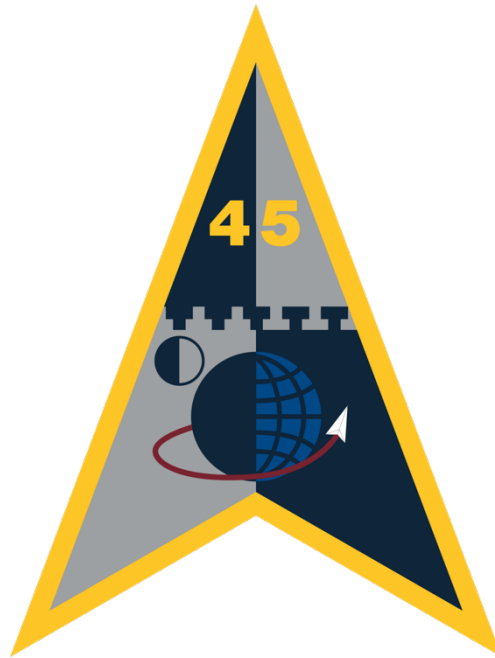


## SPACE LAUNCH DELTA 45



### MISSION

#### LINEAGE

Air Force Division, Joint Long Range Proving Ground established and organized, 1 Oct 1949

Redesignated Long Range Proving Ground Division, 16 May 1950

Redesignated Air Force Missile Test Center, 30 Jun 1951

Redesignated Air Force Eastern Test Range, 15 May 1964

Inactivated, 1 Feb 1977

Redesignated Eastern Space and Missile Center and activated, 1 Oct 1979

Redesignated 45 Space Wing, 12 Nov 1991

Redesignated Space Launch Delta 45, and concurrently changed status from a unit of the United States Air Force to a unit of the United States Space Force 11 May 2021

#### STATIONS

Patrick AFB, FL, 1 Oct 1949-1 Feb 1977

Patrick AFB, FL, 1 Oct 1979

#### ASSIGNMENTS

Headquarters Command, USAF, 1 Oct 1949

United States Air Force, 16 May 1950

Air Research and Development (later, Air Force Systems) Command, 14 May 1951

National Range Division, 15 May 1964

Air Force Systems Command, 1 Feb 1972-1 Feb 1977

Space and Missile Test Organization, 1 Oct 1979

Space Systems Division, 1 Oct 1989

9 Space Division, 1 Oct 1990  
Air Force Space Command, 1 Oct 1991  
Fourteenth Air Force, 20 Sep 1993  
United States Space Force (later, Space Operations Command), 20 Dec 2019  
Space Systems Command, 13 Aug 2021

## **COMMANDERS**

Col Harold R. Turner, 1 Oct 1949  
Maj Gen William L. Richardson, 10 Apr 1950  
Maj Gen Donald N. Yates, 1 Aug 1954  
Maj Gen Leighton I. Davis, 31 May 1960  
Brig Gen Harry J. Sands Jr., 2 Jan 1964  
Col Elmer W. Richardson, 17 Jul 1964  
Maj Gen Vincent G. Huston, 12 Aug 1964  
Maj Gen David M. Jones, 5 May 1967  
Maj Gen Kenneth R. Chapman, 1 Jun 1973  
Brig Gen James H. Ahmann, 25 Aug 1974  
Col Dan D. Oxley, 25 Feb 1975  
Brig Gen Don M. Hartung, 6 Apr 1975-1 Feb 1977  
Col John S. Burkland, 1 Oct 79  
Col Marvin L. Jones, 1 May 1981  
Brig Gen Nathan J. Lindsay, 14 Dec 1984  
Col John W. Mansur, 25 Jun 1986  
Col Lawrence L. Gooch, 13 Aug 1987  
Col Roy D. Bridges Jr., 23 Mar 1989  
Col John R. Wormington, 27 Jan 1990  
Brig Gen Jimmey R. Morrell, 23 Sep 1991  
Maj Gen Robert S. Dickman, 30 Jun 1993  
Brig Gen Donald G. Cook, 24 Jan 1995  
Brig Gen Robert C. Hinson, 28 Aug 1995  
Brig Gen F. Randall Starbuck, 27 Mar 1997  
Brig Gen Donald P. Pettit, 20 Aug 1999  
Brig Gen J. Gregory Pavlovich, 7 Jun 2002  
Col Mark H. Owen, 26 Aug 2004  
Brig Gen Susan J. Helms, 21 Jun 2006  
Brig Gen Edward L. Bolton, Jr.  
Brig Gen Anthony J. Cotton, Aug 2011

## **HONORS**

### **Service Streamers**

### **Campaign Streamers**

### **Armed Forces Expeditionary Streamers**

## **Decorations**

### Air Force Outstanding Unit Awards

1 Dec 1979-30 Nov 1981  
1 Oct 1991-30 Sep 1992  
1 Sep 1993-30 Aug 1995  
1 Oct 1995-30 Sep 1996  
1 Sep 1997-31 Aug 1998  
1 Sep 1998-31 Aug 2000  
1 Oct 2002-30 Sep 2004  
1 Oct 2003-30 Sep 2004  
1 Oct 2004-30 Sep 2005  
1 Jan-31 Dec 2005  
1 Oct 2005-30 Sep 2006  
1 Dec 2006-30 Sep 2008  
1 Oct 2008-30 Sep 2010

### Air Force Organizational Excellence Awards

1 Jun 1986-31 Dec 1987  
1 Oct 1988-30 Sep 1990  
1 Oct 1990-30 Jun 1991

### Meritorious Unit Commendation (Navy)

1 Jul 1967-26 Jul 1969

## **EMBLEM**



Long Range Proving Ground Division emblem: On 16 March 1951, the Long Range Proving Ground Division received official approval for the use of its emblem. A shield of azure blue was emblazoned with a long-range guided missile of argent silver, spouting a flaming tail of red and

yellow hue. The blue represented the stratosphere and the guided missile, traveling with great speed and accuracy, denoted the mission of the Long Range Proving Ground Division.



Air Force Missile Test Center emblem: On 30 June 1951, the Division was redesignated the Air Force Missile Test Center. No official action was taken with respect to changing or redesigning the emblem, but several unofficial variations of the original emblem continued in use until a new emblem was approved for the Air Force Eastern Test Range on 19 July 1967. Symbolizing the changes that had occurred on the Eastern Range over the previous 17 years, the new Air Force Eastern Test Range emblem was a shield bordered in gold and divided into ultramarine blue and gold quadrants. Blue was used to symbolize the sky and space, and gold was used to symbolize the excellence required to conduct successful range operations.



Air Force Eastern Test Range



Air Force Eastern Test Range emblem: Dividing the shield horizontally, across its right half, was a line of "Ts" representing continuous testing of space vehicles. In the center of the shield, a large aquamarine and light blue globe represented Earth. A smaller globe, in the same colors, symbolized the moon and other planets. Nine pimento red flight arrows indicated the normal equatorial departure routes for missiles and space vehicles on the Eastern Range. They also symbolized travel to other planets, as depicted by the smaller globe. Red was chosen for the flight arrows to indicate the stresses of launch and space flight and the heat of reentry into Earth's atmosphere. A string of white "clouds" across the center of the large globe represented abnormal conditions weather and radiation with which range personnel had to contend. The cloud symbol was also interpreted as the string of radomes and theodolites located throughout the Eastern Range.



Eastern Space and Missile Center

On 16 March 1951, the Long Range Proving Ground Division received official approval for the use of its emblem (shown opposite). A shield of azure blue was emblazoned with a long-range guided missile of argent silver, spouting a flaming tail of red and yellow hue. The blue represented the stratosphere and the guided missile, traveling with great speed and accuracy, denoted the mission of the Long Range Proving Ground Division.

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Eastern Space and Missile Center : Per pale argent (silver gray) and or in dexter chief a planet and nine mullets argent and in sinister chief a satellite with contrail argent (silver gray) detailed white, issuing from base a demisphere per pale dark green outlined and grid-lined light green and light green outlined and grid-lined argent; over all a deltoid palewise per pale argent and azure all within a diminished bordure or. **SIGNIFICANCE:** The blue and white deltoid represents the military and civilian space programs supported by the Range. The globe indicates the readiness of the Range to support worldwide operations on a 24-hour basis. The yellow field symbolizes the radar operations of the Range for both launch operations and tracking of earth-orbiting satellites. The silver field symbolizes telemetry support provided by the Range during launch and on-orbit operations. The stars and planet allude to the exploration of space supported by the Range--past, present, and future. (Approved, 21 April 1987)



45 Space Wing emblem: The blue is used to symbolize the sky and space, while the gold is used to symbolize the excellence required to conduct successful range operations. Dividing the shield horizontally, across its right half, is a line of "Ts", which were adopted from previous patches reflecting the history of the wing's installations as a test center for missiles and space vehicles. In the center of the shield, a large aquamarine and light blue globe represents Earth. A smaller globe, in the same colors, symbolizes the moon and other planets. Nine pimento red flight arrows indicated the normal equatorial departure routes for missiles and space vehicles on the Eastern Range. They also symbolize travel to other planets, as depicted by the smaller globe. Red was chosen for the flight arrows to indicate the stresses of launch and space flight and the heat of re-entry into Earth's atmosphere. A string of white "clouds" across the center of the large globe represent abnormal conditions, weather and radiation with which range personnel have to contend. The cloud symbol is also interpreted as the string of radomes and theodolites located throughout the Eastern Range.

Space Force emblem approved, 8 Nov 2023.

### **MOTTO**

DE ASTRA--From the Stars

### **OPERATIONS**

In October 1946, the Joint Research and Development Board (under the Joint Chiefs of Staff) established the Committee on the Long Range Proving Ground to study possible locations for the Joint Long Range Proving Ground. The committee considered northern Washington state (with a range along the Aleutian Islands), El Centro California (with a range down the coast of Baja California), and the Banana River Naval Air Station (with launching sites at Cape Canaveral and a range over the Bahamas). The idea of an Aleutians range was rejected very quickly it would be too cold, too remote and too difficult to support. After weighing all the options, the committee selected El Centro as its first choice for the Joint Long Range Proving Ground. Cape Canaveral was offered as the committee's second choice. The choices were approved in



September 1947, and the Joint Long Range Proving Ground Group was created to carry out the committee's recommendations.

The California range would have been very convenient for American aerospace contractors, but it had to be abandoned as an option after Mexico's President Aleman refused to allow missile flights over Baja California. The British, on the other hand, were willing to allow missile flights near the Bahamas, and they later agreed to lease land to the Americans for their range stations. As a potential hub for missile launching operations, the Cape was remote from heavily populated areas, but it was accessible and supportable by road, waterway and railway transportation. Aside from bouts of wet weather and thunderstorms, the climate was generally sunny and warm. The Banana River Naval Air Station was only 20 miles from the Cape, and it would make an excellent support base for the Eastern Range.

While negotiations with the British continued, enabling legislation for the Joint Long Range Proving Ground was passed by the 81st Congress and signed by President Truman on 11 May 1949. The Bahamian Agreement, which allowed the establishment of range stations in the Bahamas, was signed by the British on 21 July 1950. Anticipating those developments, the Navy transferred the Banana River Naval Air Station to the Air Force on 1 September 1948. The station remained in standby status, but it was renamed the Joint Long Range Proving Ground (JLRPG) Base on 10 June 1949. On 1 October 1949, the Advance Headquarters, Joint Long Range Proving Ground and the Air Force Division, Joint Long Range Proving Ground were established. On the same date, the Joint Long Range Proving Ground Base was transferred from Air Materiel Command to the Air Force Division of the Joint Long Range Proving Ground.

In the spring of 1950, the Defense Department announced the re-delegation of guided missile test centers from joint service commands to separate branches of the military service. As a result of that decision, the Air Force Division, Joint Long Range Proving Ground was redesignated the Long Range Proving Ground Division on 16 May 1950. The Long Range Proving Ground Division replaced the JLRPG Command, and it gained jurisdiction over the launching area at Cape Canaveral and the Bahama downrange facilities. The Long Range Proving Ground Division was given major air command status, and, as such, it reported directly to the Chief of Staff of the Air Force. Its mission was to establish, operate and maintain the Long Range Proving Ground.

On 9 May 1950, work began under a contract with the Duval Engineering Company (Jacksonville, Florida) to build the Cape's first paved access road and its first permanent launch site. Construction on Port Canaveral got underway in July 1950. The Bahamian Agreement was signed by the British on 21 July 1950, and that agreement permitted construction on the Eastern Range's first island stations. By July 1954, Cape Canaveral Auxiliary Air Force Base had missile assembly buildings, a central control station and four launch complexes to support MATADOR, BOMARC, SNARK and REDSTONE missile flights. Jupiter Auxiliary Air Force Base had been developed south of Patrick to help guide MATADOR flights downrange. By the end of 1954, the Eastern Range had an operational tracking station on Grand Bahama Island, and other stations were under construction on the islands of Eleuthera,, San Salvador, Mayaguana and



Grand Turk. Range stations were also being built in the Dominican Republic and Puerto Rico, approximately 1,000 miles southeast of the Cape.

On 14 May 1951, the Long Range Proving Ground Division was relieved as a separate operating agency under Air Force Headquarters, and it was assigned to the newly created Air Research and Development Command (ARDC). As such, the Division was equivalent to a numbered air force. In addition to staff agencies for personnel, materiel and finance, the Division had the Directorate of Technical Operations (manned principally by civilian technicians, but reinforced with one Air Force squadron). The Division also had the 6555th Guided Missile Wing and the Base Commander's organization.

The Division was redesignated the Air Force Missile Test Center (AFMTC) on 30 June 1951. Over the next two months, the Center was reorganized to conform to ARDC guidelines. By early September 1951, AFMTC was composed of a headquarters and six wing-level organizations. The resources and functions of the old Directorate of Technical Operations were used to create three new wing-level organizations: 1) the 6541st Missile Test Wing, 2) the Technical Training Division and 3) the Technical Systems Laboratory. The Technical Training Division was discontinued on 1 February 1952, and the Technical Systems Laboratory was discontinued on 1 April 1954.

Though Air Force personnel operated tracking systems on the Eastern Range through December 1953, cost comparison studies undertaken two years earlier pointed out the desirability of letting contractors operate the Cape and the downrange stations. The first range contract was signed with Pan American World Services on 31 December 1953. Pan American signed its own contract with RCA to make the latter responsible for operating and maintaining range stations and tracking systems as of 28 February 1954. The Air Force Missile Test Center began transferring property and equipment to Pan American at the end of 1953.

During 1991, ESMC, the 9th Space Division, AFSPC and USAF Headquarters worked out the details of ESMC's transformation into an operational wing. Following the final resolution of loose ends, the new wing organization was approved. It was activated as the 45th Space Wing on 12 November 1991. Under the objective wing concept, the 45th Space Wing had four groups to carry out operations, support, logistics and medical functions. Following the 45th Medical Group's four squadron activations on 30 September 1994, the Wing had the following groups, squadrons and detachments assigned: 45th Operations Group, including the 1st, 3rd and 5th Space Launch Squadrons, 45th Range Squadron, 45th Operations Support Squadron, 45th Weather Squadron, and Detachments 1 and 2 (i.e., station command offices) on Antigua and Ascension. 45th Support Group, including the 45th Mission Support Squadron, 45th Civil Engineering Squadron, 45th Security Police Squadron, 45th Communications Squadron, 45th Services Squadron and Detachment 1, Cape Canaveral Air Station. 45th Logistics Group, including the 45th Logistics Support Squadron, 45th Maintenance Squadron, 45th Transportation Squadron and 45th Contracting Squadron. 45th Medical Group, including the 45th Aerospace Medicine Squadron, 45th Dental Squadron, 45th Medical Operations Squadron and 45th Medical Support Squadron. In addition to those resources, the Wing had the 45th

Comptroller Squadron (which was activated on 6 June 1995) and staff offices for Small Business, Command Post, Protocol, Chaplain, History, Staff Judge Advocate, Manpower & Quality, Equal Employment Opportunity, Public Affairs, Quality Improvement, Safety, Social Actions and Plans.

There were several organizational changes in the Wing in 1997 and 1998. Detachments 1 and 2 of the 45th Operations Group were inactivated on Antigua and Ascension on 1 June 1997, but they were replaced by Detachments 1 and 2 of the 45th Logistics Group on the same day. The 45th Security Police Squadron was re-designated the 45th Security Forces Squadron on 1 July 1997, and the 45th Logistics Support Squadron was inactivated on 16 July 1997. (Resources from the latter were absorbed by the 45th Supply Flight or transferred to the Logistic Group's Performance Management Division.) The 5th Space Launch Squadron was inactivated at Cape Canaveral Air Station on 29 June 1998, and its resources were absorbed by the 3rd Space Launch Squadron. On 7 June 1998, the Joint Performance Management Office (JPMO) was established to administer the Joint Base Operations and Support Contract (J-BOSC).

On 4 June 1999, the 45th Maintenance Squadron was inactivated and its resources were transferred to the 45th Communications Squadron. The 45th Communications Squadron was reassigned from the 45th Support Group to the 45th Logistics Group on the same date. On 1 October 1999, the Department of Defense Manned Space Flight Support Office (DDMS) was taken off the books at U.S. Space Command and assigned to the 45th Space Wing. Later, on 1 April 2007, DDMS was inactivated and its resources were transferred to a new organization under the 45th Operations Group called simply "Human Space Flight Support" (HSFS).

Apart from an internal reorganization of the Wing Plans Office (45 SW/XP) to create the Joint Planning and Customer Service Office (JPCSO), there were no organizational changes to the Wing in 2000.

The 45th Space Wing began implementing a new standard wing organization (directed by the Air Force Chief of Staff) in October 2002. Effective 1 October 2002, the 45th Logistics Group became the 45th Maintenance Group, and the 45th Support Group became the 45th Mission Support Group. In addition, the 45th Supply Flight was re-designated the 45th Logistics Readiness Flight, and that flight moved from the 45th Maintenance Group to the 45th Mission Support Group. The 45th Contracting Squadron also moved to the 45th Mission Support Group from the 45th Maintenance Group (formerly the 45th Logistics Group). The 45th Range Management Squadron was activated and assigned to the 45th Maintenance Group at Cape Canaveral AFS. In accordance with the new wing structure, the 45th Communications Squadron was re-designated the 45th Space Communications Squadron effective 1 October 2002.

In order to handle space operations more effectively, senior officials at Air Force Space Command, 14th Air Force, the 30th Space Wing, and the 45th Space Wing agreed to fine tune the new standard wing organization in 2003. Following approval at the highest levels of the Air Force, an organizational transformation was implemented on 1 December 2003. As a result of the transformation, the 45th Maintenance Group was inactivated, and the 45th Launch Group was constituted and assigned to Air Force Space Command with further assignment to the 45th

Space Wing. Detachment 8, Headquarters Space & Missile Center (Det 8, SMC) was inactivated, and the detachment's last commander became the 45th Launch Group Commander. The 5th Space Launch Squadron (inactivated 29 June 1998) was reactivated at Cape Canaveral on 1 December 2003. The 5th was placed under the 45th Launch Group, and the squadron was given responsibility for Evolved Expendable Launch Vehicle (EELV) operations formerly held by Detachment 8. Other organizational changes included: reassignment of the 45th Range Management Squadron and 45th Space Communications Squadron from the 45th Maintenance Group to the 45th Operations Group reassignment of the 1st and 3rd Space Launch Squadrons from the 45th Operations Group to the 45th Launch Group inactivation of the 45th Range Squadron and transfer of its resources to the newly activated 1st Range Operations Squadron inactivation of Detachments 1 and 2, 45th Maintenance Group (i.e., the military units in charge of instrumentation stations on Antigua and Ascension) activation of Detachments 1 and 2, 45th Operations Group (i.e., the new military units in charge of instrumentation stations on Antigua and Ascension)

The final ATLAS IIIB/CENTAUR and TITAN IVB missions were launched from Cape Canaveral in February and April 2005 respectively. Consequently, the 3rd Space Squadron -- which had been responsible for managing both launch programs -- was inactivated effective 30 June 2005. On the same date, the 45th Launch Support Squadron was activated and placed under the 45th Launch Group. The ceremony for both organizational changes was held at the Cape on the morning of 6 July 2005.

Effective 1 April 2007 (in accordance with HQ AFSPC Special Order GD-007, 27 March 2007), the Department of Defense Manned Space Flight Support Office was inactivated, and its resources were transferred to Human Space Flight Support (HSFS) under the 45th Operations Group. The former organization's long proud history, spanning five decades, came to an end. HSFS resources were subsequently transferred to Detachment 3, Headquarters 45th Operations Group following Detachment 3's activation (per HQ AFSPC Special Order GD-020, 10 June 2008) on 10 June 2008.

The 45 Space Wing at Patrick Air Force Base, Fla., provides space launch and tracking facilities, safety procedures and test data to a wide variety of users. The wing also provides launch operations and management of DOD space programs, as well as launch and tracking facilities for NASA, foreign governments, the European Space Agency and various private industry contractors. The wing launches a variety of expendable vehicles, including the Delta II, Atlas II and Titan IV, and provides support to the space shuttle program. It also operates Cape Canaveral Air Force Station, Fla., and the Eastern Range.

Patrick operates the Eastern Range, 15 million square miles (five times the size of the continental United States) of land, air and sea space through which launch vehicles must pass to reach orbit. Operating the range entails managing the many resources used to provide safe passage to space. This includes range instrumentation used for tracking and command destruct, providing for personnel safety both on the ground and in the air and managing and directing all wing communications and scheduling operations.

The men and women of the 45 SW also provide significant safety, range and contingency support to NASA and the space shuttle/International Space Station programs, as well as providing logistics support to the Naval Ordnance Test Unit's missile tests and submarine operations at Cape Canaveral.

The wing's more than 9,000 government and contractor personnel are located at Patrick AFB, Cape Canaveral AFS, the Malabar and Jonathan Dickinson Missile Tracking Annexes in Florida, Antigua Air Force Station in the Caribbean and Ascension Auxiliary Air Field off the coast of Africa.

The 45 SW provides combat effects to warfighters by launching various payloads to their required orbits on Delta II, Delta IV and Atlas V boosters. The Atlas V and Delta W family of Evolved Expendable Launch Vehicles, known as EELVs, are part of a new era of spacelift vehicles that will serve as the primary vehicles to lift national military space assets along with civil, commercial and scientific payloads into space for the foreseeable future from Cape Canaveral AFS. EELVs are designed to improve the United States' access to space by making space launch vehicles more affordable and reliable.

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DEPARTMENT OF THE AIR FORCE UNIT HISTORIES

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Sources

Air Force Historical Research Agency. U.S. Air Force. Maxwell AFB, AL.