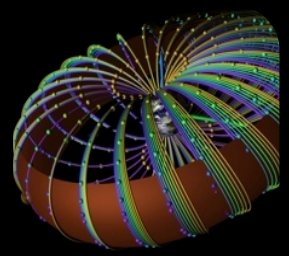
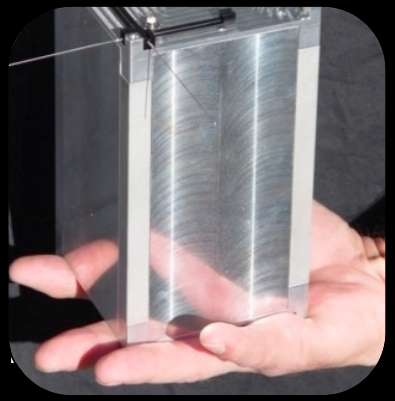
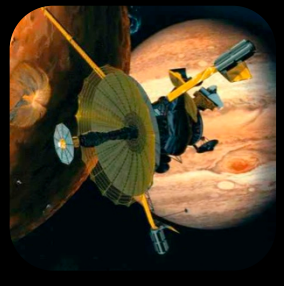
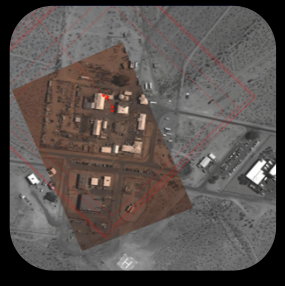






Global Security at Los Alamos:

Protect against the Nuclear Threat

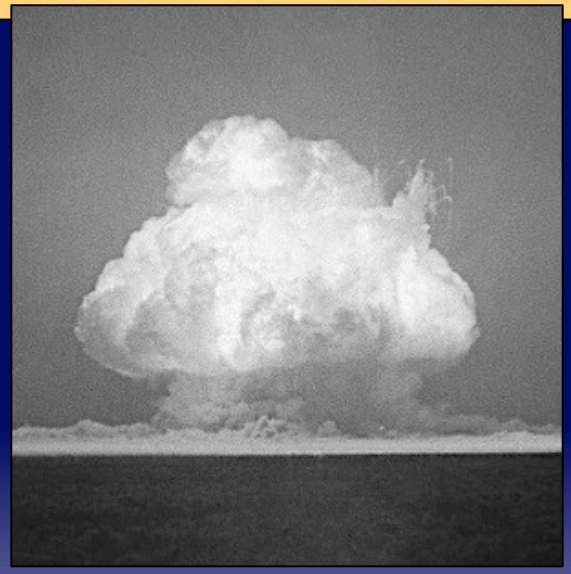
Scott Gibbs

Associate Director
for Threat Identification & Response

UNCLASSIFIED
LA-UR-13-24438

Los Alamos National Laboratory: Solving this nation's most crucial and complex challenges for 70 years

In 1943, Los Alamos was created for a single purpose: design and build an atomic bomb

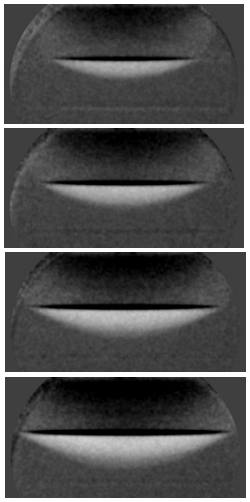


Today, Los Alamos shapes the future in supercomputing, satellite and space technology, renewable energy, and predictive materials.

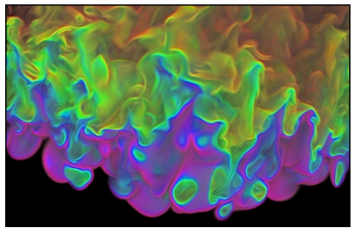
As a national security science laboratory, we

- Ensure a safe, secure, and effective nuclear deterrent
- Protect against the nuclear threat
- Solve energy security and other emerging national security challenges

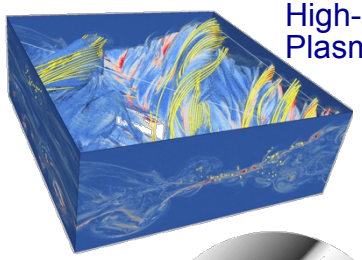
We use our unique combination of ST&E capabilities to support national security



Materials

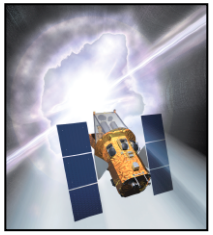


Computational Physics & Applied Mathematics

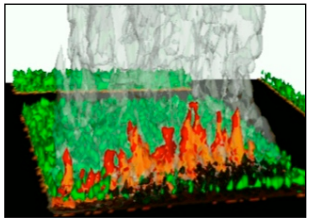


High-Energy Density Plasmas & Fluids

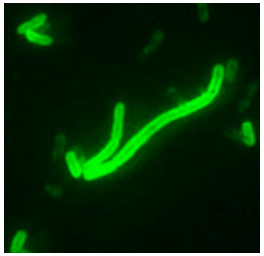
Accelerators & Electrodynamics



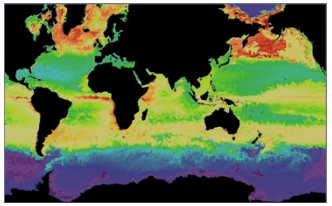
Science of Signatures



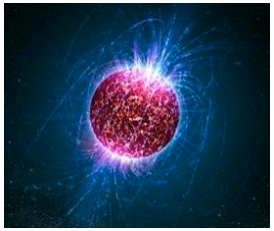
Earth & Space Sciences



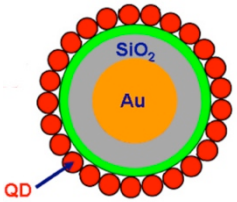
Biosciences



Information Science & Technology



Nuclear Physics, Astrophysics & Cosmology



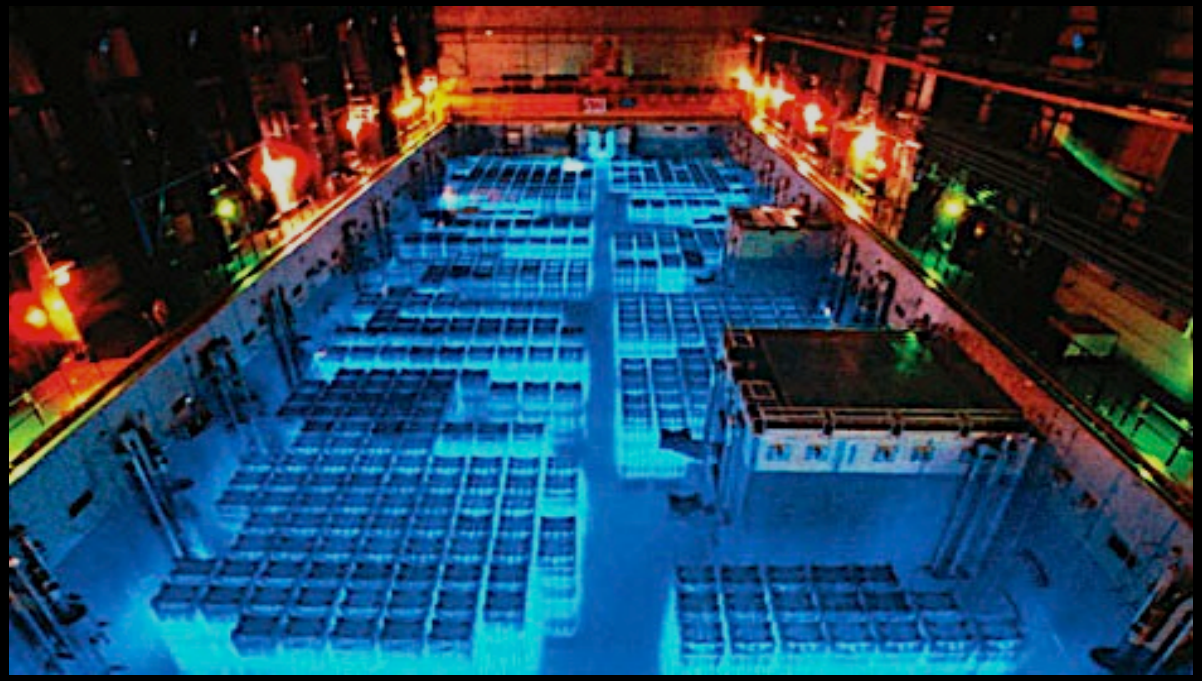
Chemical Science

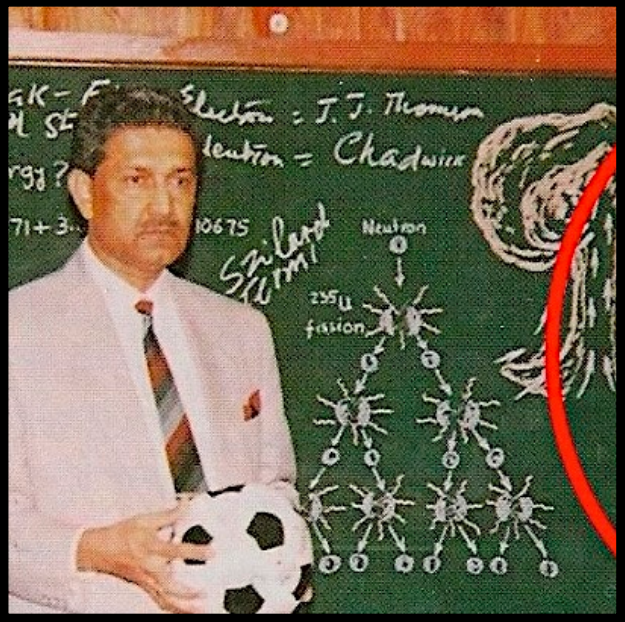
Computer & Computational Sciences

Weapons Science & Engineering

Nuclear Engineering and Technology

Foreign aspirations create a changing nuclear world

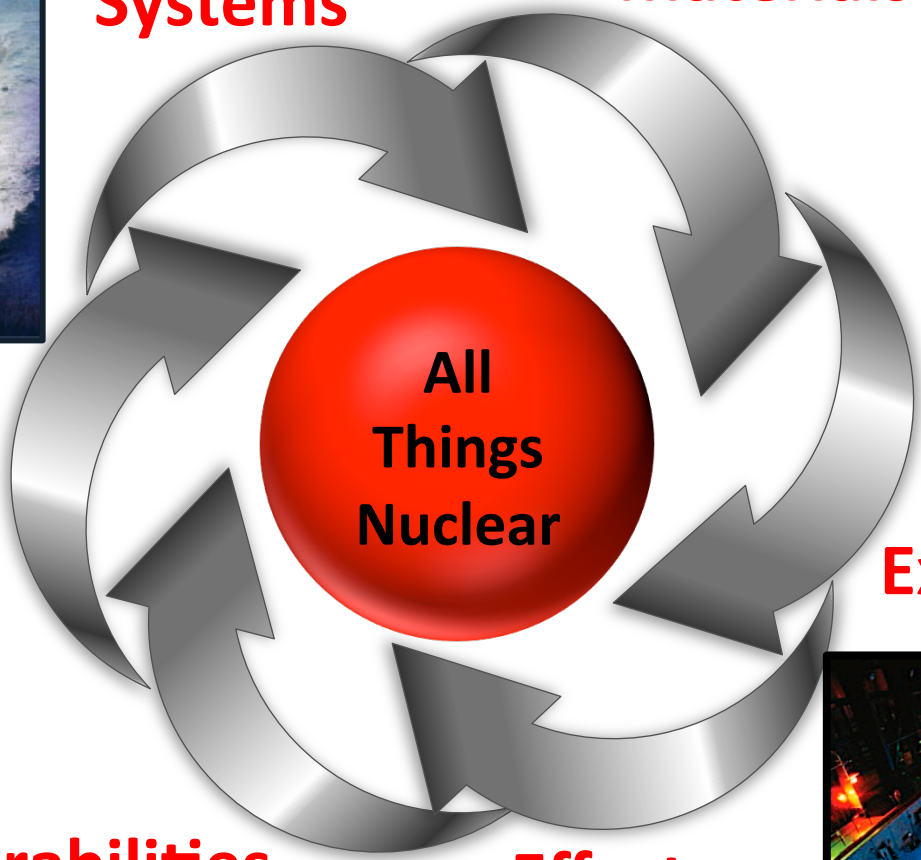




Los Alamos: All Things Nuclear

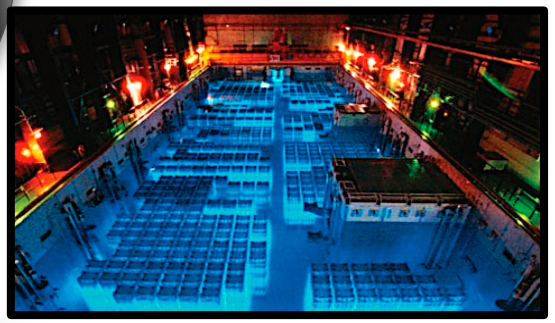
Systems

Materials



Radiological

Explosives



Vulnerabilities

Effects

Los Alamos Mission:
Protect against the entire spectrum of nuclear threats

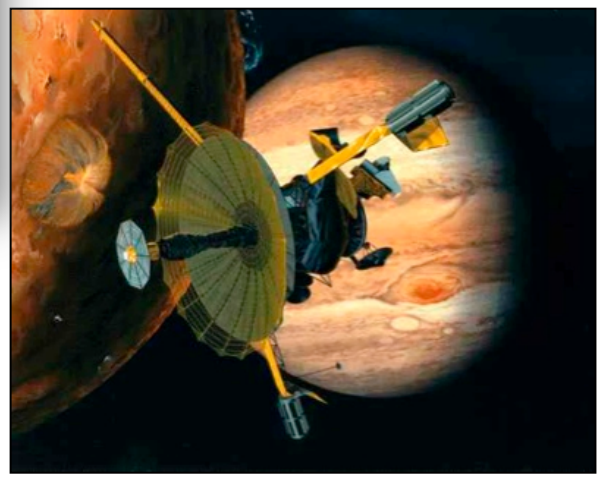
"We will provide expert knowledge and operational capability for counterterrorism, counterproliferation, and nuclear threat response—domestically and internationally."
US Department of Energy/NNSA Strategic Plan, 2011

GS Mission: Foreign Nuclear Weapons Assessments

GS Mission: Emergency Response

Exercises can occur anywhere—even onboard a warship—and participants may have only a few hours to prep and respond (photos from an exercise onboard the USS *Wasp)*.

GS Mission: Nuclear Nonproliferation



GS Mission: Emerging Threats


Climate Change


Major Force Improvements


Global Competition for Resources


Contested/Congested Space

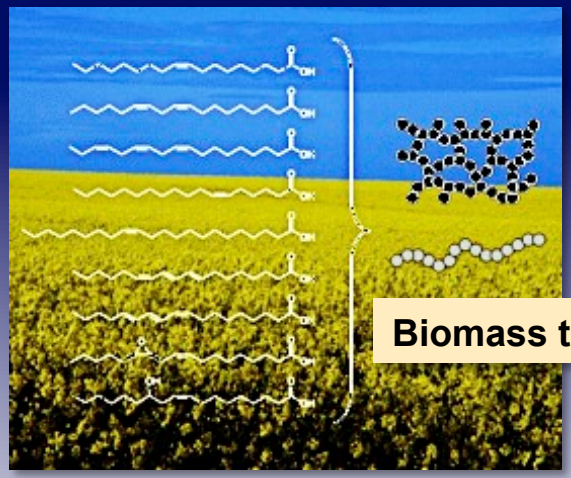

Alliances and International Relationships


Re-emergence of Confrontational Strategies

GS Mission: Energy Security

Muon Tomography at Fukushima

Deep Water Radiography in Gulf of Mexico

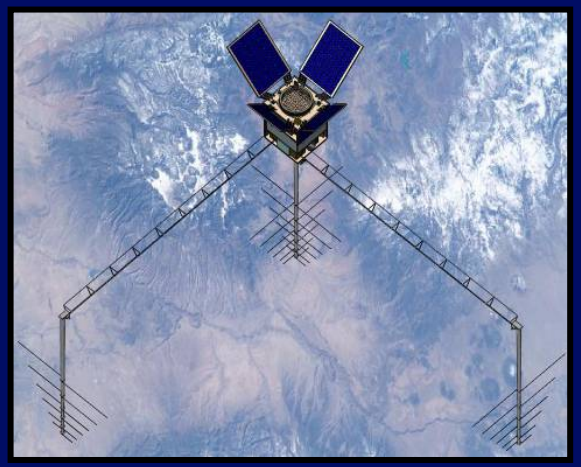


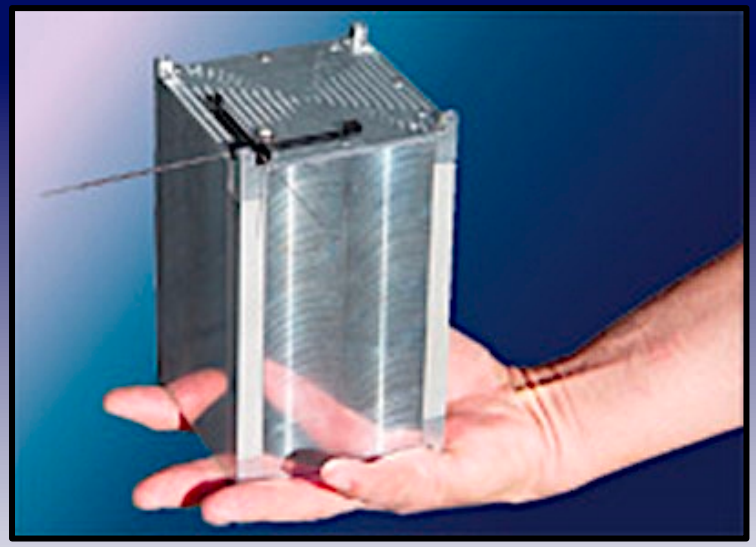
Biomass to Fuels

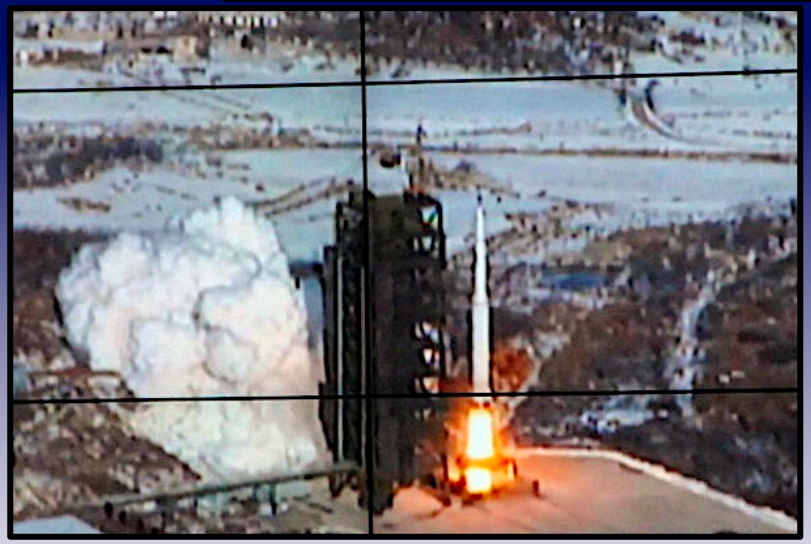
We addresses energy issues (from nuclear to agro-fuels) with a theme of reducing the threat of surprise

DUFF Experiment with Stirling engine for low-power space reactor

GS Mission: Intelligence & Counterterrorism

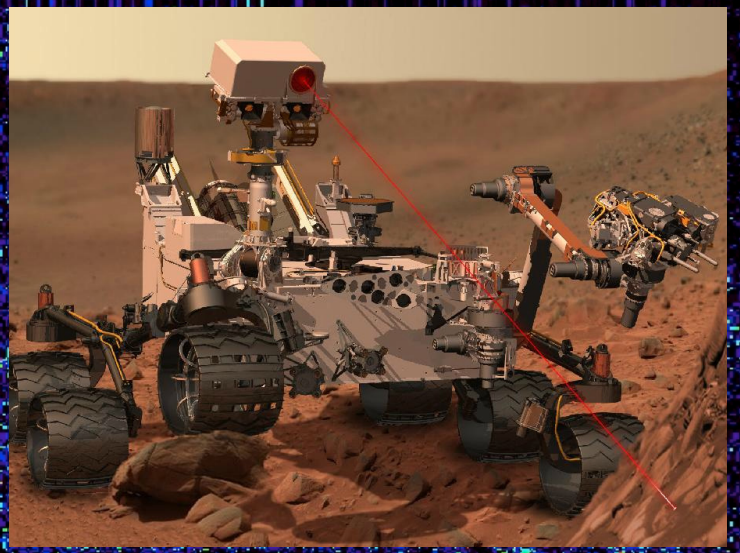


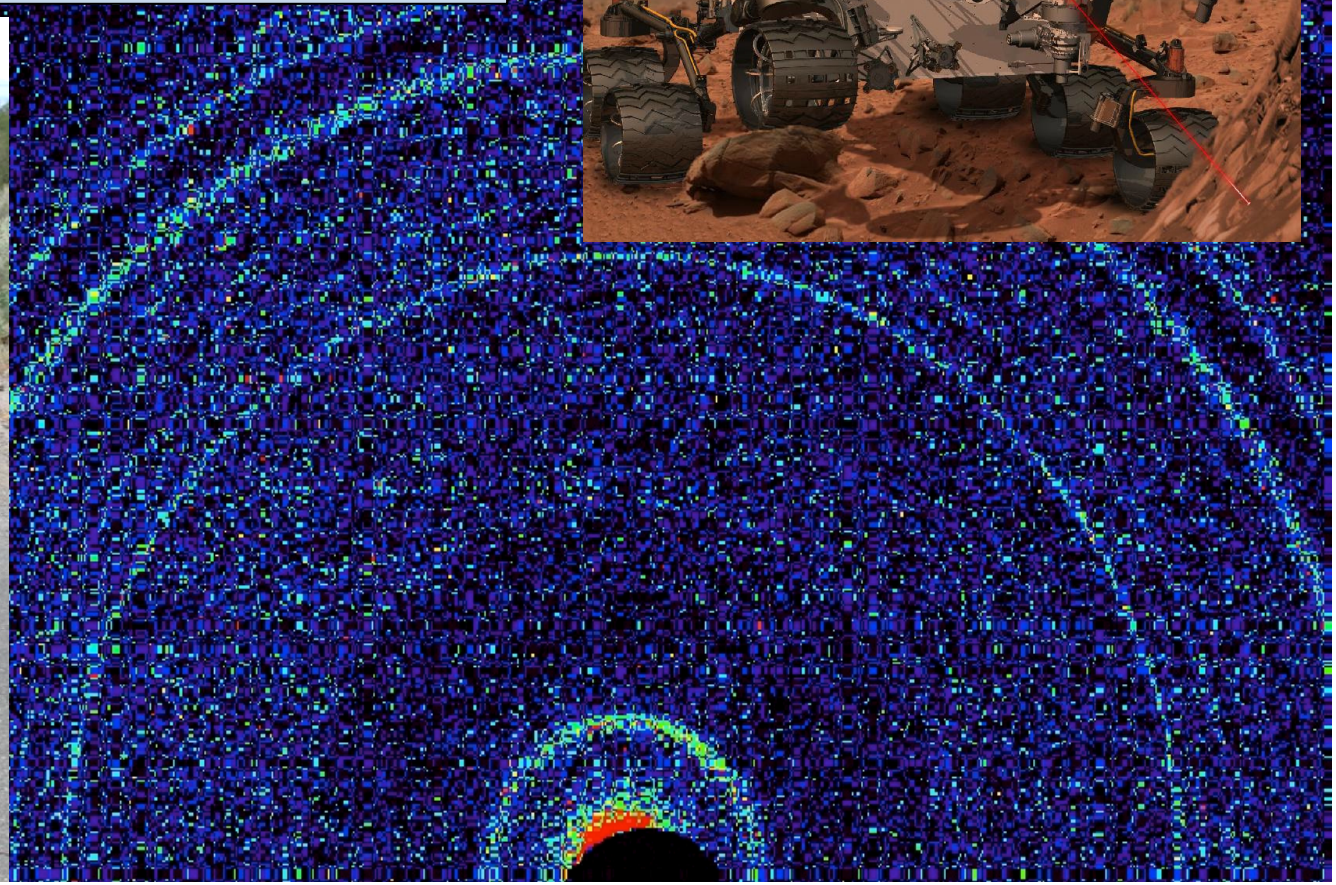




Global Security can be Interplanetary

Remote sensing and detection have applications everywhere – from Mars to nonproliferation, space, defense, and intelligence. *Curiosity* landed on Mars with Los Alamos technologies: two instruments and plutonium-238 canisters to provide power and heat.





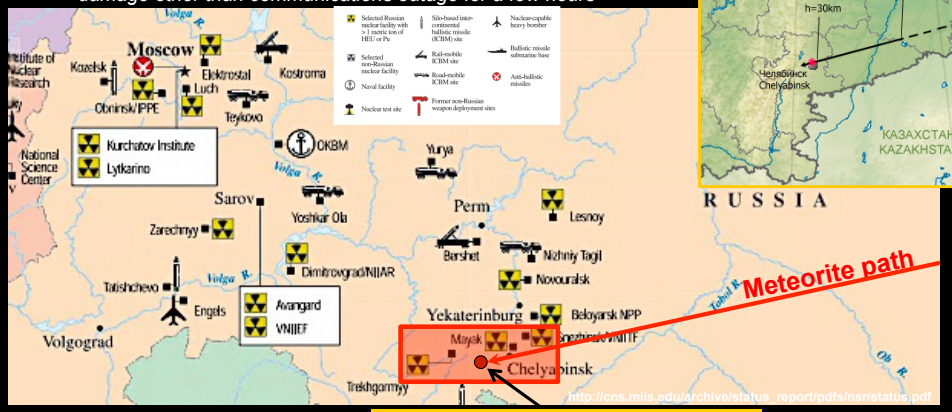
Los Alamos Global Security:
Relevant to today's headlines

Moore OK Tornado

Russian Meteor

Proximity of Nuclear Facilities in the former Soviet Union to the impact site

Sites in red box were close to 15 FEB 2013 Meteor impact, but no reported damage other than communications outage for a few hours



Lake Chebarkul Impact site

Fukushima, Japan

Global Security concerns for tomorrow