

## 171. Biological and Environmental Research Information System: A Multifaceted Approach to DOE Systems Research Communication

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<http://genomicscience.energy.gov>

<http://doesbr.org/>

**Project Goals: Develop and distribute programmatic materials to help build the multidisciplinary community needed to advance systems research for DOE energy and environmental missions. The Biological and Environmental Research Information System (BERIS) group works with program managers and the scientific community to help develop and communicate key scientific and technical concepts for discourse within the scientific community and the public sector.**

Concerted communication is key to progress in cutting-edge science and public accountability. BERIS goals focus on three objectives: (1) facilitate science planning, research, and communication; (2) inform a broader audience about Department of Energy (DOE) research projects, progress, and significance to science and society; and (3) respond to outreach and information exchange needs of related DOE projects. Over the past 24 years, BERIS has focused on presenting all facets of genomics research for DOE's Office of Science. The materials produced by our group have helped ensure that scientists can participate in and reap the bounty of the genome revolution, have facilitated the training of new generations of students in genomics and systems biology, and have aided the public in making informed decisions regarding genetics issues.

In 2009, our scope was extended to include more programs within the Office of Biological and Environmental Research (BER), which conducts frontier research in climate, subsurface biogeochemistry, and genome science within the Office of Science. BER research explores scientific complexity at temporal and spatial scales requiring contributions from teams of interdisciplinary scientists, thereby necessitating an unprecedented integrative approach both to the science and to research communication strategies. Because each scientific discipline has different perspectives and languages, effective communication to help foster information flow across disciplines and translation of scientific discovery into appropriate DOE mission areas is critical to BER's success. Our work with DOE staff and the research community has resulted in the production and dissemination of information in various formats: technical reports, roadmaps, websites, brochures, databases, technical compilations, presentations, exhibits for scientific meetings, topical text, graphics, and posters. We maintain the searchable BER Research Highlights database ([public.ornl.gov/hgmis/bernews/](http://public.ornl.gov/hgmis/bernews/)). We also assist with outreach efforts of DOE grantees—especially the Bioenergy Research Centers, Joint Genome Institute, Environmental Molecular Sciences Laboratory, KBase, and Atmospheric Radiation Measurement Climate Research Facility—to help increase their reach and impact.

### Examples of Recent Work

#### DOE Biological and Environmental Research Advisory Committee

- *BER Virtual Laboratory: Innovative Framework for Biological and Environmental Grand Challenges* (February 2013)

**DOE BER Biological Systems Science Division—completed and ongoing**

- *Applications of New DOE National User Facilities in Biology Workshop Report* (February 2012)
- *DOE Genomic Science Awardee Meeting X, February 26–29, 2012*
- *Biosystems Design* workshop report (April 2012)
- *DOE Joint Genome Institute Strategic Planning for Genomic Sciences* workshop report (September 2012)
- *DOE User Facilities: Advanced Technologies for Biology, Structural Biology* brochure (updated 2012)
- *Revealing the Role of Microbial Communities in Carbon Cycling* brochure (October 2013)
- *Plant Feedstock Genomics for Bioenergy Joint USDA-DOE Awards* (January 2014)
- *U.S. Department of Energy's Bioenergy Research Centers: An Overview of the Science* (update in progress)
- Genomic Science website ongoing ([genomicscience.energy.gov](http://genomicscience.energy.gov))
  - Key sections: Annual research summaries, systems biology computing, advanced biofuels, DOE Bioenergy Research Centers, carbon cycling and climate, DOE-USDA Plant Feedstock Genomics for Bioenergy, biosystems design, and user facilities enabling science

### **DOE BER Climate and Environmental Sciences Division—completed and ongoing**

- *Research Priorities for Tropical Ecosystems under Climate Change* workshop report (October 2012)
- *Terrestrial Ecosystem Science* brochure (July 2012)
- *Spruce and Peatland Responses Under Climatic and Environmental Change* brochure (July 2012)
- *Next-Generation Ecosystem Experiment: Arctic Landscapes* brochure (July 2012)
- *Climate and Environmental Sciences Division Overview* brochure (Summer 2012)
- *Environmental Molecular Sciences Laboratory* brochure (Summer 2012)
- Subsurface Biogeochemical Research website ongoing ([doesbr.org](http://doesbr.org))
  - Annual summary (Summer 2013)
  - Research bibliography (January 2014)

### **Related Information**

The DOE BER Human Genome Project Information website was updated for archival use in 2013. When this BERIS-created and maintained site was active during the HGP era, it was the central site for research community and public access to the HGP. The site will continue to enable HGP information flow for use for educational and research purposes enabling a “peek” into science and program planning history for “biology’s moon shot.” [http://web.ornl.gov/sci/techresources/Human\\_Genome/index.shtml](http://web.ornl.gov/sci/techresources/Human_Genome/index.shtml)

### **Awards**

Awards of excellence for *Applications of New DOE National User Facilities in Biology Workshop Report* and Merit for the Subsurface Biochemical Research website in the 2012-2013 Society for Technical Communication (STC) Summit Competition. Cumulatively, BERIS has received more than 75 STC awards, including 8 international.

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