

BERAC

October 28, 2015

**Sharlene Weatherwax, Associate Director of Science
Biological and Environmental Research**



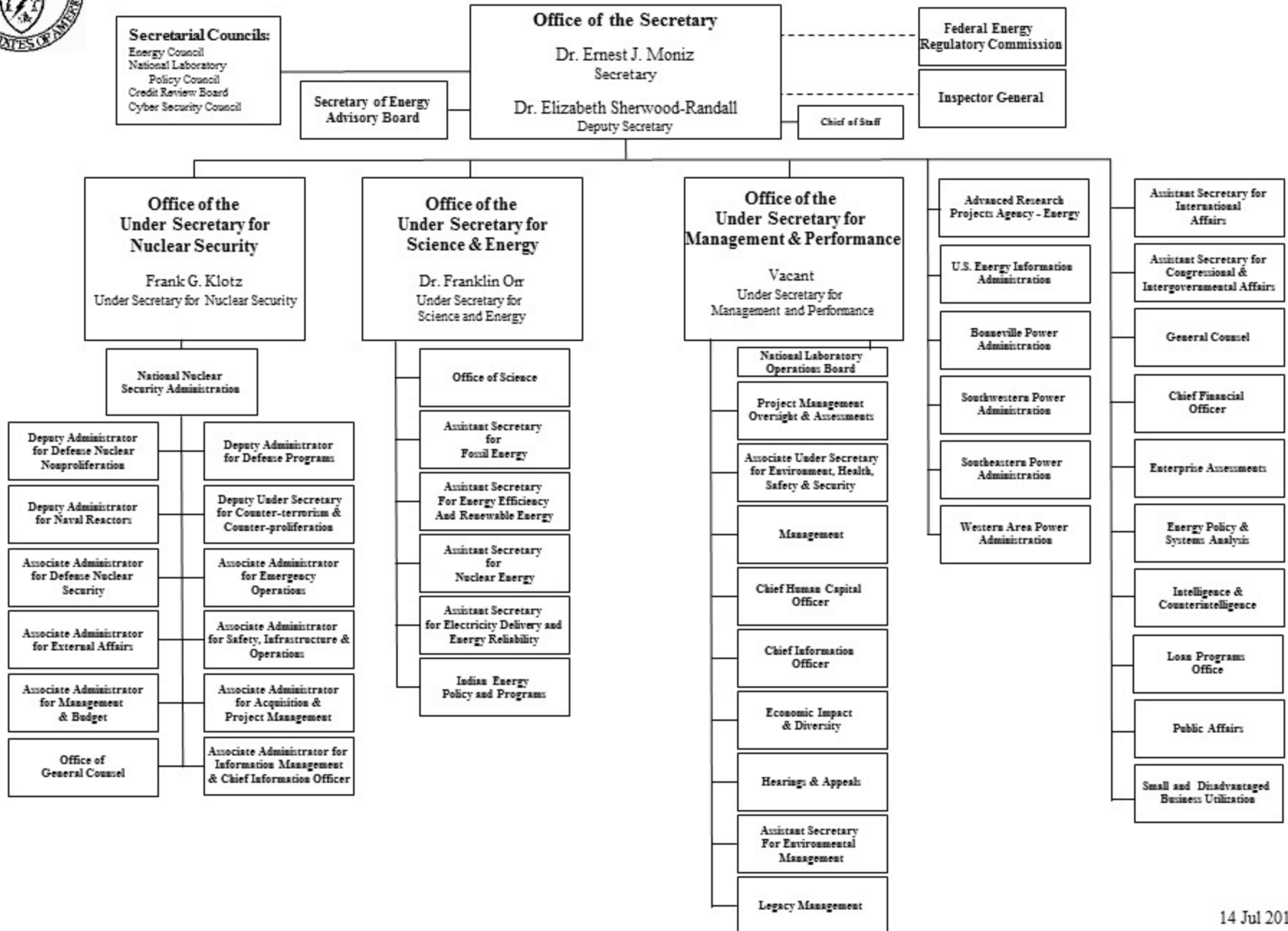
U.S. DEPARTMENT OF
ENERGY

Office
of Science

Office of Biological
and Environmental Research



DEPARTMENT OF ENERGY



New Personnel



Jared DeForest – Terrestrial Ecosystem Science (IPA from Ohio University), CESD



Shaima Nasiri—Atmospheric Systems Research, CESD



Dawn Adin—
Microbiologist, BSSD

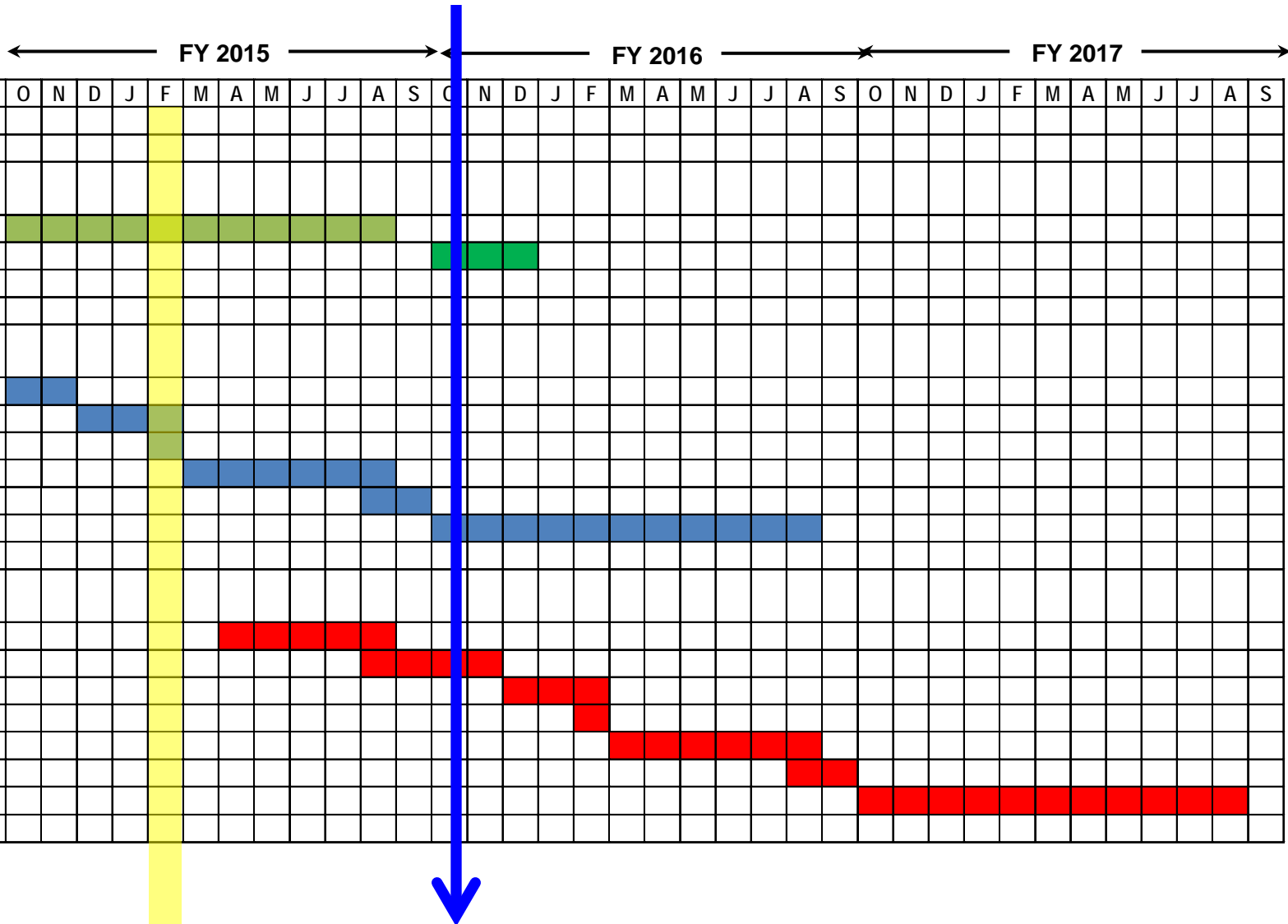


Ramana Madupu—
Computational Biology, BSSD

Actions Pending

- BSSD, Biologist (Biophysics)
- BER, Senior Technical Advisor

The DOE/SC Budget Cycle



	FY 2015		President's Request	House Mark	Senate Mark
	President's Request	Enacted Approp.			
<u>SCIENCE</u>					
ASCR.....	541,000	541,000	620,994	537,539	620,994
BES.....	1,806,500	1,733,200	1,849,300	1,770,306	1,844,300
BER.....	628,000	592,000	612,400	538,000	610,000
FES.....	416,000	467,500	420,000	467,600	270,168
HEP.....	744,000	766,000	788,000	776,000	788,100
NP.....	593,573	595,500	624,600	616,165	591,500
WDTS.....	19,500	19,500	20,500	20,500	19,500
SLI.....	79,189	79,600	113,600	89,890	113,600
S&S.....	94,000	93,000	103,000	103,000	100,715
PD.....	189,393	183,700	187,400	181,000	185,000
Subtotal, Science.....	5,111,155	5,071,000	5,339,794	5,100,000	5,143,877
Rescission of PY Bal.....	-3,262	-4,717	-4,717
Total, Science Approp.....	5,111,155	5,067,738	5,339,794	5,095,283	5,139,160

	FY 2015 Approp.	FY 2016 President's Request	FY 2016 House Mark	FY 2016 Senate Mark
Biological Systems Science	299,892	294,271	284,287	294,271
Climate and Environmental Sciences	292,108	318,129	253,713	315,729
Total BER	592,000	612,400	538,000	610,000

BER Researchers Receive Recognition!



James Liao (UCLA)-- National Academy of Sciences member



Annie Kersting (LLNL)– Garvin-Olin Medal, American Chemical Society



Bill Collins (LBNL)-- American Association Advancement of Science Fellow



Phil Rasch (PNNL), **Tami Bond** (U of Illinois),
Jose-Luis Jimenez (U of Colorado)-- American Geophysical Union Fellows



Dave Bader (LLNL)– American Meteorological Society Fellow



Jay Keasling (LBNL)-- Eric and Sheila Samson Prime Minister's Prize for Innovation in Alternative Fuels for Transportation

Zhanqing Li (U of Maryland)--Humboldt Research Award from the Alexander Humboldt Foundation

BER Researchers Receive Recognition!



Minghua Zhang (U Stony Brook)-- American Meteorological Society Fellow



Allison Campbell (PNNL)—candidate for President-Elect of the American Chemical Society



Victoria Orphan (Caltech)—American Academy of Microbiology Fellow



Jizhong Zhou (U of Oklahoma)-- DOE Lawrence Award 2014



ACME (Accelerated Climate Modeling for Energy) project wins the DOE Secretarial Honor Award
Dave Bader(LLNL), Bill Collins (LBNL), Mark Taylor (SNL)

BER Early Career 2015 Topics





1. Systems Biology Research on Microbes Relevant to Biofuels Production

advancing systems biology understanding of emerging or established model microbes relevant to biofuels production, specifically those capable of deconstruction of lignocellulose, synthesis of biofuels from biomass-derived substrates, direct conversion of CO₂ to advanced biofuels, or tolerance to stresses associated with biofuel production scenarios.

2. Land-Atmosphere Interactions

reduce the uncertainties in projections from Earth system models through development of improved scientific understanding and/or model representation of climate-relevant land-atmosphere interactions within coupled terrestrial – atmosphere systems. Relevant topics include 1) terrestrial processes that impact the fluxes of moisture, energy, and gases in the land- atmosphere system, 2) climate-relevant atmospheric boundary layer processes that are influenced by variability in the land surface, and 3) terrestrial-atmosphere feedbacks (including climate extremes) in the coupled earth system.

BER 2015 Early Career Awardees

	Name	Institution	Topic Area	Title
	Elizabeth Sattely	Stanford University	Systems Biology	Defining the Minimal Set of Microbial Genes Required for Valorization of Lignin Biomass
	Jeffrey Gardner	University of Maryland Baltimore County	Systems Biology	Functional Characterization and Regulatory Modeling of Lignocellulose Deconstruction in the Saprophytic Bacterium <i>Cellvibrio Japonicus</i>
	Yunyan Zhang	Lawrence Livermore National Laboratory	Water Cycle	The Effect of Soil Moisture and Surface Heterogeneity on Clouds and Precipitation – Inferences from ARM Observations and Large Eddy Simulations
	Pierre Gentine	Columbia University	Water Cycle	Cross-Scale Land-Atmosphere Experiment (CSLAEX)

BER Early Career 2016 Topics

1. **Systems biology-enabled research on the role of microbes and microbial communities in the plant-soil-environment interactions**

fundamental, systems biology-driven research aimed at understanding the contribution of microbes and microbial communities to bioenergy feedstock plant performance, adaptation, and abiotic stress tolerance, and the environmental impacts of introducing bioenergy cropping systems, to enable the integrated development of sustainable bioenergy feedstock systems in terrestrial ecosystems.

2. **Improved Understanding of Tropical Forest Ecosystems to Climate Change**

reduce critical uncertainties in model representation of tropical forest ecosystems. The goal should be to improve the representation and understanding of tropical forest function and feedbacks to a changing climate, which includes complex interactions of biogeochemical cycles, hydrology, belowground processes, vegetation dynamics and disturbance.

3. **Human Component of Earth System Models**

develop one or more in-depth representation(s) in which climate and human systems both impact one another and co-evolve. The goal is to advance new modeling constructs, methods, and topics at appropriate spatial and temporal scales for climate projections in Earth system and climate models of principal interest to DOE.

Encouraged application deadline November 19, 2015.

DOE Office of Science Graduate Student Research (SCGSR) Program

The SCGSR Program provides supplemental awards to outstanding graduate students to spend 3 to 12 months conducting part of their doctoral thesis/dissertation research at a DOE national laboratory in collaboration with a DOE laboratory scientist.

- Graduate students must apply online through the online application system.
- The application requires a research proposal and letters of support from both the graduate student's thesis advisory and the collaborating DOE laboratory scientist.
- Student's research and proposed SCGSR project must be aligned with one of the identified SCGSR priority research areas defined by the SC Program Offices and specified in the solicitation.
- Applications proposing to use an SC user facility must apply for user facility time separately.

Award Benefits:

- A monthly stipend of up to \$3,000/month for general living expenses
- Reimbursement of inbound/outbound traveling expenses to/from the DOE laboratory of up to \$2,000.

(Award payments are provided directly to the student.)

Eligibility:

- U.S. Citizen or Permanent Resident
- Qualified graduate program & Ph.D. Candidacy
- Graduate research aligned with an SCGSR priority research area
- Establishment of a collaborating DOE laboratory scientist at the time of application

2015 Solicitation 2 – Applications Due: December 15, 2015 5:00PM ET

Full details, requirements, FAQs, and link to application at: <http://science.energy.gov/wdts/scgsr/>

Program Contact : sc.scgsr@science.doe.gov

SCGSR Program 2015 Solicitation 2 – Priority Research Areas

Advanced Scientific Computing Research (ASCR)

- (a) Applied Mathematics
- (b) Computer Science
- (c) Next Generation Networking for Science

II. Basic Energy Sciences (BES)

- (a) Accelerator and Detector R&D
- (b) Heavy Element Radiochemistry
- (c) Neutron Scattering Research and Instrumentation
- (d) Predictive Materials Science and Chemistry
- (e) Fundamental Electrochemistry related to Energy Transduction, Storage, and Corrosion

Biological and Environmental Research (BER)

- (a) Computational Biology and Bioinformatics
- (b) Biological Imaging - Mesoscale to Molecules
- (c) Plant Science for Sustainable Bioenergy
- (d) Environmental System Science
- (e) Atmospheric Systems Research
- (f) Earth System Modeling
- (g) Regional and Global Climate Modeling

Fusion Energy Sciences (FES)

- (a) Burning Plasma Science & Enabling Technologies
- (b) Discovery Plasma Science

High Energy Physics (HEP)

- (a) Theoretical and Computational Research in High Energy Physics
- (b) Advanced Technology Research and Development in High Energy Physics
- (c) Experimental Research in High Energy Physics

Nuclear Physics (NP)

- (a) Medium Energy Nuclear Physics
- (b) Heavy Ion Nuclear Physics
- (c) Low Energy Nuclear Physics
- (d) Nuclear Theory
- (e) Nuclear Data and Nuclear Theory Computing
- (f) Isotope Development and Production for Research and Applications
- (g) Accelerator Research and Development for Current and Future Nuclear Physics Facilities

<http://science.energy.gov/wdts/scgsr/how-to-apply/priority-sc-research-areas/>