News Release

Defense Threat Reduction Agency
U.S. Strategic Command Center for Combating Weapons of Mass Destruction
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For Immediate Release

No. DTRA 2015-005
September 1, 2015

MIGHTY SABER Technology Demonstration of Post-Detonation Technical Nuclear Forensics Capabilities

FORT BELVOIR, Alexandria, Va. – The Defense Threat Reduction Agency/STRATCOM Center for Combating Weapons of Mass Destruction (DTRA/SCC-WMD) recently concluded a demonstration and evaluation of new capabilities to support post-detonation technical nuclear forensics. Mighty Saber, which ran from 27 July to 21 August 2015, successfully met each of its objectives to include demonstrating: U.S. Government post-detonation nuclear forensics processes; the value of prompt diagnostics data provided by the Discreet Oculus ground-based sensor network; and, how prompt diagnostics complements radiochemistry in providing a robust post-detonation nuclear forensics capability. It also identified areas for improvement in post-detonation nuclear forensics capabilities, and provided opportunities to explore nuclear forensics interactions with intelligence, law enforcement, and policy communities.

Starting in late 2013, a team of over 50 scientists from across the U.S. laboratory and industrial complex began preparing for Mighty Saber with the goal of demonstrating and evaluating post-detonation technical nuclear forensics capabilities following a *simulated* detonation of a nuclear device in an urban environment. Mighty Saber did not have a physical presence at the fictitious device location. Using high-fidelity modeling and simulation tools, signals associated with a nuclear detonation were generated to simulate those sent from the *(fictitious)* nuclear device to the Discreet Oculus network of sensors, and then used to characterize the weapon's performance, determining potential design attributes. Operational labs' analytical capabilities, executed using surrogate debris and materials, with simulated ground and air sample collection data, contributed to the overall nuclear forensics assessment.

Discreet Oculus is a research and development effort to design and field a fully integrated, ground-based, geographically-dispersed, centrally-managed, operational prompt diagnostics system, and is designed to identify, and characterize a limited nuclear attack. Its sensors and computer networks record seismic, acoustic, air pressure, radiation, light, and radio frequency signals to help determine the size, location, altitude, and other characteristics of a nuclear attack. Information collected by this system will be used to help national and military leaders identify what was detonated, where the materials came from, and who launched or supported the attack.

Mighty Saber demonstrated the robustness of the post-detonation nuclear forensics capabilities to support the U.S. Government's commitment to hold fully accountable any state, terrorist group, or other non-state actor that supports or enables terrorist efforts to obtain or use nuclear weapons. This commitment, in turn, serves to deter our adversaries from undertaking such attacks. Mighty Saber included several hundred participants representing 15 agencies, laboratories, and industry partners.

DTRA/SCC-WMD safeguards America's interests from weapons of mass destruction (chemical, biological, radiological, nuclear and high explosives) by controlling and reducing the threat to the United States and its allies, and providing quality tools and services for the war fighter. This Department of Defense combat support agency is located at Fort Belvoir, Va., and operates field offices worldwide.

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