

# Will We Need a Space Force?

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**I**N NOVEMBER 1998, Senator Bob Smith of New Hampshire wrote, “If the Air Force cannot or will not embrace space power . . . , we in Congress will have to establish an entirely new service.”<sup>1</sup> Because of Smith’s and others’ efforts, Congress tasked President Bill Clinton’s administration to assess and report on the management and organization of U.S. national security efforts related to space. In its 11 January 2001 report, the Commission to Assess United States National Security Space Management and Organization concluded that the disadvantages of creating a separate Space Force outweighed the advantages and that establishing a Space Corps under the aegis of the Air Force was not the best course of action.<sup>2</sup>

Space is that vast expanse beyond the atmosphere where the laws of astrodynamics rule the motion of objects.<sup>3</sup> In its doctrine, the Air Force defines space power as the capability to exploit space forces to support and achieve national security objectives.<sup>4</sup> Examples of space power include a satellite detecting a ballistic missile launch or equipment that transmits military communications. Air power, on the other hand, has a more military definition. The Air Force defines air power as the application of airborne systems to project military power.<sup>5</sup> I consider space power here to be the application of space systems to project military power, and the terms space weapons and space-based weapons are synonymous.

One assertion that advocates make for a separate Space Force is that space operations are fundamentally different from air operations, just as air operations are fundamentally different from land and

sea operations. Therefore, the application of force in space would be significantly different from its application in the air. Waging war in space would require a separate military entity to organize, train, and equip its forces, just as waging war in the air requires a separate air force.

Both air and space systems provide elevation above the surface of the earth. Both lack natural barriers and allow three-dimensional motion within their expanses.<sup>6</sup> They are also similar in that military forces can gain advantages by controlling and exploiting these domains.

Important differences exist, however. Different physical laws govern air and space. The laws of aerodynamics govern the medium of air, and the laws of astrodynamics govern space. While both media allow forces to pass through them, physical laws alter how they do so. Air forces must take off and return to bases on the earth’s surface; space forces would be able to maintain their flight paths almost indefinitely without expending energy.<sup>7</sup>

Another difference between air and space is access to and from them.<sup>8</sup> While flight through the air is routine and affordable, space flight is expensive and technically challenging, although this might change in the future.

The effects of national sovereignty provide a third difference between air and space. Airspace above a state is that state’s sovereign domain. Space, however, is not under any state’s sovereignty. Space is more like international waters. Vehicles travelling in space thus operate in an environment that allows overflight of any point on the globe without

political and legal regulation.<sup>9</sup>

Differences in air and space environments require different air and space forces. Because of air forces' range and speed, airmen have a theaterwide perspective.<sup>10</sup> In combat, the air operations center (AOC) controls and organizes air forces at the theater-level. In contrast, space forces provide a global capability, and the effective employment of forces in space requires a global perspective.<sup>11</sup>

Air forces are highly maneuverable. They can choose the time and place of attack, the route of attack, and the direction from which to attack. By contrast, space forces must expend energy to maneuver, cannot make large changes in their predictable flight paths, and carry limited fuel for maneuvering. The differences are so substantial that it logically follows that space forces should be a separate component of military forces, just as air, land, and sea components are.

War in space is inevitable. The technological and financial constraints that limit man's ability to place weapons in space are only temporary.<sup>12</sup> The full development and exploitation of space will take time. Because men will eventually find ways to fight in space, a vigorous space warfare capability is necessary to protect U.S. national interests.<sup>13</sup> Space power can only reach its full potential through an independent space force, free from control by land, sea, and air commanders, led by space commanders possessing specialized expertise.<sup>14</sup>

The Air Force has not adequately developed space power theory and doctrine to drive a military effort in space. In the 1920s and 1930s, the Air Corps Tactical School developed the doctrine of high-altitude daylight precision bombing, which led to the doctrine of strategic bombardment and ultimately to the development of heavy bombers.<sup>15</sup>



Team Vandenberg, made up of the 30th Space Wing, Air Force Space and Missile System Center, and other organizations, launches an AF Research Laboratory multimission, small, satellite at Vandenberg Air Force Base, California.

The Air Force needs an institution where space operators can debate space power theory and doctrine.<sup>16</sup> Instead of establishing such an institution, the Air Force has taken traditional air power terms and applied them to space: "air superiority" led to "space superiority"; "counter air" led to "counter space"; and "airlift" led to "spacelift."<sup>17</sup> No space power theory and doctrine exists separate and distinct from air power theory and doctrine. Space power doctrine should not be based on air power doctrine anymore than air power doctrine should be based on land power doctrine. Space power advocates argue that only an independent space force can develop suitable space power theory and doctrine.

U.S. space power will never fully develop as long as it must compete for funding and institutional support inside an Air Force dominated by airmen. The Air Force voiced little protest when Congress cut the joint space-based radar demonstration and delayed the Space-Based Infrared System.<sup>18</sup> However, when Congress challenged the F-22 program, the Air Force mounted a full-scale public affairs offensive against the challenge.

When it must make tough choices, the Air Force is more likely to advocate funding for aircraft than for space systems. A separate Space Force would allow space power to compete for funding on a level playing field.<sup>19</sup>

The land, sea, and air services are using space to support their combat operations but not actively developing theory, doctrine, or methods for space warfare. But if space warfare is inevitable, the United States needs a separate Space Force.

Still, the opposing viewpoints on a separate Space Force warrant serious consideration. Some argue that the U.S. military mission in space has not

evolved sufficiently to warrant a separate military service for space operations. Congress established the Air Force as an independent force only after air power had achieved combat-tested technology, doctrine, and leadership.<sup>20</sup> The Commission to Assess U.S. National Security Space Management and Organization concluded, "There is not yet a critical mass of qualified personnel, budget, requirements, or missions sufficient to establish a new department."<sup>21</sup> Military space operations planning is still in its infancy. While making important contributions to land, sea, and air forces, military space capabilities are not an independent warfighting capability like air power was when the Air Force became an independent service.<sup>22</sup>

Currently no space weapons exist, and no nation appears to have the capability to field space-based weapons in the near future. Given the rudimentary weaponry used on aircraft in World War I, space power technology is roughly equivalent to pre-World War I air power technology. No air power theorists, not even Italian air power theorist Giulio Douhet or air power crusader Brigadier General Billy Mitchell, recommended an independent air force before World War I. Space power technology has not reached a level of warfighting potential that justifies an independent military service.

Other arguments against a separate Space Force focus on space-based weapons. Those who oppose a separate Space Force link the Space Force concept to the advent of space-based weapons. The rationale is that a separate Space Force can only be justified when space weapons exist. Without space-based weapons, no compelling need exists for a separate space force. In this situation, space-based assets support land, sea, and air forces fighting a war. The space assets do not project force in space, in the air, or on the battlefield. So, if a space force is created, space weapons will have to already exist or be created as a logical outgrowth of the space force.

But developing space weapons would lead to an expensive arms race in space.<sup>23</sup> Few countries in the world have the money to conduct a space arms race with America, although this will not be the case forever. History shows that each time a nation develops a new technology to enhance its security, others develop a similar technology to counter it. Gunpowder, the rifled musket, the tank, aircraft, and nuclear weapons are cases in point. The United States could weaponize space and gain a temporary advantage, but eventually other nations will develop their own space weapons in response. The end re-

sult will be that the United States will find itself less secure than it is today.

If the United States has weapons in space and no one else does, the United States might be more secure, but for how long? When the United States built nuclear weapons, and no one else had any for a time, the United States was more secure, but when the Soviets and Chinese developed their own nuclear weapons during the Cold War, the United States became less secure. The threat of nuclear weapons in the hands of terrorists makes the United States even less secure today than it was during the Cold War. The arms control argument states that everyone would be better off if nuclear weapons had never been invented and concludes that the human race would be better off if space weapons are never developed.

Other nations will eventually develop space weapons, and the United States will have to respond with weapons of its own. As a responsible nation and leader of nations, should the United States initiate a space arms race? The United States is in the peculiar position of having the most to lose by a space arms race, depending, as it does, on space-based assets for military and civilian use more than any other nation. The United States has the least to gain and the most to lose.

Another argument against developing space-based weapons is that doing so crosses a significant threshold. Some in the international community consider space a peaceful commons—"an area for use by the community as a whole."<sup>24</sup> As such, space is an expanse available to all nations without restriction. Weaponizing space changes it from a refuge of peace, free from the violent tendencies of man on earth, to just another battlefield. Humanity should not cross this threshold without due consideration.

In the future, other countries might weaponize space, and the United States will have to do the same to protect its national interests, but no compelling reason now exists for the United States to be the first to weaponize space or to actively seek space-based weapons. Moreover, significant political risks exist for the government that is the first to do so. World opinion is not likely to support deploying weapons in the currently "peaceful" environment of space.

Another argument against weapons in space is the fact that for a fraction of the cost, land, sea, and air forces can accomplish any force application mission that a space-based weapons system can accomplish. Current launch costs for placing items in orbit are over \$10,000 per pound, and once a weapon is in orbit, it is vulnerable to less ex-

pensive, asymmetric forms of attack—for example, space mines.<sup>25</sup>

Space mines are kinetic energy weapons positioned in orbit so that they closely trail targeted satellites. A space mine's close proximity to its target allows the mine to destroy the target without warning within a matter of seconds. Space mines are technically simpler and less expensive than other space-based weapons, particularly those that seek to cause effects in the air or on land or sea. A simple space mine can inexpensively and easily defeat any sophisticated space-based weapon. If the United States chooses to forego advanced space-based weapons and develops only simple space mines to attack adversary satellites, it would invite an arms race and risk having the same weapons deployed against its satellites. Whether it deploys advanced weapons or mines, because of U.S. reliance on space-based assets for commercial and military purposes, U.S. interests in space would be less secure.

Weaponizing space is a warlike action that would damage U.S. standing within the world community, cause an expensive arms race, and ultimately lead to the United States having less security than it has now. If space-based weapons should not be developed, there is no need for space power in a military sense, and without space power, there is no need for a separate Space Force.

How do we reconcile these opposing viewpoints?

Proponents of a Space Force claim the Air Force has denied space personnel the necessary promotions, budget, and autonomy to develop suitable leadership, technology, and doctrine. The Secretary of Defense has designated the Air Force the executive agent for space within the Department of Defense (DOD). In addition, the Air Force Space Command is now becoming "the center for developing a space cadre and advocating education and training programs for space professionals."<sup>26</sup> Space does not have a separate budget, fenced off from the rest of the Air Force budget, but the Air Force knows that space advocates in DOD and Congress are watching their stewardship of space closely.<sup>27</sup>

Will space forces remain in support of air, land, and sea forces, or will they become a new armed force on a new battlefield? Opponents of a Space Force claim no combat space mission justifies a separate force. They are correct now, but that might change in the future. The United States must develop adequate leadership, personnel, and doctrine to create a solid foundation for a possible future Space Force and research and develop new technologies to enable it to respond quickly to threats in space. Once a threat appears on the horizon, a force projection mission will be necessary. Space power will then rise from theory to practice, and there will be a compelling reason for a separate Space Force. **MR**

### NOTES

1. SEN Bob Smith, "The Challenge of Space Power," *Aerospace Power Journal* (Spring 1999), on-line at <www.airpower.maxwell.af.mil/airchronicles/apj/apj99/spr99/smith.html>, accessed 4 February 2003.
2. "Report of the Commission to Assess United States National Security Space Management and Organization," 11 January 2001, 3, 80, 81, on-line at <www.defenselink.mil/pubs/space20010111.html>, accessed 15 February 2003.
3. MAJ Alec M. Robinson, *Distinguishing Space Power from Air Power: Implications for the Space Force Debate* (Maxwell AFB, AL: Air Command and Staff College, April 1998), 23, on-line at <http://research.maxwell.af.mil/papers/student/ay1998/acsc/98-239.pdf>, accessed 4 February 2003.
4. Air Force Doctrine Document (AFDD) 1, *Air Force Basic Doctrine* (Maxwell AFB, AL: Headquarters, Air Force Doctrine Center [AFDC], September 1997), 23; AFDD 2, *Organization and Employment of Aerospace Power* (Maxwell AFB, AL: Headquarters, AFDC, September 1997), 85.
5. AFDD 1, 23; AFDD 2, 78.
6. Robinson, 24, 32.
7. *Ibid.*, 31.
8. *Ibid.*, 32.
9. *Ibid.*, 27, 32.
10. AFDD 1, 23; AFDD 2, 1, 4-5.
11. Robinson, 34.
12. Colin S. Gray and John B. Sheldon, "Space Power and the Revolution in Military Affairs: A Glass Half Full?" *Aerospace Power Journal* (Fall 1999), on-line at <www.airpower.maxwell.af.mil/airchronicles/apj/apj99/fal99/gray.html>, accessed 4 February 2003.
13. "Report of the Commission."
14. COL Michael C. Whittington, *A Separate Space Force: An 80-Year-Old Argument* (Maxwell AFB, AL: Air War College, Air University Press [AUP], 2000), 2-3, on-line at <http://research.maxwell.af.mil/papers/special\_collection/max-pap/mp20.pdf>, accessed 4 February 2003.
15. LTC Peter R. Faber, "Interwar US Army Aviation and the Air Corps Tactical School:

- Incubators of American Airpower," *The Paths of Heaven: The Evolution of Airpower Theory*, Phillip S. Meilinger, ed. (Maxwell AFB, AL: School of Advanced Airpower Studies [SAAS], AUP, 1997), 186; LTC David S. Fadok, "John Boyd and John Warden: Airpower's Quest for Strategic Paralysis," *The Paths of Heaven: The Evolution of Airpower Theory*, Phillip S. Meilinger, ed. (Maxwell AFB, AL: SAAS, AUP, 1997), 383.
16. Whittington.
17. AFDD 1, 29, 45; Whittington, 9.
18. Whittington, 14.
19. Smith.
20. Ralph Millsap and D.B. Posey, "Organizational Options for the Future Aerospace Force," *Aerospace Power Journal* (Summer 2000), on-line at <www.airpower.maxwell.af.mil/airchronicles/apj/apj00/sum00/millsap.htm>, accessed 4 February 2003.
21. "Report of the Commission," 80.
22. Millsap and Posey.
23. *Ibid.*
24. MAJ William L. Spacy II, *Does the United States Need Space-Based Weapons?* (Maxwell AFB, AL: College of Aerospace Doctrine, Research, and Education, AUP, 1999), on-line at <www.maxwell.af.mil/au/aul/aupress/CADRE\_Papers/PDF\_Bin/spacy.pdf>, accessed 17 February 2003.
25. COL John E. Hyten, "A Sea of Peace or a Theater of War? Dealing with the Inevitable Conflict in Space," *Air & Space Power Journal* (Fall 2002), on-line at <www.airpower.maxwell.af.mil/airchronicles/apj/apj02/fal02/hyten.html>, accessed 4 February 2003.
26. John A. Tirpak, "The Fight for Space," *Air Force Magazine* (August 2000), on-line at <www.afa.org/magazine/Aug2000/0800space.html>, accessed 4 February 2003.
27. GEN Lance W. Lord, "Transformation: The Warfighter's Perspective," remarks, John R. Quetsch Memorial Lecture, American Society of Military Comptrollers Professional Development Institute, Colorado Convention Center, Denver, CO, 30 May 2002, on-line at <www.spacecom.af.mil/hqafspc/Library/speeches/Speeches.asp?YearList=2002&SpeechChoice=28>, accessed 17 February 2003; "Report of the Commission," 80.

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