

Vandenberg Space Force Base: Testing New Weapons and Coordinating Wars

Western States Legal Foundation Information Brief

Spring 2023

Vandenberg Space Force Base is best known as the place where the U.S. tests intercontinental ballistic missiles and missile defense systems, but there is more to it. Vandenberg plays key a role in U.S. military operations world-wide, as well as in maintaining the current generation of strategic weapons and developing the next.

The Vandenberg Space Force Base occupies nearly 100,000 acres, stretching along 35 miles of the Central California coast. It is the headquarters for one of the two U.S. missile and rocket ranges, the other centered at Cape Canaveral, Florida. Vandenberg was chosen for this purpose because satellites could be launched into polar orbit without passing over land and missiles could be launched over open water towards target sites, including U.S.-occupied islands in the Pacific. Converted to a missile launch site in 1957, Vandenberg was the home of the first U.S. nuclear-armed intercontinental ballistic missile (ICBM), the Atlas. Many of its successors, from the Titan to the Minuteman and the MX “Peacekeeper,” were tested at Vandenberg. In all, over 2000 missile and space launches have taken place there. Until recently an Air Force facility, in 2021 it was renamed and its major units and functions realigned under the new U.S. Space Force.

Vandenberg Space Operations: Coordinating War World-Wide

Over decades as a satellite launch facility, missile base, and test site, Vandenberg has developed an extensive array of facilities for tracking missiles and controlling satellites. Today, Vandenberg is the home of the Combined Force Space Component Command (CFSCC), responsible for providing many space services to the rest of the military. From Vandenberg and other bases and tracking stations in the U.S. and around the world, the CFSCC operates satellites that provide surveillance, communications, global positioning data, and weather information. Forces on the ground receive satellite-produced intelligence and weather reports via satellite communications, and navigate and target weapons using satellite-generated global positioning (GPS) signals. The Combined Space Operations Center at Vandenberg does day to day planning of space missions, drafting tasking orders for the positioning and use of satellites. As one of the main launch sites for satellites and a coordinating facility for satellite tracking and control, Vandenberg constitutes a key element in a global space surveillance and communications network that virtually all elements of the U.S. military have come to depend on:

“Historically, precise missile warning and the ability to attribute the source of the threat helped deter missile strikes on the homeland; high-resolution satellite imagery allowed the joint force to revolutionize the speed and sophistication of target development; precision navigation, enabled by the Global Positioning System (GPS), revolutionized weapons accuracy and the efficiency of munitions; and satellite communications (SATCOM) enabled over-the-horizon power projection, which is essential to deterring aggression. It is not hyperbole to say the joint force cannot prevail without space.” Department of the Air Force, FY 2023 Posture Statement.

The Posture Statement also argued that while “United States is the world’s premier space power.... this position is being challenged as never before.” Secretary of the Air Force Frank Kendall told a 2022 Space Symposium audience that “Space is a warfighting domain now.” The potential threat to U.S. space dominance amidst the growing confrontation with China and Russia is the military’s rationale for new developments in space systems, from missile defenses to sensing and communications satellites. In addition to U.S. military launch operations, today several private space companies such as SpaceX put both commercial and military satellites into orbit. Privately launched payloads include military satellites from the U.S. and other allied countries as well.

Kwajalein and the Marshall Islands: Ground Zero for U.S. Testing

After spending decades of my life trying to persuade the US government to take responsibility for the full range of damages and injuries caused by the testing of 67 atmospheric atomic and thermonuclear weapons in the Marshall Islands, a new global arms system arrived at the door of the Marshall Islands. After years of ICBM testing, the Marshall Islands now has the dubious distinction of hosting the US government's missile shield testing program. The US government shoots Intercontinental Ballistic Missiles (ICBMs) at the Marshall Islands. From an area leased by the US Army on Kwajalein Atoll, the Ronald Reagan Missile Defense Test Site, the US launches interceptor missiles at the incoming ICBMs to test the ability of these interceptors to track and destroy incoming missiles. These tests impact every aspect of our lives... from the local people who are relocated from their homes, to the whales, sea turtles, and birds that have lived in harmony with human beings in our region of the world for centuries. Statement of Marshall Islands resident Tony de Brum to the 2005 Nuclear Non-Proliferation Treaty Review Conference, May 2005

Nuclear tests at other locations in the Marshall Islands during the 1950's included hydrogen bomb explosions with yields in the megatons. These tests contaminated the land and the inhabitants, and both nuclear testing and continued U.S. military activities have resulted in the forced removal of the local people from their ancestral homes. Like Vandenberg, Kwajalein has become a multi-purpose facility, its radars and other instrumentation supporting a variety of missile defense and other tests.

Missile Defense

Vandenberg plays a significant role in the ground-based mid-course interceptor element of missile defense. Test interceptors and target missiles for the program have been launched from both Vandenberg and Kwajalein Atoll in the Marshall Islands. Four of the 44 operational interceptors are located at Vandenberg and the remainder at Fort Greeley, Alaska. Ground based mid-course interceptors like those at Vandenberg are only a small part of the ambitious U.S. missile defense effort, which is exploring a variety of technologies to destroy missiles in the boost phase, in space, and after re-entry into the atmosphere. Other U.S. missile defense systems are deployed on Navy ships, at U.S. military bases in South Korea, Guam, and the Persian Gulf, and as part of NATO's missile defenses in Europe. Beginning in March 2023, SpaceX is scheduled to conduct a series of launches from Vandenberg to deploy parts of the National Defense Space Architecture, a new global array of small missile tracking and communications satellites. Anticipating a future in which satellites are targets, the U.S. military hopes that arrays of many small, easily replaced satellites will be less vulnerable than the current large, expensive systems.

New nuclear missiles, hypersonic weapons, and the new arms race

Minuteman ICBM's, the land-based U.S. nuclear strategic missiles, are routinely flight tested from Vandenberg. The Minuteman is being modernized and the Air Force has begun development of the next generation of ICBMs. The new missile, the Sentinel LG-35A, will be flight tested at Vandenberg. Facilities for training operators of the new ICBM also are slated to be located at there. In addition to next-generation ICBMs, the U.S. is researching a variety of hypersonic weapons concepts. Vandenberg was the launch site for tests of a long-range, maneuvering hypersonic vehicle, and is likely to continue to play a continued role in hypersonic weapons research and development. These new kinds of weapons are not covered by the New START Treaty, the last U.S. Russia agreement limiting nuclear arms, a treaty now suspended by the Russian government.

Vandenberg Space Force Base is a key U.S. facility in an accelerating multi-polar arms race on earth and in space, a new arms race even more dangerous than the last. There are still enough nuclear weapons to destroy human civilization, soon to be joined by new types of hypersonic delivery systems both conventional and nuclear. They are now deployed together with more capable missile defenses, ever more complex space and earth-based sensing, communication, and data-processing systems, and cyber and electronic warfare technologies, all operating with a speed and complexity that defies human comprehension. All this has led to the temptations and perils of artificial intelligence, already generating its own high-stakes technology competition. Both the driver and the context for resurgent arms racing is a new round of inter-imperial competition, with most of the nuclear-armed states having authoritarian nationalist forces ruling or contending for rule. We must be aware of the weapons and arms makers in our own back yard, but a new movement for peace and disarmament must be global, and oppose them everywhere.