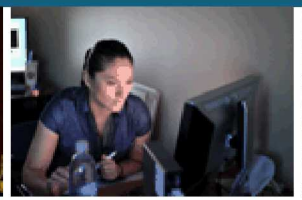
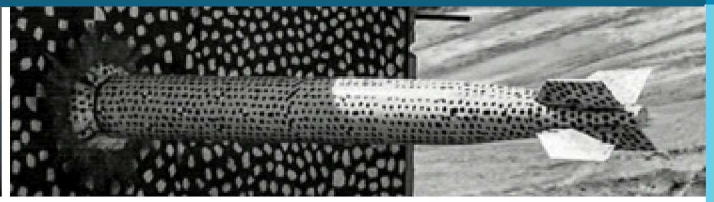
SAND2019-11990C

Lidar and Radar Remote Sensing at Sandia National Laboratories





Ray Bambha

Sandia National Laboratories

925-294-3391

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DOE-ARM Operational Remote Sensing Measurement Locations

North Slope of Alaska

Southern Great Plains

Eastern North Atlantic

Equator

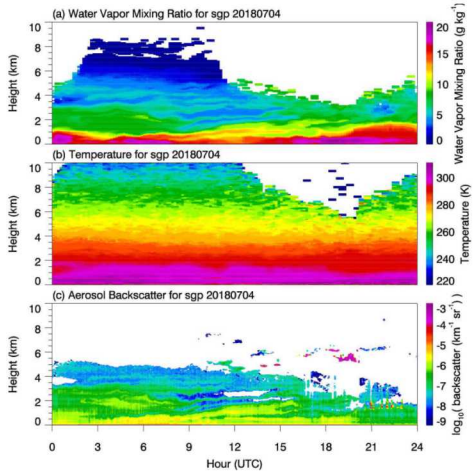
ARM Site

Other Facilities and Deployments

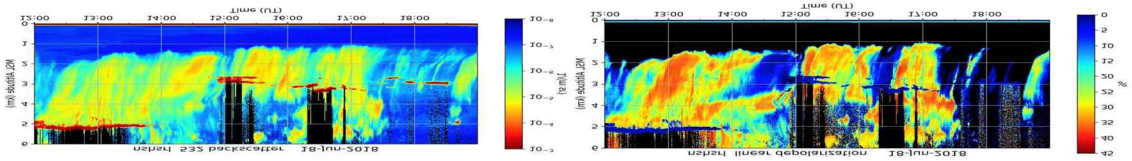
See:
https://www.arm.gov/tour/

Atmospheric Lidar Mentorship for the DOE-ARM Program

Raman Lidar profiling of water vapor, aerosols, and temperature



High Spectral Resolution Lidar for detailed profiling of aerosols



Upgrade in progress: dual wavelength and scanning capabilities in 2020

Potential areas for collaboration:

- **New combined-measurement retrieval algorithms for clouds and aerosols**
- **Studies of atmospheric phenomena and climate model validation**

Radar ISR Solutions

3+ decade solutions for security prob

- All Weather, Da Night
- High Resolution, ical-like
- On-board and R time Processing
- Flexible platform d TPED (Tasking, Processing Exploitation and Dissemination) iguration

perience delivering pathfinder ISR plex, critical and urgent national s (FFRDC)

High Resolution SAR/VideoSAR

High Resolution CCD/VideoCCD

Sandia Ra www.sandia.gov/radar/

Mission Solutions

- Provider of
  and informa
  - **Mission Engi**
    - Pre-Missio
    - Highly custo
    - Continuous
    - Analyst Traini
  - **Real-time Proce**
    - Real-time De
    - Image Forma
    - Change Det
    - Transmission
  - **Advanced Ser**
    - Predictive
    - Human
    - Adva
  - **Analyst**

solutions that leverage physics, engineering, and data
ce to support national security decision making

& Flight Planning
TPs and CONOPs
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AR phenomenology

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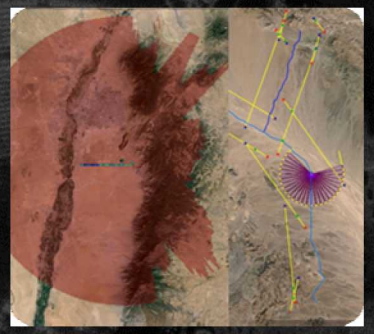

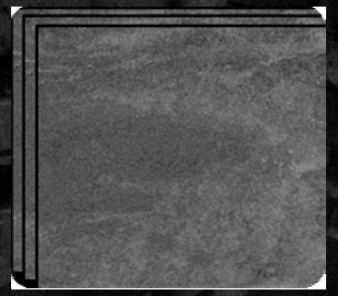


ration into Processing Exploitation and Dissemination cycle is diffic

Hard Problems

- Ultra-w nd software defined RF detection capabilities
- Real tim y size weight and power processing
- Effective d efficient human machine interfaces
- Extractio information from physics represented by SAR imagery
- Ultrawide nd, high-frequency planer antenna technologies
- Complex ttering signature analysis and measurements
- Integrati f next generation system on a chip FPGA capabilities

Contacts:

r. Steven Castillo, Sr. Manager, Radar ISR Systems
andia National Laboratories
ocasti@sandia.gov, (505) 284-3500

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Sandia National Laboratories