

University of Girona, Spain

Chuck Long returned in early October from an extended trip to the University of Girona, Spain, where he was invited to teach a Graduate Seminar course as part of their "Environmental Physics and Technology" program. This visit also served to continue the collaboration with Dr. Josep Calbo who visited with us here at PNNL two summers ago. The collaboration includes development of methodology using estimates of cloud macro-physical properties derived from surface radiation and meteorological measurements for sky classification by cloud type.

ARM Instantaneous Radiative Flux Working Group Meeting

Chuck Long attended the ARM Instantaneous Radiative Flux (IRF) Working Group meeting from October 19-23, hosted by the State University of New York at Albany. Chuck serves as the ARM Science Translator for the IRF Working Group, as well as the Chair of the Focus Group on Instrumentation within the IRF.

American Association for Aerosol Research Annual Conference

Rahul Zaveri, Jerome Fast, and Nels Laulainen attended the American Association for Aerosol Research Annual Conference in Anaheim, California, on October 20-24. Rahul presented a poster on the development and

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Newsletters Online

The Atmospheric Sciences Newsletters are now online (present and past issues)! Visit the Atmospheric Sciences web page at http://www.pnl.gov/atmos_sciences/.

Check out the latest edition of the Quarterly Newsletter of the ETV Advanced Monitoring Systems (AMS) Pilot, *The Monitor*, for additional information about EPA's Environmental Technology Verification Program and all 12 of its pilots on the World Wide Web at <http://www.epa.gov/etv> or you can go directly to the AMS pilot's information at http://www.epa.gov/etv/07/07_main.htm.

evaluation of a new computationally efficient model for simulating aerosol interactions and chemistry called MOSAIC (see Presentations/Publications).

Scientific Discovery through Advanced Computing Project Review

Steve Ghan traveled to Oak Ridge, Tennessee, on October 21-22 to participate in the review of the Scientific Discovery through Advanced Computing project.

International Conference on Environment and Ecology of Siberia, the Far East and the Arctic

Evgueni Kassianov attended the International Conference on Environment and Ecology of Siberia, the Far East and the Arctic on October 25 through November 2, 2003, in Tomsk, Russia, and made two oral presentations (see Presentations/Publications).

ARM Cloud Properties Working Group Meeting

Chuck Long attended the ARM Cloud Properties Working Group (CPWG) meeting from October 26-31 held in Broomfield, Colorado. This meeting occurred in conjunction with the ARM Cloud Parameterization and Modeling Working Group and three GCSS Working Groups. Chuck presented an update on the Cloud Intercomparison (CIC) Experiment in plenary, and hosted an evening CIC breakout session. He serves as Chair of the CPWG Spatial/3D Focus Group, where he presented preliminary (Evgueni Kassianov and Chuck Long) results on analysis of using stereo pair Total Sky Imager data to infer cloud base heights.

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Science Team Meeting of the U.S. DOE and China Meteorological Administration Bilateral Agreement on Regional Climate Research

Ruby Leung attended the Science Team Meeting of the U.S. Department of Energy and China Meteorological Administration (DOE/CMA) bilateral agreement on regional climate research on October 27-28 in Beijing, China. She gave an oral presentation on investigating the effects of the Atmospheric Brown Clouds on the regional climate of Asia and led the discussion on future collaborations on regional climate modeling. Ruby also visited the Zhejiang Province Meteorological Bureau in Hangzhou on October 22-24 and the Climate Research Laboratory of the Korea Meteorological Administration in Seoul, South Korea, on October 30 to discuss potential collaborations on regional climate modeling research.

ARM Cloud Parameterization and Modeling Working Group Meeting

Steve Ghan traveled to Broomfield, Colorado, on October 28-30 to participate in an ARM Cloud Parameterization and Modeling Working Group meeting, where he presented a paper based on work by Steve and Mikhail Ovtchinnikov (see Presentations/Publications).

International Comparison Campaign for Temperature, Humidity and Cloud Profiling

Chuck Long traveled to Payerne, Switzerland, from November 10-14 to participate in the setup for an International Comparison Campaign for Temperature, Humidity and Cloud Profiling at the Payerne Aerological Station, sponsored by MeteoSwiss. (see <http://www.meteoswiss.ch/en/Science/Research/IndexResearch.shtml>). The primary purpose of the field deployment is to test ground-based temperature and humidity profiling and passive and active ground-based cloud detection systems. Chuck installed an infrared thermometer system for cloud detection and cloud base temperature retrievals. While in Payerne, he delivered a talk titled "Retrieval of Cloud Properties Using Surface Meteorological and Broadband Irradiance Measurements," including co-authors Jim Barnard and Tom Ackerman. Chuck will be returning to Payerne at the end of the field deployment phase in mid-February to attend an experiment workshop and retrieve the instrument.

National Association of Regulatory Utility Commissioners 115th Annual Convention

Ruby Leung traveled to Atlanta, Georgia, on November 18 to attend the National Association of Regulatory Utility Commissioners (NARUC) 115th Annual Convention, and

gave an invited talk on the effects of climate change on water resources in the western U.S. at a session on "Climate Change and Its Regional Environments Impacts: What Can We Expect Back Home?"

ARM Coordination Team Meeting

Chuck Long participated in the ARM Coordination Team meeting held in Alexandria, Virginia, on November 18-19. This group acts to project and coordinate the science, engineering, and operational requirements of ARM constrained by expected funding.

NSF Climate Process Team Advisory Panel

Steve Ghan traveled to Boulder, Colorado, on November 20-21 to serve on the advisory panel for the NSF Climate Process Team.

Visit to Brookhaven National Laboratory

Rich Barchet, Carl Berkowitz, Chris Doran, John Hubbe, and Bill Pennell visited Brookhaven National Laboratory (BNL) on December 3 to discuss plans for a NorthEast Aerosol eXperiment (NEAX-04) being planned by Peter Daum of BNL in coordination with a larger, multiagency air quality study focused on New England and on the trans-continental transport of pollutants from North America into the North Atlantic and Europe. This meeting was attended by staff from various other DOE laboratories and centers and by Peter Lunn, DOE Atmospheric Science Program manager. Scientific objectives and logistics of a mid-summer 2004 field campaign using the PNNL Gulfstream-159 aircraft based in the Pittsburgh, Pennsylvania, area and other ground-based sites were presented by staff from BNL and PNNL.

2003 American Geophysical Union Annual Fall Meeting

Rahul Zaveri and John Hubbe attended the 2003 American Geophysical Union Annual Fall meeting in San Francisco, California, from December 8-12, and presented two posters on the Nighttime Aerosol-Oxidant Plume Experiment (NAOPEX), which was carried out in summer 2002 as part of the New England Air Quality Study (NEAQS). One poster (Berkowitz et al.) was an overview of the NAOPEX campaign, and the second poster (Zaveri et al.) focused on the analysis and interpretation of the Lagrangian measurements made by the G-1 aircraft in the Boston urban plume.

Jerry Elwood's Visit to PNNL

On December 11, 2003, Dr. Jerry Elwood, Director of DOE's Climate Change Research Division, visited PNNL and met with staff from the Atmospheric Science and Global Change Division and the Environmental Molecular Science Laboratory. He was briefed by PNNL staff on topics including the PNNL Atmospheric Remote Sensing Laboratory, the Gulfstream-159 aircraft, EMSL aerosol measurement capabilities, and various aspects of climate change research being conducted at PNNL.

Battelle Columbus Visit

Carl Berkowitz, Charlette Geffen, and Bill Pennell met with colleagues at Battelle Columbus (Chet Spicer, Steve Bortnick, and Joe Carvitti) on December 16, 2003, for a very productive meeting on the potential for collaborative research activities. Discussions focused on identifying target clients and near-term programmatic opportunities. An update on the capabilities, recent projects and strategic priorities of each group was provided. Several opportunities were identified for joint development as a result of this meeting.

Prof. Elwynn Taylor's Visit to PNNL

Prof. Elwynn Taylor from Iowa State University visited Dave Whiteman and Stephan de Wekker on December 23 to discuss agricultural frost risks and minimum temperatures in complex topography.

MAIRS

A new international research project, Monsoon Asia Integrated Regional Studies (MAIRS), has been initiated recently by the Global Change System for Analysis, Research and Training (START, <http://www.start.org/>) under the framework of ESSP (Earth System Science Partnership for DIVERSITAS, IGBP, WCRP, and IHDP). As the first step of MAIRS, an assessment report reviewing the regional aspects of global change in Asia will be published as the basis for future integrated projects. Yun Qian and Ruby Leung have been invited to be the lead author and co-author, respectively, for *Chapter 7- Impacts of Atmospheric Sulfate and Black Carbon Aerosols on the Regional Climate of East Asia* in this report.

Presentations/Publications

Abdul-Razzak, H., and S. J. Ghan

"Parameterization of the Influence of Organic Compounds Surfactants on Aerosol Activation." *J. Geophys. Res.* (in press).

Berg, L. K., and R. B. Stull

"Parameterization of Joint Frequency Distributions of Potential Temperature and Water-Vapor Mixing Ratio in the Daytime Convective Boundary Layer." *J. Atmos. Sci.* (in press).

Berkowitz, C. M., R. A. Zaveri, J. M. Hubbe, S. R. Springston, and R. L. Coulter

"An Overview of the Nighttime Aerosol/ Oxidant Plume Experiment (NAOPEX)." Poster presentation at the 2003 AGU Annual Fall Meeting, December 8-12, 2003, San Francisco, California.

Disselkamp, R. S., T. R. Hart, A. M. Williams, J. F. White, and C.H.F. Peden

"Ultrasound-Assisted Hydrogenation of Cinnamaldehyde." *Ultrasonics Sonochemistry* (in press).

Disselkamp, R. S., K. M. Judd, T. R. Hart, C.H.F. Peden, G. J. Posakony, and L. J. Bond

"A Comparison Between Conventional and Ultrasound Mediated Heterogeneous Catalysis: Hydrogenation of 3-buten-1-ol Aqueous Solutions" *J. Catalysis* (in press).

Fast, J. D.

"Forecasts of Valley Circulations Using the Terrain-Following and Step-Mountain Vertical Coordinates in the Meso Eta Model." *Wea. Forecasting* 18:1192-1206.

Ghan, S., E. Chapman, R. Easter, J. Reid, and C. Justice

"Simulation of the Intercontinental Transport, Aging, and Removal of a Boreal Fire Smoke Plume." Presented at the 2003 AGU Annual Fall Meeting, December 8-12, 2003, San Francisco, California.

As part of Bill Gustafson's dissertation work, the following papers have been accepted for publication:

Gustafson, W. I., and B. C. Weare

"MM5 Modeling of the Madden-Julian Oscillation in the Indian and West Pacific Oceans: Model Description and Control Run Results." *J. Climate* (in press).

Gustafson, W. I. and B. C. Weare

"MM5 Modeling of the Madden-Julian Oscillation in the Indian and West Pacific Oceans: Implications of 30-70 Day Boundary Effects on MJO Development." *J. Climate* (in press).

Kassianov, E. I., and T. P. Ackerman

"The ARM Program: An Observatory for the Study of Clouds and Atmospheric Radiation." Presented at the International Conference on Environment and Ecology of Siberia, the Far East and the Arctic, October 25-November 2, 2003, Tomsk, Russia.

Kassianov, E. I., T. P. Ackerman, R. T. Marchand, and M. Ovtchinnikov

"Measuring Cumulus Geometry from Surface and Space: Multi-angle Approach." Presented at the International Conference on Environment and Ecology of Siberia, the Far East and the Arctic, October 25-November 2, 2003, Tomsk, Russia.

- Leung, L. R.
 "Mid-Century Climate Change Effects on Water Resources in the Western U.S." Presented at the NARUC 115th Annual Convention, November 16-19, 2003, Atlanta, Georgia.
- Leung, L. R.
 "Regional Modeling of Climate Variability and Change." Seminar at the Zhejiang Province Meteorological Bureau, October 23, 2003, Hangzhou, China.
- Leung, L.R.
 "Regional Modeling of Climate Variability and Change." Seminar at the Korea Meteorological Administration, October 30, 2003, Seoul, South Korea.
- Leung, L. R., and Y. Qian
 "The Sensitivity of Precipitation and Snowpack Simulations to Model Resolution Via Nesting in Regions of Complex Terrain." *J. Hydrometeor.* 4(6):1025-1043.
- Leung, L. R., Y. Qian, C. E. Chung, and V. Ramanathan
 "Simulating the Regional Climatic Effects of the Atmospheric Brown Cloud." Presented at the DOE/CMA Science Team Meeting, October 27-28, 2003, Beijing, China.
- Leung, L. R., Y. Qian, J. Han, and J. O. Roads
 "Intercomparison of Global Reanalyses and Regional Simulations of Cold Season Water Budgets in the Western U.S." *J. Hydrometeor.* 4(6):1067-1087.
- Mayr, G. J., L. Armi, S. Arnold, R. M. Banta, L. S. Darby, D. D. Durran, C. Flamant, S. Gabersek, A. Gohm, R. Mayr, S. Mobbs, L. B. Nance, I. Vergeiner, J. Vergeiner, and C. D. Whiteman
 "GAP Flow Measurements during the Mesoscale Alpine Programme." *Meteorology and Atmospheric Physics* (in press).
- Ovtchinnikov, M., and S. J. Ghan
 "Comparison of Cloud Resolving Model Simulations using Size-Resolved and GCM Microphysics Parameterizations." Presented at the ARM Cloud Parameterization and Modeling Working Group meeting, October 28-30, Broomfield, Colorado.
- Whiteman, C. D.
 "Meteorological Explorations of Sinkholes in the Rocky Mountains and Eastern Alps." Invited presentation at the Desert Research Institute Meteorology Seminar Series, December 3, 2003, Reno, Nevada.
- Whiteman, C. D.
 "Mountain Winds and Thermally Driven Winds in Complex Terrain." Two invited workshop presentations of 1-hour each to the National Weather Service Forecast Office, December 1, 2003, Las Vegas, Nevada.
- Whiteman, C. D.
 "Weather and Climate of the Columbia Basin." Invited presentation at Columbia Basin College, Science 110 class, Natural History of the Columbia Basin, October 17, 2003, Pasco, Washington.
- Zaveri, R. A., C. M. Berkowitz, J. M. Hubbe, S. R. Springston, Y. N. Lee, J. T. Jayne, and R. L. Coulter
 "Lagrangian Measurements of Aerosols and Oxidants in the Boston Urban Plume During the NAOPEX 2002 Campaign." Poster presentation at the 2003 AGU Annual Fall Meeting, December 8-12, 2003, San Francisco, California.
- Zaveri, R. A., R. C. Easter, J. D. Fast, and L. K. Peters
 "A New Computationally Efficient Aerosol Chemistry Model." Poster presentation at the American Association for Aerosol Research Annual Conference, October 20-24, 2003, Anaheim, California.