THE JOHN WESLEY POWELL CENTER FOR ANALYSIS AND SYNTHESIS

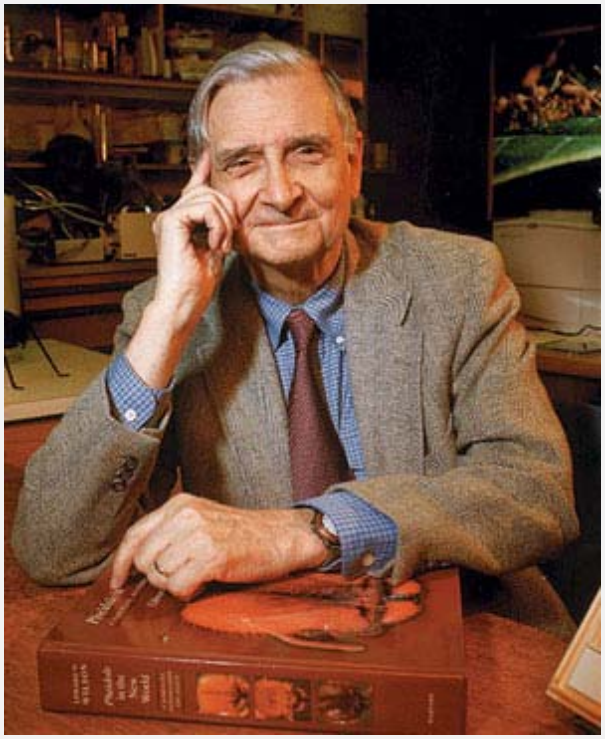
Enhancing scientific discovery and problem-solving through integrated research

Importance of integrated science

- Synthesis driven by both need and desire to address questions on the leading edge of science as well as pressing global change, societal and human health issues.
- Synthesis centers promote collaborative discovery.
- Synthesis centers are efficient and cost-effective. They leverage and extract additional value from existing investment in researchers and host institutions

"We are drowning in information, while starving for wisdom.

The world will henceforth be run by synthesizers, people able to put together the right information at the right time, think critically about it, and make important choices wisely."

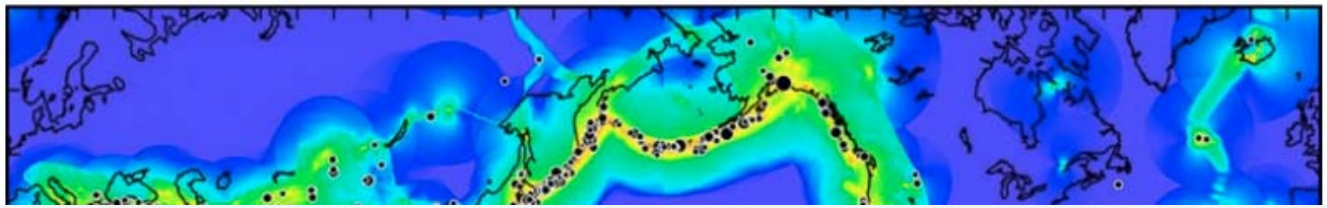


E.O. Wilson, 1988

A Testimonial

Seismic Hazard Assessment: Honing the Debate, Testing the Models

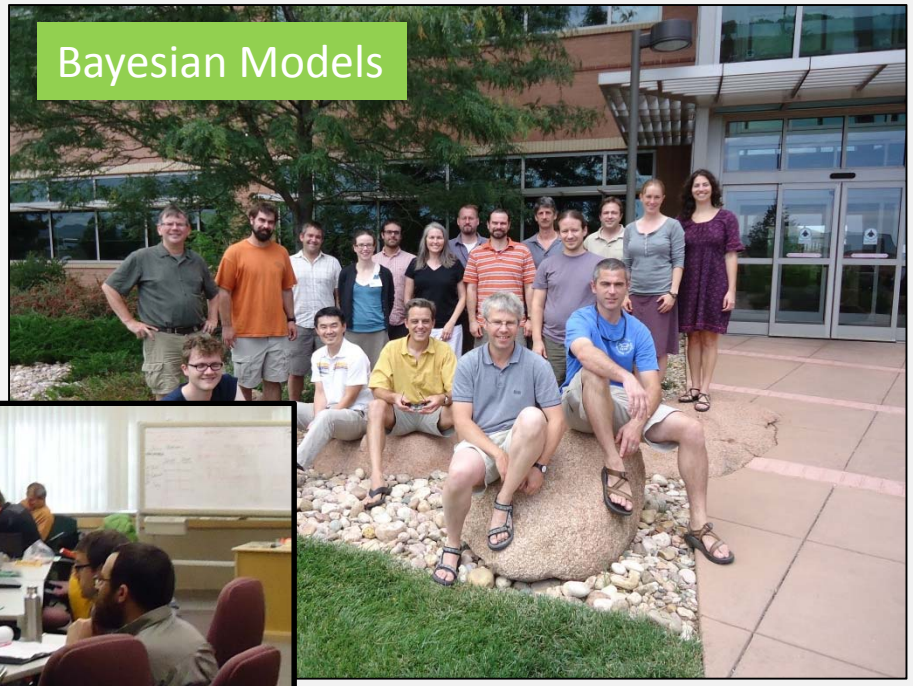
Earthquake experts with opposing views found common ground working around a table and on a hiking trail.



Thank you for founding the Powell Center, and for supporting our group from soup to nuts. The very positive impression of the USGS the Center gave our foreign participants is just one of Powell's many gifts. The Center is truly one of the best innovations to come out of the USGS in a long time.

Stein and Stirling EOS 2015

Induced Seismicity


Bayesian Models

Amphibian Decline

Global Earthquakes
USGS

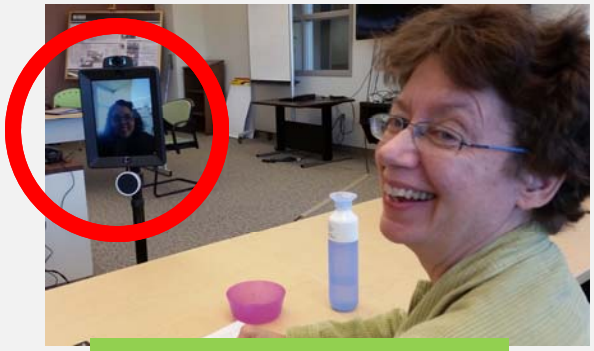
Biodiversity and N Deposition

What is a Working Group?

- Working Groups are different than workshops!
- Teams of 8-15 people who collaborate intensively around one or more questions ripe for synthesis that may or may not require intensive data manipulation
- WGs typically meet several times over two or more years

What We Offer:

- The opportunity for synthesis
- Time for in-depth analysis without distractions
- All-expense paid collaboration with colleagues
- Virtual in-between Powell Center meetings
- Fellows for scientific support
- Hands-on unlimited computing capabilities
- Page charges
- Bicycles!

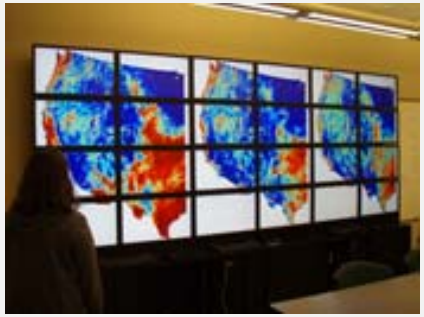


Accounting for Ecosystem Services

No. Amer. Wetland Connectivity

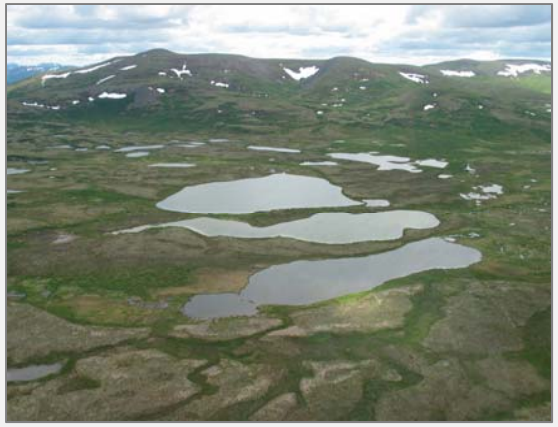
IT support

- Webex, phone conferencing
- myUSGS, GoogleDocs common space for your Working Group
- ScienceBase data cataloging/data management
- Metadata support
- Temporary onsite data downloads and storage
- Database setup and administration
- Website development
- Geospatial support
- Automate Workflow Services (e.g Kepler or VisCalc)
- Modeling services (coding/compiling)
- High performance/high throughput computing (from Condor to supercomputing)
- VisWall



What We Expect:

-Full intellectual engagement of all participants
-Collegiality, constructive discussions
-High profile publications
-Many publications
-Open access to your metadata at end of Working Group



The science we look for

- Big important ideas
  - May require large, complicated, and heterogeneous data sets
  - Or not – conceptual advancement is equally valued, (but harder to sell)
- Regional, national, global implications
- Clear, logical arguments
- Well-stated goals, objectives, methods, timeline
- Proof of expertise
- Potential for high impact

What we don't ever support

- New data collection/field work
- Case studies
- Completion of ongoing work that ran out of funding
- Groups that already work together to do more of what they already do

Should your results have resource management application?

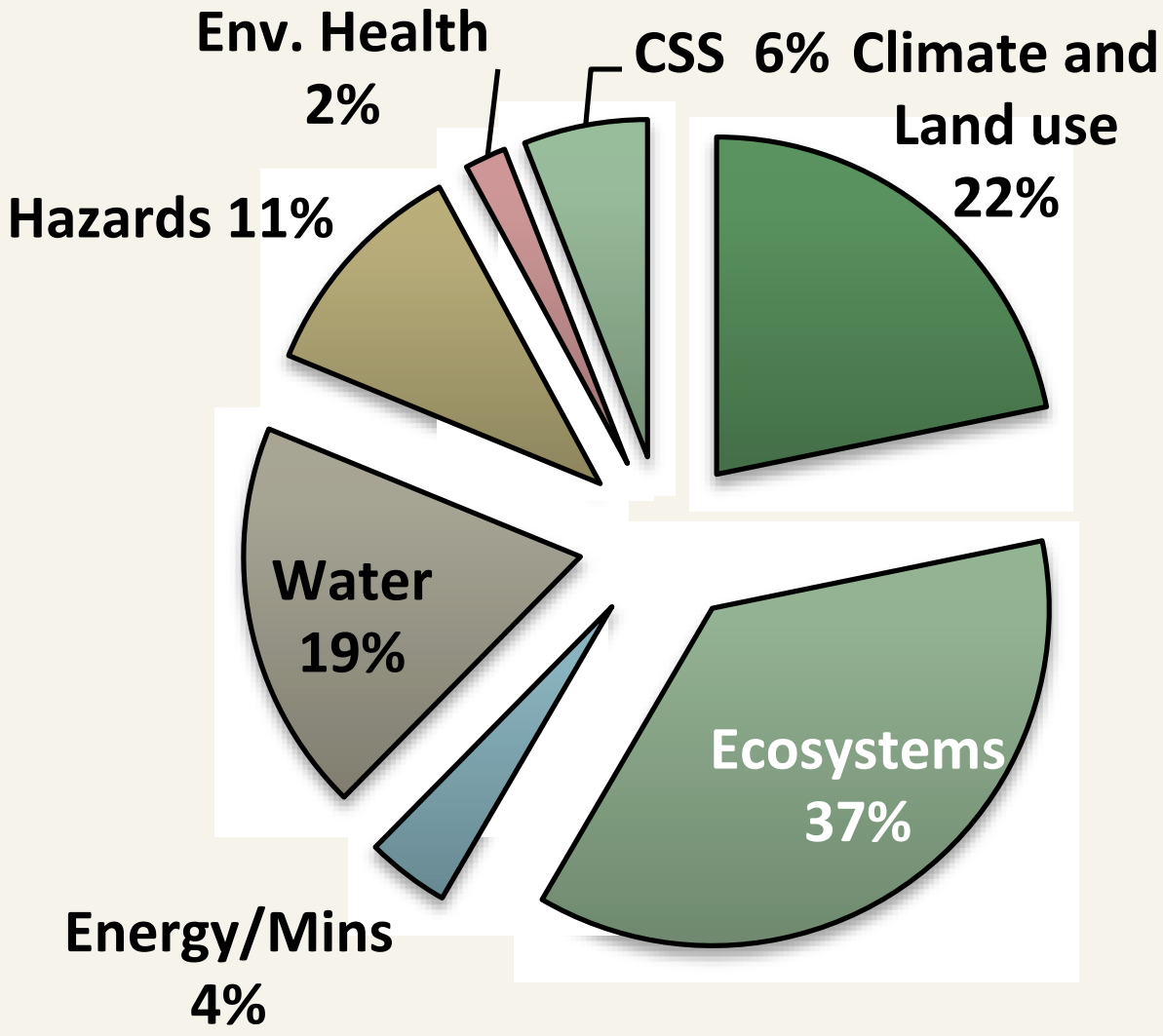
- Absolutely!! Actionable science is critical in these times of global change

- BUT…
- Proposals must stand on their scientific base, and are evaluated on the quality of the ideas, ability to perform and synthesis and publish in leading journals.

Who can apply?

- Proposals may have up to 4 Principal Investigators
- One or more PIs MUST be a USGS scientist
- We welcome academics, other agency scientists, international scientists
- Students and post-docs are especially welcome
- Working Groups are expected to be diverse in age, gender, discipline, and ethnicity

Working Groups by USGS Theme 2009-2017



Participation 2009-2017

AFFILIATION	PARTICIPANTS	% of TOTAL
USGS	221	28
INTERNATIONAL	105	13
OTHER GOV	107	14
ACADEMIA	305	39
INDUSTRY	11	1
NGO	30	4
TOTAL	779	100

USGS

Review process

- Science Advisory Board currently made up of ~10 scientists from USGS, FS, NSF
  - Broad range of expertise
- Each proposal reviewed by at least 4 SAB members
- Proposals discussed and ranked – top proposals funded, but sometimes require clarifying addenda
- Constructive review comments returned for unsuccessful proposals

The finances of successful proposals

The goods	How much?	Does this money come to me?	For how long?
Travel for Working Group	As much as it takes	NO – you never see this money	About two years
Funding for Fellow	$100,000 (includes all indirect costs)	CESU agreements transfer $ to universities; $ can transfer to USGS Centers	$100K is for life of Working Group
IT Support	As much as it takes	NO – you never see this money	Life of the Working Group
Page charges	$1800	NO- you never see this money	Life of the working Group
Salary	None, unless you are WSC	Salary for WSC participant on site in Fort Collins	Usually two weeks over life of Working Group

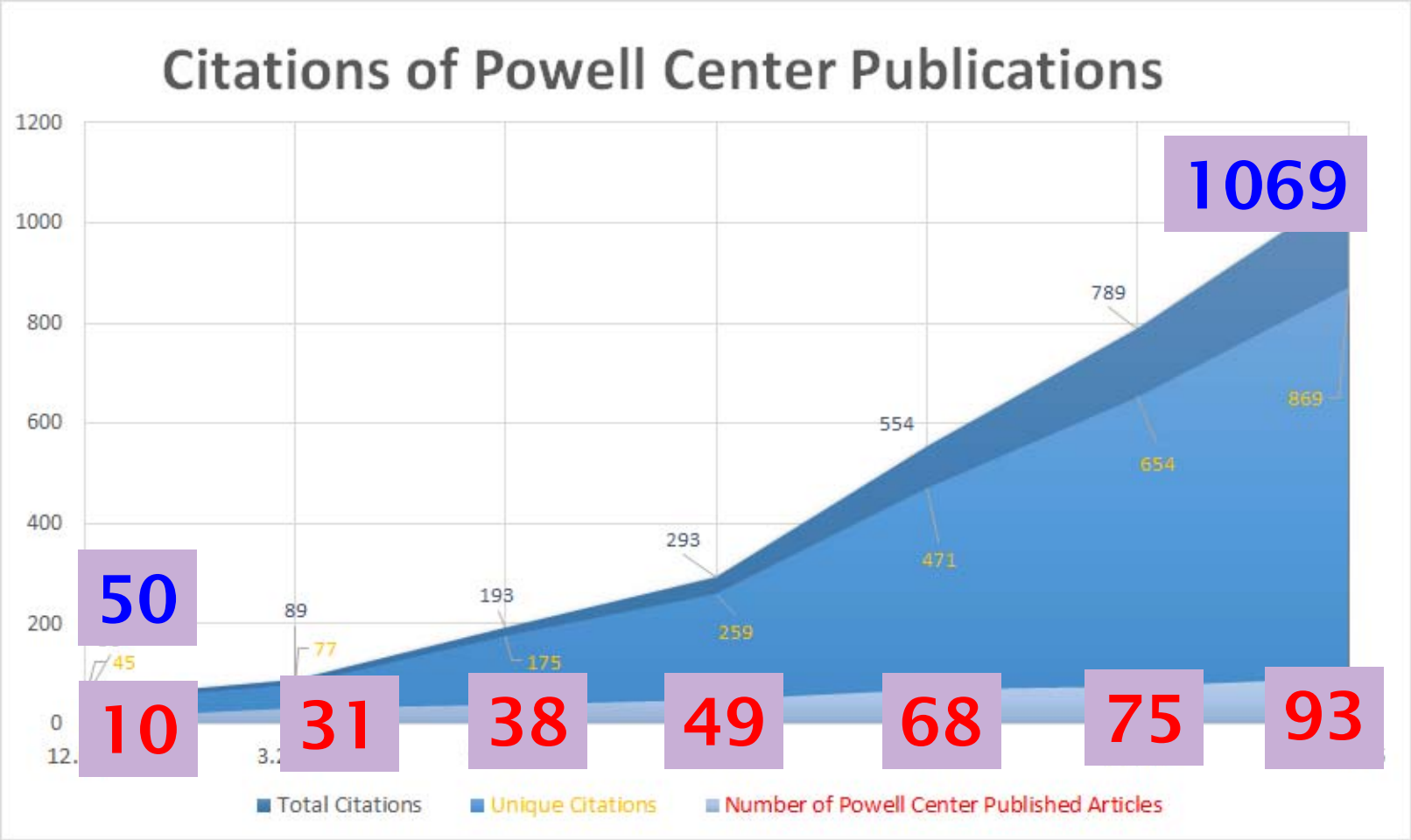
Other agency support

- All proposals go through Powell Center review and are ranked by the Science Advisory Board
- NSF Geosciences is a formal sponsor and supports some, but not all, proposals
  - If they support a proposal they work through Powell Center to provide support.
  - USFS, EPA, Smithsonian, others have given in-kind support

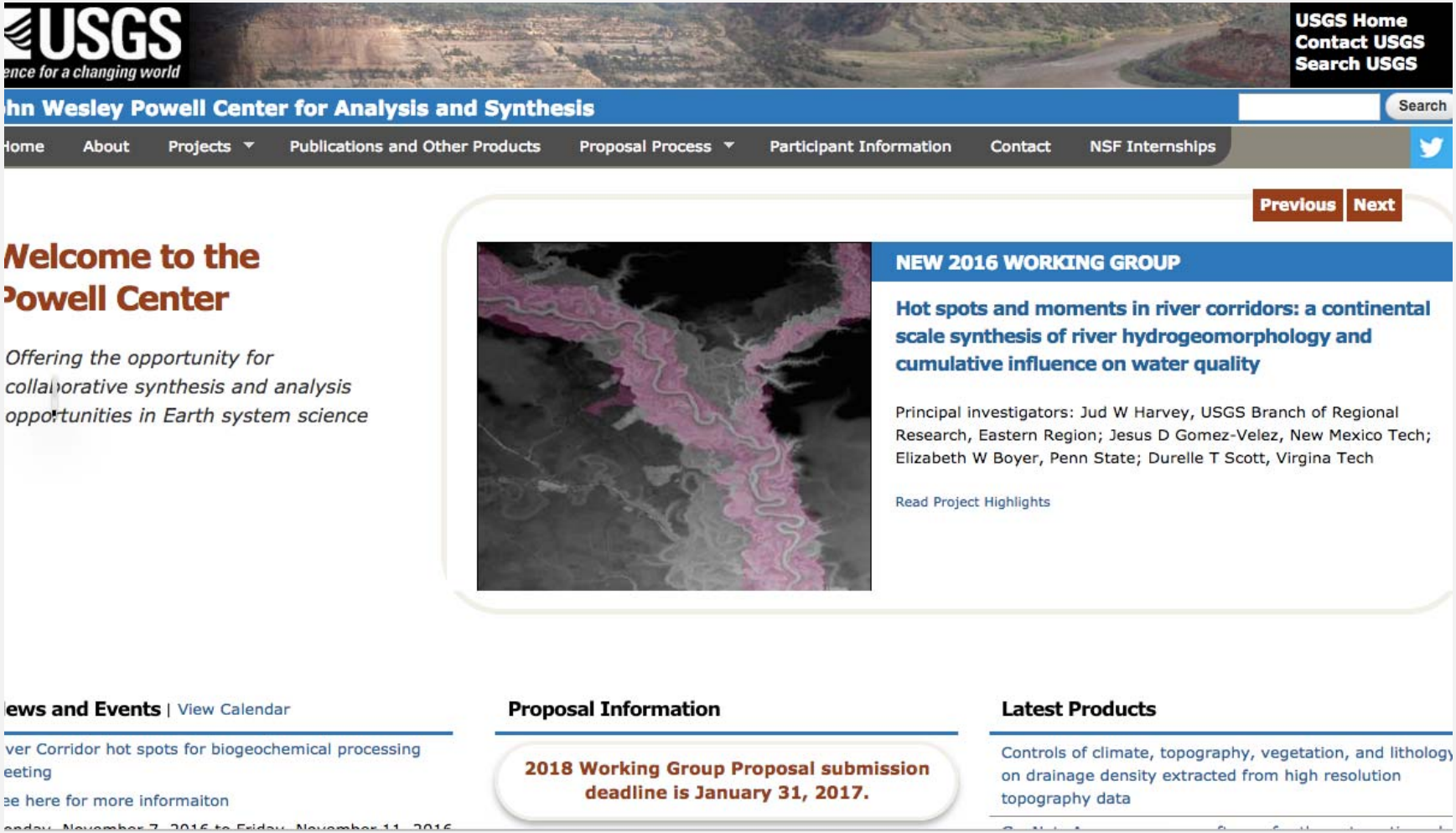
NSF research themes that might increase chances of co-funding:

1. Innovations at the Nexus of Food, Energy and Water Systems (INFEWS), aims to understand, design, and model the interconnected food, energy, and water system through an interdisciplinary research effort that incorporates all areas of science and engineering and addresses the natural, social, and human-built factors involved.
2. Risk and Resilience, address the nation's need for resilience in response to disasters both natural and manmade through both core programs and focused activities.
3. Critical Zone Observatories synthesis
4. Questions that use NEON data

Citation Trends



http://powellcenter.usgs.gov/index.php



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- **JANUARY 31 DEADLINE FOR FY18 PROPOSALS**