Falcon 9 rocket carrying 56 broadband satellites launches from Space Launch Complex 40 at Cape Canaveral Space Force Station, Florida, May 4, 2022 (U.S. Space Force/Joshua Conti)

Why Military Space Matters

By Gregory Gagnon

Militaries fight wars and, in times of peace, prepare for the next war. How they prepare matters. Preparing for war can help prevent war from breaking out. At the same time, militaries that prepare to fight the last war often fail in the next.

Over the past two-plus decades of military operations, our nation's ability to use outer space has not been consequentially challenged or contested. An unintended byproduct of that circumstance is we have unintentionally conditioned strategists and national security professionals to assume the space advantage is our birthright. The Taliban didn't use space, the Iraqi Republican Guard didn't use space, and the so-called Islamic State (IS) didn't have any real way of challenging our space capabilities. In fact, in our past wars our adversaries didn't need to leverage space to fight and certainly had more important military objectives than attacking U.S. space capabilities. But if the next war is against a near-peer competitor, that will not be the case.

Space advantage is felt locally within ground, air, and naval force formations. The Taliban, IS, and Republican Guard couldn't contest our use of space to disrupt joint operations. In the conflicts with them, integrating space from afar proved effective, but the challenge ahead is not the challenge of the past. The need to steadfastly integrate space capabilities and operations on tactical timelines into operational fires and to maneuver in what we expect to be a highly contested environment requires dedicated in-theater support.

The Chinese Communist Party's military, the People's Liberation Army (PLA), is planning both to leverage space capabilities to hold our allied forces at risk and to attack our ability to use space for military purposes. Space and cyberspace

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are known as the "commanding heights" in China's warfighting doctrine. The PLA intends to extend warfare into those domains. In fact, according to China's 2019 defense white paper titled *China's National Defense in the New Era*, the PLA Strategic Support Force (PLASSF) has "made active efforts to integrate into the joint operations systems. It has carried out confrontational training in new domains and trained for emergencies and combat." This new PLA threat affects all facets of U.S. military planning. It is a change requiring the United States and our allies to plan for and build forces to challenge and defeat PLA desires in space and cyberspace. Like cyberspace, space can be the great enabler of long-range fighting capabilities, or it can be the Achilles' heel.

The PLA is not the Taliban. The PLA established the PLASSF 7 years ago to seek advantage from the changing character and complexity of warfare. The PLASSF comprises space, cyberspace, and electronic warfare forces. The integration of these functions enables the PLA to both modernize and advance intelligence-led, joint-power-projecting warfare. Last year, China placed 200 satellites into orbit. Slightly more than 50 percent of these satellites conduct remote sensing, which can be used to gain intelligence on adversary military forces far from China's shores. Moving into 2023, China had more than 700 operational satellites in space, indicating a 385 percent growth rate since the establishment of the PLASSF in December 2015. Today, these space activities are predominantly national security focused, supporting China's goal of owning the "commanding heights." On-orbit Chinese satellites

Army Major Mitchell Daugherty, mission director for National Space Defense Center, works with Space Force 1st Lieutenant Tia Scoggan, weapons and tactics section chief for 18th Space Defense Squadron Det. 1, at Schriever Space Force Base, Colorado, October 5, 2022 (U.S. Space Force/Tiana Williams)

are on average only 3 years old; it is the newest of technology, designed and built in our digital age.

The PLA's on-orbit intelligence infrastructure is a real and present danger. We have never faced a competitor with as much capability on orbit. Unlike the insurgents and terrorists, the PLA has a 21st-century space kit. Yes, it has satellites, but it also has space attack missiles, lasers, and even dual-use space robots that can be used to attack.

The United States and our allies must continue to focus on gaining and then maintaining the military advantage afforded by outer space for military operations. This has not been a necessary military task in the past.

Following the reorganization of the PLA and the establishment of the PLASSF, the United States established U.S. Space Command (USSPACECOM) and the U.S. Space Force (USSF), but not until late 2019. Our allies rapidly followed suit. In Europe, Germany, France, the United Kingdom, and Italy have all elevated Space Force organizations in their formations. In the Indo-Pacific, Japan, the Republic of Korea, and Australia have, as well. To our north, Canada established its first space wing in 2022. We all must use space capabilities to assist our ground, air, and naval forces to see farther, sense with greater clarity, and protect the joint force while operating at home and abroad. To do so, we must protect our space-enabled capabilities from defeat. We must be able to disable the adversary's ability to use space-enabled capability to its advantage in times of war to maximize protection of our fielded force.

Both USSPACECOM and USSF work collaboratively to achieve these goals with other organizations across the U.S. Government and with allies. Combatant commanders plan, direct, and assess joint operations for the Department of Defense. USSPACECOM works to ensure that we never have a day without military space advantage. USSF builds space forces that prepare for war and maintain readiness, and presents those forces to combatant commands to achieve space advantage. Additionally, the Navy and the Army train small cadres of specialized Servicemembers to integrate space capabilities into ground and maritime operations. Furthermore, the USSF builds and presents the command and control capabilities necessary to synchronize joint operations in support of gaining and maintaining space advantage. This clarity of purpose did not exist prior to a separate space Service.

In the next war, should it occur, the complementary nature of USSPACECOM and USSF will prove crucial. Military space advantage in outer space is difficult to fragment; space operations are inherently holistic. Although a satellite can connect you to others or take an image, it may be overhead within direct sight for only minutes. Satellites move constantly. Currently, controlling satellites is best done with access points spread across the globe. This global nature of space operations helps explain why USSPACECOM has responsibilities that are worldwide, as well as above 100,000 feet. USSPACECOM has forces assigned from each of the military Services, although the vast majority come from the Space Force. Under the leadership of USSPACECOM, these forces are expected to deliver military advantage both in and from space. In short, they must ensure the ability to use outer space to deliver military effects at the time and place of our choosing.

Like USSPACECOM, combatant commanders across the globe will soon have a dedicated USSF component. The priority will initially be on the pacing challenge. We must prepare for an adversary with more surface combatants, more surface-to-air missiles, more military intelligence satellites, and more troops. We must prepare for a war very different from the battles of the last two decades. Strategists have long cautioned that militaries that fail to forecast changes in warfare tend to fail. For the United States and our allies, failure is not an option.

Our joint force must fully integrate space capabilities to optimize how we fight. The USSF space components to the combatant commanders will deliver and integrate cutting-edge space capabilities into land, sea, air, and cyberspace operations. At the same time, land, sea, air, and cyberspace operations will also be evolving. Soon, all Services will field advanced capabilities that could impact outer space. As our potential adversaries' development has shown, advances in long-range fires, cyberspace capabilities, directed energy, and other capabilities are making the battlefield intensely multi-domain and spatially vast. The PLA has more jammers than any other military, including ours. The PLA has also fielded lasers for combat and is already training its space attack forces. The future operating environment will be contested, dangerous, and lethal over vast distances. The fight will also take place in space and cyberspace; it will be a multi-domain battle.

U.S. and allied planners must adjust to create fire-control synchronization and deconfliction elements and processes that account for allied multi-domain battles and an expansively deep "battlefield." Coordinating allied joint force weapons, deconflicting their impacts, and synchronizing operations back to USSPACECOM are critically important. In theater, USSF components should have this operational-level task levied on them by their respective joint combatant commanders. The USSF components should synchronize effects in support of theater terrestrial forces and support USSPACECOM's space maneuver and control objectives. This is new for space operations. In past wars, theater support was provisioned from afar and the relationship was one-directional: space support to ground ops. This process worked, but mainly because past adversaries were not space powers.

Space advantage is essential to U.S. power; it enables our forces to see with greater clarity, sense in the darkest of nights, and apply judicial precise force when directed. As we prepare for the next battle, we must accept that space advantage must now be gained. We must organize, prepare, and field combat-ready forces in all domains of warfare. These forces must also habitually train to fight together. These are unified actions, joint operations, and multi-domain operations. This is how we win a future war that will look very different from the wars of our recent past. And, if we organize and prepare for it, perhaps we'll never have to fight it. **JFQ**