Not So Basic Anymore:
The challenges of producing "use-inspired" climate science

Lisa Dilling
CIRES/CSTPR
University of Colorado, Boulder
Roger Pielke Jr., and Dan Sarewitz, collaborators

6th Open Meeting IDGEC, Bonn Germany

Given:

- In the U.S., climate change research is justified as being “usable” science
- Climate change research in the U.S. is overwhelmingly basic science
- Society makes decisions that have a component that is relevant to climate

- An opportunity (even responsibility) exists for climate change research to better support decision making

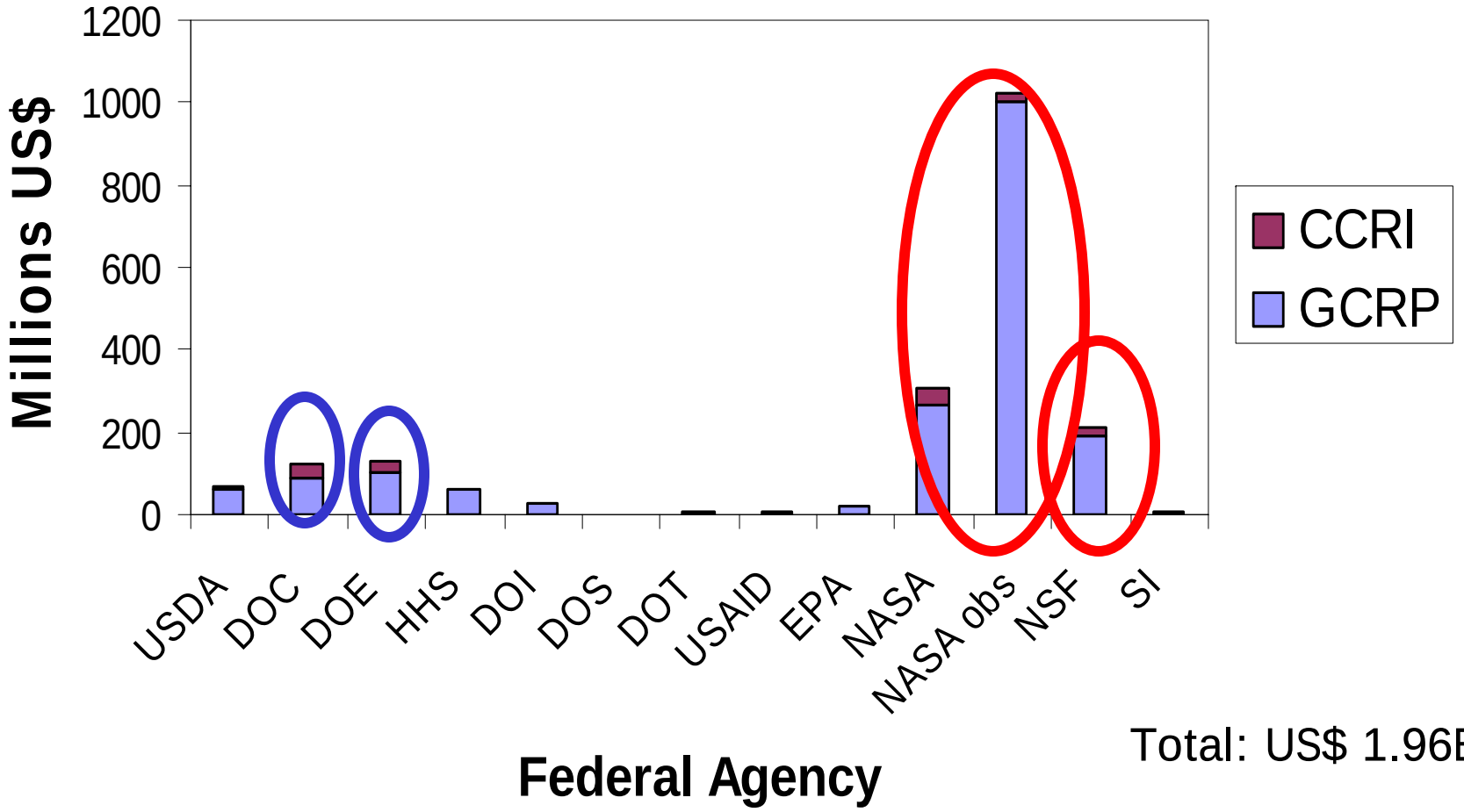
Center for Science and Technology Policy Research

SPARC

The legacy of the linear model

- Vast majority of funding goes to basic science
- Basic science is conducted separately from considerations of use, even in “mission” agencies such as DOE
- Scientific community drives program norms:
  - Peer review
  - Academic standards of success (e.g. publications)
  - Priorities set by NAS panels, scientific committees, program managers (from scientific community)

U.S. Climate Change Science Program
Budget FY2004



Total: US$ 1.96B

Agency Mission and Culture

- NASA- remote sensing, basic research
- NSF- fundamental, basic research
- DOE- basic research kept separate
- NOAA- basic research with some small experiments in usable science
- USGS, SI also basic
- EPA, HHS, USDA, USAID, DOT

Scientific cultural norms

- Education-- disciplinary “apprentice”
- Maintain separation between conduct of science and application
- Internal governance and accountability

These are largely accepted and supported by the public, Congress and science policy decision makers (except when something goes wrong!)

Center for Science and Technology Policy Research

SPARC

Possible leverage points for change

- Scientific community
- Executive branch civil servants
- Executive branch Administration: OMB (budget), OSTP (White House), agency political appointees
- US Congress
- USCCSP office
- Universities, government laboratories
- “Demand” side

Center for Science and Technology Policy Research

SPARC

Demand side decision makers

- Public
  - Elected officials
  - Agency Civil Servants
  - National, Regional, State, Local
- Private
  - Individuals
  - Industry
  - Small-scale business
  - Shareholders
- Non-profit

Center for Science and Technology Policy Research

SPARC

Implications for science governance

- More demand side involvement in priority setting and evaluation
- Corresponding metrics for success and accountability
- Research to identify demand side and reconcile with supply (but needs to be connected to users too!)
- More institutional experiments in science practice such as RISA, IRI, NASA applications program-- and evaluation to harvest experience

Benefits to science and users

- Allows basic research to truly be basic
- Allows exploration of new paradigm of use-inspired basic research
- Fulfills mission of program
- Provides more options for decision making

Thank you!

- For more information:

http://sciencepolicy.colorado.edu/sparc/

ldilling@cires.colorado.edu

CIRES

ASU
ARIZONA STATE UNIVERSITY

Colorado
University of Colorado at Boulder

Center for Science and Technology Policy Research

SPARC