



Airmen

Delivering Decision Advantage

Lt Gen Larry D. James, USAF



Air Force intelligence, surveillance, and reconnaissance (ISR) provides global vigilance—our hedge against strategic uncertainty and risk—to the Air Force, the joint war fighter, and our nation. Our mission, in defense of America's interests, is to enable decision advantage by operating integrated, cross-domain ISR capabilities with joint, national, and international partners. Our Air Force ISR vision is to be the preeminent ISR enterprise providing the right information to the right decision makers at the right time. Our objective is to provide our nation's decision makers, commanders, and war fighters with a continual information advantage over our adversaries—an advantage measured not in terms of the volume of information gathered but in the value and quality of the intelligence we provide. The fundamental job of Air Force ISR professionals is to answer questions by engaging decision makers at all levels in a dialogue that seeks to refine what they need to know in order to make decisions, command forces, and employ weapons.

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When our nation's leaders select a military option, Air Force ISR is integral to American power projection and indispensable to the effective application of airpower. Air Force ISR provides the intelligence necessary to characterize the battlespace and determine how airpower should best be applied, not only in tactical execution but also at the operational and strategic levels of war. We provide Airmen the ability to hold targets at risk across the depth and breadth of the battlespace—on the ground, at sea, in the air, in space, and in cyberspace—and to apply deliberate, discriminate, and (when required) deadly combat power.

Today, Air Force ISR operates the world's premier global network of collection capabilities and analysts. Our worldwide network of ISR Airmen performs this mission for our country every day. These analysts are the backbone of our ability to move actionable intelligence to the right person at the right time. Deployed around the world and at home, we have conducted distributed operations to fulfill ISR requirements since Operations Southern and Northern Watch. Since 2001 we have increased our overall ISR hours flown by 4,300 percent, added 47 sites into our distributed network, and expanded the ISR force by 4,228 Airmen. In less than nine months, we developed, acquired, and fielded the MC-12 Liberty—the fastest fielding of a weapon system since the P-51 in World War II—to meet wartime ISR requirements. Today it sustains the highest operational tempo of any Air Force manned platform. In 2011 our global network demonstrated its robustness when we seamlessly executed ISR operations for counterinsurgency missions in Iraq and Afghanistan, humanitarian assistance for Japan after the tsunami, and combat air operations against Libyan forces.

Global Network: All Sources, All Domains

Following two decades of combat, the Department of Defense and the Air Force are adjusting to new priorities as outlined in *Sustaining U.S. Global Leadership: Priorities for 21st Century Defense* and the *Capstone Concept for Joint Operations: Joint Force 2020*.¹ As we refocus our attention and rebalance our capabilities, the Air Force ISR enterprise



will remain focused on mission accomplishment. To remain the world's preeminent ISR force in an era of increased strategic uncertainty, where threats may arise quickly from multiple locations, our network of ISR Airmen must seamlessly integrate and fuse information from all sources across the air, space, and cyber domains, as well as operate a mix of sensors across the entire spectrum of conflict.

Our Air Force ISR enterprise today leverages years of experience executing global distributed operations to ensure that our Air Force can continue to hold targets at risk anywhere on the globe, even in non-permissive environments. In the future, the mix of sensors and capabilities we employ to execute global integrated ISR will change as we prepare for operations in antiaccess, area-denial environments. It is clear that ISR in contested, degraded, and operationally limited environments challenges us to use sensors from all domains to collect the right information. As Airmen we recognize that in addition to operating in the air domain, we also operate in the space and cyber domains; this is especially true with respect to our ISR mission as we orient our enterprise to operate across the full spectrum of conflict.

The integration of air, space, and cyber information is a powerful capability—one in which we must continue to invest our talent and resources. For instance, the space layer provides a broad spectrum of capabilities to characterize nonpermissive environments. The first operational use of space was to meet ISR requirements, and today we operate a number of sensors capable of penetrating denied areas and collecting otherwise unavailable intelligence. Today we continue to mature our space intelligence capabilities and develop innovative ways to use the space domain to answer questions in near real time and support strategic indications and warning. Integrating the information collected from our space architecture, just as we do with sensors from the airborne layer, will broaden our ability to characterize the battlespace.

In an antiaccess, area-denial environment, cyber may be a critical means to penetrate and persist from an ISR perspective. For decades, cyber has been a valuable source of information to understand and



characterize targets across all domains. Today we continue to advance our expertise and skills to integrate the vast amounts of intelligence collected from cyber. Additionally, operations in cyberspace are indivisible from ISR because, in cyber, there is a tremendous demand to simultaneously understand and exploit vulnerabilities to enable operations. Just as in the air domain—in which it took 600 hours of ISR and 15 minutes of kinetic operations to kill Abu Musab al-Zarqawi, leader of al-Qaeda in Iraq—in cyber it requires an even higher ratio of ISR to enable a keystroke to attack or defend a network.

Executing integrated ISR missions in air, space, and cyberspace is not fundamentally a new idea. However, bringing the information collected across all three domains into a single open architecture to exploit, analyze, correlate, and fuse together is a new way of thinking. Our intent is to construct a mosaic of information from all layers to characterize targets across all domains. We continue to evolve our global network to enable continuous sharing of information among the military services, combatant commands, coalition partners, and intelligence community with the goal of achieving interoperability at the data level. From specialized collection to open-source reporting, a fused mosaic of intelligence will enhance our ability to deliver decision advantage. In an era when strategic threats are increasingly uncertain and the risk of strategic miscalculation is high, fused intelligence will allow decision makers at all levels to hedge against surprise.

The ability to cast a wide net and fuse information from all available sources blurs the distinction between what is and what is not an ISR sensor. The superior technology of our most advanced aircraft is found not only in their weapons but also in their highly capable suite of sensors. From the imagery and motion video collected by targeting pods to the signals collected from defensive avionics, our ISR enterprise must be able to exploit and analyze this information. In some scenarios, these advanced aircraft may be our primary sources of information.



Information Interoperability

Given these emerging realities, our mission emphasizes the information and tools for the ISR analysts over the platform or sensor that collects data. We must be less parochial about owning information and about procuring and operating sensors and capabilities. A preeminent ISR enterprise is able to take information from any source in order to characterize targets in all domains. With access to information from all sources, analysts must employ exploitation tools that enable them to focus on information understanding—spending their valuable time answering the “why” and “so what,” as opposed to conditioning the data through staring, annotating, and tagging. The development of automated tools will enable critical thinking and result in improved battlespace awareness. As we move forward, we will optimize our ability to fully integrate all sources of information into our global network. Giving our analysts full access to all available information will enhance our ability to provide decision advantage.

Intelligence from all sources and all domains places a significant burden on our capacity to move all types of information across our global network. The Air Force ISR enterprise has unique and complex communication and data-handling requirements. In 2001 we transmitted and stored 255 terabytes per month; today that number has increased to 1.3 petabytes. Today’s advanced hyperspectral sensors collect multiple layers of complex data that require conditioning and formatting. The next generation of wide area motion imagery sensors will be capable of collecting 2.2 petabytes of data per day, bringing 450 percent more data into our network than Facebook adds each day. In addition to managing volume and complexity, we must also protect the information we transmit around the world. In an increasingly congested and contested environment, information assurance is as important as connectivity and capacity.

To ensure that our ability to execute globally integrated operations endures, the resources we devote to science and technology and research and development must be done deliberately and coherently.



Our ISR enterprise will refashion legacy organizations and cumbersome processes to create and present a true enterprise—one that is innovative, robust, and adaptable. We must integrate emerging science and technology into operational capabilities at the speed of technological change. Investing in exquisite advanced sensors alone will not help us develop, operate, and maintain a breadth of capabilities across the spectrum of conflict. We must leverage the work of others and avoid unnecessary duplication of capabilities within the Air Force and among the services, coalition partners, and commercial sector. Proprietary systems and solutions are antithetical to a robust, adaptable, and flexible enterprise. Our vision requires us to think differently. We must focus our research and development of today to improve the capability of current sensors and prepare our enterprise for new technologies we have yet to understand. To be the go-to intelligence source for Airmen, as well as our joint and coalition teammates, and to operate a seamless, open-architecture enterprise across all domains—ingesting, analyzing, and fusing information from all sensors, regardless of platform—will require integrated science and technology and research and development processes and organizations.

Airmen Are Our Advantage

Every day, through a mix of aircraft, satellites, and computer-based operations, Airmen collect and process massive volumes of raw information. As impressive as this is, it is not the quantity of information our sensors collect that allows us to create decision advantage. Rather, it is the quality of the actionable intelligence—answering the questions asked—created by trained ISR professionals. The power of our network is in the quality of our ISR Airmen, connected globally and ready to respond to emerging crises. ISR is an increasingly complex operational art that, notwithstanding our extensive use of advanced technologies and automated tools, always requires a man in the loop. We will continue to cultivate critical thinking in our ISR Airmen and deepen our knowledge in key functional competencies. In addition we



are committed to improving language and cultural training. Our sustained ability to answer war fighters' questions as the future security environment becomes more unpredictable is a product of our continued commitment to invest in the development of our ISR Airmen and to foster a culture of critical thinking.

Air Force ISR professionals are also an integral part of the joint and coalition team. Air Force ISR allows our forces to own the night in Afghanistan, connect with partners across Europe and Africa, and provide warning on the Korean peninsula. ISR Airmen partner with joint forces in real time from remote locations or when deployed with them. Today we fly mixed crews with coalition partners conducting reconnaissance missions in three theaters of operations. We process, exploit, and analyze information in the same air operations fusion cells with coalition partners. We do this together as a team of ISR professionals to enhance battlespace awareness and ensure decision advantage for our combat forces. Air Force ISR Airmen are engaged in global operations 24/7/365, integrated with our sister services, international partners, and the intelligence community.

Characterizing the battlespace as a single continuum is a key component for successful cross-domain operations. No longer can we afford to operate in single domains while ignoring the implications of our actions upon the other domains. Maturing our all-source, cross-domain capabilities is the next step in the evolution of Air Force ISR. Air Force ISR professionals are Airmen first, part of America's asymmetric advantage, always ready to provide global vigilance and ensure decision advantage for the nation. ✪

Note

1. Department of Defense, *Sustaining U.S. Global Leadership: Priorities for 21st Century Defense* (Washington, DC: Department of Defense, January 2012), <http://permanent.access.gpo.gov/gpo18079/DefenseStrategicGuidance.pdf>; and Joint Chiefs of Staff, *Capstone Concept for Joint Operations: Joint Force 2020* (Washington, DC: Joint Chiefs of Staff, 10 September 2012), http://www.jcs.mil//content/files/2012-09/092812122654_CCJO_JF2020_FINAL.pdf.



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Lieutenant General James (USAFA; MS, Massachusetts Institute of Technology; Air War College) is the deputy chief of staff for intelligence, surveillance, and reconnaissance (ISR), Headquarters US Air Force, Washington, DC. He is responsible to the secretary and chief of staff of the Air Force for policy, planning, evaluation, and leadership of Air Force ISR capabilities. He leads more than 20,000 ISR officers, enlisted personnel, and civilians across the Air Force ISR enterprise. This includes the Air Force Intelligence Analysis Agency as well as the Air Force ISR Agency, which includes the 480th ISR Wing, 70th ISR Wing, National Air and Space Intelligence Center, and Air Force Technical Applications Center. General James entered the Air Force as a distinguished graduate of the US Air Force Academy. He has commanded at the squadron, group, wing, and numbered Air Force levels. He also served as the senior space officer for Operation Iraqi Freedom at Prince Sultan AB, Saudi Arabia. He was vice-commander of the Space and Missile Systems Center as well as vice-commander of Fifth Air Force and deputy commander of Thirteenth Air Force, Yokota AB, Japan. Prior to his current assignment, the general was commander of Fourteenth Air Force, Air Force Space Command; and commander of Joint Functional Component Command for Space, US Strategic Command, Vandenberg AFB, California.

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