

AIR FORCE DOCTRINE PUBLICATION 3-14

SPACE SUPPORT



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FOREWORD

Airmen and Guardians are inextricably linked through a shared history. Prior to the creation of the United States Space Force (USSF) in 2019, the United States Air Force (USAF) detailed its space operational doctrine in Air Force Doctrine Publication (AFDP) 3-14, *Counterspace*. This new *Space Support* doctrine explains the Airman's perspective on the many interdependencies between the air and space domains. This revision details the current support relationships between the two services and the mission interplay required for successful integration of military airpower and spacepower. Finally, this publication clarifies the change of responsibility for space operations to the USSF and reflects the USAF's continued reliance on space capabilities to enable global airpower.

The USAF supports USSF space operations through security, communications, finance, medical, legal, and logistics activities. These activities ultimately contribute to the joint force commander's (JFC's) ability to integrate and synchronize forces by providing capabilities that enable the fires, command and control, protection, and intelligence joint functions. Effective joint operations require the ability to gain and maintain space superiority, provide space mission assurance, and counter any advantages space capabilities may provide to adversaries.

The USAF's role in supporting operations in the space domain constitutes a crucial element of national military strategy. The 2017 *National Security Strategy* stated, "The United States [US] considers unfettered access to and freedom to operate in space to be a vital interest. Any harmful interference with or attack upon critical components of our space architecture that directly affects this vital US interest will be met with a deliberate response at a time, place, manner, and domain of our choosing." The 2020 *National Space Policy of The United States of America* went one step further by stating, "the United States will continue to use space for national security activities, including to exercise the inherent right of self-defense." Airmen must prepare to defend against attacks on the US space infrastructure should they occur. Hostile acts against US space systems will likely generate effects beyond the space domain, disrupting worldwide services upon which the military, civil, and commercial sectors depend. In this situation, the US retains the right to respond in self-defense consistent with international law and treaties to which the US is a party.

The USAF's ability to suppress threats against terrestrial space systems and infrastructure helps the joint force maintain access to and freedom of movement in the space domain. Airmen should be prepared to support space operations and leverage space capabilities in support of air operations in a distributed or decentralized manner, even when isolated from higher echelons.

CHAPTER 1: SPACE OPERATIONS

“We had four key areas to invest in if we were going to build the force we needed to be able to compete, deter, and if deterrence failed, win. The first key area was space. The Air Force had to make space superiority number one. It was never a guarantee that if you moved first in space you were going to win. But in every wargame we played, if you were the second mover, you were guaranteed to lose.”



–General David Goldfein, 21st Chief of Staff, USAF

Throughout time, achieving the "high ground" has been essential to maintaining advantage in warfare. With rare exceptions, whichever force controlled the high ground gained the ability to shape the fight through more effective maneuver and superior awareness of the operational environment (OE). In that tradition, space assets orbiting high above Earth's surface offer a superior position and an expansive view of the OE. Space capabilities allow terrestrial forces (on the land and sea, and in the air) to affect more area with a smaller force; provide indications and warnings of strategic, operational, and tactical threats; and identify targets with precision without putting humans in harm's way. Joint space systems synchronize worldwide communications to enable highly accurate weapons fires, reachback support for expeditionary forces, and persistent global presence flown remotely from the continental US (CONUS).

Effective space operations start with control of the air as a joint force priority. Without this control, adversaries will inhibit the JFC's operational maneuver across all domains. Potential adversaries have expanded their reach to threaten space force operations. Therefore, space superiority is also a high joint force priority to ensure success in all domains. In response to these growing threats, the US re-established US Space Command (USSPACECOM) as a combatant command and established the USSF as an armed Service within the Department of the Air Force (DAF) to maintain space superiority through the application of military spacepower.

For decades, the US experienced unimpeded freedom of action in the space domain. This freedom allowed the delivery of space capabilities essential to the global operations with unmatched speed, agility, and lethality. However, our competitors understand the US competitive advantage derived from space capabilities and view this reliance as a critical vulnerability. To exploit this vulnerability, adversaries are developing and capabilities to deceive, deny, disrupt, degrade, and destroy our space advantage. Additionally, adversaries see the benefits of enhanced space capabilities and are advancing their own programs through the acquisition of new systems, partnerships with other space-faring entities, and purchasing commercial space products and services.

“The United States and allied forces must contend with space-enabled attacks on our forces in air, land, and sea. In this new era, space is far more contested; US access to space capabilities is not a given. This new era of space is far more congested and will challenge our ability to maintain situational awareness and operate safely in the domain.”



—General B. Chance Saltzman, Chief of Space Operations,
USSF

THE SPACE DOMAIN

Joint Publication (JP) 3-14, *Joint Space Operations*, defines the space domain as the area above the altitude where atmospheric effects on airborne objects become negligible. USSPACECOM's area of responsibility (AOR) is the area surrounding the Earth at altitudes equal to, or greater than, 100 kilometers (54 nautical miles) above mean sea level, an astrographic boundary that is adjacent to every other AOR. Like the air, land, and maritime domains, space is a physical domain within which military, civil, and commercial activities are conducted. The relationship between space and cyberspace is unique in that many space operations depend on cyberspace, and a critical portion of cyberspace can only be provided via space operations. Space operations impact or use space-based, ground-based, maritime, and cyberspace capabilities to enhance the potential of the US and multinational partners.

GUARDIAN PERSPECTIVE

Spacepower is the ability to accomplish strategic, operational, and tactical objectives through the control and exploitation of the space domain. Alongside the other Services, the USSF provides the space forces needed to support Combatant Commander (CCDR) and JFC-level missions. The USSF frames its ability to organize, train, and equip Guardians to deliver spacepower as part of unified action for the nation. Guardians integrate allies, partners, processes, and technologies to respond to the JFC's objectives, overcome adversary capabilities, and defeat the enemy.

To provide effective space capabilities for the joint force, Guardians conduct a range of interconnected operations aligning with the principles of joint operations. The global, multi-domain, and trans-regional reality of space operations means the USSF contributes to each of these principles as part of daily operations or in support of a particular campaign or operation.

SPACE FORCE ORGANIZATION

The USSF is one of two military services under the DAF, overseen by the Secretary of the Air Force (SECAF) and led by the Chief of Space Operations (CSO). The CSO is responsible for organizing, training, equipping, and presenting space and intelligence forces to JFCs to conduct operations in support of joint and multinational objectives. Guardians operating in geographically separated locations enable joint lethality for the

JFC. Collectively, the USSF, other US Armed Services, and allies synchronize operations to achieve converged effects in support of named operations and contingencies.¹

TERMINOLOGY

The USAF both supports space operations and is supported by space capabilities in every combatant command (CCMD). Air Force personnel supporting space domain operations will likely do so in conjunction with USSF Guardians. The discussion below highlights terms used in the context of space functions, missions, and capabilities. Awareness and understanding of these terms contributes to clear communication and minimizes confusion during operations.²

- ★ **Key Orbital Trajectory.** Any orbit from which a spacecraft can support users, collect information, defend other assets, or engage the adversary. (Space Doctrine Publication [SDP] 3-0)
- ★ **Link Segment.** The link segment consists of signals connecting other segments using the electromagnetic spectrum (EMS). (JP 3-14)
- ★ **Nonreversible Effects.** Includes permanently damaging or destroying sensors or other satellite components, which causes the operators to lose data and time and face the burdens of replacement or reliance on lesser assets. (SDP 3-0)
- ★ **Orbital Segment.** The orbital segment consists of spacecraft beyond Earth's atmosphere. (JP 3-14)
- ★ **Reversible Effects.** Includes effects that are nondestructive and temporary, and the system can resume normal operations after the incident. (SDP 3-0)
- ★ **Space Domain Awareness (SDA).** The timely, relevant, and actionable understanding of the OE that allows military forces to plan, integrate, execute, and assess space operations. (JP 3-14)
- ★ **Space Situational Awareness.** The requisite foundational, current, and predictive knowledge, and characterization of space objects within the space domain. (SDP 3-0)
- ★ **Space Superiority.** The degree of control in the space domain of one force over another that permits freedom of access and action without prohibitive interference from an adversary and as required, simultaneously denies an adversary's freedom of access and action. (JP 3-14)
- ★ **Terrestrial Segment.** The terrestrial segment consists of personnel, facilities, and equipment that exist in the other physical domains (air, land, and maritime) that affect or are affected by using either the orbital or link segments. (JP 3-14)

¹ For additional information on USSF staff and organization, see SDP 3-0, *Operations*.

² For additional information on terminology, see SDP 3-0 *Operations* and JP 3-14, *Joint Space Operations*.

CHAPTER 2: AIR AND SPACE INTEGRATION

“In a situation where a peer adversary initiates military aggression, the US Air Force brings trained Airmen and advanced capabilities to accomplish its five core functions... in doing so the USAF creates opportunities for the rest of the Joint Force to apply their strengths and stop the aggression. No service or force element operates alone, but in the face of the advanced threat, it is the Airmen who open the door ... or kick it down.”

–United States Air Force Future Operating Concept
Executive Summary, 6 March 2023

The focus of this publication is how the USAF contributes to and benefits from joint military spacepower. The USAF enables USSF space operations both in execution (e.g., counterair, air interdiction) and via the conduct of support activities (e.g., security, communications, finance, medical, legal, logistics). These activities directly contribute to the JFC’s ability to integrate and synchronize mutually supporting forces, operations, and campaigns, by providing capabilities that enable the **command and control (C2), fires, information, intelligence, movement and maneuver, protection, and sustainment** joint functions. The joint force air component commander (JFACC) supports all operational areas (OAs) of military spacepower in cooperation with other Services during joint operations.³

In the most demanding conditions, joint operations must be more than deconflicted Service component actions. Joint warfighting requires joint operations with all-domain qualities and attributes working in unison to survive and succeed.⁴ Joint all-domain operations (JADO) integrate functional component capabilities to enable the full range of joint fires. JADO bring together diverse but mutually supporting joint capabilities to outperform and outmaneuver the enemy. Airpower’s inherent advantages in precision, speed, range, and flexibility offer distinct benefits when employed in support of the space domain. Synchronizing air and space force schemes of maneuver to integrate capabilities such as secure C2 through satellite communications (SATCOM) or extending electromagnetic warfare (EW) effects across the AOR is an example of using JADO to accomplish the JFC’s objectives.

Effective joint operations, in all domains, require the ability to gain and maintain space superiority, provide space mission assurance, and counter any advantages space capabilities provide to adversaries. The USAF uses various capabilities to suppress threats against terrestrial space systems and infrastructure critical to enabling space operations. Since the USAF relies on a wide range of space capabilities to be combat

³ The Space OAs are Space Domain Awareness; Combat Power Projection; Positioning, Navigation & Timing; Satellite Communications; Intelligence, Surveillance, and Reconnaissance; Environmental Monitoring; Missile Warning; Nuclear Detonation Detection; Electromagnetic Warfare; Cyberspace Operations; Spacecraft Operations; Space Mobility and Logistics; Command and Control. For additional information see SDP 3-0, *Operations*.

⁴ For more information on JADO, see JP 3-0, Appendix D, *Fundamentals of Joint All-Domain Operations*.

effective, it integrates space effects into air operations through the air operations center (AOC) in close coordination with the appropriate CCMD Commander, Space Force forces (COMSPACEFOR), or joint force space component commander (JFSCC), if designated.

The USAF currently provides all base operating support (BOS) functions for the Space Force (e.g. security, civil engineering, communications, finance, medical, legal, logistics) which are critical to enabling space capabilities. USAF forces also support and complement forward-deployed space forces by providing offensive and defensive capabilities; intelligence, surveillance, and reconnaissance (ISR); and agile combat support. Many of the operations detailed in this chapter commonly support counterland and counterair operations that can affect the terrestrial segment of space operations. Air Force forces support freedom of action in space through integration with offensive and defensive space operations to maintain a desired level of freedom of action relative to an adversary.

AIR FORCE SUPPORT TO SPACE OPERATIONS

Counterair. The US may undertake offensive and defensive air operations within the bounds of US domestic laws and policy, and international law,⁵ to preserve space combat power in support of operations in all domains and neutralize or reduce the effectiveness of adversary actions. Airpower can negate an adversary's ability to deny, degrade, or destroy Department of Defense (DoD) and allied spacecraft and their ability to deliver effects in the space domain:

- ★ Offensive Counterair (OCA) operations seek to dominate enemy airspace and prevent enemy action in and from the air, resulting in freedom from attack and increased freedom of action. OCA in support of space operations can include attack operations and suppression of enemy air defenses (SEAD)⁶.
 - ★★ Attack operations can be used to destroy, disrupt, or degrade adversary terrestrial segments and may be accomplished through kinetic or non-kinetic actions. OCA can involve missiles, precision-guided munitions, or directed energy (DE) weapons targeting adversary capabilities.
 - ★★ SEAD operations aim to neutralize, destroy, or degrade enemy surface-based air defenses protecting terrestrial segments by destructive or disruptive means.
- ★ Defensive Counterair (DCA) operations defend friendly lines of communication, deny the enemy freedom of action in the air, and provide a secure area from which all elements of the joint force can operate. DCA operations can be conducted in conjunction with, or independent of, OCA operations and may consist of either active or passive air and missile defense (AMD).
 - ★★ Active AMD consists of air defense (AD) and ballistic missile defense (BMD) supported by secure and highly responsive C2 systems, to find, fix, track, target, and destroy or reduce the effectiveness of hostile airborne threats. It includes the

⁵ For additional information on policy and law, see *Appendix: Space Law and Policy*.

⁶ For additional information on counterair operations, see AFDP 3-01, *Counterair Operations*.

use of aircraft, SAMs, antiaircraft artillery, electromagnetic warfare (EW) (including DE), multiple sensors, and other available weapons or capabilities.

- ★★ Passive AMD includes all measures, other than active AMD, taken to minimize the effectiveness of hostile air and missile threats against friendly forces and assets (e.g., hardening and dispersion). Passive AMD is often an additional means of defense should active AMD efforts fail.

Counterland. Counterland operations consist of air operations to interdict enemy land forces conducted at such distances from friendly forces that detailed integration of each air mission with the fire and movement of friendly forces is not required”.⁷ Air interdiction (AI) is conducted to divert, disrupt, delay, or destroy the enemy’s military potential before being brought to bear effectively against friendly forces or to otherwise achieve the JFC’s objectives.

- ★ AI in support of space operations may involve attacking and disrupting communication lines between adversary terrestrial link segments and SDA facilities. Conversely, a JFACC may use an attrition strategy against adversary high-value space capabilities since they are often specialized and relatively few in number.

Electromagnetic Spectrum Operations (EMSO). Space operations are highly dependent on access to and freedom of maneuver within the EMS. Air Force EMSO capabilities may be used to degrade C2 of adversary spacecraft, integrated air defense systems, information capabilities, and other forces. EW can also be used to disrupt or degrade adversary control of their space assets while simultaneously protecting friendly space assets from the same. EW considerations for the space domain include persistence, standoff, regional effects, approval authorities, legality, and effects synchronization.⁸

Intelligence Surveillance, and Reconnaissance. ISR is an integrated operations and intelligence activity that synchronizes and integrates the planning and operation of sensors and assets, and the processing, exploitation, and dissemination systems in direct support of current and future operations. USAF ISR assets may be tasked to conduct surveillance and reconnaissance of adversary airspace or terrestrial areas. Reachback capabilities like the National Air and Space Intelligence Center can provide deployed forces with unique aerospace intelligence relating to suspected purposeful interference and EM attack directed against US Government (USG) or allied space systems. Preparation and execution of ISR should include coordination through the USSF Service component, JFSCC (if designated), applicable liaison officers (LNOs), and other agencies.

Sustainment Capabilities. When operating in a forward location in support of joint operations, the Service component with the preponderance of forces normally performs the role of the BOS integrator (BOS-I) for that site. A JFC may designate an individual within a Service component or joint task force (JTF) as the BOS-I at each location. The BOS-I coordinates the efficient use of mission support resources. Where shortfalls or

⁷ For additional information on counterland operations, see JP 3-03, *Joint Interdiction and AFDP 3-03, Counterland Operations*.

⁸ For additional information on EMSO, see AFDP 3-85 *Electromagnetic Spectrum Operations*.

opportunities for efficiencies exist, the CCDR may task components of JTFs to provide or coordinate specific capabilities (e.g., infrastructure, security, and communications).

In many cases, the JFC may designate a BOS-I and senior airfield authority (SAA) from different Services at the same location (a common practice is to designate BOS-I responsibilities to the Army component while designating SAA responsibilities to the Air component). The BOS-I is the joint BOS provider for the operating location or base and the SAA is responsible for the control, operation, and maintenance of the airfield including the runways, associated taxiways, and parking ramps, as well as land and facilities affecting airfield operations. As such, the SAA will perform many BOS functions on the facilities immediately surrounding the airfield.

Regardless of BOS status, the air component commander is responsible for the sustainment of DAF forces under the USAF agile combat support function⁹. This encompasses supplying, distributing, and maintaining goods and services, medical support, and infrastructure at operating locations. The Air Force also provides security forces to guard terrestrial segments and civil engineering support to maintain critical facilities. Air Force communications capabilities help to ensure link segments can pass critical information to orbital assets. Finally, the USAF also provides all finance and legal support for the USSF. The air component commander, as a DAF Service component lead, can be tasked to provide this same level of operational and administrative support for USSF forces assigned to the same theater or AOR.¹⁰

Operation THUNDERGUN EXPRESS

Members of USSF's 16th Electromagnetic Warfare Squadron worked with Air Forces Southern Command (AFSOUTH) and partner nation air forces to build and deploy "mobile space detection systems" at multiple locations in US Southern Command's theater. AFSOUTH's ability to coordinate all the international logistics and airlift support for the Guardians to load and move sensitive terrestrial link segments between locations was vital to mission success. During the exercise, the forward-deployed team rapidly detected and reported live-fire electromagnetic interference sent from an exercise input cell attempting to disrupt a commercial satellite in orbit over the Atlantic Ocean.

Weather Operations. USAF weather personnel provide all USSF operational weather support. This includes atmospheric weather, hydrometeorology support, climate, and space weather data and information. Their ability to ingest and synthesize large amounts of environmental data to analyze and forecast weather effects remains a strategic asset and critical element in ensuring the safety and success of military space operations. Air

⁹ For additional information on functions, see DoDD 5100.01, *Functions of the Department of Defense and Its Major Components*.

¹⁰ For additional information on support, see AFDP 4-0, *Combat Support*.

Force weather units also deliver terrestrial, space, and climatological global environmental information to joint warfighters.¹¹

Space weather impacts may include temporary disruption or denial of signals, anomalous or spurious information, or even permanent degradation of spacecraft capability. Terrestrial weather can degrade the effectiveness of space-based electro-optical sensors; interfere with ground-based, electro-optical system ability to conduct SDA; and impede higher-frequency SATCOM uplink and downlink signals during moisture producing storms. Predicting adversary responses to forecasted environmental conditions optimizes USSF space operations to maintain freedom of action and maneuver by deliberately forcing adversaries into dilemmas.¹²

SPACE FORCE SUPPORT TO AIR FORCE OPERATIONS

Space forces provide the JFACC with several unique and critical capabilities to enable air operations. AOC planners work closely with their Space Force counterparts to ensure these effects are incorporated into the overall planning scheme. In a contested environment, the following space capabilities are critical to enabling operations such as long-range kill chains and integrated AMD:

Positioning, Navigation, and Timing (PNT). Space-based PNT is a global, multi-use service that is essential to executing the joint functions of C2, movement and maneuver, and fires in a military campaign. PNT systems provide the joint force with precise four-dimensional positioning capability, navigation options, and a highly accurate time reference. Precision timing provides air forces the capability to synchronize disaggregated operations and enable secure communications capabilities such as frequency hopping and cryptologic synchronization¹³.

Satellite Communications. SATCOM includes the operation of spacecraft constellations that support beyond-line-of-sight communication links critical to establishing C2 and reachback for the worldwide joint force. Confidence in the availability of global SATCOM is critical to enabling distributed control of air operations.

Space-Based Missile Warning. Space-based sensors provide time-critical event processing and data delivery to decision makers around the world. Strategic and theater systems provide joint forces the necessary means to detect, track, and mitigate missile threats throughout their AOR. The Integrated Tactical Warning and Attack Assessment (ITW/AA) network is a strategic missile warning system providing timely, accurate, and continuous global missile warning and event characterization information for the joint force.

Electromagnetic Warfare. EM warfare is military action involving the use of EM and DE to control the EMS or to attack the enemy. The remoteness of spacecraft relative to their terrestrial control centers necessitates operations in the EMS. Space-based EW

¹¹ For additional information on weather information, see JP 3-14, *Joint Space Operations*.

¹² For additional information on USAF weather operations, see AFDP 3-59, *Weather Operations*.

¹³ For additional information on space support operations, see SDP 3-0, *Operations*.

capabilities can create effects in support of joint air operations while also ensuring spectrum availability for critical communications.

Intelligence, Surveillance, and Reconnaissance. Intelligence-led, threat-informed operations are critical to the United States, its allies and partners, and their ability to defend the space domain. Space-based ISR contributes data through multiple intelligence disciplines, providing actionable intelligence and information about adversary military force capability, composition, disposition, and intent that is relevant to the planning, decision making, and operations in every domain. Space-based ISR capabilities provide the joint force with timely and accurate analysis of the battlespace through geospatial intelligence, signals intelligence, and measurement and signals intelligence platforms. ¹⁴

¹⁴ For additional information on space-based ISR operations, see SDP 2-0, *Intelligence*.

CHAPTER 3: COMMAND AND ORGANIZATION

Clearly defined command relationships are crucial for ensuring the JFACC can support timely and effective execution of space operations to achieve CCDR objectives. The Commander, United States Space Command (CDRUSSPACECOM), advocates, plans, coordinates, integrates, synchronizes, assesses, and as directed, executes global military space operations in coordination with or in support of other CCMDs. USSPACECOM provides key space capabilities to other CCMDs and receives simultaneous support and defense for space forces assigned or allocated to a theater. This mutual support requires prioritized support relationships with guidance from the Secretary of Defense (SecDef). Due to the global nature of space operations, space forces are assigned to multiple CCDRs. SecDef approves the command relationships for each space operation through the global force management allocation process.

COMMAND RELATIONSHIPS

Support relationships convey priorities to commanders and staffs and are established to aid, protect, complement, or sustain one force by another. Appropriate command relationships for attached space forces are normally documented in a SecDef approved order after coordination between the relevant CCDRs. USSPACECOM coordinates with other CCDRs when conducting operations to mitigate or eliminate threats to space systems. CDRUSSPACECOM is typically the supported commander for the protection of friendly space operations and capabilities (e.g., a terrestrial-based threat to space capabilities), while another CCDR is the supporting commander for all other operations.

UNITED STATES SPACE COMMAND

CDRUSSPACECOM exercises CCMD authority over assigned joint space forces and resources to ensure the availability of space capabilities to the joint force by leveraging commercial, intelligence community (IC), and DoD assets. CDRUSSPACECOM plans, coordinates, integrates, synchronizes, assesses, and as directed, executes global offensive and defensive space operations in coordination with or in support of other CCMDs, the Services, USG departments and agencies, allies and partners, and other entities. These operations can occur in any domain or through the EMS. CDRUSSPACECOM, as the Space Joint Force Provider, identifies and recommends joint space sourcing solutions to the Chairman of the Joint Chiefs of Staff in coordination with the Services and other CCDRs and supervises the implementation of sourcing decisions.

CCDRs use assigned or attached joint space forces to best accomplish their assigned mission in accordance with established orders, authorities, and support relationships. USSPACECOM forms Joint Integrated Space Teams (JISTs) to facilitate CCMD-level planning and execution to optimize supporting and supported relationships and activities between USSPACECOM and other CCMDs. A USSPACECOM JIST co-located within each CCMD, provides additional advice on the employment of USSPACECOM capabilities and assistance with leveraging those capabilities. First Air Force is designated as Air Forces Space Component Command (AFSPACE) to support USSPACECOM's various operations from, in and to the space domain.

Subordinate JFCs and component commanders request space operations and capabilities specific to their mission during the planning process. The JFC requests space support via the request for forces and request for capability processes.

COMMAND AND CONTROL OF SPACE OPERATIONS

COORDINATING JOINT AIR AND SPACE OPERATIONS

Space operations and resources are often physically and technologically integrated with joint and Service-specific forces. A common understanding of how space operations and capabilities integrate with joint operations will help Airmen effectively use space capabilities to achieve JFC objectives. When properly planned and coordinated, space operations enable and support unified action throughout the OE. During USAF support to space operations the Air Force space LNO, if established, provides a clear understanding of the JFSCC's capabilities and requirements for prioritized effects.

Prior to the establishment of USSPACECOM and the USSF, the JFACC was normally dual hatted as the lead for space operations. With the advent of a dedicated space command structure, CCDRs may now choose to designate a JFSCC, delegate the responsibilities to a Service component, or retain the responsibility for C2 and coordination of space requirements, functions, capabilities, and requests. Commanders and staff must have a common understanding of command relationships to conduct space operations throughout the OE. **Commanders tasked by the JFC to execute joint operation area-wide operations are required to coordinate the operation with the appropriate battlespace owner to avoid adverse effects and friendly fire incidents.** To aid this coordination and ensure adequate joint and multinational representation, the JFSCC's staff should be augmented with relevant Service component and coalition partner liaisons.

THE SPACE COMPONENT COMMANDER

When established, a USSF Component Field Command (C-FLDCOM) commander assigned to each combatant command, or subordinate commander, exercises operational control (OPCON) and/or tactical control (TACON), as delegated by the CCDR, of assigned and attached Space Force forces. The USSF Service components will execute missions and assigned tasks, recommend effective employment, C2 assigned and attached forces, synchronize space effects with the other components of the joint force, and coordinate with USSPACECOM components as required.

The JFACC and other Service component commanders rely upon a wide range of space operations to enable their operations. Space Deltas, the equivalent of USAF Wings, generate crews that are force presented as combat squadrons or detachments to conduct operations in missions including ISR, SDA, EMSO, ITW/AA, missile warning, SATCOM, and PNT, navigation warfare, offensive and defensive space operations, cyberspace operations, and mission planning. The C-FLDCOMs, or subordinate component headquarters, coordinate space requirements between CCMDs and liaise with other agencies.

THE AIR COMPONENT COMMANDER

Typically, the Service component commander with the preponderance of air forces and the ability to plan, task, and control air operations should be designated the JFACC. In this “dual-hatted” role, the air component commander is normally tasked with theater-wide responsibility in support of JFC objectives. Though capable of supporting space operations, the priority for doing so is set by the JFC. Based on recommendations from the air component commander, the JFC’s apportionment decision drives subsequent allocation and tasking of air component capabilities. As the supported commander, the JFSCC provides requirements in terms of objectives and effects. This may also include the designation of specific terrestrial targets or target sets. As the supporting commander, the JFACC determines how best to achieve those effects.

“The US Air Force organizes, trains, and equips forces to be an air component to a joint force commander (JFC). As part of the joint force’s air component, our forces must be prepared to accomplish JFC objectives. The air component commander’s administrative authorities are derived from Title 10, U.S. Code, and exercised as the commander, Air Force forces (COMAFFOR). The air component commander’s operational authorities are delegated from the JFC and exercised as both the COMAFFOR, over Air Force forces, and as the functional joint force air component commander (JFACC), over joint air forces made available for tasking. Thus, the air component commander leads Air Force forces as the COMAFFOR and the JFC’s joint air operations as the JFACC. This duality of authorities is expressed in the axiom: Airmen work for Airmen and the senior Airman works for the JFC.”

-- Air Force Doctrine Publication (AFDP) 1, *The Air Force*

Since the COMAFFOR and JFACC are nearly always the same individual, this AFDP will use the term “air component commander” when referring to duties or functions that could be carried out by either or both, unless explicit use of the term “COMAFFOR” or “JFACC” is necessary for clarity.

When the JFACC is tasked to create effects in the space joint operating area (SJOA), it will normally be as a supporting commander to the JFSCC. Per JP 3-14, “the JFSCC is responsible for integrating, synchronizing, and coordinating effects in space with the CCMD’s operations. This includes exercising C2 over assigned and attached space forces and ensuring operations in, from, or to the USSPACECOM AOR are coordinated with USSPACECOM. Additional responsibilities include prioritizing and adjudicating intra-theater support requests to USSPACECOM and the joint staff based on CCDR objectives. This may include advocating for a request for forces, request for support, and global force management actions.” The air component commander, as a DAF service component lead, can be tasked to provide operational and administrative support for USSF forces assigned to the same theater. **While the air component commander normally**

exercises OPCON of USAF forces and TACON of other Service forces made available for tasking, they do not exercise TACON over any space assets or operations.

PRESENTATION OF FORCES

USSF prepares and presents forces to combatant commanders. The Space Mission Task Force is the structure through which Guardians integrate into the joint force and support combatant commanders. The COMSPACEFORs carry out C2 through the SPACEFOR staff to integrate space capabilities into JADO.

LIAISON ROLES IN SPACE OPERATIONS

Liaisons are an important aspect of joint force planning, employment, and assessment. Liaison teams or individuals may be dispatched from higher to lower, lower to higher, laterally, or in any combination. They generally represent the interests of the sending commander to the receiving commander, but can greatly promote understanding of the commander's intent at both ends and should be assigned early in the planning stage of joint operations.

Due to the joint nature of space operations, liaisons serve a vital and active role in coordinating, integrating, and planning effects across all domains. The Air Force space LNO, if established, provides the necessary face-to-face contact between the C-FLDCOMs and air component commander planning staffs to ensure mutual understanding and unity of effort between components. The Air Force space LNO is not assigned or attached to the air component commander's staff and participates in the AOC planning to represent the C-FLDCOM commanders' interests. Similarly, USAF personnel can expect to be liaisons to the C-FLDCOMs during joint operations. USAF liaisons to these staffs offer tactical expertise, operational guidance, doctrinal advice, and real-time coordination of operations with USAF forces.

CHAPTER 4: SPACE SUPPORT PLANNING AND EMPLOYMENT

Planning and employment of space support operations by USAF forces requires close coordination with space component planners. The planning processes used by USSF and USAF forces are consistent in structure and method with the joint planning process described in JP 5-0, *Joint Planning*. Collaboration is critical to integrate design, planning, execution, and assessment processes and enable multiple echelons to work effectively and efficiently together. Likewise, timely mechanisms for assessment that are understood by all forces involved facilitate decision making and enable the entire force to adapt rapidly and exploit opportunities in complex dynamic circumstances.

SPACE SUPPORT PLANNING CONSIDERATIONS

Space operations planning may be conducted at every echelon of command and across the competition continuum. CDRUSSPACECOM plans for simultaneous support to all theaters and to meet global space requirements through Commander, US Space Forces-Space Command (COMSPACEFOR-SPACE) and the Combined Space Operations Center (CSpOC). Space support planning should consider the capabilities of the Services; joint force components; and interagency, multinational, and commercial partners available for or contributing to the mission. Space operations planning also requires the identification of requirements and capabilities in, from, and to space needed to achieve CCDR objectives. Once defined, the applicable JFSCCs identify the actions required of supporting component commanders to support the operational objectives. For the JFACC, this determination will drive the priorities for AOC planners.

During joint intelligence preparation of the OE (JIPOE), Air component planners should assess adversary reliance on terrestrial segments supporting space capabilities and the joint force's ability to deny or degrade those capabilities. Planners should pay particular attention to the adversary's active and passive space capabilities, as well as their commander's intent and ability to contest US and allied freedom of action in, from, and to space with those capabilities. To this end, planners should identify and address the defense of friendly critical terrestrial segments throughout the operation. This assessment should inform supporting and supported CCDRs, COMSPACEFORs, JFSCCs (if designated), and JFACCs. The output from JIPOE will inform decision-making efforts during mission analysis and course of action development.

Supporting Offensive Space Operations. Offensive space operations may be required when the enemy has the capability to threaten friendly space forces or provide significant support to enemy terrestrial forces with space capabilities. Given finite resources in all domains the JFACC should judiciously plan the allocation of forces and capabilities to meet CDRUSSPACECOM's and other supported Commanders' operational objectives. Successful offensive space operations may result in greater freedom *from* attack, by destroying, degrading, or denying enemy space capabilities before they are used against friendly forces, enabling increased joint force freedom of action. This, in turn, may free up assets for other operations against the enemy. Successful offensive space operations also result in the ability to mitigate the adversary's use of space capabilities to support their fielded forces in all domains.

Determining which enemy capabilities to target and the effect required is fundamental to successful Air Force support to offensive space operations. For instance, it may not be necessary to destroy or degrade a given capability, but only temporarily disrupt or deny it to achieve desired effects. This type of analysis varies from operation to operation but results in an effective set of target priorities and more efficient use of capabilities to achieve desired effects. The nature of airpower is such that offensive combat power can frequently be “massed” by distributed forces, even when starting from widely dispersed locations.

From an Airman’s perspective, mass is not based solely on the quantity of forces and materiel committed. Airpower achieves mass through the concentration of effects at the most advantageous time and place to produce decisive outcomes. The most effective offensive space support efforts may be achieved as part of a broader, parallel attack on the adversary as a system-of-systems with all available assets, including multi-domain capabilities. For instance, attacking electrical power and isolating national military leadership may aid an operation’s overall effort while also helping achieve other objectives. However, as with other operations, care should be taken not to dilute the main effort to the point where it is ineffective. The appropriate concentration of effort ensures that direct effects are balanced with indirect effects that degrade the adversary system-of-systems and warfighting effectiveness over time. AOC planners should determine the threat posed by adversary capabilities and expect at a minimum they will use active and passive defenses to protect their orbital, link, and terrestrial space force segments. AOC planners should develop plans to deny or degrade the effectiveness of these defenses, to create a permissive mission environment at desired places and times.

Systems and methods must be employed in ways that minimize risk to friendly forces, civilians, and civilian property. In all cases, planners should consider the use of multi-domain capabilities to conduct offensive space operations and the risk of denying the space domain’s use by the US, its allies, and all other users.

The JFSCC, in coordination with other component commanders, determines objectives, desired effects, and relative priorities. Air component planners assess adversary systems, capabilities, and assets that can be used to contest space operations as considerations for supporting offensive and defensive air operations. Planners match desired effects to targets and match targets with friendly forces to create tactical tasks. Planners should develop a prioritized target list before hostilities begin, continually updating it once the battle rhythm is established based on current intelligence and the progress of the operation. Planners should also build procedures for higher priority re-taskings, such as diversions to strike time-sensitive targets (TSTs). Air component planners should be able to re-task support operations rapidly to take appropriate action against TSTs and similar fleeting, emerging, or higher-priority space-related targets.

Supporting Defensive Space Operations. Defensive space operations protect friendly space capabilities from attack, interference, and unintentional hazards, to preserve the US and friendly ability to exploit space for military advantage. Effective air component support to defensive space operations, before threats come to bear, may reduce the offensive space operations requirement. Defensive air operations defend friendly lines of communication, restrict the ability of the enemy to carry out offensive attacks in all

domains against friendly space forces and assets, and provide access to space capabilities for all elements of the joint force.

- ★ Just as in offensive space operations, air component planners supporting defensive space operations prioritize which assets and capabilities the JFACC can defend. Planners at all levels identify enemy targets and capabilities to defend against while matching available forces against the threat.

Active Space Defense. Active space defense consists of direct actions taken to negate or mitigate the effectiveness of threats against friendly space forces, assets, and capabilities. Upon a determination of a hostile act or demonstrated hostile intent, an appropriate authority may authorize offensive or defensive air operations in support of space operations.

- ★ The effective and efficient execution of offensive or defensive space operations requires the ability to quickly detect, identify, target, track, and attack potential threats and their support systems. Defensive space operations engagements require careful deconfliction between friendly, neutral, and adversary assets and capabilities.

Passive Space Defense. Unlike active space defense measures, passive space defense does not involve direct action in response to adversary, unintentional, or environmental threats. Passive defenses enhance the survivability of space systems by providing a layered defense to ensure space systems continue to operate both during and after attack. The COMAFFOR, under BOS authorities, contributes to USSF passive measures using camouflage, concealment, deception, hardening of systems, and cybersecurity.

APPENDIX: SPACE LAW AND POLICY

The USAF supports the USSF with the provision of legal support activities as appropriate. Many decisions and actions in the space domain can have serious legal implications. The staff judge advocate provides full spectrum legal support during the planning and execution of all space activities. US laws, policies, and regulations may be more restrictive and impose additional restraints or constraints beyond what is required under international law.

SPACE LAW

Title 10, U.S. Code. Lays out the organization and general military powers of the DoD, the military services, and the reserve components. It also contains laws specific to DoD personnel, training and education, service, supply, property, and acquisition. Among other things, Title 10 establishes the USSF as an armed force within the DAF and provides that they shall be organized, trained, and equipped to provide freedom of operation for the US in, from, and to space, conduct space operations, and protect the interests of the US in space.

Title 32, U.S. Code. Provides for the organization, personnel, training, service, supply, and procurement for the Army and Air National Guard, including Air National Guard units conducting space-related missions.

Title 50, U.S. Code. Provides discrete provisions of law related to war and national defense, including laws related to the National Security Council, foreign intelligence surveillance, insurrections, national emergencies, weapons of mass destruction, and the IC. Among other things, Title 50 lays out the responsibilities and authorities of the Director of National Intelligence and the responsibilities of the SecDef pertaining to the National Intelligence Program. It also requires the SecDef to ensure that the elements of the IC within the DoD are responsive and timely with respect to satisfying the needs of operational military forces.

1945 Charter of the United Nations. Establishes the United Nations framework, requires states to refrain in their international relations from the threat or use of force against the territorial integrity or political independence of any state, and recognizes the inherent right of individual or collective self-defense in the event of an armed attack.

1963 Limited Test Ban Treaty. Prohibits nuclear weapons tests "or any other nuclear explosion" in the atmosphere, in outer space, and underwater. While not banning tests underground, the Treaty does prohibit nuclear explosions in this environment if they cause "radioactive debris to be present outside the territorial limits of the State under whose jurisdiction or control" the explosions were conducted.

1967 Outer Space Treaty. Establishes the proposition that all space activities must be conducted in accordance with international law, recognizes that outer space, including celestial bodies, is free for exploration by all states and is not subject to national appropriation, recognizes that states retain jurisdiction and control over their space objects, and that the ownership of space objects is not affected by their presence in outer space or on celestial bodies, prohibits states from stationing weapons of mass destruction

in outer space in any manner, including on celestial bodies and in earth orbit, prohibits states from establishing military bases, installations, and fortifications, or conducting military maneuvers on celestial bodies but permits the use of military personnel, equipment, and facilities for scientific research or other peaceful purposes, requires states to conduct their space activities with due regard to the interests of other States and avoid harmful contamination of outer space and celestial bodies, requires states to avoid space activities that cause adverse changes in the earth environment from the introduction of extraterrestrial matter, and requires states to undertake consultations with other states if there is reason to believe their actions would cause harmful interference with another State's space activities.

SPACE POLICY

2013 National Space Transportation Policy. Establishes policy to ensure the US has access to diverse regions of space, from suborbital to Earth's orbit and deep space, in support of civil and national security missions.

2020 National Space Policy. Emphasizes the importance of assuring US access to space, promoting a robust commercial space industry, returning American boots on the Moon, and preparing for Mars, leading exploration, and defending US and allied interests in space.

DoDD 3100.10, Space Policy (30 August 2022). Establishes policy and assigns responsibilities for DoD space-related activities in accordance with the National Space Policy, the US Space Priorities Framework, the National Defense Strategy, the Defense Space Strategy, and US law, including US Code Titles 10, 50, and 51.

Defense Space Strategy, June 2020. Identifies how the DoD will advance spacepower to enable the Department to compete, deter, and win in a complex security environment characterized by great power competition.

United States Space Priorities Framework, December 2021. Outlines the US space policy priorities, including addressing growing military threats and supporting “a rules-based international order for space.”

New United States Commitment on Destructive Direct-Ascent Anti-Satellite Missile Testing, 18 April 2022. US commits not to conduct destructive, direct-ascent anti-satellite (ASAT) missile testing, and the US seeks to establish this as a new international norm for responsible behavior in space.

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