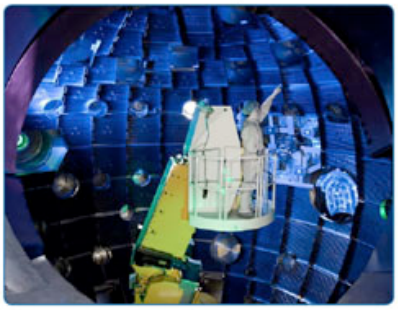
LIVERMORE LAB
REPORT

A weekly review of scientific and technological achievements from Lawrence Livermore National Laboratory, Feb. 20-24, 2012

SPIE A PATH TOWARD LIFE



Inside the NIF target chamber.

Mike Dunne joined the Laboratory in 2010 as program director for Laser Fusion Energy. This role includes leadership of the LIFE (Laser Inertial Fusion Energy) project, which is designed to build from fusion ignition at the National Ignition Facility at Lawrence Livermore. LIFE is an idea to provide commercially available fusion at the gigawatt scale to the United States.

To date, all of the capabilies needed to conduct implosion experiments and demonstrate ignition and burn at NIF by the end of 2012 are in place.

In a recent video, Dunne explains hurdles that have been overcome and challenges still remaining to achieve ignition.

To see the full interview, go to *SPIE*.

The Washington Post EXTREME WEATHER BECOMES THE NORM

Since 2006, four in five Americans have lived through extreme weather events ranging from unusually severe blizzards to torrential tropical storms to brutal droughts. A new report from Environment America, tailored to local areas, warns that global warming could lead to similar disasters becoming more common in the future.

A recent Laboratory report supports that assessment. Lab scientist Phil Duffy found that previously rare summer temperatures are already occurring more frequently in parts of the lower 48 states, and the models project these scorching temperatures will occur in well more than 50 percent of summers by mid-century.

The South, Southwest and Northeast are projected to experience the largest increases in the frequency of unusually hot summers.

To read more, go to *The* *Washington Post*.

Lab Manager MAGAZINE
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A RESETTLING AGREEMENT

The Lab has established a small garden project on Rongelap Island. The project assesses the uptake of nuclear fallout radionuclides into non-traditional locally grown foods such as leafy green vegetables.

Lab researchers and a team of American Indian scientists and engineers have partnered to study the possible use of Black Earth technology, or Cpryo, to help mitigate the uptake of radiocesium in locally grown foods in the Marshall Islands.

After World War II, the United States conducted 66 nuclear detonations between 1946 and 1958, on once-pristine inhabited atolls of Bikini and Enewetak in the northern Marshall Islands. The detonations contaminated the islands with radioactive fallout. Long-lived radionuclides such as radiocesium remain at different levels in indigenous terrestrial plants that may be used as food.

To help reduce levels of radiation exposure and support ongoing efforts by Marshall Islanders to resettle their ancestral homelands, the contaminated coral soils need to be remediated as a best practice under the general principles of ALARA – As Low As Reasonably Achievable.

To read more, go to *Lab Manager*.

DefenseNews INTO THE CLOUDS

JCATs simulations may become part of the cloud browser system. In a JCATs system, buildings and other urban features are added onto terrain maps. In this example (Sarajevo) individual buildings can be seen.

The Lab developer of the JCATS (Joint Conflict and Tactical Simulation) system has launched a two-year effort to see whether the U.S. military's bedrock constructive simulation can be moved to a cloud-and-browser system.

Cloud JCATS is an "interesting concept," but it remains to be seen whether the idea will prove viable, according to Lauri Dobbs, JCATS program manager at Lawrence Livermore, which first developed the simulation in 1997.

JCATS is used in more than 300 U.S. facilities, 23 foreign countries, and is used for more than 2,000 Department of Defense and Department of Energy events a year. It is a distributed system that is federated with more than 15 models and simulations.

JCATS has been upgraded to reflect big-picture environmental factors, which includes added radar and jamming signatures, as well as supply convoys and consumption. It also features high-value targets and defenses such as ballistic missiles, cruise missiles and integrated air defense, which can simulate coverage of a large area such as the U.S. East Coast. Given the current focus on irregular warfare, the system also models urban population movement and communications.

To read more, go to *Defense News*.

LLNL applies and advances science and technology to help ensure national security and global stability. Through multi-disciplinary research and development, with particular expertise in high-energy-density physics, laser science, high-performance computing and science/engineering at the nanometer/subpicosecond scale, LLNL innovations improve security, meet energy and environmental needs and strengthen U.S. economic competitiveness. The Laboratory also partners with other research institutions, universities and industry to bring the full weight of the nation's science and technology community to bear on solving problems of national importance.

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