



Making Waves

Fall 2007



SSEC

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Greetings from the Chair

Jonathan Martin



I have the privilege of a view to the south and southwest out of my 14th floor office window. For me, this view is enthralling at any time of year whether it be during the sudden bloom of spring, the swirling slate gray and white of winter or the current glorious spectacle of color that greets us at the beginning of the academic year. The department is especially full of life at this time of year with new faces in the classroom, new ideas in the faculty ranks, and new energy to meet the challenges of the new year.

Our department's faculty and graduates are leaders in the study of the atmosphere, ocean, and climate system. Such expertise continues to acquire a higher and higher profile as it becomes increasingly clear, and increasingly widely accepted, that our global climate is changing and that we can no longer afford a laissez faire approach to mitigation. The publication of the 4th IPCC report in February 2007 made headlines with the strongest statement yet concerning human impacts on climate change and future sustainability. We are endeavoring to use this opportunity to raise the profile of our Department, both on campus and across the state, as AOS is where the fundamental physical science concerning global change is now, and always has been, occurring. With this backdrop, the University remains in difficult financial trouble which has forced a recent cutback on the Department's teaching assistants budget and implementation of a tuition surcharge for our research assistants. The consequences of these budget measures will greatly affect the way we do business in our department, limiting student access to courses that inform them about climate change and related issues while simultaneously making it more difficult to sustain funding for our research assistants who have always been the lifeblood of the research enterprise in our Department. We sincerely hope that you, our loyal alumni, can help to keep up the necessary political pressure to prevent the Legislature from requiring further concessions from the University and its departments. We are also in the early phases of establishing a UW Foundation account that might provide a means by which your financial generosity could assist us in meeting these challenges.

But as many of you know, we are not overwhelmed by the challenges before us. In this issue of our semi-annual newsletter, we report on the festive Alumni reunion we had in icy San Antonio in January. This event was a resounding success and plans are already underway for a similar gathering in New Orleans in January 2008 (plans included in this newsletter). We also have a number of student awards, funded by your generous donations to a variety of our Foundation funds that we are happy to report to you in this issue. Finally, we have a new member of our faculty, Dr. Ankur Desai, who started with us this August and we are proud to introduce him to you in this issue of our newsletter. As always, if you find yourself traveling through Madison this fall or winter, please stop by and visit us, we are always eager to see you and for you to see us.



Faculty News

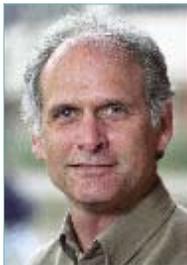
Michael Morgan Selected AMS/UCAR Congressional Fellow



It is with great excitement that we announce that Professor Michael Morgan has been selected as the AMS/UCAR Congressional Fellow! This fellowship, along with about 30 to 35 others from other professional organizations in the sciences, is administered by the American Association for the Advancement of Science (AAAS). Michael's activities during this year-long fellowship will be to work within the office of Senator Benjamin Cardin of Maryland as a science policy advisor. Congratulations, Michael!

Benjamin Cardin of Maryland as a science policy advisor. Congratulations, Michael!

Steve Ackerman On Sabbatical in D.C.



Professor Steve Ackerman is also on sabbatical during the 2007-2008 academic year, spending his year enhancing and developing the relationship between CIMSS and NOAA by spending the year at the Center for Satellite Applications and Research (STAR) which is the science arm of the National Environmental Satellite, Data and Information Service (NESDIS) – the group that acquires and manages the nation's operational Earth-observing satellites. UW-Madison has a long history of collaborating with NOAA and Steve recognizes that enhancing and developing that relationship is critical to the research and teaching mission of CIMSS and AOS.

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Another goal of his sabbatical will be to develop e-learning materials in support of our AOS senior undergraduate course on satellite meteorology. He is particularly interested in effectively combining graphics and audio in instruction at the introductory and senior level to produce an e-book on satellite meteorology. Such a resource will provide a valuable tool for our undergraduates in their training for operational careers.

John Young Announces Retirement



Professor John Young recently announced his intention to retire from the active faculty effective January 2008. The Department has been the heart and soul of John's career for nearly 42 years and we are at once happy for him and sad to see this day. He assures us that he will continue to be a presence in the department and will continue his work to modernize and expand the Office of the State Climatologist. He will be granted Emeritus status effective in Spring 2008. Congratulations to you, John, on a tremendous career and best wishes for continued success in the future.

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Matthew Hitchman Sabbatical Report



After 18 years on the faculty here Professor Matthew Hitchman took a much deserved sabbatical during Spring 2006. He began the sabbatical with a week at the NASA Langley Research Center in Virginia working with colleagues on diagnosing pollution transport across the Pacific to North America. While there, he presented a talk entitled "Contribution of Stratospheric Ozone to the China Clipper During INTEX". This work

shows that a substantial amount of ozone that reaches North America from the west originates in the stratosphere, not just from Asia.

From there, Matthew spent three weeks at the National Center for Atmospheric Research in Boulder, CO working with colleagues in trying to interpret the dynamical implications of his new Rossby wave breaking climatology, especially in the polar stratosphere and mesosphere. There are a number of new ideas and discoveries in his paper on this subject (now accepted in Journal of the Atmospheric Sciences), including the fact that cross-equatorial flow goes right through a strong gradient in vorticity, which many in the community misleadingly refer to as a transport barrier.

While in Boulder, Matt also attended the NCAR Workshop on Air Quality, where he presented two posters on his work. From March-June he worked at the Department of Meteorology in Reading, United Kingdom, which is the only five-star institution in the UK for atmospheric sciences. There are 45 professors and scientists in the department and Matt enjoyed conversations with many of them and learned a great deal from their perspectives. He plans to collaborate with several of them in the near future. During this time he gave 9 oral presentations of his research work at four different locations.

The day before he left Reading, Matt reports he was invited to play cricket in the annual departmental match between faculty and students. The "bowling" went fine for him, but while patrolling the outfield he tried to catch a fierce line drive, which was painful enough to precipitate an ignominious dropping of the ball. One British colleague was reported to have said, "Well, now you'll have something to remember England by!"

During the first week of July, Matt traveled to Scotland and worked at the University of Edinburgh. There he started collaborations with scientists in the areas of tropospheric chemical transport and satellite retrieval of ozone with the Microwave Limb Scanner instrument. He gave two additional presentations, for a total of 14 during his sabbatical, putting to rest the popular misconception that sabbatical is the equivalent of vacation.

Kutzbach inducted into the National Academy of Sciences

The latest accolade earned by his outstanding career as a research scientist was bestowed upon Professor John Kutzbach on April 28, 2007 when he was inducted into the National Academy of Sciences in Washington D. C.. The event included an induction ceremony and presidential dinner.



In the above photo, John adds his signature to the book of members. The first signature in the book is supposedly that of Abraham Lincoln, who signed the legislation bringing the NAS into existence in 1863 as the organization charged with providing scientific advice to the government. The book contains signatures of members elected since 1863. Looking on are Barbara Schaal, Vice President of NAS, and John Brauman, Home Secretary of NAS.



In the photo above, John is being congratulated by Ralph Cicerone, the president of the NAS. Cicerone had just read a citation summarizing John's work. The ceremony and NAS meeting were at the NAS building at 2100 Constitution Avenue, fronting on the Mall and just a few blocks west of the White House.



Here are John and Gisela at the NAS presidential banquet and ball. Congratulations, John!

Introducing Ankur Desai



Do you ever wonder if there's a link between the landscapes in which we live and the weather and climate we experience? Can forests be used to keep a city cool or delay future climate warming? Does large scale irrigation affect turbulence in the atmosphere or the development of clouds? How is climate change affecting the forests and wetlands of Wisconsin? How do mesoscale interactions in mountains mix atmospheric chemicals? These are just few of the questions that Professor Ankur Desai thinks about and studies.

Desai, the newest faculty member in AOS, is a boundary layer meteorologist and carbon cycle biogeochemist. Desai studies land-atmosphere interaction, the development of turbulence and mixing in the lowest layer of the atmosphere, and the role of ecosystems in regulating atmospheric carbon dioxide, water, and methane concentrations. Much of his research takes place right here in Wisconsin as part of a larger effort to understand carbon and water cycles in the upper Midwest. Desai maintains towers in forest and wetlands to measure land-atmosphere fluxes and atmospheric turbulence, collects CO₂ tracer data by tower and aircraft in various locations, and runs ecosystem-atmosphere models to interpret these observations and those made by satellite. Currently, Desai is involved in projects that are quantifying the role a declining water table plays for land-atmosphere carbon cycling in Wisconsin's wetlands, estimating surface uptake of CO₂ in the central Rocky Mountains using small aircraft, and modeling nutrient cycles of Lake Superior so as to quantify its role in the carbon balance of the upper Midwest.

Ankur was born and raised in New Jersey and holds B.A. degrees in Computer Science and Environmental Studies from Oberlin College in Oberlin, OH, an M.A. in Geography from the University of Minnesota - Twin Cities, and a Ph.D. in Meteorology from The Pennsylvania State University - University Park. Prior to arriving in Madison, Desai completed the prestigious Advanced Study Program (ASP) Postdoctoral Fellowship at the National Center for Atmospheric Research (NCAR) in Boulder, CO where he spent much of his time in a field campaign to measure CO₂ in the Rocky Mountains with aircraft.

In AOS, Desai is looking forward to continuing his research and teaching courses on micrometeorology, observational data analysis/assimilation, land-atmosphere interaction, and global climate change. In Fall 2007, Desai taught the undergraduate non-science major Global Change: Atmospheric Issues class (AOS171). He will be teaching Boundary Layer Meteorology (AOS773) in the Spring. Desai is married to Emily Desai, a special education teacher, and has two beautiful daughters age 4 years and 2 months old, the latter being born right after moving and right before fall classes started!

When he's not on campus, Desai can be found on the snow as an avid downhill skier, cooking, hiking, or playing with his kids. The family just moved into a house in the Vilas neighborhood of Madison's near west side and spends many hours at the nearby zoo!

Jon Martin Re-Elected Chair

Professor Jon Martin was re-elected to a second consecutive term as Chair of AOS in March 2007. Despite the obvious questions this raises

regarding his dwindling sanity, our sources say that Professor Martin has enjoyed being chair and looks forward to meeting the challenges of the next few years.



Alumni News

Karnauskas Earns Ph.D.

Dr. Kris Karnauskas (B. S. 2004) recently earned his Ph. D. in Atmospheric Science at the University of Maryland. Kris's thesis, "Inter-annual Variability of SST in the eastern tropical Pacific Ocean and Central American rainfall" was completed under the guidance of Prof. Antonio Busalacchi. Congratulations, Kris!

Jeff Michalski Joins NWSFO in Seattle

While in Boulder, CO at COMET delivering some lectures on winter weather, the Chair ran into Mr. Jeff Michalski (B. S. 1999, M. S. 2002). Jeff has recently been assigned to the NWSFO at Seattle, WA and reports that he enjoys it very much. The NWS was smart in moving Jeff there in the late spring – he hasn't seen the 6 month cloudy season yet.

Alan Leonardi's Whirlwind Year

Dr. Alan Leonardi (B.S. 1995, Ph. D. Florida State University) has had a whirlwind of a year. First, in early January 2007 he applied for a program aimed at training the next generation of Federal Government leaders. In June 2007, after numerous written, oral, and all day interviews, he was informed of his selection for the program; the United States Department of Agriculture's Senior Executive Service Candidate Development Program. Since then, he has begun official participation in the program and will be, for the next 1.5-2 years, taking courses at American University in Public Policy leadership and implementation as well as participating in several other training and developmental opportunities. This will all take place while he retains his normal position working in NOAA's Office of Oceanic and Atmospheric Research where he had been serving as the Acting Director until his recent promotion to Deputy Director of Policy, Planning, and Evaluation within that office. In this capacity he will be expected to help lead a staff of roughly 15 people in the development and evaluation of the research programs within NOAA's Office of Oceanic and Atmospheric Research.



Department Events

AOS Alumni Reunion

On Tuesday January 16, 2007 the Department of Atmospheric and Oceanic Sciences at the University of Wisconsin-Madison hosted an alumni reunion at the Marriott River Center in San Antonio, TX during the AMS Annual Meeting. Over 100 alumni and guests attended the reunion, a two plus hour marathon of refreshment and reminiscence. Though there were several reunions for other departments going on in the same area of the building, ours was, by far, the most heartily attended affair of all – a testimony not only to its long overdue nature, but also to the inimitable Badger spirit! Might it also have been in response to the fabulous Bucky Badger lapel pins? Thanks to Professor Greg Tripoli,

Betty Rhyner, and Toni Sumner-Beebe for organizing and executing our merrymaking. Thank you to all who attended (and signed in with your e-mail addresses, a list is being compiled though it has taken a long time) and we look forward to seeing you all again in January 2008 in New Orleans.



Daniel Lennartsen with Jon Martin at the AOS Alumni Reunion in San Antonio.



Jon Martin with Melissa Tuttle-Carr at the Alumni Reunion in San Antonio.



At the after party in downtown San Antonio. From left – Jason Samenow, Melissa Tuttle-Carr, Professor Greg Tripoli, James Thompson, Dr. Amanda Adams, Professor Jon Martin, Professor Michael Morgan, and Professor Steve Ackerman.

Student Awards Day – April, 2007

Our annual Department Student Awards Day was held on Wednesday April 25, 2007. We gathered to honor excellence in both our undergraduate and graduate student's performances.



Professor Jon Martin presented the awards. **Mark Kulie** and **Gijs deBoer** received the Colloquium Student Service awards for their outstanding contributions to the organization and execution of our weekly departmental Colloquium.



Morgan Franklin (above) received the Schwerdtfeger Award for best performance as a first year graduate student.

Jeff Makowski (below) received the Horn Award for comprehensive excellence as a junior undergraduate.



Jonas Asuma and **Daniel Thompson** received the Lettau-Wabl Award for excellent performance as junior undergraduates.



Mark Kulie was honored with the Wabl Award for outstanding performance as a teaching assistant in our program.

Unable to attend but recipient of the Lettau Award for best M. S. thesis was **Joseph Hoch** for his thesis, "*The Cloud Dynamics and Radiation Database: A Focus on Orographic Precipitation*" under the guidance of Professor Greg Tripoli.

Congratulations to all of our award winners!

Wisconsin Climate Forum and Reid Bryson Lecture 2007



Dr. Susan Solomon from NOAA and the University of Colorado – Boulder, a pioneer in the study of the Antarctic ozone hole and a co-chair of Working Group I of the 2007 IPCC Scientific Assessment Report, visited the Center for Climatic Research and the Department of Atmospheric and Oceanic Sciences on October 22-23. During this visit, Dr. Solomon gave the 2nd Reid Bryson lecture entitled “Antarctic Ozone and Climate Change.” The following day, Dr. Solomon was the Keynote Speaker for the 2nd Annual Wisconsin Climate Change Forum, a campus wide public event with hundreds of attendees. After her speech, Susan fielded questions from the audience, together with a panel of UW climate experts that included AOS Professors Eric DeWeaver and Galen McKinley.



Graduate Program Report

Master of Science Degrees

May 2007 Master of Science Degrees

Dworak, Richard J., “Historical AVHRR Satellite-Derived Winds Archive (1982-2002), Validation and Comparison to the ERA-40,” May 2007. (Ackerman)

Jaye, Stephen M., “Determining the Likelihood of Severe Weather Based on Model Output,” May 2007. (Tripoli)

Kloiber, Dale W., (Nonthesis Master’s), May 2007. (Martin)

Knuth, Shelley L., “Estimation of Snow Accumulation in Antarctica Using Automated Acoustic Depth Gauge Measurements,” May 2007. (Tripoli)

Sieglaff, Justin M., “Sensitivity of High Spectral Resolution Infrared Sounders to Thermodynamic Variability of the Lower Troposphere,” May 2007. (Ackerman)

Woods, Heather L., “Meteorological Processes Affecting Aerosol Concentration in the Great Lakes Region,” May 2007. (Holloway)

August 2007 Master of Science Degrees

Lang, Andrea A., “The Influence of Shearwise Vertical Motion on the Development of an Intense Upper-Level Front,” August 2007. (Martin)

Staude, Jessica A., “Poleward Propagating Weather Systems in Antarctica,” August 2007. (Ackerman)

PhD Degrees

May 2007 PhD Degrees

Lewis, William E., “The Impact of Spaceborne Doppler Radar on Tropical Cyclone Simulations,” May 2007. (Tripoli)

August 2007 PhD Degrees

Santek, David A., “The Global Impact of Satellite-Derived Polar Winds on Model Forecasts,” August 2007. (Ackerman)



Undergraduate Program Report

Neil Berg Awarded Ernest J. Hollings NOAA Fellowship

Mr. Neil Berg, who began as one of our junior undergraduate majors this fall, was recently been awarded a prestigious Ernest J. Hollings NOAA Fellowship. Neil was one of only 100 recipients of this award which has provided him with up to \$8,000 in academic assistance in both his junior and senior years, a 10-week full time (paid) summer internship at a NOAA (summer of 2007) or related facility, and a housing subsidy if the work site is away from home. In addition, travel money was provided to Neil so that he could attend the Hollings Scholarship Conference and present the results of his independent research at the end of the summer internship. The award is worth nearly \$30K and competition was fierce to win it. Congratulations, Neil, we are very proud of your achievement!

Undergraduate Degrees

May 2007 Bachelor of Science Degrees

Brett R. Berenz
Michelle M. Buerger
Daniel R. Chavas
James R. Conrad
Joseph H. Fillingham
Steve K. Froehlich
Frances J. Gary
Renee L. Geiser
Nikolas G. Grunseth
Daniel C. Hartung
Katharine J. Horst
Amanda K. Kis
Nicole J. Schiffer
Brandon J. Swedlund
Adam C. Varble

August 2007 Bachelor of Science Degrees

Lien, Nicolas W



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Thank You!



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