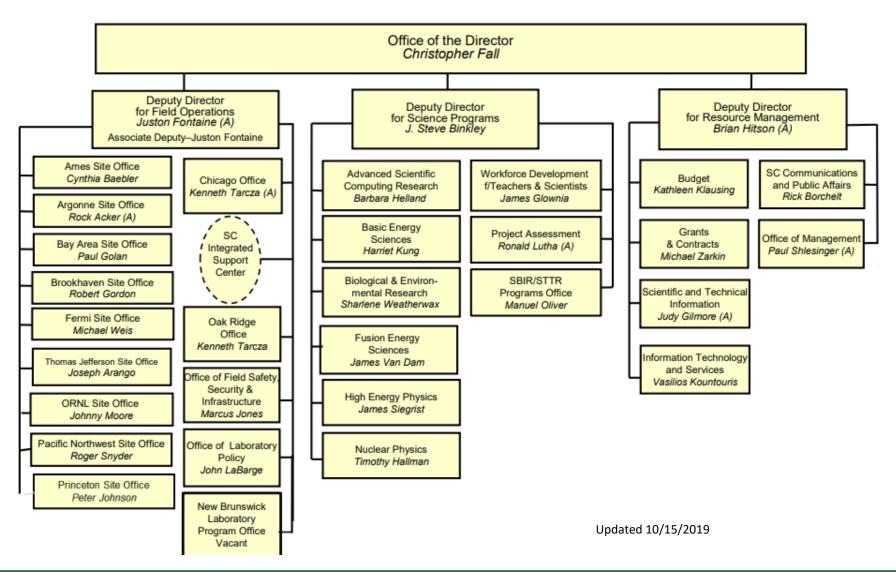


Biological and Environmental Research

BER Advisory Committee (BERAC)
Fall Meeting
October 24-25, 2019

Sharlene Weatherwax
Associate Director

DOE Office of Science Staff Changes





BER Staff Changes



Dr. Shing Kwok
Program Manager
Foundational Genomics Science



Ms. Brittaney McMillian
Program Analyst (contractor)

BERAC Members Recognized



Dr. L. Ruby Leung
Bert Bolin Global Environmental
Change Award and Lecture
(American Geophysical Union)



Dr. Maureen McCann

President-Elect

(American Society of Plant Biologists)



Dr. Gloria Muday
Awarded endowed professorship
and title of *Charles M. Allen*Professor of Biology



Dr. Patrick Reed
Awarded endowed professorship and title of Joseph C. Ford Professor of Engineering.



Dr. John Weyant

Lifetime Achievement Award

(Integrated Assessment

Modeling Consortium)



BER Researchers Recognized



Bill Collins, LBNL Tyndall History of Global Environmental Change Lecture

American Geophysical Union



Neil Donahue, Carnegie Mellon Jule Gregory Charney Lecture



Rainer M. Volkamer, Univ. Colorado, Boulder, Atmospheric Sciences Ascent Award



Kate Calvin, PNNL
Global Environmental Change
Section Mid-Career Award



Allan Goldstein, UC Berkeley Yoram J. Kaufman Outstanding Research and Unselfish Cooperation Award

2019 AGU Fellows

- Jayne Belnap, US Geological Survery
- Thomas Bianchi, University of Florida
- Sonia Kreidenweis, Colorado State University
- Reed Maxwell, Colorado School of Mines
- Ted Schuur, Northern Arizona University
- Carl Steefel, Lawrence Berkeley National Laboratory
- Karl E. Taylor, Lawrence Livermore National Laboratory

BER Researchers Recognized



Qiang Fu, Univ. of Washington Jule G. Charney Medal





Matthew R. Kumjian, Penn. State Univ. Henry G. Houghton Award (early career)

2020 Fellows:

- Ping Chang, Texas A&M University
- Paul J. DeMott, Colorado State University
- Bart Geerts, University of Wyoming
- Wojciech W. Grabowski, National Center for Atmospheric Research
- Stephen A. Klein, Lawrence Livermore National Lab
- Courtney J. Schumacher, Texas A&M University
- Tammy M. Weckworth, NCAR



Gregory S. Jenkins, Penn. State Univ. Charles E. Anderson Award



BER Researchers Recognized



Pamela Ronald, UC Davis (JBEI)
Leadership in Science Public
Service Award
(American Society of Plant
Biologists)



Kathleen Treseder, UC Irvine Fellow
(American Academy of Microbiology)



Susan Hubbard, LBNL Elected to the *American Academy of Arts and Sciences*



Scott Baker, PNNL/EMSL (JBEI)
Fellow
(Society for Industrial Microbiology)



Jennifer Pett-Ridge, LLNL 2019 Endowed Lecturer in Biogeochemistry (Goldschmidt Conference)

FY 2020 SC President's Budget Request and Congressional Marks

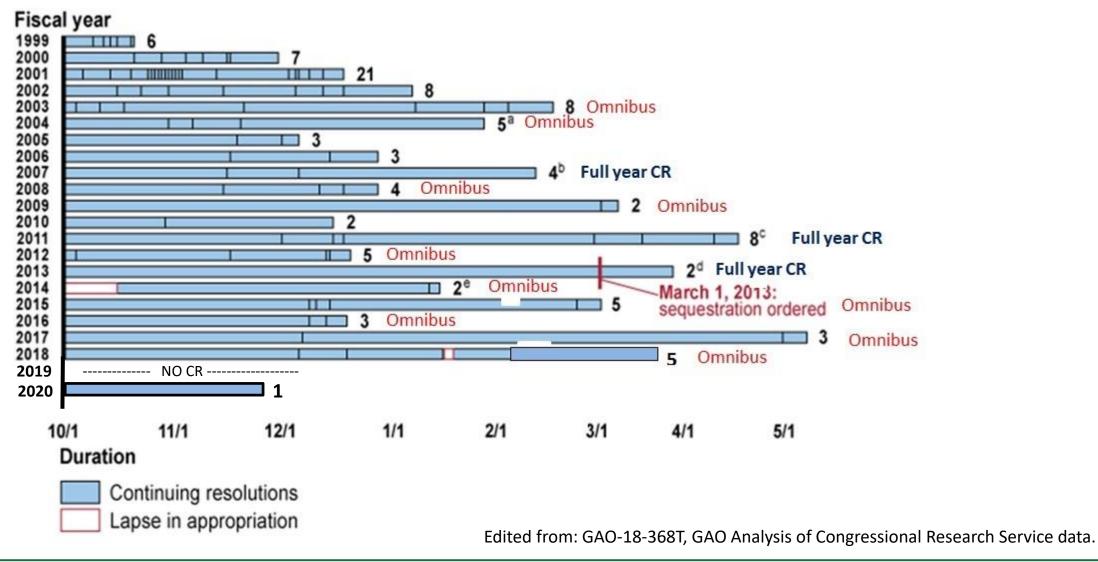
(Dollars in Thousands)

FY 2019		FY 2020		FY 2020 Future Scenario
Enacted Approp.	President's Request	House Mark	Senate Mark	Enacted Approp. ^A
935,500	920,888	956,540	1,029,000	
2,166,000	1,858,285	2,143,000	2,325,000	
705,000	494,434	730,000	770,000	
564,000	402,750	688,000	570,000	
980,000	768,038	1,045,000	1,065,000	
690,000	624,854	735,000	736,000	
22,500	19,500	25,000	25,000	
232,890	163,600	250,830	394,000	
106,110	110,623	110,630	113,000	
183,000	183,000	186,000	188,000	
	0	0	0	C
6,585,000	5,545,972	6,870,000	7,215,000	C
	0	0	0	C
6,585,000	5,545,972	6,870,000	7,215,000	C
	Enacted Approp. 935,500 2,166,000 705,000 564,000 980,000 690,000 22,500 232,890 106,110 183,000 6,585,000	Enacted Approp. President's Request 935,500 920,888 2,166,000 1,858,285 705,000 494,434 564,000 402,750 980,000 768,038 690,000 624,854 22,500 19,500 232,890 163,600 106,110 110,623 183,000 0 6,585,000 5,545,972 0	Enacted Approp. President's Request House Mark 935,500 920,888 956,540 2,166,000 1,858,285 2,143,000 705,000 494,434 730,000 564,000 402,750 688,000 980,000 768,038 1,045,000 690,000 624,854 735,000 232,890 163,600 250,830 106,110 110,623 110,630 183,000 183,000 186,000 0 0 0	Enacted Approp. President's Request House Mark Senate Mark 935,500 920,888 956,540 1,029,000 2,166,000 1,858,285 2,143,000 2,325,000 705,000 494,434 730,000 770,000 564,000 402,750 688,000 570,000 980,000 768,038 1,045,000 1,065,000 690,000 624,854 735,000 736,000 22,500 19,500 25,000 25,000 232,890 163,600 250,830 394,000 106,110 110,623 110,630 113,000 183,000 183,000 186,000 188,000 0 0 0 0

^APending future appropriation, currently operating under terms of Continuing Resolution thru November 21, 2019.



Budget: Duration and Number of Continuing Resolutions

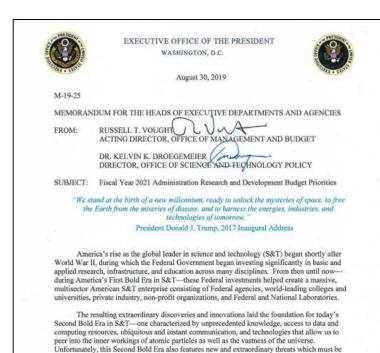




FY 2021 Administration Research & Development Priorities

This Fiscal Year 2021 (FY2021) R&D Budget Priorities memorandum provides direction to enable this Second Bold Era as part of a longer-term, multisector, national strategy to advance bold, transformational leaps in S&T, build a diverse workforce of the future, solve previously intractable grand challenges, and ensure America remains the global S&T leader for generations to come.

- Machine Learning/Artificial Intelligence
- Quantum Information Science
- Exascale Computing
- Earth System Predictability
- Bioeconomy
- Build and Leverage a Diverse, Highly Skilled
 American Workforce
- And Other Crosscutting Priorities



The Trump Administration is firmly committed to continuing American S&T leadership in the Second Bold Era. Success will depend, in large part, on our ability to leverage—in entirely new and creative partnership and collaborative frameworks—the multisector S&T enterprise that emerged during the First Bold Era. It will depend upon striking a balance

confronted thoughtfully and effectively.

2019 BER Early Career Focus Areas

➤ Fundamental Systems Biology-Driven Research to Enable Advanced Biofuels and Bioproducts Production

- Advance the development of emerging model microorganisms and/or microbial communities relevant for the production of biofuels and/or bioproducts
- Multi-omics approaches coupled with advanced predictive modeling

> Environmental System Science

- Quantify how biological behavior, abiotic-biotic interactions, and molecular transformations control the mobility of contaminants (e.g., U, Tc, Hg), nutrients (e.g., N, P, C), and other inorganic elements involved in mediating biogeochemical processes (e.g., S, Fe, Mn).
- Quantify and predict how hydrology drives fine-scale biogeochemical processes...in surfacesubsurface systems.
- Translate biogeochemical behavior across relevant molecular to watershed scales to accurately and tractably predict flows of water, nutrients, and contaminants.
- Identify, quantify, and predict watershed responses to natural and anthropogenic perturbations, extreme events, and shifts to new states.



2019 BER Early Career Awardees

Institution



















Name	Institution	lopic Area	Title
Kristin Burnum- Johnson	PNNL	Systems Biology	Spatiotemporal mapping of lignocellulose decomposition by a naturally evolved fungal garden microbial consortium
Isaac Larsen	University of Massachusetts, Amherst	Environmental Systems Science	Abiotic and biotic controls on chemical weathering rates and solute generation
Josh Michener	ORNL	Systems Biology	Systems metabolic engineering of Novosphingobium aromaticivorans for lignin valorization
Davinia Salvachua Rodriguez	NREL	Systems Biology	Elucidating Aromatic Catabolic Pathways in White- Rot Fungi during Lignin Decay
Kevin Solomon	Purdue University	Systems Biology	Genetic tools to optimize lignocellulose conversion in anaerobic fungi and interrogate their genomes
James Stegen	PNNL	Environmental Systems Science	Multi-Watershed Perturbation-Response Traits Derived Through Ecological Theory
Charuleka Varadharajan	LBNL	Environmental Systems Science	Investigating the Impacts of Streamflow Disturbances on Water Quality Using a Data-Driven Framework

Tonic Area

Titla





Presidential Early Career Award for Scientists and Engineers



Kelly Wrighton
Colorado State University
2017 PECASE Award
(announced July 2019)



2019 DOE Graduate Student Research Program (SCGSR) Award Recipients

Name	Graduate Institution	Host Lab	Research Area
Albina Khasanova	University of Texas at Austin	LBNL	Plant Science for Sustainable Bioenergy
Hannah Shulman	University of California – Riverside	LLNL	Soil Microbiology
Margaret Capooci	University of Delaware	LLNL	Environmental Systems Science
Nicholas Reichart	Montana State University	LBNL	Computational Biology and Bioinformatics
Ryan Rae Lenz	Oregon State University	ORNL	Plant Science for Sustainable Bioenergy
Samantha Summers	University of Colorado- Boulder	NREL	Computational Biology and Bioinformatics
Wiliiam Joseph Sagues	North Carolina State University	NREL	Plant Science for Sustainable Bioenergy

2019 DOE SCGSR Program

The Office of Science Graduate Student Research (SCGSR) Program is managed by the Office of Workforce Development for Teachers and Scientists, and was developed to prepare graduate students for science, technology, engineering, or mathematics (STEM) careers important to the DOE Office of Science mission.

SCGSR Topics for Biological and Environmental Research (BER) in the second (current) solicitation of 2019 include:

- (a) Computational Biology and Bioinformatics
- (b) Biomolecular Characterization and Imaging Science
- (c) Plant Science for Sustainable Bioenergy
- (d) Soil Microbiology
- (e) Environmental Systems Science
- (f) Atmospheric System Research
- (g) Earth System Modeling

Applications are due November 14, 2019



New BERAC Charge

Committee of Visitors (COV) to review BER processes for programmatic funding in the Climate and Environmental Sciences Division (CESD)



Office of Science Washington, DC 20585

OCT 1.5 2018

Dr. Gary Stacey
Endewed Professor of Plant Sciences and Biochemistry
National Center for Soybean Biotechnology
271 E Bond Life Sciences Center
University of Missouri
Columbia, MO 65211

Dear Dr. Stacey:

By this letter I am charging the Biological and Environmental Research Advisory Committee (BERAC) to assemble a Committee of Visitors (COV) to assess the processes used by the Climate and Environmental Sciences Division (CESD) within BIRE to manage CFSD research programs and its user facilities, the William R. Wiley Environmental Molecular Sciences Laboratory (EMSL) and the Almospheric Radiution Measurement (ARM) Climate Research Facility.

The COV should provide an assessment of the processes used to solicit, review, recommend and monitor proposals for research submitted to CESI) programs for PY2015 – FY2018. This includes funding at national laboratorics and universities and other activities handled by the program during this time period. It should also assess the quality of the resulting scientific portfolio, including its breadth and depth and its national and international standing. Additionally, the COV should also assess the division's management and oversight of the ARM and EMSL user likelities for the same time period. Specifically, I would like the panel to consider and provide an evaluation of the following:

- For both the DOE national laboratory projects and university grants, assess the efficacy
 and quality of the processes used by CESD programs during the past three years to:
 a) solicit, review, recommend and document application and proposal actions, and
 b) mention active awards, projects and programs.
- Within the boundaries defined by DOE mission and available funding, comment on how the award process has affected: a) the breacth and depth of the portfolio elements and, b) the national and international starting of the portfolio elements.
- For the ARM and EMSL user facilities, assess the division's management and oversight of these facilities, including facility operations tracking and review, user proposal solicifation, review and recommendation procedures.

For CESD research programs, topics to be investigated can include but are not limited to: the selection of an adequate number of qualified reviewers who are free from bias and/or conflicts of interest; use of the Office of Science merit review criteria; adequacy of documentation; characteristics of the award portfolio; usofuness of progress reports on previously funded research; quality of the overall technical management of the program, relationships between award decisions, program goals and the DOE mission; significant impacts and advances that



us COV review and are demonstrably linked to DOE f the program to recommendations of the previous COV review.

cess to all program documentation completed during the period tons, proposals, review documents and other requests. COV teri discretion, a representative sample of the program portfolio 2 may suggest a sample of actions, including new, renewal and reposals, awards and declinations. In addition, COV members through a random selection process.

e COV have significant expertise across all covered areas within pertise not rely upon one person alone. A second requirement is committee receives no direct research support from DOE. A 25 percent of the members receive no direct support from DOE, ing (e.g., application or proposals under review, progress report orgam under review will not participate as a COV member for members of a COV, may be selected from a previous COV. At a member of BBRAC. The committee should be balanced and lifted reviewers from academia, DOE national laboratories, other utities, and other appropriate institutions. The BERAC chair of other belance factors including, institution, geographic region, DV should constitute an exceptional group of internationally ac research expertise in the program areas within the CESD as DE programs. Additional guidance on COV reviews within the thrp://science.energy.gov/sec/zecommittees-of-visitors/ and

he third quarter of FY2019 (Summer 2019) in Germantown, COV report by BERAC should be held no later than the Fall ng acceptance of the full BERAC membership, the COV report ons is to be presented to me, as the Acting Director, Office of

ling this charge, please contact Gary Geernaert, 301-903-3281 or ence doe.gov.

Sincerely,

Benkler

J. Stephen Binkley Deputy Director For Science Programs Office of Science



Thank you!