

20th SPACE SURVEILLANCE SQUADRON



MISSION

LINEAGE¹

20th Surveillance Squadron constituted and activated, 9 Nov 1966

Organized, 1 Jan 1967

Redesignated 20th Missile Warning Squadron, 1 Jul 1979

Redesignated 20th Surveillance Squadron, 31 May 1987

Redesignated 20th Space Surveillance Squadron, 15 May 1992

Redesignated 20th Space Control Squadron, 1 Mar 2003

Changed status from a unit of United States Air Force armed force to a unit of United States Space Force armed force, 21 Oct 2020

Redesignated 20th Space Surveillance Squadron, 13 Apr 2022

STATIONS

Eglin AFB, FL, 1 Jan 1967

ASSIGNMENTS

Air Defense Command, 9 Nov 1966

73d Aerospace Surveillance Wing, 1 Jan 1967

Fourteenth Aerospace Force, 30 Apr 1971

¹ Air Force Historical Research Agency. U.S. Air Force. Maxwell AFB, AL.

20th Air Division, 1 Oct 1976
Aerospace Defense Command, 1 Oct 1979
42d Air Division, 1 Dec 1979
1st Space Wing, 1 May 1983
73d Space Surveillance (later, 73 Space) Group, 1 Aug 1991
21st Operations Group, 26 Apr 1995

COMMANDERS

Lt Col James J. Hogan
Lt Col Shane M. Connary
Lt Col G. McCann
Lt Col Thomas Falzarano

HONORS

Service Streamers

Campaign Streamers

Armed Forces Expeditionary Streamers

Decorations

Air Force Outstanding Unit Awards

7 Jan 1969–25 May 1970
1 Jan 1972–30 Jun 1973
1 Jul 1974–30 Jun 1975
1 Jul 1977–30 Jun 1978
1 May 1983–30 Apr 1984
1 Sep 1988–31 Aug 1990
1 Sep 1990–31 Aug 1991
1 Sep 1991–31 Aug 1993
1 Oct 1995–30 Sep 1997
1 Oct 1997–30 Sep 1999
1 Jan–31 Dec 1998
1 Jan–31 Dec 1999
1 Jan 2000–31 Aug 2001
1 Oct 2005–30 Sep 2007
1 Oct 2009–30 Sep 2011
1 Oct 2011–30 Sep 2012
1 Oct 2012–30 Sep 2014

EMBLEM



20th Surveillance Squadron emblem approved, 8 Mar 1968



20th Missile Warning Squadron emblem



20th Space Control Squadron emblem: Azure, a mullet of eight per pale and per fess enhanced throughout Or, surmounted at dexter base by a torteau shaded to dexter enfiling an orbit ring bendwise charged with a mullet of four saltirewise Argent, in base a flight symbol fesswise to

sinister of the last issuing a contrail arcing to the torteau Gules, all within a diminished bordure Gray (Approved, 18 Jul 1995)

Space Force emblem approved on 19 Apr 2023

MOTTO

DETECT—TRACK—IDENTIFY

OPERATIONS

Radar construction began October 1962, at test site C-6, about 35 miles east of Eglin Air Force Base, Fla. The testing was scheduled for May 1965, but four months before, the building and all the equipment were destroyed in a fire caused by arcing electrical equipment.

The Air Force took ownership of the site in September 1968 with the 20 Surveillance Squadron as the primary operator. Initially charged with tracking objects in Earth's orbit, new software installed in 1975 allowed tracking of submarine launched ballistic missiles. This became the unit's primary mission, while continuing to perform space tracking.

The AN/FPS-85 played an active role in America's space program. From 1971 to 1984, the 20 SURS was the site of the Alternate Space Surveillance Center. It provided computational support to the Space Surveillance Center at Cheyenne Mountain AS, Colo. If the need arose, the squadron could assume command and control for worldwide space track sensors.

Performed a submarine-launched missile warning mission, 1975–1987.

In 1987, the site returned to its original mission; space surveillance. The 2159th Communications Squadron went through a number of transitions and eventually inactivated and its mission incorporated into the 20 MWS.

The site underwent a major transition, allowing Defense Department civilians to staff the majority of support and maintenance functions, while military people staffed the command section, orderly room and operations functions.

The 20 SPCS executes a space control mission by performing all-weather, day-night location and tracking of man-made objects, and supports the commander, Air Force Space Command, and theater warfighters' requirements through continuous surveillance of orbiting satellites. The 20 SPCS operates and maintains the AN/FPS-85 Phased Array Radar, the only phased array radar dedicated to tracking more than 16,000 near-earth and deep-space objects.

The AN/FPS-85 Phased Array Space Surveillance Radar provides space situational awareness for U.S. STRATCOM's space control mission area. It is one of 29 sensors that comprise the global Space Surveillance Network, or SSN, and is the only phased array radar dedicated to space surveillance. It collects more than 16 million observations of satellites per year, accounting for 30 percent of the SSN's total workload.

Data from the system is forwarded to U.S. STRATCOM's Joint Space Operations Center at

Vandenberg Air Force Base, Calif., and the Alternate Space Control Center at Dahlgren, Va. The unique aspect of this radar is the phased array antenna technology. Unlike a mechanical radar, which must be physically aimed at an object in space to track and observe it, the phased array antenna is steered electronically by controlling the timing, or phase, of incoming and outgoing signals. This increases capabilities and decreases response time which allows near simultaneous tracking of multiple targets throughout the system's area of coverage.

The AN/FPS-85 can detect, track and identify up to 200 satellites simultaneously. The maximum beam deflection is 60 degrees on either side of the antenna center line which provides 120 degrees azimuth of azimuth coverage. The antenna is inclined +45 degrees for scan coverage of +3 to +105 degrees elevation. Generating a combined output of 32 megawatts, the AN/FPS-85 is the most powerful radar in the world and is the only phased array radar capable of tracking satellites in deep space orbit. The radar can track an object the size of a basketball at a distance of more than 22,000 nm. The AN/FPS-85 building is composed of the receiver side which is 192 feet long, 143 feet deep, and 143 feet high. The transmitter side is 126 feet long, 95 feet deep, and 95 feet high. Total floor space is 250,000 square feet, with 1,250 tons of structural steel, 1,400 cubic yards of concrete, and a total of 2,500,000 cubic feet in the building.

The computer room houses five IBM computers used in mission performance, communication and software development and testing. Also, two radar interface control equipment cabinets provide a means to interface the mission computers to the radar. Communications equipment includes two Message Distribution Terminals and one Mitron magnetic tape unit. Each MDT terminal has a 486 CPU and two medium speed printers. The Patch and Test Facility consists of the cryptographic equipment, patch panels, test equipment, secure voice equipment, Defense Information Agency Network equipment and the Node for the Space Digital Information Network.