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Cover Photo—USAF Photo

Director Comments—An Overview of the MTTP Publications

ALSA continues to "meet the immediate needs of the warfighter" through our recent publications of *Aviation Urban Operations, Explosive Ordinance Disposal,* and *Cordon and Search.* Work continues on *Technical Intelligence (TECHINT)* and *Employment of Tactical Unmanned Aerial Systems,* and we expect to have completed products by summer of 2006. We are starting research on publications that are of interest to warfighters: *Civil Support, Cultural Impact on Tactical Operations,* and *Military Deception.* We will keep the warfighter community informed as to the status of these projects, and we appreciate your support in providing subject matter experts (SMEs) that assist us in writing these publications. *Detainee Operations* is now finally ready for command approval and has been sent to the Services for signature. We expect to have the final signed publication to the field in February 2006.

Our Battle Management Team will revise two publications with relevance to combat airspace in 2006. ALSA will host joint working groups for *Joint Surveillance Target Attack Radar System (JSTARS)* and *Theater Air Ground System (TAGS)* multi-Service tactics, techniques, and procedures (MTTPs) in February and March respectively. If you are an SME with operational experience and are interested in attending, please contact alsad@langley.af.mil.

We are excited to bring you this edition of the Air Land Sea Bulletin. Our main theme is combat airspace and the myriad of issues that surround it. Our first article discusses Air Combat Command's 2005 Joint Combat Airspace conference, where over 100 officers and NCOs from all four Services met to discuss airspace concerns. Look for the next conference to be held in spring 2006. An excellent article discussing the intricacies of amphibious airspace then follows. Capt Dawn Ellis, USMC, offers some insight into becoming an "airspace warrior," while CPT Doel Baughman looks at airspace management for the Future Combat Systems Brigade Combat Team. The next two articles look at real-world (Operation Iraqi Freedom) and exercise (Joint Red Flag/Roving Sands 2005) airspace management concerns. Some recommended solutions to airspace management issues are seen in the final airspace management article on the joint airspace management and deconfliction (JASMAD) program, which discusses future air and space operations center enhancements that will hopefully resolve some of the problems brought forth in the earlier articles. We hope this series of articles will stimulate thoughts on the joint challenges of airspace management and deconfliction.

We welcome publication topics that fill tactical interoperability or doctrinal voids between the Services. Those that make it through the program approval process are normally produced within 1 year and become Service doctrine for all Services. Presently 85% of our publications are less than 2 years old, validating our ability to produce current MTTP and get it to the field quickly. Our publications carry the authority of Service-level doctrine and ALSA's capability to produce multi-Service doctrine within the timeframe of ongoing combat operations is without peer. FY06 is shaping up to be a busy year for ALSA as we continue to support the Services and deployed units in Iraq and Afghanistan. For more information on any of the MTTPs available here at ALSA, or to recommend a new MTTP topic for development, visit our Web site at http://www.alsa.mil or contact us at alsaeditor@langley.af.mil.

ALSA will host joint working groups for *Joint Surveillance Target Attack Radar System (JSTARS)* and *Theater Air Ground System (TAGS)* MTTPs in February and March 2006, respectively.

MICHAEL R. MARTINEZ, Colonel, USA
Director

Joint Combat Airspace Conference 2005

By

Mr. Rich "R2" Roberts

HQ ACC/DORA, Langley AFB, VA

A joint combat airspace conference...we haven't had one of those, well, since Desert Storm, I think. Who's in charge of combat airspace? Who's my point of contact in my Service? We need to discuss what's going on in doctrine, especially with the proliferation of unmanned aerial vehicles in today's battlespace evidenced in Operation Iraqi Freedom. What's new on the computer command and control (C2) automation front? Theater battle management core system (TBMCS)?...Theater Battle Operations Net-Centric Environment (T-BONE)?...joint airspace management and deconfliction (JASMAD)?... These were the thoughts and talk heard around my shop at Headquarters Air Combat Command (HQ ACC) and around the combat airspace community as our office picked up the combat airspace subject matter expertise role at HQ ACC in Jan 04.

Previously, our shop (ACC/A3AA) worked only peacetime special use airspace issues and proposals like military operations areas with ACC wings, environmental offices, the Air Staff (HQ USAF), and the Federal Aviation Administration. Now we serve as the combat airspace point of contact on the HQ ACC staff. All our action officers have completed the combat airspace field training unit course at Hurlburt Field, Florida, and are deploying to air operations centers for proficiency. The joint airspace, doctrine, air defense, C2, and operations communities gathered after Desert Storm in Jul 91 at the Air Ground Operations School (AGOS) at Hurlburt Field. As a result of that conference, Joint Publication (JP) 3-52, *Joint Doctrine for Airspace Control in a Combat Zone*, and the first tactics, techniques, and procedures (TTP) on airspace in DOD history: *Multi-Service Procedures for Integrated Combat Airspace Command and Control (ICAC2)*, were published.

These were significant upgrades to doctrine previously dated in the 1970's and 1980's. The Air Land Sea Application (ALSA) Center's ICAC2 became a benchmark for combat airspace training, planning, and operations. We pulsed the field about gathering the joint airspace community for a long-needed conference, and the feedback was "do it."

Initial planning for this conference was a challenge. We did not have a clear number of conferees to expect and had no email address group for contacts. We networked to attempt to get the right group of airspace, doctrine, air defense, C2, operators, and headquarters people at the conference. This resulted in 110 conferees registering. The first conference goal was to establish joint Service stakeholders and create a master point of contact list. We accomplished that goal. (Note: The attendee list, briefings, and conference information are available at https://do.acc.af.mil/dor. Click on airspace, then click on combat airspace conference, then conference materials.) Another conference goal was for ALSA to brief the history and future of ICAC2. Large portions of ICAC2 transitioned into the 2004 revision of JP 3-52. ALSA collected feedback from the conferees on incorporating remaining portions of ICAC2 into the theater air ground system (TAGS) TTP. Summer 2005, ALSA subsequently decided to include the portion of ICAC2 that did not transition to JP 3-52 into the next revision of the TAGS MTTP. Another positive result of this conference was the Air Force obtained corporate Air Force advocacy at the Air Staff. HQ USAF/XOO-ARA, the airspace and ranges division, is working airspace issues. Lt Col (s) Bill Crowe and Maj Brian Patnett are the action officers at HQ USAF. Networking among airspace stakeholders, another conference goal, was outstanding.

We discussed a way ahead for the community. Everyone agreed that a combat airspace conference should meet at least annually. HQ USAF/XOO-ARA offered to work the next conference in the spring of 2006, with assistance from HQ ACC/A3AA. This conference will be longer than the 2005 conference to allow for working groups in addition to briefings. ALSA will have a subject matter expert working group to obtain airspace TTP inputs and updates that will be included in the new TAGS TTP. Exact location, agenda, and dates are to be determined, and HQ USAF/XOO-ARA will announce details soon. We appreciate the support for the 2005 conference and look forward to an even more productive one in 2006.

So What Makes it Amphibious Airspace?

By
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Expeditionary warfare from the sea (or "amphibious warfare" as John Wayne would have called it) is getting a lot of additional attention these days. The expeditionary strike group (ESG) and its older, heavier cousin, the amphibious task force (ATF) have played a pivotal role since 9/11 in the Global War on Terrorism. Key to the success of each type of amphibious force has been its ability to strike by air from the littoral. The Navy's tactical air control center (TACC) is the lead agency for controlling ATF/ESG operations in amphibious airspace. But...what exactly *is* amphibious airspace?

Characteristics of Amphibious Airspace

The airspace associated with an amphibious operation is typically a very complex environment. The ATF/ESG is operating in the littoral, and the land-sea interface degrades radar performance. In addition to making aircraft tracking difficult, littoral operations represent an increased challenge for the air defense commander (ADC) who may have to defend the ATF/ESG against a 360° threat. The airspace is home to a heavy volume of helicopter traffic operating from multiple launch points and bound for multiple landing zones ashore. Add in a complex supporting arms scheme featuring close air support (CAS) missions, naval surface fires, artillery and small arms fire, and the air control challenge increases by orders of magnitude. Without continual monitoring and deconfliction, amphibious airspace represents a very dangerous operating environment where the danger of fratricide is always a distinct possibility.

Whose Airspace Is It, Anyway?

This question always seems to come up, sometimes awkwardly, during an initial planning conference, or when an ESG is first standing up. Here's a typical discussion:

- *Amphibious Air Traffic Control Center (AATCC):*[1] "It's our airspace because we have to launch and recover aircraft in it."
- *TACC:* "I beg to differ...it's our airspace because we're the ones doing the tactical air control."
- *Air Defense Commander:* "No, no, no, it's my airspace because I have to defend it!"

As it turns out, none of the above arguments are completely correct, though all three agencies are certainly stakeholders. In actuality, the airspace is most likely owned by the theater airspace control authority (ACA). The ATF/ESG will "sublet" the airspace it requires to conduct its mission from the ACA. When the mission is complete, the lease expires.

But that still doesn't completely resolve the discussion between the air control agencies planning the amphibious operation. The best way to approach the concept of ownership when dealing with amphibious airspace is—once deliberate planning for the operation has progressed to the point where the dimensions required to execute the mission are understood, TACC submits an airspace coordinating measure (ACM) request to the ACA defining the volume of amphibious airspace required. Within that airspace, TACC will be the agency responsible for overall air traffic control, coordinating with subordinate air control units (such as AATCC) to ensure that they have the airspace needed to conduct their individual missions. The air defense commander is still responsible for defense of the airspace, and TACC will ensure that friendly aircraft conducting missions in support of the amphibious operation do not interfere with the ADC. Moreover, TACC will generate the situational awareness on friendly air missions the ADC requires to maintain a coherent air picture.

Without continual monitoring and deconfliction, amphibious airspace represents a very dangerous operating environment where the danger of fratricide is always a distinct possibility.

Enter the HIDACZ

Amphibious airspace can be defined by a combination of ACMs. ATF/ESG planners design airspace concurrently with seaspace design when planning an operation. In addition to ensuring that the mission has the battlespace required to accomplish

[1] The Amphibious Air Traffic Control Center (AATCC) is the agency on LHA and LHD class amphibious ships that provides precision approach services.

all actions on the objective, planners need to ensure that the sea echelon areas are accounted for as well.

When an area of operations is assigned to an amphibious force, the ACA designates a high density airspace control zone (HIDACZ), due to the concentrated employment of numerous weapons and airspace users.[2] Although originally developed for the air-land battle in Europe, the HIDACZ has proven itself particularly well-suited to expeditionary operations in the littoral. It allows commanders to restrict a volume of airspace from users not involved with ongoing operations due to the large volume and density of fires supporting ground operations,[3] which is exactly the type of mission for which amphibious airspace is designed.

A well-designed HIDACZ facilitates amphibious operations when it incorporates the following design features:

US Navy Photo

- It covers the over water and over land portions of airspace critical to success of amphibious operations.
- It contains the inner and outer transport areas, cruiser/destroyer fire support areas, control points, and aerial refueling tracks required to support the aviation concept of operations for the assault and subsequent operations.[4]
- The airspace can be managed using radar-degraded procedural control.
- It should facilitate smooth flow of aircraft into amphibious airspace from aircraft carrier operating areas (CVOAs) and land bases.

Typically, the HIDACZ should be large enough to encompass the ATF/ESG's entire sea echelon area and extend inland at least to the landing force's fire support coordination line (FSCL). It needs to be large enough to provide for safe air traffic control and deconfliction for vertical assault routes, tanker tracks, and other fixed and rotary wing missions. Vertically, the HIDACZ needs to accommodate the trajectories of all weapons fired within its lateral boundaries. Stacks of CAS aircraft supporting the mission are contained within the HIDACZ. Lessons learned reports from recent exercises and operations show that a good rule of thumb for HIDACZ ceilings is 25,000 to 30,000 feet when combined arms are being employed.[5]

Keeping it Under Control with Navy TACC

The Navy TACC (aka "TACC Afloat") is the primary air control agency within the ATF/ESG from which all air operations supporting the amphibious force are controlled. The TACC manages, coordinates, tracks, and controls all air traffic within amphibious airspace not directly under the control of the AATCC. All aircraft entering amphibious airspace check in with TACC prior to each mission. Aircraft conducting vertical assault or CAS missions will remain under TACC control.[6] TACC serves as the ACA for the amphibious force and ensures that all ACM requests are submitted for approval to the theater ACA.

The Big Take-Aways

Amphibious forces operating in the littorals face a variety of airspace challenges. The Navy TACC is the "go-to" organization for planning and executing air operations in amphibious airspace. TACC personnel are trained to operate in the joint/combined environment, providing ATF/ESG commanders with a solid connection to the joint/combined air operations center and ACA. NTTP 3-02.1.3, *Amphibious/Expeditionary Operations Air Control*, provides planners with detailed information on constructing amphibious airspace, as well as details on various aspects executing air missions in support of amphibious/expeditionary operations.

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[2] Joint Pub 3-18, *Joint Doctrine for Forcible Entry Operations.*

[3] Joint Pub 3-52, *Joint Doctrine for Airspace Control in a Combat Zone.*

[4] Ibid.

[5] NTTP 3-02.1.3 (draft), *Amphibious/ Expeditionary Operations Air Control.*

[6] Aircraft conducting specific missions for the air defense commander or sea combat commander may be switched to a dedicated air control unit while on mission profile.

The Bionic Airspace Planner... How to Build the "True" Joint Airspace Warrior

By
Capt Dawn Ellis, USMC and
Capt John Barry, USMC
Marine Corps Air Station Miramar, CA

The primary objective of combat airspace is to maximize effectiveness of combat operations without adding undue restrictions and with minimum adverse impact on the capabilities of a Service or functional component.
—JP 3-52

Without effective airspace command and control, the joint force commander (JFC) is lacking the operational flexibility critical to effective force employment. The planners responsible to the JFC for coordinating, integrating, and regulating airspace to support all joint and allied aviation forces should be prepared to face tortuous challenges similar to those met by Operation Iraqi Freedom I and II staffers. The focus of this article is to help future airspace control authority (ACA) action officers execute their duties by bringing to light four major issues:

- Planners must understand the intent of the JFC, joint force land component commander (JFLCC), joint force air component commander (JFACC), and the ACA.
- Planners must be able to accommodate divergent Service philosophies.
- Planners must address and incorporate any host-nation civilian or military airspace concerns.
- Planners must be able to understand, and when possible, simplify the library of airspace coordinating measures (ACMs).

Commander's Intent

Members from each Service component met for the first time in the summer of 2002 to begin building the combined force air component commander's (CFACC) plan. The action officers were charged with developing a scheme to facilitate the customers of four Navy aircraft carriers, multiple Air Force wings, a Marine Corps wing, several Army aviation brigades, and aircraft from Australia and the United Kingdom while not impeding civil traffic. Initially, these plans were developed autonomously, but the staffers quickly realized the challenge of building an effective airspace plan without taking into consideration the controlling agency for each parcel of airspace.

The CFACC's intent was to allow the Services to operate as trained and equipped, while keeping the theater air ground system (TAGS) as seamless as possible for the aviator. He coined the term "Purple Haze" airspace—one command and control system that was joint, integrated, and coordinated at all levels. Each Service would not have its own bubble of airspace; rather, the Services had to build one structure in which each of their command and control systems would operate.

The difficulty for the airspace planners was filtering simple *desires* of each component from the actual "must-haves." Had every Service's airspace request been honored, Kuwait would have been so saturated that flight operations would have been impossible. Understanding the commander's intent and the scheme of maneuver was essential in determining the *essentials* to execute the JFC's plan.

Coping With Divergent Service Philosophies

While building the "Purple Haze," the CFACC's team encountered one of the challenges of planning at the joint level—the divergence of Service philosophies on aircraft employment and aviation command and control. Understandably, Air Force doctrine does not fall in line with Marine Corps, Army, and Navy views of aviation as a supporting capability. Air Force doctrine stresses air superiority as *the* method to force the enemy to capitulate. These doctrinal differences affect how each Service approaches the battlespace and method of controlling aircraft and missiles within the joint operations area (JOA).

The contrasting ways each Service approached the "Purple Haze" became immediately evident at the onset of planning for Operation Iraqi Freedom in the summer and fall of 2002. Each component wanted to structure the airspace to complement their command

While building the 'Purple Haze,' the CFACC's team encountered one of the challenges of planning at the joint level—the divergence of Service philosophies on aircraft employment and aviation command and control.

and control system. The Air Force, with robust airborne and ground-based air control capabilities, stressed positive control of each aviation mission. The Marine air-ground task force (MAGTF), possessing unparalleled organic capabilities to attack an enemy force simultaneously throughout the entire battlespace—inclusive of airspace—yet having limited airborne and ground control assets, advertised a blend of positive and procedural control. The Army brought an almost exclusively procedural control plan to the table. The Navy, like the Air Force, proposed positive control to the maximum extent possible for fixed wing, but placed primary reliance on procedural control of rotary-wing aviation assets. Combining the characteristics of each Service allowed the CFACC to maximize the responsiveness to evolving enemy threats and changing tactical situations, from the premature execution of the ground war to the eventual defeat of Baghdad and the Iraqi Regime, throughout the entire battlefield.

The Concerns of a Host Nation

Airspace control in the combat zone also integrates transitions from noncombatant air traffic control. This level of planning was one of the most complex issues that arose. Not only were staffers required to coordinate with 12 different nations for the use of their airspace, the number of airspace users more than quadrupled in a time period of under 2 months (both fixed- and rotary-wing aircraft). Upon commencing combat operations, this plan would need to accommodate unmanned aerial vehicles, artillery, mortars, Army Tactical Missile Systems (ATACMs), conventional air-launched cruise missiles (CALCMs), Tomahawk cruise missiles, and the routing of civil aircraft. Not only did this plan have to have the approval of the CFACC, the Combined Forces Land Component Commander (CFLCC) and Combined Force Commander (CFC), but it also had to be approved by each of the host nations providing airspace.

Standardize and Reduce the ACM Library

Once the CFACC's vision was provided, a basic understanding of who would control the airspace was established. The action officers started to design ACMs. Building ACMs in support of a combined arms campaign requires understanding the strategic and operational goals, commander's intent, and the ground scheme of maneuver. The need to facilitate the shaping of the deep, close, and rear battlefields; the need to defend the airspace; and the requirement to provide close air support in a fluid battlefield were all critical factors for designing ACMs.

Unfortunately, there was much disparity in the way each Service defined a variety of ACMs. Joint doctrine contains only seven ACMs, yet each Service maintains a variety of ACMs to support their respective stratagem. The challenge was in coordinating all four Services' unique ACMs in order to build an agreed upon structure, while some of the components' ACMs were not resident knowledge to the CFACC staff. To compound the situation even further, the theater battle management core system (TBMCS), the computer program used to develop the airspace control plan (ACP) and airspace control order (ACO), listed and defined 111 ACMs that did not align to any single doctrine. These ACMs were fixed-wing centric and provided little flexibility for rotary-wing operations. The CFACC made the decision to utilize the defined ACMs in TBMCS. While this was the best solution at the time and provided a base in which to work from, paradigms and habits were harder to change. This issue was never truly resolved.

Conclusion

While no two campaigns will ever be the same, it is natural to plan for the future based upon past experiences. Unfortunately, airspace is an entity that is often glossed over during training and exercises, so the ability to learn from past experiences is normally limited to real-world contingencies.

Due to a lack of learning opportunities, a successful joint airspace planner needs to constantly study how each Service employs its aircraft and how each component views the battlespace. This not only includes the way each Service is *doctrinally* trained and equipped to operate, but also how they *actually* think and execute. A successful airspace planner must have the capability to articulate the requirements for the full spectrum of aviation operations, from rotary wing to space-based systems. Most importantly, since airspace permeates into almost every facet of the overall plan, and every player on the battlefield needs a piece of airspace to operate, every airspace planner needs to understand the JFC's intent and ensure the airspace is built to support the plan.

Airspace Management in the Future Combat Systems Brigade Combat Team

By
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The Army's core purpose is to execute decisive operations and to fight and win the nation's wars. The Army needs to analyze trends in the threat and remain flexible as it prepares to meet that evolving threat. The Future Combat Systems (FCS) Brigade Combat Team (FBCT) concept is the Army's transformation approach to meet the evolving threat and maintain and expand its capabilities on the global stage with increased efficiency and lethality. This article describes the FBCT concept and examines future airspace management concepts, efforts, and issues.

Today's Army is the best in the world, but its organizations do not have the complete array of deployability, responsiveness, flexibility, and sustainability needed for dominance across the full spectrum of operations in the full range of future conflict. Near-term significant threats will operate in austere, urban, and unstable areas with decaying state control. These threats, organized as terrorist or criminal organizations, will contribute to that decay and pose a threat to stability. As seen in the Global War on Terror, these environments make it challenging to support US forces in mission execution. The FBCT goal is to set the conditions in any conflict, maintain the initiative, and finish decisively.

In what is called the Quality of Firsts, the Army will **see first**, **understand first**, **act first,** and **finish decisively**. Today's BCT is transforming into a viable force that is lighter, more digitally integrated, more lethal, more survivable, and less resource constrained. It is transforming into the FBCT. This requires advancement on many levels (e.g., armaments, protection, energy usage, communications), but the critical tasks are to develop a distributed network and a dynamic, automated airspace management system. Both the Battle Command Network and airspace deconfliction require robust systems to ensure redundant linkages. Sensors, manned and unmanned aerial vehicles (UAVs) aircraft and firing platforms must distribute this information quickly for application. The FBCT will attain sensor fusion of the battlespace to a level the Army had never previously attained, giving the FBCT near-real time intelligence in any environment in any operation. When given such a high-level of situational awareness, commanders will make better informed decisions in directing forces to the decisive points.

The FBCT airspace management process will be a part of that Battle Command Network to deconflict airspace usage in the joint, interagency, and multinational (JIM) environment. This process will ensure dynamic deconfliction of airspace between aerial vehicles and trajectories of non-line-of-sight fires (NLOS). As airspace users execute their missions, a mix of man-in-the-loop and automation components will give the future force an advantage in the efficient massing of combat power during operations.

Currently, the Army manages airspace by blocking off major portions in the third dimension, which decreases risk but is highly inefficient. More UAVs will be used within the future brigade, from brigade-level to platoon-level assets. Without more efficient management, these increases will further complicate the airspace deconfliction process, as seen in recent airspace incidents.

Suppose a platoon leader needs to observe an objective or avenue of approach several kilometers away. The UAV operator will input the route and the Battle Command Network will ensure deconfliction using various processes and provide feedback. The UAV operator will then conduct the mission. It will be completely deconflicted and distributed for tracking on the common operational picture (COP). As is the case today, the airspace deconfliction process will still be nested in the theater air ground system, but increased automation will enable a more responsive process within that system. The airspace deconfliction will not be completely automated, but will have a mix of procedural and positive controls built into the system. This is necessary when operating with allies and modular forces and in a degraded state.

The airspace deconfliction will not be completely automated, but will have a mix of procedural and positive controls built into the system. This is necessary when operating with allies and modular forces and in a degraded state.

Participants from the Air and Missile Defense Battle Lab at Fort Bliss, the Aviation Directorate of Combat Development at Fort Rucker, TPIO-Battle Command at Fort Leavenworth, and the Lead System Integrator for the FCS program (Boeing) established an informal Airspace Management Working Group. The participants are currently developing a charter to formalize the group. Currently, Army FCS personnel contribute the largest effort for future airspace management with some participation from the Air Force, Marines, and Navy.

The working group has identified many issues that all Services must address, such as: What are the requirements for procedural control? The FBCT tracks all airspace vehicles on the COP. The Battle Command Network also deconflicts cooperative engagements, which are NLOS weapon systems engaging on cue from sensors located throughout the battlefield. With this sort of near-real time information, is it necessary to use airspace coordination measures except for degraded mode?

The Army will maintain several types of brigades for the foreseeable future. Currently each type of BCT, whether Heavy, Stryker, or otherwise, differs in organization, procedures, and level of automation. The Army must design the system to fuse all unique brigades' processes seamlessly with those of the joint community.

Application of this bold concept is out of the Army's reach now, but it can use its operational experience and historical lessons to set the conditions for success in the future. The Army executes required functions for airspace management today, but lacks the full automation to make the process quicker and more responsive. The task for the Army is to work with the other Services to develop an automated system that meets the needs of the warfighter. By using the collective subject matter expert knowledge of airspace management and industry support, the Army can develop this concept further and introduce a process which is faster and more efficient than the current process. The Airspace Management Working Group will continue to study these issues and look for more involvement from the JIM community to help them mature the concept and implement the right strategy for the FBCT, the Army, and the joint community.

USAF Photo by Staff Sgt Tony Tolley.

Airspace Management in Global Concept of Operations (CONOPs)

By
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United States Joint Forces Command's (USJFCOM) *Joint Lessons Learned—Operation Iraqi Freedom (OIF)* cites airspace management as an opportunity for improvement. More specifically, discussions with numerous sources throughout Air Mobility Command (AMC) and United States Central Command Air Forces (USCENTAF) reflect concern over aircraft near-misses and poor processes for separating fast movers from mobility aircraft (to include intratheater, intertheater, and refueling). These observations are not new and have been noted as "lessons learned" in most major exercise after-action reports. Looking forward, the battle space is becoming saturated with unmanned aerial vehicles (UAV) and ballistic projectiles being launched from the ground, sea, and air, making airspace management in the battlespace evermore complex.

During OIF, the combined air operations center (CAOC) made improvements to processes and procedures that made the airspace safer. However, because the CAOC staff is manned with personnel on a rotational basis, the people responsible for those changes rotated back to their home units prior to having their improvements institutionalized. This manning policy has impeded the Air Force's ability to systematically transfer first-hand knowledge and lessons learned to the planners who will prepare airspace management for the next war. Although those improvements are valuable, more needs to be done.

Written documents and interviews with action officers from AMC, USCENTAF, and other sources have produced the following list of problems that occurred during OIF:

1) There were too few trained and combat-ready air traffic controllers and too little associated equipment to relieve the special tactics teams in the combat zone's airport traffic areas.

2) Personnel were reporting to the CAOC and the Air Mobility Division (AMD) without proper training and certification.

3) The interface between the air tasking order (ATO) and air control order (ACO) process and the tanker airlift control center (TACC) did not provide adequate route deconfliction.

4) There is no central point for route deconfliction of all aircraft flying on the ATO. Software called RAT (Route Analysis Tool) is available that deconflicts routes, but that tool is not used universally throughout DOD. Special operations forces (SOF) are using this tool at the joint special operations air component (JSOAC) level.

5) Joint doctrine and other publications do not reflect the current environment in which coalition forces are used to prosecute wars. The airspace control discussions within the military operations other than war (MOOTW) doctrine contain verbiage that is more applicable to today's coalition fighting environment than that contained in our traditional, unilateral, warfighting airspace control doctrine and should be reworded to reflect that reality.

6) The AMD within CAOC is brought into the ATO/ACO planning cycle too late, causing it to operate in a reactive rather than in a planning and coordinating manner. In particular, the air refueling element (ARE) portion of the AMD needs to be an integral player in the production of the ATO and ACO to ensure efficient airspace operations and to optimize the on-station fuel available for mission execution.

7) A systematic methodology needs to be developed to communicate last minute changes to the ACO/ATO/ special instructions (SPINs) to mobility crews.

8) There is no systematic process to transfer the flight arrival, approach, and departure procedures that have been developed in a classified environment by airspace developers on the ground, through the CAOC to the TACC and eventually into the mobility aircraft's mission database.

9) Although the Air Force Tactics, Techniques, and Procedures (Interservice) [AFTTP(I)] 3-2.16, Multi-Service

The airspace control discussions within the military operations other than war (MOOTW) doctrine contain verbiage that is more applicable to today's coalition fighting environment than that contained in our traditional, unilateral, warfighting airspace control doctrine...

Procedures for Integrated Combat Airspace Command and Control, does mention airlift corridors, they are not specified as procedural airspace control measures.

10) Air Combat Command's Combined Air and Space Operations Center-eXperimental (CAOC-X) does not have representation from AMC.

11) While the Joint Mission Planning System (JMPS) is seen as the future vision for all air mission planning, there has been no validation that its full capabilities have been exploited to aid in route congestion, prediction, or deconfliction.

None of the above observations are listed in USJFCOM's report (either the unclassified or classified versions).

Exploiting the existing knowledge before it is lost or distorted is the most important concern. A Tiger Team of experienced and knowledgeable experts should be quickly formed to capture and document this perishable knowledge so that it can be used in future systems, schoolhouses, and in the development of airspace management doctrine. This team should be sponsored by the Chief of Staff of the Air Force and include members with actual OIF combat-experience, including but not limited to, a director of mobility forces (DIRMOBFOR), AMD cell chief, an ARE action officer, and a pilot or navigator from each of the C-17, C-130, and KC-135 aircraft. It must include, as a minimum, current staff officers representing TACC Flight Planning, AMC/A5 Systems Integration, USCENTAF/A3 Airspace Management, 505th Training Squadron AOC/AMD (courseware expert), and CAOC-X.

Potential expected benefits of the effort could be:

1) Establish a standard use mobility aircraft flight route (SMAFR; pronounced "*smaffer*") as a procedural airspace control measure. The precedent has been set by the Standard Use Army Aircraft Flight Routes (SAAFR) procedural airspace control measure found in doctrine regarding combat airspace management.

2) Improve electronic interface between the battlefield, AOC, AMD, TACC, and the mobility aircrews, with the results of improved communication and distribution of in-flight procedures.

USAF photo by Staff Sgt. Matthew Hannen.

3) Validate that there are no gaps in the planned capabilities of JMPS.

4) Complete a review of all DOD, joint, and Air Force publications regarding combat airspace management and, where appropriate, recommend changes that contain a mobility perspective.

5) Design "cookie-cutter" arrival, departure, and en route procedures for combat airspace that can be used as the design template for emerging battlespace environments.

This Quick-Look article, "Airspace Management in Global CONOPs," focuses on problems identified by warriors at the forefront of airspace management during Operation Iraqi Freedom and offers suggestions for improving the process for future combat operations. An expanded study of this topic, "The Miracle of Operation Iraqi Freedom Airspace Management—How the skies over Iraq were kept safe...and what we need to do to keep them that way," is available at ***http://www.airpower.maxwell.af.mil/airchronicles/cc/wathen.html***

Joint Red Flag/Roving Sands 2005
An Overview from an Army Exercise Planner's Perspective

By
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Background

During the month of March through early April 2005, a war raged in the western part of the United States. The "war" was actually the Joint Red Flag (JRF) and Roving Sands (RS) exercises using a number of live ranges, overlaid virtual battlespaces, and modeling and simulation centers spread across seventeen states. The scenario for joint operational planning replicated a non-contiguous battlefield with an insurgency threat in *Heartland* and a substantial conventional ground and air threat from two opposite directions.

The training focus was on horizontal and vertical integration between functional components and tactical forces and to leverage Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF) lessons learned. The Services identified 12 Joint Tactical Tasks (JTTs) for training during the exercise, but only the following 4 JTTs were resourced for assessment and feedback to the training audience:

1) Conduct fire support (to include time-sensitive targets [TST]).
2) Conduct air and missile defense.
3) Establish, operate, and maintain baseline information exchange.
4) Provide for combat identification.

Participants

Over 12,000 active and reserve component Airmen, Soldiers, Sailors, Marines, and coalition partners including the United Kingdom, Kuwait, the Netherlands, and Canada participated at more than 40 locations throughout the western half of the United States. Multinational force (MNF) observers also included Saudi Arabia and Germany.

Key training audience members at the operational level included Twelfth Air Force (12 AF) manning a full-up combined air operations center (CAOC) at Nellis Air Force Base (AFB) (CAOC-N), Nevada; 4th Infantry Division (4ID) serving as the Army forces (ARFOR) at Fort Hood, Texas; and 32d AAMDC deployed next to the CAOC at Nellis AFB. 12 AF and 32d AAMDC integration was the focal point of the exercise for joint theater air and missile defense (JTAMD) and joint tactical air operations (JTAO).

The 12 AF commander served as the combined force air component commander (CFACC), area air defense commander (AADC), and airspace control authority (ACA). The 4ID commanding general served as the commander ARFOR. The 32d AAMDC commanding general served as a deputy AADC to the CFACC/AADC and as a Theater Army Air and Missile Defense Coordinator (TAAMDCOORD) to the Combined Force Land Component Commander (CFLCC) in addition to his responsibilities as the commander of all echelons above corps (EAC) air defense artillery (ADA) forces.

At the tactical level, in support of JTAMD and JTAO operations, were three Army ADA brigades and associated subordinate Patriot units (108th deployed to Nellis AFB and 11th and 31st were at Fort Bliss, Texas) and command and control nodes such as the Marine Air Control Squadron (MACS-23) deployed to Fort Bliss; 729th Air Control Squadron (ACS) deployed to Nellis AFB; 109th ACS deployed to Windover, Utah; 128th ACS/728th ACS deployed to Kirtland AFB; and several E-3 Airborne Warning and Control System (AWACS) aircraft operating throughout the area of operations (AO). Approximately 200 high performance aircraft from the Air Force, Navy, Marines, and the United Kingdom participated.

Approximately 200 high performance aircraft from the Air Force, Navy, Marines, and the United Kingdom participated.

32d AAMDC

The 32d AAMDC tactical operations center (TOC) emplaced in the "Bull-Pen" area near the CAOC-N and integrated operations inside the CAOC similar to what 32d AAMDC did with Ninth Air Force (9 AF) CAOC at Prince Sultan Air Base (PSAB), Saudi Arabia, during OIF. 12 AF made available 16 seats inside the CAOC to fully integrate 32d AAMDC intelligence, attack operations, and active defense personnel into CAOC operations in order to contribute to combined counterair operations.

US Army Photo

32d AAMDC integrated operations with the CFACC and 12 AF CAOC in order to execute theater air and missile defense across all four operational elements (active air defense; passive air defense; attack operations; and command, control, communications, computers, and intelligence [C4I]) in support of the CFACC/AADC. The 32d AAMDC command's relationship with the CFACC was direct support (DS) and Brigadier General (BG) McCabe executed duties as a deputy AADC. Also, the 32d AAMDC was operational control (OPCON) to the CFLCC and BG McCabe executed his duties as the TAAMDCOORD. Key training goals for the 32d AAMDC were:

- Integrate with the CFACC and CAOC.
- Experiment with internal AAMDC organization for combat
- Experiment with AAMDC relationship with the battlefield coordination detachment (BCD) inside the CAOC.
- Determine whether select OIF observations are really lessons learned (specifically the joint kill chain and combat identification).
- Integrate transformation initiatives (specifically the Air and Missile Defense [AMD] battalion—Patriot, Avenger, and Sentinel mix; the Terminal High Altitude Area Defense [THAAD] system; and the Joint Land Attack Cruise Missile Elevated Netted Senor [JLENS]).

Quick Look Results

Upon completion of JRF/RS 05, despite all the challenges with the exercise, the 32d AAMDC leadership believed the exercise facilitated the majority of the unit's training goals and objectives. One key success story was the absence of blue-on-blue engagements over the course of the exercise despite several thousand sorties of blue and opposition force (OPFOR) aircraft (simulation and live) in the area of operations. Initial "take-a-ways" from the exercise are as follows:

First, the Joint National Training Center (JNTC)-distributed training is the correct path for the joint community. Much still needs to be refined in the live-virtual-constructive (LVC) interface to fully take advantage of this capability. Routinely exercising this interface will improve this process, but shortfalls in capability must be captured and corrected before the next event.

Second, successfully executing the joint kill chain was a success despite anomalies that the crews had to contend with due to simulation and network problems. The ability to execute live tactical control of the kill chain and work the necessary communications and data-links in the Red Flag venue with Joint Fires Integration and Interoperability Team (JFIIT) instrumentation was a plus.

Third, joint tactical control of ground-based air defense (GBAD) still requires improvement. There is limited experience in the joint community in understanding the requirements for GBAD integration into the joint integrated air defense system (JIADS). Further complicating this lack of understanding is an inconsistent view in the joint community on the relevance of Air Defense Artillery Fire Control Officers (ADAFCOs). ADAFCOs positioned and fully integrated at joint command and control (C2) nodes are critical to successful kill chain execution.

Fourth, joint system interoperability is a must. Sharing air tasking orders (ATOs) and airspace control orders (ACOs) and identifying incompatibilities must be improved or corrected. The lack of radios to execute early warning, engagements, and joint time-sensitive targeting continues to be a challenge.

Fifth, GBAD participation in after action review/shot validation at the Red Flag venue is an imperative for all future training events.

Finally, continued participation in the Red Flag venue by AMD units will require an improved environmental flexibility in land use on existing ranges to allow AMD units to employ their systems doctrinally.

JASMAD—Meeting Current and Future Combat Airspace Requirements

By
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Military Challenge

Lessons learned from every hostile encounter during the past 15 years have shown that airspace management, including the coordination, integration, and regulation of the use of airspace of defined dimensions, must be improved. Airspace control is becoming more complex and difficult. Complications with congested airspace foreshadow problems using future long range, high-endurance or loitering sensors, and munitions. The current command and control (C2) decision aids, situation awareness, and ability to respond in a timely manner to rapidly changing environments are lacking in required capability. Fratricide and near-misses are all too common. Recent experiences such as Operation Allied Force (OAF) and Operation Iraqi Freedom (OIF) have demonstrated that because of the ever increasing application of technology to airframes (stealth, unmanned vehicles, etc.), there is a need to manage not only friendly airspace, but the airspace over hostile territory as well. OIF employed a varied mix of assets with unique characteristics. Additionally, more sorties are flown at night than in daylight, so "see and avoid" policies are very difficult to apply. What is needed is a joint dynamic planning and execution airspace control system which ensures systems and concepts are developed and evaluated in a joint context.

Current Airspace Management

Currently, airspace management functions are performed by the Airspace Deconfliction System (ADS) in Theater Battle Management Core Systems (TBMCS). ADS allows operators to plan the airspace laydown, receive requests for additions or changes to the airspace laydown, and notify users of airspace conflicts. These airspaces are represented as Airspace Coordinating Measures (ACMs) and are stored in the Air Operations Data Base (AODB). From this information in the AODB, operators can create the Airspace Control Order (ACO) which is disseminated to the Services, components, agencies, and other partners. Future requirements for airspace management include dynamic airspace control and deconfliction during execution, while ADS primarily functions as a static planning tool.

USAF photo by Tech. Sgt. Kevin Gruenwald.

JASMAD: Meeting the Challenge

The joint airspace management and deconfliction (JASMAD) program is an AFRL/IFSA advanced technology demonstration (ATD) program that will design, develop, test, and field a single joint Service airspace management and deconfliction network centric information capability, to be included in the Air and Space Operations Center Weapon System (AOC WS). JASMAD will be an operational-to-tactical level airspace management system enabling the airspace control authority (ACA) to effectively manage the creation and optimization of airspaces through distributed (shared context) collaborative planning and dynamically manage and monitor airspaces during force employment among the warfighting components, Services, agencies, and coalition partners plus the civil aviation authorities.

JASMAD Requirements Collection

The JASMAD system will support the Airspace Management Planning Team (AMPT), the Combat Plans Division (CPD) and Combat Operations Divisions (COD). The JASMAD system will function to develop and disseminate the Airspace Control Plan (ACP) and the ACO. The tasking derived from the ACP will be disseminated via the ATO and the ACO. The CPD AMPT is responsible for developing the ACO supporting the development of the ATO, whereas the COD Airspace Management Team supports the execution the ACO/ATO and deconflicts immediate airspace requests.

The objectives of JASMAD are to develop a single, distributed, joint theater airspace management and dynamic deconfliction capability to coordinate real time ATO planning and execution among the Service components and coalition partners.

The JASMAD team traveled to numerous sites to interview airspace planners and discuss what they viewed as limitations with ADS, airspace management, and deconfliction. The team also reviewed the current doctrine on airspace planning, joint Service publications, Air Force Operating Tactics, Techniques, and Procedures (AFOTTP) documents, and the future requirements of the AOC WS Block 10.2. In addition, lessons learned from Operation Enduring Freedom (OEF), OIF, and the UK Operation TELIC will also be applied to the development of the JASMAD functional requirements. All these requirements and the current capabilities available in ADS formed the basis of the JASMAD Functional Requirements Document (FRD).

This process describes how the JASMAD functional requirements were collected to provide a comprehensive airspace planning, management, and deconfliction network centric information capability. A summary of the high level capability statements are broken down into planning and execution capabilities.

Planning

- 4-D visual airspace management (latitude/longitude, height, time).
- Selectable airspace sorting criteria (i.e. mission packages, target areas).
- Exportable report and presentation generation of tailored information products.
- Importing routes and operating areas to facilitate creating ACMs.
- Assured connectivity to exchange deconflicted packages with appropriate nodes.
- Tailorable faster than real time fly out of ATO.
- Collaborative planning concurrently showing visual airspace deconfliction.
- Operations within civil airspace.

Execution

- 4-D airspace observation of ATO/ACO execution.
- Dissemination or depiction of ACMs in near-real time (all pertinent nodes).
- Provide replanning and retasking options (real time monitoring).
- Dynamic route change inclusion into airspace picture.
- Near-real time secure method of supporting user's info updates.
- Collaborative execution of airspace plan (real time feedback to planning cycle).
- Automatic alert notifications of abnormal operations (conflicts).

JASMAD Objectives

The goal of airspace management is to enhance air, land, maritime, and Special Operations Force (SOF) effectiveness in accomplishing the JFC's objectives. The objectives of JASMAD are to develop a single, distributed, joint theater airspace management and dynamic deconfliction capability to coordinate real time ATO planning and execution among the Service components and coalition partners. It seeks to enhance automation and visualization to collaboratively create and process the ACMs, to create, import, modify and disseminate the ACP and ACO across all phases of a campaign. It will provide near real-time deconfliction for all Service components during mission execution. JASMAD will be developed as an AOC WS system net centric information capability in keeping with Joint Vision 2020's Net Centric Warfare vision. JASMAD will provide users with better capabilities to collaborate with other airspace users, monitor airspace execution, and dynamically plan and replan as the situation dictates. In addition, JASMAD will have enhanced 4-D visualization capabilities including the ability to visualize and detect weather conflicts and display

tactical data feeds. JASMAD will also include automation tools to streamline the airspace planning process well beyond the abilities of currently available systems.

One feature of JASMAD will be the ability to import the Air Defense Plan (ADP) defense designs so the airspace requirements of the Integrated Air Defense Systems (IADS) can be considered during the airspace planning process. This will enhance deconfliction efforts and assist in reducing potential fratricide incidents. The integration of the ADP and ACP allows the Joint Force Air Component Commander (JFACC) to establish broad airspace control guidance when implementing Area Air Defense Commander (AADC) and Airspace Control Authority (ACA) responsibilities. When creating an interoperable ADP and ACP, it is imperative to have a clear understanding of the basic operation plan, host-nation and multinational political constraints; capabilities of the Air Traffic Control (ATC) system; and the location, capabilities, and intent of friendly and hostile forces.

The planning capabilities of JASMAD include providing a 4-D visual picture for the purposes of airspace management (latitude, longitude, altitude, and time information). The airspace planner will be able to select and sort variables within the airspace based on criteria such as mission packages, launch times, time-on-target, target areas, altitude blocks, and air refueling tracks. AOC airspace managers and functional planners will be able to import routes and operating areas when creating the ACMs. Military operations in the battlespace normally encompass transiting civil airspace to enter or depart the objective area. JASMAD must also be interoperable with the Federal Aviation Agency (FAA) and the International Civil Aviation Organization (ICAO), which is a capability not available to today's theater planners. JASMAD will have the capability to import/export routes within civil airspace. The end-planning product should be the ability to produce completely deconflicted mission packages. JASMAD will also allow "faster than real-time" fly out of ATO. This, along with collaborative planning, will be able to concurrently show visual airspace deconfliction. During execution, JASMAD will allow 4-D airspace observation of ATO/ACO execution. It will prepare the ACMs for dissemination and allow depiction of ACMs in near-real time (all pertinent nodes) providing the capability to offer re-planning and re-tasking options during near real-time execution of the ATO. Operators will be able to change routes and preview the impact on airspace management through the fly out feature. Conflict alerts will automatically identify negative aspects of those proposed route changes. As conflicts develop, or are about to develop, JASMAD will automatically provide alerting services, allowing the operator the opportunity to resolve the potential conflicts. This requires coordination with aircraft mission planners, such as Joint Mission Planning System (JMPS), to get detailed flight plan information to support execution operations. To accomplish near real-time execution, JASMAD will need to develop interfaces to systems such as the JMPS, Communications, Navigation, Surveillance/Air Traffic Management (CNS/ATM) system, and the tactical digital information link (TADIL) J system. This will allow lower level tactical planners to have visibility with other users as they plan their airspace usage and needs.[1]

Summary

JASMAD was born as a joint Service and combined arms program, in cooperation with the United Kingdom (UK) under the US/UK Air Battle Management (ABM) Memorandum of Understanding. AFRL has a long history of developing command and control applications and decision aids for the joint Services. Many of these applications are now integral part of the TBMCS fielded system of record. JASMAD is targeted to be fielded in the AOC WS Block 10.2 in FY 09, providing the warfighter with a collaborative and distributed net-centric information capability that satisfies future airspace management and deconfliction capabilities.

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[1] Alex M. Wathen, 2004, "The Future of Airspace Management Depends on JASMAD."

ALSA PROJECTS UPDATE CURRENT ALSA PUBLICATIONS			
TITLE	**DATE**	**PUB #**	**DESCRIPTION**
ADUS: *MTTP for Air Defense of the United States* **Classified SECRET/RELCAN**	22 MAR 04	FM 3-01.1 NTTP 3-26.1.1 AFTTP(I) 3-2.50	Supports planners, warfighters, and interagency personnel participating in air defense of the US by providing planning, coordination, and execution information. Pub is primarily focused at the tactical level. Includes Operation Noble Eagle and Clear Skies Exercise lessons learned. **Current Status:** Assess 1 Sep 05 (18mo) Revise 1 Mar 07 (3yr) **POC: Team E** alsae@langley.af.mil
AMCI: *Army and Marine Corps Integration in Joint Operations* **Approved for Public Release**	21 NOV 01 Transitioned to Army Nov 04	FM 3-31.1 (FM 90-31) MCWP 3-36	Describes the capabilities and limitations of selected Army and Marine Corps organizations and provides TTP for the integrated employment of these units in joint operations. The example used is C2 of a notional Army Brigade by a MEF or C2 of a MEB by an Army Corps. **Current Status:** Transitioned 1 Nov 04 (3yr) (New POC is CAC/CADD, Ft. Leavenworth) **ALSA transition POC:** Team F alsaf@langley.af.mil
AVIATION URBAN OPERATIONS: *Multi-Service Tactics, Techniques, and Procedures for Aviation Urban Operations* **Distribution Restricted**	09 JUL 05	FM 3-06.1 (FM 1-130) MCRP 3-35.3A NTTP 3-01.04 AFTTP(I) 3-2.29	Provides MTTP for tactical-level planning and execution of fixed- and rotary-wing aviation urban operations. **Current Status:** Assess 1 Jan 07 (18 mo). **POC: Team E** alsae@langley.af.mil
BREVITY: *Multi-Service Brevity Codes* **Distribution Restricted**	15 JUN 05	FM 1-02.1 (FM 3-54.10) MCRP 3-25B NTTP 6-02.1 AFTTP(I) 3-2.5	A dictionary of multi-Service use brevity codes to augment JP 1-02, DOD Dictionary of Military and Associated Terms. This pub standardizes air-to-air, air-to-surface, surface-to-air, and surface-to-surface brevity code words in multi-Service operations. **Current Status:** Complete. Available electronically. https://wwwmil.alsa.mil/CurrentPublications **POC: Team F** alsaf@langley.af.mil
COMCAM: *Multi-Service Tactics, Techniques, and Procedures for Joint Combat Camera Operations* **Approved for Public Release**	15 MAR 03	FM 3-55.12 MCRP 3-33.7A NTTP 3-13.12 AFTTP(I) 3-2.41	Fills the void that exists regarding combat camera doctrine, and assists JTF commanders in structuring and employing combat camera assets as an effective operational planning tool. **Current Status:** Assess 1 Sep 04 (18mo) Revise 1 Mar 06 (3yr) **POC: Team C** alsac@langley.af.mil
EOD: *Multi-Service Procedures for Explosive Ordnance Disposal in a Joint Environment* **Approved for Public Release**	27 OCT 05	FM 4-30.16 MCRP 3-17.2C NTTP 3-02.5 AFTTP(I) 3-2.32	Provides guidance and procedures for the employment of a joint explosive ordnance disposal (EOD) force. The manual assists commanders and planners in understanding the EOD capabilities of each Service. **Current Status:** Awaiting Print. **POC:** Team B alsab@langley.af.mil
HAVE QUICK: *Multi Service Communications procedures for the Have Quick Radio System* **Distribution Restricted**	MAY 04	FM 6-02.771 MCRP 3-40.3F NTTP 6-02.7 AFTTP(I) 3-2.49	Simplifies planning and coordination of HAVE QUICK radio procedures and responds to the lack of HAVE QUICK TTP throughout the Services. Additionally, it provides operators information on multi-Service HAVE QUICK communication systems while conducting home station training or in preparation for interoperability training. **Current Status:** Assess 1 Nov 05 (18 mo) Revise 1 May 07 (3yr) **POC: Team C** alsac@langley.af.mil
HF-ALE: *Multi-Service Tactics, Techniques, and Procedures for the High Frequency-Automatic Link Establishment (HF-ALE) Radios* **Approved for Public Release**	1 SEP 03	FM 6-02.74 MCRP 3-40.3E NTTP 6-02.6 AFTTP(I) 3-2.48	Standardizes high power and low power HF-ALE operations across the Services and enable joint forces to use HF radio as a supplement / alternative to overburdened SATCOM systems for over-the-horizon communications. **Current Status:** Assess 1 Mar 05 (18mo) Revise 1 Sep 06 (3yr) **POC: Team C** alsac@langley.af.mil

ALSA PROJECTS UPDATE CURRENT ALSA PUBLICATIONS			
TITLE	**DATE**	**PUB #**	**DESCRIPTION**
IADS: *Multi-Service Tactics, Techniques, and Procedures for an Integrated Air Defense System (IADS)* **Distribution Restricted**	30 OCT 04	FM 3-01.15 MCRP 3-25E NTTP 3-01.8 AFTTP(I) 3-2.31	Provides joint planners with a consolidated reference on Service air defense systems, processes, and structures to include integration procedures. **Current Status:** Assess 1 Apr 06 (18 mo) Revise 30 Oct 07 (3yr) **POC: Team D** alsad@langley.af.mil
ICAC2: *Multi-Service Procedures for Integrated Combat Airspace Command and Control* **Approved for Public Release**	30 JUN 00 Retain until TAGS Revision	FM 3-52.1 (FM 100-103-1) MCRP 3-25D NTTP 3-52.1(Rev A) AFTTP(I) 3-2.16	Provides detailed TTP for airspace C2 to include specialized missions not covered in JP 3-52, Doctrine for Joint Airspace Control in a Combat Zone. Includes specific information on interfaces and communications required to support integrated airspace control in a multi-Service environment. **Current Status:** At Nov 04 JASC, Services agreed to retain ICAC2 until TAGS is assessed in May 05. Will incorporate portions of ICAC2 that did not transition to JP 3-52 into next TAGS revision scheduled for 2006. **POC: Team D** alsad@langley.af.mil
IDM: *Multi-Service Tactics, Techniques, and Procedures for the Improved Data Modem Integration* **Distribution Restricted**	30 MAY 03	FM 6-02.76 MCRP 3-25G NTTP 6-02.3 AFTTP(I) 3-2.38	Provides digital connectivity to a variety of attack and reconnaissance aircraft; facilitates exchange of near-real-time targeting data and improves tactical situational awareness by providing a concise picture of the multi-dimensional battlefield. **Current Status:** Assess 1 Nov 04 (18mo) Revise 1 May 06 (3yr) **POC: Team C** alsac@langley.af.mil
IFF: *MTTP for Mk XII Mode 4 Security Issues in a Joint Integrated Air Defense System* **Classified SECRET**	11 DEC 03	FM 3-01.61 MCWP 3-25.11 NTTP 6-02.4 AFTTP(I) 3-2.39	Educates the warfighter to security issues associated with using the Mark XII IFF Mode 4 Combat Identification System in a joint integrated air defense environment. It captures TTP used today by the warfighter that can address those security issues. **Current Status:** Assessed 1 Jun 05 (18mo) Revise 1 Dec 06 (3yr) **POC: Team A** alsaa@langley.af.mil
INTERPRETER OPERATIONS **FOUO**	APR 04	Center for Army Lessons Learned (CALL) Handbook 04-7	Team B will monitor this project for 18 months following the release of the handbook and then decide whether to develop as an MTTP or remove it as a monitored project. **Current Status:** Complete. Available electronically at call.army.mil. **POC: Team B** alsab@langley.af.mil
JAOC / AAMDC: *Multi-Service Tactics, Techniques, and Procedures for Joint Air Operations Center and Army Air and Missile Defense Command Coordination* **Distribution Restricted**	22 MAR 04	FM 3-01.20 AFTTP(I) 3-2.30	Addresses coordination requirements between the Joint Air Operations Center and the Army Air and Missile Defense Command. Assists the JFC, JFACC, and their staffs in developing a coherent approach to planning and execution of AMD operations. **Current Status:** Assess 1 Sep 05 (18mo) Revise 1 Mar 07 (3yr) **POC: Team D** alsad@langley.af.mil
JATC: *Multi-Service Procedures for Joint Air Traffic Control* **Distribution Restricted**	17 JUL 03	FM 3-52.3 (FM 100-104) MCRP 3-25A NTTP 3-56.3 AFTTP(I) 3-2.23	Is a ready reference source for guidance on ATC responsibilities, procedures, and employment in a joint environment. Discusses JATC employment and Service relationships for initial, transition, and sustained ATC operations across the spectrum of joint operations within the theater or area of responsibility (AOR). **Current Status:** Assess 1 Jan 05 (18mo) Revise 1 Jul 06 (3yr) **POC: Team F** alsaf@langley.af.mil
JFIRE: *Multiservice Procedures for the Joint Application of Firepower (JFIRE)* **Distribution Restricted**	30 OCT 04	FM 3-09.32 MCRP 3-16.6A NTTP 3-09.2 AFTTP(I) 3-2.6	Is a pocket size guide of procedures for calls for fire, CAS, and naval gunfire. Provides tactics for joint operations between attack helicopters and fixed-wing aircraft performing integrated battlefield operations. **Current Status:** Assess 1 Jan 06 (18 mo) Revise 30 Oct 07 (3yr) **POC: Team A** alsaa@langley.af..mil

ALSA PROJECTS UPDATE CURRENT ALSA PUBLICATIONS			
TITLE	**DATE**	**PUB #**	**DESCRIPTION**
JSEAD / ARM-J: *Multi Service Tactics, Techniques, and Procedures for the Suppression of Enemy Air Defenses in a Joint Environment* **Classified SECRET**	28 MAY 04	FM 3-01.4 MCRP 3-22.2A NTTP 3-01.42 AFTTP(I) 3-2.28	Fills a planning and employment void not captured in existing Joint Tactics Techniques and Procedures. It contributes to Service interoperability by providing the JTF and subordinate commanders, their staffs, and SEAD operators a single, consolidated reference. **Current Status:** Currently under assessment (18 mo) Revise 1 May 07 (3yr) **POC: Team A** alsaa@langley.af.mil
JSTARS: *Multi-Service Tactics, Techniques, and Procedures for the Joint Surveillance Target Attack Radar System* **Distribution Restricted**	17 MAR 03	FM 3-55.6 (FM 90-37) MCRP 2-1E NTTP 3-55.13 (Rev A) AFTTP(I) 3-2.2	Provides procedures for the employment of the Joint Surveillance Target Attack Radar System (JSTARS) in dedicated support to the JFC. Revision will be unclassified. The unclassified revision describes multi-Service TTP for consideration and use during planning and employment of the JSTARS. **Current Status:** Assessed "retain at ALSA." Expect to revise due to OEF/OIF lessons learned, with early revision aligned with AFTTP 3-1.30 (JSTARS) rewrite conference. Revise 1 Dec 05 (3yr) **POC: Team D** alsad@langley.af.mil
JTF IM: *Multiservice Tactics, Techniques, and Procedures for Joint Task Force Information Management* **Distribution Restricted**	10 SEP 03	FM 6-02.85 (FM 101-4) MCRP 3-40.2A NTTP 3-13.1.16 AFTTP(I) 3-2.22	Describes how to manage, control, and protect information in a JTF headquarters conducting continuous operations. **Current Status:** Assess 1 Mar 05 (18mo) Revise 1 Sep 06 (3yr) **POC: Team C** alsac@langley.af.mil
JTF LNO Integration: *Multiservice Tactics, Techniques, And Procedures For Joint Task Force (JTF) Liaison Officer Integration* **Distribution Restricted**	27 JAN 03	FM 5-01.12 (FM 90-41) MCRP 5-1.B NTTP 5-02 AFTTP(I) 3-2.21	Defines liaison functions and responsibilities associated with operating a JTF. **Current Status:** Assess 27 Jun 04 (18 mo) Revise 27 Jan 06 **POC: Team G** alsag@langley.af.mil
JTMTD: *Multiservice Procedures for Joint Theater Missile Target Development* **Distribution Restricted**	11 NOV 03	FM 3-01.51 (FM 90-43) NTTP 3-01.13 AFTTP(I) 3-2.24	Documents TTPs for threat missile target development in early entry and mature theater operations. It provides a common understanding of the threat missile target set and information on the component elements involved in target development and attack operations. **Current Status:** Assessed "Transition to JP 3-60, *Targeting*, JP 3-01; *Countering Air and Missile Threats;* and other ALSA MTTPs. **POC: Team D** alsad@langley.af.mil
KILL BOX: *MTTP for Kill Box Employment* **Distribution Restricted**	15 JUN 05	FM 3-09.34 MCRP 3-25H NTTP 3-09.2.1 AFTTP(I) 3-2.59	Assists the Services and Joint Force Commanders in developing, establishing, and executing Kill Box procedures to allow rapid target engagement. This MTTP describes timely, effective multi-service solutions to FSCMs, ACMs, and maneuver control measures with respect to Kill Box operations. **Current Status:** Assess 1 Jan 07 (18 mo) Phase I 1 Jul 08. **POC: Team B** alsab@langley.af.mil
NLW: *Tactical Employment of Nonlethal Weapons* **Approved for Public Release**	15 JAN 03	FM 3-22.40 (FM 90-40) MCWP 3-15.8 NTTP 3-07.3.2 AFTTP(I) 3-2.45 USCG Pub 3-07.31	Supplements established doctrine and TTP providing reference material to assist commanders and staffs in planning/coordinating tactical operations. It incorporates the latest lessons learned from real world and training operations, and examples of TTP from various sources. **Current Status:** Assess 15 Jul 04 (18mo) Revise 1 Dec 05 (3yr) **POC: Team F** alsaf@langley.af.mil
PEACE OPS: *MTTP for Conducting Peace Operations* **Approved for Public Release**	26 OCT 03	FM 3-07.31 MCWP 3-33.8 AFTTP(I) 3-2.40	Provides tactical level guidance to the warfighter for conducting peace operations. **Current Status:** Assess 1 Apr 05 (18 mo) Revise 1 Oct 06 (3yr) **POC: Team E** alsae@langley.af.mil

ALSA PROJECTS UPDATE CURRENT ALSA PUBLICATIONS			
TITLE	**DATE**	**PUB #**	**DESCRIPTION**
REPROGRAMMING: *Multi-Service Tactics, Techniques, and Procedures for the Reprogramming of Electronic Warfare and Target Sensing Systems* **Distribution Restricted**	6 JAN 03	FM 3-51.1 (FM 34-72) MCRP 3-40.5B NTTP 3-13.1.15 AFTTP(I) 3-2.7	Supports the JTF staff in the planning, coordinating, and executing of reprogramming of electronic warfare and target sensing systems as part of joint force command and control warfare operations. **Current Status:** Assess 6 Jul 04 (18mo) Revise 6 Dec 06 (3yr) **POC: Team G** alsag@langley.af.mil
RISK MANAGEMENT **Approved for Public Release**	15 FEB 01	FM 3-100.12 (FM 5-19.1) MCRP 5-12.1C NTTP 5-03.5 AFTTP(I) 3-2.34	Provides a consolidated multi-Service reference, addressing risk management background, principles, and application procedures. To facilitate multi-Service interoperability, it identifies and explains the risk management process and its differences and similarities as it is applied by each Service. **Current Status:** Assess 15 Aug 05 (18 mo) Revise 15 Feb 07 (3 yr) **POC: Team G** alsag@langley.af.mil
SURVIVAL, EVASION, AND RECOVERY: ***Multi Service Procedures for Survival, Evasion, and Recovery*** Distribution Restricted	19 MAR 03	FM 3-50.3 (FM 21-76-1) MCRP 3-02H NTTP 3-50.3 AFTTP(I) 3-2.26	Provides a weather-proof, pocket-sized, quick reference guide of basic survival information to assist Service members in a survival situation regardless of geographic location. **Current Status:** Phase I 1 Mar 06 (3yr) **POC: Team B** alsab@langley.af.mil
TACTICAL CONVOY OPERATIONS: *MTTP for Tactical Convoy Operations* **Distribution Restricted**	MAR 05	FM 4-01.45 MCRP 4-11.3H NTTP 4-01.3 AFTTP(I) 3-2.58	Consolidates the Services' best tactics, techniques, and procedures used in convoy operations into a single multi-Service TTP. This MTTP focuses on combat support and combat service support forces and provides a quick reference guide for convoy commanders and subordinates on how to plan, train, and conduct tactical convoy operations in the contemporary operating environment. **Current Status:** Active. In distribution. **POC: Team E** alsae@langley.af.mil
TACTICAL RADIOS: *Multi-Service Communications Procedures for Tactical Radios in a Joint Environment* Approved for Public Release	14 JUN 02	FM 6-02.72 (FM 11-1) MCRP 3-40.3A NTTP 6-02.2 AFTTP(I) 3-2.18	Standardizes joint operational procedures for Single-Channel Ground and Airborne Radio Systems (SINCGARS) and provides and overview of the multi-Service applications of Enhanced Position Location Reporting System (EPLRS). **Current Status:** Assess 14 Dec 06 (18mo) Revise 14 Jun 08 (3 yr) **POC: Team G** alsag@langley.af.mil
TADIL-J: *Introduction to Tactical Digital Information Link J and Quick Reference Guide* **Approved for Public Release**	30 JUN 00 Transitioned to FORSCOM NOV 04	FM 6-24.8 (FM 6-02.241) MCRP 3-25C NTTP 6-02.5 AFTTP(I) 3-2.27	Provides a guide for warfighters with limited or no experience or background in TADIL J and needing a quick orientation for supplemental or in-depth information. TADIL J is also known in NATO as Link 16. **Current Status:** Transitioned. Incorporated into FORSCOM Joint Tactical Air Operations (JTAO) Procedural Handbook **POC: Team C** alsac@langley.af.mil
TAGS: *Multi-Service Tactics, Techniques, and Procedures for the Theater Air Ground System* **Approved for Public Release**	8 DEC 03	FM 3-52.2 (FM 100-103-2) MCRP 3-25F NTTP 3-56.2 AFTTP(I) 3-2.17	Promotes inter-Service awareness regarding the role of airpower in support of the JFC's campaign plan, increases understanding of the air-ground system, and provides planning considerations for the conduct of air-ground operations. **Current Status:** Assessed "Revise at ALSA." Revision accelerated to begin 1 Dec 05 (3yr), and will include portions of ICAC2 that did not transition to JP 3-52. **POC: Team D** alsad@langley.af.mil
TMD IPB: *Multi-Service Tactics, Techniques, and Procedures for Theater Missile Defense Intelligence Preparation of the Battlespace* **Approved for Public Release**	4 MAR 02 Transitioned to Army NOV 04	FM 3-01.16 MCRP 2-12.1A NTTP 2.01.2 AFTTP(I) 3-2.36	Provides a systematic and common methodology for analyzing the theater adversary missile force in its operating environment. **Current Status:** Transitioned. (New POC is CAC/CADD, Ft. Leavenworth) **POC: Team B** alsab@langley.af.mil

ALSA PROJECTS UPDATE CURRENT ALSA PUBLICATIONS			
TITLE	**DATE**	**PUB #**	**DESCRIPTION**
TST: *MTTP for Targeting Time-Sensitive Targets* **Distribution Restricted**	20 APR 04	FM 3-60.1 MCRP 3-16D NTTP 3-60.1 AFTTP(I) 3-2.3	Provides the JFC, the JFC's operational staff, and components unclassified MTTP to coordinate, de-conflict, synchronize, and prosecute TSTs within any AOR. Includes OIF and OEF lessons learned, multinational and other government agency considerations. Appendix D– COMUSCENTAF Counter-SCUD CONOPS and Playbook (SECRET REL GBR/AUS) Appendix F–TST Collaboration Tools Appendix G– CGRS (Available via electronic means only.) **Current Status:** Assess 1 Oct 05 (18mo) Revise 1 Apr 07 (3yr) **POC: Team F** alsaf@langley.af.mil
UHF TACSAT/ DAMA OPERATIONS: *Multi Service Tactics, Techniques, and Procedures package for UHF TACSAT Frequency Management* **Approved for Public Release**	JUN 04	FM 6-02.90 MCRP 3-40.3G NTTP 6-02.9 AFTTP(I) 3-2.53	Documents TTP that will improve efficiency at the planner and user levels. (Recent operations at JTF level have demonstrated difficulties in managing limited number of UHF TACSAT frequencies.) **Current Status:** Assess 1 Dec 05 (18mo) Revise 1 Jun 07 (3yr) **POC: Team C** alsac@langley.af.mil
UXO: *Multi-Service Procedures for Unexploded Ordnance Operations (UXO)* **Approved for Public Release**	16 AUG 05	FM 3-100.38 MCRP 3-17.2B NTTP 3-02.4.1 AFTTP(I) 3-2.12	Describes hazards of unexploded explosive ordnance (UXO) sub-munitions to land operations, addresses UXO planning considerations, and describes the architecture for reporting and tracking UXO during combat and post conflict. **Current Status:** Awaiting Print **POC: Team B** alsab@langley.af.mil
NEW ALSA PROJECTS **(Please contact the POCs for more information.)**			
TITLE	**DATE**	**PUB #**	**DESCRIPTION**
CITO: *MTTP for Cultural Impact on Tactical Operations*	OCT 06		**Current Status:** Phase I (research/assess) **POC: Team E** alsae@langley.af.mil
Civil Support: *MTTP for Civil Support*	OCT 06		**Current Status:** Phase I (research/assess) **POC: Team B** alsab@langley.af.mil
Cordon and Search: MTTP for Cordon and Search Operations	MAR 06		Consolidates the Services' best tactics, techniques, and procedures used in cordon and search operations into a single multi-Service TTP. This MTTP focuses on tactical level units and provides a quick reference guide for conventional ground forces, Special Operations Forces and aviation personnel on how to plan, train, and conduct cordon and search operations. **Current Status:** Active. Phase IV **POC: Team F** alsaf@langley.af.mil
DETAINEE OPERATIONS: *MTTP for Detainee Operations in the Global War on Terrorism* **Distribution Restricted**	DEC 06	FM 3-19.401 MCRP 4-11.8D NTTP 3-07.8 AFTTP(I) 3-2.51	MTTP regarding detainee operations to include transporting, transferring and holding of the high-risk detainees. **Current Status:** Phase V, S: 30 Jan 06 **POC: Team B** alsab@langley.af.mil
TECHINT: *MTTP for technical intelligence*	MAY 06		Serves as a reference for service TECHINT planners and operators to build and execute coordinated multi-service operations. It provides tactical forces guidance on evacuation of captured material of intelligence value and it provides joint force staffs with guidance concerning the mission, requirements, and capabilities of TECHINT forces. **Current Status:** Phase III (program development) **POC: Team G** alsag@langley.af.mil
UAS: *MTTP for Unmanned Aerial Systems*	JUL 06		The intent of this MTTP is to establish tactics, techniques, and procedures that address tactical and operational considerations, system capabilities, payloads, mission planning, logistics, and most importantly, multi-Service execution. **Current Status:** Phase III (program development) **POC: Team A** alsaa@langley.af.mil

ALSA Web Page

By TSgt Jorge Venegas
NCOIC, Air Land Sea Application Center

A one stop source for information and resources...

ALSA unveiled its new Web site in August 2005. It was a multi-year project and was developed by VP1 Technologies. The new design and features include individual team pages, a calendar, JASC only section, automatic email notification, and the ability to restrict access to areas of the site.

The advantage of this new site is the ability of action officers to manage content directly from their desktop computer. This provides more up to date and timely posting of information. The ALSA Web site is located at http://www.alsa.mil and can be accessed from any *.mil* or *.gov* computer. The most common problem we have experienced with those who are having access issues is that their computer is not DNS compliant and therefore does not get recognized as a *.mil* or *.gov* computer. Below are two quick ways to check for DNS compliant name:

Option 1:

Step 1: In Win2000, right click on My Computer. Click on Properties and then on the **"Network Identification"** tab. In WinXP, right click on My Computer, click on Properties and select the **"Computer Name"** tab.

Step 2: Check **"Full computer name"** and **"Domain:"** to ensure it ends in a *.mil* or *.gov* address; if it does not, notify your IT personnel of the problem.

Option 2:

Step 1: Open web browser and go to http://ebirds.afis.mil.
Step 2: Click on **"Access help?"** to the right of the calendar.
Step 3: Scroll down to **"Here is a DNS Test Service that you can use..."** Click on the test link.
Step 4: You will get a screen that shows your Host Name and IP Address "DNS Translates To:"
Step 5: Send that information to your network personnel.

ALSA will continue to support the warfighter and looks forward to any and all comments or suggestions to our Web site.

ALSA CD-ROM

The ALSA CD-ROM is an easily transportable electronic library, including: all multi-Service tactics, techniques, and procedures maintained at ALSA; the history of ALSA; and the ALSA video. Order CDs by e-mailing alsaadmin@langley.af.mil
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