

CLASIC CONCLUDES WITH A SPLASH

The Cloud and Land Surface Interaction Campaign (CLASIC) drew to a close on June 30, 2007, at the ARM Climate Research Facility (ACRF) Southern Great Plains (SGP) site, while record-breaking precipitation was drenching the area. The extreme weather near the end of the campaign hampered some of the CLASIC effort to gather data related to land-atmosphere energy exchange, and it also prolonged the researchers' demobilization, packing, and loading of equipment after the campaign ended.

Nevertheless, the weather earlier in the campaign yielded some rare and valuable data sets for analysis. Ideal conditions prior to the onset of the heavy rains provided plenty of opportunities to obtain data on surface and cloud properties of direct relevance to the campaign's scientific objectives.

Two satellite overpass validation missions on June 12 and 19 occurred under the desired conditions. Broken clouds on June 12 presented an ideal fair-weather cumulus case. Several aircraft flew over each of the CLASIC surface "supersites" throughout the day, in addition to the afternoon satellite validation mission and SGP Central Facility overpass.

On June 19, five aircraft flew in a stacked formation along the satellite track, converging at various altitudes above the target amid shallow broken clouds at the time of the overpass. Two additional aircraft flew in simultaneous survey patterns over the CLASIC domain, and two others completed profiles over the SGP Central Facility and Little Washita surface sites.



Figure 1. A flooded cotton field near Chickasha, Oklahoma, on June 27, 2007 (photo courtesy of Tom Jackson, USDA).

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Technical Contact: Brad W. Orr
Phone: 630-252-8665
Email: brad.orr@anl.gov
Editor: Donna J. Holdridge
Contributor: Lynne Roeder
Website: <http://www.arm.gov>

Oklahoma's unprecedented rainfall in June shattered a 70-year-old precipitation record. An unexpected benefit was the opportunity to sample extremely clean air. On the last day of CLASIC, the CIRPAS Twin Otter aircraft obtained a rare data set of a very clean atmosphere, in contrast with the more typical aerosol-laden conditions in the area during this part of the year.

Another unexpected data set resulted from the monsoon-like conditions on June 28, when the ER-2 aircraft flew above the Twin Otter at the edge of a "tropical" squall line that deepened throughout the flight. A corresponding satellite overpass will allow ARM scientists to evaluate the effectiveness of the various radar retrievals under these atypical conditions.

Throughout the three-week campaign, enhanced surface instrumentation at the SGP Central Facility and CLASIC supersites collected information about surface and atmospheric energy and carbon exchange. Intensive weather balloon launches from the SGP boundary facilities — 8 per day for 10 consecutive days at the 4 boundary sites — supplemented the routine 4 launches per day at the SGP Central Facility. The resulting data will be used to help characterize the large-scale environment.

Several carbon flux towers were added at the supersites during CLASIC, and a prototype scanning radar deployed at the SGP Central Facility provided an additional radar frequency. In addition to this radar's scanning capability and advanced signal processing, the added frequency will generate information on cloud dynamics and precipitation processes.

The wide array of CLASIC data from surface and airborne platforms will be analyzed by climate scientists for years to come.

NEW ACRF TECHNICAL DIRECTOR SELECTED

Congratulations to Dr. Jim Mather, who will take the position of technical director of the ARM Climate Research Facility (ACRF) effective August 1, 2007. The technical director is responsible for the successful overall management of the user facility and works with the other ACRF managers to this end. Jim's leadership will be critical for the successful development and evolution of the technical infrastructure needed to meet scientific user needs.



Figure 2. Dr. Jim Mather becomes the new ACRF technical director on August 1, 2007 (ARM photo).

Jim has been with the ARM Program since 1994, when he joined the Tropical Western Pacific (TWP) site scientist office. He worked closely with teams from several laboratories to develop the measurement facilities that were ultimately deployed at Manus, Papua New Guinea; Nauru Island, Republic of Nauru; and Darwin, Australia. Jim also participated in the deployments at each of these sites. He was involved in the development and implementation of data quality procedures that have been applied across the ARM sites and has used ARM remote sensing and solar radiation data in his own research.

Jim has extensive field campaign experience in both operation of and data analysis for remote sensing instrumentation. In 2006, he was co-principal investigator for the Tropical Warm Pool International Cloud Experiment, and as interim technical director for the new ARM Aerial Vehicles Program he was instrumental in the recent successful completion of CLASIC. Jim obtained his education at the Pennsylvania State University, earning a B.S. in Electrical Engineering, an M.S. in Physics, and a Ph.D. in Meteorology.