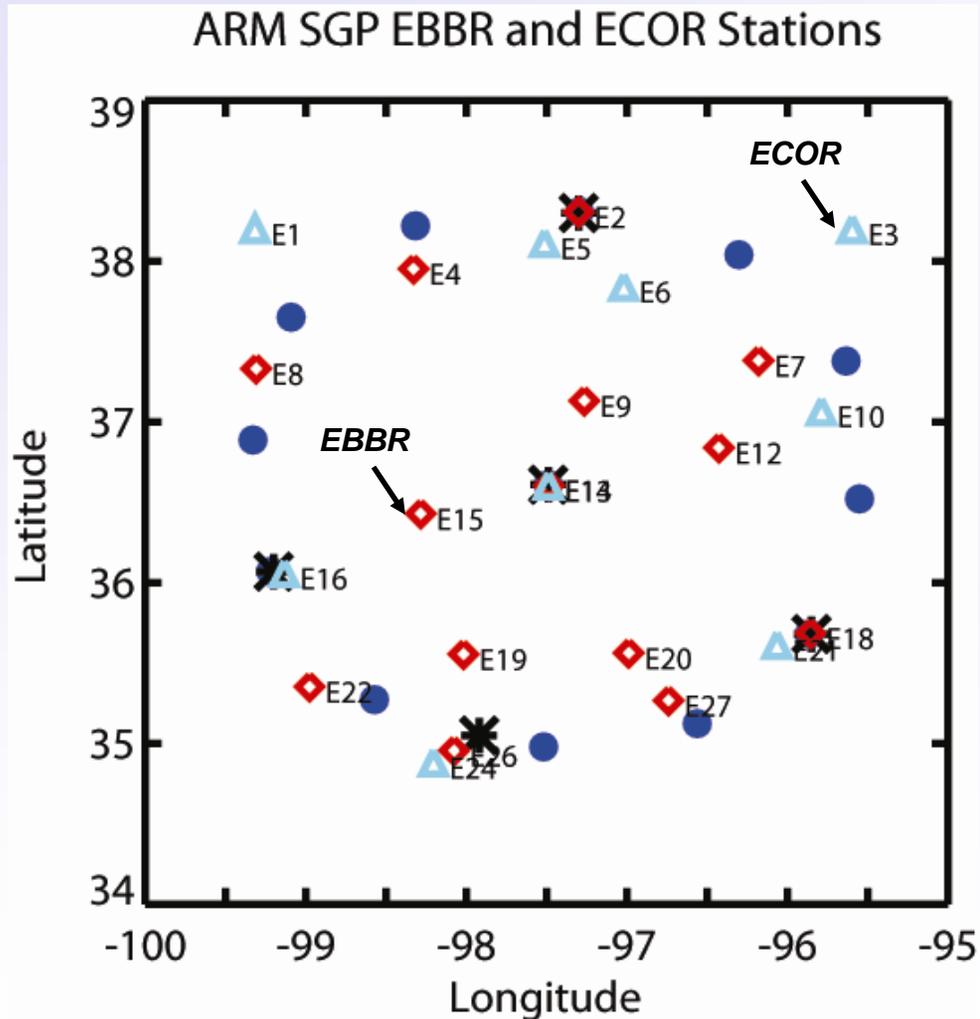


Summary of Surface Heat Flux Breakout Session

***ARM Cloud Modeling Working Group Meeting
Nov 21, 2008***

**Ric Cederwall, Coordinator
*ARM Surface Heat Flux Study Group***

Current Network for Surface Heat Flux



~ 23 EFs

- Radiative fluxes
- SH, LH
- Precipitation
- Other surface Meteorology fields (e.g., T_s , P_s)

~14 EFs equipped with EBBR (Energy Balance Bowen Ratio)

~9 EFs equipped with ECOR (Eddy Correlation Flux Measurement)

ARM Surface Heat Flux Study Group



Atmospheric Radiation Measurement

- **11 members: 7 modelers, 4 instrument/site**
- **Formed in August 2008**
- **Charter:**
 - **identify user requirements for surface heat flux data**
 - **determine adequacy of current ATM observations and any needed improvements**
 - **provide timely guidance to ARM leadership**

What Are Scientific Needs ** and What Do We Know Now?



Atmospheric Radiation Measurement

**** *Spatial and Temporal coverage, and Accuracy***

- ***Large-scale: parameterization testing via SCMs***
 - present accuracy adequate
 - domain potentially reduced to ~100x100km
- ***Fine-scale: parameterization development (LES output)***
 - likely needs finer spatial resolution; temporal?, accuracy?
- ***Ecosystem modeling (and CO2 Flux)***
 - add PAR to selected sites
 - upgrade some ECORs to AmeriFlux standard (CO2 Flux)
 - coverage of various land surface types vs. spatial coverage

What's on the Horizon?

- **Xie to study 100x100km domain: sensitivity to siting density**
- **Document user requirements**
 - *especially LES and ecosystem modeling*
 - *consider NSA and TWP*
- **New users (i.e. LSMs in coupled GCMs – mid-lat continental)**
- **Complementary networks (i.e. OK Mesonet Super Sites)**
- **Produce White Paper (at least interim draft by Feb 2009)**
- **Sunset Committee considering EF Network Design**
 - **need input on surface heat flux, radiation, surface met, land surface**

The End