Dear AOS Faculty, Students, Friends and Alumni,

We are pleased to introduce the first newsletter for the Atmospheric & Oceanic Sciences Department (AOS). In this issue you will find AOS News, Awards, Research, Events, Alumni updates, a graduate student interview, and a staff interview. This first newsletter isn’t a comprehensive representation of all the news that AOS has produced in the past year or years, so if you think of something that should be on the next newsletter please contact Geoff Girard (310) 825-4654 girard@atmos.ucla.edu and supply him with the news item.

If you are an alumni of AOS (or know someone who is an alumni) we would love to hear from you and include you in a future newsletter and AOS announcements. Please send us a couple of paragraphs on what you have been doing since graduation and a picture if you have one, and you can send your information to Geoff Girard at the contact numbers listed in the previous paragraph.

This first newsletter is the work of our two work-study students, with Ingrid Channa doing the bulk of the work on layout and graphics and Lillian Pham as our intrepid reporter. Thanks to both of them for their work on this.

Best wishes for the New Year,

Rob Fovell
Chair

Jochen Stutz
Vice-Chair
in the department

the latest news, events, and research in department of the atmospheric and oceanic sciences
Professor C. Roberto Mechoso was honored with a Doctor Honoris Causa from The Engineering School of the University of the Republic, Uruguay for his internationally recognized work in dynamics and numerical modeling of the atmosphere and brilliant academic career on October 3, 2014.

Panelists noted Mechoso’s academic career, his more than a hundred refereed publications, and his recognition by numerous universities and professional associations. They also highlighted his leadership of numerous international research projects, among which VAMOS (Variability of the American Monsoon Systems) and VOCALS (VAMOS Ocean, Clouds, Atmosphere, Land Study) within the World Climate Research Programme of the World Meteorological Organization, stand out.

In 2013, Professor Kuo Nan Liou earned the AGU Roger Revelle Medal “for outstanding contributions in atmospheric sciences, atmosphere-ocean coupling, atmosphere-land coupling, biogeochemical cycles, climate, or related aspects of the Earth system.” Professor Liou accepted the Medal on December 11, 2013 at the AGU fall meeting in San Francisco and gave an acceptance speech to an audience of more than 2000.

Congratulations to graduate student Beatriz Gallardo for winning the 1st place student poster award on Ionosphere-Thermosphere at CEDAR, using THEMIS data (see: http://cedarweb.hao.ucar.edu/wiki/index.php/2014_Workshop:Summary). Her poster was titled: "Ionospheric Flow Structures Associated with Auroral Beading at the Substorm Auroral Onset." She received the book “Ionospheres: Physics, Plasma Physics, and Chemistry” courtesy of co-author Bob Schunk (USU) who signed the book. Bea’s work showed that extremely large, small-scale flows develop in precise association with each auroral bead (strong intensification) that is seen along the brightening auroral arc at substorm onset. This demonstrates critical features of the physics of the substorm onset process.
Aradhna Tripati earns E.O. Wilson Award

The E.O. Wilson award from the Center for Biological Diversity is an award dedicated to recognizing ground-breaking conservation research. Aradhna Tripati is recognized for her “innovative research on climate change and ocean acidification” and “commitment to conservation and public outreach”.

Jonathan Mitchell earns Greeley Early Career Award

UCLA Atmospheric and Oceanic Sciences assistant professor Jonathan L. Mitchell received the 2013 Ronald Greeley Early Career Award in Planetary Science at the 2013 AGU Fall Meeting, held 9–13 December in San Francisco, Calif. The award recognizes significant early-career contributions to planetary science. The Greeley Early Career Award is named for pioneering planetary scientist Ronald Greeley. Ron was involved in nearly every major planetary mission from the 1970s until his death and was extraordinarily active in service to the planetary science community. Ron’s greatest legacies, however, are those he mentored through the decades, and it is young scientists whose work and promise the award seeks to recognize.

We at the department would like to congratulate Johnathan on this award and achievement.

Alex Hall on Television

UCLA’s Department of Atmospheric and Oceanic Sciences Professor, Alex Hall presented his “Climate Change in the Los Angeles Region” study on episodes of the climate change documentary series Years of Living Dangerously, which aired on Monday, June 2nd on Showtime at 8 PM.
Atmospheric and Oceanic Sciences professor Robert Fovell, along with doctoral student Yang Cao and postdoctoral researcher Scott Capps were part of a research team that developed a new tool to classify the fire threat potential of hot, dry Santa Ana winds. The three performed modeling of Santa Ana wind events dating back decades.

“This effort has led to an enhanced understanding of the evolution of the Santa Ana winds, their potential for sparking and spreading fires, and their spatial and temporal variation,” said Fovell. “We not only have a new, deeper understanding of how the San Diego-area terrain influences weather, especially wind, which is crucial to SDG&E’s operations, but we also have been able to make improvements in weather modeling that will benefit forecasters around the world.”
In a new study, UCLA Atmospheric and Oceanic Sciences professor Jim McWilliams and assistant researcher Lionel Renault will make the first detailed models predicting how climbing temperatures will affect the coastal climate in the four regions. The project is supported by a $2 million grant received this month from the National Science Foundation.

The effect of climate change on the oceans has been vastly understudied, say the researchers — and these regions should be of particular interest given the world’s dependence on them for their populous, species-diverse habitats. As one of the world’s leaders in ocean modeling and evaluating climate change, UCLA is well positioned to create the foundation for a true physics-to-fish understanding of how climate change could alter these areas.

We all suspect that the air quality near freeways probably isn’t the best. But did you know that shutting down one small section of a freeway could create better air quality up to a hundred miles away?

In the latest issue of ACCESS Magazine, Arthur Winer, Yifang Zhu, and Suzanne Paulson show that both local and regional air quality dramatically improved during the 405 freeway closure in their article, “Carmageddon or Carmaheaven? Air Quality Results of a Freeway Closure.” The authors measured emissions and air pollutants both near the freeway closure and several miles away. They found that the reduced traffic levels dramatically improved both the local and regional air quality, up to one hundred miles away. To improve local and regional air quality on a more permanent basis, the authors urge policy makers to promote ultra-low and zero-emissions vehicles and provide alternatives to single-occupancy driving.
AOS Awards Banquet

The annual Atmospheric & Oceanic Sciences Fall Awards Dinner was held on November 13, 2014 at the new Carnesale Common’s Palisades Room. The event was well attended by our students, faculty, staff and special guests.

Award winners were announced during the dinner and were asked to say a few words. Yizhe (Peggy) Bu is the Jacob A. Bjerknes Memorial winner for academic excellence; Neil Berg, Baird Langenbrunner and Daniel Russell are the Morris Neiburger Memorial Award winners for outstanding teaching; and Daniel Dauhajre received the Brian Bosart Graduate Student Award for unselfish service to fellow students and positive contributions to departmental life while demonstrating a firm commitment to academics.

Congratulations to all of our 2014 AOS award winners!

It was about 25 years ago, when we published a result from a numerical experiment of global warming, in which atmospheric concentration of carbon dioxide increases gradually with time. The model used for the experiment is a coupled ocean-atmosphere model, in which so-called, general circulation model of the atmosphere is combined with that of ocean.

We found that the geographical pattern of global warming exhibits a marked and unexpected interhemispheric asymmetry. In the circumpolar ocean of the Southern Hemisphere, a region of deep vertical mixing, the increase of surface air temperature is very slow. In the Northern Hemisphere of the model, on the other hand, the warming of surface air is faster and increases with increasing latitudes, with the exception of the northern North Atlantic, where it is relatively slow because of deep vertical mixing and the weakening of the overturning circulation. The trend analysis of observed surface air temperature over the last several decades also exhibits similar interhemispheric asymmetry.

I will discuss the physical mechanism of the interhemispheric asymmetry, referring to the studies that have been published since the publication of our paper.
PEOPLE
alumni

discover the latest updates from the department alumni

Daniel Cusworth

“After I graduated in 2012, I moved out to Boston and worked for the environmental consulting firm, The Cadmus Group. In the Fall of 2013, I started a Ph.D in Earth & Planetary Sciences at Harvard University. I am advised by Daniel Jacob and Loretta Mickley in the Atmospheric Chemistry Modeling Group. My research has focused on climate-chemistry interactions, with an emphasis on how aerosols have impacted regional climate in the central United States.”

Sarah Kapnick

“I’m presently a postdoctoral research fellow at Princeton University and NOAA/GFDL and will be transitioning to a new position (physical scientist at NOAA/GFDL) at some point in 2015.

I have a recent paper that has been highlighted in popular press. The Princeton press release can be found here:


Spencer Hill

“I finished my AOS/applied math double major in June 2011 and began my Ph.D work in AOS at Princeton three months later. I’m now in my 4th year of the five year program working with my advisor, Dr. Yi Ming of GFDL/Princeton AOS, on tropical circulation responses to climate change. My ultimate goal is a research career in AOS; as such my mental radar has begun scanning for postdoc opportunities. I’m frequently yearning for the Los Angeles climate, and I’m ever appreciative of my time in UCLA AOS, which inspired me to pursue this path and trained me well to do so.”

Brad Spitzer

“After graduating with my joint degree in Mathematics and Atmospheric and Oceanic Sciences, I took the route less traveled and joined Deloitte’s Financial Advisory practice. I traveled around the United States consulting large companies on issues ranging from Bankruptcy, Foreign Corrupt Practices Act, Valuation, M&A, and Forensic Investigations. After realizing that I am not motivated by money, I decided to switch careers into something a little more interesting. Currently I am back living in Westwood and working in Beverly Hills doing Data Analytics for construction rental companies. My company Rouse Analytics provides a benchmarking service that allows our clients to adjust their rates depending on market conditions. Even though I am not doing anything currently in the Environmental field, I always try my best to share the knowledge I gained from the UCLA A&O department. I look forward to taking my understanding of large data and applying it to studies relating to wave height, temperature, and other studies related to atmospheric or oceanic phenomena.”
PEOPLE

KARA LEUNG

What did you go to school for?

What is your spirit animal?

Who are your favorite authors?

What is your favorite color?

What are your hobbies?

What challenges do you have that you like?

What is your favorite movie?

What’s your favorite color?

What do you do in your spare time?

What did you do for your future?

What are your current addiction?

What is your favorite food?

What is your spirit animal?

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The Department of Atmospheric and Oceanic Sciences (AOS) at UCLA has been at the forefront of atmospheric research and education since its inception in 1940. Today, AOS strives to gain a better understanding of climate change and improve climate change prediction methods by incorporating both theoretical and practical knowledge. Our internationally award-winning faculty researches the most compelling and transformative issues of our time, including climate change, greenhouse warming, air pollution, and increasing severe weather phenomena, as well as satellite remote sensing, atmospheric chemistry and physics, and marine ecosystems. AOS research and theoretical modeling are often used to inform and guide policymakers’ decisions on environmental policy and regulations.

Major Areas of Research

Climate and Weather
A pioneer in the efforts to establish numerical models of the Earth’s atmospheric circulation, our researchers continue to make substantial contributions to our understanding of a wide range of climate and weather phenomena ranging from El Nino to Santa Ana winds, on time scales ranging from tomorrow to the future our children will inherit.

Air Quality
To better understand the causes and effects of local and global air pollution, our faculty monitors the air around petro-chemical facilities and freeways, participates in collaborative surface and airborne field studies, studies agricultural dust in the air and ocean, and investigates the chemical processes in the atmosphere using sophisticated computer models.

Space Weather
Our interdisciplinary space physicists explore the near-Earth space environment that affects electronic systems in space and on the ground, and seek to understand how dynamic events and structures affect the magnetosphere, ionosphere, and upper atmosphere.

Ocean
Our researchers are focused on understanding a multitude of internal oceanic processes as well as their roles in climate, the carbon cycle, and marine ecosystems. This done by modeling, data analysis, and measurements, including the areas along the regional coast and its underlying sediments.

If you are interested in finding out more about AOS please contact
Carol Yasutomi Fujino | Student Affairs Officer | 310-823-1954 | carolina@atmos.ucla.edu