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THE COMBINED AIR OPERATIONS CENTER: GETTING THE
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Executive Summary

Title: The Combined Air Operations Center: Getting the organization right for future coalition air operations

Author: Major Phillip R. Pratzner, Jr.

Thesis: *The Combined Air Operations Center, frequently organized on an ad hoc basis, will require a more effective organization in the future to overcome the challenges imposed by future coalition air operations.*

Discussion: The Combined Air Operations Center (CAOC) is the tool which integrates and centralizes air command, control, intelligence, surveillance, and reconnaissance (AC2ISR). Current doctrine provides for a notional CAOC force structure of four divisions and multiple specialty cells. The four divisions are Strategy, Combat Plans, Combat Operations, and Air Mobility. Cells are normally focused on specific areas of expertise, and frequently manned by individuals outside the CAOC. Few CAOCs are organized in precisely this way, as JFACCs use their discretion to organize as they see fit.

Since the CAOC has operational control of combat squadrons, aerospace thinkers now advocate the view that the CAOC is not just a headquarters, but also an overall “weapon system.” This idea became official in September 2000, when then Chief of Staff of the Air Force, General Mike Ryan, declared that the CAOC was a weapon system. This led to the next development, an experimental CAOC, known as CAOC-X, whose role is to standardize and integrate processes and systems.

A review of past CAOCs reveals that decisions of CAOC force structure and responsibilities are vitally important. Rigorous aerospace planning by talented airmen, streamlined sensor-to-shooter links, and full integration of coalition partners have continually led to good results. Conversely, insufficient planning and lack of ISR integration have repeatedly led to problems.

An understanding of past CAOCs and present conceptual thinking illuminate five challenges to future coalition air operations: Aerospace Strategy, Time Sensitive Targets (TSTs), ISR Integration, the dynamics of Coalition warfare, and the capability to expand to wartime conditions.

Conclusion: A viable force structure, advocated in this paper, answers these challenges and is nearly identical to the current doctrinal notional structure with three differences.

1. The Strategy Division has greater responsibilities. Strategy will now be tasked as lead in developing tactics, techniques, and procedures of the CAOC weapon system.
 2. ISR personnel will be dispersed throughout the divisions of the CAOC, placed where their skills and systems are appropriately focused.
 3. Coalition partners will be fully integrated into the CAOC force structure.
- The CAOC must also capitalize on the lessons of CAOC-X in order to address the TST challenge, ISR enhancements, and manning successes and failures. Lastly, although virtual exercises have some value, the force structure of the wartime CAOC must be tested rigorously through exercises at the actual CAOC.

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Since the first night of OPERATION DESERT STORM in 1991, the world understood what aerospace power advocates had long claimed: with the maturation of both stealth technology and precision weapons, aerospace power was now a very potent instrument of warfare. In every major military operation since that time, aerospace power has taken an important, if not, decisive role. Despite this impressive record, aerospace power has limitations. Chief among any limitations is that aerospace power is **only as effective as the integration of air command, control, intelligence, surveillance, and reconnaissance (AC2ISR)**. Stealth and precision weapons are great assets to publicize the effectiveness of aerospace power, but they are useless if not properly employed.

AC2ISR enables aerospace power to live up to its potential and ensures responsiveness to the objectives of a theater Commander-in-Chief (CINC) or a campaign Joint Force Commander (JFC). The tool which makes the concept of AC2ISR a reality is the Aerospace Operations Center (AOC). The AOC is the embodiment of the most fundamental tenet of the aerospace power, as viewed from the U.S. Air Force: centralized command and control. Air Force doctrine is clear on the importance of this tenet: “Air and space power is the product of multiple capabilities, and centralized command and control (C2) is *essential* to fuse these capabilities.”ⁱ In exercising this C2, the AOC conducts both planning and operations of **ALL** aerospace operations in a given theater.

The AOC is thus **NOT** an U.S. Air Force only headquarters. Because the United States military normally conducts joint operations, and because the United States rarely conducts military operations without coalition partners, the AOC is normally a totally integrated joint and combined headquarters: the Combined Aerospace Operations Center (CAOC). Since there is little doubt that the complexity and challenges of air operations will increase over time, the future CAOC will be dependent on two elements to successfully execute aerospace operations: an effective organizational structure and the right tools (communications, computers, etc.). All too often, CAOCs have lacked both. The Chief of Staff of the Air Force, General John Jumper, recently described the past CAOC as an “ad hoc command and control

center comprised of stove-piped systems, manned by different functionals who were most likely working together for the first time.”ⁱⁱ Thus, *the Combined Air Operations Center, frequently organized on an ad hoc basis, will require a more effective organization in the future to overcome the challenges imposed by future coalition air operations.* Although the tools of the CAOC are vitally important, this paper is focused on the organizational structure aspect.

CAOC “101”

In order to execute effective AC2ISR, present day CAOCs operate under one commander, the Joint Forces Air Component Commander (JFACC). Fundamentally, **the CAOC is his tool for planning, tasking, and controlling aerospace operations directly for a CINC, or the CINC’s appointed JFC.** To fully appreciate how the CAOC does this, four relevant concepts warrant a detailed look: the force structure of today’s CAOCs, the responsibilities of the CAOC organizations, the air perspective of centralized C2, and the current U.S. Air Force concept on how to most effectively employ the CAOC.

Though no two CAOCs are aligned with the same force structure, current doctrine provides for a notional structure (table one).ⁱⁱⁱ Using the broad discretion which doctrine gives him, the JFACC can, and does, organize the CAOC as required. As with many wartime headquarters, most CAOCs are not fully manned in peacetime or armistice and have only a “skeleton” crew of perhaps several dozen individuals. By the time a CAOC is fleshed out for “24/7” combat operations, it is rarely under 1,000 people. The staff at CAOC Vicenza swelled from 400 to over 1,300 in order to run Operation ALLIED FORCE.^{iv} The Hardened Theater Air Control Center (HTACC) at Osan Air Base, Korea, the Korean CAOC, has a similar wartime manning requirement.

There are several common elements to every CAOC’s force structure. First, to run this size organization, CAOCs have a Director, who may possess another title but performs the same fundamental task of running AC2ISR for the JFACC. This individual is the JFACC’s appointed designee, and he will

nearly always be a one or two star general officer.^v Second, all CAOCs have component liaisons, army, marine, and navy. They directly interface with the Director and provide vitally important joint coordination and unity of effort. Third, coalition partners also provide liaisons. These liaisons may either exist outside the U.S. CAOC structure, as a separate cell, which is quite common, or they may be fully integrated into the force structure.

Of the assets under his direct control, the Director controls divisions and cells. The Strategy Division acts in the capacity of most “J-5” directorates. Its essential role is to develop aerospace strategy, which can best be defined as how the JFACC plans to exploit air and space capabilities/forces to support the JFC’s or CINC’s objectives.^{vi} This strategy is not limited to, but must include the JFACC’s intent, concept of operations, air tasks, and measures of merit. The Combat Plans Division most resembles the “J-3/Future Ops” element, and is the primary division for producing the Air Tasking Order (ATO) and all of its supporting plans. The Combat Operations Division is the “J-3/ Current Ops” shop, and it is responsible for executing the ATO. Further, it “flexes” as required in order to meet emerging demands of the JFACC, such as Scuds. Lastly, the Air Mobility Division plans and is responsible for coordinating the execution of the JFACC’s theater airlift responsibilities, as well as his serve as his link back to U.S. Transportation Command and Air Mobility Command. Table two lists the primary responsibilities of the respective divisions.^{vii}

Divisions generally range from 50 to 400 individuals, commensurate with their responsibilities. The two largest divisions are often Combat Plans and Combat Operations, each normally consisting of several hundred personnel. A Colonel runs each division. Because of its unique requirements, a one star general from the Air Force’s Air Mobility Command may direct the Air Mobility Division.^{viii} Fundamentally, all divisions have broad responsibilities and integrate “numerous disciplines in a cross-functional team approach to planning and execution.”^{ix}

In contrast, cells and teams are normally focused on specific areas of expertise, and frequently are manned by individuals coming from outside the CAOC. They may be as small as a couple members to several dozen. For example, a team from U.S. Space Command augments the Space Cell in every theater. Additionally, a National Intelligence Support Teams (NIST), including members from the Defense Intelligence Agency, National Security Agency, and the Central Intelligence Agency, may augment the ISR cell to provide interface between the CAOC and the national intelligence agencies. Significantly, NIST members **do not** fall under the control of the Director or the JFACC. The ISR Cell's responsibility to produce both timely and accurate intelligence frequently exceeds its manning numbers, even with support from a NIST. Subsequently, the ISR Cell frequently enlarges into a division.^x When this occurs, the tendency is to collect all intelligence personnel in the CAOC and place them in this division.

Alternatively, some JFACCs organize their CAOCs according to the Air Forces (AFFOR) Staff concept, which is similar to the Ground and Joint Staff models (table three). The HTACC in Korea is organized in this way. Although there is a significant difference in this structure to the "doctrinally correct" structure in Table one, the AFFOR Staff CAOC conducts AC2ISR in the same way, and the level of centralized C2 resident in each is identical. Centralized C2, in both planning and tasking, is a unique aspect of the CAOC.

Whereas ground units are traditionally tasked downward one level at a time, from the Ground Component Commander (GCC) to the Corps to the Division, etc., the JFACC essentially tasks down to the squadron level.^{xi} A rough comparison of this C2, in ground terms, would be the GCC tasking individual battalions. This comparison is admittedly imperfect; the intent, however, is to illustrate the enormous degree of centralized C2 exercised, as a *modus operandi*, by the JFACC through the CAOC. Table four is a simple comparison of how air and ground units are normally tasked.

In order to task down to squadron level, the CAOC serves as a single focal point of aerospace

operations: from bomber and fighter deep interdiction missions, to strategic and theater airlift missions, to air defense planning and de-confliction, the CAOC plans and tasks ALL of them. **Since the CAOC has operational control of combat squadrons, aerospace thinkers now advocate the view that the CAOC is not just a headquarters, but also an overall “weapon system.”** The U.S. Air Force’s concept of a weapon system is not simply a “point and shoot” device. Rather, it is broadly considered a system, even a KC-135 or C-130, which either employs or enhances combat power and has all the “related equipment, materials, services, personnel . . . required for self-sufficiency.”^{xii}

This weapon system concept originated in the late 1990s with the advocacy of several JFACCs.^{xiii} In September 2000, then Chief of Staff of the Air Force, General Mike Ryan, declared that the AOC was a weapon system.^{xiv} This led to the next development, an experimental CAOC, known as CAOC-X. This facility, located at Langley Air Force Base, Virginia, has a role to “provide the process, systems, and operators for rapid assessment and integration of new or enhanced CAOC software, hardware, and processes.”^{xv} The benefits to the warfighter of the weapon system concept, as well as the role CAOC-X will play, are significant and arguably long overdue. By considering the CAOC a weapon system, the Air Force has committed itself to providing a standardized method of doing business, as well as providing those manning the CAOCs with an understanding of how to fight with it.^{xvi} From the Air Force perspective, this idea is historically based, since the performance of past CAOCs has been mixed. The record of CAOCs, past and present, warrants a review.

Brief Review of Past and Present CAOCs

In many ways, the first test of a CAOC in war was during the 1991 Gulf War. The U.S. Central Command Air Forces (CENTAF) CAOC, although it was not called that at the time, tasked aircraft and assets from all American services, as well as from the United Kingdom, France, Saudi Arabia, and Kuwait, and others. This CAOC had many positive points, but two were dominant. First, CAOC planning, internal and external, was rigorous and utilized some of the most talented officers in the Air

Force.^{xvii} This effort was initially headed up the Checkmate team in the Pentagon, a sort of Air Force think tank, headed up by Colonel John Warden, a powerful aerospace thinker. Second, this CAOC employed for the first time an effective collection-kill strategy, where ISR was gathered (collection) and quickly exploited by tasking a fighter or bomber to attack time sensitive targets (TSTs).^{xviii} TSTs are defined as “Those targets requiring immediate attention because they pose (or will soon pose) a clear and present danger to friendly forces or are highly lucrative, fleeting targets of opportunity.”^{xix}

Every Instrument of Power of Saddam Hussein’s regime was attacked, and much of it destroyed. Coalition resources were tasked relative to their capabilities, and many of these resources performed very well. By the time the allied ground forces crossed the line of departure to finally liberate Kuwait, they found that aerospace power had “inflicted operational paralysis upon the Iraqi soldiers in the KTO, immobilizing them, preventing them from fighting, breaking their will, and reducing many units to a rabble waiting to surrender.”^{xx}

Despite these very positive aspects of the CAOC’s performance during the Gulf War, there was one major problem which stood out from all the rest. In general, there was very poor integration of ISR into CAOC operations. Collection assets did furnish excellent raw data, but the interpretation, timeliness, and distribution of it was abysmal.^{xxi}

CAOC Vicenza, the CAOC which ran air operations during Operation ALLIED FORCE from March to June 1999, also had some significant success. The two most notable are the integration of coalition air assets^{xxii}, and the effectiveness of ISR integration.^{xxiii} The federated concept of combat assessment was a key element to successful ISR integration. This concept used a fused system of burden sharing amongst both theater and national intelligence centers, so that no one agency was overwhelmed with trying to assess hundreds of targets, and ensured the subject matter experts were available to provide battle damage assessments in a timely manner.^{xxiv}

ALLIED FORCE was the first time NATO went into combat, with the limitations of consensus

among nineteen nations a major challenge. The members of the CAOC worked through this hurdle however, to effectively task all participating nations with due regard to their capabilities. The facts are enough to convey how they succeeded: Operation ALLIED FORCE “. . . forced Milosevic to withdraw from Kosovo . . . NATO accomplished this by prosecuting the most precise and lowest-collateral-damage air operation ever conducted -- with no U.S. or allied combat fatalities in 78 days of around-the-clock operations and over 38,000 combat sorties against very active Yugoslav integrated air defenses.”^{xxv}

In the midst of these successes, CAOC Vicenza had a horrid failure: the lack of long-range planning. A strategy cell did not exist before or in the first several days of the operation.^{xxvi} Only after it was clear that the campaign required time, did a Strategy Cell form and work the issues that should have been solved well before bombs starting dropping. The most important consequence of this failure was the approval of targets: “During the course of the campaign, NATO developed mechanisms for delegating target approval authority to military commanders.”^{xxvii} An argument can be made that this was a natural result of coalition warfare, where even planning operations are politically sensitive. General Wesley Clark observed “There were many horses pulling the wagon of Allied cohesion on the air campaign--close, continuous communications were maintained by heads of government, foreign ministers, and defense ministers . . .”^{xxviii} Still, without a CAOC Strategy Cell or Division, there was no mechanism for looking at these types of long range planning issues.

A full review of this subject would be incomplete without CAOC PSAB (Prince Sultan Air Base) in Saudi Arabia, currently prosecuting the current air campaign in Afghanistan. Though some details are unavailable now, several positives can be noted. First, planning has been exhaustive and comprehensive. As with the Gulf War, Checkmate took a lead role, at least in the initial planning of the war, and handed their plan to the CENTCOM and/or CENTAF planners. Some may debate how effective the air results have been, but planning was taken seriously and addressed both long-term and short-term

considerations. A wealth of talented airman was employed in Washington, at CENTCOM in Tampa, and CAOC PSAB. This CAOC is state-of-the-art, with the newest and best sensor-to-shooter workstations and systems, and it just came on-line months before the operation.

Second, the integration of ISR into the CAOC operation, particular in regard to engaging TSTs, has been a spectacular success. Key factors in the success have been ISR ability to maintain round-the-clock surveillance, integration at the tactical and operational levels from many sources, and the ability to control data collection.^{xxix} Even though not all aircraft can communicate with each other, the CAOC can receive and send to all aircraft under its control. This enables the CAOC to conduct persistent ISR operations, and pass this information off to “shooters.”^{xxx}

It is too early to tell exactly what lessons will come out of Afghanistan. However, the early results are promising in regards to the CAOC. Exhaustive planning, a CAOC equipped with all the right tools, and highly effective ISR integration seem to be producing outstanding aerospace power results. If this is the vision of the future CAOC, what does it imply for the force structure? To answer this, it is important to look at the major issues which will challenge future coalition air operations, and identify the solutions to these challenges.

Challenges and Solutions to Future Coalition Air Operations

Five issues will challenge the future CAOC structure: Aerospace Strategy, Time Sensitive Targets (TSTs), ISR Integration, the dynamics of Coalition warfare, and the capability to expand to wartime conditions.

1. Aerospace Strategy. Without a solid aerospace strategy, the future CAOC is doomed to repeat the errors of OPERATION ALLIED FORCE. Long range planning is absolutely critical to achieving effective AC2ISR. Additionally, aerospace strategy determination can and does identify weaknesses within the CAOC, both in the structure and in the systems, which prevent or impair mission accomplishment. Aerospace strategy therefore provides not only the roadmap on how to best employ

aerospace power, but also how to best use the CAOC to accomplish this; it is the vital blueprint for how the CAOC executes AC2ISR.

SOLUTION #1: Man the Strategy Division with the best and brightest. Although this is commonly the case today, this manning effort requires greater rigor. The core staff of the Strategy Division should contain primarily billets coded for advanced school graduates (from SAAS, SAW, and SAMS). These individuals should represent multiple areas of expertise: operations, space, intelligence, and logistics, and all of them should have several years of tactical experience. For the Air Force, this translates to time spent in a wing.

SOLUTION #2: The Strategy Division assumes the lead role in dictating how to employ the CAOC weapon system. There are USAF courses available to provide a solid foundation for this task, notably the Command and Control Warrior Advanced Course (C2WAC), a three week course taught at Hurlburt Field, Florida.^{xxx1} The essential thrust of this course is to train selected individuals in the CAOC weapon system. An appropriate way to think of this task in the CAOC's Strategy Division is to consider the task performed by a Weapons Shop in a United States Air Force wing today. Individuals assigned there are weapons school graduates: they understand both their **weapon system** (such as an F-16) and how to employ it **tactically** to achieve the mission. In the same manner, the Strategy Division advanced school graduate needs to understand his **weapon system** (the CAOC) and how to employ it **operationally** to achieve the mission.

2. **Time Sensitive Targets.** TSTs are important in modern combat for two reasons, one political and one military. First, in the last decade, a specific category of TSTs, tactical ballistic missiles (TBMs), has taken on gigantic political implications. TBMs, such as Scuds, lack military significance since they are inaccurate and carry a relatively small payload.^{xxxii} Yet, they enable a rogue nation state or non-state entity the ability to strike deep into friendly territory. Coupled with Weapons of Mass Destruction (WMD), such as nuclear or chemical weapons, these attacks in the rear could erode public confidence in

the government's ability to defend its territory.^{xxxiii}

Perhaps more dangerous, TBM strikes against a state not in a campaign coalition entices retaliation, which could disrupt or even destroy the coalition. Witness the efforts of Iraq to draw Israel into the Gulf War; Israel's restraint was essential to keeping the Arab coalition in the war. Another politically volatile situation exists on the Korean peninsula. Should the two Koreas go to war, what are the ramifications of a North Korean TBM shot into Japan?^{xxxiv} As can be surmised, TBMs may do little actual material damage, yet they can be lethal political weapons.

The second reason why the TSTs are important, in a military way, is that they can "shot and scoot," making it difficult for coalition forces to neutralize TBM, artillery, and ground units. Though TSTs have long offered a military challenge, TBMs pose a particularly modern and future hazard. A massive and coordinated TBM attack on key military targets, such as airfields and port facilities, could be devastating to coalition efforts. It is no secret that the United States and its allies rely a great deal on aerospace power; in many cases, aerospace power is an operational, or even strategic, center of gravity. It is also no mystery that the United States is not forward deployed today, and in many military operations, will require port facilities to flow in forces.

SOLUTION: Leverage the lessons of CAOC-X. Though many organizations are working hard to solve the TST challenge, none are as intensely focused, or as relevant, as CAOC-X to linking a concept to a system which is thoroughly tested. This is borne out with the TST successes of CAOC PSAB, which has directly benefited from the efforts of CAOC-X. Every CAOC will have some unique requirements and thus require some unique procedures. However, these procedures can now exploit the baseline efforts, in both concepts and systems, provided by CAOC-X.

3. ISR Integration. Aerospace power can best be employed in the future with ISR Integration. The federated concept of Combat Assessment, as seen in Kosovo, offers great promise for getting inside the enemy OODA Loop. Likewise, the sensor-to-shooter link has seen major strides in Afghanistan.

Another major facet of ISR integration which has seen enormous efforts in recent years is “reachback,” which refers to the ability of the CAOC to receive ISR information from national and theater sources.

Reachback, facilitated by NIST team members, potentially reduces the need for ISR personnel at the CAOC. As noted, the ISR cell frequently grows into a division because reachback has not adequately addressed all CAOC ISR requirements. Further, a total reliance on a source thousands of miles away, and on analysts not under the direction of the JFACC, can never be totally relied on for obvious reasons. Although reachback clearly has the potential of providing higher quality ISR than can be produced by the CAOC, it is simply another tool for the commander, one which must be worked hard in peacetime to ensure responsiveness during wartime.

In the CAOC, ISR integration therefore equates to an effective, federated system of combat assessment, reliable and timely sensor-to-shooter links, and responsive reachback. A large ISR element or division does not necessarily accomplish these tasks, nor does a dedicated A2 directorate. Rather, ISR integration results in the **integration** of the right people and tools into the appropriate divisions and cells in the CAOC.

SOLUTION: Eliminate ISR Divisions or A2s and integrate their personnel into the Divisions. Intelligence personnel are not “behind the SCI door,” but are put where needed. The Combat Assessment element would be an appropriate match for the Strategy Division, since a major responsibility of that division is to provide “overall operational level assessment of air phases. targeting personnel would go into the Combat Plans Division, which is heavily focused on the targeting process. The intelligence section in Combat Operations would be focused on exploiting ISR resources, such JSTARS and Predator, in order to engage TSTs.

This integration does not obviate the requirement for an ISR Cell. There will always be a need to place members of a NIST in a central location. The ISR cell could be the appropriate place for the collection management cell, whose efforts contributes to all divisions and do not easily fit into a specific

division. The key point is that ISR personnel, and their tools, would be placed where their efforts are appropriately **focused**, the best way to ensure effective ISR integration.

4. Dynamics of Coalition warfare. Personnel at CAOCs must know not only the general attributes of the coalition air forces, they must understand the details of how to employ specific platforms. Future coalitions may involve countries with little connection to the United States or NATO, flying in different aircraft, employing different weapons, and possessing different communications gear. There is simply no way of knowing what coalitions will be formed in the future. Accordingly, the future CAOC must address this in some way, potentially in hardware, software, and “brainware.” Above all these considerations must reside a fundamental understanding, and appreciation, of coalitions:

Future coalitions may take place under conditions in which military operations are subordinate to political and diplomatic efforts that place limits on the scope of military action. In such circumstances, coalitions will have to be very creative to find ways to deliver appropriate and effective levels of military leverage that support political-diplomatic initiatives within the prescribed limitations.^{xxxv}

SOLUTION: Integrate Coalition personnel fully into the CAOC force structure. One of the great successes of CAOC Vicenza was its integrated force structure. Although some inefficiencies may result from this integration, the increase in coalition cooperation and overall operational effectiveness is well worth the cost. Coalition partners will not serve solely as advisors or representatives of their countries, essentially “on the outside looking in.” Rather, they would have to obtain the right qualifications to be placed in their respective positions, just like NATO allies do when they fly as part of the crew of the NATO AWACS. They would be full partners who understand the CAOC and how the aerospace assets of their country can fit into it.

5. The capability to expand to wartime conditions. The recent operations in Kosovo and Afghanistan were small compared to the Gulf War. In Kosovo, there were days where very few strike sorties (less than 20 for example) were flown due to a multitude of factors, to include weather and lack of target approval. In a major regional conflict where operations tempo against a robust enemy is required,

and where military considerations dominate, the CAOC absolutely must be able to handle thousands of sorties, to include hundreds of strike sorties. Their theater battle management systems have to be up to this task, and the operators who work these systems must know how to complete this task effectively and expeditiously. As previously covered, no CAOC is currently manned to fulfill this wartime capability.

SOLUTION #1: Leverage the lessons of CAOC-X. CAOC-X is experimenting aggressively with manning issues, and undoubtedly, they will come up with lessons in this area. The cadre of personnel remaining at the CAOC year round, as well as those who will augment it, must observe and apply these lessons prudently.

SOLUTION #2: Test the CAOC's force structure, procedures, and systems through multiple yearly exercises. This is clearly not an inexpensive solution, since it may involve significant deployments of personnel, but it does ensure the CAOC's wartime capability. Although there are some attributes to "virtual testing," there is simply no substitute for getting personnel to use their actual gear, the gear they will use in combat. For a CAOC to remain at minimum manning levels year round, this step is an absolute necessity.

Conclusion: The Future CAOC

Table five contains a viable and workable force structure to answer the challenges of the future CAOC. This force structure appears quite similar to the "doctrinally correct" one in table one. There are three differences:

1. The Strategy Division has greater responsibilities. Strategy will now be tasked as the lead in developing tactics, techniques, and procedures of the CAOC weapon system. Their personnel, who will be the pick of the CAOC already, must be versed in this new task.

2. ISR personnel will be dispersed throughout the divisions of the CAOC, placed where their skills and systems are appropriately focused.

3. Coalition partners will be fully integrated into the CAOC force structure.

In addressing these five challenges of a future CAOC, this force structure is only the first step towards improving it. The CAOC must also capitalize on the lessons of CAOC-X in order to address the TST challenge, ISR enhancements, and manning successes and failures. Lastly, the force structure of the wartime CAOC must be exercised rigorously through exercises at the actual CAOC. With these three steps taken, **the CAOC is poised to overcome the challenges of future coalition aerospace operations and provide for the effective integration of air command, control, intelligence, surveillance, and reconnaissance.**

ⁱ Headquarters Air Force Doctrine Center, *Air Force Doctrine Document 1 (AFDD 1): Air Force Basic Doctrine* (Maxwell Air Force Base, AL: 1997), 13.

ⁱⁱ Q&A, “U.S. Air Force Draws Up a Roadmap for Future Success,” *Military Aerospace Technology* (Volume 1, Issue 2, April, 2002), 27.

ⁱⁱⁱ Table is derived from Department of the Air Force, Air Force Instruction 13-1AOC, Volume 3, *Operational Procedures--Aerospace Operations Center* (Washington, DC: HQ USAF/XOC, 1 June 1999), 23.

^{iv} Department of Defense, *Kosovo/Operation ALLIED FORCE After Action Report* (Report to Congress: 31 January 2000), 45.

^v For example, in the Korean CAOC, known as the Hardened Theater Air Control Center (HTACC), the Director role is filled by the Chief of Staff for Air Component Command, a one star General Officer who is the Vice Commander of Seventh Air Force in Armistice. In DESERT STORM, Brigadier General “Buster” Glosson ran the show, reporting directly to Lieutenant General Chuck Horner, who was the JFACC.

^{vi} Joint Chiefs of Staff, Joint Pub 3-56.1, *Command and Control for Joint Air Operations* (Washington, DC: GPO, 14 November 1994), x.

^{vii} Air Force Instruction 13-1AOC, 27-51.

^{viii} A one star general who is the Vice Commander of a Numbered Air Force in AMC runs the Air Mobility Division in the HTACC in Korea. His title in the HTACC is Director, Mobility Forces.

^{ix} Air Force Instruction 13-1AOC, 22.

^x The U.S. Air Force’s 12th Air Force, based out of Davis-Monthan Air Force Base in Arizona, has an Intelligence Division in their AOC structure. This particular numbered air force is responsible to the SOUTHCOM CINC, and the Commander of 12th Air Force is the JFACC for the SOUTHCOM AOR.

^{xi} The Air Force Wing, unlike an Army division or corps, does not have a maneuver role. Rather, its role is to maintain the base as a viable entity and maintain a sustainable sortie generation rate. The Air Force Group is a subordinate command of the wing which assists the Wing Commander to carry out these tasks.

^{xii} Joint Chiefs of Staff, Joint Pub 1-02, *Department of Defense Dictionary of Military and Associated Terms* (Washington, DC: GPO, 23 March 1994 (as amended through 1 September 2000)), under the phrase “Weapon(s) System.”

^{xiii} The author worked for the Korean JFACC, Seventh Air Force Commander Lt Gen Chuck Heflebower, who was one of the first JFACCs, perhaps even the first, who consistently articulated this “weapon system” position starting with the time he took

over in September 1999.

^{xiv} Air Force Command and Control, Intelligence, Surveillance, and Reconnaissance Center (AFC2ISRC) Website, located under “Warfighter” link, accessed under <https://ac2isrc.acc.af.mil/warfighter/ProgProj.asp?progproj=109> on 15 March 2002.

^{xv} Ibid.

^{xvi} In fact, a fundamental aspect of this concept is that CAOC personnel would have to obtain qualifications for their respective positions by passing a series of tests and “check rides” given before they fall in on their position. If this effort, and all the efforts towards viewing the CAOC as a weapon system, stands the test of time, the CAOC’s capability to conduct AC2ISR should only improve.

^{xvii} The effective planning effort was the result of several factors. First, the CAOC had help before they even started. The CINC, General Norman Schwarzkopf, requested a strategic planning effort from the Air Staff. This effort was headed up the Checkmate team in the Pentagon, headed up by Colonel John Warden. Colonel Warden has published several items. The two most notable are his book *The Air Campaign: Planning for Air Combat*, which was on the Air Force Operational Level of War, and his concept of the Five Strategic Rings, which is promulgated in many articles.

This team, fusing all available intelligence along with the ideas of Colonel Warden, came up with a “focused and intensive” offensive air campaign; the plan was endorsed by Schwarzkopf and sent to Riyadh with a small team in mid August (Source: Richard P. Hallion, *Storm Over Iraq: Air Power and the Gulf War* (Washington, D.C.: Smithsonian Institution Press, 1992), 143. Lieutenant General Chuck Horner, the JFACC, accepted many parts of the plan, rejected others, and assigned Brigadier General Buster Glosson the task of making the plan into an executable reality: the Air Tasking Order (ATO). Glosson formed a secretive strike planning cell eventually known as the “Black Hole,” which expanded the target list from 84 to over 400, apportioned the air effort among the services, and specified the forces and weapons to be used against them. The “Black Hole” was staffed “with many selected air power experts to ensure the plan utilized each and every appropriate air power system and capability to its best effect . . .” (Source: Hallion, 144). In fact, The author personally knows very well the one Target Intelligence Officer who was selected to serve in the Black Hole. Without a doubt, this officer is universally regarded as one of the most capable, if not the most capable, targeteer in the field. From the author’s perspective therefore, Hallion’s contention is on solid footing.

^{xviii} The primary collection platform for this effort was the Joint Surveillance Targeting Attack Radar System (JSTARS), which made great use of its Moving Target Indicator (MTI). Using the MTI in conjunction with other sensors, the JSTARS would pass on this information to the CAOC or specially equipped C-130 known as ABCCC (pronounced AB-triple C, the acronym for Airborne Command, Control, and Communications). In turn, the CAOC or ABCCC who pass this on to the airborne fighters, who scored hundreds of ground target kills; the most notable example of this coordination was the Basrah “Highway of Death,” where coalition aircraft wrought a “level of destruction from air attack rarely before seen before.” (Hallion, 234)

^{xix} Joint Chiefs of Staff, Joint Pub 1-02, *Department of Defense Dictionary of Military and Associated Terms* (Washington, DC: GPO, 23 March 1994 (as amended through 1 September 2000)), under the phrase “Time Sensitive Targets.”

^{xx} Hallion, 217.

^{xxi} Schwarzkopf bitterly complained about these shortfalls in postwar testimony to Congress. (Hallion, 234). The institutionalized intelligence process encouraged analysts to be far too meticulous (to the point of being untimely), to be far too conservative in damage estimates, and to be far too cautious in Iraqi assessments, which were overqualified to the point of being useless. (Hallion, 235). Further, dissemination of intelligence products, which were many times outstanding products, was highly cumbersome. Planners in many instances simply did not have the clearances to get them. All of these issues were related to the improper, or nonexistent, integration of ISR into CAOC operations. Without a doubt, this lack of integration hurt the quest for Scuds. Even though there were Time Sensitive Targeting successes, the Scud threat, even though disrupted, was never fully eradicated.

^{xxii} The key to this success was an integrated NATO command structure. As summarized by the Supreme Allied Commander Europe (SACEUR) at the time, General Wesley Clark, “Despite the appearance of American domination of the command chain, this was very much a NATO operation. European allies vigorously participated in targeting and strategy . . .” (Source: General Wesley Clark, *Waging Modern War: Bosnia, Kosovo, and the Future of Combat* (New York: PublicAffairs, 2001), 426). This integration extended down to the CAOC where allied planners worked side by side to put together a exceedingly

complex air plan. Because the CAOC was integrated, planners knew coalition partners strengths and weaknesses, and tasked accordingly. For example, because “few NATO allies could employ precision guided munitions in sufficient numbers (or at all), the United States conducted the preponderance of the strike sorties during the early stages of the conflict.” (Source: Department of Defense, *Kosovo/Operation ALLIED FORCE After Action Report* (Report to Congress: 31 January 2000), 25) In total however, a full 39% of the total sorties came from non-US aircraft. (*Kosovo/Operation ALLIED FORCE After Action Report*, 78). Many other specific incidents testify to how well this worked, but no more so, in the eyes of Clark, than on the first night of the war, when two U.S. aircraft and a Dutch F-16 scored air-to-air kills against Yugoslav MiG-29s. (Clark, 196).

^{xxiii} Without question, “The overall quality and level of ISR support provided during Operation Allied Force was far superior to that provided during the Gulf War.” (Source: *Kosovo/Operation ALLIED FORCE After Action Report*, 131). The two primary reasons for this improvement were the Federated Concept of Combat Assessment (See Note #23), and the extensive use of full use of real-time collection platforms available to the CAOC on demand, such as the Predator Unmanned Aerial Vehicle (UAV).

^{xxiv} For example, U.S. Strategic Command (STRATCOM) was tasked to look at petroleum, oil, and lubricants (POL) and Weapons of Mass Destruction (WMD) targets. The author saw them perform BDA in the federated concept while visiting STRATCOM for several hours one evening during the operation. At the beginning of the evening, Intelligence analysts were sitting at their terminals, preparing themselves with the details of the day’s ATO; they knew the time of the air attacks (time over target), and when the collection platform was to collect on it (normally about an hour after the strike). When one image came in, an analyst went right to work, showing the author the damage spots to the oil facility by an F-117. He wrote the report in fifteen minutes, then sent it to the appropriate parties, including CAOC Vicenza. It was an impressive display of the Federated Concept. Other commands and agencies had different tasks, with the end result being solid BDA reports delivered promptly to the CAOC. This system was “highly successful . . . It would not have been possible, however, without applied technology, innovation, and pre-planning exercises.” (Source: *Kosovo/Operation ALLIED FORCE After Action Report*, 53).

^{xxv} *Kosovo/Operation ALLIED FORCE After Action Report*, xviii.

^{xxvi} The author has personal knowledge of this problem through personal contacts, although this information does not exist in official documents. One individual, who worked in CAOC Vicenza during Operation ALLIED FORCE, told the author it took over three weeks to stand up a Strategy Cell. Others said it took fewer days, but the bottom line is that the Cell or Division did not exist until AFTER the conflict started.

^{xxvii} *Kosovo/Operation ALLIED FORCE After Action Report*, xx.

^{xxviii} Clark, 429.

^{xxix} David A. Fulghum, “Intel Emerging as Key Weapon in Afghanistan,” *Aviation Week and Space Technology* (11 March 2002), 24.

^{xxx} One such scenario might have worked out in the following way: a “signals intelligence satellite picks up a communication indicating Al Qaeda activity in some corner of Afghanistan. That SIGINT “tipper” is sent to the CAOC. Operators there look for the fastest intelligence platform--Joint-STARS, AWACS or P-3, for example--and send it to the hot spot to begin controlling the local engagement using its wide area sensors. Meanwhile, a slower Predator UAV is turned and starts taking its acute but narrow field-of-view sensors to the scene. A Joint-STARS ground surveillance radar can look over a wide area and find moving objects, for instance. So having Joint-STARS cue the Predator was very effective. The Predator shows up and relieves the manned aircraft, which moves off to the next problem. The UAV then provides precise target coordinates to an AC-130 gunship or a strike aircraft.” (Source: Fulghum, 24).

A similar type of procedure has been utilized with Special Operations Forces (SOF) on the ground. In these instances, SOF passes the precise target coordinates, gathered by GPS receiver, to the strike aircraft. Bombers have been used in this fashion, dropping Joint Direct Attack Munitions (JDAMs) on ground targets with great effects.

^{xxxi} The Course Description is as follows, obtained at the site <http://www2.acc.af.mil/afc2tig/> on 26 Apr 02: The C2WAC prepares selected Air Force officers to perform duties requiring advanced knowledge, skill, and ability in command and control processes supporting JFACC decision making at the operational level of war. It is an integral piece of the CSAF's Operational Warfighter initiative. The curriculum focuses on integration, execution and assessment of capabilities and forces, with emphasis on achieving desired effects with aerospace power. Our goal is to produce operational thinkers who comprehend the AOC weapon system and can plan, execute, assess and instruct in areas pertaining to the development and

execution of the aerospace portion of a joint force commander's campaign. The course targets officers qualified to assume supervisory level positions (cell/division chief) within an AOC and current in the CSAF's Operational Warfighter program. Graduates from this course will be qualified to fill A-prefix positions and serve as USAF advisers in employing aerospace power at the operational level of war.

^{xxxii} This is especially true of a conventional warhead, which is the equivalent of about 250 pounds of High Explosive.

^{xxxiii} The author is not making a case of Douhet style Strategic Bombing. Rather, this is recognition that American allied democracies might have a hard time with TBM strikes on their own territory. Certainly, times have changed from World War II where the German bombing of London actually increased the resolve of the British people.

^{xxxiv} Two scenarios are plausible should this happen. First, Japan could retaliate and draw the wrath of South Korea, which long remembers the Japanese brutal occupation of all of Korea from 1905-1945. Although one cannot conceive of any easing of tensions between the Koreans as a result of this strike, the United States could be ensnarled a difficult diplomatic situation, potentially diverting the attention of the CINC. The second scenario is that Japan does not strike back, but rather demands that the United States put up a shield over it. Obviously, this could divert vital air defense resources presently on the Korean peninsula, or on the way over.

^{xxxv} Project Air Force Website, located under Rand Research Brief: Operation Allied Force: Lessons for Future Coalition Operations, <http://www.rand.org/publications/RB/RB72/> accessed on 16 Mar 2002.

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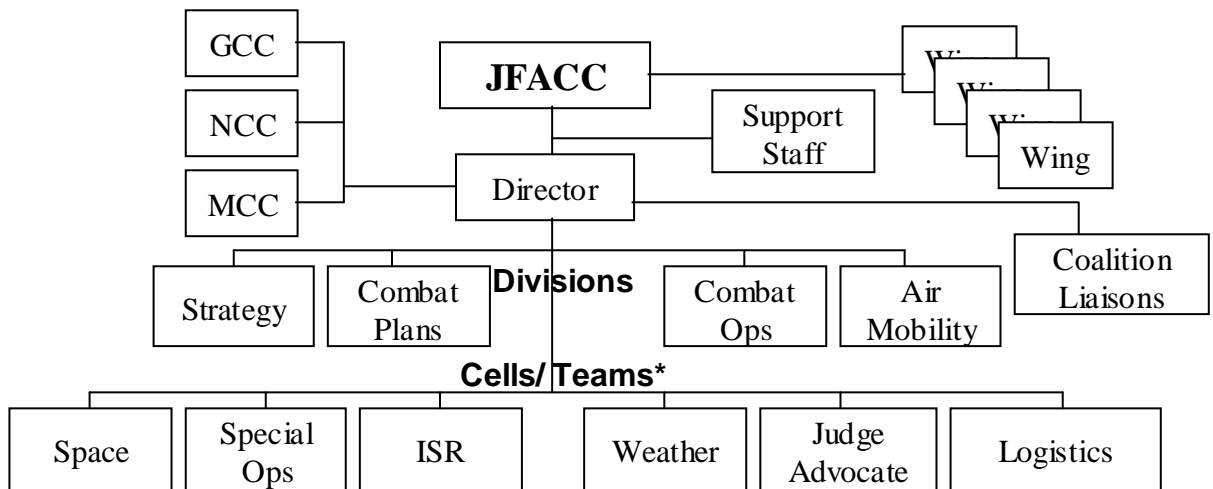


TABLE ONE: DOCTRINAL ORGANIZATIONAL STRUCTURE OF CAOC

* Cells/Teams depicted here are not all-inclusive, but rather representative

| Strategy | Combat Plans | Combat Operations | Air Mobility |
|--|--|--|--|
| Develop JFACC Air and Space Estimates | Produce for JFACC Approval the Commander's Planning Guidance Letter | Provide centralized C2 for theater air operations under JFACC | Integrate and direct execution of theater and USTRANSCOM-assigned mobility forces in AOR/JOA |
| Develop prioritized air objectives, air tasks, and measures of merit | Coordinate with all AOC divisions and liaison officers to determine ATO implementation procedures and ensure all requests for aerospace support are incorporated into the ATO. One example of this coordination is the Joint Targeting Coordination Board (JTCB) | Retarget or retask JFACC assets to respond to changes in the friendly or enemy battlespace situation | Maintain flow of theater- and USTRANSCOM-assigned air mobility in support of Joint Task Force Commander |
| Develop JFACC intent, CONOPs, constraints, and restraints | Determine enemy's present force structure, capabilities, and intentions | Monitor status of entire Theater Air Control System | Participate in Aerospace Planning and Execution Process and ensure air mobility mission is incorporated into ATO |
| Provide overall operational level assessment of air phases | Develop and maintain target lists | Monitor execution of current ATO | Monitor current threat situation, coordinate with other CAOC intelligence elements, and identify ISR requirements for air mobility mission |
| Serve as JFACC OPR for developing collection strategy | Review the results of previous air operations and ensure that new tactics or procedures are developed | Provide attack indications and warning, as well as near real-time all source intelligence | |
| Coordinate development of aerospace ROEs | Develop the ATO and Airspace Coordination Order (ACO) | Revalidate ATO targets IAW current guidance, ROE, battle damage assessments, and threat picture | |
| Serve as primary liaison with JFC and other component planners | | | |

TABLE TWO: PRIMARY DIVISION RESPONSIBILITIES

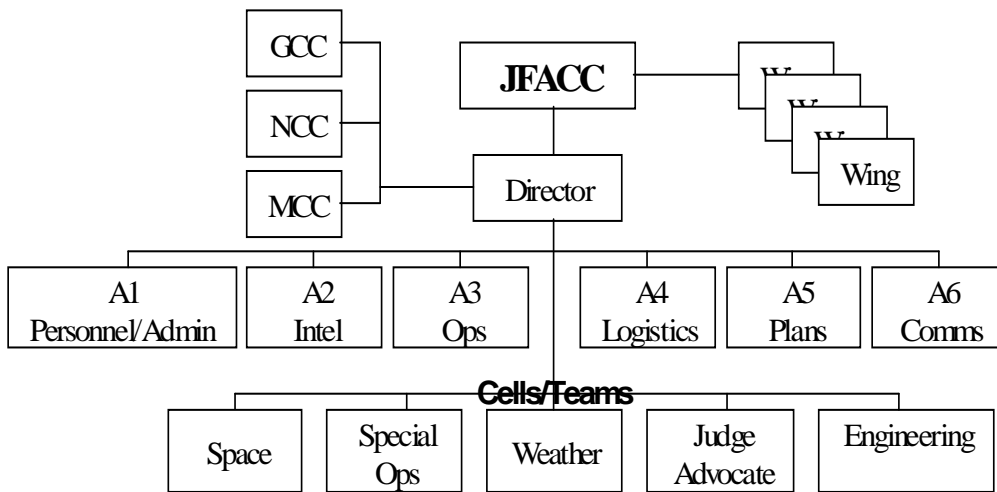


TABLE THREE: ALTERNATE ORGANIZATIONAL STRUCTURE OF CAOC

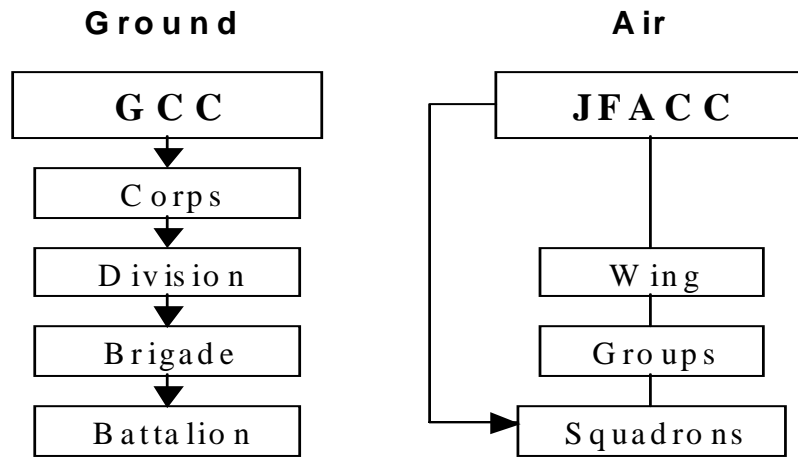


TABLE FOUR: NORMAL THEATER GROUND AND AIR TASKING

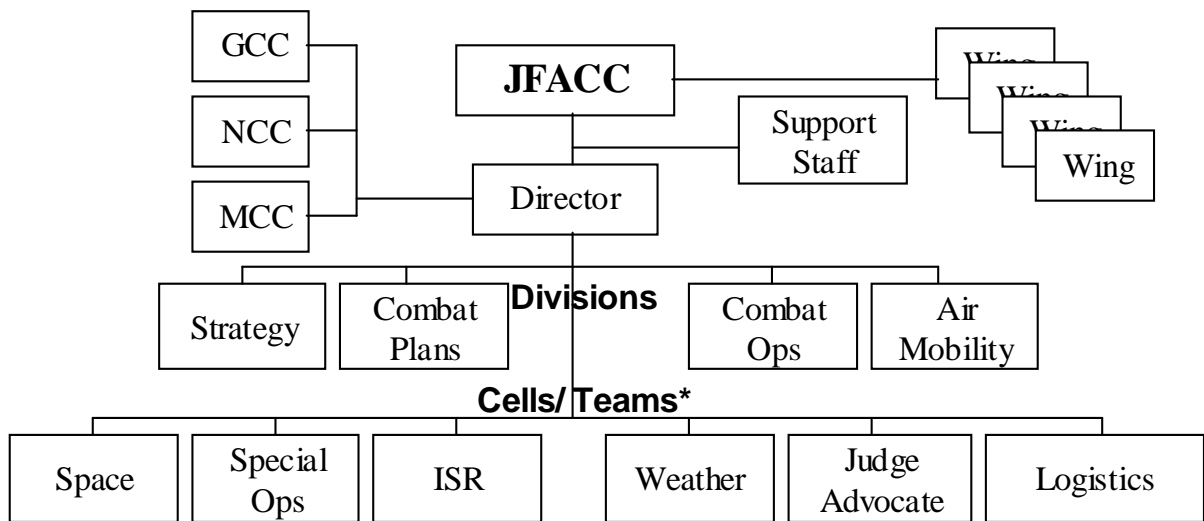


TABLE FIVE: ORGANIZATIONAL STRUCTURE PROPOSAL OF FUTURE CAOC

* Cells/Teams depicted here are not all-inclusive, but rather representative