683th ARMAMENT SYSTEMS SQUADRON

LINEAGE

STATIONS

ASSIGNMENTS

MISSION EQUIPMENT

COMMANDERS

HONORS
Service Streamers

Campaign Streamers

Armed Forces Expeditionary Streamers

Decorations

EMBLEM

EMBLEM SIGNIFICANCE

MOTTO

NICKNAME

CALL SIGN

OPERATIONS

DESERT STORM combat operations relied on space support more than any previous conflict, and the post-war analysis of that support revealed shortfalls in the ability to take advantage of all the capabilities space has to offer. DESERT STORM lessons learned revealed that planners and troops were unfamiliar with space capabilities, and that space products were difficult to acquire and use due to the lack of a space support plan, the high classification of many space products, and a bureaucratic tasking process.

In the fall of 1992, a Chief of Staff Blue Ribbon Panel on Space determined that inadequate attention was given to the exploitation of space. The panel recommended the establishment of the Space Warfare Center (SWC) to examine the capabilities and benefits of space-based assets. As a result, the SWC, a direct reporting unit to Air Force Space Command (AFSPC), was established at Falcon AFB (now Schriever AFB) in December 1993.

Since the SWC's inception, it has continued to grow, taking on new missions and enhancing war-fighter capabilities through rapid prototyping, training, testing, tactics development, distributed mission operations, war-gaming, and modeling and simulation.

The current SWC mission is: **"Advance Air Force, joint and combined space warfare through innovation, testing, tactics development, and training."** The SWC accomplishes this mission through its major developmental and support directorates. These directorates include the 595th Space Group, the Air Force Tactical Exploitation of National Capabilities (AFTENCAP) program, the Air Force Space Battlelab, and the Warfighting Integration Division.

The largest organization in the SWC is the **595th Space Group**. The group's mission is to *"enhance and provide confidence in Air Force War-fighting capabilities through advanced training, education, tactics development, and operational testing."*

Six squadrons combine efforts to achieve that mission. The **595th Operations Support Squadron** provides support to ensure the Space Group and all of the units within can perform their

missions.

The **17th and 14th Test Squadrons** conduct Force Development Evaluations (FDE) of operational space systems for AFSPC.

The **576th Flight Test Squadron** conducts the FDE program for operational test launches of Intercontinental Ballistic Missile (ICBMs) and controls a test range from Vandenberg AFB to the Kwajalein Atoll in the South Pacific. The missile test launches certify reliability and accuracy to USSTRATCOM and our nation's leadership, providing greater insight into force capabilities and their role into the nation's Integrated Tactical Warning and Attack Assessment (ITWAA) program.

The **527th Space Aggressor Squadron** operates much like the Air Aggressors at Nellis AFB. Using foreign equipment or emulators of that foreign equipment, the 527th looks to replicate the threat a "Space Capable" nation would pose to our forces. Acting as this space-capable adversary, the 527th identifies vulnerabilities and works with our forces, providing training on the threats posed and how to counter them.

The following examples show this squadron enjoys one of the most exciting and critical mission areas of the SWC. The Space Aggressors, supporting Red Flag 04-1, received Secretary of Defense permission to jam GPS and SATCOM signals. The aggressors demonstrated the jammed effects to the many aircrews flying missions and quickly moved up on the targeteers' priority list. The Aggressors also trained United States and coalition forces prior to their deployment to Iraq on potential Iraqi jamming capabilities and how to counter them—another SWC success story in support of Operation IRAQI FREEDOM.

The last squadron in the 595th Space group is also the most recently activated, the **25th Space Control Tactics Squadron**. This squadron is responsible for a new and rapidly growing area in Air Force Space Command—space control Tactics, Techniques and Procedures (TTPs). Space assets are in place and integral to the very nature of today's warfare. Space capabilities, through their unique abilities to collect, transmit, and disseminate information around the globe, are the key enablers of precision warfare. Not only do our forces need unhampered access to space-based services, our forces also must be prepared to operate in an environment in which adversaries have access to similar space-based services. The squadron's TTP role ensures our space forces are able to maintain their capabilities and are prepared to deny an adversary of the benefits of space capabilities.

The SWC's legacy comes from the oversight it provides to the **Air Force Tactical Exploitation of National Capabilities (AF TENCAP)** program. Congress directed the services to stand up TENCAP programs in 1977 with a goal of making National systems more accessible to the warfighter. The tasks set forth in the Congressional Charter include: *Exploiting* National Technical Means for warfighting application, *Influencing* National Systems design and operation for better warfighting support, and *Educating* and training warfighters.

AF TENCAP utilizes a non-traditional acquisition program known as rapid prototyping. The goal is to develop a prototype,

demonstrate it within 12 months, then transition material solutions to users in an additional six months, for a total acquisition period of 18 months—significantly less than traditional acquisition timelines.

The AF TENCAP program is comprised of five AF TENCAP divisions. **Programmatics (TCP)**, whose responsibilities include AF TENCAP Charter execution, program management, and reporting, is the USAF representative for the MERIT program. TCP conducts conferences as required to assimilate operational requirements and mission needs, as well as to disseminate advances in technology. TCP coordinates efforts with Combat Air Forces and other affected agencies to ensure widest application of program results. TCP also maintains dialogue with the national community and other services' TENCAP programs to leverage efforts and avoid duplication.

Kinetic Effects (TCW) is focused on improving both targeting and bomb delivery accuracy.

C4ISR (TCI) emphasizes Horizontal Integration of Tactical and National Assets. TCI is AF TENCAP's division for overcoming the "stovepipes" for our frontline warriors.

Blue Force Tracking (TCB) is responsible for improving command and control, force protection, and situational awareness for joint and coalition forces.

Lastly, **Special Applications (TCZ)** works the application of special technologies to augment terrestrial and airborne war-fighting capabilities.

An example of an AF TENCAP project is **Talon REACH**, a system that exploits the Iridium constellation of satellites, providing a significant amount of bandwidth for military applications. One of **Talon REACH's** applications is Blue Force Tracking, which can be shared with our allies and coalition partners and provides better coverage than National systems.

Other exciting technologies AF TENCAP is developing include a system to detect, locate, and predict the effects of GPS jamming; and exploitation of polarized imaging to provide target characterization to help determine an object's structural properties. The imaging capability can assist from the ground, looking at our adversary's space systems to help with materials identification.

The SWC's **Air Force Space Battlelab** is one of seven Air Force Battlelabs. The Space Battlelab, which is funded with Operations & Maintenance money, focuses on the purchase of available government-off-the-shelf and commercial-off-the-shelf hardware and software.

They then use these products in innovative ways to meet war-fighter needs. The goal of the Battlelab is to demonstrate war-fighter utility within 18 to 24 months, from initiative approval through after-action reports.
Examples of Space Battlelab projects include: **Combat Eye**, which utilizes short-pulse lasers to provide 3-D images through obscurants, such as clouds, fog, sandstorms, or camouflage netting; and the **Virtual Mission Operations Center (VMOC)**, which uses Internet protocols for satellite command and control. VMOC uses the Internet for "tracking, telemetry, and control" of space assets as well as requesting sensor information/data. The "knowledge database management" system in VMOC provides for machine-to-machine integration of those tasks.
Other Space Battlelab projects include ICBM security enhancements, short-pulse laser communication, near-space concept development, and continuation of integration of virtual technologies into space control activities.
The **War-fighting Integration Division**, or **SWC/XI**, is chartered to develop and integrate space capabilities and tools that assist warfighter planning, operations, and training. The division performs a number of functions, including development of new Space Situation Awareness (SSA) capabilities, planning and execution of military utility assessments for Advanced Concept Technology Demonstrations, evaluation of promising SSA initiatives via the SSA Command & Control Testbed, and providing space capabilities for wargames and exercises through the division's Distributed Mission Operations Center-Space (DMOC-S).
The division operates two facilities dedicated to accomplishing the above mission areas: the Space Application & Integration Facility (SPAIF) and the Aerospace Fusion Center (AFC). XI is also responsible for the planning and execution of the Schriever Series of War-games, the largest space-related wargames in the DOD.
Since its inception in 1993, the SWC has worked to provide the most up-todate technology, training, testing, and tactics for the warfighter. The SWC provides unique capabilities for AFSPC: using cutting-edge technology to deliver rapid solutions through AF TENCAP and the Space Battlelab; providing operational testing through FDEs of space systems, as well as helping to ensure the reliability and accuracy of our aging ICBM force; conducting vulnerability assessments and tactics development for employment and defense of our critical space and C4ISR systems; and training the next generation

of space professionals who will continue to lead our advancements in the space arena.
To find out more about SWC capabilities, please visit https://swcweb/index1.html.

Air Force Order of Battle
Created: 14 Aug 2012
Updated:

Sources