to grow at www.reidwolcott.com!

Ming-Jen Yang ('95, Ph.D.) was promoted to Full Professor at the National Central University, Taiwan, effective on 1 August 2012. He also serves as one of the Associate Editors for the AMS *Journal of Weather and Forecasting*, starting 1 January 2012.

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