Atmospheric Radiation Measurement
Climate Research Facility
U.S. Department of Energy

Southern Great Plains Newsletter

APRIL 2008
ANL/EVS/NL-08-04

African Researcher Visits Oklahoma

As a follow-up to the ARM Mobile Facility (AMF) deployment in West Africa in 2006, Dr. Salla Mayaki recently traveled from Niamey, Niger, to the ACRF Southern Great Plains (SGP) site near Lamont, Oklahoma. Dr. Mayaki is a member of a team, led by Professor A. Ben Mohamed, analyzing data collected by the AMF while it was deployed in Niamey.

Dr. Mayaki's trip to the SGP site was funded by the President of the Abdou Moumouni University, the only public university in Niger. Dr. Mayaki and Prof. Ben Mohamed are staff members of the Institute for Radioisotopes at that university.

The AMF is a portable instrument facility that contains many of the same instruments and data systems as fixed ACRF sites, such as the SGP. Consisting of several shelters, a baseline suite of instruments, data communications, and data systems, the AMF is deployed around the world for field campaigns lasting 6-12 months. To date, the AMF has been deployed at Point Reyes, California; Niamey, Niger; and Heselbach, Germany. Currently, the AMF is gathering data in Shouxian, China.

While in Oklahoma, Dr. Mayaki spent time at the Cooperative Institute for Mesoscale Meteorological Studies (CIMMS) at the University of Oklahoma, which hosts the ACRF SGP Site Scientist and the ARM Program Data Quality Office. During his visit at CIMMS, Dr. Mayaki worked closely with staff of the Data Quality Office to observe their treatment of the data from both the Niamey deployment and the SGP. Dr. Mayaki is now sharing what he learned in Oklahoma about quality control with the Abdou Moumouni University team analyzing the AMF data.

Figure 1. From left: Dan Rusk, SGP Site Operations Manager; Dr. Salla Mayaki; and Daniel Hartsock, SGP Assistant Site Scientist, during Dr. Mayaki's visit to the SGP Central Facility (ARM photo).

ACRF Southern Great Plains Newsletter is published by Argonne National Laboratory, managed by UChicago Argonne, LLC, for the U.S. Department of Energy under contract number DE-AC02-06CH11357.

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Dr. Mayaki spent two days at the SGP Central Facility, observing the operational practices used at the largest and most complex of the fixed ACRF sites. His interactions with SGP personnel (Figure 1) provided in-depth insight into the ARM Program and the importance of long-term, continual measurements for climate models. Discussions included atmospheric radiometry (the measurement of solar radiation), clouds and their effects on climate, and the various computer models used to simulate global climate.

In addition to his SGP visit, Dr. Mayaki attended the 18th ARM Science Team Meeting in Norfolk, Virginia, on March 10-14, 2008. He presented a poster detailing some analyses performed on data from the AMF deployment in Niamey. Dr. Mayaki also participated in the First U.S.-China Symposium on Mesoscale Meteorology, hosted by CIMMS in late February 2008.

Dr. Mayaki's visit was part of the 2006 *Memorandum of Agreement for Technical and Scientific Assistance* between CIMMS and the University of Niamey. The Oklahoma visit was an important step in vital capacity-building activities for the Niamey atmospheric science community that began with the 2006 AMF deployment.

Facts about Niamey, Niger, and the AMF Deployment

- Niger is one of the world's hottest countries, with heat so intense that it often causes rain to evaporate before it reaches the ground. Heat and dust were of great concern during the AMF deployment, especially their effects on the delicate instruments operating in Africa's extreme conditions.
- Niamey, population 774,235 (2006 estimate), is Niger's capital and largest city. Niamey is a port and trade center on the Niger River in southwestern Niger.
- The one-year AMF deployment in Niger allowed the ARM Science Team to collect data during both the dry and wet (monsoon) seasons. The deployment began in January 2006 at the Niger Meteorological Office at the Niamey International Airport (Figure 2).
- In January to March, the lower atmosphere in Niamey is often laden with dust blown from the Sahara Desert. Scientists collected data during this period to study the effects of Saharan dust on the West African monsoon (Figure 3).

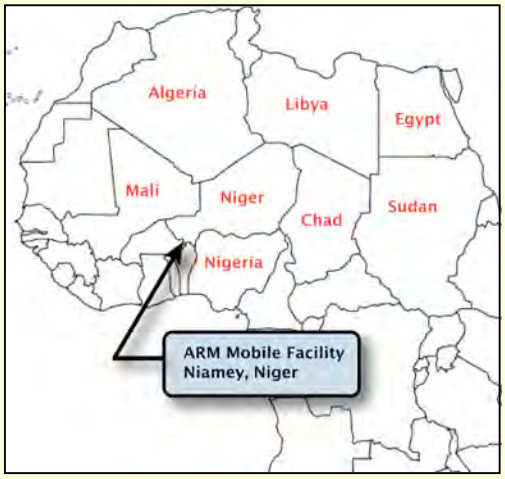

Figure 2. Location of the ARM Mobile Facility in Niamey, Niger (ARM graphic).

Figure 3. The ARM Mobile Facility, installed and in operation at the Niamey International Airport during the 2006 deployment in Niger, Africa. Shown are instrument shelters (left), with the tall Aerosol Observing System stack (blue tower) and surface and radiometric instrumentation (center) (ARM photo).