SPACE and the Theater Commander's War

By THOMAS A. DOYNE

From Desert Storm to Allied Force, the role of spacepower in the American way of war has expanded. Other nations also acknowledge the merits of spacepower. According to recent figures, 32 nations as well as many commercial firms and private consortia have objects in orbit. India is reportedly developing improved imagery satellites—from 5m to 1m resolution—based on a lesson learned from skirmishes with Pakistan over Kashmir. Recently one company launched *Ikonos*, a commercial satellite with 1m resolution, whose images are available on the Internet.

Spacepower is no longer a preserve of superpowers. Victory will belong to those who best integrate and employ its capabilities on the operational level. But a review of current doctrine and organization reveals areas in need of improvement. Specifically, spacepower should be included in the basic plan portion of the operation plans and execution paragraph of orders used in crisis action planning. Organizationally, JFCs must have a director of space and information operation forces, similar to a director of mobility forces under the joint force air component commander (JFACC) to integrate strategic and intertheater airlift, in order to provide unity of effort for spacepower. Such recommendations will enable JFCs to fully exploit spacepower in combined arms teams.

Lieutenant Colonel Thomas A. Doyne, USAF, is an action officer on the Air Staff and previously served as deliberate plans officer (J-5) at U.S. Space Command.

Doctrinal Waterloo

The unified command plan (UCP) has defined the responsibilities of U.S. Space Command (SPACECOM) since 1985. Commander in Chief, Space Command (CINCSPACE), serves as the focal point for military space operations, including communications. He is also tasked to "provide military representation to U.S. national, commercial, and international agencies for matters related to military space operations." Force enhancement—intelligence, surveillance, and reconnaissance, weather, missile warning, navigation, and communications, the most mature SPACECOM mission areas—notably overlaps information operations. As a result, the unified command plan assigns information operations missions related to computer network attack and defense to the command.

Despite the expansion of its authority, SPACECOM links to the regional command are still undeveloped. Joint Pub 0-2, *Unified Action Armed Forces*, and Joint Pub 3-0, *Doctrine for Joint Operations*, state that JFCs may establish functional components within JTFs to provide centralized direction and control of certain functions and operations. Joint Pub 3-0 also states that a functional component is appropriate when forces from two or more services operate in the same dimension or medium. But these documents stop short of mentioning a space component or task force.

On theater command and control of spacepower, the draft of Joint Pub 3-14, *Joint Space Operations*, stipulates: "A supported CINC/JFC/JTF

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U.S. Air Force (Vince Parker)

Monitoring operations over Iraq.

commander should designate a coordinating authority for space operations under the JFC (for example the JFACC)." However, it contains no details and only focuses on Annex N (Space Operations) and supporting space plans. In addition, it does not relate spacepower to campaign objectives or enemy and friendly centers of gravity.

Both Joint Pub 5-00.2, *Joint Task Force Planning Guidance and Procedures*, and CJCSM 3122.03, *Joint Operations Planning and Execution Systems, Volume 2*, treat spacepower within the context of joint force. In particular, the former incorporates space in planning responsibilities of the J-2 (intelligence), J-3 (operations), J-5 (planning), and J-6 (communications) staff elements. But emphasis on spacepower diminishes as CJCSM 3122.03 and AFSC Pub 1 apply joint doctrine to campaign design and operational plan/order development. For example, the former publication provides the format for Annex N, which is attached to operation plans but provides little guidance on incorporating spacepower into the basic plan. While Joint Pub 5.00-2 tasks intelligence staffs with preparing estimates of enemy space capabilities, CJCSM 3122.02 does not mention space in discussing areas of interest. CJCSM 3122.02 and AFSC Pub 1 highlight phasing campaigns and orienting them on attacking centers of gravity while protecting one's own. But they do not provide planners with structural or analytical frameworks for incorporating spacepower into campaigns.

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Pertinent doctrine is found in Air Force doctrine documents (AFDDs) 1, *Air Force Basic Doctrine*, 2, *Organization and Employment of Aerospacepower*, and AFDD 2-2, *Space Operations*. The first logically links air and space operations in spite of differences and asserts that airpower and spacepower "share the advantage of three-dimensional maneuver" and therefore are governed by the same tenets. Thus centralized control and decentralized execution apply to spacepower just as they do to airpower. "It is a basic principle of air and space doctrine that command and control of air and space forces be centralized under one officer—an airman." In this scenario an airman is one who appreciates and knows how to employ the full scope of aerospace capabilities. However, AFDD 1 does recognize that space forces differ from most air forces because they are global. Thus it acknowledges that SPACECOM has operational control over them, just as U.S. Transportation Command (TRANSCOM) retains control over strategic airlift.

The global nature of space presents a doctrinal dilemma. On one hand, the Air Force holds that a single commander should control both air and space forces for the theater command; but on the other, it acknowledges that SPACECOM, and not an air commander in theater, has operational control of space forces. This dilemma exists on all levels of Air Force doctrine.

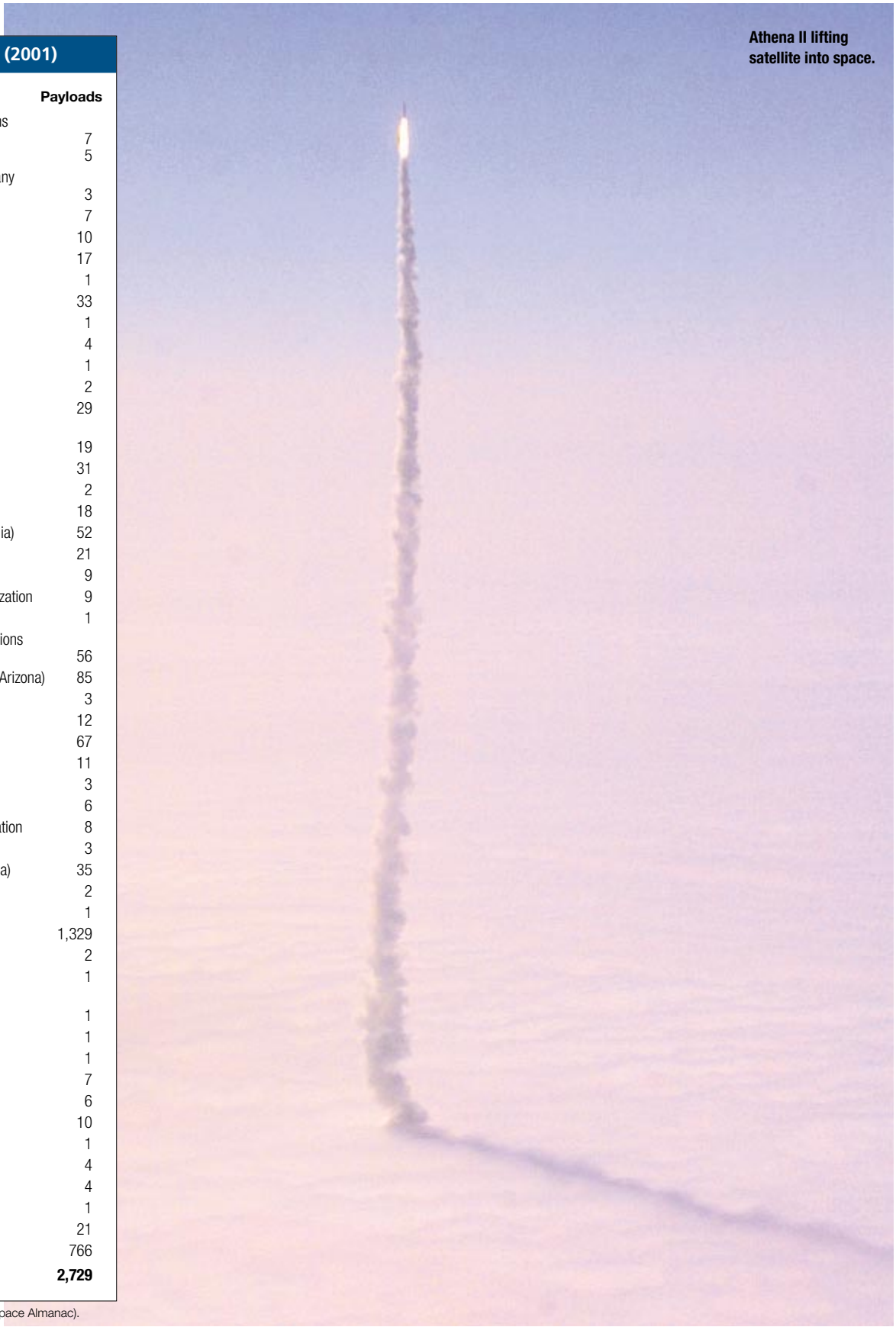
AFDD 1 recognizes that the nature of space forces differentiates them from air forces and prevents transferring operational control to JFCs. However, the February 2000 edition of AFDD 2 states that "the responsibility of integrating space forces into the joint effort is normally delegated to the JFACC." When authorized by CINCSPACE, JFACC requests and coordinates employment of Air Force space assets through the commander of the Air Force component of SPACECOM, who provides space support through the aerospace operations center, which develops supporting plans for JFACC and establishes a daily space tasking order to control Air Force space assets.

AFFD 2 provides guidance for writing the Joint Aerospace Operation Plan, which stresses identifying enemy centers of gravity and vulnerabilities. It recommends that information on forces not assigned, such as SPACECOM elements, be entered in the friendly forces paragraph. It does specify that the paragraph on aerospace operations "should consider land, sea, air, space, special operations, and multinational" capabilities by the phase of a campaign. The pub does not address what happens when JFACC is not the

Who's Who in Orbit (2001)

Launcher/operator	Payloads
Arab Satellite Communications Organization	7
Argentina	5
Asia Satellite Telecom Company (Hong Kong)	3
Australia	7
Brazil	10
Canada	17
Chile	1
China	33
China/Brazil	1
Czech Republic	4
Denmark	1
Egypt	2
European Space Agency	29
European Telecom Satellite Organization	19
France	31
France/Germany	2
Germany	18
Globalstar (San Jose, California)	52
India	21
Indonesia	9
International Maritime Organization	9
International Space Station	1
International Telecommunications Satellite Organization	56
Iridium Satellite LLC (Tempe, Arizona)	85
Israel	3
Italy	12
Japan	67
Luxembourg	11
Malaysia	3
Mexico	6
North Atlantic Treaty Organization	8
Norway	3
Orbcomm LLC (Dulles, Virginia)	35
Philippines	2
Portugal	1
Russia	1,329
Saudi Arabia	2
Saudi Arabia/France	1
Sea Launch Company (Long Beach, California)	1
Singapore/Taiwan	1
South Africa	1
South Korea	7
Spain	6
Sweden	10
Taiwan	1
Thailand	4
Turkey	4
United Arab Emirates	1
United Kingdom	21
United States	766
Total	**2,729**

Source: Air Force Magazine (Space Almanac).



Athena II lifting satellite into space.

30th Communications Squadron (Cherie Thurlby)

DOD (R.D. Ward)

The Chairman briefing reporters on Allied Force.

air expeditionary force commander, nor does it consider the fact that the Air Force space commander does not exercise operational control over Army, Navy, national, commercial, or international satellite systems and cannot task them.

AFDD 2-2, *Space Operations*, articulates operational doctrine. Like its parent documents, it acknowledges that SPACECOM has operational control of space forces. However, it does touch on non-Air Force assets, stating that "flexibility and innovation on the part of the commander" are required to maximize effectiveness.

Spacepower is provided by many agencies, making synchronized support for warfighters difficult. Today command and control of space forces is provided to regional CINCs or designated JFCs by support teams who deploy to their respective areas within JTFs. Coordinating teams can be difficult. SPACECOM liaison officers serve with the national space community, the Defense Information Systems Agency (DISA), and unified commands. It develops and issues mission type orders to components to coordinate and synchronize support for JTFs. It also provides coordination copies of orders to the national space community and DISA to help synchronize operations.

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Doctrinal and Organizational Solutions

Current doctrine should be revised. Spacepower contributions to the overall campaign plan must be stated in the basic plan section of the operation plan and not simply relegated to Annex N and supporting plans. Spacepower must be integrated into operation plans and orders in the three following paragraphs: (1) *situation*—explaining that enemy and friendly centers of gravity analysis must include spacepower, (2) *execution*—indicating how spacepower contributes to accomplishing each phase of an operation, and (3) *command and control*—detailing the roles of military, civilian, and commercial satellite communications in command and control. Revising the basic guidance in both plans and orders will give space operations the proper emphasis.

Since doctrine is oriented on attacking enemy centers of gravity while guarding one's own, planners need an analytical device to link spacepower to centers if spacepower is integrated into the operation plan and order paragraphs. Every CINCSPACE since the mid-1990s has championed the idea of spacepower as a center of gravity, yet many planners have difficulty in treating it as vital because space systems do not shoot bullets or drop bombs. Planners need a simple way of linking spacepower to centers of gravity. One solution is using a planning methodology known as center of gravity-critical capability-critical requirement-critical vulnerability analysis.[1]

Three Models

Sound doctrine and planning need proper organization for successful campaign execution. Structural changes are required to complement the integration of spacepower into the 5-paragraph format of operation plans as well as various orders used for crisis action planning. Joint doctrine gives JFCs the flexibility to organize JTFs by service or function, component, or task force. The unified command plan entrusts responsibility to CINCSPACE as the single focal point of military space operations for regional CINCs. Future command and control of space forces must leverage SPACECOM responsibility to provide global centralized control.

Three possible models might be applied to the problem of command and control, beginning with the Air Force approach. Under this model the chain of command for space forces functions with JFACC as the single JTF focal point. The advantages are congruence with Air Force doctrine and unity of command, but there are disadvantages in implementation. The typical JFACC has no space experience and limited training. Joint aerospace operations centers (JAOCs) are designed to plan and execute the air campaign via the air tasking order. Consequently, the Air Force has been staffing the center with space experts and thus has no need to man and equip the supported staff of a unified command or another

Processing information on *USS Philippine Sea*.

U.S. Navy (Renso Amariz)

55th Signal Company (Eric Hughes)

Tactical satellite during Joint Guardian.

functional or service component operations center in the same way. Unfortunately, the demand for space experts outstrips the supply. Lastly, this model will require CINCSPACE to delegate UCP missions to a component (Fourteenth Air Force), which effectively places it over Army and Navy components. Fourteenth Air Force normally has operational control for only Air Force space systems such as the global positioning and defense support program. It is also responsible for much of the space surveillance mission and launch ranges at both Vandenberg Air Force Base and Cape Canaveral Air Station. While making JFACC the single operational focal point for spacepower will provide unity of command, using the Fourteenth Air Force as the central command center would place too heavy a workload on a single functional component.

Another option is forming a joint space operations component or joint space operations task force to provide unity of command to space forces within JTF by providing a single focal point for space support. This command and control architecture is congruent with joint doctrine and gives reachback to SPACECOM for centralized control for space systems. The main disadvantage of a space component/task force commander is operational control. The global nature of space systems prevents transferring control of assets to JTFs. Other questions about such an organization relate to physical residence of this task force in theater and support requirements. The answers will have an impact on JTF time phase deployment database flow and limited transportation resources.

A third option is establishing a director of space and information operations forces based on the command and control model of TRANSCOM, a functional command with a global mission that

DOD

Bomb damage assessment, Desert Fox.

supports unified commands. The command delegates operational control of strategic airlift to the Air Force air mobility command tanker airlifter control center (TACC) while intra-theater airlift comes under the operational control of the joint airborne communications center. Interface is provided by the director of mobility forces, normally a senior officer with both airlift and in-theater experience. The director is responsible for all inter- and intra-theater airlift issues and works for JFACC. Located in his division is the air mobility element, a forward-deployed element of TACC providing reachback for support and command and control. This arrangement can act as a model for theater-space command and control. It has the same advantages as the component commander model—unity of command, reachback to SPACECOM, and congruence with joint doctrine while resolving the operational control issue.

The director of space and information operations forces must be the senior professional in the field within theater, regardless of service. But the position is likely to be held by an Air Force officer since that service owns and operates the majority of space systems and has the largest space operations career field. This model would more effectively use space support teams and simplify reachback to SPACECOM. The director can be located in JAOC or a joint operations center (JOC), minimizing the impact on the data base. Locating the director within JAOC under JFACC parallels the mobility forces model and will conform to Air Force doctrine. Putting the position in JOC will simplify interfacing with JFCs and utilize joint space support team and information operations cell workspaces. The location should be dictated by the situation.

As in the case of strategic lift resources, satellites traverse between theaters, but the cargo is information (hence the linkage between spacepower and information operation). Whereas airlifters create an air bridge between bases in the United States and JTFs, space operators establish a space bridge that carries information required for battlespace awareness and information superiority. The director will provide campaign planning and coordination to ensure responsive centralized control of space forces via CINCSPACE to bring decentralized execution of spacepower by JTFs.

Spacepower must be incorporated into campaign planning and conduct. Joint Pub 5-00.2, draft Joint Pub 3-14, CJCSM 3122.02, and AFSC Pub 1 must be updated to state that spacepower must be integrated into operation plans as well as situation, execution, and command and control paragraphs of orders used in crisis action planning. Spacepower must be part of JFC intelligence preparation of the battlespace. With tools such as the gravity-critical capability-critical requirement-critical vulnerability model, campaign planners must establish the relationship between spacepower and centers of gravity for combat effectiveness and then apply the operational art to spacepower by integrating it into every phase of a campaign. Joint and service doctrine should be updated to establish a director of space and information operation forces. Whether situated in a joint operations center or joint aerospace operations center, the director will provide unity of effort for the planning and execution of spacepower throughout the campaign. These doctrinal and organizational changes will enable the United States to achieve and maintain space superiority to exploit spacepower on the operational level. This is essential for the Armed Forces in attaining victory over space-savvy enemies. **JFQ**

NOTE

[1] Joe Strange, *Centers of Gravity and Critical Vulnerabilities: Building on the Clausewitzian Foundation So That We Can All Speak the Same Language,* 2d Edition (Quantico, Va.: Marine Corps University, 1996), p. 3.