

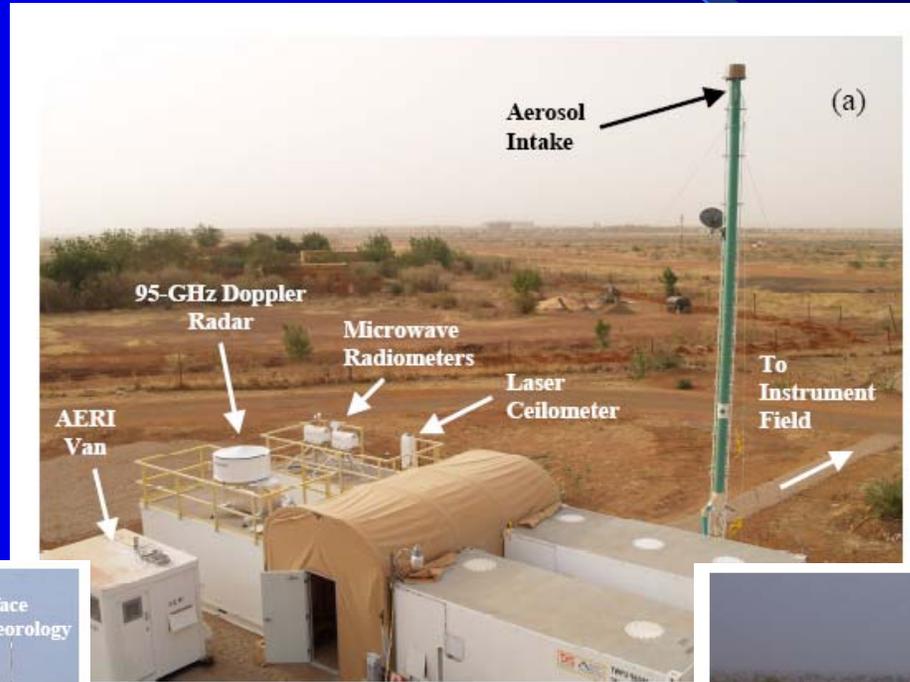
The Atmospheric Radiation Measurement (ARM) program Mobile Facility (AMF)



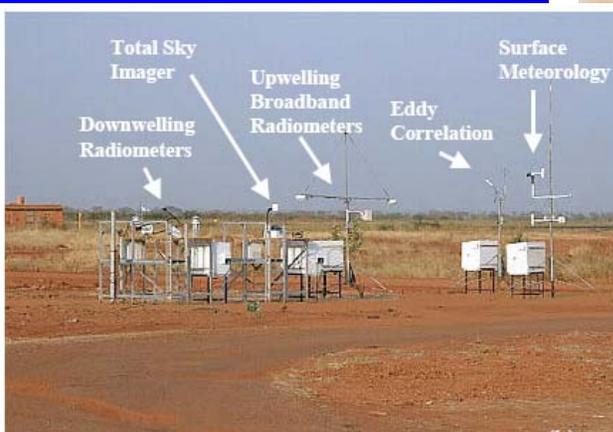
The ARM Mobile Facility

Pt. Reyes, California

Niamey, Niger, Africa



Photos:
Kevin Widener
Kim Nitschke

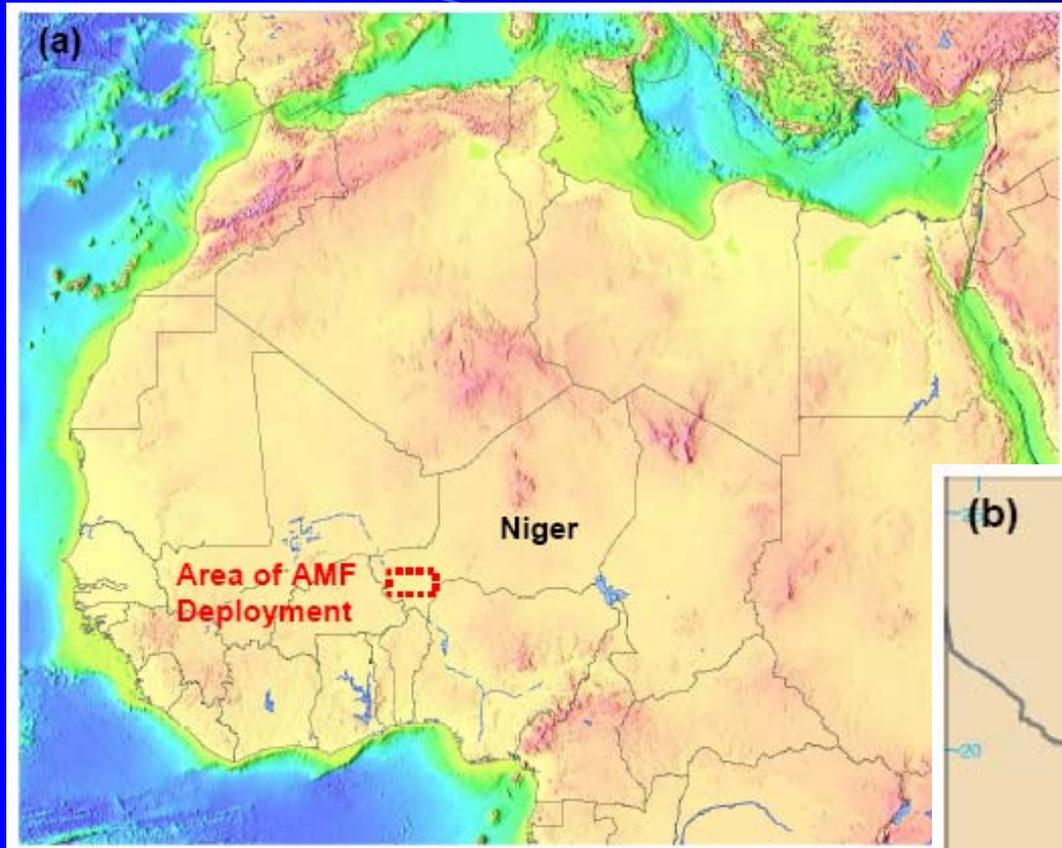


Charter

- Detailed measurements of the cloudy atmospheric column
 - in regions of the climate system that are generally undersampled
 - in association with the international atmospheric science community
- Subset of instruments located at ARM's fixed sites
- Deployment duration is 6-12 months
- Data available to anyone in near real time

MASRAD/MASE (Pt. Reyes, CA)

- Completed initial radar processing (June-August)
 - Vertical velocity data appear to be of high quality
 - Releasing to other investigators
- Analysis in progress
 - Aircraft/AMF comparisons
- Glimpses of marine air, but mostly polluted



Operations in Niamey

- Operating 1/7/2006-present
- Problems
 - Power outages
 - Loss of AOS Nephelometer data (May-August)
 - AERI Calibration—IRT disagreement
 - ECOR directional dependence--anticipated
 - Episodic MPL outages associated with power spikes (1-3 hours/week, but not every week)
- Assisting Earle Williams in C-Band radar studies
- Collaborated with Tony Slingo and staff
- Good neighbors for AMMA
 - Active participants in AMMA-US Meeting
 - loaned Helium to AMMA
 - Loaned BNL Microwave Radiometer to NASA AMMA

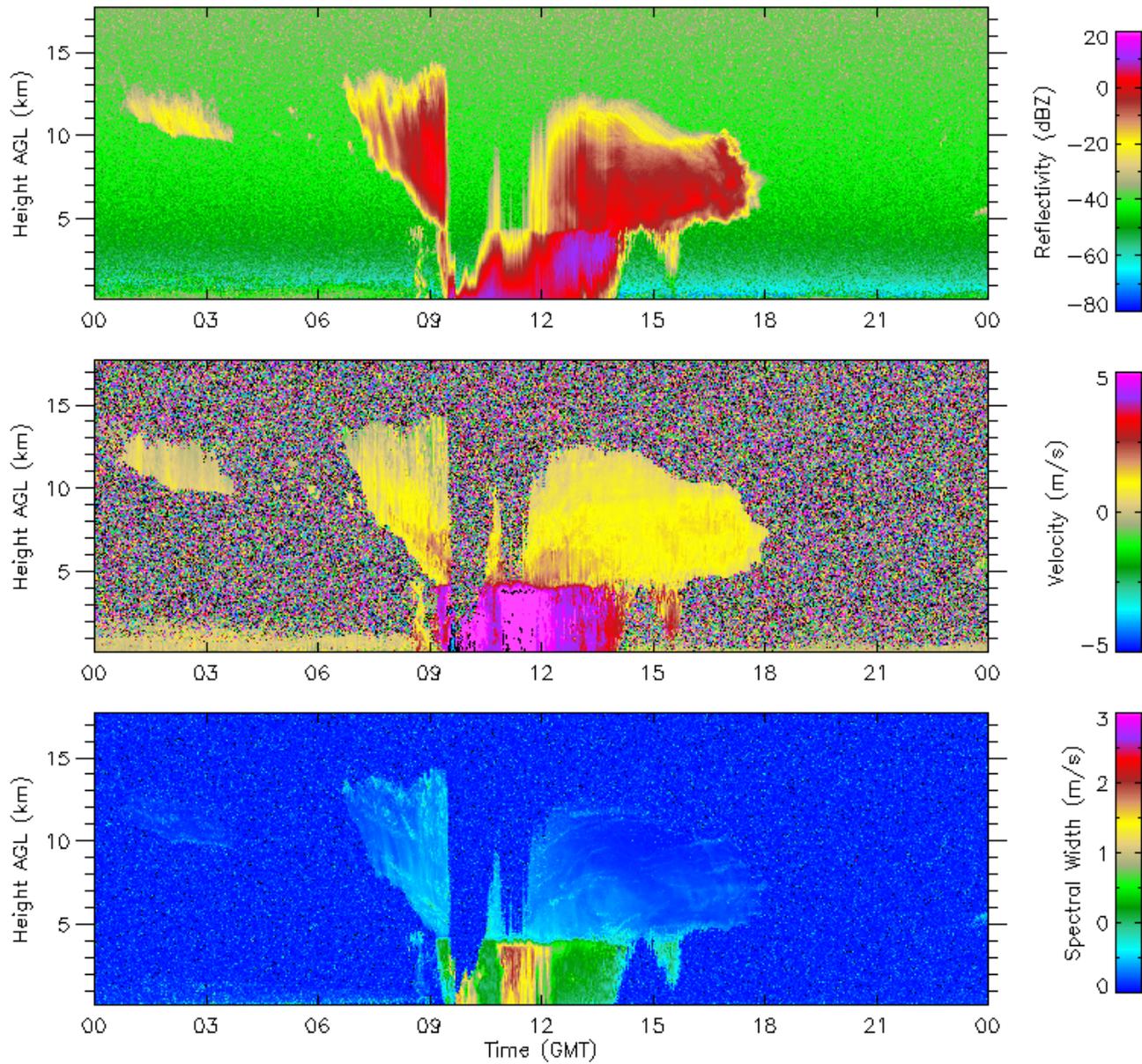
Niamey Squall Lines

Photos: Brian Russell/MIT

7/22/2006



20060722
nimwacrM1.b1, Copolarization Mode



8/3/2006



8/18/2006



9/14/2006

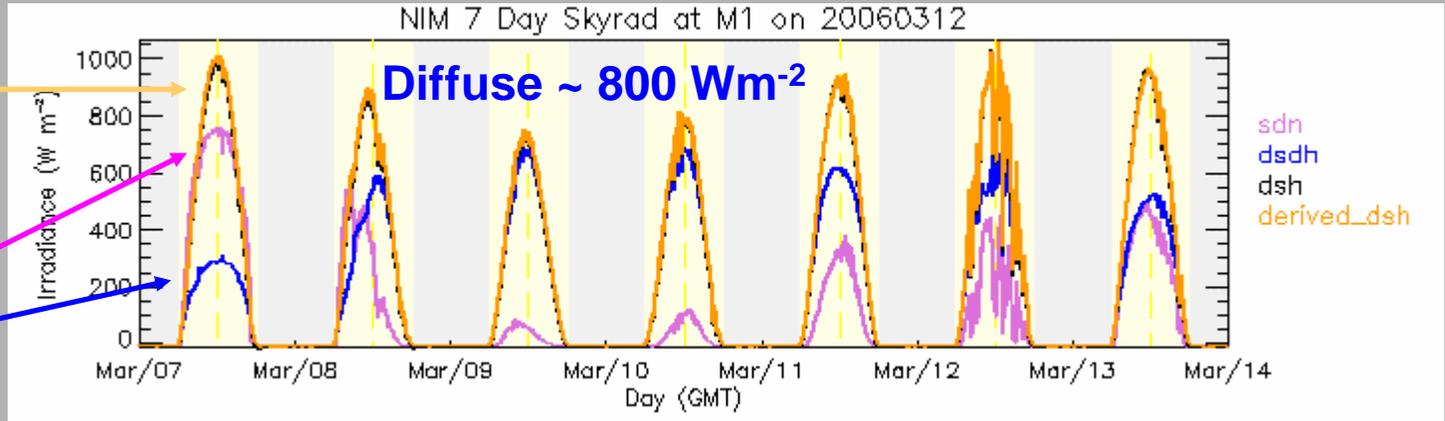


Gust Fronts

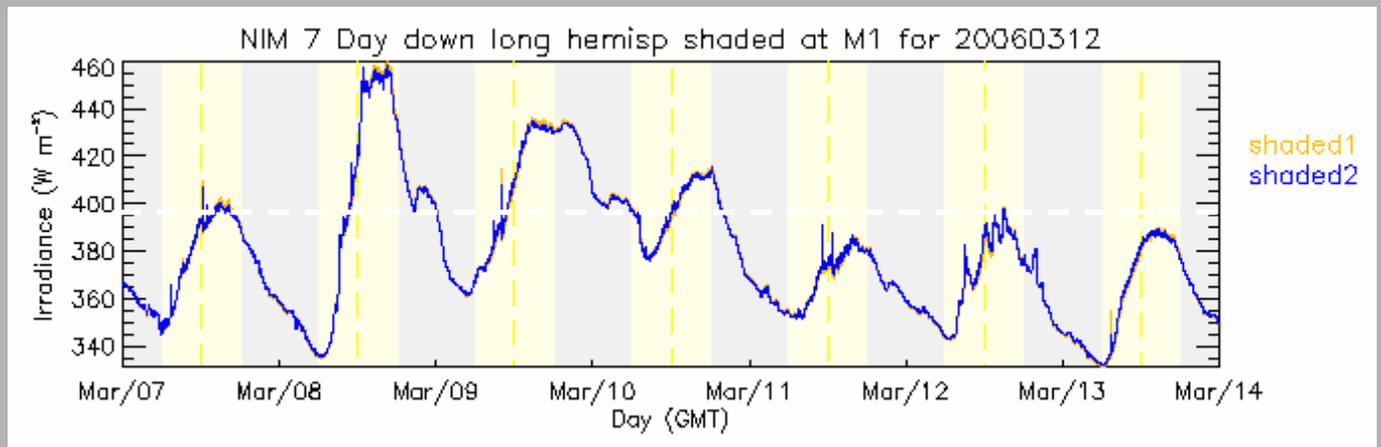


March 8-11 Dust Storm

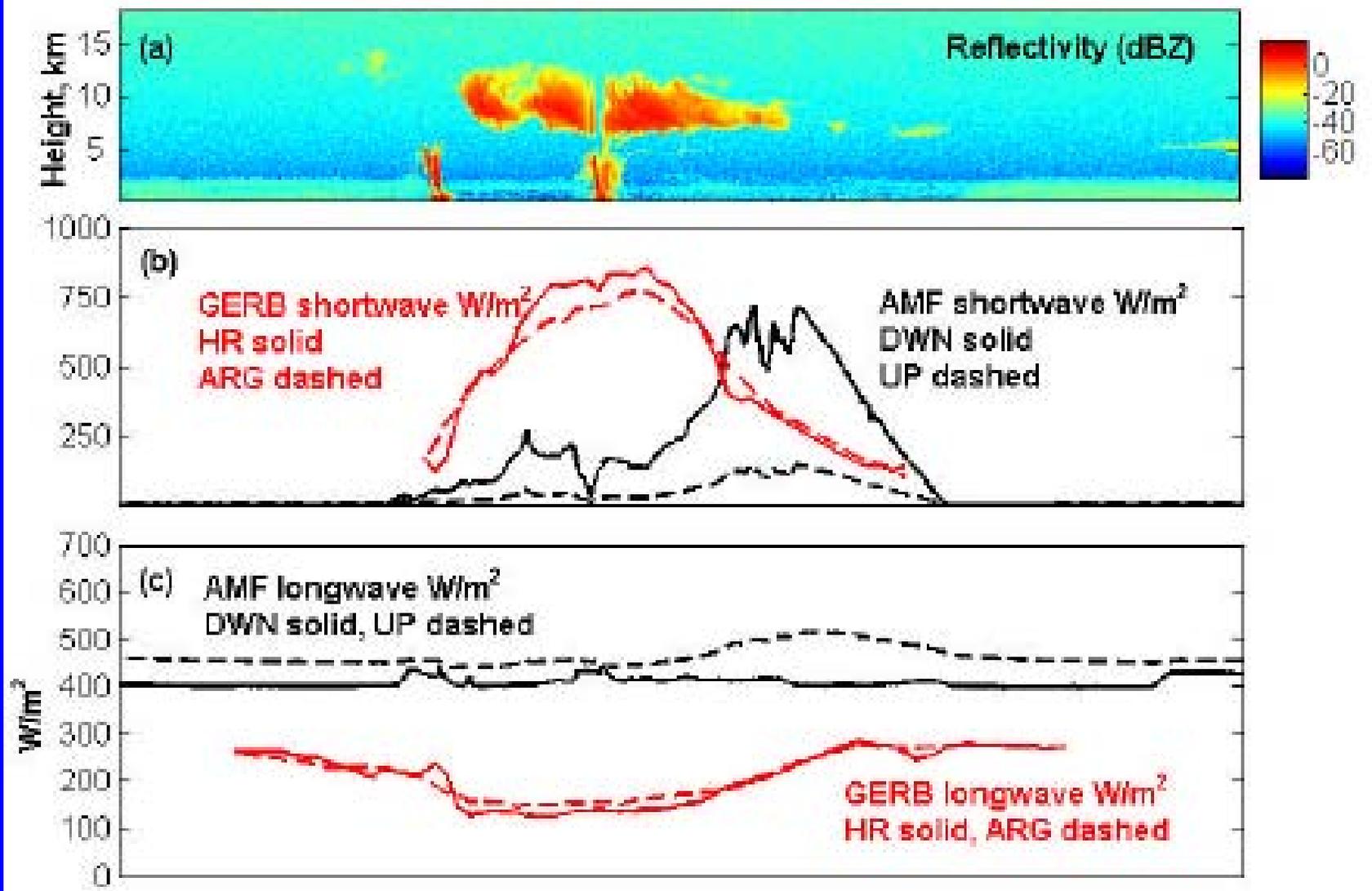
Total Irradiance
Direct Normal
Diffuse



Direct Normal $< 200 \text{ Wm}^{-2}$!!



Source: Data Quality Office



24 Hours →

New Additions to AMF

- CIMEL Sun Photometer
 - Before COPS

AMF-China in 2008

An Ideal Platform for

Studying Aerosol Climate Effects

Zhanqing Li

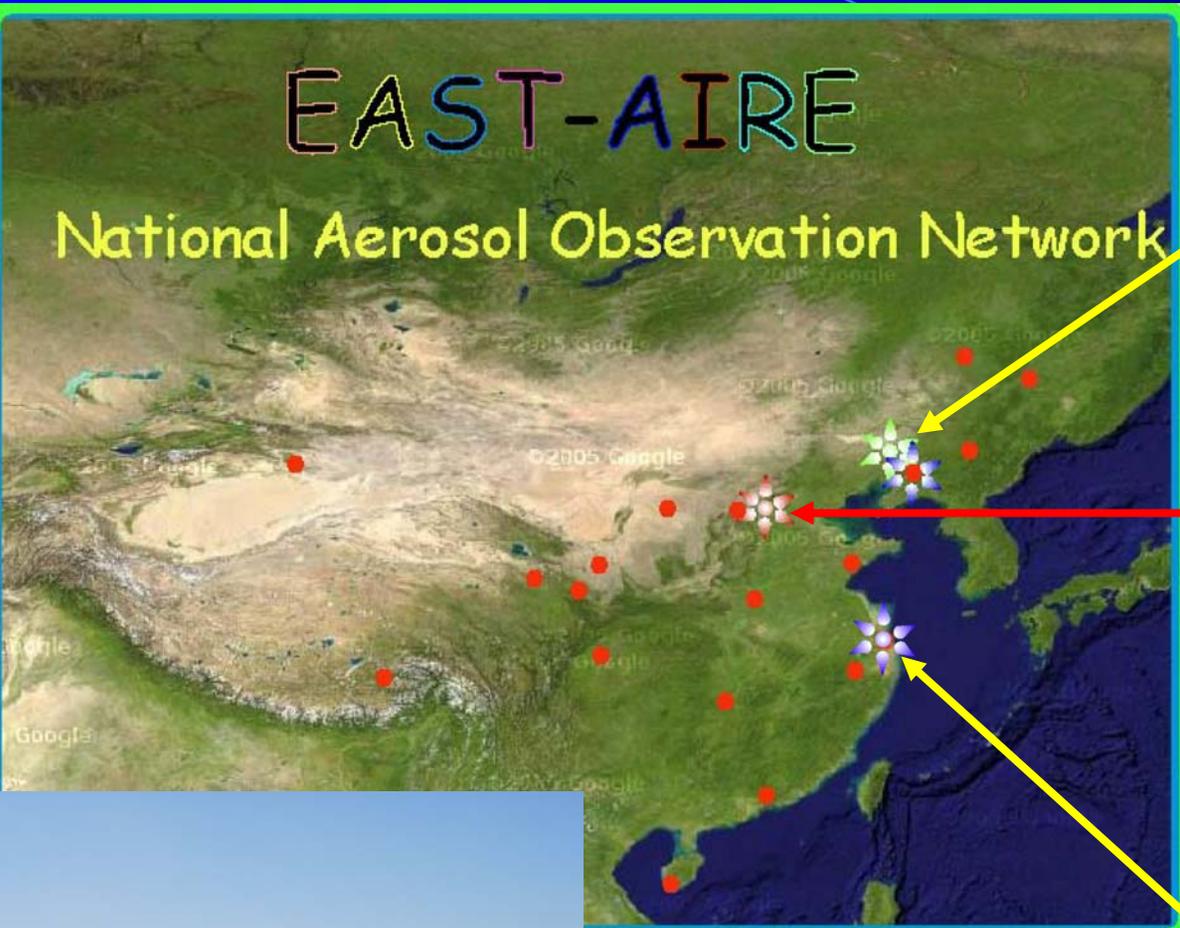
Dept of Atmospheric & Oceanic Science
University of Maryland, College Park, MD

Participants;

G.L. Stephens, C. Kummerow, H. Chen, Y. Liu, M. Miller
and Staff from at least three DOE Labs and hopefully
More from the ARM/ASP Communities

Current Observational Activities

EAST-AIRE National Aerosol Observation Network



www.atmos.umd.edu/~zli





Publications

- Miller, M.A. and A. Slingo, 2006: **The Atmospheric Radiation Measurement (ARM) Mobile Facility and its first international deployment: measuring radiative flux divergence in West Africa**, *BAMS* (*conditionally accepted*)
- Slingo, A., T.P Ackerman, R.P. Allan, E.I.Kassianov, S.A. McFarlane, J.G. Robinson, J.C. Barnard, M.A. Miller, J.E. Harries, J.E. Russell, and S. Dewitte, 2006: **Observations of the impact of a major Saharan dust storm on the Earth's radiation balance**, *GRL* (*accepted*)