

Radiometers Used to Close Gap in Climate Models

In late January, scientists initiated a five-month field campaign involving routine flights above the ACRF Southern Great Plains (SGP) site. The airborne observations from the Routine AVP Clouds with Low Optical Water Depths (CLOWD) Optical Radiative Observations (RACORO) field campaign (featured in the January 2009 SGP Newsletter) will, among other things, be used to test and refine capabilities for sensing the atmosphere from the surface. To help validate and tie in the aircraft measurements to the SGP ground measurements, scientists involved in a related field campaign, called Surface Radiation Comparison Transfer Measurements, are deploying a set of the aircraft-style radiometers at the SGP Central Facility for the duration of the campaign.

An important aspect of RACORO is radiative “closure” experiments, or studies to “close the gap” between actual measurements of solar and terrestrial radiation and the associated calculations produced by models. Therefore, accurate radiation measurements are critical. However, the radiometers onboard the RACORO aircraft are of different make and manufacture than those the ACRF deploys at its surface sites, and were additionally modified for aircraft use. Measurements from the surface-based aircraft-style radiometers will be directly compared to the aircraft-mounted radiometers before, during and after the RACORO campaign. This comparison will provide a means of relating the possibly differing performance and characteristics of both the airborne and surface radiation measurements. As a result, the measurements will be better linked to enhance their usefulness in future radiative closure efforts.



These radiometers at the Southern Great Plains site match those on the aircraft for the RACORO field campaign. The radiometers will take measurements continuously throughout the campaign, allowing scientists to compare measurements from the aircraft against those collected routinely by radiometers at the site (ARM Photo).

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Farewell to Dan Nelson, SGP Facilities Manager

Dan Nelson, long-time facilities manager at the ACRF Southern Great Plains site, is heading west to take a new position in the Atmospheric Chemistry and Meteorology group at Pacific Northwest National Laboratory in Richland, Washington. For the past 17 years, Dan has been an integral part of the ACRF operations team at SGP, overseeing all of the SGP facilities (31 locations in all) and managing the operation of the Broadband Radiometer Calibration Facility at the Central Facility. Dan also prepared installation designs, coordinated with vendors and mentors, and managed requirements for installations of all new instruments, facilities, and equipment at the SGP site. His responsibilities included both permanent and temporary campaign instruments.



Dan Nelson

Dan's relocation brings him closer to family in Oregon where he grew up, but he says it was a very hard decision. "I will miss all of you and our personal and professional interactions," he said. "You've all made me feel like an integral part of one great team. Many thanks for the opportunity to be part of something very special. I'm proud of our contributions to the science and even more proud to have you all as friends and colleagues." Dan's last day at the SGP site will be February 20. We wish him all the best!