



AOS & CICS Newsletter

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Held Succeeds Legg as AOS Director of Graduate Studies

AOS Faculty member and NOAA/GFDL Senior Research Scientist Isaac Held has been named the AOS Program's Director of Graduate Studies (DGS) for the upcoming academic year. Held's appointment results from current DGS Sonya Legg's resignation at the end of the academic year, after three years of service. Legg and AOS Assistant Professor Stephan Fueglistaler will continue as members of the Graduate Work Committee (GWC). AOS Faculty Member Geoff Vallis will be retiring from the committee after many years of service both as a member as well as Director.



AOS Faculty Member Isaac Held

During Legg's tenure as DGS, applications to the AOS Program reached record highs and the Program attracted students of ever-

higher academic caliber. "Geoff and Sonya have contributed crucially to bringing our program to a much better state than it has been for years; I am grateful for their very successful years of service," said AOS Director Jorge Sarmiento.

In his new role as DGS, Held will be responsible for the oversight of the graduate program and the welfare of the graduate students, in addition to serving as the point of contact for all academic matters in the Program. Additionally, the DGS sits on the Faculty Committee of the Graduate School, which determines graduate policy for the University as a whole, and chairs the GWC whose primary focus is program recruitment, assessment, and development.

"I am enormously pleased that Isaac accepted the DGS position; he will play an integral role in the continued success of the AOS Program," Sarmiento added. "He brings a wealth of experience and notable strengths to the position." ■

Princeton Hosts AOS Days Conference

On June 7th and 8th, 2012, Princeton University hosted AOS Days, a multi-day conference for early career atmosphere-ocean scientists in Lewis Library. AOS Graduate Students Joe Majkut and Amanda O'Rourke co-organized this year's event in collaboration with Shane Keating (New York University), after participating in last year's conference at the Massachusetts Institute of Technology (MIT) and at the Woods Hole Oceanographic Institute (WHOI).

Program in Atmospheric and Oceanic Sciences (AOS) & The Cooperative Institute for Climate Science (CICS)

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With the goal of fostering a community of future AOS faculty in the Northeast, planting the seeds for future collaborations and professional relationships, and promoting the scientific and professional development of young scientists in an informal, supportive environment, the

TigerTransit/Shuttle Services
Operating on Summer Schedule
<http://www.princeton.edu/transportation/Forrestal_Summer.pdf>.

conference attracted over 30 early career scientists, 17 of whom were guests from other universities. The program included presentations by attendees on all aspects of atmosphere-ocean science and related fields, enrichment activities, including a welcome reception and a conference dinner with keynote speaker and AOS Faculty Member Isaac Held presenting an address on “The Hydrological Cycle and Climate Change.” Attendees hailed from all areas of atmosphere-ocean dynamics, including physics, fluid dynamics, applied math, geophysics, engineering, and other related fields with a wide-ranging interest in atmosphere-ocean science. The AOS Program was well-represented with Andrew Ballinger, Alexis Berg, Tra Dinh, Martin Jucker, Kelly Kearney, Amanda O’Rourke, Lauren Padilla, Geeta Persad, and Claire Radley all giving presentations.

AOS Graduate Student Jaya Khanna noted, “Since I am very new in my own field of research, which is the study and modeling of land-biosphere-atmosphere interactions, this was probably the first time I met graduate students working on topics similar to mine, which was quite exciting. The organizers, Amanda and Joe, are to be congratulated on their success in selecting a wide variety of talks ranging from atmospheric dynamics to oceanography, from aerosols to atmospheric chemistry and modeling of biological ecosystems etc. I think that establishing academic ties between students in an informal way is very essential and prepares them well for future, more formal, academic meetings like AGU. But I think of utmost importance is that AOS days introduced us to the atmospheric physics student’s community in a very cordial and comforting way which was not possible otherwise,” she added.

According to co-organizer Joe Majkut, reports from attendees were overwhelmingly positive for both the conference and the visit to Forrester Campus. “The research talks gave a neat overview of current research in AOS with just a sprinkling of biology and ecology. We enjoyed the chance to socialize and further our discussions, with just a little rain, during the evening BBQ and teatime on Friday afternoon. Amanda and I would like to express our thanks to Jaya Khanna, Geeta Persad, Hannah Zanolowski and Spencer Hill for arranging the BBQ and tea, Isaac Held for graciously accepting the invitation to speak, and the heartiest

appreciation for Anna Valerio for her organizational and practical advice. We both look forward to next year at Johns Hopkins,” he said.

“I am so pleased to see AOS students taking a lead role in organizing and participating in this event, AOS Director Jorge Sarmiento said. “The connections made today become invaluable as young researchers move on in their scientific careers and onto future collaborations.” “I commend the efforts of Joe and Amanda for bringing the AOS Days Conference to Princeton,” he added.

This was the fourth annual AOS Days in the conference series. Previous conferences have been held at MIT/WHOI, the Courant Institute of Mathematical Sciences, and the University of Maryland College Park. AOS Days 2013 is scheduled to take place at Johns Hopkins University. ■

Symposium to be Held in Honor of Philander

In celebration of Knox Taylor Professor of Geosciences S. George Philander’s contributions to atmospheric and oceanic science research and graduate education, the AOS Program with support from the National Science Foundation (NSF) is hosting a two day symposium on September 6-7, 2012 in the Carl A. Fields Center.

Philander joined the Princeton faculty in 1990, after spending 19 years at GFDL. During his tenure, he served 16 years as Director of the AOS Program. His research includes studies of the oceanic circulation, interactions between the ocean and atmosphere that result in phenomena such as El Niño and La Niña, paleoclimates (including the recurrent Ice Ages of the past three million years), and future global climate changes. A recognized authority in oceanic and atmospheric sciences, Philander is a member of the National Academy of Sciences and a Fellow of the American Meteorological Society, the American Geophysical Union, and the American Academy of Arts and Sciences.

According to its organizers, the Symposium “Five Controversies in Climate



S. George Philander, Knox Taylor Professor of Geosciences

Science: A symposium celebrating the contributions of S. George Philander” will examine the role of the ocean in linking climate across time – from the seasonal cycle, to interannual variability, to climate change – and in linking climate across space – from tropics to the poles and back again. Invited talks will provide background and perspective for panel discussions that will take on five controversial science questions. Session topics will include the ocean circulation, the seasonal cycle today, ocean-atmosphere interactions and climate variability, paleoclimates and the testing of models, and education and outreach.

For registration, travel, and program information, visit:

<<http://aos.princeton.edu/philander/>>. ■

Vecchi Appointed Lecturer in Geosciences and AOS Program

Gabriel Vecchi has been appointed a Lecturer in the Department of Geosciences and the AOS Program effective July 1st, 2012. He will be teaching GEO 425 Introduction to Physical Oceanography in the fall, which he co-taught with George Philander last fall.

A researcher in the Climate Change, Variability and Prediction Group at GFDL, Vecchi’s interests include ocean-



Geosciences and AOS Lecturer Gabe Vecchi

atmosphere coupling and climate change and variability. “We are so pleased to have Gabe join our faculty. He will most certainly be an asset to the future development of our Program; we are delighted to have him serve in this new role,” AOS Director Jorge Sarmiento said.

Four Students Accept Offers of Admission

Four graduate students accepted offers of admission to the AOS Program for the fall of 2012. In total, the Program received 59 applications, just shy of the record 62 received last year. This number represents over a 9 percent increase over the number of applicants for the fall of 2010. Among the total applicants, 44% were women, the largest number of female student applicants to date. Over the last five years, the number of applicants to the AOS Program has more than doubled.

The University itself saw a 3 percent increase in the total number of graduate applications from last year bolstered by an 8.4 percent increase in the number of international applicants. International applicants made up over 66 % of the AOS Program’s applicant pool. University-wide, international applicants made up 53% of the graduate applicant pool, marking only the second time in the Graduate School’s history that international applicants exceeded U.S. applicants.

“As in past years, the applicant pool was remarkable by any standard in its academic excellence. The admitted students are really an impressive group that brings with them a diversity of experiences, research interests, and talents,” he added. The students hail from Harvard University,

Imperial College, College of the Holy Cross, and Stanford University. “They will make an excellent addition to our already broadly talented group of AOS students.” ■

Beaulieu is Recipient of CMI Best Paper Award



From left to right: AOS Director Jorge Sarmiento, AOS Postdoctoral Research Associate Claudie Beaulieu, and Chief Scientist of BP Ellen Williams (Photo: Frank Wojciechowski)

At the Carbon Mitigation Initiative (CMI) 11th Annual Meeting on April 17th, AOS Postdoctoral Research Associate Claudie Beaulieu was named by Ellen Williams, chief scientist at BP, as recipient of the 2012 CMI Best Paper Award for Postdoctoral Fellows. The selected paper, “Identification and Characterization of Abrupt Changes in the Land Uptake of Carbon,” published in *Global Biogeochemical Cycles* in January of 2012, contributed to “an improved understanding of temporal changes in Earth’s carbon cycle and demonstrated the possibility for abrupt changes in terrestrial systems.”

Nominated by CMI PIs and group leaders, papers are judged for their quality and impact on the carbon mitigation community. According to the CMI website, the research is selected based on its contribution to one of CMI’s core areas of research: climate science, carbon capture and sequestration, renewable energy, efficient energy use, or carbon policy. The spirit behind the program is to recognize and reward CMI-funded work. “This is a well-deserved honor that confirms the far-reaching impact that Claudie’s research has had and will continue to have on those of us in the carbon mitigation community,” AOS

Director Jorge Sarmiento said. “She is making significant strides in the research literature.”

“I was very pleased and honored to have been selected for the 2012 CMI Best Paper Award for Postdoctoral Fellows,” Beaulieu said. “I am thankful to Jorge Sarmiento for nominating me for the award and to the CMI for creating this program which recognizes and rewards CMI-funded work. Such recognition plays an important role for early-career researchers striving for success,” she added.

Formed in 2000 and led by Co-directors Stephen Pacala and Robert Socolow, CMI aims to lead the way to a compelling and sustainable solution of the carbon and climate change problem, hosting annual meetings on the Princeton University campus each spring semester. The two-day meetings bring together all members of the CMI community, including Princeton faculty, research staff and graduate students, colleagues from BP, Harvard’s Energy Technology Innovation Policy Program (ETIP), Tsinghua BP Clean Energy Research and Education Center and members of the CMI Advisory Council to discuss research advances and opportunities for new collaborations. See the CMI website for more information: <http://cmi.princeton.edu/>. ■

Potter Sets Sail on Oceanographic Cruise

AOS Graduate Student Sam Potter recently joined a team of researchers aboard the UNOLS vessel R/V *Atlantis* as part of the U.S. CLIVAR Carbon / Repeat Hydrography Program that aims to identify changes in ocean properties and circulation through time.

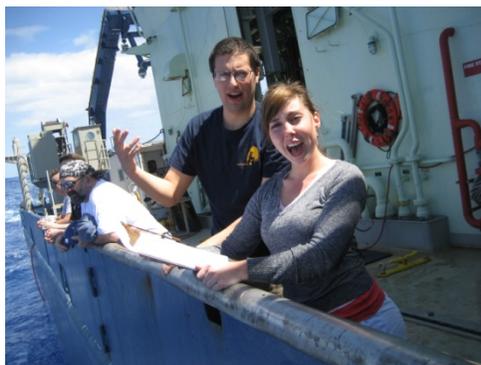
The main objective of the 25 day scientific expedition from Woods Hole, MA to Bridgetown, Barbados was to conduct a hydrographic survey consisting of CTDO (conductivity, temperature, pressure, oxygen), LADCP (lowered acoustic Doppler current profiler), rosette water samples, underway shipboard ADCP and total carbon dioxide (TCO₂) measurements in the western North Atlantic Ocean and Caribbean Sea.

Station stops were planned approximately every 55 kilometers, where a CTD/rosette package (which contains all the sensors and the water sampling bottles) was lowered to measure temperature, salinity, oxygen, and currents from just below the sea surface to approximately 10 meters above the ocean bottom. A total of 81 CTD/LADCP/rosette stations were occupied on a transect running roughly along meridian 66°W.



AOS Graduate Student Sam Potter steaming by Dominca aboard Atlantis

During each of these stations, Potter and fellow scientists collected up to 36 water samples for analysis of various water properties, including a number of oceanic CO₂-related parameters, along with dissolved CFCs and sulfur hexafluoride (SF₆), dissolved oxygen, salinity, and nutrients. “This involved mostly just operating the ship’s winch that lowered the rosette, communicating with the ship’s crew where we were and how things were going, and watching the instrument and winch sensors to catch when things went terribly wrong. On the way back up we “popped” bottles at various depth levels so that they could be sampled once the rosette reached the surface. The whole process took between 40 minutes to 4.5 hours depending on the depth of the water,” Potter explained. Once the rosette was on deck, various groups sampled from it. According to Potter, “This job was straightforward but often stressful; when the stations were closely spaced, we had to finish sampling on the rosette as quickly as possible so as to be able to drop it over the side as soon as possible. When the seas were rough, we were often getting splashed with walls of water.” Additionally, while the vessel was both underway and stopped, surface seawater was continuously pumped through sensors for temperature, salinity and partial pressure of CO₂.



Potter and his watch partner Leah at the end of their night shift

Despite bouts of seasickness as they passed through the wakes of several storms, Potter enjoyed the experience and the teamwork. “It was amazing to see the amount of work that goes into creating just one data point and just how many things have to go right for any data to be collected. A lot of stars had to align to get a successful cast, and we somehow did 81 of them,” Potter added.



The research vessel (R/V) Atlantis (Woods Hole Oceanographic Institution)

The 274 foot (83 meter) *Atlantis* is one of the most sophisticated research vessels afloat, and it is specifically outfitted for launching and servicing the *Alvin* human occupied submersible. It was built with six science labs and storage spaces, precision navigation systems, seafloor mapping sonar, and satellite communications. The ship’s three winches, three cranes, machine shop, and specialized hangars were specifically designed to support *Alvin* and other vehicles of the National Deep Submergence Facility. The ship carries a complement of 36 crew members, science technicians, deep submergence group members, as well as a scientific party of 24 men and women for as long as 60 days. ■

AOS and CICS Represented at PICSciE Conference

On May 8th and 9th, the inaugural conference of PICSciE (Princeton Institute of Computational Science and Engineering) was held at Princeton Center for Theoretical Science in Jadwin Hall. The two-day event brought together computational scientists and researchers from across campus working on topics ranging from computational astrophysics to computational neuroscience, with the aim of providing an opportunity to engage Princeton’s high performance computing community in developing a common vision on how to further strengthen its resources and services.

Among the presenters were AOS Senior Professional Technical Specialist V. Balaji and Assistant Professor David Medvigy.

Balaji delivered a talk on “Earth Systems Research: Computational, Data, and Scientific Scalability.” His presentation covered three areas of computational challenges in the research computing field. “Computational scalability,” according to Balaji, is the challenge of running models on current and future parallel architectures. “Data scalability” challenges involve the use of globally coordinated modeling experiments and sharing of the multi-petabyte distributed data archives that results from these global experiments. “Scientific scalability” is the challenge of sharing scientific insights with the enormous community of people who study climate impacts in their own field: water resources, health, and agriculture, for example. Balaji describes it as “dwarfing the total number of climate modelers in the world.”

Medvigy’s talk on the interactions between the atmosphere and the terrestrial biosphere preceded the open discussion forum and Q&A in the closing session. Medvigy made the case for improved understanding of these interactions to achieve an improved understanding of Earth’s climate and ecosystems. Two key research challenges were highlighted: the need to understand the impacts of tropical deforestation on regional and global climate and the need to develop a next generation of predictive models of the

terrestrial biosphere. Medvigy reviewed two novel numerical simulation models that are being developed at Princeton and are being run at the University's High-Performance Computing Research Center to meet these challenges.

To simulate the climate impacts of tropical deforestation, a variable-resolution atmospheric general circulation model has been developed that is capable of representing regions of interest at very fine resolution while representing the far-field at a coarser, more computationally efficient resolution. To simulate the terrestrial biosphere, an ecosystem model has been developed that represents ecosystem heterogeneity in terms of statistical ensembles of trees. Markov chain Monte Carlo is being used to constrain the model with datasets spanning a wide range of spatiotemporal scales.

Medvigy emphasized that continued progress in these areas will rely heavily on the resources and expertise provided by the Princeton Institute for Computational Science and Engineering.

In addition to the talks, CICS Scientist Sergey Nikonov and Balaji both presented posters. "It was very exciting to see the breadth of research at Princeton based upon computational science: we were entertained by scientists from fields as diverse as materials science, astrophysics, genomics and neuroscience. There is so much we have to share and learn from each other; there were many fascinating coffee chats between talks, and we came away with our brains buzzing. I hope our continued close involvement with PICSciE will give rise to new opportunities to cross-pollinate ideas across disciplines," Balaji remarked.

"The PICSciE conference provided an amazing opportunity to learn about the cutting-edge research currently being carried out using Princeton's High Performance Computational facilities, and for scholars to come together to discuss their vision for research computing at Princeton. It highlighted how PICSciE really fills a critical need in providing computational resources and expertise for research at Princeton," Medvigy said.

The PICSciE Conference was co-sponsored by the Office of the Dean for Research and the Office of Information Technology. ■

AOS Graduate Students Participate in Outreach Efforts

On Friday, May 4th AOS Graduate Students Amanda O'Rourke and Hannah Zanowski participated in the fourth annual New York City Girls Computer Science and Engineering Conference at New York University. The program, sponsored by New York University Women in Computing (WinC) and Princeton University Graduate Women in Science and Engineering (GWISE), is designed to give young women in 9th and 10th grade a sampling of the tremendous creativity and innovation involved in computer science, engineering, and science careers.

The program included talks by professors, graduate, and undergraduate students, demos of ongoing research projects in computer science and engineering at Princeton and NYU, and an engineering design competition where girls were presented with the challenge of constructing structurally-sound towers using only spaghetti sticks and gum drops. O'Rourke took part in the Android App Inventor workshop and competition where the girls were asked to design an app for an Android phone and then present the app to the audience. "It was great to see so many bright, enthusiastic high school girls excited about computer science and programming. The talks given by professors, graduate students, and undergraduate volunteers were engaging and, hopefully, inspiring to the students in attendance, O'Rourke said.

Zanowski was part of a Student Q&A panel in which graduate and undergraduate students from Princeton and NYU shared their personal experiences and advice on college and careers in their various disciplines. The panel fielded questions on choosing colleges and majors, class selection, and developing research interests, with the overarching goal of demonstrating to young women that an education in computer science, engineering, and science is both an attainable and rewarding goal.

"It's always nice to see high school students with such an obvious passion for

science. Each time I find myself at an event such as this, I remember how much I enjoy helping these students navigate their way toward a successful scientific career.

Although the role I play in this process is undoubtedly minute, the idea that I am able to positively impact someone's life, even in a seemingly insignificant way, is genuinely rewarding," Zanowski commented.



(Far Right) AOS Graduate Student Hannah Zanowski fielded attendees' questions.

The event was funded by Google and NYU's Courant Institute of Mathematical Sciences.

Earlier this year, AOS Graduate Students Geeta Persad and Spencer Hill had big shoes to fill when they volunteered to man a table at the Student Career Fair at the Annual AMS Meeting's Student Conference in January. In recent years, Ilissa Ocko and Sam Potter joined forces in an effort to recruit prospective students at the largest gathering of atmospheric science students in the country. According to Ocko, they received a lot of positive feedback from prospectives and even had a line of people waiting to talk to her at various points during the fair.

For Persad and Hill, this year's fair exceeded their expectations. "Tabling at the career fair was surprisingly fun. It was great getting to talk to the students who came by about the program, both in general terms and about my experience in particular. Most of them were wide-eyed undergraduates who were eager to hear what we had to say, Hill said.

In addition to distributing promotional materials, they spent several hours talking with the prospective students. ■

Student-Postdoc Symposium on Fluid Dynamics & the Global Environment

On Tuesday, May 22nd, the fourth Student-Postdoc Symposium on Fluid Dynamics & the Global Environment was held in the Friend Center, with some 30 people in attendance. The workshop is a collaborative effort by School of Engineering and Applied Science, the AOS Program, and GFDL and brings together students and postdocs working on state-of-the-art fluid dynamical research with an emphasis on environmental and geophysical applications. The goal of the one-day symposium is to enhance cross disciplinary fertilization and bring engineering methods and models to bear on problems of geophysical relevance.

The AOS Program was well represented at the workshop with AOS Graduate Student He Wang, AOS Postdocs Martin Jucker and Angélique Melet, and Associate Research Scholar Gualtiero Badin presenting. Wang opened the Ocean-Land Atmosphere Interactions session with a presentation on the contribution of atmospheric forcing to decadal variations of Nordic overflows. The Water Aloft session was opened by Jucker with a talk on stratospheric dynamics and water vapor distribution. It was followed by a session titled: Fluid Dynamics and the Challenge of Sustainable Energy.

Gualtiero Badin's presentation on interior mixing in the ocean by baroclinic mixed layer eddies was part of a session titled: Understanding Mixing in Flows with Density Gradients of which AOS Director of Graduate Studies Sonya Legg was moderator. The final session, Parameterizing Mixing in Flows with Density Gradients, included Melet, who spoke on sensitivity of the ocean state to internal-wave driven mixing. Presenters from the Civil and Environmental Engineering (CEE) and Mechanical and Aerospace Engineering (MAE) included: Katie Hartle (MAE), Daniel Wright (CEE), Tristen Hohman (MAE), Mark Lohry (MAE), Stimit Shah (CEE), and Dan Li (CEE).

"We had a wide range of talks, from laboratory and field observations of twisters in bush fires, to new designs for wind turbines, to simulations of atmosphere and ocean mixing," Legg said. "It's always interesting to hear different applications of fluid dynamics to atmospheric and oceanic science." ■

AOS & CICS Research in Action

[This column is intended to focus on AOS & CICS research accomplishments and milestones, past, present, and future. In this issue, we highlight the accomplishments of AOS Associate Research Scholar Maxim Nikurashin who spent over three years in the AOS Program.]

AOS Associate Research Scholar Maxim Nikurashin will be leaving the AOS program in late June to join the Institute for Marine and Antarctic Studies at the University of Tasmania in Hobart, Australia, as a Lecturer/Research Fellow. Maxim is a physical oceanographer who joined the AOS program as a postdoctoral research associate in 2009. Previously, during his thesis work in the MIT-WHOI Joint Program, Maxim studied internal wave and mixing processes in the Southern Ocean using a combination of numerical simulations, theory and observations.



Associate Research Scholar Maxim Nikurashin

In Princeton, Maxim worked with AOS and GFDL scientists on several major projects. The first was to study tidal mixing

at rough topography in the deep ocean. In collaboration with Sonya Legg, Maxim developed numerical simulations that explicitly resolve processes leading to tidal energy dissipation and mixing in the ocean. The simulations agree well with observations and are used to develop and test parameterizations of tidal mixing for climate models. While exploring various processes leading to turbulent mixing in the deep ocean, Maxim began to study the implications of mixing for the deep stratification and large-scale overturning circulation of the ocean. In collaboration with Geoffrey Vallis, he developed a novel theory for the deep stratification and overturning circulation of the ocean. The theory includes the effects of wind, eddies, and mixing and consistently accounts for the interaction between the Southern Ocean and the rest of the ocean. The theory is tested with idealized simulations with GFDL's ocean model.

"Max has been a pleasure to work with, full of ideas and the energy to implement them. He has become a colleague and peer, and undoubtedly has a distinguished career ahead of him," Vallis said.

Recently, Maxim has worked on the first numerical simulation of Southern Ocean dynamics that simultaneously resolves meso-, submeso-, and internal wave scale motions. This experimental design is a major advance over previous studies that simulated each class of motions in isolation and hence could not address properly their interactions resulting in the downscale energy cascade.

Maxim will continue working with AOS and GFDL scientists in his new post, and thoroughly enjoyed his time at Princeton. ■

AOS & CICS News

After being awarded the prestigious BBVA Foundation Frontiers of Knowledge Award in Climate Change, AOS Faculty Member **Isaac Held** has decided to offer support to the AOS Program through a generous gift. The gift will support seminars, lectures, and symposia. The Program is deeply grateful to Isaac for his generosity!

Congratulations to AOS Graduate Student **Geeta Persad** who was awarded the Outstanding Student Poster Presentation Award at the 92nd American Meteorological Society (AMS) Meeting.

Additional congratulations to **Geeta Persad** and fellow AOS Graduate Student **Todd Mooring** on being awarded 2012 NSF Graduate Research Fellowships. **Spencer Hill**, an AOS Graduate Student, received an Honorable Mention from the NSF GRFP. **Geeta** was also a finalist for the Paul and Daisy Soros Fellowship for New Americans, and along with **Todd** and **Spencer**, was a semifinalist for the Hertz Foundation Graduate Fellowship.

Congratulations to AOS Postdoctoral Research Associate **Allison Smith** and **Malin Pinsky** (EEB) who were honored with Best Presentation Awards at the Second International Symposium on Effects of Climate Change on the World's Oceans in Yeosu, Korea in May. Allison's talk was titled "Predicting future habitat changes above oxygen minimum zones" and Malin's talk was titled "How predictable are species distribution shifts? Testing hypotheses against four decades of observations."

Arrivals

Postdoctoral Research Fellow **Greg de Souza** arrived in April from ETH Zurich to work in Jorge Sarmiento's group.

Visiting Postdoctoral Research Associate **Tra Dinh** from the University of Washington arrived in May to work with Isaac Held and Stephan Fueglistaler.

Pablo Zurita-Gotor, a visiting faculty member from the Universidad Complutense de Madrid in Spain, will arrive in July for two months to work once again with Geoff Vallis.

Andrew Barton, a postdoc from Mount Allison University, will arrive in August to work with Charlie Stock and John Dunne.

2012 Summer undergraduates: **Jeong (Alex) Do Ahn**, from Swarthmore College, who will be working with Thomas Frolicher/Brendan Carter, and four undergraduates from Princeton: **Jeanette**

Ferrara, who will be working with Allison Smith, **Brian Huang**, who will be returning from last summer to work with Claudie Beaulieu, **Christina Healy**, who will be working with James Watson, and **Ruth Rosenthal**, who will be working with Ryan Rykaczewski. In addition, Princeton Undergraduate **David Byler**, who will be working with Malin Pinsky this summer, will be sitting on main campus and sometimes in Sayre Hall. **Nick White**, also a Princeton undergraduate, will be working with Rym Msadek over at GFDL as will **Julie Sanders**, a University of Miami undergraduate, who will be working with John Dunne.

Graduate Student **Katelin Childers**, from Stonybrook University, will be working with Bob Hallberg this summer.

Graduate Student **Justin Hiester**, from Portland State University, will also be here for the summer working with Olga Sergienko.

Departures

Mehmet Ilicak – March 2012
Research Scientist
University of Bergen, Norway

Takeshi Doi – April 2012
Researcher
JAMSTEC, Japan

David Paynter – May 2012
Physical Scientist
GFDL

Maxim Nikurashin – June 2012
Lecturer/Research Fellow
The Institute for Marine and Antarctic Studies, University of Tasmania, Hobart, Australia.

Xin Liu – June 2012
Associate Professor
Returning to the Yantai Institute of Coastal Zone Research for Sustainable Development, Chinese Academy of Sciences, after a six month visit to collaborate with Leo Oey

Jan-Huey Chen – July 2012
Project Scientist
UCAR

Birth Announcements

Congratulations to **Joe Majkut** and his wife, Stephanie, on the birth of their son, Theodore, on April 11, 2012, weighing 8 lbs. 11oz.

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