

SANDIA BER PROGRAM REVIEW



PRESENTED BY

Carol L. Adkins

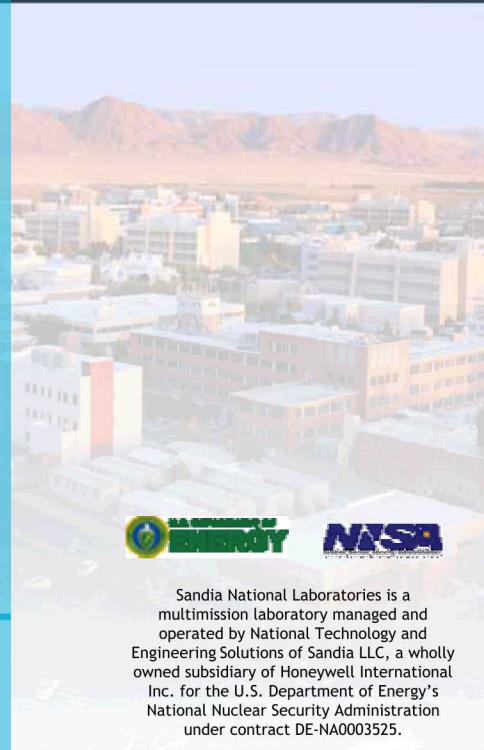
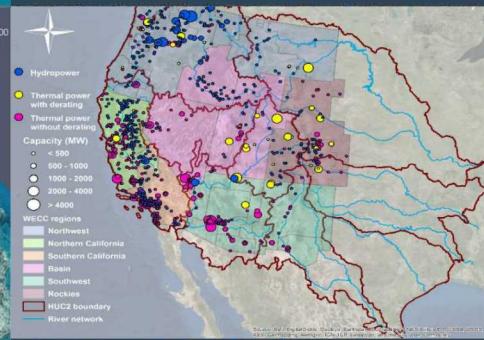
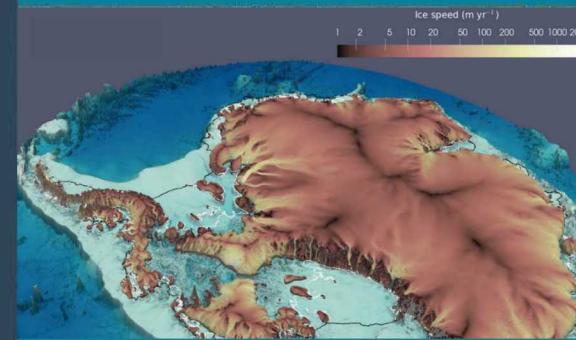
Director, Secure Energy and Earth Systems Program
October 22, 2019



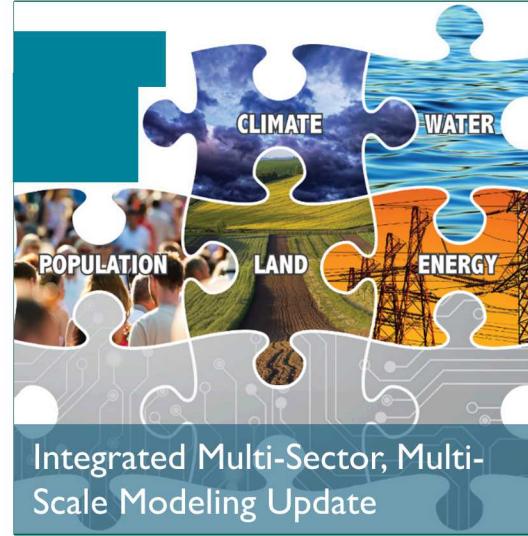
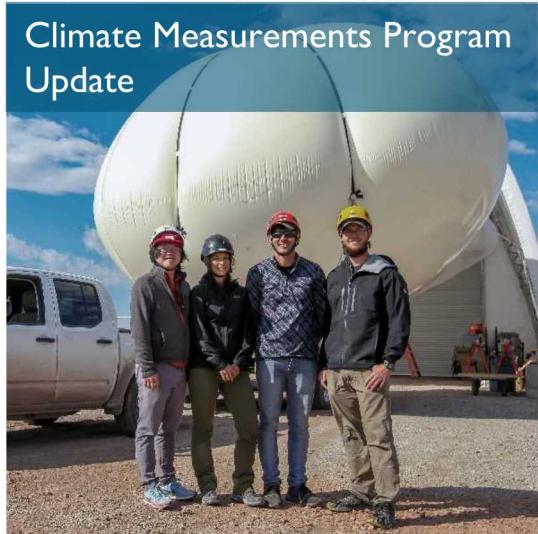
Sandia
National
Laboratories



Office of Science



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SANDIA ATTENDEES



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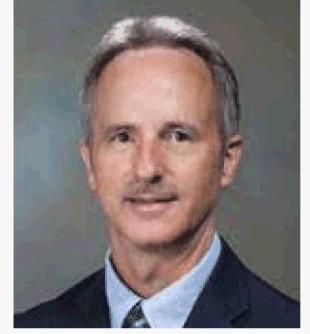
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Todd Lane

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UPDATES SINCE OUR LAST MEETING

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.

Office of Science and Technology Policy

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



Fran Ullmer Engagement



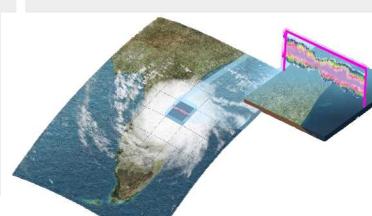
Workshops with UAF on U.S. HARC



Arctic Science & Security Initiative publication

MPAS-Albany Land Ice (MALI) v6.0
Released: A new, high-fidelity, variable-resolution ice sheet model for use on HPC architectures and for coupling to E3SM. It paves the way for significant advances in research on how sea levels may evolve over coming decades.

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



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.

Sandia's BER BSSD Related Work

Genomic Security:

Briefings to Chris Fall and Dan Brouillete 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:

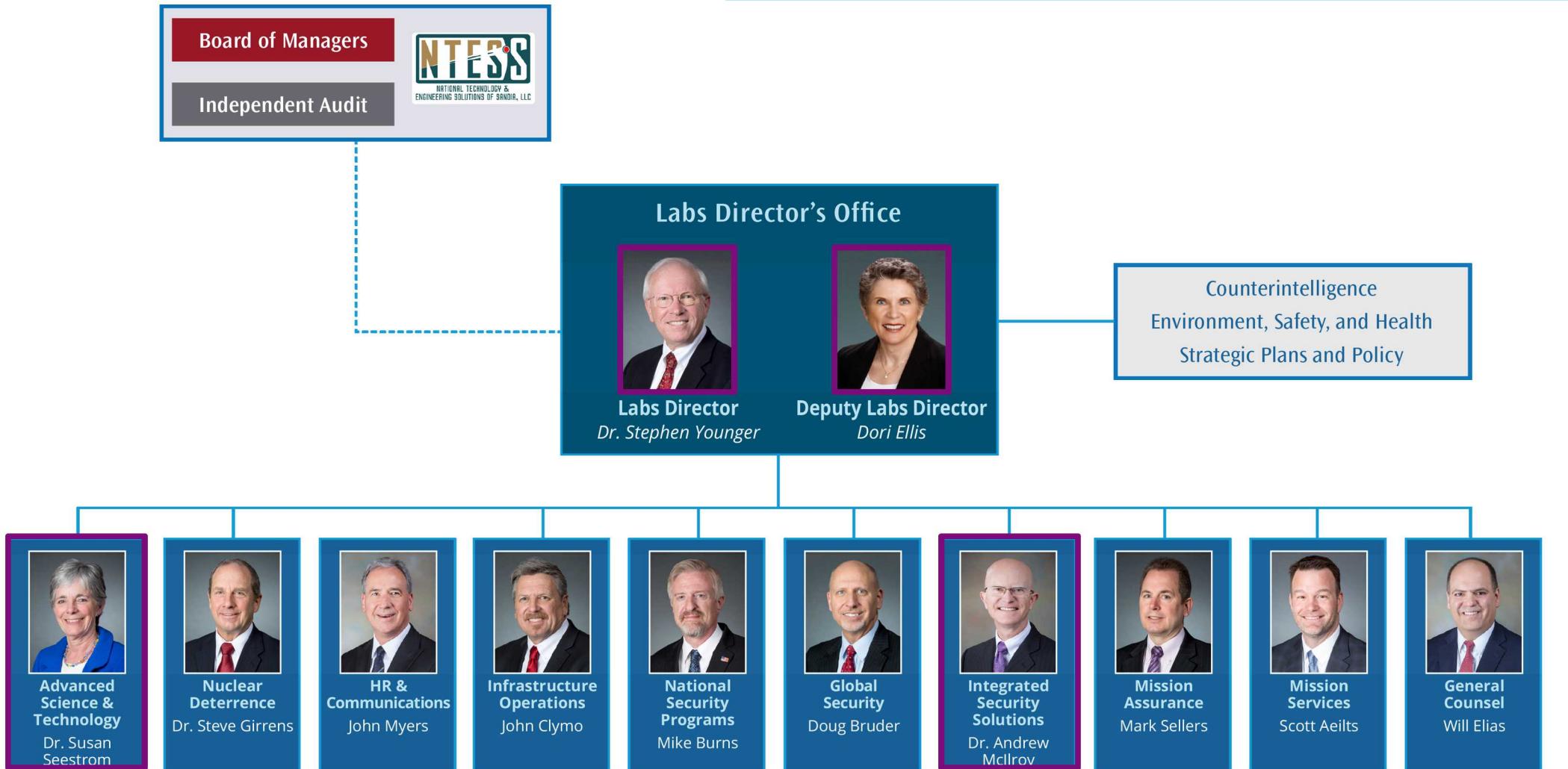
Discovery of an early-stage but promising pretreatment process

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

jbei
Joint BioEnergy Institute

LanzaTech

BERKELEY LAB



SANDIA'S BER PROGRAM LEADERSHIP



Andrew "Andy" McIlroy
Associate Labs Director
Integrated Security Solutions



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



Paul Bryan
Senior Scientist
CBRN Defense &
Energy Technologies



Carol Adkins
Director
Energy, Earth,
& Complex
Systems



Erik Webb
Senior Manager
Geoscience Research
& Applications

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



Susan Seestrom
Associate Labs Director
Advanced Science & Technology



Scott Collis
Director
Center for Computing
Research



Jim Stewart
Senior Manager
Computational Sciences
& Math Group



Grant Heffelfinger
Director
Energy & Homeland
Security Program
Management



**U.S. DEPARTMENT OF
ENERGY**

Office of Science

BIOLOGICAL &
ENVIRONMENTAL RESEARCH

BASIC ENERGY SCIENCES

OFFICE OF SCIENCE PROGRAMS

BER'S SCIENTIFIC GRAND CHALLENGES

enhance many of Sandia's Research Foundations



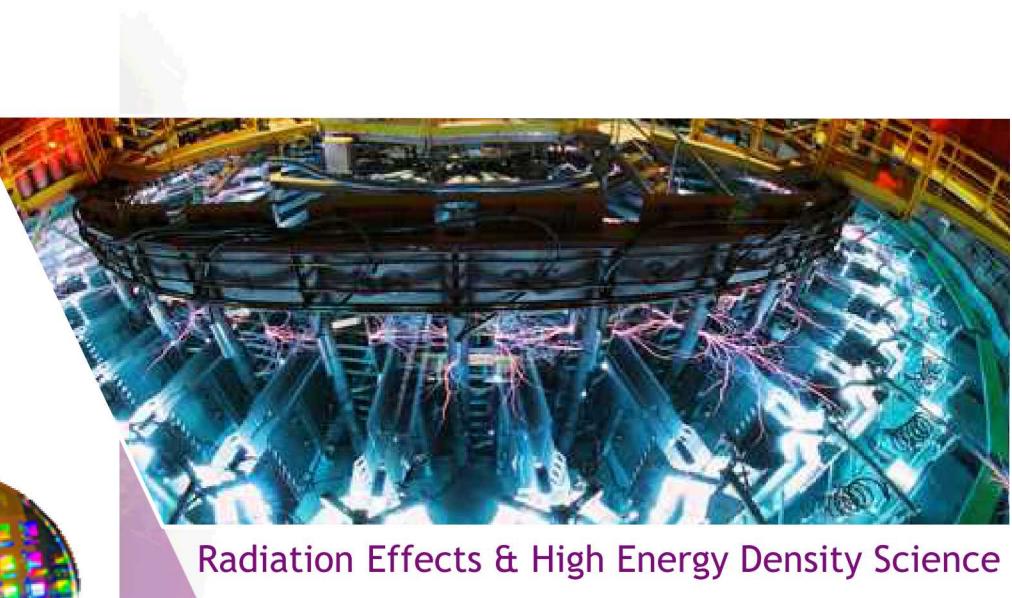
Nanodevices & Microsystems



Computing & Information



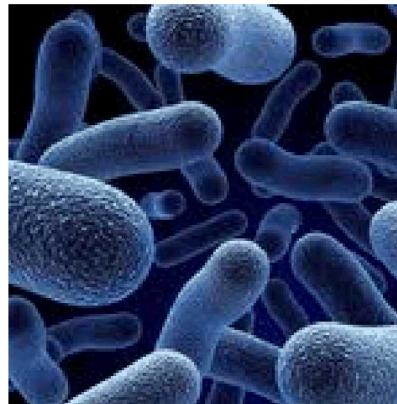
Engineering Science



Radiation Effects & High Energy Density Science



Earth Science



Bioscience

Key: ● BER-CESD
● BER-BSSD

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

