



SPACE POWER

DELIVERING SPACE & MISSILE CAPABILITIES TO AMERICA
AND ITS WARFIGHTING COMMANDS





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...THE FORCE BEHIND THE FORCE



SPACE POWER: AT THE CORE OF THE AIR FORCE MISSION

- Assuring U.S. access to the ‘high ground’ of Space.
- Protecting the freedom to operate in Space.
- Providing joint warfighting capabilities from Space.



Air Force space capabilities are an integral part of the United States Air Force and its mission to deliver Global Vigilance, Global Reach and Global Power through air, space and cyberspace.



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SPACE POWER: PROVIDING A DECISIVE ADVANTAGE

“Space power gives America’s joint forces a decisive advantage and has shaped the ‘American way of warfare.’

Today, America’s joint forces are interconnected, have global cognizance, and can produce swift and precise effects providing overwhelming and decisive results with minimum collateral damage.”



General C. Robert Kehler,

Commander, Air Force Space Command, Senate Testimony, March 8, 2008



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SPACE POWER: IN USE BY WARFIGHTERS EVERY DAY

Space capabilities are embedded throughout planning, execution and debriefing phases of most missions:

- Plans rely on Intelligence, Surveillance & Reconnaissance, terrain mapping and weather data from space assets.
- Aircraft and ground forces rely on Global Positioning Systems for precision weaponry, aerial refueling and more.
- Real-time updates throughout missions use Satellite Communications data links.
- Rescue operations rely on space assets to remove the ‘search’ phase of the effort.
- Space assets provide threat assessment & early missile warning.



This A-10 Thunderbolt II depends on links to space for both its satellite-guided precision weaponry to destroy ground targets and its communications data links to our warfighters on the ground. (Source: www.af.mil)



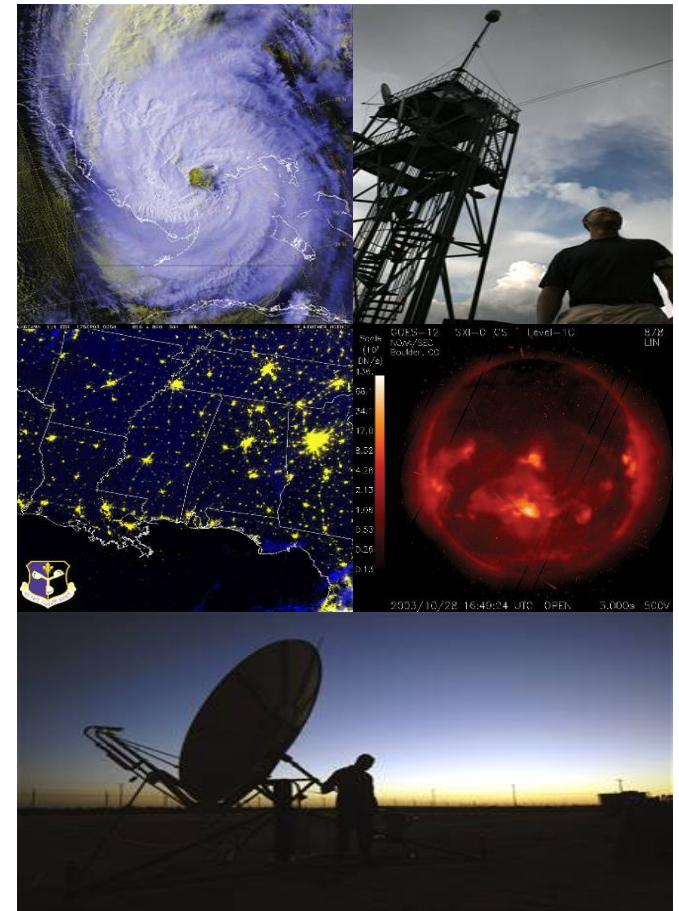
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SPACE POWER: NEW HIGH-VALUE ADDITIONS TO US INVENTORY

- The first Wideband Global SATCOM (WGS) was launched in 2007. It increases the bandwidth of its predecessor by 12 times. The program is slated for 6 satellites.
- The Advanced Extremely High Frequency (AEHF) has 10 times the capacity of its predecessor. Four satellites are slated for construction, with one nearing launch.
- Three more modernized GPS IIR-M are slated for launch this year, with anti-jamming capabilities, bringing the total to 8.
- In acquisition, GPS-III with first launch targeted for 2009.





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SPACE POWER: RECENT ACTIVITIES & SUCCESSES

- A string of 58 successful national security payload launches in a row.
- The first operational launch of a Delta IV Heavy EELV carrying the last Defense Support Program (DSP) satellite into orbit.
- Completed the transition of the 20-year-old GPS ground control segment to the new Architecture Evolution Plan (AEP) system.
- 5 years without a premature failure of a system in orbit.



Airmen run by the Colorado Tracking Station radome, part of the Air Force Satellite Control Network.



SPACE POWER: THREATS TO U.S. SPACE ASSETS

Space is increasingly a contested domain.

Threats are shaped by these factors:

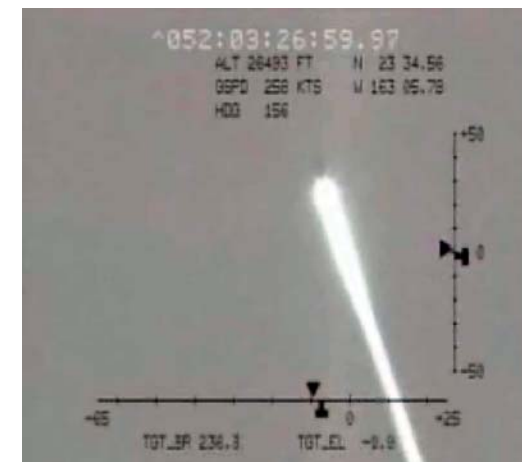
- The worldwide proliferation of technology.
- Radio frequency jamming.
- Laser blinding.
- Anti-satellite systems.

In 2007, China demonstrated the capacity to destroy a satellite, disregarding concerns about the debris field, precedents and world opinion.

The militaries of 28 nations now operate in space.



Missiles are capable of satellite strikes. These photos are of the destruction of an out-of-use U.S. satellite to allow it to gradually re-enter the atmosphere in small pieces that will burn up.





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SPACE POWER:

POSITION, NAVIGATION AND TIMING SATELLITES

- **15 GPS IIA:** design life 7.5 years, avg. age nearly 14 years
- **12 GPS-IIR:** design life 10 years, avg. age over 6 years
- **5 GPS-IIR-M:** design life 8.5 years, avg. age 1 year
- **12 GPS-IIF:** design life 11 years, in acquisition
- **8 GPS-III:** design life TBD, in acquisition



INTELLIGENCE, SURVEILLANCE & RECONNAISSANCE (ISR) SATELLITES

- **4 SBIRS-HEO:** Space-Based Infrared System – Highly Elliptical Orbit, in acquisition.
- **3 SBIRS-GEO:** Space-Based Infrared System – GEO Orbit, in acquisition.
- **DSP:** Aging Defense Support Program, phasing out.



SPACE POWER: ENVIRONMENTAL MONITORING SATELLITES

- **6 DMSP:**
Defense Meteorological Support Program, design life 4 years, avg. age 7.5 years, replacement NPOESS
- **4 NPOESS:**
National Polar Orbiting Environmental Satellite System, design life 5 years, in acquisition.



Weather Watching: Analyzing meteorological data from satellite imagery.



SPACE POWER: MILITARY SATELLITE COMMUNICATIONS

- **9 DSCS** (Defense Satellite Communications System): design life 10 years, avg. age 10.2 years, replacement WGS
- **6 WGS** (Wideband Global SATCOM): design life 14 years, new or in acquisition
- **5 MILSTAR**: design life 10 years, avg. age 8.8 years, replacement AEHF
- **4 AEHF** (Advanced Extremely High Frequency): design life 14 years, in acquisition
- **TSAT** (Transformational Satellite Communications): number TBD, design life 14 years, in acquisition
- **3 IPS** (Interim Polar System): replacement EPS
- **2 EPS** (Enhanced Polar System): in acquisition





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SPACE POWER: PRIORITIES OF THE AIR FORCE SPACE COMMAND

- **Win the War on Terror ...** while preparing for the next war.
- **Develop & care for Airmen and their families ...** to maintain our competitive advantage.
- **Recapitalize & modernize satellites and equipment ...** to optimize the military utility of our systems and to better meet 21st Century challenges.
- **Enable the Future.**

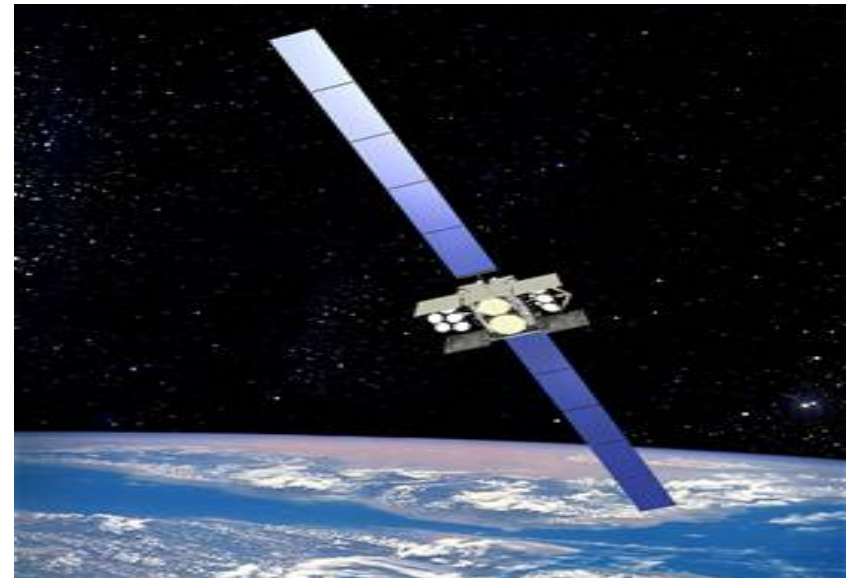




SPACE POWER: HOLDING THE 'HIGH GROUND' OF THE FUTURE

Space is a vital domain that is increasingly under challenge by near-peer competitors, so the U.S. Air Force must continue efforts to protect space assets through technological superiority:

- Redundant capabilities.
- Ability to rapidly replace assets.
- Monitoring of potential threats or a first strike.
- Better maneuverability to avoid debris.



A new wideband Global SATCOM satellite improves the bandwidth to 12 times that of its predecessor.



SPACE POWER: AFA RECOMMENDATIONS

Amplify Space Situational Awareness and Space Protection efforts by fully funding recapitalization and modernization efforts:

- Upgrade ISR and missile warning capabilities.
- Proceed with modern satellites in the WGS, AEHF, and GPS IIR-M & GPS-III programs.
- Continue the focus on new technologies and programs – acquiring, delivering and sustaining space capabilities.
- Attract and develop skilled Airmen in Space Command, and emphasize the national importance of Space missions.

