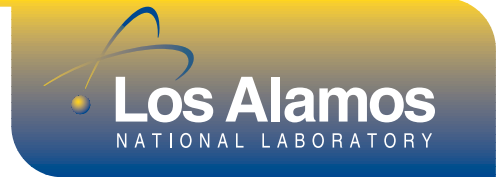


Threat Reduction



Program Profile

The Los Alamos Threat Reduction Directorate ensures the development and application of cutting-edge science and technology to reduce threats to our national and homeland security. The Directorate's mission is to:

- Prevent, detect, assess and respond to threats of the proliferation and/or use of weapons of mass destruction by nations or sub-national groups
- Enable U.S. arms control initiatives
- Enable innovative, nonnuclear responses to unconventional and military threats to help secure our nation's infrastructure

The Laboratory's threat reduction efforts fall into six focus areas:

Countering Proliferation and Terrorism

Los Alamos' approach combines detection, characterization and response technologies into systems that can be deployed by agencies charged with responding to terrorist events. Los Alamos continues its long-standing involvement with the Department of Energy's Nuclear Emergency Support Team and conducts work to address the problem of cyber-terrorism. Current efforts include:

- Developing chemical and biological detection technology
- Developing a bioagent DNA database
- Integrated early warning systems for detection, identification and nationwide alerts
- Techniques for homeland defense against terrorism

Preventing Proliferation of Weapons of Mass Destruction

Los Alamos has a critical role in:

- Developing technologies and expertise to assess foreign nuclear weapons programs and to support arms-control and treaty negotiations
- Creating advanced sensors and detection and analysis technologies for use in monitoring and verification activities
- Developing nuclear safeguards for national and international use
- Combating nuclear smuggling and terrorism
- Addressing proliferation threats from chemical and biological weapons of mass destruction
- Mitigating threats to our nation's infrastructure

- Examining urban security and the relationship between urban infrastructure and the natural environment

Aiding Defense Transformation

Los Alamos has long-standing relationships with the Department of Defense and the Missile Defense Agency, among others, to meet next-generation military needs.

The Laboratory-developed innovative technologies that will be required to meet future military challenges on the following three principal levels:

- Large-scale, cross-border aggression
- Violence and civil strife
- Trans-national dangers, especially from terrorism

To counter these, defense research at Los Alamos is making notable advances:

- Munitions research and development
- Energetic materials
- Initiation systems
- Computational mechanics
- Modeling and simulation
- Warhead subsystems
- Intelligence, surveillance and reconnaissance systems

Reaching Out to Russia

Since 1994 Los Alamos has played a pivotal role in U.S. efforts with Russia including:

- The Materials Protection, Control and Accounting Program which improves the security of all weapons-usable nuclear material in forms other than nuclear weapons in Russia, the newly independent states, and the Baltics
- Aiding in nuclear material disposition technologies and treaty support
- The Nuclear Cities Initiative and Initiatives for Proliferation Prevention, which convert nuclear weapons facilities and scientists in the former Soviet Union to non-weapons work
- Outreach from Los Alamos directly to counterpart institutions in Russia to preclude proliferation of materials and expertise that could be used in weapons of mass destruction



A handheld nuclear isotope detector, shown here with a Palm personal digital assistant interface, is designed for simple, widespread, first-responder use.

Understanding Infrastructure Vulnerabilities

The proven technical competencies at Los Alamos in computer modeling and simulation are critical to assess U.S. infrastructure vulnerabilities and to design and operate a more robust infrastructure. Laboratory strengths in these areas aid in understanding the linkages and synergy between related infrastructure areas. These capabilities include:

- Cyber-protection tools derived from systems to protect high-bandwidth computer communications
- Transportation flow modeling
- Detailed analysis and modeling of the national power grid
- The National Infrastructure Simulation and Analysis Center

Space Science: Crossing the Boundaries

The Los Alamos role in space spans both nonproliferation and pure space science through such satellites as FORTE, the Multispectral Thermal Imager and ALEXIS. Laboratory instrumentation is an integral part of the global positioning satellites, IMAGE, HETE, SWIFT, Cluster, Cassini, POLAR, TWINS, Genesis, Lunar Prospector, Mars Observer, Advanced Composition Explorer, Mariner, Ulysses and other NASA satellites.

The Lab's Center for Space Science and Exploration works to enhance national security while providing unique and valuable resources for the nation's space program. Through these programs, Lab scientists make contributions in arms control treaty support, magnetospheric imaging, space weather, gamma ray burst analysis and much more.

Quick Facts

What is Threat Reduction?

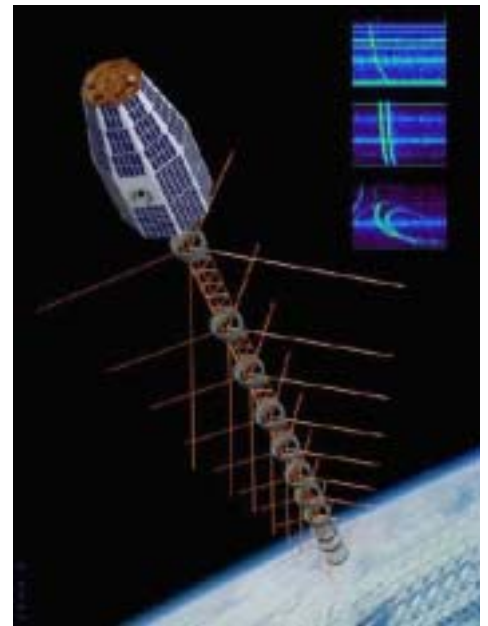
- The Threat Reduction Directorate includes four technical divisions and eight major program offices. The divisions are Bioscience, Nuclear Nonproliferation, Proliferation Detection and Monitoring, and Decision Applications. The program offices provide the Laboratory's customer interface with the non-defense parts of the Department of Energy and with other Federal agencies. They are Threat Response Operations, Nuclear Materials Management, Nonproliferation Programs, Research and Development, International Technology, Department of Defense Programs, and the Center for Space Science Exploration.

Staff

- Threat Reduction includes approximately 1,200 staff members.
- Researchers collaborate with scientists at universities, industrial firms, other government laboratories and international research centers.
- Directorate staff are spread across 10 technical areas on site and are on periodic assignments to the Former Soviet Union and elsewhere.

Budget and Funding Sources

- The Directorate's FY03 budget, including carryover from FY02, is approximately \$560 million.
- Approximately 50 percent of this budget is provided by the National Nuclear Security Administration and offices of the DOE.
- The remainder of the budget comes from numerous other sources, including the DoD, NASA, the Department of Homeland Security and other U.S. government agencies, as well as Laboratory Directed Research and Development funding.



The FORTE (Fast On-Orbit Recording of Transient Events) satellite is a Los Alamos designed, built and controlled satellite carrying an X-ray spectrometer that has unique applications in the study of lightning.

Since 1943, Los Alamos has created and applied advanced science and technology to solve critical challenges in national defense and civilian research.



Los Alamos National Laboratory is operated by the University of California for the U.S. Department of Energy's National Nuclear Security Administration

Associate Director for Threat Reduction Don Cobb
www.lanl.gov/orgs/tr

Communications contact: Nancy Ambrosiano nwa@lanl.gov