

# Signatures from Undeclared Activities and Inaccessible Facilities

Thrust Area 4 Summary

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# Challenges and Gaps

Global Monitoring Networks

Treaty on the Non-Proliferation of Nuclear Weapons (NPT)

## GAPS & CHALLENGES

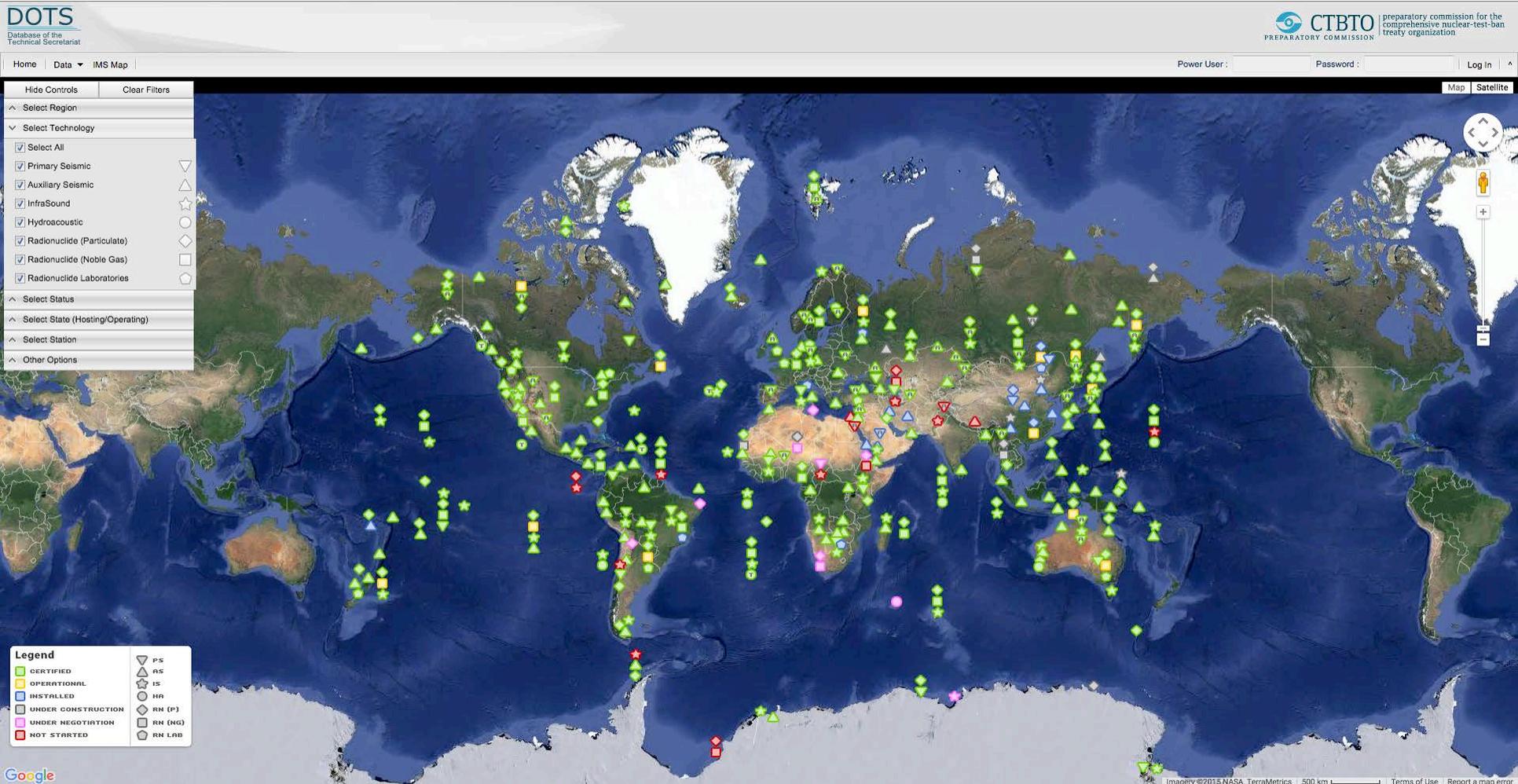
- Detect, identify, and characterize nuclear explosions
- Collect data under Additional Protocol
- Respond to evolving missions and emerging threats
- Modernize tools and sensor systems

## CVT Thrust Area

**Undeclared Activities and Facilities**



# International Monitoring System



Consortium for Verification Technology



# CVT Thrust Area Four

## Signatures

### Seismology

PI: Paul Richards, Columbia University, richards at Ideo.columbia.edu

Fellows: Michael Howe (Ph.D.), PostDoc: Lucia Gualtieri

Researchers: Won-Young Kim, Göran Ekström, David Schaff

Associated Investigators: Howard Patton, LANL,

Bill Walter and Mike Pasyanos, LLNL,

Chris Young, SNL, Philippe Lognonné, University of Paris

### Infrasound

PI: Milton Garces, T4 Lead, University of Hawaii, milton at isla.hawaii.edu

Fellows: Anthony Christe (Ph.D.), Karina Asmar (Ph.D.)

Julie Schnurr (MS)

Associated Investigators: Steven Magana-Zook and Jessie Gaylord, LLNL,

Arthur Rodgers and Keehoon Kim, LLNL, David Chichester, INL,

Il-Young Che, KIGAM



# CVT Thrust Area Four

## **Radionuclide Atmospheric Transport**

PI: John Lee, University of Michigan, jcl at umich.edu

Fellows: Matthew Krupcale (Ph.D.), Megan Harkema (Undergrad)

Associated Investigators: Theodore Bowyer, PNNL; Matthew Simpson, LLNL

## **Radioxenon Detection**

PI: Abi Farsoni, Oregon State University, abi.farsoni at oregonstate.edu

Fellows: Steven Czyz (PhD), Harish Gadey (PhD),  
Nadeem Shaheen (undergrad)

Associated Investigators: Justin McIntyre and Mitchell Myjak, PNNL

## **Simulations of Fuel Cycle Monitoring**

PI: Paul Wilson, University of Wisconsin, paul.wilson at wisc.edu

Researchers: Baptiste Mougnot

Fellows: Kathryn Mummah (PhD)

Associate: Arrielle Opotowsky (PhD)

Associated Investigator: Tom Atwood (SNL)



# CVT Thrust Area 4 Objectives, FY18

- Pursue DNN R&D Objectives: “Detect, identify, locate, and characterize foreign nuclear weapons program activities, illicit diversion of special nuclear materials, and global nuclear detonations”
- Address technological gaps and challenges in treaty monitoring and verification
- Modernize sensors systems and cyberinfrastructure for prompt event identification and characterization
- Collaborate with National Laboratories
- Train the next generations of scientists to addresses national and international security challenges

