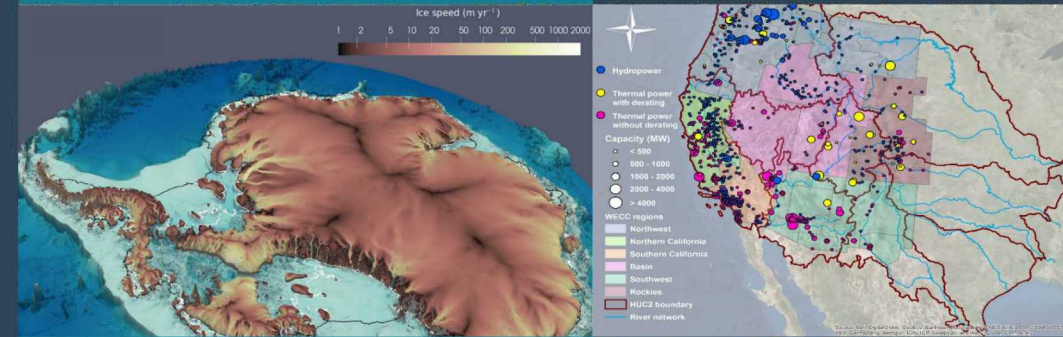


SANDIA BER PROGRAM REVIEW



PRESENTED BY

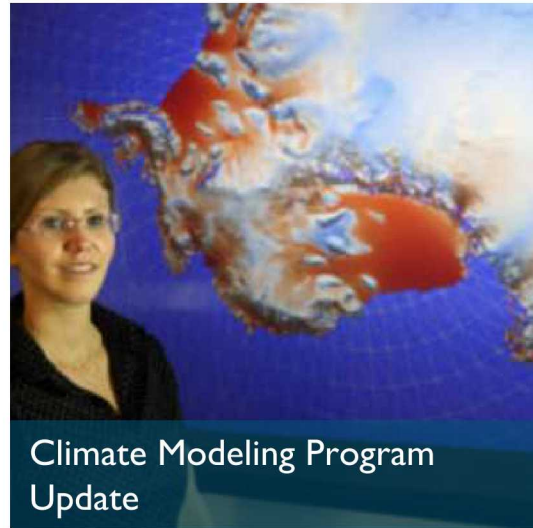
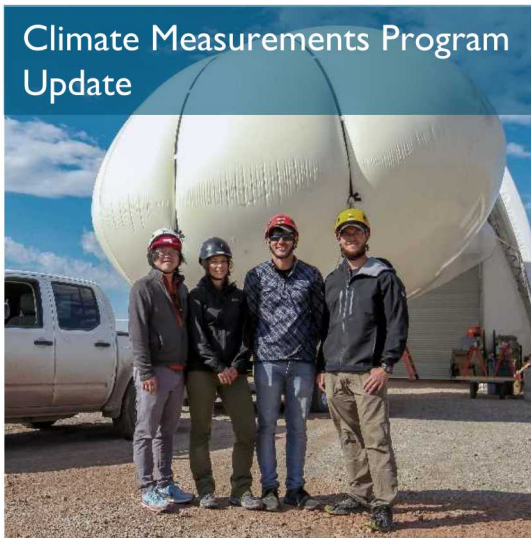
Carol L. Adkins

Director, Secure Energy and Earth Systems Program

October 22, 2019



Sandia National Laboratories is a multimission laboratory managed and operated by National Technology and Engineering Solutions of Sandia LLC, a wholly owned subsidiary of Honeywell International Inc. for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-NA0003525.



SANDIA ATTENDEES



Carol L. Adkins

Director
Secure Energy &
Earth Systems Program
cladkin@sandia.gov



Anup Singh

Director
CBRN Defense & Energy
Technologies
aksingh@sandia.gov



Scott Collis

Director
Computing Research
sscoll@sandia.gov



Erik Webb

Senior Manager
Geoscience Research
& Applications
ekwebb@sandia.gov



James Stewart

Senior Manager
Computational Sciences
& Math
jrstewa@sandia.gov



Joe Hardesty

Technical Staff
Atmospheric Sciences
joharde@sandia.gov



Andy Salinger

Manager
Computational
Science
agsalin@sandia.gov



Vince Tidwell

Technical Staff
Energy Water System
Integration.
vctidwe@sandia.gov



Paul Bryan

Senior Scientist
CBRN Defense & Energy
Technologies
pfbryan@sandia.gov



Chuck Smallwood

Technical Staff
Molecular and Microbiology
crsmall@sandia.gov



Joseph Schoeniger

Manager
Systems Biology
jsschoe@sandia.gov



Todd Lane

Technical Staff
Systems Biology
twlane@sandia.gov

Sandia's BER CESD Related Work



Increased capabilities and recognized use of tethered balloon systems for mobile atmospheric measurements



Chris Fall visit to North Slope



Kelsey DiPietro awarded Fellowship for her proposed work to make computer models more efficient.



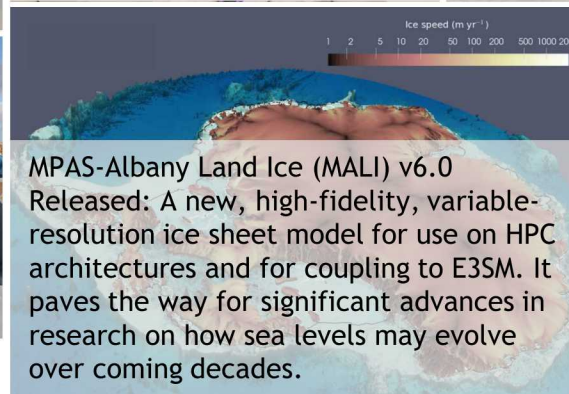
The White House released highlights of 2018 Administration S&T achievements and included the E3SM code release.



Fran Ullmer Engagement



Workshops with UAF on U.S. HARC



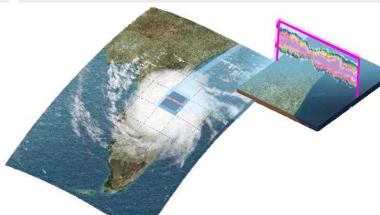
Now running HOMMEXX code on 24576 GPUs, 90% of the OLCF Summit machine: solves atmosphere dynamics on an ultra-high "cloud-permitting" resolution (much higher than previously possible) with 3-km grid spacing using Kokkos for performance portability.

Arctic Science & Security Initiative publication

Arctic/Climate LDRD investments

Participation in MOSAiC

Investments to monitor and characterize the full atmospheric column, coastal permafrost erosion, and ice pack location and scale.



Sandia's BER BSSD Related Work

Genomic Security:

Briefings to Chris Fall and Dan Brouillette during their visits to Sandia

Sandia briefings to Congressional staffers (on request), Steve Black (DOE-IN) and Intelligence Community

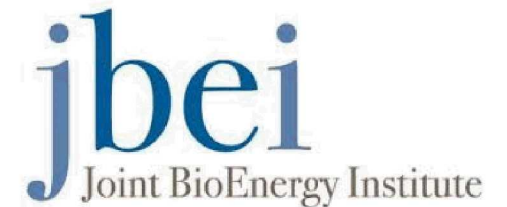
Number of publications on genomic data security, detection of signatures of engineering/gene editing, and discovery of inhibitors.



JBEI:

Discovery of an early-stage but promising pretreatment process

Award of a new TCF project with Lanzatech to commercialize high-throughput microfluidic cell-free reactor platform



Others:

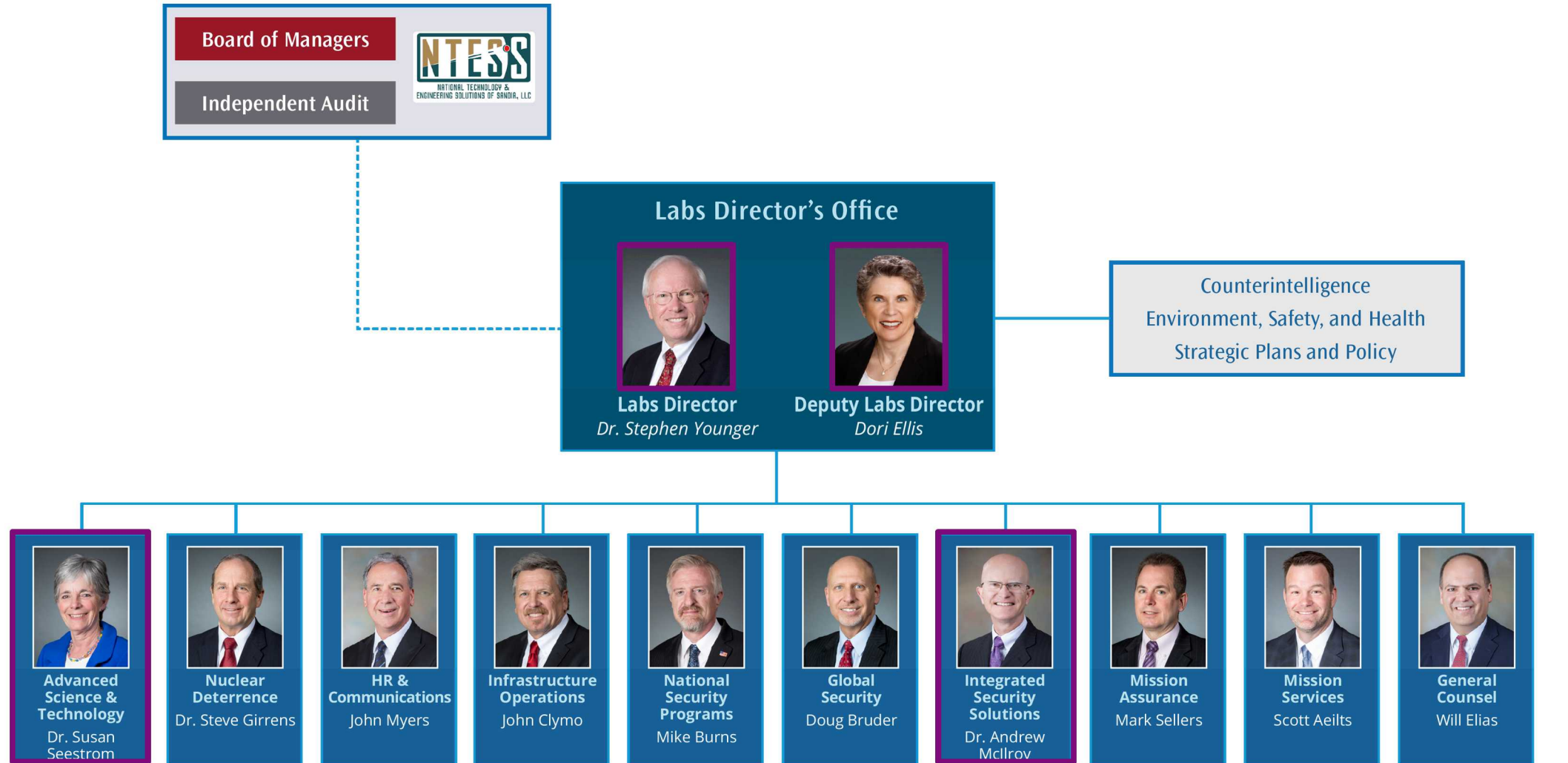
Sandia a partner in new SFA funded led by LBNL (m-CAFÉ)

Two Sandians (Seema Singh and Bradely Dickerson) serving on OSTP-led Bioeconomy panel



LEADERSHIP CHANGES

5



Two Sandia Associate Lab Directors and four Sandia Directors connected to BER Programs



Andrew "Andy" McIlroy
Associate Labs Director
Integrated Security Solutions



Susan Seestrom
Associate Labs Director
Advanced Science & Technology



Anup Singh
Director
Chemical, Biological,
Radiological,
Nuclear Defense
& Energy Technologies



Carol Adkins
Director
Energy, Earth,
& Complex
Systems



Paul Bryan
Senior Scientist
CBRN Defense &
Energy Technologies



Erik Webb
Senior Manager
Geoscience Research
& Applications



U.S. DEPARTMENT OF
ENERGY

Office of Science

BIOLOGICAL &
ENVIRONMENTAL RESEARCH

BASIC ENERGY SCIENCES

OFFICE OF SCIENCE PROGRAMS



Scott Collis
Director
Center for Computing
Research



Grant Heffelfinger
Director
Energy & Homeland
Security Program
Management



Jim Stewart
Senior Manager
Computational Sciences
& Math Group



BER'S SCIENTIFIC GRAND CHALLENGES

7

enhance many of Sandia's Research Foundations

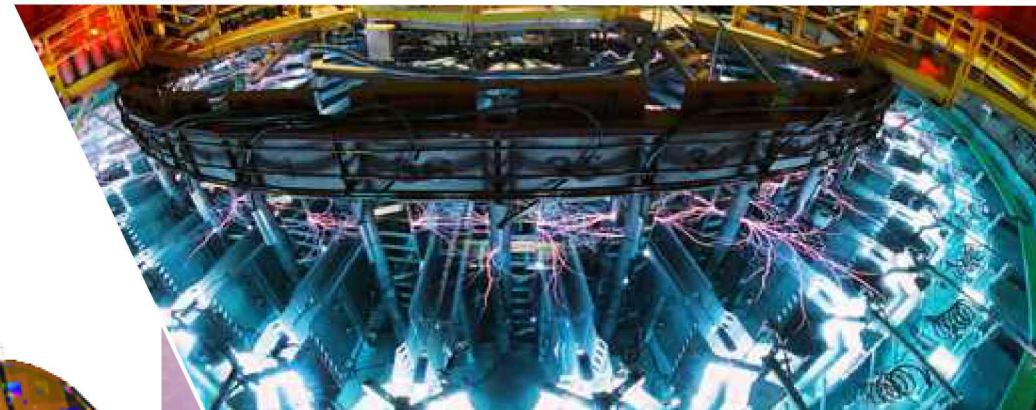
Key: ● BER-CESD ● BER-BSSD



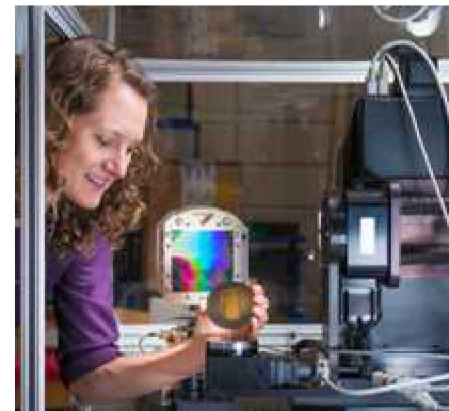
Nanodevices & Microsystems



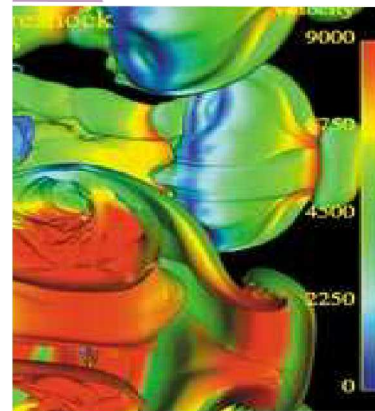
Computing & Information



Radiation Effects & High Energy Density Science



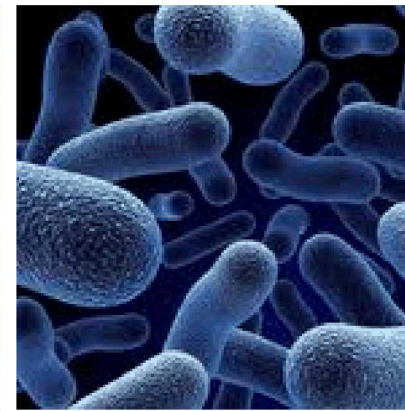
Materials Science



Engineering Science



Earth Science



Bioscience



Strategic alignment to Sandia Research Foundations
allows us to magnify our offering to BER and leverage
the full-suite of capabilities across the lab.

