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The winners of the 2012 Holton and Kaufman Awards

With great pleasure the Atmospheric Sciences Section of the American Geophysical Union announces that Dr. Daehyun Kim has been awarded the 2012 James R. Holton Junior Scientist Award. (continued on page 2)

With great pleasure the Atmospheric Sciences Section of the American Geophysical Union announces that Dr. Pawan K. Bhartia has been awarded the 2012 Yoram J. Kaufman Award for Unselfish Cooperation in Research. (continued on page 2)

The winners of the 2012 Ascent Awards

The Atmospheric Sciences Ascent Award aims to reward exceptional mid-career (academic, government, and private sector) scientists in the fields of the atmospheric and climate sciences. The only criterion for the award is that the applicant demonstrates excellence in research and leadership in his or her field. With great pleasure the Atmospheric Sciences Section of the American Geophysical Union announces the winners of this year Ascent Awards:

Jose-Luis Jimenez of University of Colorado has been awarded the 2012 Ascent Award "**.. for shifting the paradigm underlying primary emission, secondary production and chemical evolution of carbonaceous aerosols…**"

Andrew Dessler (right) of Texas A&M Univerity has been awarded the 2012 Ascent Award "**...for creative and incisive studies of the influences of water and clouds in the climate system…**"

Athanasios Nenes of Georgia Institute of Technology has been awarded the 2012 Ascent Award "**...for fundamental advances in research on aerosol impacts on cloud formation, air quality and climate though a combination of theory, instrumentation development, measurements and modelling…**"

Stephen A. Klein of Lawrence Livermore National Laboratory has been awarded the 2012 Ascent Award "**for elucidating the role of clouds in climate change and the fidelity with which climate models simulate clouds …**"

Dear Readers,

I would like to show appreciation to all contributors that make this newsletter possible.
We are looking for new contributions and we hope to hear from you if you have something you would like to share.
Please don't hesitate to contact us at vtoma@eas.gatech.edu
Thanks for reading,

Violeta E Toma , Editor-in-Chief
School of Earth & Atmospheric Sciences
Georgia Institute of Technology, USA

Section Officers

Introducing the Winners of the 2012 Holton and Kaufman Awards

Alan Robock

Rutgers University

Past-President, Atmospheric Sciences Section

Chair, Holton and Kaufman Award Committees

Dr. Daehyun Kim, the winner of the Holton Award works on intraseasonal variability (especially the Madden-Julian Oscillation - MJO) and deep convection, including convective parameterization and climate model development. Although only receiving his Ph.D. two years ago, he has published 21 papers in high quality journals.

His accomplishments can best be described by quoting from his nomination letters. "I would argue that Daehyun has done as much as any other single individual (at any career stage) in the last few years to push forward our understanding of the MJO using GCMs." "His work is distinguished from that of others in the field by two things. First, Daehyun is able to get into a model - including into the guts of the parameterizations - and manipulate it with great facility. He is also unparalleled at model diagnosis and analysis." "This kind of deep analysis is needed if we are to learn about the atmosphere from flawed models - and when we study the MJO, all models are flawed."
"Simply put, Daehyun is a scientific phenomenon. He is one of those rare individuals who possess keen scientific insight as well as the boundless enthusiasm and energy to carry out his ideas. We could tell that Daehyun was someone special when he took it upon himself to lead development of the MJO Diagnostics package of the CLIVAR MJO Working Group as a student. This comprehensive package is considered the gold standard for MJO diagnosis. Amazingly, he did this project on the side while developing a convection parameterization for his Ph.D. research." "I consider Daehyun to be the best young scientist to enter the field of tropical meteorology in the last few years, and I feel fortunate to have interacted with him."
"After arriving at Columbia, Daehyun made it a point to learn the gory details of our GCM so he could design and implement his own improvements. Almost no one ever has the tenacity and insight to do this successfully with GCMs except the people who build them and run them. To paraphrase the old saying - everyone always complains about climate models but nobody ever does anything about them. Daehyun was the exception - he did something."
"The energy and fundamental insights Daehyun brings to any problem he tackles, combined with his tremendous intellectual curiosity and a humility that too few scientists exhibit, account for the steep arc his career has taken." "Daehyun Kim is really a prototype for the 21st Century leader in the climate community. There are not many tropical meteorologists (of any age) who can translate theoretical insights into practical approaches that actually make climate models more realistic." For these reasons, the AGU Atmospheric Sciences Section is proud to award the 2012 Holton Award to Daehyun Kim.

Dr. Pawan K. Bhartia, the winner of the Kaufman award is a Senior Research Scientist in the Atmospheric Chemistry and Dynamics Branch at the NASA Goddard Space Flight Center in Greenbelt, Maryland.
His accomplishments can best be described by quoting from his nomination letters. "How does one think about P.K. without thinking about Yoram? P.K. embodies Yoram's spirit of pure joy of research and exuberance in sharing this joy with just about everybody. True, P.K. is quieter than Yoram and seemingly more reserved, but his enthusiasm for scientific inquiry and the mentoring of young scientists is equally unbounded. P.K.'s unwavering goal is to advance the science that can be obtained from remote sensing data. In his pursuit of this goal, P.K. knows no barrier, no international boundary, no language impediment, no age divisions. There is only the advancement of the science. To advance this goal, he has inspired and cultivated the next generation of remote sensing scientists in the U.S, and was a leader in the negotiations to fly the Dutch Ozone Monitoring Instrument (OMI) on the NASA Aura spacecraft. … There is no one in the business less selfish, more cooperative and self-effacing than P.K. His last first author paper was in 1996, preferring since then to let younger scientists have the opportunity to take the lead. He appears as co-author on more than 90 papers, and you can be sure that he made substantial contribution in each one, because P.K. turns down 'ceremonial' offers of co-authorship right and left." [Quote from a letter signed by 27 "scientists, young and old, who are proud to call P.K. Bhatia their mentor, guide and/or inspiration."]
"It is very rewarding to work with him, because of his excellent ideas, his inspiration and his unselfishness, the latter being a rare quality amongst scientists." "… P .K. has been a prolific source of ideas for the development, improvement, and extension of the ozone retrieval algorithms used in the operational ozone satellite program. His guidance and vision in algorithm development, measurement calibration, and product validation are directly responsible for the success of the NOAA Solar

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Backscatter Ultraviolet instrument (SBUV/2) program's operational near-real-time ozone products and ozone climate data records … He is happiest when he has been able to provide useful direction to the research paths of his colleagues. His modest assessment of his own ideas and openness to novel ideas makes it easier for others to explore new areas as well as allowing them to admit the inefficiencies of their current approaches. He is an excellent sounding board with a strong ability to find the key underlying questions or assumptions that must be addressed to move research forward. A proper accounting, usually hidden in an acknowledgement of the contributions of the NASA Ozone Processing Team (P.K. has been the guiding light of this Team for the last 30 years.), would show that the majority of my publications drew important content from his suggestions despite his less frequent appearance as a co-author. His genuine desire to understand the methods and messages of every presentation he attends matched with his respect for good science and creative solutions create a level playing field where new and old team members' contributions are nurtured and sifted to produce the best results."

"I have always found P.K. to be an exceedingly likeable person, one who plays down his own manifold accomplishments. In personal interactions he is always interested in what other people have to say, and encouraging of their ideas and goals. Dr. Bhartia has worked tirelessly and selflessly over the decades to ensure that new and valuable atmospheric observations be made available to the scientific community, and to ensure that a new generation of atmospheric scientists are well placed to exploit these observations for decades to come. Dr. Bhartia's selfless dedication to the field, to nurturing his colleagues, and to collaboration with other scientists, make him truly deserving of this award."

For these reasons, the AGU Atmospheric Sciences Section is proud to award the 2012 Kaufman Award to P.K. Bhartia.

Climate Change Insights to the Northeastern Region of Brazil

Dr. Michel d. S. Mesquita[1], Dr. Paulo S. Lucio[2], Dr. Jörg Matschullat[3], Dr. David Mendes[2], Dr. Tércio Ambrizzi[4], Dr. Neusa M. P. Leme[5]

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Nordeste, or northeastern Brazil, many times has been referred to as the "forgotten" or "neglected" part of the country. While the region is home to 30% of the Brazilian population, its development still lags behind the more southerly regions. Yet, most Brazilians prefer to spend their vacation here and enjoy the diverse culture, and its paradisiac beaches. In contrast, the interior of the Nordeste, known as "sertão", is still poor and largely underdeveloped. At the same time, the northeast is a vulnerable region with respect to changes in climate.

The Climate of the Northeast

The entire region is under tropical influence with three sub-units. The central northern part is under tropical equatorial (1) influence with a range of four to eleven dry months per year. Here, the Atlantic equatorial air masses from the northeast and southeast (trade winds) dominate. The eastern part, basically following the extent of the Atlantic Forest biome, is typical for the tropical littoral climate of the oriental northeast (2) with one to seven months of dry season. Again, equatorial air masses from the Atlantic Ocean dominate. The central southern part, and the second largest area shows a tropical humid to dry climate (3), also referred to as the tropical climate of Central Brazil. Four to eight months of drought characterize the region, and air masses from the southern Central Atlantic Ocean dominate, coming mainly from south-easterly directions (Nimer 1989; Mendonça & Danni-Oliveira 2007).

Not considering recent variations, the annual average air temperatures (1961–2001) range from 22 to >26°C (71.6 to > 78.8 F), with minima from 18 to 22°C (64.4 to 71.6 F), and maxima from 26 to >32°C (78.8 to >89.6 F). The annual average precipitation (1961–2001) yields from < 500 to about 2,000 mm (19.69 to 78.74 in), with individual years showing considerably lower, but scarcely higher rainfall rates. While temperatures generally decrease with increasing latitude, the precipitation shows a distinct minimum for the region with the highest precipitation along the Atlantic coast and towards the Amazon basin and the lowest in Paraíba state and northern Bahia (DNM 1992; Mendonça & Danni-Oliveira 2007).

It has long been established that the quantity of rainfall in the semi-arid region of northeastern Brazil strongly depends upon the sea surface temperature (SST) in both the tropical Pacific and the Atlantic oceans. Significant changes in atmospheric circulation systems, as in the intertropical convergence zone (ITCZ), and the sub-tropical highs, are well-known features

Figure 1 - The northeast region of Brazil ("nordeste"). It is made up of nine states: Maranhão, Piauí, Ceará, Rio Grande do Norte, Paraíba, Pernambuco, Alagoas, Sergipe and Bahia, and it represents about 18 % of the Brazilian territory. Figure source: Wikipedia, "Northeast region, Brazil".

associated with the large-scale SST anomalies to be found within the tropical region (Uvo et al., 1998; Nobre and Shukla, 1996; Ropelewski and Halpert, 1989, 1987).

High rainfall variability on several time and spatial scales has long been accepted as typical of northeastern Brazil's weather and climate (Riehl, 1979). Aragão et al. (2007) pinpoint inter-annual variability to be of particular importance, because a sequence of years with widespread near or below-normal precipitation leads to severe drought conditions over most of the region (Roucou et al., 1996). These severe drought conditions have a critical impact in the region - further scientific studies are still needed to understand how future climate changes may impact the climate there. This highlights the importance of bringing scientists together for the discussion of climate issues in the northeast - as the recent CCIV Symposium has successfully done.

The CCIV Symposium

In order to discuss the climate variability relating to the coastal, tropical, and semi-arid regions of the Brazilian Northeast, an international symposium (CCIV2012) was convened at the Federal University of Rio Grande do Norte in Brazil (UFRN). The goal of this symposium was to create an initiative of human resources formation and research in the Brazilian Northeast related to the area of Climate Sciences, building international and national cooperation between participating researchers and students of the first South American Graduate Program in Climate Sciences (PPGCC). This initiative targets at fostering two-way knowledge advancement and transfer by inspiring national and international cooperation activities, with focus

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on global climate change, and adaptation to extreme climate events resulting either from natural climate variability and/or from human-induced factors that may transform the environment.

The symposium attracted more than 270 participants from several countries, of which about 100 were students from graduate programs all over Brazil. Presentations covered a wide range of topics including ocean-atmosphere-land interactions; the influence of physical processes in the eastern Pacific, tropical Atlantic, and Indian Ocean on the regional climate; several aspects of climate modeling; extreme events in the coastal and semi-arid regions; desertification of the semi-arid regions; in situ and satellite techniques to observe oceans and atmosphere; as well as environmental and social mitigation and adaptation. Presentations underlined the need for more observational and modeling efforts to understand and predict climate in the region on seasonal and longer time scales, with special attention to extreme events.

The symposium was organized by means of five full-day workshops concerning the following thematic sessions: (1) Ocean-Atmosphere Interaction; (2) Extreme Events and the Coastal, Tropical, Semi-Arid Regions; (3) Atmosphere and Oceans Instrumentation; (4) Climate Modeling; (5) Environmental and Social Mitigation Measures and Adaptation.

The CCIV2012 was jointly sponsored by a two year project of the Inter-American Development Bank (IDB) in cooperation with the Brazilian Ministry of Science, Technology and Innovation (MCTI) and supported by the Federal University of Rio Grande do Norte Graduate Program in Climate Science (UFRN), the National Institute for Space Research (INPE) and the Brazilian Research Council (CNPq). The second phase of this IDB project foresees specialized training courses in instrumentation, data processing, data analysis and modeling procedures in climate sciences.

Photo 1 - The organizing committee of the CCIV Symposium. From left to right: Dr.Felipe Pimenta, Dr. José Henrique Fernandez, Dra. Maria Helena, Dra. Lara de Melo Barbosa, Dr. Francisco Costa, Dr. Judith Höelzmann, Dr. Paulo Sergio Lúcio, Dr. Mario Pereira da Silva, Dr. David Mendes, Dr. Cláudio Moises da Silva, and Sra. Bety. Photo courtesy: CCIV 2012.

Program Highlights

The Monday program started with "Ocean – Atmosphere Interactions". The current reality of contradicting model projections for the Northeast was addressed by various authors. More and better data (e.g., deployment of more buoys in the Central Atlantic) and further improvement of the models are needed to progress. Yet, the recent AMMA experiment delivers magnificent results and more are to be expected. The presentations went from an overview of the ocean-atmospheric interaction, the discussion of the tropical Atlantic Ocean importance for the Northeast Brazilian precipitation, up to the links between SSTs anomalies in the Indian Ocean and their impacts over the NE rainfall. Regarding to this last point, Taschetto and Ambrizzi (2012) have shown through observational and numerical modeling the existence of a teleconnection pattern from the Indian Ocean and the NE Brazil via alterations of the Walker circulation pattern and through a mid-latitude wave-train, particularly Rossby wave-train.

On Tuesday, one of the highlights was the talk by Alisson Flávio Barbieri (UFMG) on Demography, climate change and vulnerability in the focus area "Environmental and Social Mitigation measures and Adaptation". He carefully highlighted the challenge of increasing population pressure in the northeast which forces land-use changes in an already highly strained and vulnerable environment that may face even larger challenges triggered by regional climate change.

Wednesday's program focused on "Extreme Events and Coastal, Tropical, and Semi-Arid Regions". Pedro Silva Dias (USP) gave a magnificent programmatic talk on "Climate prediction as a multiscale problem: from diurnal to multidecadal climate variability", reminding the community of the indispensable need to clearly distinguish between the appropriate spatial and time scales for any type of phenomenology. Milena Holmgren reported on "The resilience of tropical drylands in the face of extreme events" with various examples from Latin America.

Thursday was dedicated to "Climate Modelling". Alexandre Araújo Costa (UECE) highlighted the importance of downscaling projects such as the COordinated Regional climate Downscaling Experiment, CORDEX, for a better representation and understanding of regional climate in the region. Rui Salgado (UE, Portugal) gave an outstanding presentation on the need for lake schemes in numerical models. He then introduced "FLake" (http://www.flake.igb-berlin.de/), the freshwater lake model that can be used as a lake parameterization in numerical weather prediction, climate modeling and other numerical applications.

The last day, Friday, took a fascinating look at "Observing the Ocean and the Atmosphere: In-situ and Satellite Techniques". Many new ideas were presented. The dedication of the Brazilian government became obvious with a presentation of the nationwide database, presented by Manoel Jozeane Mafra de Carvalho (INPE). And Daniel Bortoli (Evora Univ.) enticed everyone to try out his new UV-VIS spectrometer.

Each of the thematic sessions was accompanied by high-quality poster presentations that clearly demonstrated the dedication, level and engagement of numerous doctoral students and post-docs, many of whom could have easily presented orally – had there been more time. The sessions closed with a plenary session each that allowed open questions to be addressed, and was a most valuable wrap-up with sparks of new horizons. Organizers and authors are currently working on a new volume of the "Lecture Notes in Earth System Science" (Springer), to be available early next year.

Not Forgotten Anymore

The Brazilian northeast should not be called the "forgotten" region anymore. This symposium has brought the importance of studying climate change impacts there to the attention of the national and the international scientific community. It is hoped that the CCIV2012 symposium can also foster further

scientific investigation of this beautiful region in Brazil. For more information about the CCIV2012 symposium, visit their website at www.ccet.ufrn.br/cciv2012/.

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Acknowledgements

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Interview with Toshio Yamagata

Hans von Storch

Toshio Yamagata is currently the director of Application Laboratory at Japan Agency for Marine-Earth Science and Technology. He was the Dean of School of Science of the University of Tokyo from 2009 to 2012 and, after retiring from the university in 2012, he was given the title of Professor Emeritus. His has done extensive modeling and analysis work with focus on large-scale dynamical processes of the oceans and the atmosphere. He has been awarded in 2004 the American Meteorological Society's H. U. Sverdrup Gold Medal "for his outstanding accomplishments in the study of ocean and climate dynamics, especially with respect to El Nino and air-sea interaction over the Indian Ocean." He is a fellow of the AMS and AGU for his accomplishments and outstanding contributions to the atmospheric and oceanic sciences.

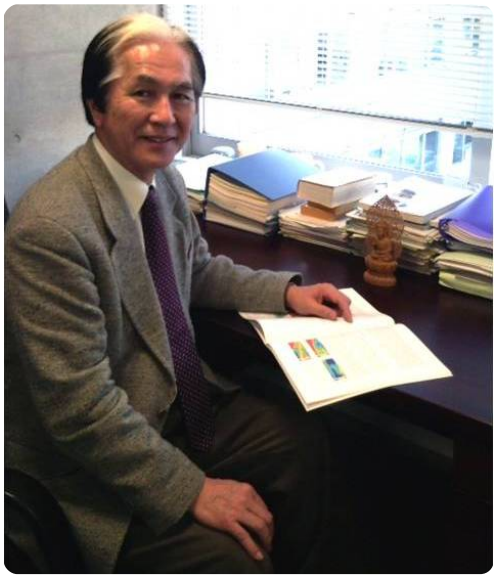

Photo 1: Yamagata just before retirement in 2012.

What would you consider the most two significant achievements in your career?

The development in the early 1980s of an instability theory (with George Philander of Princeton University) of an ocean-atmosphere coupled system to explain the evolution of El Niño/Southern Oscillation and the discovery (with Saji Hameed and young colleagues from Asia) of another ocean-atmosphere coupled mode: the Indian Ocean Dipole, based on the synthesis of ocean-atmosphere observational data, in the late 1990s. In retrospect, I think both contributed to stimulating the climate research community to deepen the understanding of climate dynamics from new viewpoints.

You have retired from the Tokyo University and you are now a leading scientist at JAMSTEC for climate application studies. Can you tell us a bit about the differences, both in terms of institutions and in terms of issues?

Since I started my career in GFD (geophysical fluid dynamics) in the early 1970s, I have always felt a there was a gap between my academic research and the surrounding society. Involvement in the climate research based on the background of GFD in the 1980s, at Princeton filled the gap to some extent. To proceed further in this direction, I realized the necessity of concerted action with scientists (like Roger Lukas, Jay McCreary and Gary Meyers) sharing the same idea in and out of my homeland, and I started contributing some of my energy to supporting institutional frameworks such as FRSGC (Frontier Research System for Global Change) and Earth Simulator of JAMSTEC and NASDA (now JAXA), and the Japan-US bilateral IPRC (International Pacific Research Center) at the University of Hawaii under the support of the Science and Technology Agency (called at that time). From 1997, I led a group at FRSGC composed of young active scientists mostly from abroad to develop ocean and climate models for prediction. Such extracurricular activities were compatible, despite busyness, with my concurrent university academic life for basic research and graduate/undergraduate education. Without the liberality of the University of Tokyo, this could not happen. Now I graduated from my mission in the university, and I find time to be fully involved in application studies based on ocean and climate prediction information at new JAMSTEC's Application Lab. It is interesting, however, that the feeling of "something missing" is still left after having filled the gap perceived in my younger days. I believe this drives me further on to stage II.

You are Japanese – is there a difference in how atmospheric science is done in your homeland compared to the western way?

Living interdisciplinarily is rather difficult in my homeland. Also, without a strong spirit, developing one's own idea that is different from what many people think is difficult in such a geographically small island country. I think, in my homeland, I am accepted as an oceanographer but still not accepted as a meteorologist . Perhaps, this is a general phenomenon all over the world; the smaller the village, the stricter the discipline with a long history. I believe that we need more liberal air in both infra- and supra-structres.

Photo 2: Yamagata at Moscow Airport in 1998.

Your homeland has been hit by the tsunami in 2011, and brought the Fukushima nuclear reactor out of control. Did these events impact the focus of atmospheric science is Japan?

I strongly believe that the tragedy of 3/11 calamity was doubled by the villager mind in several related science fields including earth science. In that sense, it was partly a manmade disaster. For example, if the information from the bottom pressure gauges deployed far offshore were released immediately from the Japan Meteorological Agency to our society,

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thousands of lives could have been saved. However, the too bureaucratic belief in the manual describing the relation between the tsunami height and the earthquake magnitude stopped the information delivery. Too much belief in the manuals without understanding how they were introduced led to further disaster. The silence of scientists particularly belonging to national institutions under one too strong voice restriction (but actually not released) after the calamity lead to people further losing the confidence in science. It is not easy to regain the credit. How to behave as a scientist with expertise when facing such a disaster has now become a big issue in the academic community. This is again related to the problem that links science and society. We have realized the importance of daily activities to enlighten operational people, policy makers and, most importantly in a long run, laypersons by delivering a scientific way of thinking as well as the outcome of science.

When you look back in time, what where the most significant, exciting or surprising developments in atmospheric science?

I am always impressed by the rich history for modern weather forecast as foreseen by Vilhelm Bjeknes in 1904. It has been achieved by close interactions between technological growth in earth observations, meteorological innovations led by Jule Charney, the evolution of the computer science led by von Neumann, and the implementation of a information delivery system of WWW(World Weather Watch) fostered by J. F. Kennedy at the occasion of UN General Assembly in 1961. Our way of life has been completely changed after those persistent, unselfish challenges. This is one of the best examples of science innovation in our history. I am sure our seasonal climate forecast activities will keep this outstanding track.

Is there a politicization of atmospheric science?

Climate change and climate variations are different. Projection and prediction are different, too. The problem of climate change includes trans-science issues without validation and very much political. Seasonal climate forecast based on scientific research of climate variations is within the realm of science and technology and looks undervalued in comparison with global change issues. I think we need to pay at least equal attention to science for seasonal forecast with validation studies. This is because countries, either developed or developing, suffer serious impacts of abnormal weather and extreme events due to climate variations under the increasing pressure of global environmental change. By doing so, global change issues will find much broader support on this globe.

What constitutes "good" science?

I think "good" science must be done together with active validation studies supported by technology development, leading to new knowledge as well as the improvement of our understanding. Particularly in earth science, it needs to contribute even indirectly to sustainable well-being of our habitable planet rather than just increasing our knowledge as in "pure" science.

What is the subjective element in scientific practice? Does culture matter? What is the role of instinct?

To me, science is like wine. Culture is related to climate, and gives aroma in science when pursued by individuals just as terroir does. This may give us richness of styles in viewing and expressing our world under the general principles of physics and mathematics.

The opinions expressed in this interview do not necessarily represents those of the reviewer or the AGU.

Call for OSPA Judge Volunteers

Volunteer to judge Papers, oral and/or Poster, for this Fall's OSPA in San Francisco!

You were given an opportunity to contribute to this worthwhile activity and to support junior scientists at a critical time in their career development.

Please contact the Section OSPA Volunteer Coordinator, Prof. Vickie Connors, Virginia Commonwealth University at vsconnors@vcu.edu

2011 Fall Meeting OSPA Winners

Alexis Attwood, University of New Hampshire, Durham, The effects of mineral dust on the hygroscopic and optical properties of inorganic salt aerosols

Adriana Raudzens Bailey, University of Colorado, Boulder, Isotopic signatures of mixing processes and cloud detrainment in the subtropics

Shannon Capps, Georgia Institute of Technology, Atlanta, Quantifying relative contributions of global emissions to PM2.5 air quality attainment in the U.S.

Matthew Christensen, Colorado State University, Fort Collins, Aerosol-precipitation responses deduced from ship tracks as observed by CloudSat

Evan Couzo, University of North Carolina at Chapel Hill, A regulatory model's ability to simulate large spatial heterogeneity in observed ozone in Houston, Texas

Stephen Griffith, Indiana University, Bloomington, Hydroxyl and hydroperoxy chemistry at the CalNex-LA 2010 site: Measurements and modeling

Will Johnson, Montana State University, Bozeman, Development of an eye-safe micropulse differential absorption lidar (DIAL) for carbon dioxide profilings

Chunsong Lu, Nanjing University of Information Science and Technology, Nanjing, China, and Brookhaven National Laboratory, Upton, Long Island, New York, Observational study of different entrainment-mixing mechanisms in cumulus during RACORO: An implication for parameterization

Corey Markfort, University of Minnesota, Twin Cities, Effect of wakes on land-atmosphere fluxes

Scot Miller, Harvard University, Cambridge, Massachusetts, Large-scale environmental drivers of North American methane emissions

Richard Moore, Georgia Institute of Technology, Atlanta, Volatility and hygroscopicity of Atlanta CCN during new particle formation events in summer 2009

Harshal Parikh, University of North Carolina at Chapel Hill, A combined kinetic and volatility basis set approach to model secondary organic aerosol from toluene and diesel exhaust/meat cooking mixtures

Brandon Strellis, Georgia Institute of Technology, Atlanta, The influence of light absorbing aerosols on the radiation balance over central Greenland

Michael Zucker, University of Colorado, Boulder, Airborne passive microwave measurements from the AMISA 2008 science campaign for modeling of Arctic sea ice heating