NAWCWD Quick Facts

China Lake and Point Mugu, California (April 2010)

Providing Daily Support to our Warfighters Around the World
Supporting Naval Aviation and Warfighter Requirements Since 1943

Naval Air Warfare Center Weapons Division (NAWCWD)
Center for Weapons and Armaments Technology
www.navair.navy.mil/nawcwd

Mission. To provide Navy and Marine Corps warfighters with effective, affordable, integrated warfare systems, and life-cycle support to ensure battlespace dominance.

Research, Development, Acquisition, Test and Evaluation

- World Leader in RDAT&E of guided missiles, advanced weapons and systems, complex software integration on tactical aircraft, energetic materials and subsystems
- Integrate Aircraft Weapons: AV-8B, EA-6B, EA-18G, F/A -18G, EP-3E, H-1, JSF, UAS
- Provide full-spectrum RDAT&E for free-fall weapons, targets, support equipment, crew systems, and electronic warfare
- Operate the Navy's Land and Sea Ranges using state-of-the-art network-centric warfare, modeling and simulation, and full-scale and sub-scale targets
- Conduct joint live-fire survivability testing
- Conduct energetics formulation and production
- Develop counter Improvised Explosive Device (IED) technology
- Weaponize unmanned systems



Direct Conflict Involvement. WD played a significant role in every U.S. military crisis beginning with WWII. During Operation Iraqi Freedom a few quick quick-response topics include:CH-53E, Cobra Dos, Low Collateral Damage Bomb, Electronic Warfare Database Support, GBU-24E/B Laser Guided Bomb, Improvised Explosive Devices, Countermeasures, Intrepid Tiger Pod, JammerTechnique Optimization, Joint Direct Attack Munition, Man Portable Air Defense Systems, MH-60R, Precision Strike Suite For Special Operations Forces, P-3C search capability, Rapid Attack Information Dissemination and Execution Relay, Shared Reconnaissance Pod.

Historic Aerospace Site
American Institute of Aeronautics and Astronautics
Both China Lake and Point Mugu have been nationally recognized

AIAA China Lake. "Conceived and developed rockets during WWII; non-nuclear components for the first atomic bomb; Sidewinder, Shrike, and Walleye missiles; and the Polaris concept. China Lake developed NOTSNIK in 1958 and vital components for the Mars Lander in 2004. The Station, a world leader in aircraft-weapons integration, testing, and electronic warfare, developed 75% of the air-launched weapons used during Vietnam and jointly developed 80% of those used during Iraqi Freedom."

Approved for Public Release

AIAA Point Mugu. "Established in 1946 to provide a comprehensive test and evaluation site for tactical missiles, Point Mugu has been instrumental in the development, test, evaluation and inservice support of systems including Regulus, Sparrow, Phoenix, Bullpup, Harpoon, SLAM, Tomahawk, Standard, and Rolling Airframe Missile. The first missile launch from an operational submarine was also accomplished at Point Mugu."

Latest Technologies

Unmanned Systems. Developing micro munitions for weaponization, and conducting RDT&E on more than 25+ systems including Reaper, Global Hawk, Raven, Predator, Scan Eagle, iRobot, and Fire Scout.



• **Scan Eagle Guided Munition.** 3-1/2 pound laser guided bomb designed for operation from small UAVs. Advancing toward inert flight demonstration in 2010.

• **GPS Guided Munition.** One pound precision miniature munition for use from handheld 40mm grenade launchers and UAVs. Successfully completed guided air gun launches. Potential growth options include IR or EO seeker and extended range.

Improvised Explosive Device (IED) Countermeasures. Built unique training facilities replicating Iraq and Afghanistan environments. Developing new weapons, tools, and tactics to counter the serious IED warfighter threat.

Spike. 5 lb, $5K, tiny, accurate, shoulder-launched guided missile the size of a loaf of French bread. Man-portable, UAV capable, and perfect for future robotic weapon systems.

LOGIR. A low cost, precision accurate, enhancement kit for rockets, able to kill large numbers of small moving targets in a single sortie quickly and surgically, with reduced pilot exposure. LOGIR does for rockets what JDAM does for iron bombs!

BioFuel. Researchers are developing new methods to produce diesel and full-performance jet fuels from renewable sources such as waste cellulose. These discoveries have the potential to drastically reduce the DoD carbon footprint.

DTRA Chemical/Biological Agent Defeat Program. Three projects are underway to investigate explosive fills that, upon detonation, generate species that can kill biological weapons or cause breakdown of chemical weapons.

E/A-18G. WD integration team completed IOT&E and recommended the Growler for fleet deployment.

Electronic Warfare. Released F/A-18 and AV-8B EW Suite CY2008, the latest intelligence threat update critical to TACAIR aircraft survivability.

Other Technologies. Directed energy weapons, high-speed weapons, network centric warfare, Homeland Defense, time critical long range strike.

Scope of Operations (FY09 Actuals. 09/30/09)

Annual Funding	$1.85 billion
Contracts (labor, supplies, services)	$652 million
Weapons Division (WD) Personnel	
• Civil Service	4,651
• Military (NAWS/NAWC/Tenants)	624
• Contractor work years	1,852
• **Total**	**7,127**
(NAVAIR Personnel at all 8 sites)	*25,000+*
Annual Test Events	1,660
Training Sorties (R-2508)	18,000

Major Training

- **Fleet Battle Experiments**
  Empire Challenge 2008 / 2009
- **Major Exercises** conducted on the Sea Range, Land Range, Superior Valley, and Electronic Combat Range. Top Gun training.

Land. 1.1 million acres (larger than Rhode Island)

- Navy's largest single landholding
- 85% of Navy RDT&E lands
- 52% of Navy lands worldwide

Sea. 36,000 square miles, expandable to 196,000

Air. R-2508 is 12% of California's total airspace

Annual Visitors. 42,916 **Foreign Visits** 2,193

Facilities and Ranges

The Navy Region Southwest proudly hosts NAWCWD on its facilities at China Lake and Point Mugu, California

- Plant replacement value $3 billion+
- Buildings and facilities 3,000+
- Airfields 3
- Warfighter Response Center provides subject matter experts internationally
- Unique world class facilities and test ranges
- Optimal test environment – 350+ clear days per year
- Geographic Diversity – Vast ocean, deep water ports, islands, mountains, deserts, canyons, and forests—in close proximity within restricted air and land space.

Technology Transfer (Examples)

- CL-20 (most significant energetic material in 50 years)
- Auto air-bag sensors
- Ultrasonic scanning
- Stop-action video
- Chemiluminescent light sticks
- Geothermal Energy

Customers and Partners (Partial List)

Foreign. Australia, Canada, Croatia, Denmark, Egypt, Finland, France, Germany, Greece, Israel, Italy, Japan, South Korea, Norway, Netherlands, New Zealand, Spain, Switzerland, Thailand, UK.

Industry Examples. BAE Systems, Boeing, Lockheed Martin, Raytheon, Northrop-Grumman, General Atomics

Teaming. DoD, other agencies, academia, and industry. Cooperative R&D and Commercial Service Agreements, Navy Potential Contractor Program and Patent License Agreements

Developmental Testing
WD Tenant Commands
Naval Test Wing Pacific

- VX-31 (China Lake)
- VX-30 (Point Mugu)

Operational Testing
VX-9 (COMOPTEVFOR)
Marine Aviation Detachment (MAD)

Weapons. AMRAAM, AARGM, ESSM, Bombs, HARM, Harpoon, Hellfire, JDAM, JSOW, Laser Guided Bombs, LCDB, LOGIR, RAM, SLAM, SLAM-ER, Sidewinder, Sparrow, Standard Missile, Tomahawk, Trident

Programs/Projects/Systems (Examples). AESA, ASG, CIED, DPSS, DGTDS, Embarkable Link-16, EW Systems, JHMCS, High Speed Weapons, Infrared and Electronic Countermeasures, Intrepid Tiger Pod, Link-16, MIDS, SHARP, Tactical Aircraft Electronic Warfare, TOPSCENE, WSSA

Mars Lander 2004. Designed, built, and installed the zylon bridle system onto each spacecraft; jointly developed, with NASA's Jet Propulsion Laboratory (JPL), the descent rate limiter, and radar system; tested the retro-rockets, and conducted multi-body tests.

History

China Lake. Established during WWII to test rockets developed by the California Institute of Technology.

Point Mugu. Established in 1946 as the Navy's first instrumented missile test sea range.

Location

China Lake. 150 miles NE of Los Angeles (desert)
Point Mugu. 50 miles N of Los Angeles (coast)

Quick Facts produced by the WD Business Office (760) 939-0707 DSN 437-0707 E-mail: michael.biddlingmeie@navy.mil
China Lake Public Affairs Office (760) 939-3511 DSN 437-3511 (866) 493-9699 WD Web site: www.navair.navy.mil/nawcwd
Point Mugu Public Affairs Office (805) 989-1023 DSN 351-1023