



RHUMB LINES

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January 31, 2008

The Navy's Science and Technology – Developing the Future Force

"The Navy is pursuing revolutionary capabilities by investing in cutting edge science and technology"

-- Rear Adm. Bill Landay, Chief of Naval Research

On January 31, 2008, the Navy set a record for the highest energy launch of a projectile from an electromagnetic muzzle (10 megajoules) during a demonstration of the electromagnetic rail gun (EMRG). EMRG is just one example of the science and technology programs the Office of Naval Research is developing to equip the future force.

From vision to results – a plan for science and technology

The Naval Science and Technology Strategic Plan is a broad strategy for the future with enough flexibility and freedom of action to allow ONR to meet emerging challenges. The plan has four primary goals:

- Pursue revolutionary capabilities for Naval forces of the future
- Mature and transition science and technology advances to improve Naval capabilities
- Respond to current critical needs
- Maintain broad technology investments to anticipate and counter potential technology surprises

Building the fleet for tomorrow

ONR's thirteen science and technology focus areas are developing a broad array of new technologies for the Fleet. The breadth of technologies reduces risk to Sailors, expand our capabilities, and maintain our stewardship of the environment. Here is a sample of the projects underway at ONR:

- [Electromagnetic Rail Gun](#) – an electric-driven projectile launch system
- [Unmanned Sea Surface Vehicle](#) – a complement for the Littoral Combat Ship
- [Advanced Underwater Glider](#) – a surveillance vehicle for the diesel-electric threat in the littorals
- [Expeditionary Unit Water Purification](#) – a program to quickly generate large amounts of potable water
- [Silver Fox UAV](#) – a vehicle for battlefield intelligence
- [Mine and Obstacle Breaching Technology](#) – a program to quickly and safely clear areas for amphibious landings
- [Biomimetic Underwater Robot Program](#) – reverse engineered autonomous robots
- [Infantry Immersive Trainer](#) – a virtual environment trainer
- [Language Translator](#) – bidirectional interactive language translation

For more information about Naval Science and Technology research visit the ONR at <http://www.onr.navy.mil/>.

Key Messages

- Continuous investment in new and innovative technology allows us to build and maintain the world's most capable Navy.
- The Electromagnetic Railgun (EMRG) will help significantly improve combat capability. EMRG is a high-risk, yet high-payoff revolutionary technology.
- ONR innovation in future ships' electrical design will make EMRG deployment possible, while also reducing chemical propellant safety risks to Sailors.

Facts & Figures

- The EMRG projectile energy will reach 10 megajoules.
- The EMRG accelerates a 3.2 kg (7 lb) projectile to a speed of 2,500 meters/second (5,600 miles/hr) – five times faster than the top speed of an F/A-18!
- When operational, the ship-based EMRG will fire projectiles to ranges in excess of 200 nautical miles.
- ONR works with more than a hundred universities, government laboratories, and a worldwide network of scientists, inventors and industry partners.