

Unity of Control: Joint Air Operations in the Gulf

By JAMES A. WINNEFELD and
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IN THE ANNALS OF WAR few will deny Operation Desert Storm's uniqueness. It followed an uninterrupted U.S. force buildup on the Arabian peninsula that lasted five and a half months. The air resources of all services arrived quickly, and most occupied a preexisting base structure in theater that ensured land-based airpower would play the predominant role. The battlefield called Iraq and Kuwait was isolated before a bomb was dropped or a missile fired. Unlike Korea and Vietnam, the enemy had few places to hide. Communication and logistics lines were visible and readily targetable. Most important, the United States held the initiative; it would decide when, how, and where combat operations would begin and how the campaign would unfold. The officers in command were given wide latitude by political authorities over the conduct of the campaign—what targets to attack, when to hit them, and what weapons to use. In short, if the Commander in Chief, U.S. Central Command (CINCCENT), and his airmen could have started from scratch and defined circumstances ideally suited to the application of land-based airpower, they would have created a situation much like Iraq's with its army exposed to air attack in Kuwait.

Summary

Operations Desert Shield/Desert Storm demonstrated the effectiveness of modern airpower and joint air operations. The nature of those operations, and the extensive resources at the disposal of both U.S. and coalition forces, however, masked problems in command and control. Unresolved doctrinal issues and some residual controversy over roles and missions did not surface because of the abundant air assets in the theater. Accordingly, decisions about allocating resources never became contentious. The adage that one learns more from failure than from success should be applied to the Gulf War. There is still the danger that jointness may be a façade for single-service command structures and procedures, or that its influence may stop with the CINC. A cadre joint air staff that can be rapidly expanded in a contingency is one lesson of Desert Storm, an operation in which there was unity of control, but *not* command.

Excerpted from *Joint Air Operations: Pursuit of Unity in Command and Control, 1942–1991* by James A. Winnefeld and Dana J. Johnson. Copyright © 1993 by the Rand Corporation. Published by the Naval Institute Press in May 1993 [ISBN 55750 926 3].

But it is unfair at best to say that the United States should put the experience of Desert Storm aside because it was atypical. In spite of the many unique features of Desert Storm, several characteristics of the campaign are likely to be common to major contingencies in the future. First, the effective and efficient application of military force requires “empowerment” of the unified chain of command—to include joint commanders who are subordinate to the commander of the unified command. The authority delegated to the Joint Forces Air Component Commander (JFACC) made it possible to integrate the air effort. Second, the effectiveness demonstrated by joint air operations in Desert Storm will become even more important as total U.S. air resources diminish. Third, Desert Storm made it clear that airpower has developed vital new dimensions since Vietnam: stealthy strike aircraft, large-scale use of precision-guided munitions (PGM) including long-range cruise missiles, and comprehensive battlefield surveillance systems are but a few. Fourth, the air forces of the three services can be coordinated in the conduct of joint operations—if there is clearly a lead service and if each service component is demonstrably dependent on the others to provide capabilities it cannot supply, quantitatively or qualitatively. Finally, there is a place for air operations, separate from the land and naval operations, in theater contingency planning. This is not to argue that air operations are all that will be needed in most cases. But an air-only operation is an option—either as a precursor or as a stand-alone element of theater strategy. Because that option exists, air operations concepts must be integrated fully in their planning.

It is against this backdrop of unique features and broad lessons that we need to examine the air operations of Desert Storm

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and the way they were planned, organized, controlled, and executed. It was nearly a textbook application of U.S. Air Force doctrine, with the other services playing important supporting but not starring roles. The Air Force deserves great credit for bringing to the conflict a paradigm for command and strategy that was suited to the circumstances, while at the same time coordinating with the other services to achieve unity of effort and unity of control. For the first time since World War II all the engaged fixed-wing tactical air forces of the various services were under the tactical control of a single air commander.

Doctrine and Organization

Between the Vietnam War and Operation Desert Shield several developments fostered interest in joint command and control issues. The most important was the Goldwater-Nichols Department of Defense Reorganization Act of 1986. This piece of legislation gave the commanders in chief (CINCs) of unified commands and the Chairman, Joint Chiefs of Staff, major new responsibilities in resource allocation as well as national security planning and operations. Such empowerment came at the expense of the services, whose role was carefully limited to support of the unified combatant commands—to organize, train, and equip forces, but not to employ them. While these changes went far beyond joint air operations, their effect was most keenly felt in that sphere because it is where interaction among service roles and missions was the most sensitive.

Along with the subtle but important changes in mindset put into motion by Goldwater-Nichols, there was significant movement in the joint doctrinal realm. Three successive Chairmen pushed the formation of joint doctrine, culminating in the establishment of an Operational Plans and Interoperability Directorate (J-7) charged with developing the doctrinal underpinning to support truly joint operations, especially joint air operations.

But even beyond these factors, the services were gradually learning to operate together and to accept subordinate roles. The Grenada and Panama interventions as well as joint exercises—though not always involving joint air operations as defined here—built up a degree of familiarity that

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had been absent in Korea and Vietnam. Innovative commanders reached out to develop joint plans to exploit the aggregate capabilities of all the services. For instance, the late 1980s saw greatly increased coordination between commanders of the 7th Fleet and the 5th Air Force in Japan in developing joint contingency plans for Northeast Asia. Previously, each service had formulated its own contingency plan for striking theater targets.

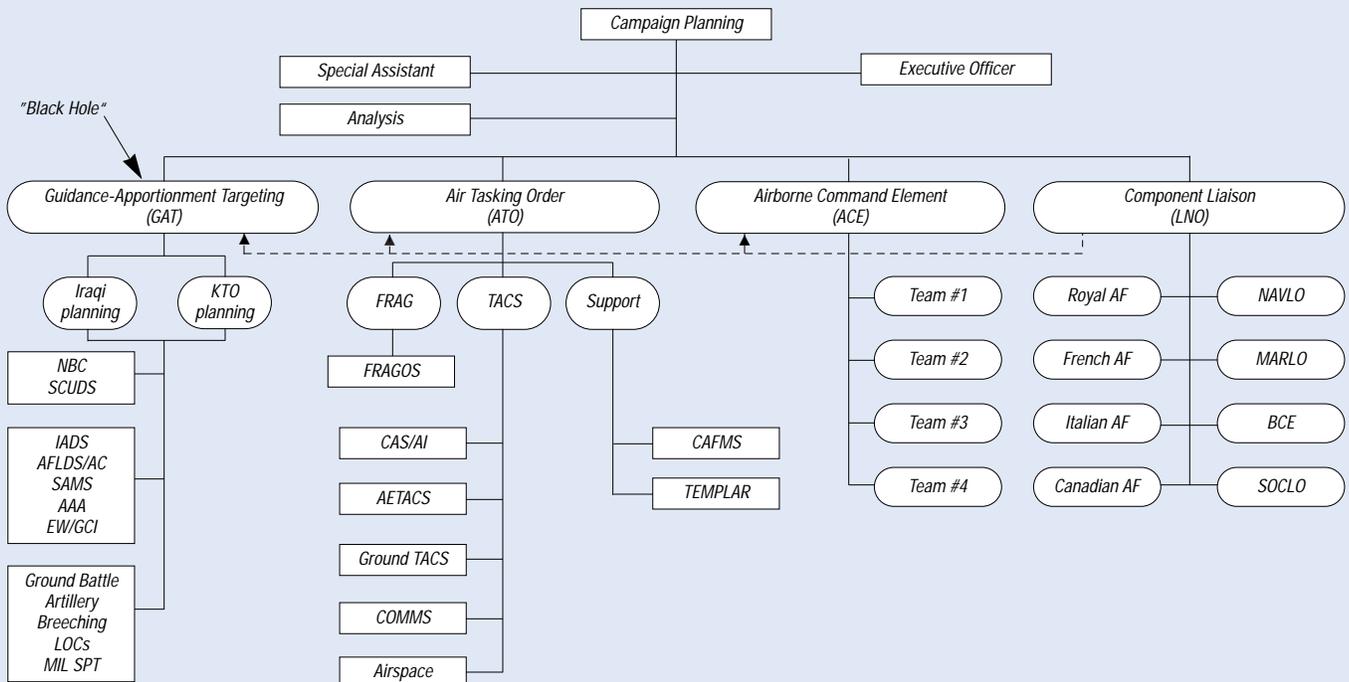
In spite of this progress, problems remained. Notwithstanding the 1986 Omnibus Agreement setting out guidelines for tactical control of Marine air forces, the Marine Corps resisted the idea that there could be circumstances in which its air assets would not be tied to the Marine Air-Ground Task Force (MAGTF) role. The Navy for its part saw itself as a full-service contingency force. Furthermore, the Air Force demand for unity of command to wage an air campaign (with much less emphasis on land and maritime campaigns) received a sour reception from the other services. The Air Force had continuing disagreements not only with the Navy and Marine Corps but with the Army over providing battlefield support to ground forces.

Both the remaining difficulties and the progress are easily overstated. The point is that the Department of Defense embarked upon Operations Desert Shield/Desert Storm with some major advantages compared to the situation that existed at the end of the Vietnam War. But some unresolved problems were masked by ambiguous compromises (for example, the Omnibus Agreement), simplistic solutions (some of the effects of Goldwater-Nichols), and an abundance of air assets (the product of the Reagan defense buildup) that allowed commanders to dodge difficult command and control issues. Desert Storm was to put both the progress that had been made and the problems that remained to a new test.

Initial Planning

Some observe that planning for Desert Shield started in August 1990. But for years the staffs of CINCCENT and his Commander of Air Forces (COMUSCENTAF) had been developing and honing plans for a massive movement of airpower to the Gulf region. While the prospective opponent and circumstances of combat shifted from time to time,

CENTAF/JFACC Operations and Planning Organization



Source: USCENTAF Combat Plans Handout, December 31, 1990.

U.S. Air Force photo by Jose Lopez, Jr.



DOD leadership during the Gulf War: (front row, from left) GEN Colin L. Powell, USA, Chairman, Joint Chiefs of Staff; Hon. Richard B. Cheney, Secretary of Defense; GEN H. Norman Schwarzkopf, USA, Commander in Chief, U.S. Central Command (CINCCENT); LTG Calvin A.H. Waller, USA, Deputy CINC-CENT; (back row from left) LtGen Walter E. Boomer, USMC, COM-USMARCENT; Lt Gen Charles A. Horner, USAF, Commander, 9th Air Force/COMUSCENTAF; LTG John J. Yeosock, USA, Commander, 3^d Army/COMUSARCENT; VADM Stanley R. Arthur, USN, Commander, 7th Fleet/COMUSNAVCENT.

a continuing feature of the plans was the key role of theater airpower. A major uncertainty was the availability of bases in theater, which was quickly resolved by mid-August. Long-standing deployment plans, revised to fit the size of the forces committed and the bases available, were executed.

Less attention had been given to force employment plans for committed air forces because so much depended on the nature of U.S. involvement: would it be defending against an invasion of Saudi Arabia, or going on the offensive against an aggressor? Because Lieutenant General Charles A. Horner, USAF, Commanding General of the 9th Air Force and COMUSCENTAF, was in the midst of deploying forward to Saudi Arabia with additional responsibilities as CINCCENT (Forward), and because an early air offensive option was needed, CINCCENT, General H. Norman Schwarzkopf, USA, asked the Vice Chief of Staff of the Air Force to develop an outline air option.

The plan, known as “Instant Thunder,” was delivered to Schwarzkopf on August 10, 1990 and tentatively approved as a planning option by him and later by the Chairman, General Colin L. Powell, USA. At the Chairman’s direction, planning for the air campaign was made a joint effort at that time, and representatives of the other services and the Joint Staff were included.

The thought process behind “Instant Thunder” called for development of a concept for the air campaign as well as some details that could be part of an operations order. It was rough, but it was intended to

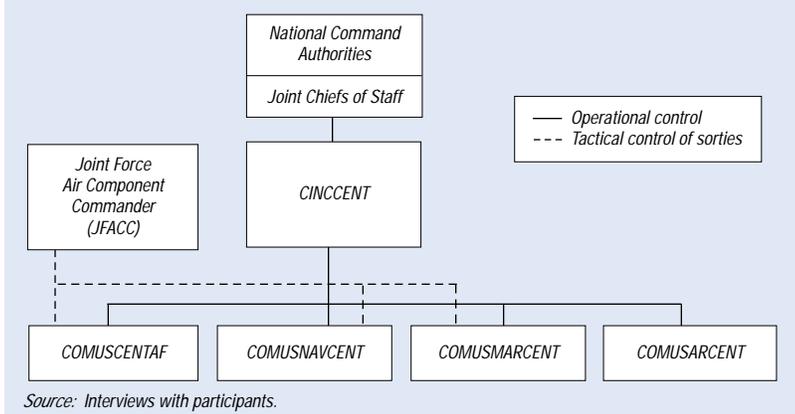
give the National Command Authorities an air option. It proposed an air offensive, not air defense or support of ground forces. In mid-August this outline plan was taken to Riyadh, and Lieutenant General Horner was briefed. At that point air operations planning shifted to Riyadh; thereafter the Joint Staff and the services played only a supporting role. The focal point of follow-on planning was the development of an Air Tasking Order (ATO) that covered the first 48 to 72 hours of air operations against Iraq and, to a lesser degree, Iraqi targets in occupied Kuwait.

Historically, the air tasking order is the means by which Air Force commanders translate campaign and attack plans into battle orders. It specifies which air forces will be used against which targets, at what time, and under what coordination and deconfliction modalities. The ATOs for Operations Desert Shield/Desert Storm were continuous and required time-consuming, meticulous staff effort to ensure that forces launched from different bases at different times (often flying through the same airspace) performed their missions and supported one another. Before Desert Shield the Air Force alone used such a document and its associated software for theater-wide operations. The other services, more accustomed to smaller operations and face-to-face coordination from a single base, used less detailed battle order documents or fragmentary orders. In Desert Storm the ATO became joint and was the master document shaping the air war.

Developing the attack plans and the ATO for the first days of the air war was an immense undertaking because of the changing priorities, target lists, and availability of air assets. The effort was directed by the JFACC and carried out by the Guidance-Apportionment-Targeting (GAT) cell on the JFACC staff. The Iraqi targeting part of the GAT was referred to as the “Black Hole” because access to it was so limited. While manned mainly by Air Force officers, liaison officers from the other services also were

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Command and Control in Operation Desert Storm



U.S. Air Force photo by Joe Coleman

Lieutenant General Charles A. Horner, USAF, USCENTAF Commander, at an airbase in the United Arab Emirates.

part of the planning effort from the very beginning.

Developing the plan for the initial phase of air operations consumed most JFACC planning time through the autumn and early winter. Meantime, in the real world of Desert Shield, daily ATOs governed overland air defense, surveillance, and quick-reaction alert operations in the theater. These too were JFACC products, developed largely by Air Force officers and supplemented by officers from the other services and coalition air forces.

Command Arrangements

The command arrangements for Operations Desert Shield/Desert Storm were simple compared to the convoluted command structure in Vietnam. The chain of command went from the National Command Authorities in Washington through the Chairman to CINCCENT. Under CINCCENT was a mix of service component commanders, a functional component commander (JFACC), and assorted other support commands. The air functional commander (COMUSCENTAF wearing his JFACC hat) was General Horner, who was responsible for “planning, coordination, allocation, and tasking based on the joint force commander’s apportionment decision.”¹ Thus, ATOs approved by the JFACC guided the actions of the relevant service component commanders. This was a manifestation of tactical control of sorties (but not service components), an authority much more encompassing and rigorous than the “coordination control” that defined interservice relationships during the Korean War and

the “mission direction” supposedly operative in Vietnam.

The wording of the 1986 Omnibus Agreement gave the Marines an opening to bypass this arrangement, but the command relationships were now clearer and more binding. The room for exceptions had been narrowed, and there were fewer incentives to exploit those exceptions. The Navy played by the new rules, in part because it was dependent on Air Force tanker and Airborne Warning and Control System (AWACS) support and in part because it had to work through the system to hit targets it considered important.

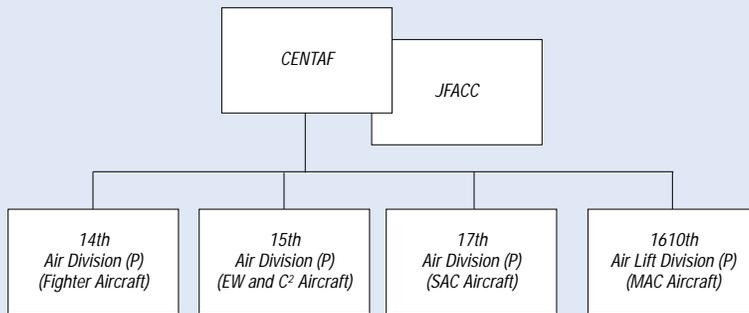
JFACC and ATO: Engines of Jointness

By centralizing planning and decision-making the JFACC forced a greater degree of coordination of joint air operations than was possible under the more laissez-faire command environment of Korea and Vietnam. If a service component wanted tanker support or air defense suppression, if it wanted to avoid having its aircraft endangered by friendly fire, if it wanted certain targets hit, and if it wanted to be a player in the air attack plan, then it had to participate in the functions of JFACC headquarters as well as fly the air attack plan as set out incrementally in the daily ATOs. As coordinating practices developed, the services oriented their efforts toward shaping the ATO and negotiating exceptions to this coverage. They could do that only by participating in the JFACC planning and order-writing process in Riyadh.

The ATO became a “bible”—transmitted electronically to Air Force and Marine Corps headquarters and delivered by naval aircraft to carriers at sea. This is not to say that service special interests did not attempt to work around the JFACC and ATO; but such attempts became an exception, and the game was played by tacitly approved rules.² The JFACC and ATO were flexible in many dimensions, and the special needs of specific operators were for the most part accommodated.

But in one important respect the ATO was not flexible: it took 48 hours to build an air tasking order for any given flying day. While one day’s ATO was being executed another two were in preparation, and two or three more were being sketched out conceptually in the strike planning cell. Changes

CENTAF Command Relationships



Source: U.S. Department of Defense, "Conduct of the Persian Gulf Conflict: Final Report to the Congress" (Washington: Government Printing Office, April 1992), p. K-12.

where joint doctrine was lacking, Air Force doctrine and organizational practices were used by default if not preference

could be made in execution, but it was awkward and occasionally risky if communications problems or other mishaps occurred. The ATO was particularly suited for use against a hunkered-down enemy who had lost initiative. But in a rapidly changing situation, or when there were delays in bomb damage assessment, execution problems could and did occur. The ATO meshed well with the Air Force command paradigm of centralized control—but not with Navy and Marine practices of decentralized control and mission vice tasking orders.

An ATO covering an entire theater of operations was large and unwieldy. In containing all the needed information for all operators, it necessarily provided a great deal of extraneous information for any particular operator. Fast access and an ability to manipulate ATO data into more usable formats required special software and systems support that the Navy and Marines lacked. The Air Force had a cumbersome but useful Computer-Assisted Force Management System (CAFMS) that could easily pick out data from the ATO and display it to fit the needs of different echelons. Moreover, it provided an interactive capability that Air Force users found helpful.

The Air Force

Desert Storm vindicated the Air Force doctrine of unity of theater air coordination and control and, up to a point, its strategic concept of air operations separate from ground operations. Circumstances of geogra-

phy, base infrastructure, and the type of enemy worked to the Air Force advantage, allowing use of its state-of-the-art weapons against an ideal opponent in a nearly ideal scenario. One need not dwell on the unique nature of the Gulf War to observe that the Air Force was well prepared in its strategic concept, doctrine, and hardware. The Air Force command and control system became the theater command and control system, and other services had to adjust to match it. A single air commander was designated; that position was filled by an Air Force officer who was in close proximity to the CINC. Moreover, there was little evidence that the CINC became involved in JFACC decisions other than those related to apportionment. However, as the ground campaign approached, the CINC did insist on establishing a Joint Targeting Board to ensure that the needs of all service components were more fully addressed.

JFACC was at its core an Air Force Staff. It was joint (or "purple suited") only to the extent that liaison officers from other services and the coalition air forces were temporarily assigned to it. The old USCENTAF (9th Air Force) staff was expanded with personnel from commands all over the Air Force. Where joint doctrine was lacking, Air Force doctrine and organizational practices were used by default if not preference.

The Air Force was equally well supported in hardware and weapons. It had virtually the only stealth, theater air-to-air refueling, state-of-the-art battlefield air surveillance, and deep penetrator bomb capabilities in theater. It also had adequate fighter aircraft. But it did not have enough tankers to support both itself and the other services, or enough Suppression of Enemy Air Defenses (SEAD), reconnaissance, and PGM designator and delivery aircraft.

The Navy

Before Iraq invaded Kuwait in August 1990, both Navy and Marine Corps forces were considered ideally suited to missions in the Persian/Arabian Gulf region because of the problematic status of base access. Moreover, a carrier battle group was rarely far from the Gulf, four to six surface escorts were usually in the region or in adjacent waters, and

there was equipment for a full Marine expeditionary brigade aboard a maritime prepositioning squadron moored at Diego Garcia.

Naval plans were oriented around two general scenarios: defense of shipping and maintenance of access to the Gulf (such as in Operation Earnest Will, the escort of re-flagged Kuwaiti tankers in 1987), and support of a less likely air-land campaign. In the late 1970s and early 1980s, the United States feared an incursion by Soviet or Soviet client forces; in the late 1980s the principal threat became Iran's (and later Iraq's) potential for causing trouble locally. In the larger conflict scenarios the Navy and Marine Corps might arrive first, but regional geography and the size of the requisite U.S. force argued for a primary Army-Air Force role.

In August 1990 the larger scenario occurred; bases were made available, and a massive, across-the-board U.S. military buildup began. The Navy's short-duration contingency operations paradigm could not prepare it for a new role as part of a large air-ground campaign. As the buildup continued successive battle groups arrived and found themselves plugged into a planning and tasking system and a command structure in which they had little experience—but some degree of suspicion. The connection to the JFACC and ATO system was not a perfect fit. There were setbacks as the Navy's new role as a team player, not team captain, evolved and was gradually accepted.

The key officer was the COMUSNAVCENT representative in Riyadh (in effect the

ashore deputy COMUSNAVCENT, who remained afloat). It was this officer and not the commander at sea who coordinated daily with the CINCCENT staff and the JFACC. During initial operations the coordination of naval air operations with theater air operations flowed from the JFACC through the Navy Staff in Riyadh to the commander afloat and then to the Red Sea and Arabian Gulf battle force commanders, the individual battle groups, and finally the carrier air wing commanders. This arrangement was too unwieldy for timely coordination, so a streamlined chain evolved in which the Navy staff in Riyadh worked directly with the commanders afloat, often with the strike cells on individual carriers. In effect, the commander at Riyadh and his officers at JFACC became COMUSNAVCENT's strike coordinators.

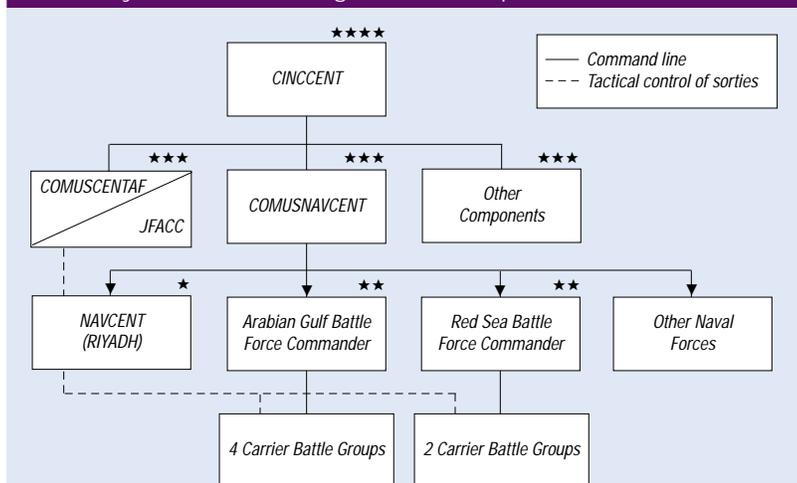
Consideration was given to moving the commander afloat to Riyadh so he could discharge his responsibilities as naval component commander more effectively and meet daily with the CINC and other component commanders. But powerful institutional voices within the Navy argued that operational command of the fleet must be exercised by an afloat commander, and that those responsibilities were more important than daily contact with the CINC and the other component commanders, including the JFACC. There was only one Navy flag officer in Riyadh aside from the one attached to the staff of CINCCENT, while there were as many as ten afloat. COMUSNAVCENT, Riyadh, was the junior battle group commander and (except from August to November 1990) a surface warfare officer.

The Navy experienced a series of operational deficiencies during Desert Storm. Some were the result of policy and program decisions made outside the Navy, but others stemmed from service priorities and implicit doctrine:

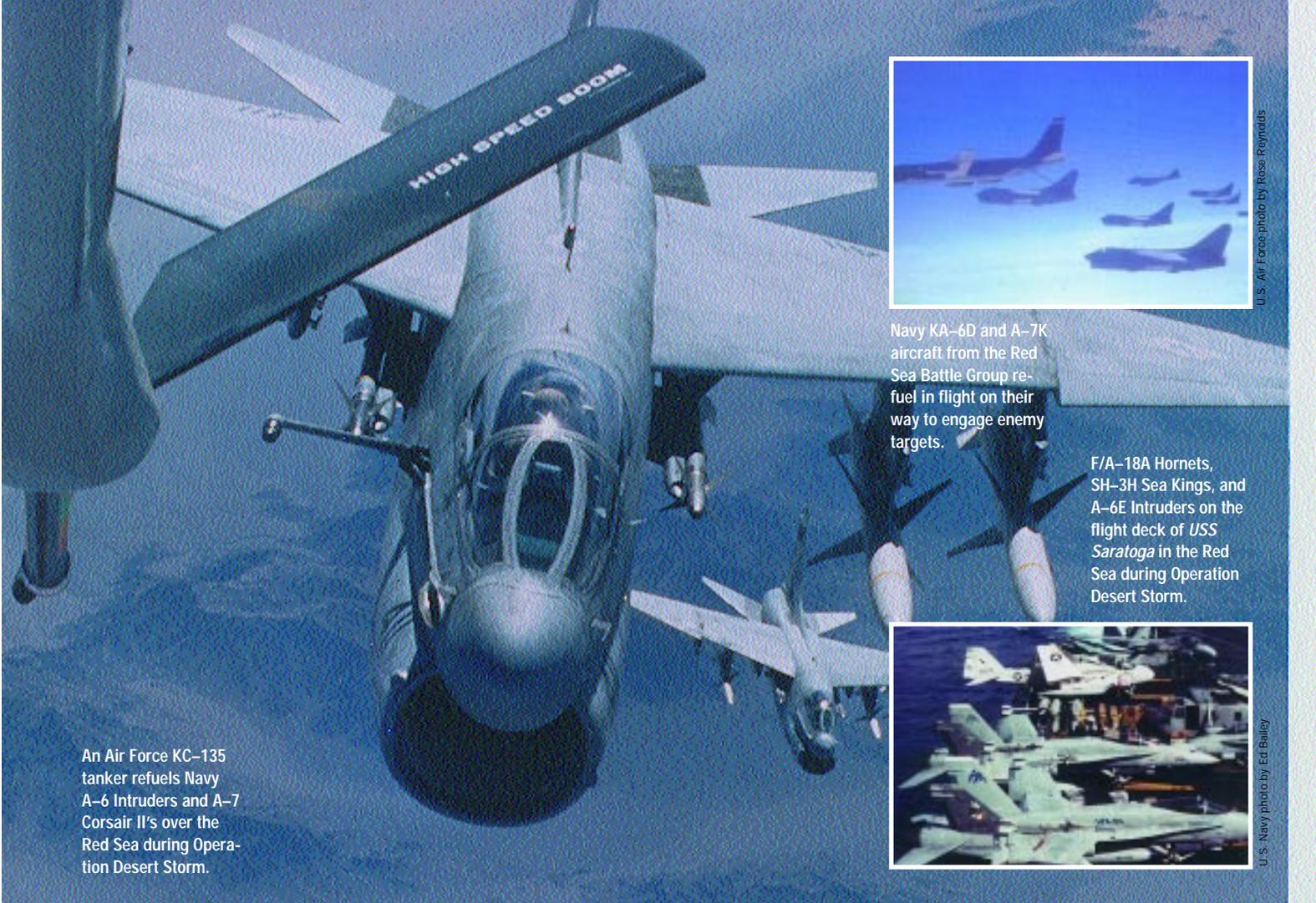
- ▼ Initial reluctance to deploy carrier battle groups in the narrow and shallow Arabian Gulf. The result was delay and difficulty in integrating the Gulf carriers with JFACC-controlled operations.

- ▼ Heavy reliance on Air Force tankers for strikes because the carriers were initially far from most targets. This denied the Navy the independent role it had grown accustomed to and became a basis for conflict with the JFACC when theater tanker assets were in short supply.

U.S. Navy Command Arrangements for Operation Desert Storm



Source: U.S. Department of Defense, "Conduct of the Persian Gulf Conflict: Final Report to the Congress" (Washington: Government Printing Office, April 1992), p. K-15.



An Air Force KC-135 tanker refuels Navy A-6 Intruders and A-7 Corsair II's over the Red Sea during Operation Desert Storm.

Navy KA-6D and A-7K aircraft from the Red Sea Battle Group refuel in flight on their way to engage enemy targets.

F/A-18A Hornets, SH-3H Sea Kings, and A-6E Intruders on the flight deck of USS Saratoga in the Red Sea during Operation Desert Storm.

U.S. Air Force photo by Rose Reynolds

U.S. Navy photo by Ed Bailey

U.S. Air Force photo by Chris Putman

▼ Inadequate target identification systems on Navy fighters. In the dense air traffic environment of Desert Storm, the rules of engagement were designed to require dual phenomenological identification of air contacts before engaging. Air Force fighters designed for the similarly restrictive environment of Central Europe had the necessary equipment; Navy fighters designed and equipped for the less crowded outer air battle in defense of the fleet did not and could not be used in some critical Combat Air Patrol (CAP) stations.

▼ A bottom-up strike planning system more attuned to short-term contingency operations than to massive, continuous strike operations. Fragmented Navy strike planning worked in single carrier operations and deliberately planned strikes, but in Desert Storm it caused initial difficulty in integrating Navy flight operations with other service and coalition forces.³

▼ A shortage (shared with the other services) of laser designator platforms and laser-guided bombs. The only designator platform was the venerable A-6. Many other aircraft could drop laser-guided bombs, but few could guide them.⁴ Moreover, the Navy lacked the equivalent of the Air Force's deep penetrator bomb (the laser-guided

I-2000). For this reason, Navy aircraft were not suitable for some important strike missions.

Balanced against these shortcomings were some Navy advantages:

▼ The land-attack Tomahawk missile was not only extremely accurate, but could be used in daylight and bad weather against strongly defended targets. The Air Force's stealth F-117s operated at night, but the only way to keep key targets under attack the rest of the time without putting aircrews at risk was to use Tomahawk missiles. There were no comparable standoff weapons in JFACC's arsenal.

▼ The Navy's high-speed radiation missile (HARM)-shooter team put real teeth into the SEAD mission. For many, Navy F/A-18s, A-6s, and EA-6s with HARM were the preferred SEAD package in theater. Navy (and Marine) resources were used to make up for Air Force and coalition SEAD deficiencies, thus putting a high premium on pre-strike planning and coordination of tactics.

▼ The Red Sea carriers provided useful strike capability in spite of the long distance to most targets and demonstrated again the complementary nature of land and sea-based air operations under competent joint command and control arrangements.

The Marine Corps

The Marines were early arrivals in Desert Shield. Advanced elements of the 1st Marine Expeditionary Force and the 7th Marine Expeditionary Brigade arrived in Saudi Arabia on August 14, 1990. Ships from Maritime Prepositioned Squadron Two began unloading equipment the next day. But Marine air units were slow to appear—the first fighter squadrons arrived on August 22—because of a shortage of Air Force tanker support for the transit.⁵ From the start the Marines were tasked with defending the Gulf coast of Saudi Arabia. Ultimately, their position was translated into an offensive posture intended to retake the coastal route to Kuwait City. Marine air bases were quickly established at Sheikh Isa (Bahrain) and King Abdul Aziz (near Al Jubyal). Some Marine AV-8B Harriers were kept afloat on amphibious units to fly missions against Iraqi forces in Kuwait and to provide air support for Marine Corps ground units.

Since Vietnam, Marine fixed-wing tactical air units had been completely reequipped. F/A-18s and AV-8Bs had replaced F-4s and A-4s, and only a few A-6s remained in the inventory. Senior Marine aviators still remembered Vietnam, including what they perceived as an Air Force attempt to gain control of Marine air at the expense of the MAGTF concept. As the Marines saw it, they had responsibility for a specified area in the vicinity of their ground forces. Within that area it was the commander of the MAGTF, not JFACC, who determined missions and priorities. Surplus sorties would be made available to JFACC. The Marines saw themselves as the only truly combined-arms team, integrated across air-ground lines and not across service lines in the air medium. The Air Force, on the other hand, focused on utilization of all tactical air resources in theater and remained adamant on the need for centralized allocation and tasking authority.

The series of compromises struck between the JFACC and Marine Corps commanders put their fixed-wing tactical air under the air tasking order system while the Marines retained control and tasking authority over sorties in specified zones near their ground formations. This was the old “route package” from Korea and Vietnam in all but name, but it did recognize in principle the tasking authority of the JFACC over all air operations in theater. One element of the

bargain initially allocated all Marine A-6 and half of all F/A-18 sorties to the JFACC for tasking as he saw fit, while the remainder of the F/A-18 and all the AV-8B sorties remained effectively under Marine control.

Sortie Generation Performance in Operation Desert Storm

Component	Number of sorties	Percent of total
<i>Sorties flown January 17–March 3, 1991</i>		
CENTAF	67,285	59
MARCENT	10,321	9
NAVCENT	18,007	16
Allies	18,190	16
Total	113,803	
<i>Sorties Flown February 23–27, 1991</i>		
CENTAF	8,133	54
MARCENT	1,854	12
NAVCENT	2,769	18
Allies	2,327	15
Total	15,083	

Percent of total flown during ground war: 13%

Percent of days of ground war compared to length of campaign: 11%

Source: U.S. Department of the Navy, Navy Historical Center, *Command and Control in the Vietnam War* (Washington: Government Printing Office, 1991), p. D-2. The Air Force reports a total of 109,876 sorties (all services/nations), compared to 113,803 in the corresponding Navy total. See U.S. Department of the Air Force, *Reaching Globally, Reaching Powerfully: The United States Air Force in the Gulf War* (Washington: Government Printing Office, 1991), p. 28.

The fundamental tension in this bargain was between the competing demands of a strategic air offensive under the JFACC (that is, Air Force) direction and eventual tactical air operations focused on support of ground forces (including Marines). From the start of combat air operations on January 17 to the offensive push into Kuwait and Iraq on February 24, the JFACC believed that Marine air had a role beyond preparing the battlefield for Marine ground operations. Marine commanders agreed but were concerned that when the time came to prepare the battlefield and conduct ground operations, their air units would be diverted to other tasks. It was a quarrel over apportionment and timing. Uneasy compromises were cobbled together, as they had been in Korea and Vietnam, but the fundamental doctrinal issue was not resolved.

In the course of events, the Marines did husband their sortie capabilities during early air operations before the start of the ground offensive, so that adequate air support would be available to Marines on the ground when

needed. The Marines' sortie rate nearly doubled while the ground war was in progress.

The Strategic Air Command

In prior campaigns the effective use of strategic bomber assets committed to theater operations was hampered by awkward command and control arrangements and equipment suitability problems. The simple explanation was that in Korea and Vietnam those bomber forces were organized, trained, and equipped for a global strategic mission centered on nuclear weaponry. The Air Force did

not want its strategic bombers, which had a global role, placed under the command of a regional CINC for a regional mission. While bomber forces were made available to a regional CINC in sufficiently compelling circumstances, command and control remained firmly in the hands of the strategic bomber force commander.

In the early 1980s, however, Strategic Air Command (SAC) attitudes began to change, and bombers were increasingly made available to regional commanders for exercises and conventional contingency operations. Many explanations have been offered for this change. But for whatever reason, SAC bombers were included in the planning for Desert Storm, quickly put under CINCCENT operational control, and tasked under the centralized ATO.⁶ SAC liaison officers were assigned to the JFACC, and two generations of command and control problems went away nearly overnight.

Allied Air Forces

Insofar as the number of sorties flown are concerned, allied air forces played nearly

as big a role in the Gulf War as naval air forces. The air forces of the United Kingdom (RAF), France, Italy, Canada, Saudi Arabia, Kuwait, Bahrain, the United Arab Emirates, and Qatar were involved to some degree and were important politically as an expression of international resolve.

The allied air forces were under the JFACC and air tasking order system of control. Since they lacked certain C³ and other important combat support capabilities, they were critically dependent on U.S. in-flight and mission planning aid. Of interest to this exploration of command and control issues is the fact that they represented one more layer of complexity; the JFACC tried to broker various national interests and develop ATOs that fulfilled both his responsibilities and those external requirements.

Air Operations

U.S. and coalition air operations were the most massive and intensive since World War II. Sorties were flown from nearly three dozen airfields, six aircraft carriers, and several amphibious force ships. Major artillery and missile barrages were launched from across the battlefield and warships at sea. The most intricate aspects of coordination of operations were:

- ▼ Deconflicting forces using the same airspace or hitting the same targets while protecting them from friendly fire and preventing misidentification of friend and foe.
- ▼ Maintaining airpower flexibility and ensuring efficiency and effectiveness in the absence of timely bomb damage assessment.
- ▼ Allocating tanker support for thousands of tactical fighter sorties each day.
- ▼ Providing SEAD support to strike aircraft from a variety of air forces and operated by personnel from dissimilar operational and doctrinal backgrounds.

These challenges were all met successfully, though not without great difficulty and the occasional mistake. The careful planning facilitated by the long buildup and centralized control provided the basis of this success. The "short poles" in the operations tent were tankers and SEAD aircraft, not tactical fighter aircraft. These shortages prevented service components and coalition partners from opting out of some command and control problems; full participation in effective air operations required coordination.

U.S. and coalition air operations were the most massive and intensive since World War II

B-52 bomber taxis for takeoff.



Once Desert Storm began, the major difficulties in planning and operations concerned locating and destroying Iraqi Scud missiles, allocating tankers, and making decisions about time and level of effort in the transition from strategic air operations to preparation of the battlefield in the Kuwaiti theater. The Scuds may not have posed a significant military threat, but their political implications forced the diversion of sizable amounts of the air effort and the attention of senior air commanders.

Some Navy and Marine officers complained of inadequate support and a JFACC bias toward supporting Air Force units. But their quarrel was more with the ground rules for tanker allocation than application of those rules. The Air Force staff officers who dominated the JFACC staff maintained that their overriding goal was to increase the number of quality weapons on Iraqi targets regardless of which service provided the strike aircraft. Because of geography, Navy aircraft required more inorganic tanker support than Air Force aircraft per ton of ordnance on target.

As the air war progressed Army and Marine commanders became concerned that insufficient attention was being paid to shaping and preparing the battlefield for ground operations. Strategic targets (such as command and control, lines of communication, and airfields) were being hit, but in their view enemy ground forces in the field were neglected in targeting. This restiveness resulted in the formation of a Joint Targeting Board under the deputy CINC.

The job of this board was to play a more active role in advising on air apportionment decisions and in targeting Iraqi forces of interest to U.S. ground commanders. This alleged interference nettled Air Force officers, who believed they had sufficient information and staff support from all involved services to arrive at apportionment and targeting decisions. Despite these conflicting viewpoints,

the results were satisfactory. By mid-February ground targets in Kuwait and southern Iraq were a major focus of the overall air effort. By February 24 and the start of the theater ground operations, Iraqi ground forces had been fixed and pounded to the point of being largely neutralized. Few ground commanders in history have been better served by their air brethren.

Unity of Command

Desert Storm featured two important elements of unity of command: a single joint force air commander and a single air tasking order that conveyed his instructions. The JFACC exercised tactical control of sorties in that he provided "detailed and, usually, local direction and control of movements and maneuvers necessary to accomplish missions or tasks assigned." Historically, this type of control, combined with the requisite authority, was largely absent in Korea and Vietnam, but COMAIRSOLS (the senior aviator in command of the air units in the Solomons) certainly exercised it from 1942 to 1944.

But there is an important distinction between tactical control and command authority. The JFACC did not command forces; he controlled their sorties when unity of effort was required and set conditions under which sorties were flown in his operating area. Navy, Marine, and some coalition air forces helped shape the ATO by designating the sorties that would be made available for tasking. And they did not always fly the ATO. Individual commanders and flight crews from the services free-lanced when the ATO did not match conditions.

While in some ways this sounds suspiciously like coordination control and mission direction, there were subtle differences. There was a joint force air commander from the start, and he had the authority that his Air Force counterparts in Korea and Vietnam had wanted. There was a focal point for air planning and employment decisions that was neither a committee nor a voluntary organization. Commanders who operated outside the JFACC/ATO umbrella did so with great care and only when they could justify their decisions. Centralized control and decentralized execution became the norm, and free-lancing the exception.

An Air Operations Chronology

August 2, 1990: Iraq invades Kuwait.

August 6, 1990: *The Independence* arrives in the Gulf of Oman, the first in an eventual buildup of six carrier battle groups.

August 7, 1990: U.S. forces begin to arrive in Saudi Arabia including Air Force tactical fighter aircraft, the first of ten fighter wings deployed to the region.

August 14, 1990: The 7th Marine Expeditionary Brigade arrives in Saudi Arabia.

August 22, 1990: The first Marine Corps tactical fighter aircraft arrive in Bahrain.

Late October and early November 1990: Massive air forces are brought into the region to include SAC tankers and Navy SLCM-shooters which marked the transition from the defense of Saudi Arabia to an offensive strategy for the liberation of Kuwait.

January 17, 1991: Combat air operations start with the targeting of enemy centers of gravity, defenses, battlefield preparation, and support of ground operations. "Proven Force"—an Air Force composite wing deployed from Incirlik, Turkey—begins combat sorties against targets in northern Iraq.

February 24, 1991: Ground offensive begins after five weeks of continuous air attack.

February 28, 1991: Cease-fire declared; Iraqi forces have been destroyed or neutralized by a combination of ground- and air-delivered firepower.

But some old practices lived on. In spite of rhetoric to the contrary, the route package concept (albeit in a new form) still flourished in Desert Storm. Many Navy, Marine, and Proven Force target sets were route packages in all but name. Even the system of time-sharing target sets or “kill boxes” made a reappearance. Liaison officers between the JFACC and the various service component commanders continued to perform an essential function. A service component commander who chose not to release sorties or to fly the ATO still had an “out”; various force elements still complained about lack of support or failure to play by the rules. How can we account for these lapses or reversions and still acknowledge Operation Desert Storm a success? The answer is that despite the

few ground commanders in history have been better served by their air brethren

progress made toward achieving real jointness, the United States once again was able to buy its way out of command and control problems by the mass of its tactical air forces. It fought

“big” but not always smart.

A better measure of progress in joint air operations is whether the command arrangements and doctrine would have worked with only half the airpower. Seldom in the Gulf War did General Horner have to make the kind of decisions that COMAIRSOLS had to face daily—how to use his meager forces against a strong and active enemy. Horner’s problems were specialized, and he had time to solve them beforehand. For example, he did not have too few tankers, but rather too many fighter aircraft; he had to squeeze the large number into a small area, not spread them thinly. His problems were traffic separation and mutual support, not hard choices between missions for scarce assets (tankers and SEAD excepted). But the genius of General Horner was in gaining and exercising the minimum amount of control he needed to get the job done—and creating conditions that permitted the services to work effectively together.

In sum, Operations Desert Shield/Desert Storm were a major victory for U.S. and coalition arms. However, there remain important unresolved doctrinal issues as well as controversies over roles and missions. The abundance of resources available made it

possible to avoid some difficult apportionment and allocation decisions. Jointness often is used as a facade to cover single-service command structures and procedures. In many ways jointness still stops at the headquarters of the CINCs: they are the lowest level at which joint staffs exist in most theaters. Desert Storm points to the usefulness of cadre joint air staffs and the capacity to fill them out very rapidly.

What Desert Storm achieved was unity of control of air operations, not unity of command. Indeed, unity of control may be all that is needed. Unity of command for tactical air forces may be a needlessly abrasive and overarching term to describe what is actually meant by tactical control. We can rejoice in the progress that has been made since Vietnam in achieving a high degree of jointness in the command and control of air operations; but it is too soon to say that we have done all or even most of what needs to be done. JFQ

NOTES

¹ Joint Chiefs of Staff, “Joint Doctrine for Theater Counterair Operations,” Joint Pub 3001.2 (Washington: Government Printing Office, May 23, 1986).

² Royal N. Moore, “Marine Air: There When Needed,” *U.S. Naval Institute Proceedings*, vol. 117, no. 11 (November 1991), pp. 63–64.

³ Steven U. Ramsdell, “Trip Report” (Letter to the Director of the Naval Historical Center), May 14, 1991.

⁴ Riley D. Mixon, “Where We Must Do Better,” *U.S. Naval Institute Proceedings*, vol. 117, no. 8 (August 1991), p. 38.

⁵ Lieutenant General Walter E. Boomer, USMC, “Special Trust and Confidence among the Trailbreakers,” *U.S. Naval Institute Proceedings*, vol. 117, no. 11 (November 1991), p. 47.

⁶ U.S. Department of Defense, “Conduct of the Persian Gulf Conflict: Final Report to the Congress” (Washington: Government Printing Office, April 1992), p. K-8.