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INTRODUCTION TO GLOBAL INTEGRATED ISR

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Intelligence, surveillance, and reconnaissance (ISR) from the air dates back to the use of balloons to observe adversary positions during the French Revolution. Today's knowledge-based environment, provides the opportunity to observe and analyze the meaning and impact of a wide variety of events and convey useful, timely intelligence on adversaries' capabilities and intentions to decision-makers. However, in this "Age of Information," ISR capabilities have expanded to operate from and through air, land, maritime, space, and cyberspace domains to achieve desired effects across the range of military operations in support of US national security objectives. Air Force ISR provides desired effects to joint force commanders, and allows for dissemination of knowledge to better support decision-makers and shape operations.

ISR has been an integral contributor to both war and peacetime operations for at least 150 years dating back to the American Civil War. It has also been more recently deployed as a demonstration tool of US global power projection. Increasingly in 21st century operations, ISR operations shape and drive decision-making. ISR operations are continuous and in high demand. ISR is normally the first capability a combatant commander requests to increase upon the initiation of military operations, and often increased ISR operations must persist even after major combat operations have ended.

ISR DEFINED

ISR is defined as "an activity that synchronizes and integrates the planning and operations of sensors, assets, and processing, exploitation, and dissemination systems in direct support of current and future operations. This is an integrated intelligence and operations function." ISR consists of separate elements but requires treatment as an integrated whole in order to be optimized.

Global Integrated ISR Defined

The Air Force defines global integrated ISR as "cross-domain synchronization and integration of the planning and operation of ISR assets; sensors; processing, exploitation and dissemination systems; and, analysis and production capabilities across the globe to enable current and future operations."

Global integrated ISR enables use of multiple assets from multiple geographic commands and leverages national capabilities in support of Service-specific requirements to collect data across all domains to satisfy strategic, operational and tactical requirements. The data may be used by national, joint, service specific, coalition, or allied personnel or any combination thereof. Global integrated ISR enables the integration of this collected information to deliver intelligence to the right person at the right time, anywhere on the globe. See figure on Global ISR Enterprise for a depiction the global presence of the ISR Enterprise.



An example of how the ISR enterprise projects global presence and battlespace awareness is through distributed operations. A global integrated Predator mission includes the aircraft, a CONUS-based or forward-deployed pilot and sensor operator team, the datalinks that allow it to be flown remotely from a location outside of theater, and all of the networks that allow its data to be streamed in near real-time to many locations around the world. It also includes the analytic capability being leveraged outside of the area of responsibility, possibly from multiple locations, that allows global collaboration to exploit the collected data, plus the dissemination capability that allows finished intelligence to flow back to multiple end users and be stored for future reference.

The ultimate goal of global integrated ISR operations is to support national security objectives through enhanced understanding of the operating environment and adversary intentions. JP 2-0, *Joint Intelligence*, states that “information is of greatest value when it contributes to the commander’s decision-making process by providing reasoned insight into future conditions or situations.” Global integrated ISR operations provide actionable intelligence to the commander in the fastest way possible.



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ANNEX 2-0 GLOBAL INTEGRATED INTELLIGENCE, SURVEILLANCE & RECONNAISSANCE OPERATIONS

AIRMAN'S PERSPECTIVE ON GLOBAL INTEGRATED INTELLIGENCE, SURVEILLANCE AND RECONNAISSANCE (ISR)

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Global integrated [intelligence, surveillance, and reconnaissance](#) (ISR) operations are domain, Service and platform neutral. The focus is on meeting information requirements and providing actionable intelligence to commanders. Global integrated ISR is further enhanced when integrated with joint, Departmental, national, and multinational ISR. Global integrated ISR is the linchpin of effects-based operations and enables integration and synchronization of assets, people, processes, and information across all domains, to inform the commander's decision cycle.

The evolution of technology and information enabled a move from the segregation to integration of operations and intelligence. The elements of ISR are interdependent and mutually supporting to compress the [find, fix, track, target, engage, and assess](#) (F2T2EA) process from days to minutes.

Global integrated ISR operations enable operations throughout the range of military operations (ROMO) in permissive and non-permissive environments by serving as a theater capability. Global integrated ISR operations also facilitate the integration and synchronization of joint, Departmental, national, and coalition ISR capabilities. Other Services may focus organic elements of ISR efforts towards the tactical level of war, specifically in support of organic component operations (i.e., supporting a specific mission or unit). These forces are typically organic to a service echelon. Coalition members or allies will tend to focus their ISR efforts to meet their own informational needs.

The Air Force currently uses the majority of its ISR assets to directly support national objectives and the joint force commander's (JFC's) strategic and operational goals and component-level requirements. One of the most valuable attributes of airpower is its flexibility, the inherent ability to project power dynamically across large swaths of an operational area. Flexibility of ISR operations is exponentially enhanced with distributed ops. Global integrated ISR monitors both friendly and adversary movements and capabilities in a dynamic environment, and drives the F2T2EA process. The Air Force may designate some assets as organic assets to satisfy Service-specific collection requirements. An example is the use of unmanned aerial systems (UAS) to support base defense or special operations or cyberspace sensors to protect the AF network. The Air Force conducts global integrated ISR operations through a five-phase process: [planning and direction; collection; processing and exploitation; analysis and production;](#)

[and dissemination](#) (PCPAD). The process is not linear or cyclical, but rather represents a network of interrelated, simultaneous functions that can, at any given time, feed and be fed by other functions. The planning and direction phase begins the process by shaping decision-making with an integrated and synchronized ISR strategy and collection plan that links global integrated ISR operations to the JFC's intelligence requirements and integrates them into the air tasking order (ATO) and its reconnaissance, surveillance, and target acquisition (RSTA) annex. The collection phase occurs when the mission is executed and the sensors actually gather raw data on the target set. The collected data in its raw form has relatively limited intelligence utility.

The processing and exploitation phase increases the utility of the collected data by converting it into useable information. During the analysis and production phase analysts apply critical thinking and advanced analytical skills by fusing disparate pieces of information and draw conclusions resulting in finished intelligence.

Finished intelligence is crucial to facilitating informed decision-making, but only if it is received in a timely manner. Dissemination, the final phase of PCPAD, ensures the commander, planners, and operational forces receive the derived intelligence in time to make effective decisions and conduct effective operations. The Air Force's distributed operations capability enables it to conduct global integrated ISR operations and provide timely and tailored intelligence on a global level to multiple end users. The analyzed intelligence can be disseminated or stored for future use. Properly formatted and archived data makes previously collected and exploited information readily available to correlate and provide context to data.



BASIC GLOBAL INTEGRATED ISR PRINCIPLES

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Global integrated [intelligence, surveillance, and reconnaissance](#) (ISR) operations provide intelligence to commanders and decision-makers at all levels, informing the decision making process. Therefore, global integrated ISR operations and products should be responsive to the commander's or decision-maker's needs. Tailorable products enable strategic, operational, and tactical effects with a better understanding of the operational environment (systematically, spatially, and temporally); allowing decision-makers and warfighters to better orient themselves to the current and predicted situation and enable decisive action.

As an essential element of all Air Force operations, global integrated ISR personnel should be fully aware of mission goals and objectives and be integrated into the operational environment at all levels. This includes being integrated at the tactical level to ensure that global integrated ISR operations are included in supported force planning. Therefore, global integrated ISR operations and the [joint operation planning process](#) (JOPP) need to be **integrated** to meet the timeliness and accuracy requirements of airpower and joint operations. A close relationship between the [strategy](#), [planning](#), [assessment](#), and execution functions fosters the flow of essential information.

Global integrated ISR-derived products should be as **accurate** as possible to convey an appreciation for facts and the situation as it actually exists, and provide the best possible estimate of the enemy situation and courses of action (COAs) based on sound judgment of all available information. Extensive knowledge of adversary strategy, tactics, capabilities, and culture enables ISR analysts to anticipate potential actions and provides the most complete and precise understanding of the adversary possible. Accuracy of geospatial data in intelligence products is a crucial requirement for targeting, particularly given increasing reliance on the use of precision-guided munitions. Sensors acquire information that enables targeteers to produce target locations or aim points suitable for the accurate employment of specific weapon systems. One of the most demanding tasks for global integrated ISR personnel during emerging crises is the need to balance requirements for accuracy with those for timeliness.

Global integrated ISR products need to be **relevant**, meaning that they are tailored to the requestor's requirements. Ensuring the relevance of intelligence to the requestor means that global integrated ISR planners should consider the suitability of specific ISR

assets to achieve the commander's objectives. Additionally, global integrated ISR requirements should be **timely** enough to plan and execute operations. Intelligence resulting from timely global integrated ISR can provide information to aid a commander's decision-making and constantly improve the commander's understanding of the operational environment. The flexible nature of Air Force ISR assets makes them an essential enabler of timeliness when assets are made available to collect information when and where required. However, since availability of ISR assets is limited, responsiveness of ISR assets is often driven by the commander's objectives and priorities. Commanders should ensure proper asset utilization based on prioritized mission requirements. As technology evolves, every effort should be made to streamline processes to shorten timelines from tasking through product dissemination.

Global integrated ISR-derived information must be readily **accessible** to be usable. First, intelligence should be easily discoverable and retrievable; intelligence personnel should be able to "get at the information" in order to process, exploit, analyze, or disseminate. Second, producers and consumers should have the appropriate clearances to access and use the information. Third, global integrated ISR products should be classified, catalogued, and electronically stored at the lowest possible classification, consistent with security policies, to enable sharing with tactical forces, partner nations, interagency partners, and others. Understandably, some intelligence requires extraordinary protection, such as sensitive sources and methods, or the fact that certain knowledge is held.

Personnel working with classified material should **secure** and protect data, information and sensitive sources while informing commanders and their staffs. Protection of classified information and sources should be consistent with established DOD and Intelligence Community policies and procedures. Special care should be taken when operations are conducted with coalition partners. Criteria, authority, and procedures for declassifying and/or sanitizing intelligence should be available at appropriate levels. Declassification procedures should be exercised on a regular basis. Classification authorities should avoid over-classification and unnecessary compartmentalization that can prevent commanders and staff from accessing needed intelligence. If directives are too restrictive to meet current operational requirements, additional guidance or authorization from the appropriate classification authority should be requested.

Global integrated ISR supporting resources, activities, communications, capabilities, and capacity should be **redundant** to ensure support is available when needed. Important components of survivability include redundancy of critical intelligence, protection against the adversary's asymmetric threats (e.g., ISR Mission Assurance) and information assurance (IA) measures. Global integrated ISR systems should be **sustainable**. A system's ability to maintain the necessary level and duration of operations depends on ready forces and resources in sufficient quantities to support stated requirements. Global integrated ISR systems provide both **deployable** and reachback capabilities that can provide support for expeditionary operations. Deployable ISR supporting assets can be rugged, small, and lightweight. Additionally, deployable resources should be easy to transport and set up and capable of immediate connectivity and interoperability. Extensive reachback support, such as through unmanned aerial systems, Distributed Common Ground System, and national

intelligence centers, enhances PCPAD capabilities by enabling ISR Airmen to support global missions from their home bases.

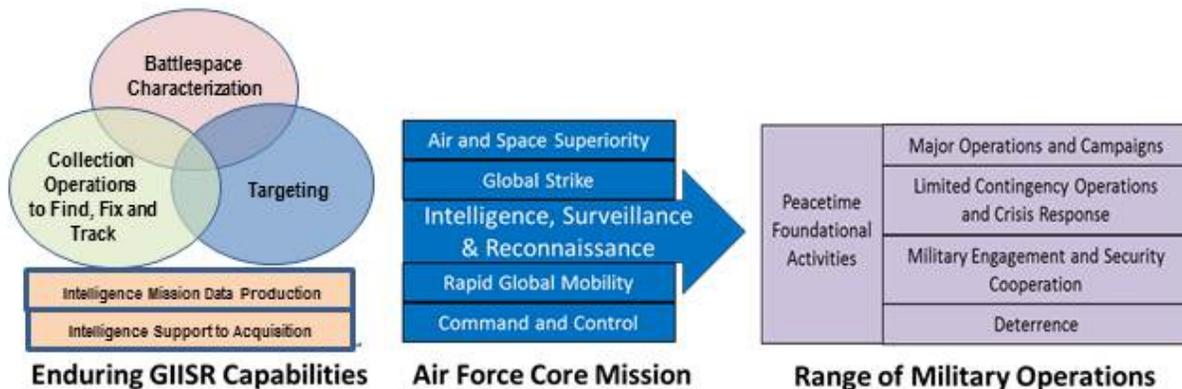
Assured **network centrality** is a key principle for all global integrated ISR efforts. It is technology and its employment that aids in the efficient exchange of actionable information to operators at all levels. Net-centric global integrated ISR capabilities enable users to provide tailored and actionable intelligence that increases situational awareness and fosters the capacity to conduct operations with increased flexibility and rapidity. Net-centric collaborative environments support creation of “virtual organizations” where personnel from numerous agencies around the world horizontally align as a team, focus analytic effort on a question, and deliver answers or recommended COAs. Such collaborative efforts are encouraged to make the most efficient and effective use of available resources.

Through various cyberspace-based ISR capabilities, a wide variety of detailed sensor data can be posted to compatible, joint intelligence information stores, and continually searched in order to cross-cue and refine operations. Strategic, operational, and tactical users employ tailored searches to gain access to the right information at the right time to enable operations. Ideally, both [command and control](#) and global integrated ISR planning systems access common databases to synchronize collection and operational requirements.

GLOBAL INTEGRATED ISR ENDURING CAPABILITIES

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Global integrated intelligence, surveillance, and reconnaissance (ISR) enables decision advantage for the joint and coalition warfighter through five integrated capabilities: battlespace characterization; collection operations; targeting; production of intelligence mission data (IMD) for information based weapons and platforms; and, intelligence support to weapon system design and acquisition (see figure).



Global Integrated ISR Enduring Capabilities

Battlespace Characterization

Battlespace characterization is the ability to understand and predict adversary capabilities, tactics, techniques and procedures (TTPs), threat dispositions, centers of gravity, and courses of actions within the context of the operating environment in order to provide indications and warning, identify potential vulnerabilities to our forces and identify opportunities to achieve our combat objectives. In short, through battlespace characterization, global integrated ISR captures what is known, what is not known, and what is believed and continuously updates and tests those conclusions to prepare for and execute joint operations across the [range of military operations](#).

Collection Operations to Find, Fix, Track and Characterize

Collection operations is the command and control and synchronization of ISR sensors, platforms and exploitation resources to find, fix, track and characterize adversary activities and infrastructure as well as the operating environment. The aim is to test beliefs, confirm knowledge and discover intelligence gaps in order to enhance our

decision advantage over our adversaries. Collection operations are driven by battlespace characterization, targeting, IMD and acquisition support requirements.

Targeting

[Targeting](#) is the process for selecting and prioritizing targets and matching appropriate actions to those targets to create specific desired effects that achieve objectives, taking account of operational requirements and capabilities. Interactions with information and intelligence gathered during find, fix and track activities and battlespace characterization are used to conduct deliberate (preplanned) and dynamic (time-sensitive) targeting. The targeting cycle spans development of commander's objectives, guidance and intent; through target development, vetting, validation, nomination and prioritization; to commander decision and force assignment, planning and execution, and finally assessment.

Intelligence Mission Data Production

[IMD](#) production is the ability to derive, produce, and rapidly update the intelligence used for programming platform mission systems in development, testing, operations and sustainment including, but not limited to, the following functional areas: signatures, electronic warfare integrated reprogramming, order of battle, characteristics and performance, and GEOINT. The proliferation of information-based weapon systems—weapons and platforms that require detailed intelligence information to operate as designed—has significantly increased the need for the production and rapid integration of IMD into Air Force operations.

Intelligence Support to Acquisition

Intelligence support to acquisition and its associated analytical processes enable the acquisition community to impact weapon system design through future threat projections and to capture the intelligence sensitivity of a particular development program. Threat assessments, extending from the current risk out beyond 20 years, include production of System Threat Assessments and System Threat Assessment Reports. Programs also must be analyzed for intelligence sensitivity to determine if they require intelligence data during development or to perform their mission, or require the direct support of intelligence personnel or influence intelligence data at any point in the [planning and direction; collection; processing and exploitation; analysis and production; and dissemination](#) cycle. An Intelligence Supportability Analysis will be developed for intelligence sensitive systems.



POLICY AND GUIDANCE (ISR)

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Information derived from global integrated [intelligence, surveillance, and reconnaissance](#) (ISR) assets is used on a daily basis by senior leadership to formulate strategic policy and military plans/guidance. Global integrated ISR-derived information is also used to guide acquisition of future capabilities, develop and construct military campaigns, protect US interests, and deter aggression. Understanding the policy and guidance that drives global integrated ISR operations is key to the [planning and direction; collection; processing and exploitation; analysis and production; and dissemination](#) (PCPAD) process.

Priorities for 21st Century Defense

The President of the United States and Secretary of Defense strategic guidance for the Department of Defense, Jan 2012 directs the Joint Force to become a smaller, leaner, agile, flexible, ready and technologically advanced force. Global integrated ISR supports these capabilities through our technological, joint and networked advantage. It preserves our ability to conduct the missions we judge most important to protecting core national interests: defeating terror networks and succeeding in current conflicts; deterring and defeating aggression by adversaries, including those seeking to deny our power projection; countering weapons of mass destruction; effectively operating in cyberspace, space, and across all domains; maintaining a safe and effective nuclear deterrent; and protecting the homeland. Priorities and strategies for DOD into the future are described in the 2014 [Quadrennial Defense Review](#).

The National Intelligence Strategy (NIS)

The 2014 [NIS](#) sets out the following guiding objectives: execute the mission smartly and identify ways to better leverage the substantive work of our partners and potential partners and continue to integrate, transform and strengthen the Intelligence Community's (IC) support to national security. The NIS highlights areas that demand our attention, resources, and commitment. It also establishes the basis for accountability, in conjunction with an implementation plan, to ensure that the Community meets the goals of our strategy. The NIS stresses integration, innovation, and partnership.

The Defense Intelligence Strategy (DIS)

The [DIS](#) sets out to improve intelligence support to fulfill SecDef priorities to prosecute global threats to US national security interests. DIS's mission is to support national, defense and international partners with “knowledge rich” all-source intelligence, counterintelligence, and security. It emphasizes ISR capabilities that are integrated and synchronized to support combat operations.



CROSS-DOMAIN INTEGRATION AND GLOBAL INTEGRATED ISR

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Global integrated [intelligence, surveillance, and reconnaissance](#) (ISR) operations are conducted in, from, and through all domains (air, land, maritime, space and cyberspace), across all phases of operations, in permissive and non-permissive environments. These operations focus on meeting the joint force commander's intelligence requirements within complex operational environments. Integrated [planning and direction, collection, processing and exploitation, analysis and production, and dissemination](#) (PCPAD) capabilities include integration of cross-domain collection activities using the full-spectrum of sensors (e.g., signals intelligence, radar, electro-optical, infra-red, human, and ground-based); integrated processing and exploitation and analysis and production activities in air operation centers (AOCs), Air Force [Distributed Common Ground System](#), and national production centers; and integrated intelligence products disseminated to tactical, operational and strategic users. Ultimately, cross-domain integrated capabilities enable global integrated ISR forces to quickly analyze collected data, and feed the resulting intelligence—real-time in many instances—to warfighters.

Net-Centric Operations

Global integrated ISR systems use networks, satellite communications, and datalinks to execute global integrated ISR missions. This net-centric structure is known as distributed operations and requires that global integrated ISR operations be cross-domain integrated. For example, a single global integrated ISR mission may collect on maritime target sets using an airborne platform and transmit collected data over space-based satellite communications to analysts in another part of the world who then create and disseminate intelligence products through cyberspace.

For this reason, an open and secure net-enabled architecture is essential to cross-domain integrated analysis and dissemination. The processed data from collection platforms must move on global networks to multiple analysis sites for exploitation and further dissemination. The results should be stored in such a way that they are readily discoverable and retrievable to improve the timeliness, depth and accuracy demanded by multiple customers.



**ANNEX 2-0 GLOBAL INTEGRATED INTELLIGENCE,
SURVEILLANCE & RECONNAISSANCE OPERATIONS**

**JOINT INTELLIGENCE PREPARATION OF
THE OPERATIONAL ENVIRONMENT**

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Joint Intelligence Preparation of the Operational Environment (JIPOE) is a valuable methodology focusing intelligence, surveillance, and reconnaissance (ISR) for the commander and the commander's supporting command and control (C2) elements by getting "inside" the enemy's decision-making cycle. Specifically, JIPOE focuses analysis on the adversary, the operational environment (OE), and the effect of the OE on both friendly and enemy COAs. JIPOE and intelligence preparation of the battlespace (IPB) are key tools for conducting analysis and production that directly support C2 planning and direction processes. The key distinction between JIPOE and IPB is the supported commander. Combatant commands and joint forces conduct JIPOE while Service components provide service-level IPB. JIPOE/IPB results in the production of an intelligence estimate, potential adversary courses of action (COAs), named areas of interest, and high-value targets, which are inputs to the joint operation planning process (JOPP) and the joint force commander (JFC) and commander, Air Force forces (COMAFFOR) planning and targeting processes. The JIPOE process includes integrating analysis, production, collection management, and targeting processes to shape decision making and enable operations. Finally, JIPOE is a significant enabler for commanders to leverage or support the full range of instruments of national power (diplomatic, information, military and economic) to ensure shaping ops deter adversary actions or if deterrence fails, set conditions for successful operations should conflict occur.

Detailed threat analysis is critical for friendly force mission planning and defense suppression across all domains. JIPOE assesses how the enemy doctrinally organizes, trains, equips and employs their forces against friendly force vulnerabilities. JIPOE also assesses the cultural, social, religious, economic, and government elements of the country/region and determines the possible effects of enemy and friendly COAs on them.

JIPOE alerts decision-makers at all echelons to potential emerging situations and threats. JFC guidance provided during planning shapes the overall concept of operations, which in turn drives planning requirements for air, space, and cyberspace employment. The challenge of the JFACC/commander, Air Force forces (COMAFFOR) is determining where and when to focus attention in order to influence events early, ready forces, and begin setting conditions for future operations. Therefore, preparation of the operational environment is essential to supporting the commander's visualization

process, determining (component-level) intelligence requirements, anticipating critical decision points during operations, and prescribing [rules of engagement](#) (ROE). IPOE contributes to those enabling functions to plan and prepare for potential follow-on military operations. For example, global integrated ISR provides the intelligence needed to understand how an adversary's networks can be affected by non-kinetic (cyberspace and information operations) capabilities. The global integrated ISR contribution includes but is not limited to identifying data, system/network configurations, or physical structures connected to or associated with the network or system, determining system vulnerabilities, and suggesting actions warfighters can take to assure future access and/or control of the system, network, or data during anticipated hostilities.

JIPOE, target system analysis, and target development processes highlight an adversary's centers of gravity (COGs), key capabilities and vulnerabilities, possible intentions, and potential COAs. By identifying known adversary capabilities, JIPOE provides the conceptual basis for the JFC and COMAFFOR to visualize how the adversary might threaten friendly forces or influence mission accomplishment. JIPOE is the process in which critical thinking skills are applied to effectively counter an adversary's denial and deception strategy and anticipate surprise. Ultimately, JIPOE shapes the JOPP and by extension, the air component's air operations plan, operations order, and air operations directives.



COMMAND AND ORGANIZATION OF GLOBAL INTEGRATED ISR FORCES

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Global integrated [intelligence, surveillance, and reconnaissance](#) (ISR) operations are conducted across the [range of military operations](#) (ROMO). The Air Force organizes, trains, and equips forces to be employed in accordance with combatant commander (CCDR) direction. CCDRs typically employ intelligence related assets (assigned or attached forces) through their intelligence (J2) staffs for day-to-day operations. When a joint task force (JTF) is created, the joint force commander (JFC) integrates the actions of assigned, attached, and supporting ISR forces within the operational area. Collection operations management (COM) of airborne ISR is usually delegated to the commander, Air Force forces (COMAFFOR).

Global integrated ISR provides integrated ISR to a diverse set of consumers including, but not limited to, national agencies; geographic, functional, or Service components; multinational partners; and unit-level decision makers.

Command relationships delineate the degree of authority commanders have over forces. Understanding these authorities and how they fit in the [planning and direction; collection; processing and exploitation; analysis and production; and dissemination](#) (PCPAD) process is critical for global integrated ISR operations. This section discusses global integrated ISR command relationships from the perspectives of CCDR, JFC, COMAFFOR, and national leaders. It also describes the types of Air Force organizations that conduct or utilize global integrated ISR operations. Refer to Air Force Doctrine Annex 3-30, [Command and Control](#), and JP 1, [Doctrine for the Armed Forces of the United States](#), for detailed discussion of command relationships.

THE COMBATANT COMMANDER

The CCDR employs assigned and attached ISR forces to achieve national and theater objectives. If necessary the CCDR will coordinate with other combatant commands through the Global Force Management (GFM) process to use assets not normally assigned to his theater, or coordinate the cooperative use of assets to improve coverage. Based on guidance and direction from the CCDR, the CCDR's J2 and operations (J3) staff develop an overall theater collection strategy and posture for the execution of the ISR missions.

At the theater level, the geographic CCDR exercises [collection management authority](#) (CMA) for collection operations in his theater. CMA involves two complementary functions: [collection requirements management](#) (CRM), defining what targets intelligence systems should collect; and [collection operations management](#) (COM), specifying how to satisfy the requirement. CRM focuses on the requirements of the customer, is all-source oriented, and advocates what information is required for collection. The collection management functions drive the planning and direction phase of the PCPAD process.

The CCDR may delegate [operational control](#) (OPCON) or [tactical control](#) (TACON) over some theater ISR assets to subordinate commanders. The CCDR, however, retains the authority to validate and prioritize requirements that will be collected by theater ISR assets.

THEATER J2 RESPONSIBILITIES

Joint task forces are normally organized with a combination of Service and functional component commands. The theater J2 should remain informed of all ISR requirements being levied on assets and resources within the CCDR's area of responsibility (AOR). The theater J2 normally retains collection management authority (i.e., to validate, to modify, or to non-concur) over all theater ISR requirements within the AOR. The theater J2 executes these responsibilities through the CCDR's joint intelligence operations center (JIOC).

Tasking and employment of any ISR asset required to support more than one JTF (or geographic command) commander is coordinated and deconflicted by a common superior commander to the JTF commanders.

THE JOINT FORCE COMMANDER

The JFC provides direction for component commands to employ assigned forces to achieve campaign objectives. The JFC normally delegates OPCON of assigned/attached Air Force ISR assets to the COMAFFOR. The COMAFFOR then is responsible for tasking these ISR assets to support combat operations via the air tasking order (ATO).

The JFC's staff is responsible for developing a collection strategy and execution posture for ISR missions and coordinating with national agencies. The JFC establishes priorities for ISR operations which align with national and theater objectives. The JFC J2 reviews, validates, and prioritizes all outstanding intelligence requirements, whether originating from the JFC J2 staff or a subordinate component. High priority, time-sensitive requirements are identified and pre-validated by the JFC for the COMAFFOR to consider for dynamic retasking during execution of ISR operations. Additionally, CCDR and JFC staffs produce theater plans, such as operations plans (OPLANs) and operations plans in concept format (CONPLAN), and tailors joint operations area (JOA) ISR assets to meet crisis requirements. The JFC may retain CRM responsibilities and delegate the responsibility for COM for the JOA to the supported commander for theater ISR, which is typically the COMAFFOR. The COMAFFOR, when dual-hatted as JFACC, is uniquely positioned to execute COM in the operational area (OA). As the

supported commander for theater ISR, the COMAFFOR can leverage the air operations center (AOC), and its supporting C2 mechanism, to integrate CRM and COM. With any command relationship pertaining to ISR forces, care should be taken to understand and align Title 10, United States Code (U.S.C.) and Title 50, U.S.C., authorities to avoid potential conflicts of interest or authorities. Placing the ISR organizations in support of a JFC maintains this integrity by ensuring Title 10/Title 50 command lines are coherent. The supported commander then communicates and prioritizes requirements to enable adequate ISR support.

The JFC's staff, in conjunction with component staffs, is responsible for development of a shared production architecture that leverages reachback, distributed, and federated partners for intelligence exploitation and analysis, leveraging the support of organic capabilities at the component and JTF level, the Services, other CCDRs, and national agencies to ensure complete coverage of all requirements. Finally, in conjunction with functional and service components and coalition partners, the JFC and/or COMAFFOR may request ISR capabilities (personnel, platforms, etc.) to support current and planned requirements that exceed assigned/attached capabilities.

THE COMMANDER, AIR FORCE FORCES

The JFC normally delegates OPCON over assigned/attached Air Force forces to the COMAFFOR. The COMAFFOR also exercises [administrative control](#) (ADCON) over assigned and attached Air Force forces via the Service chain of command. The JFC also normally designates the COMAFFOR as the [joint force air component commander](#) (JFACC) area air defense commander, airspace control authority, and space coordinating authority.

If the JFC does not designate a JFACC, the COMAFFOR typically serves as the supported commander for theater ISR. During operations, collection managers (CMs) communicate the COMAFFOR's taskings through scheduling messages and by assembling a prioritized list of collection objectives. The COMAFFOR tasks attached and assigned airborne, space, and cyberspace capabilities via the ATO and CMs assemble a prioritized list of collection objectives. Specific collection objectives are then tasked in the reconnaissance, surveillance, and target acquisition (RSTA) annex to the ATO which is guided by the ISR strategy developed during the [joint air operation plan](#) (JAOP) process.

DEPARTMENT OF DEFENSE

The DOD develops the annual global theater ISR allocation plan and provides ISR sourcing recommendations in response to CCDR emergent requests and national intelligence requirements. In addition, PCPAD capacity is aligned with ISR allocation. Gaps in capability and shortfalls in capacity are identified. Furthermore, DOD also develops strategies and plans integrating and synchronizing the employment of national, DOD, and international partner capabilities.

HEADQUARTERS AIR FORCE (AF) A2, DEPUTY CHIEF OF STAFF OF THE AIR FORCE FOR ISR

The Deputy Chief of Staff (DCS) of the Air Force for ISR, AF/A2, assists the Secretary of the Air Force and Chief of Staff in accomplishing the global integrated ISR mission of the Department of the Air Force. The DCS for ISR is the Air Force's Senior Intelligence Officer (SIO), representing the Air Force to national intelligence community (IC) through the Office of the Director of National Intelligence (ODNI). As the SIO for a designated IC organization, the DCS for ISR is responsible for integrating as well as leveraging AF and national capabilities, collaborating and sharing information while protecting the integrity of the intelligence process, and establishing the necessary linkages between planning and execution for integrated AF and IC capabilities. The DCS for ISR is the principal AF advisor to national-level and DOD-level executive forums focusing on effectively integrating ISR programs and capabilities nationally and internationally.

AIR COMBAT COMMAND (ACC)

ACC implements HQ AF policy and guidance in order to plan, program, budget, and execute ISR-related resources and activities. Specifically, ACC provides combat ready ISR forces, support, and equipment to CCMDs when directed. ACC meets this responsibility by acting as the ISR global force manager (GFM) and functioning as Lead Command/MAJCOM for managing and modernizing numerous ISR sensors and collection platforms, DCGS, GEOINT, science and technology intelligence (S&TI), MASINT, SIGINT, all-source analysis, targeting, and ISR products.

25TH AIR FORCE

25th AF is subordinate to ACC and executes global integrated ISR responsibilities in support of CCMDs and Combat Support Agencies.

AIR FORCE COMPONENT A2

As the Air Force Service component commander for the joint force, the COMAFFOR is responsible for presenting Air Force global integrated ISR capabilities to the JFC. The COMAFFOR's A2 [guides Air Force intelligence forces](#) by recommending policy and guidance and ensuring coordination among various intelligence functions. The A2 is responsible for intelligence plans and programs, sensitive compartmented information management, intelligence liaison, foreign disclosure and intelligence information management functions.¹ The intelligence structure should be designed to expedite tailored intelligence to operational units. The A2 is responsible for intelligence support to the COMAFFOR and assigned/attached Air Force component forces. This includes the following:

- ★ Serves as Air Force forces SIO. Advises the COMAFFOR on all intelligence matters impacting mission accomplishment.
- ★ Recommends Air Force intelligence policy and guidance for operations within the JOA.

¹ AFI 14-202v3, *General Intelligence Rules*.

- ✦ Establishes, coordinates, and monitors AFFOR ISR requirements and capabilities to support operations in the JOA.
- ✦ Coordinates and monitors JFC global integrated ISR requirements.
- ✦ Coordinates with JFC staff to establish relationships governing federated global integrated ISR operations and distributed operations in theater.
- ✦ Validates unit intelligence and systems requirements and manages fielding and operation of automated intelligence systems.
- ✦ Participates in the contingency planning processes and development of services annexes to CONPLANS, OPLANS, planning orders (PLANORDs), and operation orders (OPORDs).
- ✦ Assists the A3/5 in developing the Air Force component commander's critical information requirements (CCIRs).
- ✦ Plans and develops implementing instructions for wartime intelligence support including augmentation of joint forces.
- ✦ Plans intelligence architecture support to satisfy Service-specific weapon system employment requirements in accordance with theater/JOA OPLANS.
- ✦ Establishes procedures for and manages theater/JOA production requests and requests for information (RFIs).
- ✦ Validates, prioritizes, and sources unit requirements for intelligence information.

THE ISR DIVISION

The air operations center (AOC) provides operational-level command and control (C2) of air component forces as the focal point for planning, executing, and assessing air component operations. The ISR division (ISR D) of the AOC integrates the JFC's theater-wide global integrated ISR capabilities, to include distributed support. Central functions of the ISR D include planning, collection management and analysis.



ISR IN THE AIR OPERATIONS CENTER

Last Updated: 29 Jan 2015

The intelligence, surveillance, and reconnaissance division (ISRD) is responsible for effectively orienting the commander, Air Force forces (COMAFFOR) to current and emerging enemy capabilities, threats, courses of action (COAs), centers of gravity (COGs), global integrated ISR operations management and targeting intelligence support. The ISRD accomplishes this task by integrating the global integrated ISR and air tasking order (ATO) processes. The ISRD provides intelligence crucial to the air mobility, strategy, combat plans, and combat operations divisions planning and executing operations. This intelligence helps achieve the commander's objectives as well as provides the means by which the effects of the operations are measured. The ISRD has primary responsibility to support the planning, tasking, and execution of theater air, space, and cyberspace global integrated ISR operations. The ISRD serves as the senior intelligence element of the theater air control system (TACS), and integrates global integrated ISR platforms and capabilities (internal and external to the AOC) in support of the joint force. Additionally, the ISRD ensures that global integrated ISR within its responsibility is optimally managed to operate within the context of a complex national and joint intelligence architecture.

The ISRD chief is the SIO for the AOC and reports to the AOC director. The ISRD Chief works in close coordination with other division chiefs and senior AOC staff to determine the best utilization of ISR personnel throughout the AOC to support AOC processes and requirements. The ISRD chief works closely with the COMAFFOR A2 to ensure the ISRD and A2 staffs are working together effectively. The ISRD Chief ensures that the ISR Division:

- ✦ Provides analyses of the enemy and a common threat picture to the JFACC, staff planners, AOC divisions and other Air Force elements in theater.
- ✦ Provides combat ISR support assessment activities for air component operations planning and execution in conjunction with the strategy, combat plans, and combat operations divisions.
- ✦ Directs and manages the air component's global integrated ISR operations, to include reachback, distributed, and federated operations.
- ✦ Provides direct targeting support to the ATO cycle in response to COMAFFOR guidance.

- ✦ Provides all-source intelligence support to other AOC divisions to enhance the execution of their core processes.

ISR AND PCPAD

The ISR is key in all elements of the PCPAD process. Two central functions of the ISR within the PCPAD process are ISR operations management and analysis.

ISR OPERATIONS MANAGEMENT

The ISR's ISR operations management function is key to the success of global integrated ISR operations. Its responsibilities span all aspects of global integrated ISR operations, including RFIs and collection requirements management, global integrated ISR mission tasking, planning, and execution, and global integrated ISR and operational assessment activities. The ISR operations process should be initiated in Strategy Division to ensure that ISR operations are closely aligned with JFACC goals and objectives and Strategy Division personnel understand ISR capabilities and limitations. Collection managers in ISR will consolidate air component ISR requirements based on [priority intelligence requirements](#) (PIRs), RFIs, targeting requirements, and other customer inputs. The process for developing and validating ISR collection requirements is essentially the same during peacetime, crisis, and war—only the nature of the requirements and the timeliness in which they should be satisfied varies. It is the Air Force's position that the AOC, specifically the ISR, is the best location for COM of airborne global integrated ISR operations to be handled within the OA.

ISR ISR operations managers/CMs will attend Joint Collection Working Groups/management boards (JCWG/MB) to advocate for air component collection priorities. The JFC J2 will adjudicate competing component requirements through the JCMB process and produce the joint integrated prioritized collection list (JIPCL). A portion of the JIPCL is then assigned to the COMAFFOR for airborne collection. Based on the ISR operations strategy, and J2's JIPCL assignments, ISR operations personnel in ISR will create a draft RSTA Annex that will be adjusted and completed by ISR Operations Planners during the master air attack plan (MAAP) process in the Combat Plans Division.

Within the AOC, the ISR global integrated ISR operations in conjunction with the Strategy and Combat Plans Divisions, while the Senior Intelligence Duty Officer (SIDO) team within the Combat Operations Division executes the ISR operations in concert with other key Air Force, joint, other government agencies, and coalition partners. Collection managers coordinate with operations planners to determine if service components' organic assets are capable of satisfying a specific requirement. If organic assets are available, then the appropriate unit will be tasked by the proper authority who exercises OPCON or TACON over that particular collection asset. Most importantly, CMs should seek to maximize the use of existing collections; this requires full access to national databases.

The ISR collection managers also work closely with targeteers and the Strategy Division to provide global integrated ISR tactical assessment activities for air, space, cyberspace and information operations planning and execution. ISR CMs and PED

managers are responsible to provide feedback to the JFC J2 on the theater requirements management process.

ANALYSIS

Analysts synthesize data, apply critical thinking, and conduct predictive analysis in order to provide accurate joint [intelligence preparation of the operational environment](#) (JIPOE) and/or [intelligence preparation of the battlespace](#) (IPB) intelligence estimates and other products. AF analysts are employed at all echelons and across the Joint/coalition community. For example, they provide advice to the JFC, COMAFFOR, staff planners, AOC divisions and other elements which shape the JOPP. They are also integral to JIOC organizations. Analysts ensure fused threat information from all sources is depicted in common operational pictures (COP) and provide this picture as inputs to the JFC and COMAFFOR planning, intelligence collection, and targeting processes. Additionally, analysts ensure that this information is coordinated with national, joint, component, and theater entities.

Specifically, AF analysts within the unit support cell are responsible for ensuring dissemination of COMAFFOR, component, and joint theater intelligence products (as required) to Air Force and other joint units. Unit support personnel also receive and integrate intelligence reporting in the form of mission reports (MISREPs) from Air Force units. The unit support cell also receives RFIs from air units assigned or attached to the COMAFFOR and coordinates that request with the RFI management cell.

AOC ISR PERSONNEL BEYOND THE ISRD

Air Force ISR personnel are embedded throughout the AOC divisions and staff elements with the sole purpose of integrating global integrated ISR throughout the planning cycle and to support command and control of theater air, space, and cyberspace forces. In general, assigned ISRD personnel provide tailored analytical and targeting products to each element, and manage intelligence requirements supporting global integrated ISR operations.

THE COMBAT OPERATIONS DIVISION (COD)

The COD is responsible for executing “today’s war.” ISR personnel within the Combat Ops Division form the Senior Intelligence Duty Officer (SIDO) Team which is responsible for providing up-to-date intelligence inputs in order to provide maximum situational awareness for the Chief of Combat Operations. SIDO responsibilities include leading a team responsible for current global integrated ISR operations. This team maintains an accurate threat picture, supports dynamic operations (i.e., personnel recovery and prosecution of dynamic targets), and monitors execution of the ATO and RSTA annex governing global integrated ISR operations.

The SIDO Team is also responsible, through close coordination with platform and processing, exploitation and dissemination (PED) liaison officers (LNOs), for dynamic retasking of theater air, space, and cyberspace global integrated ISR assets and requisite PED support for JFC objectives.

THE COMBAT PLANS DIVISION

The Combat Plans Division is responsible for translating operational level guidance into tactical planning through the ATO process. Personnel enable theater air, space, and cyberspace operations by ensuring that global integrated ISR actions are clearly linked to the commander's objectives. ISR analysts provide continually updated JIPOE analysis, and generate RFIs as needed to respond to specific requirements of the ATO planning process. Targeteers work closely with the Combat Plans JAG to validate targets for inclusion in the draft joint integrated prioritized target list (JIPTL) consistent with objectives, guidance, ROE, and in accordance with the Law of Armed Conflict (LOAC).

ISR planners ensure integration of global integrated ISR operations into the ATO process by coordinating ISR asset inclusion in the master air attack plan (MAAP) and the RSTA annex which focuses priorities, weight of effort, and intended goals.

THE STRATEGY DIVISION

The Strategy Division is responsible for the long-term and mid-term operational level planning and operational level planning and assessment of air component operations. Intelligence personnel in the Strategy Division assist in developing the overall air component strategy, JAOP, and air operations directive (AOD). Assigned analysts provide JIPOE products, coordinate with global integrated ISR teams to develop COMAFFOR PIRs, and ensure PIRs are included in the JAOP and AOD. Collection experts provide advice on available ISR assets, capabilities, and develop the ISR strategy as part of the overall air component strategy. Strategy Division targeteers use global integrated ISR products, to include the target system analysis (TSA) products, to continuously update the TSA assessment and coordinate to assist in developing the objectives, tasks, and [measure of effectiveness](#) (MOE) which form the foundation of the combat [assessment](#) process. Likewise, targeteers also provide combat assessment inputs (contributing to battle damage assessment (BDA), munitions effectiveness, and mission assessment), feeding the ATO cycle.

THE AIR MOBILITY DIVISION (AMD)

The [Air Mobility Division](#) (AMD) is responsible for planning and executing intra-theater air mobility operations and integrating inter-theater airlift operations conducted in the theater. Assigned ISR personnel evaluate ISR information for its effect on air mobility planning, execution, and force protection and provide tailored intelligence supporting theater mobility operations.



ISR CENTERS

Last Updated: 29 Jan 2015

Much of today's intelligence, surveillance, and reconnaissance (ISR) support comes from dedicated organizations and units. These organizations respond to Air Force requirements for analysis in specialized areas of knowledge and practice. As directed by Air Force senior leaders, Centers of Excellence provide focused research, lessons-learned, education, outreach and support. Centers serve the needs of Airmen, leaders and the Air Force organizations responsible for policy, doctrine, training and specialized military roles. Centers also provide intelligence support to national intelligence organizations (Defense Intelligence Agency (DIA), NSA, National Geospatial Intelligence Agency (NGA), etc.) and national policymakers, responsible for using such information to make strategic and policy decisions. Global integrated ISR professionals are integrated into these centers to provide timely, relevant, and focused intelligence to support center objectives.

These centers provide specific expertise that can be leveraged by the commander, Air Force forces (COMAFFOR) and air operations center (AOC) when they lack resources or required expertise. Some examples of centers of excellence are: National Air and Space Intelligence Center (the Air Force and DOD center for all-source air and space intelligence), Air Force Targeting Center¹ (for geospatial intelligence, target analysis and precision engagement intelligence), 688th Cyberspace Wing, the USAF Expeditionary Operations School (Air Force expeditionary combat support), and Air Force Cyberspace Technical Center of Excellence.

DESIGNATED ISR WINGS, GROUPS AND SQUADRONS

Air Force ISR Wings perform a variety of functions. Specific global integrated ISR functions may include the production of tailored intelligence for weapons systems acquisition, mission planning and targeting, collection management, logistics and readiness issues, and communications/computer system support. Additionally, some ISR Groups have specific operational missions that relate to C2; acquisition/research and development; space surveillance; threat warning and technical analysis; [signals intelligence](#) (SIGINT) oriented cryptologic support; and scientific and technical intelligence (S&TI) support.

¹ Note: IAW PAD 14-02 (yet to be approved), the AFTC is being inactivated concurrent with the stand-up of the 363ISRW (to be assigned to 25AF).

ISR squadrons collect, process, exploit, and disseminate intelligence in response to taskings from national authorities, theater commanders, and the COMAFFOR. ISR squadrons conduct various missions including military capabilities and order of battle (OOB) analysis, unit support, targeting support, [human intelligence](#) (HUMINT), [geospatial intelligence](#) (GEOINT) and SIGINT collection, processing, exploitation, and dissemination.

WING, GROUP and SQUADRON INTELLIGENCE SUPPORT

The primary focus of global integrated ISR at the operational wing, group, and squadron levels is the application of all-source intelligence information to sustain operations. Although the wing's intelligence capability is focused within a flight of either the unit's Operations Group or Operations Support Squadron, intelligence personnel and assets are assigned to each operational squadron or may be attached to wing staffs. This capability supports unit deployments, readiness training, mission planning, and other wing-level mission functions. Most unit-level intelligence organizations are composed of two branches—operational intelligence (also termed “combat” intelligence) and target intelligence. Each performs a specific function. First, operational intelligence keeps the commander and operations crews informed of intelligence matters needed to perform the mission. It maintains intelligence database holdings, provides current threat briefings and training, and helps with mission planning. Second, target intelligence assembles and maintains mission or planning folders with related target planning documentation including imagery, maps, and navigation charts. Important global integrated ISR functions that may be performed at the unit level include:

- ✦ Mission planning and joint intelligence preparation of the operational environment (JIPOE) support.
- ✦ Defensive threat capabilities and penetration analysis.
- ✦ Mission folder construction and maintenance.
- ✦ Crew target study, mission planning, threat avoidance/defeat planning, and certification.
- ✦ Debriefing, assessment, weapons system recorded media exploitation, and intelligence reporting.
- ✦ Essential elements of information (EEI) and requests for information (RFI) management.

AIR CONTROL SQUADRONS

Air control squadrons employ the Airborne Warning and Control System (AWACS), the Control and Reporting Center (CRC), and the Joint Surveillance Target Attack Radar System (JSTARS) which provide long range and persistent surveillance, early warning, airspace control, and airborne battle management capabilities for operations across the spectrum of conflict. While these units do not generally produce raw data specifically designed for the global integrated ISR processes, much of the information generated by these units is useful and can be fused with existing data to create a more accurate

picture of the operational environment. AOC collection planners should work with Combat Operations and Plans Divisions to ensure that collection requirements do not interfere with execution of current operations.

RECONNAISSANCE SQUADRONS

Reconnaissance squadrons are responsible for providing raw data for input into the PCPAD process. These units are responsible for providing national and theater command authorities with a wide array of timely, reliable, high-quality, reconnaissance products. Additionally, critical, perishable reconnaissance data can be routed directly to the shooter in near-real time. Reconnaissance data is often fused together with other intelligence to form a variety of global integrated ISR-related products which range from indications and warning (I&W) to long-range assessments of adversary capabilities.

SPACE OPERATIONS UNITS

Space operations units typically operate military and national-level assets; including ground-based radars, satellites, and other sensors, which collect information to support strategic-, operational-, and tactical-level decision-making. Forward units can access this data through tools and reachback processes. DIA coordinates requirements through NGA, National Reconnaissance Office (NRO) and NSA for tasking of national reconnaissance systems. For additional information on space operations, see Annex 3-14, [Space Operations](#).

MULTINATIONAL INTELLIGENCE OPERATIONS

Multinational operations are becoming the norm for military operations, making intelligence-sharing with allies and coalition partners increasingly important. In some multinational operations or campaigns, multinational force commanders will be able to use existing international standardization agreements (STANAGs) (e.g., North Atlantic Treaty Organization [NATO] STANAGs) as a basis for establishing rules and policies for conducting joint intelligence operations. A United States JFC participating in a multinational operation should tailor procedures for that particular operation based on CCDR guidance and national policy as contained in National Disclosure Policy (NDP) 1, *National Policy and Procedures for the Disclosure of Classified Military Information to Foreign Governments and International Organizations*. NDP 1 provides policy and procedures in the form of specific disclosure criteria and limitations, definition of terms, release arrangements, and other guidance. The disclosure of classified information is never automatic. Any disclosure should be consistent with US national policy and US military objectives and be done with the assistance of a foreign disclosure officer.



ISR SPECIAL RELATIONSHIPS

Last Reviewed: 29 Jan 2015

Global integrated [intelligence, surveillance, and reconnaissance](#) (ISR) operations ultimately contribute to commanders' decision making, and its execution is a responsibility of command across the range of military operations. The functions of [planning and direction; collection; processing and exploitation; analysis and production; and dissemination](#) (PCPAD) specifically enable the commander and those charged with executing operational plans (OPLANs) across domains and Service entities. However, some Air Force mission sets require that ISR operations emphasize the [tenets of airpower](#) according to particular mission sets. Special operations and nuclear operations are examples of mission sets where the global integrated ISR relationship is characterized by nuances in battle rhythms and time constraints.

SPECIAL OPERATIONS

Air Force Special Operations Forces (AFSOF) planning and execution are intelligence-intensive. Timely, detailed and global integrated ISR support is vital. In essence, intelligence requirements for AFSOF are similar to those of other air components, though the degree of detail is dramatically increased. Additionally, the nature of the objective may require tailored support. For instance, [special operations forces](#) (SOF) may require detailed global integrated ISR support in order to attack an objective (i.e., number of escape routes or time of day traffic analysis at objective). SOF global integrated ISR support tends to rely on organic assets, be less centralized and focused at the tactical level.

United States Special Operations Command (USSOCOM) has designated Air Force Special Operations Command (AFSOC) as the lead SOF component for remotely piloted aircraft (RPA) operations. AFSOC is also responsible for ISR processing, exploitation and dissemination (PED) operations supporting SOF and for oversight and tasking of conventional PED nodes when SOF PED requirements exceed organic capacity to satisfy.

Release of post-mission reports may be constrained by the sensitivity of many types of SOF missions. Depending on the sensitivity of the mission, commanders should report data either through special access or routine intelligence reporting channels, as appropriate.

NUCLEAR OPERATIONS

[Nuclear operations](#) require focused and detailed global integrated ISR during all stages of planning, execution, and assessment. ISR assets provide planners the data required to assess the threat environment, identify critical targets, determine appropriate weapons selection and provide essential post-strike assessments of both friendly and enemy situations. A key aspect of nuclear operations is the ability to survive in pre-, trans-, and post-strike environments associated with the unique nature of nuclear weapons. All-source ISR assets play a critical role in national decision-making by providing commanders the information to make timely decisions and enable civilian leaders to send timely and targeted deterrent signals to our adversaries and assurance to our allies.



PRESENTATION OF ISR FORCES

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Air Force global [integrated intelligence, surveillance, and reconnaissance](#) (ISR) forces are presented to joint force commanders (JFC) typically through an [air expeditionary task force](#) (AETF) structure. For example, forces provided to a joint task force (JTF) (e.g., aircraft) and forces that support that mission (e.g., intelligence support) are presented as part of the AETF's organization.

Air Force global integrated ISR forces are sometimes employed in support of other components through joint expeditionary taskings (JET). These taskings are Service-specific and are allocated based on requests for forces (RFFs) submitted by a combatant commander (CCDR). Several taskings/requirements necessitate a unique mix of skills. This requires global integrated ISR personnel attached based on skill sets required to present that capability rather than an AETF. Because global integrated ISR forces are tasked based on capability, the request for forces needs to specify skill set and echelon requirements more than position and rank required. This provides the Air Force latitude in tailoring the makeup and size of the forces presented to provide optimum support.

Finally, the Air Force conducts considerable peacetime global integrated ISR operations in support of combatant commands or interagency customers that do not support a JTF and thus, do not fall under a particular AETF. When Airmen are tasked to augment another Service, the AETF model should be applied as a template to help focus discussion of [organization and command](#) arrangements. See Air Force doctrine [Annex 3-30, Command and Control](#).



REACHBACK AND DISTRIBUTED OPERATIONS ISR

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A majority of Air Force global [integrated intelligence, surveillance, and reconnaissance](#) (ISR) capabilities are provided to the joint force commander (JFC) and/or Commander AF Forces via reachback and via distributed operations. Reachback and distributed operations allow for global integrated ISR capabilities to be presented with a reduced forward footprint. This puts fewer Airmen in harm's way without sacrificing operational effectiveness. The decision to establish reachback and distributed or split operations offers several tradeoffs. First, the fewer personnel/forces deployed forward, the less support is required. This may, however, limit face-to-face interaction between forward and rear decision-makers stretching decision-making timelines. Additionally, fewer personnel/forces forward also reduces security requirements. Yet, there is a possible void of expertise forward, forcing increased coordination with reachback and distributed entities. Finally, reachback and distributed operations requires expanded communications infrastructure which may increase vulnerabilities. Still, it could be argued that reachback and distributed operations may be more survivable and less vulnerable to single points of failure.

One of the most valuable attributes of airpower is its flexibility, the inherent ability to project power dynamically across the entire operational area. Flexibility of ISR operations is exponentially enhanced when remotely piloted aircraft (RPAs) are operated via a [command and control](#) (C2) technique termed remote split operations (RSO). RPA RSO missions provide a unique capability to transition RPA aircrews between missions across the globe in minutes in response to dynamic and changing requirements. As a result, RSO provides national decision makers the means to dynamically translate strategic priorities into forces and capabilities, determine where the US military should be focused, and where the nation can afford to accept risk.

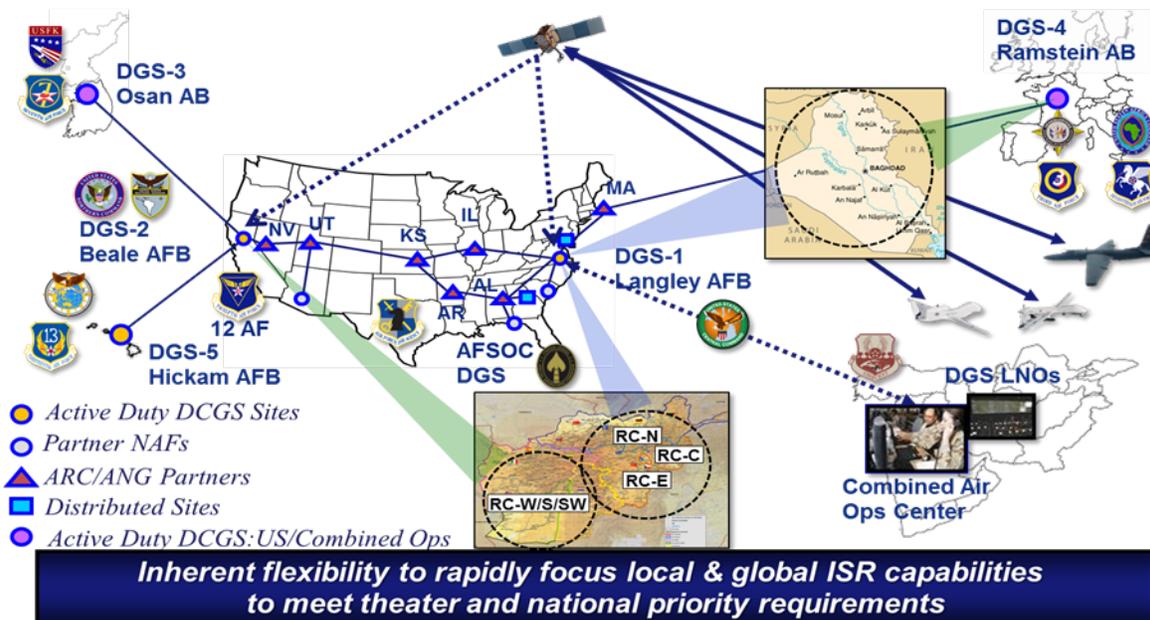
RSO, a critical element of distributed operations, employs forward-deployed, multi-role RPAs from home station via satellite links. The RSO approach has many inherent advantages. RSO reduces the deployed footprint at consolidated operating locations to only those forces required to launch, recover, and maintain aircraft. RSO does not require reconstitution of the RPAs at home station, enabling deployment of the vast majority of the RPA fleet. Thanks to RSO, the majority of the aircrew and associated personnel operate from home station and requires minimal reconstitution. Finally, asset consolidation at the forward location enables substantial maintenance efficiencies to be leveraged. While RSO decreases the need to forward deploy personnel for a given

operation, it is important to note that RSO does not decrease the global requirement for RPA aircraft and aircrews or the global requirement for ISR personnel.

RSO of RPAs is a force multiplier for the joint force that produces unparalleled economy of force and delivers increased combat power during military operations. The dynamic flexibility provided by RSO enables optimal use of scarce resources, rapid response to changing mission requirements among multiple combatant commands, and highly capable global strike and globally persistent surveillance.

DISTRIBUTED COMMON GROUND SYSTEM RESPONSIBILITIES/AUTHORITIES

The Distributed Common Ground System (DCGS) is a network-centric, global ISR enterprise. Its activities are tasked and managed to support CCDRs and forces—primarily at the JTF level and below—with actionable, decision-quality information, in accordance with established priorities as approved by the Secretary of Defense (SecDef) via the JS GFM process. The DCGS is the Air Force weapon system which provides PED for most Air Force airborne imagery intelligence (IMINT) and SIGINT collection. Air Force Distributed Ground Systems (DGSs) operate with the full flexibility of the established intelligence process, as detailed in JP 2-01, [*Joint and National Intelligence Support to Military Operations*](#), in order to make usable information immediately and simultaneously available to both engaged forces and intelligence analysts. The Air Force has chosen to designate specific DGSs to focus regionally but still be able to support global operations as prioritized by SecDef. However, the strength of the DCGS weapon system is that each DGS is networked and linked. Therefore, if one DGS requires support another DGS can help support the workload thereby maximizing the effectiveness of the entire enterprise while increasing efficiency by not duplicating manpower and other resources at each site. The DCGS is centrally managed by the 480th ISR Wing. The 480th publishes a daily PED tasking order (PTO) to task the DCGS system based on individual AOC and other customer requirements. See figure on the Air Force Distributed Common Ground System.



Air Force Distributed Common Ground System

Air Force DCGS takes advantage of Air Force, other Service, national, and coalition sensors in all domains and ingests information from all sources of intelligence. Air Force DCGS then provides products which are tailored for end-user requirements, in the formats, timelines, and channels required. Most importantly, the Air Force DCGS system is scalable and capable of both forward-based and globally distributed operations. Of note, the Air Force DCGS is a component of the larger DOD DCGS family of systems.

[Special Operations forces](#) (SOF) are supported by Air Force Special Operations Command's (AFSOC's) organic SOF distributed ground station (DGS), a networked enterprise providing highly detailed intelligence products to fielded forces. This enterprise includes multiple DOD and national exploitation nodes, all focused on providing high quality, responsive intelligence to various levels of special operations entities deployed globally. This enterprise extensively leverages capabilities and products from the national intelligence community in support of SOF personnel. 25 AF executes global DCGS operations via the 480th ISR Wing, which commands six ISR Groups to access the Air Force DCGS enterprise, and the 70th ISR Wing, which commands one ISR Group to support the DCGS. These groups, their associated Intelligence Support Squadrons, and DGSs are focused regionally to a component major command (C-MAJCOM) or component Numbered Air Force (C-NAF) and combatant commander (CCDR) while also leveraging and supporting nationally tasked cryptologic missions.

Although ISR groups are aligned regionally and provide direct support to CCDRs, the power of DCGS is the ability to focus ISR PED capability where and when required based on DOD priorities. For example, a DCGS unit providing direct support to a regional theater can be directed to support another regional theater, in part or in whole, depending on the requirements levied upon it by higher DOD authorities.

DCGS conducts ISR operations throughout the [planning and direction; collection; processing and exploitation; analysis and production; and dissemination](#) (PCPAD) process and across the [range of military operations](#), and does so in close coordination and partnership with reconnaissance squadrons and national intelligence agencies. ISR cross-cueing is one way DCGS operates. An example of cross-cueing would be a DCGS signals operator employing sensors aboard a U-2 on the other side of the planet to geo-locate a target signal and then cue a geospatial analyst working in the same room to coordinate with a Predator unit thousands of miles away to steer its video sensor to observe the source of the signal, and immediately report their findings directly to a supported unit in the area. SOF receive similar support through the SOF DGS enterprise, as executed by AFSOC.

The SOF DCGS is specifically focused on providing very detailed, tailored intelligence products and reporting to SOF deployed globally.

DCGS processing, exploitation and dissemination (PED) will support the overall [Global Force Management](#) (GFM) Allocation Plan. 25 AF presents flexible DCGS PED capabilities to the CCDR or JFC via a net-centric environment. 25 AF sites leverage

locations around the globe using personnel from diverse units. Some Guard and Reserve units are designated DCGS nodes.

Once tasked, DCGS crews perform PCPAD to include ISR fusion. DCGS capabilities are not normally presented as part of an AETF due to the global integration of Air Force DCGS operations.

Each of the five DCGS core sites forms the operational base of the ISR groups, and each group is operationally aligned with a primary C-MAJCOM/C-NAF for AOR expertise, while tasking (OPCON/TACON/ADCON) remains through the DCGS Enterprise chain of command and operations. The ISR groups and their accompanying architecture were created to possess the inherent flexibility to rapidly focus local and global capability on their area of operations while simultaneously shifting elements of global integrated ISR capability from one region to another as theater and national priorities require.

Conventional PED capabilities are primarily tasked via the supported theater air tasking order (ATO) and reconnaissance, surveillance, and target acquisition (RSTA) annex which includes platform collection decks. From this, the 480th ISR Wing generates an internal PED tasking order (PTO) for all DCGS units. The 480th ISR Wing is the lead operational Air Force DCGS wing and operates the 480th Wing Operations Center (WOC) and the AF DCGS PED Operations Center (DPOC). PED support for SOF is tasked through AFSOC or through the ISR PED tasking process.

Once tasked, DCGS forces present flexible Air Force, joint, and combined PED. The flexibility/strength of Air Force DCGS forces are enhanced by:

Logistics: Presentation of DCGS capabilities does not normally require an extensive or costly logistics tail unless there is a requirement to physically deploy personnel and hardware or to support platforms and sensors not already incorporated into the AF DCGS weapon system.

Continuity of Operations: Each Air Force DGS has cyberspace redundancy. The degradation of one or more core sites normally will not negatively affect the presentation of DCGS PED capability to the CCDR or the JFC. For example, imagery exploitation can be transferred from a Virginia site to a California site instantly, without moving personnel.

NATIONAL AIR AND SPACE INTELLIGENCE CENTER (NASIC)

A field operating agency (FOA) subordinate to AF/A2 and is the principal service production center for assessing foreign air and space threats. NASIC produces integrated, predictive air and space intelligence to enable military operations, force modernization, and policymaking.

AIR FORCE TARGETING CENTER (AFTC)¹

¹ Note: IAW PAD 14-02 (yet to be approved), the AFTC is being inactivated concurrent with the stand-up of the 363ISRW, to be assigned to 25AF.

The AFTC provides targeting products and services that exceed C-NAF and/or COMAFFOR capacity or expertise in target related planning and execution support. This support extends across the joint targeting cycle to include target materials production, target system analysis, target development, weaponeering, assessment, geospatial production, comprehensive targeting subject matter expertise, and forward deployed LNOs. Dissemination of AFTC products and services is predicated on access to theater target systems (JTT, GCCS-13, IPL, etc.) or ability of the AOC to pull from AFTC databases. The AOC is responsible for facilitating access to theater or AFTC systems for dissemination of targeting products. As required to facilitate crisis/contingency support for the COMAFFOR, the AFTC will stand up a 24/7 reachback crisis management element (CME). The AFTC establishes/maintains peacetime relationships with each air component's AOC to ensure successful crisis/contingency support through synchronization of capabilities, training/exercises, and production activities.

ISR LIAISONS AT KEY JOINT AND COALITION OPERATIONAL HUBS

ISR liaison officers (LNOs) support air operations centers (AOCs) and other organizations conducting major global integrated ISR operations. ISR LNOs may be integrated with other components from the operational level down to the tactical level if necessary. ISR LNOs provide recommendations on how to best integrate and synchronize DCGS, AFTC, and other ISR capabilities into theater operations. They provide expertise on ISR operations and may act as a conduit for ISR requirements between ground commanders, intelligence staffs, AOC [ISR division](#) (ISRD) analysts, AFTC proper, DCGS proper, and other ISR organizations that provided LNOs. Additionally, ISR LNOs increase situational awareness for ISR crews regarding the details of current operations in which they will participate.

DISTRIBUTED COMMON GROUND SYSTEM ANALYSIS AND REPORTING TEAMS (DART)

The DART provides the capability for the DGS to focus regionally. DARTs assigned to each active-duty DGS specialize in one or more geographic regions. They provide DCGS crews with situational awareness on the targets, operations, and requirements that they will execute during the course of their mission.

The DARTs provide detailed, precise regional analysis that fully leverages all source intelligence to provide insight into theater activities and aids in shaping the battlespace to advantage. “While [the Air Force ISR enterprise] seek[s] to have DCGS crews cover targets in their global integrated ISR group’s area of operation for target continuity, it is not uncommon to have the DART working issues for its respective area while their collocated crews execute missions for one or more areas.”²

DCGS CREWS

² “Global Distributed ISR operations—The Changing Face of Warfare,” David A. Deptula and James R. Marr—JFQ, Issue 54, 3d Quarter 2009.

Perhaps the most enduring aspect of the DCGS architecture is the exploitation crew. Exploitation crews data-condition (metadata tag) and interpret collected data from a variety of air and space platforms (e.g., U-2, RQ-4, MC-12, MQ-1, and MQ-9) and turn it into usable intelligence. Tailored crews are assembled based on the type of platform and the nature of the mission. Within each crew, a C2 element ensures accomplishment of mission tasks, while an analytical team works through individual exploitation assignments. Many of these crews are not part of an [air expeditionary task force](#) (AETF) which means that they do not turn over every six months. This allows for DCGS crews to maintain continuity and expertise for the duration of an operation.

480th WING OPERATIONS CENTER (WOC)

The 480th WOC coordinates and manages worldwide DCGS operations. The 480th WOC mission is to ensure the DCGS weapons system is synchronized to meet warfighter requirements around the globe. To facilitate DCGS operations, the 480th WOC produces a daily PTO. The PTO is a sliding 3-day schedule assigning DCGS crews around the globe to planned ISR missions. While the tasking order serves as the foundation for mission accomplishment, it is the WOC's agility which makes it such a powerful element in distributed operations. As global crises emerge, the WOC is able to react instantly to related combatant command and air component operational requirements. In addition, DPOC expertise in managing the global DCGS communications architecture promotes flexibility if any portion of the enterprise suffers degradation or an outage.



GLOBAL INTEGRATED ISR AND HOMELAND OPERATIONS

Last Updated: 29 Jan 2015

Global integrated [intelligence, surveillance, and reconnaissance](#) (ISR) homeland operations are distinguished from other global integrated ISR operations in that specific legal authorities/restrictions are involved that limit the role of the military and intelligence personnel. Examples of these legal restrictions include Executive Order (EO) 12333 (Intelligence Oversight), Title 10, Title 32, Title 50 authorities, and the Posse Comitatus Act of 1878.

Air Force global integrated ISR operations are capable of confronting the external threat as well as assist with domestic operations (or Defense Support of Civil Authorities (DSCA)) but must do so through a clear delineation of responsibility and authority. Air National Guard (ANG) units with ISR capabilities can, with proper authorization and while in the proper status (Title 32, USC), support DSCA operations.

Incident Awareness and Assessments (IAA) is similar to ISR. ISR is conducted outside the United States over foreign territory or within the United States during homeland defense events, while IAA is conducted within the United States for civil support operations. DODIAA operations focus on providing timely and usable information to all levels of command and to local, tribal, state, and federal leaders in order to save lives, reduce human suffering, and protect property. DOD policy restrictions may require seeking DOD approval before using unmanned aerial systems (UAS) for IAA. Before using a UAS for IAA, commanders need to abide by all applicable policy restrictions.

Legal Authorities for Homeland Operations

Natural or man-made disasters and special events can temporarily overwhelm local, tribal, state, and non-military federal responders. The DOD has a long history of supporting civil authorities in the wake of catastrophic events. Legal authorities for such operations are described in Air Force Doctrine Annex 3-27, [Homeland Operations](#). The parameters under which DOD operates are different in the US than they are overseas. Military commanders' requirement for accurate intelligence demands that force protection information and counterintelligence are integrated into [domestic support operations](#). These expectations pose unique issues in the information and intelligence gathering arena. DOD intelligence components are subject to one set of rules referred to as intelligence oversight (EO 12333). DOD personnel not in a position to collect intelligence are subject to a different set of rules governed by DODD 5200.27, *Acquisition of Information Concerning Persons and Organizations Not Affiliated with the*

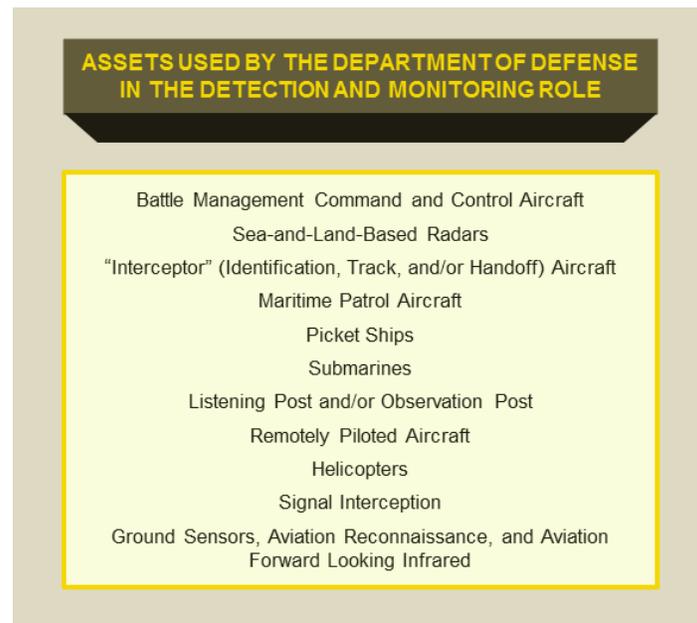
Department of Defense. Therefore, the commander should direct his need for information or intelligence to the right component—the component with the capability and authority to achieve the commander’s intent. For additional information on Homeland operations refer to Annex 3-27, [Homeland Operations](#).

COUNTERDRUG OPERATIONS

Air Force global integrated ISR support to [counterdrug operations](#) are planned, coordinated, and controlled through joint interagency task forces (JIATFs) and JTFs. US Southern Command (USSOUTHCOM), US Pacific Command (USPACOM), and US Northern Command (USNORTHCOM) oversee regional JIATFs and JTFs for counterdrug operations within their respective AORs. Intelligence directorates within each JIATF and JTF are the focal points for tactical and operational intelligence support for DOD agencies.

The global integrated ISR support activities linked with counterdrug operations are Counterdrug Intelligence Preparation for Operations (CDIPO) and detection and monitoring (D&M). CDIPO identifies likely trafficking routes and recommends the efficient allocation of scarce resources to locate, track, and apprehend drug traffickers.

D&M is an important part of the overall drug interdiction process. The goal of D&M is to provide early notification to DOD agencies and enable them to conduct interdictions and searches for contraband. See figure on DOD Assets used for detection and monitoring.



DOD Assets used for detection and monitoring



IRREGULAR WARFARE AND ISR

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Air Force global integrated [intelligence, surveillance, and reconnaissance](#) (ISR) provides significant capability in [irregular warfare](#) (IW), but in many ways its role is different from its role in conventional warfare. IW typically has different objectives, intelligence requirements, and targets than conventional warfare. AF global integrated ISR must consider these differences in both planning and executing operations. The objectives in IW are often different than those in conventional warfare. IW typically focuses on gaining the support of the population through utilizing the political, military, and economic means available. IW requires integration of these means at lower echelons to achieve desired effects.

Also, the targets of ISR in IW frequently differ from target sets in conventional warfare. In conventional warfare, ISR is traditionally concerned with discovering the intent, order of battle (OOB), and tactics of governments and armed forces. Additionally in conventional warfare, ISR typically seeks to find the enemy's massed formations which can pose a threat to friendly forces. Irregular adversaries tend to operate in the opposite fashion. They rely on distribution and decentralized operations for security and protection. They are agile and often embedded within local societies. Their tactics are likely to be significantly influenced by the local societies' norms and values. They commonly operate in unrecognizable organizational structures where adversary decisions are not centralized but instead made quickly and communicated laterally across the organization. They adapt to the areas they operate within and from, using available technology to closely link with dispersed operators or cells. They are usually a constellation of fighters organized on the basis of relationships and acquaintances, reputation and fame. Their networks are typically self-forming with new nodes constantly being created and absorbed. Evolving tactics, techniques, procedures, and financial resources enable propaganda and information to flow at increased rates, allowing powerful and nimble coordination.

IW increases the demand for global integrated ISR from lower echelon commanders. This is due in large part to the adversary's ability to live undetected among a population with which they are closely tied. The areas they operate within and from generally allow for increased flexibility and an impressive ability to grow support and overcome losses. In warfare, decisions are frequently based on indicators. Because of the dispersed nature of IW, adversary indicators are typically best noted by local personnel. Therefore, to the maximum extent possible organic assets should fill local ISR demand. Air Force global integrated ISR, which is typically allocated to the commander Air Force

forces (COMAFFOR), can augment local organic ISR. When augmenting local organic ISR, Air Force global integrated ISR should plan and coordinate closely with the supported forces to enable successful operations.

Further, indicators pop up everywhere, unevenly, unexpectedly, and fleetingly. Intelligence sharing within the operational environment should include everyone regardless of organizational size, diversity or location. Decision-making should be decentralized as much as possible.

Due to the highly complex environment of IW, ISR forces should maintain an adaptive, deep, and broad view of ISR operational capabilities. ISR forces need to embrace information collected from a variety of sources with an eye on those sources in the best position to provide or collect information to fill intelligence gaps. Care should be given to validate the credibility of these various sources in order to overcome adversary denial and deception and information operations.

Although [rules of engagement](#) (ROE) and operational objectives drive operations, analysts should craft their intelligence requirements to account for both available kinetic and non-kinetic capabilities to prevent adverse effects on the population. Analysts should recognize an increased need to make correlations between various development projects and levels of cooperation with local nationals. Additionally, ISR forces should be aware that one of the basic underpinnings of successful IW operations is the capability to train partners to conduct independent operations and participate in coalition operations.

IW conflicts are historically protracted. The IW force should be able to maintain a steady-state rotation policy throughout a decade or more of conflict. Air Force global integrated ISR is well suited to steady-state IW operations because of its capability to leverage distributed operations. Currently, many of the Air Force's global integrated ISR positions are operating from home station. Overseas contingency operations require Air Force global integrated ISR forces and capabilities that are as competent and capable in IW as they are in conventional warfare.¹

¹ *USAF ISR Strategy: ISR in Irregular Warfare Annex* (2 Jul 2009). Derived from Gen Stanley McCrystal's "It Takes a Network," *Foreign Policy*, 2011.



**ANNEX 2-0 GLOBAL INTEGRATED INTELLIGENCE,
SURVEILLANCE & RECONNAISSANCE OPERATIONS**

FORCE PROTECTION AND ISR

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Global integrated intelligence, surveillance, and reconnaissance (ISR) provides vital support and capabilities to [Force Protection](#) (FP) entities that allows them to Find, Fix, Track, Target, Engage, and Assess (F2T2EA) threats to airfields and air bases. Global integrated ISR is necessary to drive modern counterthreat and FP operations. Combined base defense forces should use ISR to aggressively eliminate threats.

The Joint Force Commander (JFC) and Combined Force Air Component Commander (CFACC) should designate organic ISR assets to support the FP mission set. Combined with other global integrated ISR operations, these assets can be used by an Air Force Office of Special Investigations (AFOSI) unit to conduct counterthreat and FP operations to defend assets and personnel at CFACC installations.

As observed at forward operating locations throughout Afghanistan and Iraq, threats near air bases ultimately degrade sortie generation. Full spectrum ISR operations are integral to successfully executing the FP mission and mitigating these threats.

The unique capabilities different sensors provide in developing a

Case Study Example: Kandahar Airfield Afghanistan

In 2013, the Commander, 451 Air Expeditionary Wing, Kandahar Airfield (KAF), Afghanistan made base defense a primary objective. He drove cooperation between Air Force Office of Special Investigations Expeditionary Detachment 2413, intelligence liaison officers, Air Force Security Forces Tactical Security Element and the battlespace owners, as well as the coordination of dedicated ISR and strike resources. This Combined Base Defense (CBD) construct enabled an unprecedented increase in the identification and neutralization of threats to KAF. This resulted in a decrease of indirect fire (IDF) threats to the airfield of 72 percent and a period of six months with only two IDF events. The 451 AEW/CC had a greater ability to launch decisive combat airpower to meet the JFC and CFACC priorities. This was only possible through the integration of ISR specialists and resources with the FP mission set.

comprehensive understanding of the operational environment enhance the ability of FP forces to affect the battlespace through identification and tracking of potential threats to operations. Global integrated ISR should be used in concert with FP operations and analytical cells to create effects that will shorten the F2T2EA kill chain, thereby reducing the threat. This integration ensures the entire process is accomplished in accordance with commander's FP objectives and the proper combination of complimentary assets is available to achieve these objectives.



INTELLIGENCE REQUIREMENTS

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Intelligence and operational requirements drive the planning and execution of global integrated [intelligence, surveillance, and reconnaissance](#) (ISR) operations. The requirements start at the national decision-maker level and are tailored and refined down to the tactical level. Global integrated ISR operations are executed to collect data on these focused requirements. This data is then combined with other data, analyzed, and incorporated into production to meet the larger intelligence requirements. Understanding these requirements and where they come from is the linchpin to successful global integrated ISR planning and execution.

COLLECTION MANAGEMENT AUTHORITY

[Collection management authority](#) (CMA) is defined as “the authority to establish, prioritize, and validate theater collection requirements, establish sensor tasking guidance, and develop theater-wide collection policies.”¹ Commanders exercising [operational control](#) (OPCON) over ISR forces may or may not assume CMA of tasking these global integrated ISR assets as part of the delegation of authority.

CMA usually includes authority to task geospatial intelligence (GEOINT) sensors and lower echelon signals intelligence (SIGINT) collection systems that have more localized collection capabilities. National Security Agency (NSA) still retains CMA over the tasking of strategic-capable SIGINT ISR systems. The combatant commander (CCDR) may specifically request and subsequently receive temporary SIGINT operational tasking authority (SOTA) over theater-wide capable platforms and sensors. The delegation of SOTA to the CCDR and subsequent delegation of this authority to the joint force commander (JFC) ensures the theater has the ability to prioritize requirements and focus SIGINT collection where it is needed to carry out the mission assigned to the command.

COLLECTION REQUIREMENTS MANAGEMENT (CRM)

[Collection requirements management](#) (CRM) is defined as “the authoritative development and control of collection, processing, exploitation, and/or reporting requirements that normally result in either the direct tasking of assets over which the collection manager has authority, or the generation of tasking requests to collection management authorities at a higher, lower, or lateral echelon to accomplish the

¹JP 2-0, *Joint Intelligence*.

collection mission.” CRM and validation of collection requirement requests for an AOR often resides at the combatant command level but may be delegated to a JFC. CRM focuses on the requirements of the customer, is all source oriented, and indicates what information is necessary for collection.

COLLECTION OPERATIONS MANAGEMENT (COM)

[Collection operations management](#) (COM) is defined as “authoritative direction, scheduling, and control of specific collection operations and associated processing, exploitation, and reporting resources.” COM is often delegated to an echelon below the JFC (usually the commander, Air Force forces [COMAFFOR]), when that echelon has the required expertise in daily collection operations for specific ISR assets. COM is the tasking, scheduling, and control of specific collection, processing and exploitation assets to satisfy joint force requirements that have been validated and prioritized via the CRM process.

COMMANDER’S CRITICAL INFORMATION REQUIREMENTS

Planning and direction of global integrated ISR operations start with the identification of needs for intelligence regarding all aspects of the operational environment. The President and Secretary of Defense direct JFCs engage in adaptive planning for the conduct of operations. The JFC should then provide the [commander’s critical information requirements](#) (CCIRs) to the joint staff and components.

CCIRs are information requirements identified by the commander as being critical to facilitating timely decision-making. The two key elements are friendly force information requirements and priority intelligence requirements.² Global integrated ISR activities in support of CCIRs should be coordinated with the servicing judge advocate to ensure compliance with the law and any existing rules of engagement (ROE).

PRIORITY INTELLIGENCE REQUIREMENTS

In the course of intelligence planning and direction, intelligence planners identify the intelligence required to answer the CCIRs. Those intelligence requirements deemed most important to mission accomplishment are identified [as priority intelligence requirements](#) (PIRs). PIRs are general statements of intelligence need. Examples of PIRs are as follows: “what is the operational status of the adversary’s integrated air defense system?” or “what terrorist groups are active within the area of responsibility/interest (AOR/AOI)?”

PIRs provide the framework for prioritization of all global integrated ISR operations within a CCMD. PIRs are driven by, and in turn drive, the joint [intelligence preparation of the operational environment](#) (JIPOE) process to refine information requirements and support the commander’s potential courses of action. The designation of intelligence requirements ensures efforts are focused on critical information needed to support warfighters. Additionally, PIRs drive the development of detailed EEIs.

²JP 3-0, *Joint Operations*.

ESSENTIAL ELEMENTS OF INFORMATION

[Essential elements of information](#) (EEl)s further define the commander's priority intelligence requirements by outlining specific information requirements. An example of an EEl is as follows: "what is the current location of the adversary SA-20 battery?" EEIs are linked to PIRs in order to trace accountability for global integrated ISR operations to commander priorities. As commander direction and guidance evolve, planners may develop new EEl requirements or modify existing requirements.

REQUESTS FOR INFORMATION

Requests for information (RFIs) are used to task and manage intelligence analysis requirements to answer CCIRs and PIRs. If analysis cannot be performed within an organization, RFIs for intelligence analysis from other organizations across the community in support of answering CCIRs and PIRs are coordinated through the automated requirements management system known as the Community On-Line Intelligence System for End Users.

PCPAD

Within a CCMD, the [planning and direction; collection; processing and exploitation; analysis and production; and dissemination](#) (PCPAD) process of planning global integrated ISR operations begins once the above requirements have been established, validated, and prioritized. As intelligence collection requirements are aligned with available collection capabilities; the planning process addresses such factors as the availability of ISR assets, platform and sensor capabilities, adversary threats to assets, and timeliness of a global integrated ISR response. These factors, when weighed together, affect how ISR assets are tasked and employed. In order to make the planning process more efficient, information requesters should clearly articulate their collection requirements and allow the CMs and operations planners to decide the best way to meet the requirements.

An optimal global integrated ISR strategy should be designed to maximize battlespace awareness. ISR strategy is encapsulated within the [joint air operation plan](#) and is synchronized with theater and national architectures and strategies. It provides the foundation for development and validation of intelligence requirements, captures the framework for planning and direction of global integrated ISR operations, and establishes guidance for the operation of all other elements of the global integrated ISR processes.

PLANNING AND DIRECTION

[Planning and direction](#) is defined as "the determination of intelligence requirements, development of appropriate intelligence architecture, preparation of a collection plan, and issuance of orders and requests to information collection agencies."³ Planning and direction of global integrated ISR activities involves synchronizing and integrating the activities of collection, processing and exploitation, analysis and production, and dissemination resources to meet information requirements of national and military

³ JP 2-01, *Joint and National Intelligence Support to Military Operations*.

decision-makers at all levels. Precise planning will mitigate and potentially defeat the traditional adversary advantages of surprise, speed, stealth, maneuver and initiative. For example, campaign planners rely on global integrated ISR to provide the intelligence crucial to understanding an adversary's weaknesses and key nodes that can be affected by air, space, land, maritime, cyberspace and information operations. Intelligence analysis helps detect/discover, identify, locate, and describe the vulnerable, vital elements of an adversary's physical and virtual structure and their COG. In this way Air Force global integrated ISR brings significant strengths to [foreign internal defense](#) and [counterinsurgency \(COIN\)](#), not the least of which is identifying key areas along the borders and monitoring traffic in coordination with host nations (HN).

COLLECTION

[Collection](#) is defined as "the acquisition of information and the provision of this information to processing elements."⁴ The collection portion of the intelligence process involves tasking appropriate assets or resources to acquire the data and information required. Collection includes the identification, prioritization, coordination, and positioning of assets or resources in all domains to satisfy intelligence requirements. A unique advantage is that several platforms used for collection provide an opportunity to minimize the US footprint. Global integrated ISR assets can be based outside of the AOI or sequestered on airfields within the AOI that are relatively isolated from the population.

PROCESSING AND EXPLOITATION

[Processing and exploitation](#) is defined as "the conversion of collected information into forms suitable to the production of intelligence."⁵ Once the data satisfying the requirements are collected, they undergo processing and exploitation. Through processing and exploitation, the collected raw data is transformed into information that can be readily disseminated, used, exploited, transmitted, stored, and retrieved by intelligence analysts. Relevant critical information should also be disseminated to the commander and staff to facilitate time-sensitive decision making. Processing and exploitation time varies depending on the characteristics of specific collection assets. For example, some systems accomplish processing automatically and nearly simultaneous with collection. However, other collection assets, such as [human intelligence](#) (HUMINT) teams, may require additional time. Processing and exploitation requirements are prioritized and synchronized with the commander's PIRs. During processing and exploitation, collected data is correlated and converted into a format suitable for analysis and production. Processing and exploitation remain distinct from analysis and production in that the resulting information receives tier one analysis for time-critical production but has not been subjected to full analytical assessment. Relevant time-sensitive information resulting from this step in the process (especially targeting, personnel recovery, or threat warning information) should be immediately disseminated through intelligence broadcasts, secure information workspace or internet relay chat channels, imagery product libraries (IPLs), intelligence databases, or message reporting.

⁴ JP 2-01, *Joint and National Intelligence Support to Military Operations*.

⁵ JP 2-01, *Joint and National Intelligence Support to Military Operations*.

ANALYSIS AND PRODUCTION

[Analysis and production](#) is defined as “the conversion of processed information into intelligence through the integration, evaluation, analysis, and interpretation of all source data and the preparation of intelligence products in support of known or anticipated user requirements.”⁶ Integrated multi-domain ISR-generated data can provide understanding of demographics, culture, physical terrain, centers of gravity, and financial, social, and political infrastructures. Global integrated ISR must fuse all-source intelligence data and rapidly disseminate finished, timely, accurate and actionable intelligence to consumers in order to facilitate command decisions and rapid response options.

Analysis and production are accomplished through a structured series of actions which, usually occurring sequentially, may also take place concurrently. These actions include the integration, evaluation, analysis, and interpretation of information in response to known or anticipated intelligence production requirements.

- ✦ **Integration.** Information from single or multiple sources is received, collated, and entered into appropriate databases by the analysis and production elements of intelligence community organizations, the theater joint intelligence operations centers (JIOCs) or subordinate joint force elements like the ISR division. Information is integrated and grouped with related pieces of data according to predetermined criteria to facilitate the evaluation of newly received information.
- ✦ **Evaluation.** Each new item of information is evaluated by the appropriate analysis and production element with respect to the reliability of the source and the credibility of the information. The reliability of the source and the credibility of the information should be assessed independently of each other to avoid bias.
- ✦ **Analysis.** During analysis, assessments are made by comparing integrated and evaluated information with known facts and predetermined assumptions. These assessments are combined and assessed to discern patterns, links or recognized events. Analysis can also result in identification of opportunities or knowledge gaps that drive future collection. Examples of analytical activities include pattern of life analysis, spatial/temporal analysis, network analysis, trend analysis, forensic-based analysis.
- ✦ **Interpretation.** Interpretation is an inductive process in which the information is judged in relation to existing information and intelligence. This process involves the identification of new activity and a decision regarding the significance of that activity.

These actions enable intelligence fusion. Fusion is “the process of examining all sources of intelligence and information to derive a complete assessment of activity.”⁷ To promote fusion, analysts should work in collaborative environments which provide access to recognized, and often geographically separated, subject matter experts. Through collaboration, intelligence analysts are able to share information, discuss opinions, debate hypotheses, and identify or resolve analytic disagreements. Advances

⁶ JP 2-01, *Joint and National Intelligence Support to Military Operations*.

⁷ JP 2-0, *Joint Intelligence*.

in network capabilities greatly enhance analysts' ability to share, compare, and assess information. As databases grow in volume and complexity, potentially vital pieces of information may become increasingly difficult for analysts to find and retrieve. In order to overcome this limitation, virtual knowledge bases have been designed to serve as integrated repositories of multiple databases as well as reference documents and open-source material.

DISSEMINATION

[Dissemination](#) is defined as “the delivery of intelligence to users in a suitable form and the application of the intelligence to appropriate missions, tasks, and functions.”⁸

Dissemination of global integrated ISR provides the end user information required for application in a timely manner. Dissemination can take a variety of forms (i.e., electronic transmission, hardcopy annotated imagery/maps, direct threat warnings, oral and written reports, briefings, or via various servers allowing structured discovery and retrieval). Most importantly, the dissemination process requires continuous management. Without effective management, communications paths can become saturated by information being retransmitted by many intermediate collection agencies, resulting in “circular reporting.” Advances in cyberspace capabilities or technology also improve dissemination by reducing information-to-production timeline for delivering global integrated ISR products. Likewise, some collection systems are capable of disseminating collected information to requesters on a real- or near real-time basis, vastly increasing their responsiveness. With this consideration in mind, it is sometimes better to get the consumer data immediately rather than processed knowledge too late. Additionally, global integrated ISR planning should include local procedures for rapidly coordinating with [Public Affairs](#) for public release of select intelligence. This expanding collection capability makes secure network connectivity more important because real-time planning and targeting systems depend on tailored intelligence information. The integration of intelligence and operations on a continuous basis allows commanders and all operational planners access to the most current information available; thereby optimizing intelligence support to operation planning, preparation, execution, and assessment functions.

⁸ JP 2-01, *Joint and National Intelligence Support to Military Operations*.



GLOBAL INTEGRATED ISR METHODOLOGIES/PRODUCTS

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A number of global integrated [intelligence, surveillance, and reconnaissance](#) (ISR) methodologies and products provide predictive analysis, near-real time and real-time threat, target and friendly forces status to the commanders, staffs, operational units, and individual operators. At the most basic level, situational awareness, the goal of global integrated ISR operations, is provided at a number of levels. For example, it could mean passing direct threat warning information to a pilot in near-real time, providing a combatant commander with a comprehensive picture of the area of responsibility's (AOR's) operational environment, or supporting building partnership activities. This threat picture can be conveyed to tactical users via audio, video, or data links. Additionally, products can be tailored via formal reporting methods, informal or formal briefings, background papers, annotated imagery, graphic or video presentations, dynamic databases, and near-real time displays. Below are some of the methodologies and products that contribute to situational awareness.

INDICATIONS AND WARNING

Global integrated ISR is vital for [indications and warnings](#) (I&W) functions. Global integrated ISR provides timely and continuous near-real time information to assess potential threats to the United States and its allies. Specifically, a critical task with the I&W function is to provide strategic warning of possible ballistic missile attack. The space-based infrared system, which detects missile launches, is one example. I&W products are derived from a worldwide system that analyzes and integrates information to assess the probability of hostile actions, and provides sufficient warning to preempt or counter their outcome. I&W systems rely on tip-offs from sources at all levels. An integrated and responsive intelligence architecture should be established to satisfy national, strategic, and theater requirements. The focus of I&W products varies at each echelon and is most specific at the operational and tactical levels. In general, I&W products focus on the following:

- ★ Emerging crisis situations and foreign government responses to them.
- ★ A potential adversary's politico-military intentions, past behaviors, motivations, and doctrine.
- ★ Significant political, economic, or social situations that could lead to crisis-triggering events in both friendly and adversary states.

- ★ Changes in adversary force dispositions, military activities, and mobilization status.
- ★ Adversary information operations capabilities in the region.
- ★ Key civil or bureaucratic activities that suggest follow-on military activity.
- ★ Status of other military forces in the AOR or operations.

CURRENT INTELLIGENCE

Current intelligence is defined as “one of two categories of descriptive intelligence that is concerned with describing the existing situation.” Current intelligence should be used for predictive intelligence about future adversary actions. Predictive intelligence with context and analytical confidence assessment is critically important to decision makers, planners, and operational forces. It is the art of producing and fusing global integrated ISR products on the current situation in a particular area or on activities of specific groups. This type of intelligence is similar to I&W in that both depend upon continuous monitoring of world events and specific activities in an AOR. Information required to produce current intelligence products includes, but is not limited to, the following:

- ★ Adversary intentions, capabilities, and will to use military force and/or other instruments of national power.
- ★ Potential adversaries’ centers of gravity, operational plans, and vulnerabilities.
- ★ Geographic, environmental, and social analysis of the operational area.
- ★ Significant military and political events.
- ★ Status of strategic transportation nodes (major airfields, seaports, and cyberspace capabilities architecture).
- ★ Analysis of weapons of mass destruction threats against the US and its allies and friends.

Current Intelligence and general military intelligence form a symbiotic relationship. The information gained during development of current intelligence forms the basis for the GMI effort and other analytical products. Conversely, GMI provides the threat backbone through order of battle (OOB), tactics, technology, etc., for producing accurate and meaningful current intelligence.

GENERAL MILITARY INTELLIGENCE

GMI is defined as “intelligence concerning the military capabilities of foreign countries or organizations or topics affecting potential US or multinational military operations.” GMI relates to armed forces capabilities, including OB, organization, training, tactics, doctrine, strategy, and other factors bearing on military strength and effectiveness; area and terrain intelligence, including urban areas, coasts and landing beaches, and meteorological, oceanographic, and geological intelligence; transportation in all modes;

military materiel production and support industries; military and civilian communications systems; military economics, including foreign military assistance; insurgency and terrorism; military-political-sociological intelligence; location, identification, and description of military-related installations; government control; escape and evasion; and threats and forecasts.

Current intelligence and GMI efforts are synergistic. GMI produces information concerning OB, political, economic, and social aspects of foreign countries. Additional GMI products may include reports on the organization, operations, and capabilities of selected foreign military forces or groups. The following are examples of GMI products:

- ★ **Military-related Infrastructure Assessments.** These assessments provide detailed indicators of an opposing force's capabilities and vulnerabilities, including its warfighting sustainability. Examples include assessments on adversary command and control systems, defense industries, energy production and distribution networks, transportation systems and cyberspace capabilities.
- ★ **Military Capabilities Assessments.** Determining the adversary's potential military capability includes identifying forces, readiness levels, evaluating vulnerabilities, and assessing adversary abilities to employ military force to counter friendly force objectives.

SCIENTIFIC AND TECHNICAL INTELLIGENCE

[Scientific and technical intelligence](#) (S&TI) is defined as “the product resulting from the collection, evaluation, analysis, and interpretation of foreign scientific and technical information that covers: a. foreign developments in basic and applied research and in applied engineering techniques; and b. scientific and technical characteristics, capabilities, and limitations of all foreign military systems, weapons, weapon systems, and materiel; the research and development related thereto; and the production methods employed for their manufacture.”¹ S&TI products focus on foreign scientific and technical developments which have potential military applications. Examples of S&TI products include weapon system characteristics, capabilities, vulnerabilities, limitations, and effectiveness as well as research and development and related manufacturing information. S&TI products play a vital role in the acquisition process by allowing the acquisition community to procure systems or upgrade existing ones to meet current, developing, and potential future threats.

TARGET INTELLIGENCE

[Target intelligence](#) is defined as “intelligence that portrays and locates the components of a target or target complex and indicates its vulnerability and relative importance.”² Required products, such as target imagery, should be immediately available to support the air tasking order and mission planning cycle. Global integrated ISR operations play a prominent role in the targeting cycle by detecting, locating, and identifying targets as

¹ JP 2-01, *Joint and National Intelligence Support to Military Operations*.

² JP 3-60, *Joint Targeting*.

well as supporting mission planning and assessment. Additionally, successful employment of precision munitions against mobile targets often requires near-real time targeting information.

Detection is an ongoing process which uses ISR assets to identify potential targets or identify changes to existing targets. Multiple missions may be required to provide the level of detail necessary to support the precision engagement of specific high-value targets.

Target intelligence products include annotated target graphics, electronic target folders, target system analyses, and geospatial information, which together comprises the comprehensive data needed to plan and execute lethal and nonlethal missions. Advances in technology have increased the capability for intelligence to be passed directly to the cockpit ("sensor-to-shooter"). For example, RC-135 RIVET JOINT can provide threat information to aircraft performing both [counterair](#) and [counterland](#) missions. Target imagery can also be provided directly to the same aircraft.



APPENDIX A: INTELLIGENCE DISCIPLINES

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Global integrated [intelligence, surveillance, and reconnaissance](#) (ISR) operations collect data which becomes finished intelligence only when processed, analyzed, and integrated. This data can be collected through a wide variety of means. In order to properly plan and manage global integrated ISR operations it is important to have a basic understanding of the intelligence disciplines. The following is a list (not all-inclusive) of intelligence disciplines relevant to Air Force ISR operations.

GEOSPATIAL INTELLIGENCE

[Geospatial intelligence](#) (GEOINT) is defined as “the exploitation and analysis of imagery and geospatial information to describe, assess, and visually depict physical features and geographically referenced activities on the Earth. Geospatial intelligence consists of imagery, [imagery intelligence](#) (IMINT), and geospatial information.”¹ GEOINT data sources include commercial satellites, government satellites, aircraft, maps, commercial databases, census information, Global Positioning System (GPS) waypoints, or even utility schematics. GEOINT is much more than the sum of its parts. In short, GEOINT can synthesize intelligence and data into conceptualized geographic spatial content which can provide commanders key operational intelligence (i.e., best vantage point for shooters, most advantageous entry points, spatial trends and patterns, etc.).

IMINT is defined as “the technical, geographic, and intelligence information derived through the interpretation or analysis of imagery and collateral materials.”² It involves the collection and analysis of images that are recorded and stored. These images are used for historical comparisons, to locate adversary military forces/facilities and provide the commander insight into the adversary’s capabilities. IMINT is also useful in understanding the physical terrain and the human impact in terms of significant cultural sites (governmental structures, historical sites, and schools), agriculture and urban infrastructure, water, electrical grids, etc. IMINT can be broken down into optical images, non-optical images, and full-motion video (FMV).

Optical literal imagery products are visual photos (recorded on film, tape, or electronically) which use visible light to illuminate the objects photographed.

¹ JP 2-03, [Geospatial Intelligence in Joint Operations](#).

² JP 2-03, [Geospatial Intelligence in Joint Operations](#).

Non-optical non-literal imagery includes infrared, radar, laser-based, multispectral, and hyperspectral imagery. Infrared, radar, and multispectral sensors detect emissions in the non-visual portion of the electromagnetic spectrum. Each specific type of imagery has its advantages and disadvantages. Infrared signatures can be seen with next to no light but are often distorted by aerosols, moisture, and atmospheric gases. Radar imagery can be obtained during day or night and through rain/cloud cover. It can detect moving vehicles via moving target indicator systems. Radar imagery requires active illumination by a radio frequency pulse (the reflected return provides an image of the target). Multispectral imagery uses data collected simultaneously from two or more spectral regions or bands of the electromagnetic spectrum—in other words; the same scene is imaged in several spectral bands at the same time by the same sensor. The resulting image contains more detailed information than can be obtained through the use of only one band.

FMV is an imagery capability that can provide continuous moving coverage of a target area in near-real time. Use of full-motion video assists commanders in maintaining situational awareness and identification and tracking of targets, and presents the opportunity for our forces to respond as required. FMV has the potential to provide the unique combination of accuracy and persistence. In addition, many FMV assets have the advantage of employing various processing, exploitation and dissemination (PED) architectures for simultaneous near-real time dissemination.

Geospatial information includes the collection, information extraction, storage, dissemination, and exploitation of geodetic, geomagnetic, imagery (both commercial and national source), gravimetric, aeronautical, topographic, hydrographic, littoral, cultural, and toponymic data accurately referenced to a precise location on the Earth's surface. Geospatial services include tools that enable users to access and manipulate data, and also include instruction, training, laboratory support, and guidance for the use of geospatial data. Geospatial information is used in military planning, training, and operations, including navigation, mission rehearsal, modeling, simulation, and precise targeting.

SIGNALS INTELLIGENCE

[Signals intelligence](#) (SIGINT) is intelligence discipline comprising either individually or in combination all [communications intelligence](#) (COMINT), [electronic intelligence](#) (ELINT), and [foreign instrumentation signals intelligence](#) (FISINT), however transmitted.³ Specifically, SIGINT uses intercepted electromagnetic emissions to provide information on the capabilities, intentions, formations, and locations of adversary forces. SIGINT also includes collecting; processing and exploiting data from dormant information in cyberspace then analyzes and produces, and disseminates finished intelligence to the warfighter. NSA is the US Government lead for cryptology, and its mission encompasses both SIGINT and IA activities. National Security Agency (NSA) maintains a unified organization to conduct SIGINT.

COMINT consists of information derived from intercepting and monitoring the adversary's communications systems. COMINT exploits the adversary's

³ Definition from JP 2-02.

communications, revealing the adversary's capabilities, intentions, perceived vulnerabilities and often, the adversary's perception of the United States and/or its coalition partners.

ELINT consists of information derived from intercepting and monitoring the adversary's non-communication emitters. It exploits the adversary's radar, beacons, and other non-communication signals, allowing friendly forces to locate adversary radars and air defense systems over a wide area.

FISINT consists of technical information derived from the intercept of electromagnetic emissions (such as telemetry) associated with the testing and operational deployment of foreign air and space, surface, and subsurface systems. FISINT can provide technical details of foreign weapons system development, which allows US forces insights into foreign technological advances.

MEASUREMENT AND SIGNATURE INTELLIGENCE

[Measurement and Signature Intelligence](#) (MASINT) develops intelligence using quantitative and qualitative analysis of data (metric, angle, spatial, wavelength, time dependence, modulation, particulate, plasma, effluent or hydromagnetic). Data is derived from specific technical sensors for the purpose of identifying any distinctive features (either reflected or emitted) associated with the target. Examples of MASINT might include distinctive infrared signatures, electronic signals, or unique sound characteristics collected by ground, airborne, sea, and space-based systems. MASINT can be used to monitor potential adversary technical developments and deployments, as well as emerging WMD threats.

HUMAN INTELLIGENCE

[Human intelligence](#) (HUMINT) is an intelligence collection discipline that uses people in the area of interest (AOI) to identify or provide insight into adversary plans and intentions, research and development, strategy, doctrine, and capabilities. HUMINT can provide several kinds of information. It can provide observations during travel or events from travelers, refugees, escaped friendly prisoners of war, etc. It can provide data on things the subject has specific knowledge, which can be another human subject; or, in the case of defectors and spies, sensitive information to which they had access. Finally, it can provide information on interpersonal relationships and networks of interest. The following are some sources of human-resourced information of global integrated ISR value.

Dedicated HUMINT collectors amplify, clarify, or verify information collected by other airborne, ground-based, or space-based assets. In many cases HUMINT, along with counterintelligence activities, are the best and only sources of adversary intentions. The Air Force has an organic HUMINT capability and works with DOD and other national-level agencies to collect on priority Air Force operational and strategic requirements. At the strategic level, Defense Intelligence Agency (DIA) manages the DOD HUMINT program, coordinates with the intelligence community on collection programs, and responds to standing, ad hoc, time sensitive requirements, and requests for information (RFIs) submitted by combatant commanders (CCDRs) and theater intelligence centers.

[Special Operations Forces](#) conduct special reconnaissance (SR) operations to obtain or verify information about adversary capabilities, intentions, and activities. SR operations complement national and theater global integrated ISR operations by obtaining specific, time-sensitive information of strategic and operational significance.

Aircrew and Ground Personnel conduct human visual surveillance and reconnaissance, which are the most basic and the oldest methods of intelligence gathering. Today, visual surveillance and reconnaissance information comes from a wide range of sources and often simply entails observer reporting and debriefing activities. Observers can include aircrews flying any type of aircraft or SOF conducting assigned missions as described above. Additionally, information gained from onboard aircraft systems such as weapon system video and defensive countermeasure suites can provide invaluable global integrated ISR information during operations. Security forces, explosive ordnance personnel, and other Airmen who operate outside the base perimeter are also sources of information that are of intelligence value.

Document and Media Exploitation is the processing, translation, analysis, and dissemination of collected hard copy documents and electronic media, which are under the US Government's physical control and are not publicly available. Exploitation of documents and media often provides valuable insight into operations, financial means, and associations that may not be accessible through other sources and may lead to further targeting efforts.

OPEN-SOURCE INTELLIGENCE

[Open-Source Intelligence](#) (OSINT) is the application of intelligence tradecraft to open sources of information, specifically involving the collection, processing (to include foreign language translation), and exploitation/analysis of multiple, independent open sources of information. OSINT sources include commercial scientific and technical databases, symposium proceedings, published strategy and doctrine, think tank publications, patent information, and other open sources available to the general public. A variety of exploitation techniques are practiced, including social network analysis. NASIC is the Air Force lead for OSINT.

APPENDIX B: ISR RESOURCES

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This section describes the types of resources employed to satisfy information requirements through the global integrated [intelligence, surveillance, and reconnaissance](#) (ISR) operations. Understanding the collection resources allows their effective allocation to requirements within the global integrated ISR operations. Several of the systems providing input to the global integrated ISR operations are not dedicated global integrated ISR resources or systems and ownership may be less important than the actual information satisfying the requirements.

AIRBORNE SYSTEMS

Airborne ISR platforms and their associated ground stations generally are among the most responsive assets available. Aircrews can recognize and respond to changing conditions and are able to modify missions in progress. With their ability to fly long distances, airborne platforms can cover a large area with a mix of sensors. Additionally, a majority of these assets have a common data link between aircraft or with ground stations allowing them to distribute large volumes of information in near-real time. During peacetime, the majority of airborne global integrated ISR missions are accomplished using standoff techniques. A standoff mode is also used during military operations when the threat is too great to allow high value assets to penetrate adversary territory or when over-flight of an area cannot be completed due to political sensitivities. The primary advantage of the standoff mode is that assets are relatively free from adversary surface-to-air and air-to-air attacks. The primary disadvantage is the limited range and depth of sensor coverage.

Remotely Piloted Aircraft (RPA) provides significant advantages over other reconnaissance assets, but commanders must be aware of their limitations. The greatest advantage of these systems is that they normally do not put friendly personnel at risk, can have relatively long loiter times, and are generally less expensive than today's high-value manned assets. RPA limitations vary according to system and operational requirements. RPA technology is maturing rapidly, and platforms can be configured with a broad range of ISR sensors or weapons payloads. Because control authorities and mission priorities can shift between users during multi-role RPA missions, commanders should carefully delineate clear lines of authority. RPA flight paths can be preprogrammed or remotely controlled. Commanders should understand RPA capabilities to support mission requirements as well as their limitations.

SPACE-BASED SYSTEMS

[Space-based global integrated ISR](#) are an integral part of military forces and provide support across the [range of military operations](#) (ROMO). Space systems provide information to commanders allowing them to quickly assess the situation, develop concepts of operation, and distribute changes to their forces. However, commanders must also be aware of the advantages and limitations of these systems. The prime advantage of space-based systems is their global and wide-area coverage over denied areas where little or no data can be obtained from ground and airborne sources. Other advantages these systems possess include mission longevity and reduced vulnerability to adversary action. While able to provide worldwide coverage, demands on individual space-based systems often exceed their capacity and their associated orbit requirements may limit the ability to meet operational requirements. Space-based ISR is limited by advanced denial and deception techniques. Space-based systems are owned by military, nonmilitary, and national agencies. International cooperation in military space-based ISR systems with Allies and other partners may contribute to US national security objectives by enhancing interoperability, supporting coalition operations, and building partnership capacity.

Military Space-Based Systems provide support to the President, Secretary of Defense (SecDef) and the military at all levels. They employ a variety of sensor suites and provide a broad range of capabilities. During peacetime, space systems routinely support training exercises, peacekeeping operations, indications and warnings (I&W), disaster and humanitarian relief efforts, counterterrorism, and counterdrug operations. As an example, overhead ISR sensors can provide early detection of ballistic missile attack and downlink this information to the appropriate ground stations, thereby allowing early warning. Environmental monitoring systems are crucial to providing an asymmetric war fighting advantage in which we anticipate and exploit the condition of the atmosphere, oceans, soil, and the space environment in order to support friendly military operations and deny those same advantages to adversaries. Awareness of environmental conditions can be the difference between the success or failure of an operation or mission. Space-based global integrated ISR systems can also provide military forces with geographic and detailed terrain information that enhances mission planning capabilities. Additionally, these systems can often cue or be cued by other global integrated ISR systems to watch a specific area of interest (AOI), enhancing accuracy and reaction times for the users of that information. Finally, space communications support global integrated ISR operations by distributing the products generated from global integrated ISR systems, while navigation systems provide a variety of sensors with accurate positioning information.

Non-Military Space-Based Systems can complement military space systems and include civil, commercial, and allied assets. These systems possess a variety of capabilities; however, in some cases their availability may be limited. Often, arrangements are made for military personnel to have access to non-military assets. However, these arrangements are often subject to legal review and take time to activate. In short, space system requirements need to be addressed prior to military operations.

National Satellite Systems are controlled by the US intelligence community and provide support to the President, SecDef, and the military at all levels. These resources provide critical data and are responsive to military information needs. These systems are a limited resource. Requirements for these systems need to be worked in advance and detailed justification for their use needs to be provided to the [collection manager](#) (CM).

Ground Based Systems around the world are equipped and tasked to collect information for the intelligence disciplines previously described (e.g., [Signals intelligence](#) [SIGINT], [Measurement and Signature Intelligence](#) [MASINT], etc.). These sites may satisfy national, theater, or local information requirements, or any combination.

Air Surveillance and Target Acquisition Radars, used to control the movement of aircraft, provide warning and control over air resources within a designated area. The advantage of these systems is that they provide an additional layer of control and observation that may not be available with other surveillance systems. A disadvantage of these systems is unique sensor limitations which are susceptible to adverse atmospheric conditions and electronic jamming. Additionally, air defense sensors are limited to line-of-sight surveillance.

Missile Warning and Space Surveillance offer a significant ground-based global integrated ISR resource, the [space surveillance network](#) (SSN), and the ground-based missile warning sensor system. The SSN's purpose is to find, fix, track, and characterize man-made objects in space. An example of an SSN system is the ground-based electro-optical deep space surveillance (GEODSS) system. SSN data is used to determine adversary space order of battle (OOB), adversary satellite over-flight warning, and adversary satellite status. This information is available to theater commanders and provides them early warning and additional information which can be used for denial and deception techniques. Although the primary function of ground-based missile warning sensors is to provide identification and characterization of ballistic missile attacks on the United States and its allies. They also contribute to space surveillance. One example of this type of system is the ballistic missile early warning system.

CYBERSPACE-BASED SYSTEMS

[Cyberspace](#) is an important source of ISR information. In addition, cyberspace-based global integrated ISR capabilities are also an integral part of military forces and enable operations across the ROMO. Cyberspace-focused ISR includes [digital network analysis](#) and related intelligence support to Air Force cyberspace missions. Specific, specialized units provide timely and actionable all-source ISR services and products in support of 24 AF/AFCYBER and national cyberspace operations. This support is generally characterized within five cyberspace focused ISR areas: current intelligence and reporting; I&W (to include PED); threat attribution and characterization; Joint [Intelligence Preparation of the Operational Environment](#) (JIPOE); and computer network exploitation under national intelligence and United States Cyber Command (USCYBERCOM) authorities.



APPENDIX C: MULTI-ROLE AIRCRAFT WITH AN ISR MISSION

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Roles and missions for many Air Force assets have expanded beyond what was envisioned in their initial concept of employment. Today it is not unusual to find strike aircraft employed in an [intelligence, surveillance, and reconnaissance](#) (ISR) role. Whether the aircraft is dedicated to providing global integrated ISR for the entire mission or performing global integrated ISR during part of the mission, the mission objectives, priorities, and guidance for multi-role aircraft employment and the authority to task the weapon system should be clear and developed in advance of mission execution. The commander, Air Force forces (COMAFFOR) should ensure the following authorities are defined to ensure clear lines of control during multi-role missions:

- ★ **Aircraft Control:** Organization or individual in authority and technically capable of controlling the aircraft.
- ★ **Sensor Control:** Organization or individual in authority and technically capable of controlling the aircraft sensor.
- ★ **Sensor Tasking:** Organization with the authority to direct sensor control and aircraft control to execute global integrated ISR tasking.

When developing collection plans, [collection managers](#) (CMs) should keep in mind that available resources are not limited to specific platforms or sensors. For example, ground based radars for ground control intercept (GCI), early warning, tracking, and acquisition are used to control the movement of aircraft and provide a degree of warning within designated airspace. The air picture they provide can be exploited for real-time data of potential intelligence value. Additionally, with the increasing sophistication of airborne sensors, aircraft can conduct reconnaissance or surveillance to varying degrees, even if intelligence collection is not their primary mission. Some examples of operational reconnaissance (ops recce) missions supporting non-traditional capabilities include F-16CJs collecting [signals intelligence](#) (SIGINT), F-15Es collecting imagery via their targeting pods, and AC-130s using video capabilities to monitor a particular operation. Understanding how to integrate these capabilities into the collection plan is increasingly important, as traditional intelligence collection-only assets can no longer satisfy all collection requirements. Typically, CMs will not be able to directly task such assets, and will need to coordinate with operations personnel in the strategy, combat plans, or combat operations division of the air operations center.

CMs should understand how ops recce is integrally linked into NTISR. Specifically, ops recce is a tactic to deliberately leverage sensor capabilities on primarily strike aircraft to increase battlespace awareness and lethality beyond those for which the sensors were originally intended. Ops Recce allows a strike platform to be intentionally tasked through the air tasking order by the COMAFFOR, outside normal joint force allocation. The strike platform's organic sensors will collect on a "target", not in-place-of, but in addition to, the normal target against which the traditional force application mission would be applied.

The clear focus of the NTISR and ops recce definition on sensors (collection) does not minimize the many legitimate issues associated with tasking/management of operations on one end or processing/exploitation on the other. These aspects are integrally linked to the evolution of NTISR concepts.

Given the uniqueness of ops recce capability in support of NTISR, the CM must comprehend and assimilate the broad range of [planning and direction; collection; processing and exploitation; analysis and production; and dissemination](#) (PCPAD) capabilities and limitations associated with specific aircraft and, based on this knowledge, articulate the intelligence these assets can provide. Depending on the operation, these assets can be called upon to provide a wide range of intelligence collection support, including but not limited to collecting post-strike intelligence for assessment and performing ad hoc collection for emerging threats. The availability of these assets may be sporadic and CMs should have knowledge of the current operational environment in order to take advantage of capabilities when they become available.
