

Roland Mayr – Hostage Freed

Roland Mayr, who was a scientific visitor at PNNL from the University of Innsbruck for eight months in 2000, and ran the tethered operation at the DOE/VTMX experiment in Salt Lake City in October 2000 was captured and held by a terrorist group in Algeria on March 17. He was traveling through the Sahara desert in a 4-wheel drive vehicle on a rock-climbing expedition near the Libyan-Algerian border when he was captured. He was held with 30 other hostages by the Salafist Group for Preaching and Combat (GSPC), an Islamist militant group with supposed ties to al-Queda, near the southern Tuareg city Illizi, some 1200 km south of the capital Algiers. The hostages had been split into two groups, and Roland's group of 17 was rescued unharmed on May 13 by Algerian army special forces troops after a shootout that killed nine armed militants. His friends and colleagues at PNNL and throughout the VTMX laboratory and university communities are thankful for his rescue and hope that he will be able to recover quickly from the nearly 2-month ordeal.

2003 ARM Science Team Meeting

The Thirteenth ARM Science Team Meeting was held during the first week of April at the Omni Interlocken Resort in Broomfield, Colorado. A near-record attendance of more than 270 scientists and researchers, including 54 scientists from 20 foreign countries, participated in a series of plenary and poster sessions, and working group meetings.

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The Science Team Meeting serves several key purposes-- a technical exchange for scientific findings and results, an assessment of the implementation and operation of ARM facilities and instrumentation, as well as a review of the ARM infrastructure, which is important to the success of this large program. The ARM program involves staff from nine U.S. Department of Energy (DOE) laboratories, more than 30 universities, a variety of other government laboratories, several private laboratories, and 21 international collaborations. Key roles held within DOE's ARM Program include Tom Ackerman, ARM Chief Scientist, and Ted Cress, ARM Technical Director.

During the opening plenary session, Wanda Ferrell, ARM Science Director from DOE's Office of Biological and Environmental Research, thanked the scientists for their expertise and ingenuity, which contributed in fiscal year 2002 to improvements to model parameterizations as well as site data systems, and which resulted in 158 publications in the fiscal year that featured ARM research. Tom Ackerman delivered a "State of ARM" presentation, which included a preview of this year's efforts that will establish a new ARM Science Plan that will advance the scientific agenda of ARM for the next 5 years. Susan K. Avery, Director of the Cooperative Institute for Research in Environmental Sciences (CIRES) and a professor at the University of Colorado presented an overview of the new U.S. Climate Change Science Program. As CIRES director, Avery has helped form a regional integrated science and assessment program that examines the impacts of climate variability on water in the interior west. Currently, she is on sabbatical at the NOAA office of the Climate Change Science Program in Washington, DC. In a later session, two other presentations were made by PNNL staff. Chuck Long presented a talk on the future of the ARM Tropical Western Pacific site and Evgueni Kassianov presented a talk on radiative transfer in broken clouds. Victor Morris and Will Shaw also attended the ARM Science Team meeting. Vic Morris presented an informal talk on the current status of microwave radiometer

News from Atmospheric Sciences is published quarterly for parties interested in the work of atmospheric scientists at Pacific Northwest National Laboratory, which is operated for the U.S. Department of Energy by Battelle Memorial Institute. For more information contact:

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retrievals and reprocessing to the instantaneous radiative flux and cloud liquid water working groups. In addition, posters were contributed by a number of other staff members.

Joint Urban 2003 Meeting

Will Shaw and Larry Berg traveled to Oklahoma City on April 14-16. There they met with Rich Coulter of Argonne National Laboratory to develop final assessments for wind profiler and sodar measurement sites for the upcoming Joint Urban 2003 study that will take place in Oklahoma City from late June through July.

Visitors from the U.S. Bureau of Reclamation and NASA

On April 18 Ruby Leung hosted six visitors from the U.S. Bureau of Reclamation (USBR) and NASA at PNNL to discuss potential collaborations on advancing the use of atmospheric and hydrologic models and remote sensing technology for improving watershed and river systems management. Scientists from the USBR/NASA and PNNL teams provided overviews of their capabilities and discussed ideas for the NASA Pacific Northwest Regional Collaboratory and future joint proposals.

Cloudiness Inter-Comparison IOP

The field campaign portion of the Cloudiness Inter-Comparison IOP officially concluded April 21. The CIC IOP attempted to 1) relate the various instruments and methodologies used to get at "cloud fraction," and 2) investigate the possibilities for inferring nighttime cloud amounts for other than "pencil beams" from active sensors. Lab participants in the CIC IOP include Chuck Long, Iliana Genkova, and Vic Morris.

National Weather Service Forecast Office

Dave Whiteman presented two invited talks to the Pocatello, Idaho, National Weather Service Forecast Office on April 25 as part of a program designed to improve their training on fire weather forecasting.

Air Quality Forecasting Workshop

Chris Doran and Jerome Fast attended an Air Quality Forecasting Workshop sponsored by the U.S. Weather Research Program (USWRP) in Houston, Texas, between April 28 and May 1. The objective of the workshop was to develop an air quality forecasting science implementation plan.

Atmospheric Science Program Aircraft Survey

From April 28 through May 1 Rich Barchet and Bob Hannigan visited several sites to survey aircraft for potential use by the Atmospheric Science Program in future field campaigns. At the National Center for Atmospheric Research (NCAR) aviation facility near Boulder, Colorado, Sam Kogel of the U.S. Naval Research Laboratory (NRL), gave them a tour on April 28 of an NRL NP-3D aircraft that was being outfitted with the NCAR Eldora radar. On April 29 they met with Peter Lunn (DOE-SC/ASP Program Manager) and Larry Kleinman of Brookhaven National Laboratory (BNL) to tour the facilities of Phoenix Air in Cartersville, Georgia, and see one of the world's largest collection of operational Gulfstream-159 aircraft including two stretched G-1s that are 11 ft. longer than a standard G-1. On April 30 Rich and Bob visited the University of Maryland to discuss airborne air quality research with Ken Pickering and Lackson Marufu. Rich gave a seminar on airborne atmospheric chemistry research with the G-1 aircraft. On May 1 Rich and Bob joined Peter Lunn and Stephen Springston (BNL) for a tour of the facilities of the NRL Flight Support Detachment at the Patuxent Naval Air Station near Lexington Park, Maryland, and discussed with the detachment commander possibilities for future collaboration between NRL and DOE on airborne atmospheric research.

Texas Commission on Environmental Quality Workshop

Jerome Fast was invited to attend a mini-workshop sponsored by the Texas Commission on Environmental Quality on May 2 in Austin, Texas. Various investigators working on the Texas 2000 field campaign met to discuss details of the meteorological and chemical modeling studies performed by Jerome Fast and Guangfeng Jiang.

International Conference on Alpine Meteorology and the Mesoscale Alpine Programme 2003

Dave Whiteman attended the International Conference on Alpine Meteorology and the Mesoscale Alpine Programme 2003 in Brig, Switzerland, from May 19-23, 2003. He was a co-author on three conference presentations with Austrian researchers including two Austrian students who had worked with him at PNNL in 2002 and early 2003. Following this conference he worked at the Central Institute for Meteorology and Geodynamics in Vienna, Austria, with Dr. Thomas Haiden on journal articles being prepared for DOE's Vertical Transport and Mixing Program. Topics included analytical modeling of down-slope flows in the Salt Lake Valley, and a comparison of cold-air pool evolution in Austrian and Western U.S. basins. He returned to the lab in mid June.

Obituary – Dr. Neil Cherry

We recently received word that Dr. Neil Cherry, 56, a two-term scientific visitor to PNNL's wind energy program in the mid-80s, died on May 24 in Christchurch, New Zealand, of complications from a crippling motor neuron disease. Neil began his science career at Lincoln University, where he specialized in weather and climate research and contributed to research in wind and solar energy, climate change, and seasonal forecasting. He developed international expertise in human biometeorology, air quality, and the effects of natural and artificial electromagnetic radiation on people's health. In recent years he served as a regional councillor at Environment Canterbury. He is survived by his wife, Gae, and daughters Jo and Carla. Our condolences go out to his family and colleagues.

ARM Aerosol Intensive Observation Period

Steve Ghan participated in the ARM Aerosol Intensive Observation Period during May in Oklahoma. Nearly two dozen scientists from around the country supplemented the operational suite of ARM measurements at the Southern Great Plains site with aerosol size distribution, cloud condensation nuclei, and radiative scattering and absorption measurements on the surface and from an aircraft flying above the site.

Visit to Los Alamos National Laboratory

Steve Ghan visited Los Alamos National Laboratory on June 17 to discuss the application of a subgrid orography scheme to improve the representation of watershed discharge in the NCAR Community Climate System Model.

NCAR Community Climate System Model Workshop

Steve Ghan, Ruby Leung, and Tim Shippert attended the NCAR Community Climate System Model Workshop from June 24-26 in Breckenridge, Colorado. Before the workshop Steve and Tim participated in a DOE Scientific Discovery through Advanced Computing team meeting. Ruby gave an oral presentation on regional climate modeling at the Climate Change Working Group meeting. After attending the workshop, Ruby started a visit to the National Center for Atmospheric Research for two months this summer. She is working with collaborators at the Mesoscale and Microscale Meteorology (MMM) Division on developing regional climate modeling capability in the Weather Research and Forecast (WRF) model.

Instrument Team Meeting at the ARM Southern Great Plains Site

In June, Vic Morris, Connor Flynn, and Kevin Widener traveled to the ARM Southern Great Plains (SGP) site in Oklahoma to participate in an Instrument Team Meeting and provide instrument training to Site Operations personnel from SGP, Tropical Western Pacific, and the North Slope of Alaska. Vic provided classroom and hands-on training on the microwave radiometer, infrared thermometer, and total sky imager; Connor provided training on the ceilometer and micropulse lidar; and Kevin provided training on the millimeter cloud radar and engineering and operations procedures and tools. The interaction between the Instrument Team and Site Operations was very helpful and productive.

Presentations/Publications

Barchet, W. R.

"The Department of Energy's Research Aircraft Facility: A Platform for Airborne Research." Presented at the University of Maryland, April 30, 2003, College Park, Maryland.

Clements, C. B., C. D. Whiteman, and J. D. Horel

"Cold Air Pool Structure and Evolution in a Mountain Basin: Peter Sinks, Utah." *J. Appl. Meteor.* 42(6):752-768.

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

"Comparing Ultrasound-Assisted and Conventional Heterogeneous Catalysis: Hydrogenation of Cinnamaldehyde." Presented at the 58th Regional American Chemical Society Meeting, June 13, 2003, Bozeman, Montana (Oral presentation).

Eisenbach, S., B. Pospichal, C. D. Whiteman, R. Steinacker, and M. Dorninger

"Classification of Cold Pool Events in the Gstettneralm." Presented at the International Conference on Alpine Meteorology and the Mesoscale Alpine Programme Meeting 2003, May 19-23, 2003, Brig, Switzerland.

Fast, J. D.

"Forecasts of Valley Circulations Using the Terrain-Following and Step-Mountain Vertical Coordinates in the Meso Eta Model." *Wea. Forecasting* (in press).

Fast, J. D., and W. E. Heilman

"The Effect of Lake Temperatures and Emissions on Ozone Exposure in the Western Great Lakes Region." *J. Appl. Meteor.* (in press).

Kassianov, E. I.

"Radiative Transfer in Broken Clouds: A Statistical Approach." Oral presentation at the 2003 ARM Science Team Meeting, April 1-3, 2003, Broomfield, Colorado.

- Kassianov, E. I., T. P. Ackerman, R. T. Marchand
 "Cumulus Geometry from Satellite and Surface Data at the ARM TWP Site." Poster presentation at the 2003 ARM Science Team Meeting, April 13, 2003, Broomfield, Colorado.
- Kassianov, E. I., and C. N. Long
 "Paired Ground-Based Hemispherical Observations for Cloud Base Height Estimation." Poster presentation at the 2003 ARM Science Team Meeting, April 1-3, 2003, Broomfield, Colorado.
- 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.* (in press).
- Leung, L. R., Y. Qian, and X. Bian
 "Hydroclimate of the Western United States Based on Observations and Regional Climate Simulation of 1981-2000. Part I: Seasonal Statistics." *J. Climate* 16(12):1892-1911.
- Leung, L. R., Y. Qian, X. Bian, and A. Hunt
 "Hydroclimate of the Western United States Based on Observations and Regional Climate Simulation of 1981-2000. Part II: Mesoscale ENSO Anomalies." *J. Climate* 16(12):1912-1928.
- 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.* (in press).
- Long, C. N., J. H. Mather, and S. A. McFarlane
 "ARM Tropical Western Pacific: Vision for the Future" Oral presentation at the 2003 ARM Science Team Meeting, April 1-3, 2003, Broomfield, Colorado.
- Pospichal, B., S. Eisenbach, C. D. Whiteman, R. Steinacker, and M. Dorninger
 "Observations of the Cold Air Outflow from a Basin Cold Pool through a Low Pass." Presented at the International Conference on Alpine Meteorology and the Mesoscale Alpine Programme Meeting 2003, May 19-23, 2003, Brig, Switzerland.
- Whiteman, C. D.
 "Complex Terrain Meteorology and Fire Weather. Talk 1: Forecasting Mechanical Winds in Complex Terrain. Talk 2: Forecasting Thermally Driven Winds in Complex Terrain." Presented at the Pocatello National Weather Service Forecast Office, April 25, 2003, Pocatello, Idaho.
- Whiteman, C. D., B. Pospichal, S. Eisenbach, R. Steinacker, and M. Dorninger
 "Temperature Inversion Breakup in the Gstettneralm, a Sinkhole in the Eastern Alps." Presented at the International Conference on Alpine Meteorology and the Mesoscale Alpine Programme Meeting 2003, May 19-23, 2003, Brig, Switzerland.
- Zhong, S., X. Bian, and C. D. Whiteman
 "A Theoretical Study of the Role of Turbulent Erosion in the Breakup of Cold Air Pools in Basins." *Meteorologische Zeitschrift* (in press).