

Overview and Accomplishments of the Atmospheric Radiation Measurement Program's Southern Great Plains Climate Research Facility during 2006

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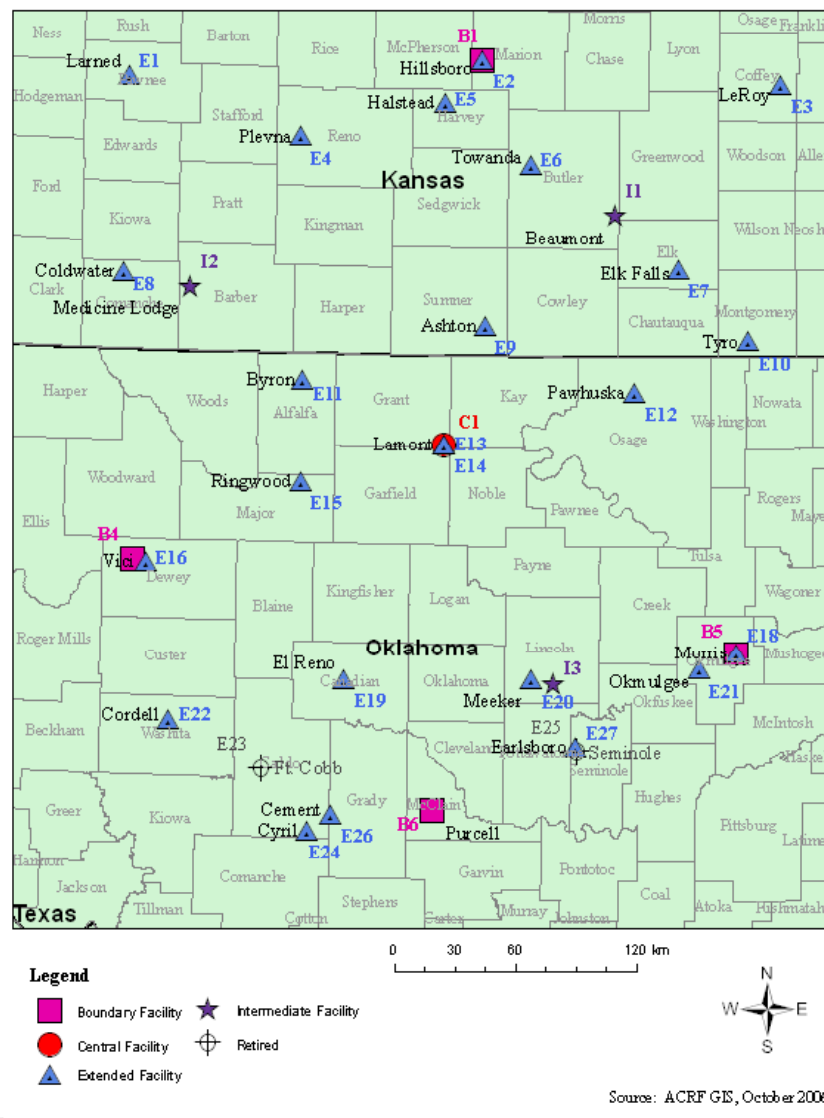


Facilities

Domain
56,000 mi²

Central Facility
24 Extended
4 Boundary
3 Intermediate

Over 200
Individual
Instrument
Systems



Facilities

Radiometer Calibration Facility

Over 500 instruments calibrated during 2006 at the RCF

BORCAL-230 Radiometers (PSP-140,NIP-54,B/W-36)

IRCAL-75 Radiometers (currently on hold)

Misc. IOP and NREL standards calibrations

T/RH cal checks: SGP-156, NSA/TWP/AMF-10, AOS-3

Dynamic rain gauge calibrations: H-K-60, ARM-50

Volumetric rain gauge calibrations: H-K-30, ARM-25

Facilities



Facilities

Electronics Repair Lab

Repair and Maintenance Capabilities:

- Non-listed (I.e. UL) electrical equipment inspection
- Dataloggers and storage modules
- Modems
- MFRSR shadow band motors
- Wind, humidity, temperature sensors
- Sun trackers
- UPS repair
- Computer monitors, drives, board replacement
- Multiplexers
- Wind bird maintenance/repair/calibration

~40 work orders, '06 estimated costs savings: \$17,000

Facilities

Electronics Repair Lab

Calibrations:

Approximately 150 calibrations in 2006 at the ERL

- RSS - Licor and port calibrations (32)
- SWS - Day and light source (52)
- MFR - Licor calibrator (4)
- Licor sensors - ECOR, CO2 Flux (26)
- SMOS/THWAPS-Anemometer calibration/repair (12)
- SurT/Href-T/H sensors (12)
- WACR-Corner reflector calibration (as directed)

Facilities



Facilities

Shipping and Receiving Operations

- New S&R facility fully operational.
- Improved storage and handling capability.
- Trained in hazardous materials handling and shipping.

1500 shipments handled in '06; 1000 in , 500 out

Facilities



Instruments

New Instruments:

- A Cloud Condensation Nuclei (CCN) counter was added to the AOS that will provide the capability to automate CCN counting.
- The Short Wave Spectrometer (SWS) was installed in the Optical Trailer. The SGP staff also built a darkroom for calibration of the SWS.
- A disdrometer and rain gauge were installed which will complement many ongoing studies at the SGP.

Upgrades:

- 915 MHz Profilers at the CF and IF3 received digital receiver upgrades.
- Replacement of the T/RH probes on the SMOS began late 2006.
- A new corner reflector was installed for WACR calibrations under the guidance of ProSensing.

Testing:

- Acceptance testing of the new MPLs for all the ACRF sites.
- Evaluation of a new 90/150 GHz radiometer to be deployed at the NSA.

Computer Systems

SGP computer staff are responsible for management and maintenance of all data, instrument and personal computer systems for all sites.

- Cyber Security - Extensive effort this year.
- CorePC - Version 1.0 ready
- Redhat Enterprise upgrades
- NFS hardware upgrades
- PRISM software implemented; provides automated software deployment, patching and security updates.
- Password control for all R1 computers

Computer Systems



Field Campaigns

- AIRS Validation V-Barry Lesht
- Hydro-Kansas-Vijay Gupta
- AURA/TES Validation-Frank Schmidlin
- RS92-NASA/ATM Radiosonde Temperature Inter-comparison-Barry Lesht
- SAMNET Validation-John DeVore
- CO2Flux-Ameriflux Inter-comparison-Marc Fischer
- Precision Gas Sampling (PGS) Validation ('05/'06)-Marc Fischer
- Combined Wind Profiler Polarimetric Radar Study of Precipitation Microphysics-Phil Chilson
- Disdrometer and Polarimetric Radar Measurements of Precipitation Microphysics-Guifu Zhang
- Magnetic Field Observations-Peter Chi
- Aerosol CCN Study-Patrick Chuang
- 3rd Diffuse Irradiance Study-Joseph Michalsky
- AURA Satellite Validation-Frank Murcray
- MWR Inter-comparison-Maria Cadeddu
- Evaluation of EZLidar Performance-Iwona Stachlewska
- Radon Measurements of Atmospheric Mixing (RAMIX)-Marc Fischer
- RS92 Radiosonde RH Sensor Contamination Evaluation-Barry Lesht

Safety Program

- Fulltime safety officer on site.
- Active safety committee
- Laser safety trained
- Monthly staff safety training
- Certified defensive driving and CPR instructor
- Continuous Quality Improvement Program-CQIP
 - Semi-annual visits to all EF, BF and IF sites in addition to CF.
 - Review maintenance and safety procedures, inspect sites for safety and/or operational concerns and suggest improvements to current operations.

Looking Ahead

Field Campaigns

- AIRS Validation-Phase VI-VII-Barry Lesht
- Cloud and Land Surface Interaction Campaign (CLASIC)-Mark Miller
- CLASIC Land -Thomas Jackson
- 9.4 GHz CLASIC Phased-array Radar-Pavlos Kollias
- JPL Cloud Radar Calibration-Steve Dinardo
- Orbiting Carbon Observatory-Charles Miller
- PGS Validation-Marc Fischer
- Hydro-Kansas-Vijay Gupta
- Aura Satellite Validation-Frank Murcray

Looking Ahead

Instruments

- MFRSR dataloggers and head upgrades
- EBBR T/H sensor replacement (3-4 years)
- SMOS T/H sensor replacement
- Additional IRT installations

Computer Systems/Internet

- DSL at all BFs
- Central Facility bandwidth upgrades
- CorePC enhancements
- Cyber security upgrades/testing
- Centralize password and security controls

Looking Ahead

Facilities

- MFRSR Calibration capabilities
- AOS upgrades
- Site video cameras
- Road improvements
- Building maintenance
- Non-ionizing radiation training

Instrument Team Meeting in July