



ARM Climate Research Facility Fixed Sites

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of Energy



THE UNIVERSITY OF
CHICAGO



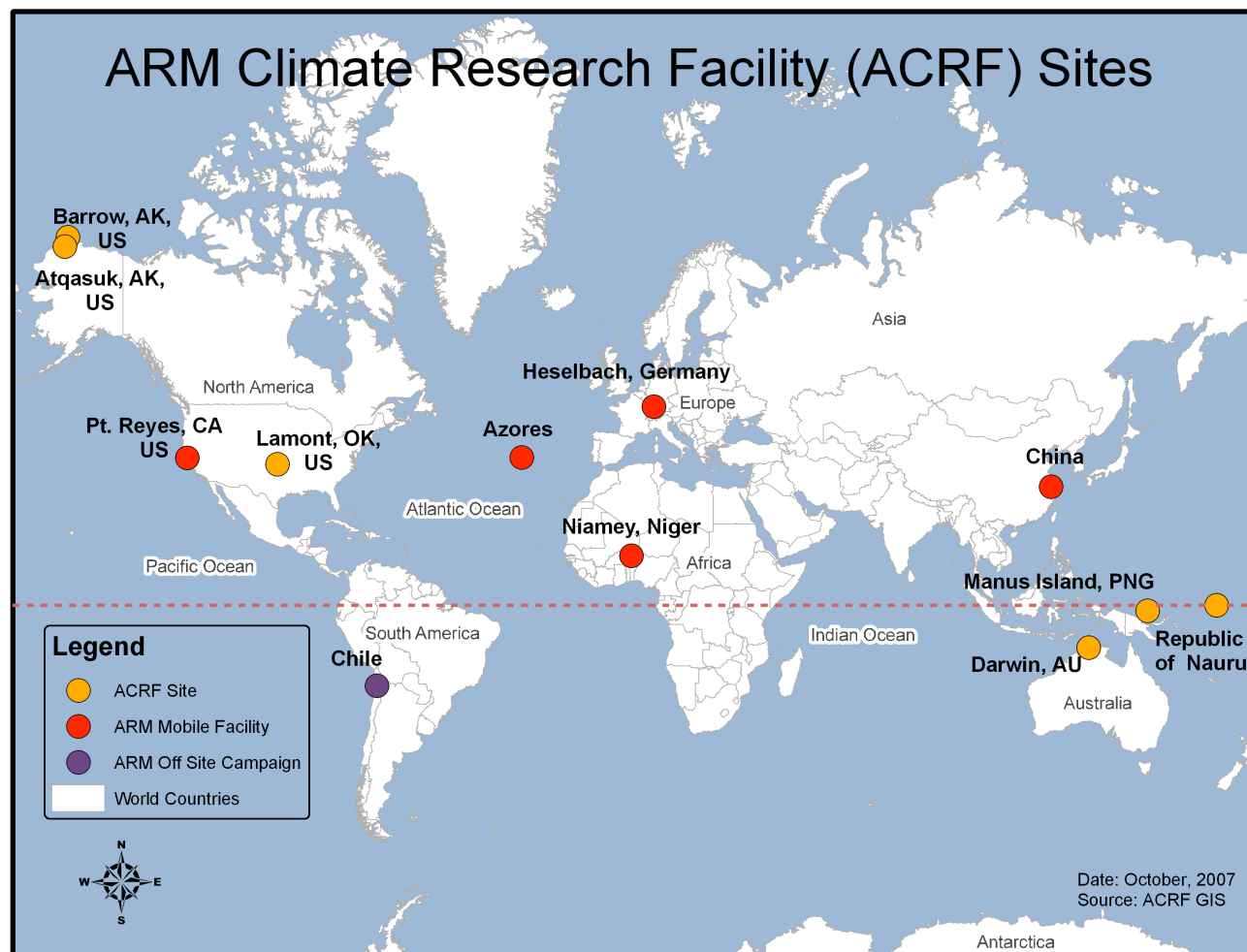
**Office of
Science**

U.S. DEPARTMENT OF ENERGY

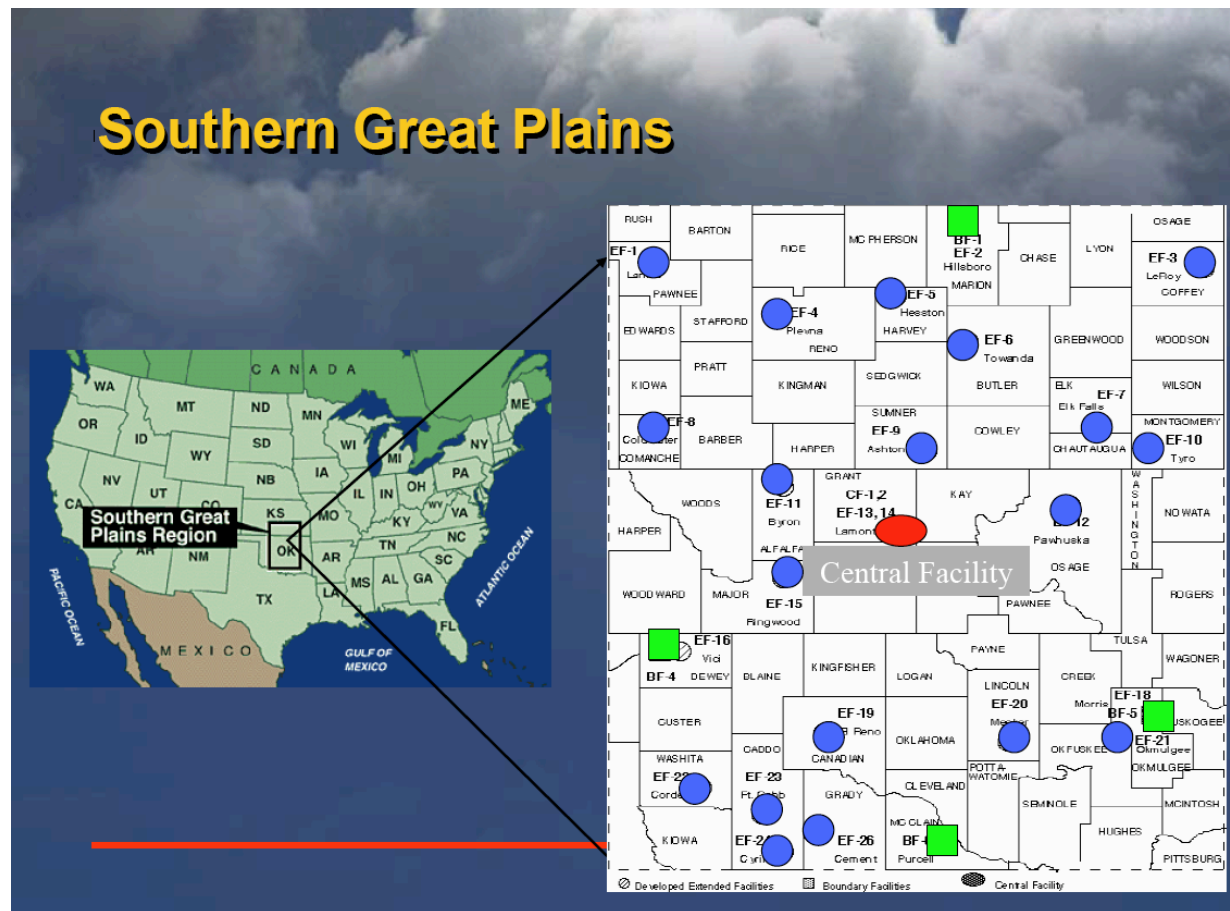
A U.S. Department of Energy laboratory
managed by The University of Chicago

*1st GRUAN Implementation-Coordination Meeting
Session 4: Site Reports*

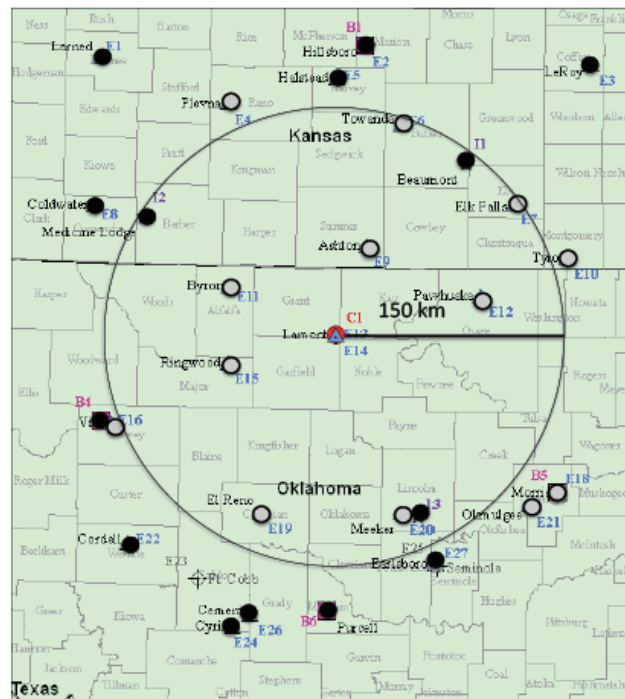
ACRF Fixed Site and Mobile Facility Deployment Locations



ACRF Fixed Site Locations Southern Great Plains



Smaller ARM SGP Site Footprint to Support Finer Grid-Scale Model Development and Validation

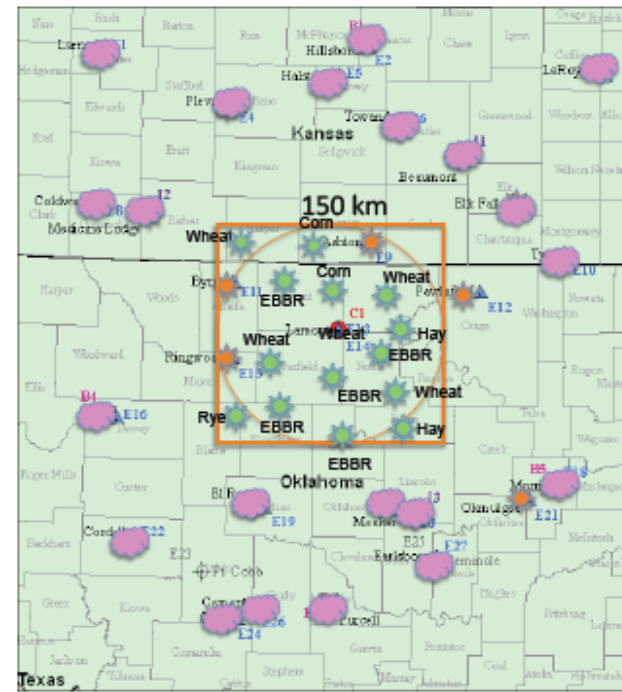


Legend

- Boundary Facility
- Central Facility
- Extended Facility
- Intermediate Facility
- Retired

Source: ACRF GE, October 2006

In an ARM requested modeling study performed by Dr. Shaocheng Xie, it was shown that reduction of sites for the SGP domain did not result in an increase of uncertainty in boundary layer parameters.



Decommissioned EF
New EF
Existing EF

Legend

- Boundary Facility
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- Retired

Source: ACRF GE, October 2006

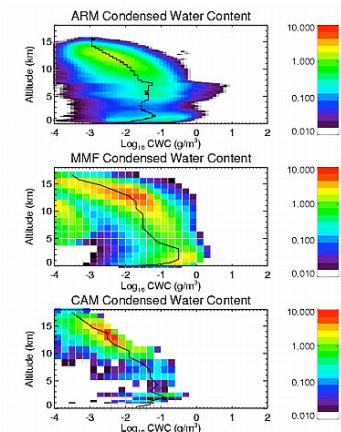
The ARRA funds are being used to add surface flux instrumentation that more than doubles the density of sites in the smaller SGP domain.

\$60 M ARRA Funds for the ARM Climate Research Facility will Substantially Improve Climate Observations

Recovery Act funded instrumentation will be fully operational in FY 2011. This enhanced instrumentation suite will provide **unparalleled research capabilities**.

Approximately **half the \$60M will purchase 18 scanning radars** that will provide three-dimensional characterization of clouds and precipitation.

These **new measurements will greatly expand the set of scientific questions in climate change research that can be supported and reduce the uncertainty of the roles of clouds and aerosols in climate models.**



Scanning Radars



XPOL
W, Ka SCR

WSR-88D (S)
CPOL
3*XPOL
W, Ka SCR

CPOL
X, Ka SCR

CPOL
X, Ka SCR
WF100 (C)

Mobile Facilities
AMF1: W, Ka SCR
AMF2: X, Ka SCR

What ARM is Doing

The ARM Sites are now part of the **GCOS Reference Upper Air Network (GRUAN)** and DOE, NOAA, NCDC, and GRUAN collaborated to:

- Provide cryogenic frost point hygrometers launched with rawinsondes to provide more **accurate measurements of relative humidity profiles** in the upper troposphere and lower stratosphere at the ARM sites.
- ARM will process all GRUAN sites rawinsonde data with ARM ingests, the GRUAN Lead Center will assess and add the **error bars** for those data, and NCDC will provide the archive for the GRUAN branded data.

Targeting the July-August time frame implementation

ACRF Climate Research Facility

*A DOE/BER National User Facility for
Climate Observations for Climate Research*

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