Air University
Allen G. Peck, Lt Gen, Commander

Air Command and Staff College
Jimmie C. Jackson, Jr., Brig Gen, Commandant
Zoë M. Hale, Col, PhD, Dean
Brett E. Morris, Col, PhD, Director of Research
Brett E. Morris, Col, PhD, and John L. Mansuy, Maj, Series Editors
Michael P. Ivanovsky, Essay Advisor

Air University Press
John A. Shaud, PhD (General, USAF, ret.), Director, Air Force Research Institute
Bessie E. Varner, Director
Belinda L. Bazinet, Content Editor
Carolyn Burns, Copy Editor
Nedra O. Looney, Prepress Production
Daniel Armstrong, Cover Design

Please send inquiries or comments to
Editor
The Wright Flyer Papers
Air Command and Staff College (ACSC/DEI)
225 Chennault Circle, Bldg. 1402
Maxwell AFB AL 36112-6007
Tel: (334) 953-6810
Fax: (334) 953-2269
E-mail: ACSC@maxwell.af.mil

Report Documentation Page

Form Approved
OMB No. 0704-0188

1. REPORT DATE	2. REPORT TYPE	3. DATES COVERED
JAN 2009		**00-00-2009 to 00-00-2009**

4. TITLE AND SUBTITLE	5a. CONTRACT NUMBER
Transforming Air Force ISR for the Long War and Beyond	5b. GRANT NUMBER
	5c. PROGRAM ELEMENT NUMBER
6. AUTHOR(S)	5d. PROJECT NUMBER
	5e. TASK NUMBER
	5f. WORK UNIT NUMBER
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) **Air University Press,Maxwell AFB,AL,36112-5962**	8. PERFORMING ORGANIZATION REPORT NUMBER
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)	10. SPONSOR/MONITOR'S ACRONYM(S)
	11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION/AVAILABILITY STATEMENT
Approved for public release; distribution unlimited

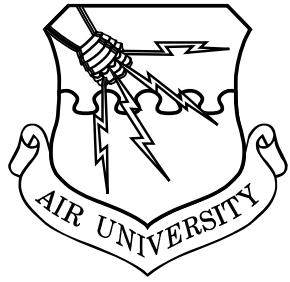
13. SUPPLEMENTARY NOTES

14. ABSTRACT

15. SUBJECT TERMS

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT **unclassified**	b. ABSTRACT **unclassified**	c. THIS PAGE **unclassified**	**Same as Report (SAR)**	**29**	

AIR UNIVERSITY
AIR COMMAND AND STAFF COLLEGE



Transforming Air Force ISR for the Long War and Beyond

MICHAEL GRUNWALD, JR.
Major, USAF

Air Command and Staff College
Wright Flyer Paper No. 36

Air University Press
Maxwell Air Force Base, Alabama

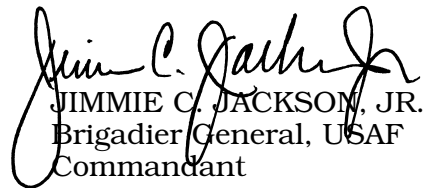
January 2009

This Wright Flyer Paper and others in the series are available electronically at the Air University Research Web site http://research.maxwell.af.mil and the AU Press Web site http://aupress.maxwell.af.mil.

Disclaimer

Foreword

It is my great pleasure to present another of the *Wright Flyer Papers* series. In this series, the Air Command and Staff College (ACSC) recognizes and publishes our best student research projects from the prior academic year. The ACSC research program encourages our students to move beyond the school's core curriculum in their own professional development and in "advancing air and space power." The series title reflects our desire to perpetuate the pioneering spirit embodied in earlier generations of Airmen. Projects selected for publication combine solid research, innovative thought, and lucid presentation in exploring war at the operational level. With this broad perspective, the *Wright Flyer Papers* engage an eclectic range of doctrinal, technological, organizational, and operational questions. Some of these studies provide new solutions to familiar problems. Others encourage us to leave the familiar behind in pursuing new possibilities. By making these research studies available in the *Wright Flyer Papers*, ACSC hopes to encourage critical examination of the findings and to stimulate further research in these areas.



JIMMIE C. JACKSON, JR.
Brigadier General, USAF
Commandant

Abstract

The Air Force, and more specifically the joint/combined force air component commander (J/CFACC), firmly believes airpower must operate under the twin tenets of centralized control and decentralized execution to be effective. The Cold War ushered in an era of centralized execution of airborne strategic intelligence, surveillance, and reconnaissance (ISR) operations that bled into theater-level ISR execution in the 1990s and through Operations Enduring Freedom and Iraqi Freedom. This execution construct, coupled with ISR reachback exploitation, has created a perception that theater-level ISR operations are not responsive to tactical situations.

Physical distances between the operational environment, combined air operations center (CAOC), and exploitation units have fostered distrust and removed critical insight and ISR expertise from tactical level planning and execution. To maintain ISR relevancy at the tactical level, the J/CFACC must change its tactical ISR organization and execution methodology. This paper draws on well-established close air support (CAS) doctrine and organizational models to build new ISR organizational and execution constructs to bridge the gap between theater-level ISR assets and tactical operations. These models bind ISR asset, exploiter, CAOC, and the supported unit through face-to-face interactions and standardized processes that apply across any theater of operations or combatant command.

Preface

Air Force intelligence, surveillance, and reconnaissance (ISR) is undergoing a tremendous transition—as a growing core competency and an operational entity in its own right. We have a unique opportunity to define the way ISR operations should be conducted and seek out bold ways to support end users. This paper is only one of many ideas out there—my intent is to start a dialogue that yields new ways of producing battlespace effects that meet the war fighters needs. It is, in some way, a direct result of my experiences across seven deployments and as an ISR squadron director of operations—to always find better ways to support the fellas fighting the good fight.

I have to thank the men and women of the 30th Intelligence Squadron. Your passion for the mission and your endless ideas about how to make things better left me in awe. Nate Lang—my assistant director of operations—was instrumental as a sounding board for my crazier ideas and a fountain of knowledge for this paper before he deployed to Baghdad as an liaison officer. My instructor, Mike Ivanovsky, was incredibly patient and provided the appropriate amount of motivation (butt kicking) at the right time. I hope this paper met your expectations. Finally, I want to thank my family. It seems trite to thank them—but families don't get thanked often enough. A family deserves a lot of credit when it is willing to tolerate someone who is crazy enough to PCS (permanent change of station) five times in seven years. I owe Heidi and Ryan big time when we close this chapter of our lives.

Introduction

Centralized control and decentralized execution of air and space power are critical to effective employment of air and space power. Indeed, it is the fundamental organizing principle for air and space power.

—Air Force Doctrine Document (AFDD) 1
Air Force Basic Doctrine

The tenets of centralized control and decentralized execution, coupled with the belief that an Airman should control all air operations, formed the basis for an independent Air Force. These concepts are deeply rooted in the Air Force's history and collective psyche. During World War II, air commanders often lived and worked alongside their ground components and fully understood the mission and intent—without falling under that ground commander's direct control. Field Manual (FM) 100-20, *Military Operations in Low Intensity Conflict*, set the stage and the historical basis for recognition at the War Department level of the "co-equal and interdependent" nature of air and ground forces.[1] FM 100-20, like AFDD-1, also stressed the need for centralized control under an Airman. Decentralized execution was a matter of fact due to the technological limitations of the time. Air leaders during World War II had limited abilities to control aircraft after take-off; often, they would not know the status of their aircraft, or the success of the mission, until they began counting aircraft recovering at the airfield.[2]

Almost 50 years later, Operation Desert Storm produced the first true joint/combined forces air component commander (J/CFACC) and vested operational control of all air assets under a single functional component. The J/CFACC, Gen Chuck Horner, exercised command and control through the tactical air control center—the forerunner of the air operations center (AOC).[3] Technological innovations enabled General Horner to control all aspects of the air campaign—far beyond anything imaginable during World War II. It was also the last conflict where the air component was co-located with the ground component. Technological, basing, and operational considerations ensured component commanders would not physically reside in the same facility. E-mail, tele-

phones, and chat networks became the basis for human-to-human interaction between component staffs. Following Operation Allied Force, the AOC became a weapons system—designed specifically to control all air operations, from multiple services and nations, in a given theater of operations.[4] Since then, technological innovations have increased the ability of the combined air operations center (CAOC) to control larger air operations over greater distances and, in limited cases, centrally execute as well.

Smaller conflicts with larger political implications—Bosnia and Operations Southern Watch and Northern Watch—often operate under stringent rules of engagement to avoid collateral damage and contain any unwanted escalation of hostilities. This environment can breed centralized execution to avoid negative consequences. Air Force doctrine frames the problem facing modern airpower employment: "Modern communications technology provides a temptation towards increasingly centralized execution of air and space power. Although several recent operations have employed some degrees of centralized execution, such command arrangements will not stand up in a fully stressed, dynamic combat environment."[5] Even today, dynamic air operations require decentralized execution to exploit tactical situations and utilize the flexibility air power offers.

In March 2001 a USAF RQ-1 Predator detected an Iraqi S-60 (anti-aircraft artillery [AAA] weapon) south of the 33rd Parallel in clear violation of the southern no-fly zone.[6] Two F-15Es attacked the AAA piece while the Predator provided real-time battle damage assessment. The first two weapons missed the target due to thermal crossover issues. The Joint Task Force-Southwest Asia J3, monitoring the Predator feed, directed the F-15Es to employ additional ordnance based on his spotting calls from the AOC in Eskan Village, Saudi Arabia. Unfortunately, the high level of centralized execution that day—the conversation between J3 and F-15E went as far as discussing infrared mode settings and attack routing—failed to destroy the S-60.

This specific instance illustrated a larger problem facing theater-level intelligence, surveillance, and reconnaissance (ISR) assets.[7] Cold War ISR operational paradigms stressed flying the "black line" over hostile airspace and intense coordination for track deviations. In the period between Oper-

ations Allied Force, Southern Watch, and Northern Watch, this paradigm translated into a doctrinally accepted, centrally controlled ISR execution construct.[8]

The Impetus for Change

Operation Allied Force introduced a physically dislocated J/CFACC from his higher headquarters and his fellow component commanders. It was also the first operation to make extensive use of reachback capabilities for ISR processing, exploitation, and dissemination.[9] The early use of net-centric operations and reachback put a sizable air gap between exploiters and sensors, exploitation units and the J/CFACC, and ultimately between exploiters and the supported unit—not unlike the physical distance between the J/CFACC and the other components. Reachback—particularly through the Distributed Common Ground System (DCGS)[10]—offered important cost savings in manpower, cargo movement, and force protection issues but created an inevitable sense of disconnect from the battlespace. Over time, the physical separation made trust and perspective—intangible and important aspects between organizations or people—harder to come by and made planning and execution less of a human interaction and more of an electronic-based transaction.

The J/CFACC, through the AOC, exerts operational control (OPCON) over all AF ISR assets in theater. The J/CFACC, if designated by the joint force commander (JFC), is given collection operations management (COM) authority and becomes the supported commander for theater airborne ISR. COM involves the "direction, scheduling, and control of specific collection platforms, sensor and human intelligence sources" and associated processing, exploitation, and dissemination (PED).[11] Inherent as part of COM and command relationships, the J/CFACC also exercises tactical control (TACON) over other ISR assets made available for theater ISR missions and taskings.

Collection requirements and nominations flow up from tactical units 72-96 hours in advance of execution as part of the theater-level ISR planning process. This system does not favor tactically relevant targets due to the long planning lead-time. Organic ground and naval ISR assets fill daily, or tactically relevant, targets due to proximity to the problem

set and the local control. For example, between October/November 2007 in the United States Central Command, AF ISR collected 12,540 pre-planned targets and only 870 ad hoc or dynamic targets. During the same timeframe, Army and Navy organic assets collected over 12,000 ad hoc targets in support of ground and surface operations.[12]

The AOC's centralized ISR ad hoc processes contribute to the disproportionate ratio of pre-planned to ad hoc targets for theater-level assets.[13] Air Force Operational Tactics, Techniques, and Procedures (AFOTTP) 2-3.2, *Air and Space Operations Center*, places the approval authority for any ISR track deviation with the chief of combat operations.[14] No fewer than five different liaison officers (LNO) must coordinate on each track change. Despite flattened communications networks, this structure has proved unwieldy in dynamic environments. Recently, a senior Army aviator observed that theater ISR was ineffective for Army operations "because we [the USAF] are tied to the ATO [air tasking order]." His perceptions reflect distrust in the air component's ability to respond to tactical ground situations.

The impacts of the decrease in human interaction were fully evident during Operation Anaconda. It originally started out as a small-scale operation designed to root out al-Qaeda and Taliban fighters in the Shahi Kot valley—astride some of the most formidable terrain in the country. [15] The battle raged for two weeks—from 2 to16 March 2002—and claimed the lives of eight Americans.

While Army and Air Force officials disagree on details, most documents and participants agree the joint command and control system in place for the operation was neither adequate nor well exercised. Planners, acting in a highly compartmentalized effort, did not formulate effective ISR requirements nor communicate them to the air component.[16] The specific impacts on theater ISR were telling—the planning process did not leverage Air Force expertise, airborne ISR assets were not postured for the battle, and intelligence preparation of the environment was inadequate.[17] Gen T. Michael Moseley—the CFACC during Anaconda—said, "We didn't really survey this right, nor did we put the collection assets on this right, nor did we prioritize the collection deck right."[18] Lack of face-to-face interaction; limited ISR expertise in the planning process; and a lack of flexible, adaptive

ISR process hindered the air component's tactical relevancy in the early days of the battle.

To maintain ISR relevancy at the tactical level, the Air Force—and more specifically the J/CFACC—must change its tactical ISR organization and execution methodology.[19] Close air support (CAS) doctrine and the air liaison officer (ALO) program provide a doctrinally sound foundation to build a new ISR execution model. Applied to ISR operations, these concepts enable the Air Force—and theater-level assets—to bridge the gap between asset, exploiter, and supported unit. It also builds on the Air Force tradition of decentralized execution and pushes ISR decisions down to the tactical level.

Tactical AF ISR Organization to Bridge the "Last Tactical Mile"

ISR has never been more important during our 60 years as an independent service. ISR has become the foundation of Global Vigilance, Reach, and Power.

—Gen T. Michael Moseley
CSAF's Vector: Transforming Air Force Intelligence, Surveillance, and Reconnaissance

Lt Gen David Deptula, AF/A2, recently remarked, "In the twenty-first century, Intelligence is Operations."[20] Theater-level ISR does more than provide situational awareness—it provides rapid, dynamic support that shapes and frames the environment and *drives operations*. ISR in support of tactical operations must have the ability to exploit airborne assets' inherent flexibility, responsiveness, and persistence.

The Air Force's ALOs and joint terminal attack controllers (JTAC) are the epitome of ground-based decentralized executors that "make on-scene decisions during complex, rapidly unfolding operations."[21] This organizational construct, tasked with both planning and execution, is the perfect structure around which to mold a new tactical level AF ISR organization. It effectively bridges the gap from operational to tactical levels of war and provides a human element and expertise in ISR planning and execution.

Air support operations centers (ASOC) are the primary control agency for the execution of airpower in support of land operations.[22] ALOs and JTACs deploy with division and below elements to provide planning expertise as well as control air operations for the supported unit. Air Force Special Operations Command (AFSOC) seized on this concept in 2005 and began forward deploying intelligence LNOs to tactical operations centers (TOC) and DCGS sites in the continental United States.[23] These AF ISR experts tie reachback exploiters, assets, and supported unit together. They also provide much needed operational insight, direct exploitation/production timelines and requirements, and ensure seamless integration of ISR effects from conception through planning, execution, and lessons learned development.

Tactical ISR Organizational Models

AFSOC employs a single ISR LNO at the TOC, along with two to four enlisted "predator drivers" that provide real-time monitoring and guidance for full motion video (FMV) feeds. They are also responsible for directing sensors for optimal effects and guiding exploitation at reachback sites. These small teams have successfully deployed for 90–120 days to plan, synchronize, exploit, and execute special operations forces requirements.

The real benefit of the LNOs extends beyond simply planning and executing ISR operations in support of tactical operations—it is the human element and the trust born out of common experiences. The effects of this program came to fruition in the spring of 2007 following a spate of successful insurgent attacks on coalition helicopters. During a surveillance mission, a distributed ground station (DGS)-1 Predator exploitation team at Langley AFB identify detected activity consistent with helicopter ambush tactics. Because the Langley AFB and forward-deployed LNOs had built a rapport between exploiters and supported unit, the forward-deployed forces immediately acted on the analysis. Within 20 minutes, F-16s and Hellfire-equipped Predators destroyed a suspected ambush team, and attacks against helicopters stopped for 60 days.[24] This would not have happened without the LNOs interfacing directly with the

tactical unit. The impact of the AFSOC LNO program was immediate and telling.

Air Combat Command (ACC), taking its lead from AFSOC, began a pilot program in October 2007 that put a single company or field-grade ISR LNO with division-level units in Iraq and Afghanistan.[25] The ACC ISR LNO program focuses on training supported units at the expense of optimization, planning, and execution-day activities. A division ISR LNO remarked, "Last night I watched a Pred pilot almost burst a blood vessel trying to get his supported unit to understand having him move between grids 50 miles apart and bounce around seemingly randomly was not a great way to maximize the effect of the system."[26] The limited number of deployed LNOs, coupled with a one-deep positional construct, does not enable theater-level ISR integration across the span of operations nor effectively influence same-day activities. This serves as a useful point of departure to establish a more robust liaison organization that is capable of providing systematic inputs across the planning cycle and control ISR during execution.

The ISR Liaison Team

The ISR liaison team (ILT) is a natural outgrowth from AFSOC and ACC initiatives. While this paper focuses on a ground-centric employment model, this concept applies to maritime and littoral operations as well. A two- to five-person ILT, depending on the size of the supported unit, provides the necessary 24/7 coverage required during operations. It enables them to focus not only on training, but also on execution and planning events to ensure seamless coverage across the battlespace.

The team gives the J/CFACC the ability to influence operations during the periods where the most dynamic changes take place.[27] Beyond that, the ILT can synchronize all aspects of ISR operations—from supported unit, AOC, ISR asset, and exploitation elements. Specific ILT tasks to support this construct include:

- Optimize and synchronize theater and organic ISR capabilities and effects through effective planning and rehearsals

- Ensure seamless mission planning between supported unit, exploitation nodes, and theater-level ISR assets
- Exercise sensor control over AF ISR assets that are allocated to, or operating in direct support of, the supported unit
- Translate ad hoc or immediate requests into effective taskings
- Advise and train supported unit staffs and commander on AF ISR capabilities
- Train JTACs on FMV capabilities/employment considerations (Predator, Reaper, non-traditional ISR, etc.)
- Assist the CAOC processing, exploitation, and dissemination cell in determining exploitation priorities, timelines, and product formats for standing requirements
- Provide a conduit between execution, exploitation, and supported unit personnel to ensure standardized product creation, timeline adherence, and provide appropriate operational insight

These roles and responsibilities tie into the strategy-to-task framework. The ILT provides the expertise to translate campaign-level strategic objectives to ISR operational objectives and tasks as they apply to theater assets.[28]

The ISR liaison team provides much needed insight into supported unit activities and provides the Airman's perspective in planning and mission rehearsals at the grass roots level. The team gives the J/CFACC the ability to rapidly respond to changing situations on the ground using personnel that are intimately familiar with the ground scheme of maneuver. The advantages gained from having personnel on the ground, providing direction to reachback organizations, is invaluable and presents a compelling case for the manpower expenditure.

ISR Liaison Team Command Relationships

The team's flexibility and scalability, coupled with standardized processes and procedures across all ILT personnel, enables a modular construct to meet supported unit requirements. This concept meshes with the current Army modular force paradigm, centered on the brigade combat

team (BCT), or the Marine regimental combat team (RCT).[29] Both ground force constructs favor responsiveness and allow for an effective mix of units and capabilities—under a single commander—to meet combatant commander requirements.

The ILT, as part of a modular construct, would align under the analysis and control element or fires cell in a direct support relationship. The direct support relationship ensures the ILT acts in accordance with the supported unit commander's efforts, while also allowing the ILT independence required to be an honest broker to accomplish assigned tasks. Teams would imbed no lower than the BCT/RCT level; however, current manning levels coupled with operational tempo lend themselves to the ILT operating at the division level. Air Force intelligence personnel are deploying at a 1:1 dwell, so in the near term, supporting the three divisions and Marine Expeditionary Force deployed to Iraq and International Security Assistance Force in Afghanistan makes the most sense.[30]

The ILT's success depends on establishing command and support relationships outside the supported unit. This is especially critical when it comes to executing daily ISR operations. Figure 1 highlights those interactions as they apply to direct support relationships, administrative control

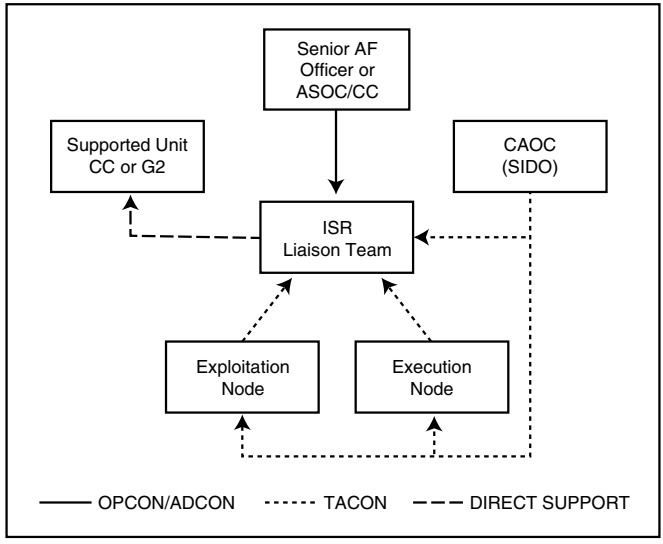


Figure 1. ISR liaison team command relationships

(ADCON), OPCON, and TACON. ADCON and OPCON are maintained via Air Force channels from the J/CFACC (if in place) through the Air Support Operations Squadron commander or senior Air Force officer in the supported unit. These command relationships keep the ISR liaison team smaller and do not burden it with the administrative and logistics of larger organizations.

The close relationship with the ASOC is particularly helpful when it comes to airspace deconfliction. AFDD 2-1.3, *Counterland Operations*, clearly states the ASOC will control airborne CAS and ISR assets operating in its supported unit's area of responsibility.[31] The ILT should not be in the business of controlling aircraft, but rather in the role of controlling sensors and effects to accomplish the mission.

The CAOC, through the senior intelligence duty officer (SIDO), exercises TACON over the ISR liaison team. This provides a seamless ISR execution structure and maintains CAOC centralized control over theater airborne assets. The SIDO's role is to prioritize real-time allocation and apportionment of theater ISR assets in accordance with the JFC priorities and J/CFACC guidance to ensure mission accomplishment. In the same vein, exploitation and execution units accomplish the mission by remaining in tactical control to the CAOC. This vital relationship ties all theater ISR entities together and provides unity of effort in concert with the SIDO and operations duty officers and their respective teams.

Unity of effort starts at the strategic level and runs through to the tactical level. The ISR liaison teams provide insight into tactical planning and take full advantage of their intimate knowledge of the tactical environment, objectives, and tasks. They can act as a local control mechanism, not dissimilar from the ASOC construct, for tactical application of theater-level ISR assets.

Responsive ISR Methodology for the Future

Intelligence provided the basis for every mission. The demands of a new insurgency battlefield heightened our dependence on intelligence.

—Lt Gen Thomas F. Metz
Commanding General, Multi-National Corps-I

To fully realize the vision of flexible, responsive, theater-level ISR operations, the J/CFACC must revise the operational construct to push execution decisions to the lowest tactical level in order to meet supported commander's needs and requirements. The answer must standardize disparate and ad hoc processes and procedures across combatant commands. Theater-level ISR should adopt a CAS mindset that delivers rapid battlespace effects, enables tactical execution, and keeps airborne assets under the control of qualified Airmen.

X-ISR is a new mission type—not yet doctrinally defined—that is capable of rapid response to changes in the battlespace. It is an attempt to standardize incongruent, dynamic ISR processes across commands and operations. This paper defines X-ISR as an "ISR mission on airborne alert in the vicinity of forces that expect to require on-demand ISR support for ongoing or imminent operations." It follows the doctrinal definition of X-CAS (airborne alert CAS), "a mission on airborne alert status in the vicinity of ground forces that expect to encounter resistance."[32]

X-ISR Command and Control

X-ISR can simultaneously reach across strategic, operational, and tactical targets or effects for multiple consumers depending on sensor suite and asset capabilities. X-ISR can run throughout a mission, as a part of a mission, or involve only a portion of the sensors on the asset. The challenge, then, is to have an effective command and control (C^2) structure to deconflict and prioritize taskings, assets, and sensors to ensure full support to the JFC.

As part of effective C^2, the CAOC retains TACON over assigned theater ISR assets.[33] Not only does this keep theater ISR assets under the control of an Airman, it enables the J/CFACC to employ resources across the theater of operations according to JFC or supported commander requirements. This command relationship also gives the J/CFACC the ability to take into account asset availability, target/mission sets, and scheme of maneuver to deliver effects for the JFC. Additionally, the CAOC exercises inherent responsibility to manage "all aspects of the tasking, collection,

processing, exploitation, and dissemination of intelligence" as they pertain to theater ISR assets.[34]

The reconnaissance, surveillance, targeting, and acquisition (RSTA) annex is the J/CFACC's vehicle to deconflict ISR taskings to achieve effects across the battlespace.[35] This document clearly spells out support/supported relationships, prioritization, and daily ISR strategy. Under an X-ISR construct, the RSTA annex is critical to deconflict and prioritize between ISR taskings that emerge during execution.

During the identified X-ISR portion(s) of the mission, the ISR asset—as well as associated or federated exploitation entities—works in direct support of the supported unit through the ASOC or the ISR liaison team. Direct support is a "mission requiring a force to support another specific force and authorizing it to answer directly to the supported force's request for assistance."[36] This unique relationship binds exploiter to supported unit. It ensures finished, fused intelligence products are in accordance with timelines, product standards, and formats of the supported unit.

Direct support operations in an X-ISR environment lend themselves to mission-type orders, that are "an order to a unit to perform a mission without specifying how it is to be accomplished."[37] It gives the end-user the ability to prosecute fleeting opportunities, corroborate data from other intelligence sources in a time-sensitive manner, and rapidly respond to the changing environment without an undue approval process. Coordination will still occur with the CAOC and other agencies using net-centric and flattened technologies to ensure appropriate levels of visibility and control throughout the X-ISR operation. Mission-type orders and direct support operations are at the heart of centralized control and decentralized execution.

X-ISR Categories and Planning Considerations

X-ISR operations will fall into three categories: emergency, immediate, and pre-planned. Emergency X-ISR requires urgent action, such as troops in contact or personnel recovery operations, and supersedes all other priorities.[38] Immediate X-ISR is a request initiated outside the normal ATO planning cycle but does not constitute an emergency

requirement.[39] During emergency and immediate X-ISR, the CAOC will redirect ISR assets and/or sensors, as well as exploitation units, from other tasks to work in direct support of affected units.

Emergency and immediate X-ISR will lack detailed planning and integration due to their ad hoc nature. Availability of assets, sensors, and exploitation will be major constraints in this time-sensitive environment. As a result, there is some risk that asset, collection, and/or exploitation will not completely satisfy unit requirements or timelines. Standardized processes and habitual relationships, preferably through the ISR liaison team, will mitigate some of the risks inherent in immediate and emergency X-ISR.

By contrast, pre-planned X-ISR involves detailed planning and integration through the normal ATO cycle. Pre-planned X-ISR can support a specific unit, named area of interest, or operation. Effective mission planning and rehearsals, based on a thorough understanding of the environment at the supported unit, yield mission type orders that synchronize ISR assets and effects. Advanced planning allows theater collection managers to allocate proper asset/sensor combination, exploitation capacity, and balance between standing and X-ISR targets. This permits the CAOC to collect other targets using excess time, capacity, or assets/sensors while still fulfilling the intent of X-ISR.

At a minimum, pre-planned X-ISR should delineate time requirements, target types and location (if known), desired effects, and appropriate essential elements of information (EEI). EEIs are the "most critical information requirements regarding the adversary and the environment needed by the commander by a particular time."[40] The CAOC can ingest the above information and formulate a theater-wide plan that blends direct support to simultaneously execute against wide-ranging effects beyond a single unit's requirements. Pre-planned X-ISR, under the control of the CAOC, introduces efficiency into what might otherwise be an inefficient process by maximizing sensor and exploitation usage.

The unique ability of multi-sensor ISR aircraft and exploiters to concurrently collect tactical, operational, and strategic targets enables a single platform to execute X-ISR and other missions simultaneously. Breaking X-ISR into three categories recognizes the dynamic nature of the battle-

field, yet still recognizes the inherent strength that detailed planning and integration offers. X-ISR operations, coupled with direct support relationships, provide a vehicle to maintain theater-level ISR tactical relevancy.

Conclusion

> *Everything good that happens seems to come from good intelligence.*
>
> —Gen Creighton W. Abrams, Jr.
> US Army Chief of Staff

The ISR liaison team and X-ISR concepts grew out of long-standing Air Force CAS doctrine. They provide a critical means to bridge the "last tactical mile" between theater-level ISR and supported unit. Reachback operations and associated technological innovations enable the military to conduct operations from the United States while minimizing the forward footprint. However, no substitute exists for having a man in the loop—highly trained professionals in theater, working directly with units and ensuring seamless integration, synchronization, and tactical effects. Not only will ISR liaison teams maintain theater-level ISR tactical relevancy, they will build trust within the organizations vital to effectively meeting JFC objectives.

Building on the ISR liaison team concept, X-ISR allows the Air Force to move away from Cold War-era constructs. It builds on the Air Force's tenet of decentralized execution and puts the decision authority at the appropriate level. It puts control of airborne assets in the hands of qualified Airmen, yet still preserves the theater-ranging nature that medium- and high-altitude ISR assets offer. It enables theater ISR to execute against standing deck targets while aggressively pursuing dynamic and emerging targets in a systematic process that seamlessly integrates with the supported commander's intent and objectives.

Both the ISR liaison team and X-ISR operational concepts are valuable in not only Iraq and Afghanistan, but also in future operations. The ability to plan, task, execute, exploit, and disseminate real/near real time tactically relevant intelligence is essential to joint operations. The pro-

posed fundamental changes to ISR operations will support the theater-level ISR tactical relevancy throughout the spectrum of conflict and provide focused, integrated, and timely support to the "Long War" and beyond.

Notes

(All notes appear in shortened form. For full details, see the appropriate entry in the bibliography.)

1. War Department Field Manual (FM) 100-20, *Command and Employment of Air Power*, 1.
2. Schaefer, "Time for a New Master Tenet?" 6.
3. Clancy, *Every Man a Tiger*, 214–15.
4. Kometer, *Command in Air War*, 101.
5. Air Force Doctrine Document (AFDD) 1, *Air Force Basic Doctrine*, 29–30.
6. This operational vignette occurred during the author's December 2000–May 2001 deployment to the CAOC at Eskan Village, Saudi Arabia, and is based on firsthand observations.
7. Theater ISR CONOPS, 2.
8. Air Force Operational Tactics, Techniques and Procedures (AFOTTP) 2-3.2, *Air and Space Operations Center*, 5–71, 5–74 and 5–86.
9. *Kosovo/Operation ALLIED FORCE After-Action Report*, 55.
10. The DCGS is a net-centric ISR enterprise that provides fused and integrated processing, exploitation, and dissemination capability. Each service operates versions of the DCGS designed to integrate via the DCGS integration backbone—a common architecture that enables rapid data transmission, information sharing, and collaborative exploitation across the globe. The DCGS is currently capable of exploiting derived data from all DOD ISR assets with real-time transmission capability.
11. Joint Publication (JP) 2-0, *Joint Intelligence*, x.
12. Maj James L. Lawrence (30 IS/DO), e-mail interview by the author, 15 January 2008.
13. HQ USAF/A2CP, *Theater ISR CONOPS*, 24.
14. AFOTTP 2-3.2, *Air and Space Operations Center*, 5-71, 5-74 and 5-86.
15. AF/XOL *Operation Anaconda*, 3.
16. Ibid., 29.
17. Kugler, *Operation Anaconda in Afghanistan*, 1.
18. AF/XOL, *Operation Anaconda*, 29.
19. While the term *Air Force* is used, combined forces air component commander (J/CFACC) could easily have been used as well. The paper deliberately uses *Air Force* because that service typically provides the preponderance of airborne, theater-level

ISR. As a result, the Air Force plans to be the J/CFACC in any conflict and exercise TACON over all theater-level ISR assets.

20. Deptula, "Transformation and Air Force Intelligence, Surveillance, and Reconnaissance."

21. AFDD 1, 30.

22. AFDD 2-1.3, *Counterland Operations*, 55.

23. Based on the author's experiences as the 30 IS/DO (DGS-1, Langley AFB), June 2005–June 2007.

24. Ibid.

25. CAOC ISR LNO: Executive Overview.

26. Unattributed interview with Division AF ISR LNO, 30 January 2008.

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

28. Rhodes, Hagan, and Westergren, *A Strategies-to-Tasks Framework*, 9.

29. Army FM (Interim) 3-0.1, *The Modular Force*, vii.

30. Gillig, AEF Evolution. *Dwell* time refers to the ratio of deployed to home-station/garrison time. In this case, Air Force intelligence personnel are deploying at a rate of six months out, home for six months, and deployed again for six months.

31. AFDD 2-1.3, 56.

32. Ibid., 7.

33. HQ USAF/A2CP, *Theater ISR CONOPS*, 17.

34. Ibid., 2.

35. Ibid., 15.

36. JP 1-02, *Department of Defense Dictionary of Military and Associated Terms*, 352.

37. Ibid., 164.

38. JP 3-09.3, *Joint Tactics, Techniques, and Procedures for Close Air Support (CAS)*, B-1.

39. JP 3-30, *Command and Control for Joint Air Operations*. Chapter III, discusses the ATO cycle in detail.

40. AFDD 2-9, *Intelligence, Surveillance, and Reconnaissance Operations*, 58.

Glossary

ad hoc requirement. A collection requirement received outside normal ISR operations planning cycle (i.e. after the ATO and/or RSTA annex have been published) that requires collection during the current or upcoming ATO day. (AFOTTP 2-3.2, 5–84)

aircraft control. Organization or individual in authority and technically capable of controlling the aircraft. (AFDD 2-9, 46)

centralized control. In joint air operations, placing within one commander the responsibility and authority for planning, directing, and coordinating a military operation or group/category of operations. (Joint Publication [JP] 3-30, GL-4)

decentralized execution. Delegation of execution authority to subordinate commanders. (JP 3-30, GL-5)

direct support. A mission requiring a force to support another specific force and authorizing it to answer directly to the supported force's request for assistance. (JP 1-02, 164)

dynamic retasking. Tasking used to satisfy, during the current ATO day, time critical and/or high priority requirements that take precedence over current or pre-planned collection efforts. (AFOTTP 2-3.2, 5–84)

mission type order. An order issued to a lower unit that includes the accomplishment of the total mission assigned to the higher headquarters. An order to a unit to perform a mission without specifying how it is to be accomplished. (JP 3-50, GL-14)

operational control (OPCON). Transferable command authority that may be exercised by commanders at any echelon at or below the level of combatant command. OPCON is inherent in combatant command (command authority) and should be exercised through the commanders of subordinate organizations. Normally this authority is exercised through subordinate joint force commanders and service and/or functional component commanders. OPCON may be delegated and is the authority to perform those functions of command over subordinate forces involving organizing and employing commands and forces, assigning tasks, designating objectives, and giving author-

itative direction necessary to accomplish the mission. OPCON includes authoritative direction over all aspects of military operations and joint training necessary to accomplish missions assigned to the command. OPCON normally provides full authority to organize commands and forces and to employ those forces as the commander in operational control considers necessary to accomplish assigned missions. OPCON does not, in and of itself, include authoritative direction for logistics or matters of administration, discipline, internal organization, or unit training. (AFDD 2-9, 62–63)

reachback. The process of obtaining products, services, and applications, or forces, equipment, or material from organizations that are not forward deployed. (JP 3-30, GL-9)

sensor control. Organization or individual in authority and technically capable of controlling the aircraft sensor. (AFDD 2-9, 47)

sensor tasking. Organization or individual with the authority to direct sensor control and aircraft control to execute ISR tasking. (AFDD 2-9, 47)

tactical control (TACON). Command authority over assigned or attached forces or commands or military capability or forces made available for tasking that is limited to the detailed and, usually, local direction and control of movements or maneuvers necessary to accomplish missions or tasks assigned. TACON is inherent in operational control and may be delegated to and exercised at any level at or below the level of combatant command. (AFDD 2-9, 65)

time-sensitive target (TST). Targets, identified by the JFC, of such high priority to friendly forces that it requires immediate response because it poses (or will soon pose) a danger to friendly forces, or it is a highly lucrative, fleeting target of opportunity. (AFOTTP 2-3.2, 6–48)

Bibliography

AF/XOL. *Operation Anaconda: An Air Power Perspective*. Washington, DC: Headquarters US Air Force, 7 February 2005.

Air Force Doctrine Document (AFDD) 1. *Air Force Basic Doctrine*, 17 November 2003.

———. 2-1.3. *Counterland Operations*. 11 September 2006.

———. 2-9. *Intelligence, Surveillance, Reconnaissance Operations*, 17 July 2007.

Air Force Operational Tactics, Techniques, and Procedures (AFOTTP) 2-3.2. *Air and Space Operations Center*, 13 December 2004.

Army Field Manual (FM) (Interim) 3-0.1. *The Modular Force*, January 2008.

Clancy, Tom. *Every Man a Tiger*. New York, NY: G. P. Putnam's Sons, 1999.

"CAOC ISR LNO: Executive Overview." PowerPoint Presentation. Langley AFB, VA: Air Combat Command, August 2007.

Deptula, Lt Gen David A. "Transformation and Air Force Intelligence, Surveillance, and Reconnaissance." Speech. Air Force Defense Strategy Seminar, Washington, DC, 27 April 2007.

Gillig, Maj Laura. AEF Evolution. PowerPoint Presentation. Washington, DC: AF/A2RF, 15 February 2008.

Gott, Kendall D., ed. *Security Assistance: U. S. and International Historical Perspectives–The Proceedings of the Combat Studies Institute 2006 Military History Symposium*. Fort Leavenworth, KS: Combat Studies Institute Press, 2006.

HQ USAF/A2CP. *Theater ISR CONOPS*. 4 January 2008.

Joint Publication (JP) 1-02. *Department of Defense Dictionary of Military and Associated Terms*, 12 April 2001 (as amended through 14 September 2007).

———. 2-0. *Joint Intelligence*, 22 June 2007.

———. 2-01. *Joint and National Intelligence Support to Military Operations*, 7 October 2004.

———. 3-09.3. *Joint Tactics, Techniques, and Procedures for Close Air Support* (CAS), 3 September 2003 (Incorporating Change 1, 2 September 2005).
———. 3-30. *Command and Control for Joint Air Operations*, 5 June 2003.
Kometer, Lt Col Michael W. *Command in Air War: Centralized versus Decentralized Control of Combat Airpower*. Maxwell AFB, AL: Air University Press, 2007.
Kosovo/Operation ALLIED FORCE After-Action Report. Washington, DC: Government Printing Office, 31 January 2000.
Kugler, Richard. *Operation Anaconda in Afghanistan: A Case Study of Adaptation in Battle*. Washington, DC: National Defense University, 2007.
Metz, Lt Gen Thomas F. "OIF II: Intelligence Leads Successful Counterinsurgency Operations." *Military Intelligence Professional Bulletin* 31, no. 3 (July–September 2005): [10–15].
Moseley, Gen T. Michael. *CSAF's Vector: Transforming Air Force Intelligence, Surveillance, and Reconnaissance*, 29 January 2007.
Rhodes, Carl, Jeff Hagan, and Mark Westergren. *A Strategies-to-Tasks Framework for Planning and Executing ISR Operations*. Santa Monica, CA: RAND Corporation, 2007.
Schaeffer, Maj John J. III. "Time for a New Master Tenet?" Master's thesis, Fort Leavenworth, KS: School of Advanced Military Studies, 2006.
War Department FM 100-20. *Command and Employment of Air Power*, 21 July 1943.