

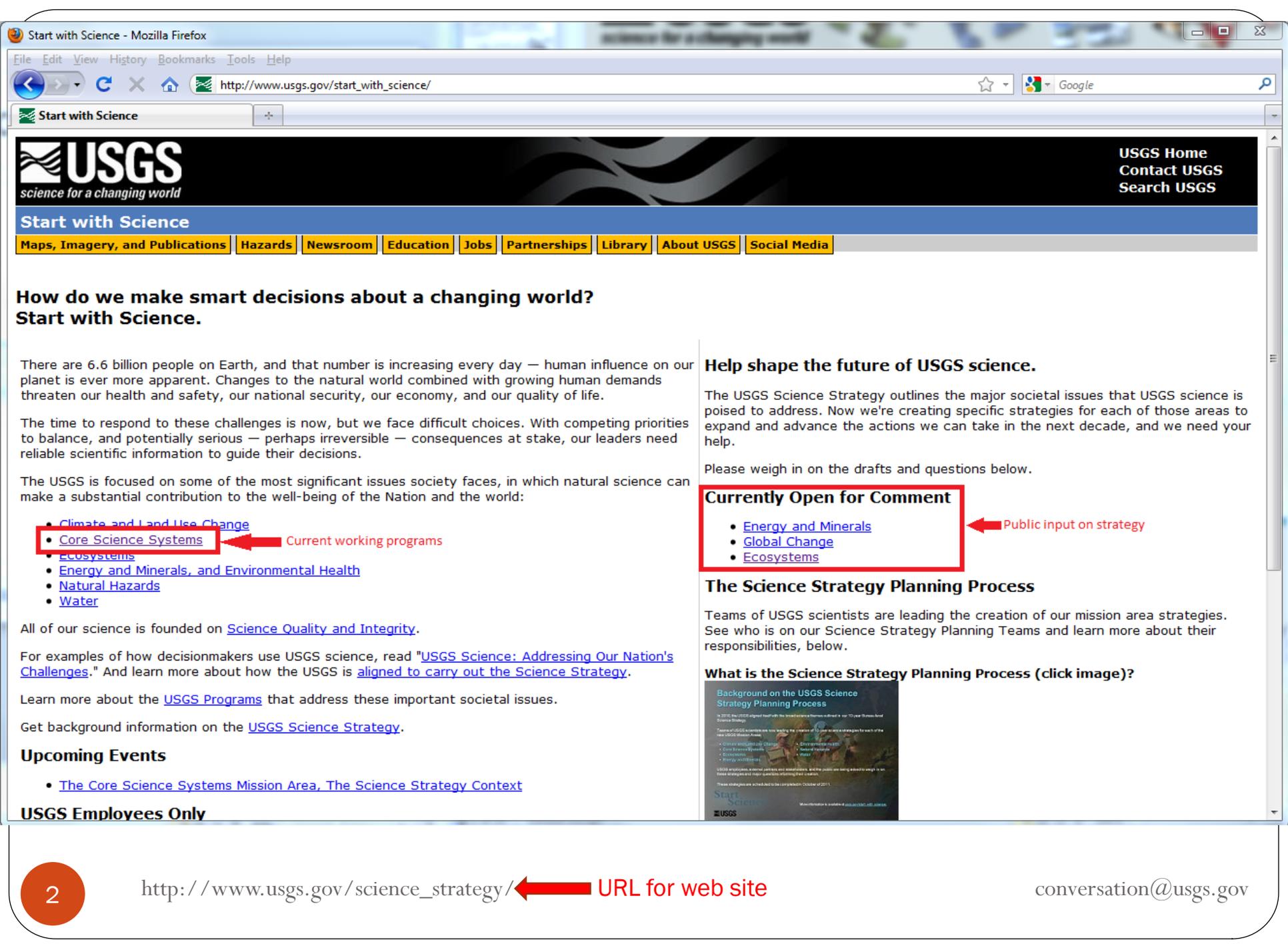


# Core Science Systems: Scientific Foundations and Integration

Strategic Science Planning Team

Listening Session

March 1, 2011



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## Start with Science

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### How do we make smart decisions about a changing world? Start with Science.

There are 6.6 billion people on Earth, and that number is increasing every day — human influence on our planet is ever more apparent. Changes to the natural world combined with growing human demands threaten our health and safety, our national security, our economy, and our quality of life.

The time to respond to these challenges is now, but we face difficult choices. With competing priorities to balance, and potentially serious — perhaps irreversible — consequences at stake, our leaders need reliable scientific information to guide their decisions.

The USGS is focused on some of the most significant issues society faces, in which natural science can make a substantial contribution to the well-being of the Nation and the world:

- [Climate and Land Use Change](#)
- [Core Science Systems](#) ← Current working programs
- [Ecosystems](#)
- [Energy and Minerals, and Environmental Health](#)
- [Natural Hazards](#)
- [Water](#)

All of our science is founded on [Science Quality and Integrity](#).

For examples of how decisionmakers use USGS science, read "[USGS Science: Addressing Our Nation's Challenges](#)." And learn more about how the USGS is [aligned to carry out the Science Strategy](#).

Learn more about the [USGS Programs](#) that address these important societal issues.

Get background information on the [USGS Science Strategy](#).

### Upcoming Events

- [The Core Science Systems Mission Area, The Science Strategy Context](#)

### USGS Employees Only

### Help shape the future of USGS science.

The USGS Science Strategy outlines the major societal issues that USGS science is poised to address. Now we're creating specific strategies for each of those areas to expand and advance the actions we can take in the next decade, and we need your help.

Please weigh in on the drafts and questions below.

**Currently Open for Comment**

- [Energy and Minerals](#)
- [Global Change](#)
- [Ecosystems](#)

← Public input on strategy

### The Science Strategy Planning Process

Teams of USGS scientists are leading the creation of our mission area strategies. See who is on our Science Strategy Planning Teams and learn more about their responsibilities, below.

### What is the Science Strategy Planning Process (click image)?



# Core Science Systems SSPT Members

- **Chip Euliss** co-chair
- **Sky Bristol** co-chair
- **Barbara Poore** Core Science Systems, geography science
- **Brian McCallum** Hazards and Water
- **David Miller** Core Science Systems, geologic mapping
- **Dean Gesch** Global Change
- **Jay Diffendorfer** Energy
- **Nate Booth** Water
- **Nina Burkardt** Ecosystems and social science
- **Rich Signell** Global Change
- **Roland Viger** Water and Global Change
- **Suzette A. Morman** Environmental Health

# Core Science System Context

- “Pliers-and-wires”
  - historically consolidated with geoinformatics
  - commodity
  - consolidation at the Department level (or higher)
- Geoinformatics and Earth Science
  - fundamental data sets & methods
  - science around environmental information
  - data integration, interoperability, accessibility
- Future purview is broader than what is occurring in USGS today

# Core Science Systems Programs

- National Geospatial Program
- National Cooperative Geologic Mapping Program
- Biological Informatics Program
- National Geological and Geophysical Data Preservation Program
  
- *USGS Library System*
- *Core Science Informatics*

# core science systems, “lower case”

- Water monitoring & information programs
- National Hydrologic Model
- Remote-Sensing: EROS imagery archiving
- Coastal and Marine Geology
- Energy and Minerals data systems
- Climate impact programs

# Core Science Systems: What's In The Future?

- Help earth scientists & managers work better and faster
- Improve how we:
  - Acquire
  - Manage & Analyze
  - Support earth science & decision making using scientific information
- Provide high-level support for infrastructure, standards, & collaboration



# Community for Data Integration

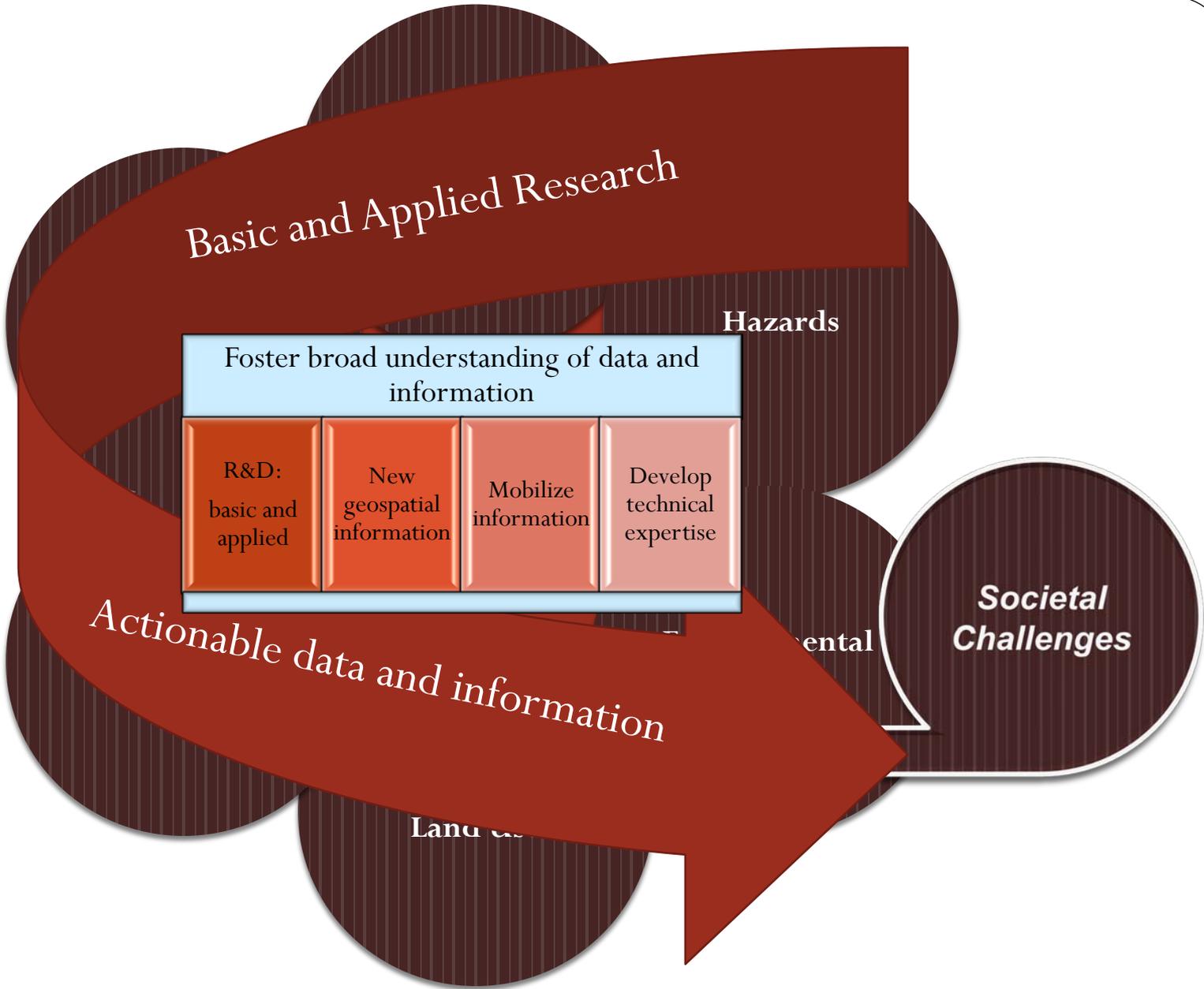
Foster broad understanding of data and information

R&D:  
basic and  
applied

New  
geospatial  
information

Mobilize  
information

Develop  
technical  
expertise



# Questions for You

- Basic Earth Science Information Needs
  - What are the major gaps in Federal monitoring of the environment?
    - Are there new types of instrumentation such as micro sensing clouds?
    - What are major gaps in network design thinking?
  - Do you see a need for basic, national data sets that do not exist?
    - Maps of channel width geomorphology and hydraulic management?
    - What remotely sensed data products are needed for ecosystems modeling?

# Questions for You

- Earth Science Information Handling and Distribution
  - Leadership in designing infrastructure, definition of standards
  - Traditional Data Pulls
  - Web pages
  - PDA
  - Pushing info

# Questions for You

- Value-adding tools
  - Simple analyses:
    - WaterWatch (standard stats),
    - WaterAlert (user defined/inputs)
  - Models – do we need to run “on the web”? How deep into research or support of computer science and engineering?
  - Visualization: spatial extent of indeterminate boundaries, trends, uncertainty
  - Decision-support for major topics, like Clean Water Act, SWAQ

# Questions for You

- Facilitating integration— Ways that we can take currently existing earth science information and improve the ability to bring it to bear on new science and management needs.
  - How to better leverage real-time sensors for water quality?
  - Are there major issues with interoperability, getting our science information to work with yours? With other people's?

# What are your visions for:

- Basic Earth Science Information Needs
- Earth Science Information Handling and Distribution
- Value-adding Techniques & Tools
- Facilitating integration