Outline

• Welcome!
• Budget, Staffing
• Division strategic priorities
• Thoughts on SFAs and FOAs
Personnel Updates for CESD

• ASR Program Manager

  Sally McFarlane

• New Data Informatics Program Manager

• Science Assistant
How do we set CESD priorities?
How do we set CESD priorities?

• CESD strategic plan
  – BERAC reports
  – Workshop reports
  – DOE high level strategy and uniqueness
  – Conforms to OMB input; Congress

• Leveraging opportunities (e.g., other agencies, other nations – Europe, Brazil, etc.)

• PI meetings like this one

• Game changing scientific discovery from DOE and other research
Recent Workshops influencing priorities

- Water cycle workshop: Sept 24-26, 2012
- IGIM CMIP meeting: Oct 3-4, 2012
- Model development strategy: Dec 7-8, 2012
- EMSL Workshop on Aerosol Chemistry: Jan 30, 2013
- NACP: February 4-7, 2013
Strategic Planning
The Energy-Environment-Climate Nexus

Greenhouse gases are emitted during energy production... and climate change will impact energy production.

Building on our CESD mission:

To advance a robust predictive understanding of Earth’s climate and environmental systems and to inform the development of sustainable solutions to the Nation’s energy and environmental challenges.
Platforms for science integration

Observational Infrastructure

Community Models
- Computing
- Numerics
- Resolution
- Extremes
- Thresholds
- Tipping points

Uncertainty characterization

CESM and components

System integration

Community Data Infrastructure

PCMDI

Ameriflux

EMSL

CDIAC

ESG

IFRC

ARM
Climate & Environmental Sciences Division Strategic Goals

1. Synthesize new process knowledge and innovative computational methods advancing next generation, integrated models of the human-earth system.

2. Develop, test and simulate process-level understanding of atmospheric systems and of terrestrial ecosystems extending from bedrock to the top of the vegetative canopy.

3. Advance fundamental understanding of coupled biogeochemical processes in complex subsurface environments to enable systems-level prediction and control.

4. Enhance the unique capabilities and impacts of the ARM and EMSL scientific user facilities and other BER community resources to advance the frontiers of climate and environmental science.

5. Identify and address science gaps that limit translation of CESD fundamental science into solutions for DOE’s most pressing energy and environmental challenges.
Executing the strategic plan

- **Accelerate** capabilities in predictive modeling
- **Observational and data capabilities**: ARM, EMSL, data mgmt
- **MODEX**: analysis based integration of “modeling and experiment”
- **Balanced funding mechanisms**: SFA’s, boutiques, and university grants
- **Interagency collaboration**
NGEE Concept
(Next Generation Ecosystem “Experiment”)

- Target systems that are:
  - Globally important
  - Climatically sensitive
  - Relatively unstudied

- Carefully couple modeling and field/laboratory research / planning

- Representation of scale/resolution of a high resolution Earth System Model (ESM) grid cell (i.e., a maximum 30x30 km grid size)

- **NGEE Arctic Phase I proposal accepted with revisions for FY 12**
- **NGEE Tropics starts in FY13**, workshop planning under development
BER User Facilities

• Joint Genome Institute
• Structural Biology Infrastructure
• Environmental Molecular Sciences Laboratory
• Atmospheric Radiation Measurement Climate Research Facility

• Proposed: Data Analysis and Visualization Facility
Questions ?