

KILLING  
AL QAEDA: THE NAVY'S ROLE



# KILLING AL QAEDA: THE NAVY'S ROLE

## EXECUTIVE SUMMARY

The terrorist attacks of September 11, 2001 confirmed expectations that future adversaries would favor "asymmetric" strategies in challenging American interests. The goal of the Al Qaeda terrorist organization and the Taliban government that sheltered it in Afghanistan was to expel western interests from the oil-rich Persian Gulf region and establish theocratic dictatorships. Operation Enduring Freedom – the Afghan military operation – was the first step in a long-term campaign to defeat terrorism and assure access to the region.

The operation posed severe military challenges. Afghanistan was located far from the sea and U.S. regional bases. None of its neighbors had close relations with America. Al Qaeda forces were dispersed in the rugged Afghan countryside, presenting few fixed or high-value targets. Afghan domestic politics were riven with ethnic frictions and factional warfare. The strategy U.S. planners developed to defeat Al Qaeda and the Taliban depended on diplomatic agility, new warfighting technologies and innovative tactics.

The Navy played a central role in the success of this strategy. A carrier battle group was on station within range of Afghanistan from the first day of hostilities, and soon was joined by three other carriers and an amphibious ready group. Through close cooperation with the U.S. and British air forces, the Navy was able to extend the range of its strike aircraft to establish continuous air presence over all parts of Afghanistan. During the first two months of the air war, carrier-based aircraft generated 80% of the sorties in the war and delivered 47% of the precision-guided munitions. Four out of five precision munitions used by the Navy hit their intended aimpoints, despite the elusive nature of many targets.

The Navy's performance in Operation Enduring Freedom validated its post-Cold War emphasis on precision, agility, jointness and networking. Its operations were carefully integrated with those of other joint forces, minimizing duplication and conflicts to assure maximum warfighting efficiency. It provided tactical intelligence, jamming, and logistics support to joint forces while receiving critical tanking and targeting information from those forces. Operation Enduring Freedom also demonstrated the warfighting advantages of flexible sea-based forces not tied to land bases.

At the same time, the operation underscored the importance of proceeding with plans to modernize aging strike and electronic aircraft, in order to bolster the range, lethality and versatility of carrier air wings. A discussion of lessons learned from Operation Enduring Freedom appears on pages 18-20 of this report. The initial draft of the report was written by Dr. Loren Thompson of the Lexington Institute staff. All members of the Naval Strike Forum had an opportunity to review and modify the final report.

Naval  
**STRIKE**  
FORUM





global terrorism

 On a sunny, late summer morning in September of 2001, three thousand innocent men, women and children were killed by agents of the Al Qaeda terrorist organization. The terrorists hijacked four widebody airliners filled with fuel for transcontinental flights, crashing three of them into the World Trade Center and Pentagon. Passengers on the fourth airliner prevented the plane from reaching its intended target in the nation's capital; that aircraft crashed in Pennsylvania.

In response to the September 11 atrocities, the United States government declared war on global terrorism. The first campaign in the war was an autumn offensive against Al Qaeda forces and the Taliban government sheltering them in Afghanistan. The campaign was highly successful, employing advanced technology, innovative tactics and skillful diplomacy to rapidly diminish terrorist capabilities. By year's end, the Taliban had been driven from power and Al Qaeda members were either dead, in prison or in hiding. Only ten U.S. military personnel were lost.

This study describes the role played by the U.S. Navy in killing Al Qaeda. It begins by assessing the unique circumstances surrounding the Afghan war, which came to be known as Operation Enduring Freedom. It then explains how the Navy adapted its technology and tactics to participate effectively in a joint campaign requiring unprecedented coordination among diverse forces. It concludes by drawing lessons about the utility of sea-based strike forces in destroying elusive adversaries such as Al Qaeda.

The study finds that naval strike forces performed surprisingly well in Operation Enduring Freedom, despite the fact that targets were located hundreds of miles from the sea. A key factor facilitating the effectiveness of naval forces was their ability to cooperate closely with Air Force and allied military units in pursuing shared objectives. This is an important benefit of efforts to transform the military into a flexible, information-age force. However, the study also finds deficiencies in the capabilities of naval strike forces that must be remedied if the successes of Operation Enduring Freedom are to be repeated against more challenging adversaries in the future.

## AN ELUSIVE FOE

Although no one foresaw the attacks of September 11, the general character of the threat posed by Al Qaeda had been anticipated by military planners for some time. Strategic forecasts such as Joint Vision 2020 repeatedly warned that future enemies would embrace "asymmetric" strategies aimed at American weaknesses, rather than trying to defeat the conventional might of the world's sole remaining superpower. Those same forecasts identified "anti-access" strategies – efforts to exclude U.S. forces – as an emerging challenge in the oil-rich region of the Persian Gulf.

Al Qaeda's behavior validated such predictions. Its goal, driven by religious fervor, was to expel U.S. interests from the region and replace pro-western governments with fundamentalist theocracies. Its tactics were asymmetric and unconventional. Its organization was decentral-

ized and elusive. Its leadership was disciplined and imaginative. Its followers were battle-hardened and deeply committed to their cause.

The U.S. military had fought unorthodox foes in the past – the Plains Indians in the late nineteenth century, Filipino insurrectionists at the turn of the century, Pancho Villa on the eve of entry into World War One, the Vietcong and Khmer Rouge in Indochina. In each of those contests, enemies sought to use surprise and deception to counter superior American resources and technology. Sometimes they succeeded.

Having defeated Soviet invaders in Afghanistan in the 1980s and then successfully attacked U.S. targets in Africa and the Middle East during the 1990s, Al Qaeda's leaders believed that a terrorist assault on the American homeland could demoralize and defeat the main obstacle to their regional pretensions. Their optimism was bolstered by the remoteness of their strongholds in Afghanistan, where they were protected by a brutal theocracy called the Taliban that shared their extreme views.



## THE STRATEGIC CHALLENGE

Using conventional measures of military strength, Al Qaeda and the Taliban did not appear to pose a major threat. They had no weapons of mass destruction, no modern air force, and no integrated air defenses. The core of their ground forces consisted of about 25,000 lightly armed soldiers, supplemented by irregular forces descended from the Arab mujaheddin who had defeated the Soviets. General Wesley Clark, the former U.S. commander in the Balkans, dismissed them as "the most incompetent adversary the United States has fought since the Barbary pirates."

But Al Qaeda was not planning to wage a conventional war, and the events of September 11 demonstrated that it could improvise weapons of mass destruction even as it sought to acquire the real thing. It had spent a decade dispersing its assets in the forbidding Afghan terrain while gradually building a global network of terrorist cells. Like the anarchists of the late 19th century, it had fanatical operatives in every western nation. Unlike the anarchists though,



mass destruction

Al Qaeda's agents had access to jetliners, cell phones, and all the other technological benefits of the information age.

As the most radical manifestation of rising Islamic fundamentalism in the Middle East, Al Qaeda and the Taliban posed a complex geopolitical challenge for the United States. About two-thirds of the world's known oil reserves are located in the Persian Gulf region, the historic heartland of Islam. U.S. policy in the region is designed to assure access to the oil by supporting pro-western governments. Al Qaeda's efforts to radicalize the Gulf States threatened U.S. influence in the region, and raised the prospect that resources essential to global prosperity might come under the control of anti-western zealots.

The U.S. response to the September 11 attacks thus had to destroy Al Qaeda and its Taliban protectors without inflaming regional resentments – resentments already activated by the U.S. military presence, support of Israel, unfavorable economic trends and repressive governments. That meant prosecuting a limited war in one of the world's most remote nations, preferably with a minimal commitment of ground forces and quick results. The utility of sea-based forces in such a campaign was immediately evident.

## TACTICAL CONCERNS

U.S. military planners had to take several special concerns into account in formulating a strategy for executing Operation Enduring Freedom. First of all, there was geography. Afghanistan was a landlocked country, with most targets of military interest located 300-700 nm from the sea. Any military assault would require U.S. forces to traverse the territory or airspace of neighboring countries, and none of the adjacent states was considered a close friend of America. Afghanistan's rough terrain, consisting mostly of mountains and deserts, was well-suited to hit-and-run guerrilla tactics – as the Soviets had discovered to their dismay in the 1980s.

A second, related, concern was that there were no military bases near Afghanistan readily available to U.S. forces. The nearest usable bases were in the Gulf states, but planes originating there had to fly circuitous routes around Iran, and few Arab governments were willing to allow use of their facilities for mounting strike operations. Non-Arab states in the region were even more reticent about the use of their bases, at least initially.

Britain owned excellent air and naval facilities on the island of Diego Garcia in the Indian Ocean, but those were over 2000 nm from likely targets in Afghanistan. It thus appeared impractical to rely on land-based tactical aircraft in carrying out strikes against Al Qaeda, given their relatively short ranges.

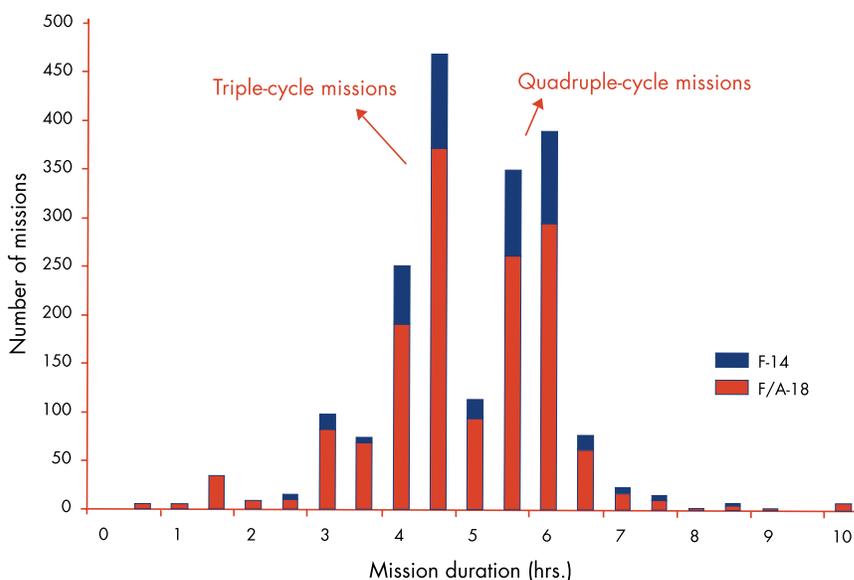
A third concern was Afghanistan's volatile internal politics. The country had a long history of tribal warfare among contending ethnic groups. Rival clans frequently shifted allegiances, but seemed incapable of uniting except against outside invaders. The Taliban



was closely aligned with one ethnic group, while its opposition was an uneasy coalition of several other groups. Afghan warriors were renowned for their fierce, even barbaric, style of warfare, but by western standards they were poorly trained and ill-equipped – hardly surprising in one of the world's most backward and war-torn nations.

A final concern was the elusive character of Al Qaeda. Its assets were scattered among numerous secret strongholds in the Afghan countryside, and its leaders moved frequently (especially after September 11). While the military formations of the Taliban were fairly easy to find and its communications readily intercepted, Al Qaeda presented a much lower profile. Intelligence concerning Al Qaeda movements often was ambiguous or highly perishable. The adjective favored by planners to describe Al Qaeda targets in Afghanistan was "fleeting."

## CVW-11 mission duration



## DEVELOPING A WAR PLAN

Faced with numerous political and logistical constraints, and a truly unconventional adversary, the U.S. Central Command developed its own asymmetric strategy for prosecuting Operation Enduring Freedom. The strategy would combine diverse elements drawn from across the spectrum of U.S. military and intelligence services into an integrated force tailored to the unique requirements of an Afghan campaign. All of the forces Centcom selected to take a leading role in the campaign – long-range bombers, sea-based strike forces, special-operations units, airborne reconnaissance – exhibited capabilities for which Al Qaeda and the Taliban had few effective counters.

Centcom's basic concept for the campaign was to establish unchallenged control of Afghan airspace and then precisely target concentrations of enemy power from the air in close coordination with indigenous opponents of the Taliban. Special forces on the ground – Army Green Berets, Navy Seals, Air Force and CIA special-warfare units – would aid the anti-Taliban

Northern Alliance in mounting an offensive while providing targeting coordinates to Air Force and Navy strike aircraft. Various overhead intelligence-gathering and reconnaissance assets would be used to track the movement of enemy units, with additional inputs from human agents on the ground.

If successful, Centcom's campaign plan would drive the Taliban from power and decapitate the Al Qaeda organization without requiring the introduction of large numbers of U.S. ground troops. But those objectives demanded numerous changes in the way U.S. forces were accustomed to operating. The Air Force and Navy would have to cooperate closely and continuously in executing their respective reconnaissance and strike missions. Time-critical intelligence would need to reach strike aircraft in record time, while efforts to simultaneously intercept and disrupt enemy communications would need to be deconflicted. Air Force pilots would have to rely on Navy special forces for target coordinates, while Navy pilots would need to rely on Air Force tankers for refueling.

That sort of seamless coordination had been discussed for years as a key feature of military transformation, but it had never been achieved in an actual war. Centcom's plan for Operation Enduring Freedom not only required that integration be sustained in a real military campaign, but under circumstances in which heterogeneous forces were fighting an unconventional adversary using technology and tactics never employed before. It was a daring plan dictated by the peculiarities of the Afghan battlespace.

## THE CAMPAIGN BEGINS

As is always the case in warfare, numerous adjustments needed to be made in Centcom's gameplan as Operation Enduring Freedom unfolded. However, the basic strategy worked, delivering victory within ten weeks after the campaign began. The quick success of the operation was due primarily to four factors: skillful diplomacy in building international support for military action; a strategy employing innovative tactics and cutting-edge technology to exploit the enemy's many weaknesses; close cooperation between air and ground elements in executing an integrated battle plan; and the networking of all military assets assigned to the campaign, which bolstered every facet of warfighting performance.

Operation Enduring Freedom was not coalition warfare in the way that Operation Desert Storm or Operation Allied Force (the Balkan air war) had been. Aside from seeking the military participation of the United Kingdom, the U.S. avoided complex command relationships that would limit its freedom to act. However, the Bush Administration did secure the diplomatic support of NATO for its actions, and many member-states expressed willingness to send forces. Equally important, the administration won support for the campaign from several of Afghanistan's neighbors, enabling it to use airspace and bases in Pakistan, Tajikistan and Uzbekistan.

The bombing of Taliban and Al Qaeda targets began on October 7, relying on long-range bombers from the Air Force's 28th Air Expeditionary Wing deployed at Diego Garcia and strike aircraft from the USS Enterprise and USS Carl Vinson. Additional munitions were delivered by Air Force fighter-bombers flying out of Kuwait and U.S. warships launching



unconventional enemy

Tomahawk cruise missiles. About 100 cruise missiles were fired at various fixed targets during the first 18 days of the campaign. The USS Kitty Hawk and USS Theodore Roosevelt arrived in the Arabian Sea later in the month. Kitty Hawk hosted special-operations units and a small force of strike aircraft, while the Roosevelt brought its full air wing to relieve that of the Enterprise.

All of the tactical aircraft required multiple refuelings per sortie, which were provided primarily by U.S. and British tankers originating in the Gulf. Daily tasking orders for air strikes were generated by planners at Prince Sultan Air Base in Saudi Arabia. Unlike in past conflicts, all of the elements in the air campaign had direct electronic access to the command center, facilitating transmission of plans. Coordination of the air war over Afghanistan was provided by E-3 Airborne Warning and Control System (AWACS) aircraft, supplemented by carrier-based E-2C Airborne Early Warning planes. Within days after the campaign began, Taliban air defenses had been destroyed and U.S. air power had unchallenged command of Afghani airspace.



## NEW TACTICS AND TECHNOLOGY

Afghanistan was a backward nation that had been at war for many years. Its devastated infrastructure and poorly-armed military provided relatively few fixed targets that were of high value. Once air defenses were suppressed, U.S. strike aircraft had to address the more challenging task of destroying Taliban and Al Qaeda forces in the field. The military had not fared well in seeking out mobile or concealed targets in previous campaigns, but Operation Enduring Freedom exploited new tactics and technology to produce impressive results.

The most important innovation was the fusion of information from a wide range of orbiting and airborne sensors collecting various forms of imagery and electronic intelligence. Among the key airborne platforms dedicated to collecting such information were the E-8 Joint Surveillance and Target Attack Radar System (an airborne radar tracking moving ground targets), the RC-135 Rivet Joint electronic eavesdropping aircraft, and the Predator and Global Hawk unmanned aerial vehicles. Additional tactical intelligence was collected by strike air-



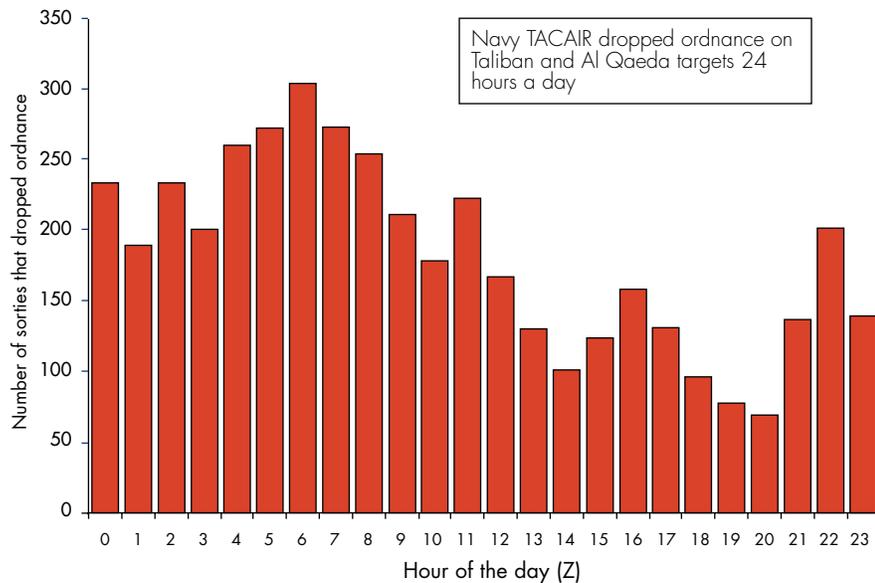
unchallenged command

craft. Because all of these assets had been internetted, time-critical data on emerging targets could be quickly analyzed and disseminated throughout the theater.

A second innovation was the close cooperation between special forces on the ground and pilots overhead. This cooperation took two forms. First, the special forces tracked enemy movements and relayed precise target coordinates or illuminated targets for strike aircraft. Second, the special forces assisted the Afghan opposition in mounting offensives that exploited weaknesses created by the bombing. The offensives often had the effect of concentrating enemy forces so that they were vulnerable to further bombing. Special forces from all of the U.S. services and the British military participated in these missions, many of them operating from the carrier Kitty Hawk.

A third innovation was the extensive use of precision-guided munitions (PGMs) in all facets of the bombing campaign. Satellite-guided and laser-guided munitions made up the majority of weapons employed in Operation Enduring Freedom, compared to only 10% in Operation Desert Storm and 30% in Operation Allied Force. The most commonly employed PGM's were laser-guided bombs and the low-cost, satellite-guided Joint Direct Attack Munition. About eighty percent of the precision munitions released by Navy strike aircraft hit their intended aimpoints, a remarkable record given the small size and fleeting nature of many targets.

## Navy TACAIR: persistent



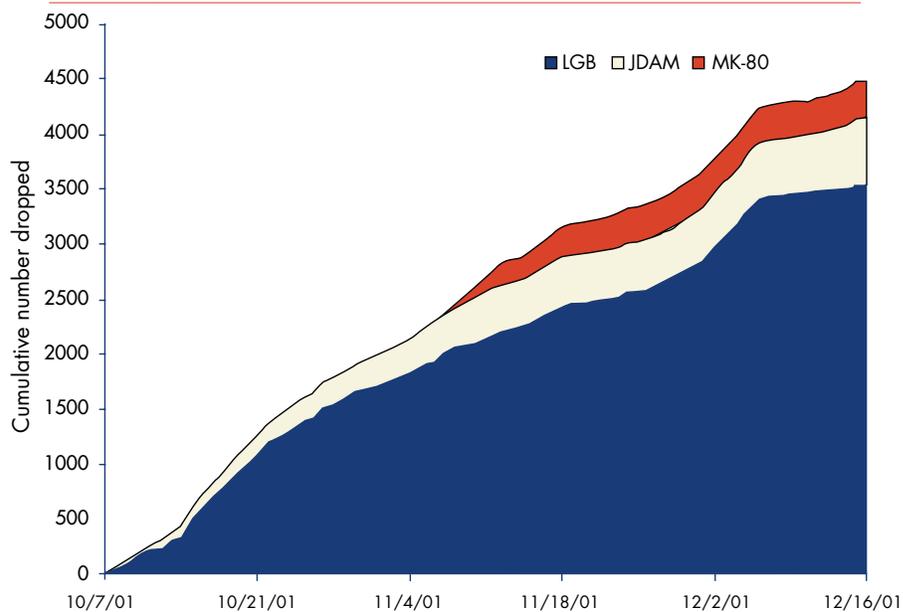
## NAVY PERFORMANCE: WARSHIPS

Five weeks after the September terrorist attacks on America, Navy Secretary Gordon England sent a letter to the Secretary of Defense commenting, "Recent events have validated the value of immediately employable, forward deployed naval expeditionary forces, where the inherent sovereignty and extended reach of maritime forces ensures that U.S. combat power forward always has immediate access to even land-locked nations." By the time

England sent that Message, four carrier battle groups and an amphibious ready group were in the Arabian Sea, launching a hundred sorties per day against targets throughout Afghanistan. Surface combatants and submarines associated with the carriers' battle groups had fired dozens of cruise missiles against air defenses, communications nodes, and other fixed targets. And over a thousand special-forces personnel were using one of the carriers as a staging base for missions against Al Qaeda and the Taliban.

The rapid buildup of naval forces was accomplished with only minor variations in the planned deployment of warships – a key benefit of the Navy's forward-deployed posture. On September 11, the USS Enterprise and its battle group were already in the Arabian Sea, preparing to depart westward as the USS Vinson's carrier battle group approached from the east to relieve them. When word of the attacks in New York and Washington were received, the Enterprise remained on station with the Vinson and their respective battle groups. On October 12, five days after Carrier Air Wing Eight on the Enterprise and Carrier Air Wing Eleven on the Vinson had begun bombing Afghanistan, they were joined by the Kitty Hawk. The Kitty Hawk had traveled over 5000 nm in eleven days from its homeport in Japan. On October 17, the USS Theodore Roosevelt and its battle group arrived on the scene, having accelerated a planned transit through the Suez Canal from the Mediterranean Sea.

## Weapon utilization



Thus, in only a few weeks the Navy had deployed over 200 aircraft and many hundreds of land-attack missiles within striking distance of Afghanistan. Naval elements were quickly integrated into the joint force, pooling intelligence and logistical support in pursuit of shared goals. The warships and air wings on the scene could have provided considerably more fire-power and support if circumstances had demanded. Enterprise was allowed to depart the theater when it became apparent the other ships were sufficient to achieve U.S. warfighting

objectives. On November 12 the carrier USS John Stennis and other warships departed California to relieve the Vinson, underscoring the Navy's capacity to continue its role in Operation Enduring Freedom indefinitely.

The surge of carriers and combatants into the Arabian Sea did more than prove the Navy's ability to compensate for a lack of land bases. It also demonstrated the versatility of sea-based forces equipped with new technology and flexible doctrine for littoral warfare. A striking reflection of this versatility was the use of the Kitty Hawk as an afloat staging platform for special forces. Most of the Kitty Hawk's air wing was left behind in Japan to make room for two dozen helicopters used by the Army's 160th Special Operations Aviation Regiment, Navy SEALs and Air Force special-operations personnel. Over a thousand special-forces personnel from various services used the Kitty Hawk – a ship that had seen service in Vietnam, Somalia and Iraq – to stage raids, obtain targeting intelligence, track enemy forces and train the Afghan opposition. Despite the demands of this unique role, the Kitty Hawk was still able to use its remaining strike aircraft to attack Taliban and Al Qaeda targets.

## NAVY PERFORMANCE: STRIKE AIRCRAFT

Operation Enduring Freedom constituted a worst-case scenario for carrier aviation, because almost all of military targets in Afghanistan were beyond the unrefueled combat radius of strike aircraft currently in the fleet. The F-14D "Bombcat" equipped with two laser-guided munitions has an unrefueled range of about 440 nm; the F/A-18C equipped with two 2000-pound JDAMs has an unrefueled range of about 375 nm. External fuel tanks can extend the range of both planes beyond 500 nm. But in Operation Enduring Freedom the average distance to targets was over 700 nm. That meant the effectiveness of naval aviation depended on aerial refueling from carrier-based S-3 tankers or land-based tankers.

To make matters worse, many of the Navy's strike aircraft are at the end of their service life, and were designed long before the service shifted to an emphasis on littoral warfare. For example, the F-14s in the Roosevelt's Carrier Air Wing One were due for replacement by the more capable F/A-18 E/F Super Hornet in 2002. The Super Hornet will provide an unrefueled combat radius of 450 nm that can be extended to 772 nm with external tanks. It will also have much greater capacity to bring back unexpended munitions. Later in the decade, the Navy will begin to replace Hornets with the stealthy Joint Strike Fighter, a plane capable of carrying two 2000-pound JDAMs to a range of over 800 nm (1080 nm with external tanks). Even with this bombload doubled, the Navy version of JSF could reach targets over 700 nm distant without external tanks.

Neither of the newer planes were available in Operation Enduring Freedom. Nonetheless, existing strike aircraft performed very well under trying circumstances. During the first two months of the air war (through December 7), carrier air delivered 47% of all precision-guided munitions used in the campaign, compared with 43% for Air Force bombers and 10% for Air Force tactical aircraft. About 25% of total bomb tonnage delivered during that same period originated from carriers, which generated 80% of sorties flown in the air war through December 7. Over 90% of munitions delivered by the Navy in Operation Enduring Freedom



precision-guided

were precision-guided. Four out of five Navy PGM's hit intended aimpoints, an unprecedented performance made even more impressive by the fleeting nature of many targets.

The ability of aging aircraft to achieve consistently devastating results reflects the success of Navy efforts to incorporate new technology into the fleet. All of the carrier-based strike aircraft in Operation Enduring Freedom were equipped to deliver precision munitions, compared with almost none in Desert Storm a decade earlier. All of the strike aircraft had communications links that enabled last-minute updates to attack plans and the sharing of tactical intelligence with other elements in the joint force. Air tasking orders reached the fleet electronically from the operations headquarters in Saudi Arabia, rather than having to be physically carried. As a result of these and other digital enhancements, the air war was a nearly seamless operation – the first true example of network-centric warfare.



## NAVY PERFORMANCE: ELECTRONIC AIRCRAFT

One consequence of waging network-centric warfare is that U.S. forces must devote considerable effort to controlling and managing the electromagnetic spectrum in contested areas. On the one hand, enemy forces must be denied access to the airwaves so they cannot operate their communications, sensors or weapons. On the other hand, U.S. forces must be able to operate continuously on many different frequencies to generate maximum warfighting advantage from their various systems. The carrier-based EA-6B Prowler is a key player in such operations, because it is the nation's only airborne jammer of enemy air defenses, required to support all elements of the joint force. It is also the Navy's main jammer of enemy communications, giving it a growing role in information warfare.

In Operation Enduring Freedom, the Prowler exhibited the same tactical flexibility shown by other sea-based forces. Initially, it played a central role in suppressing enemy air defenses, enabling the other aircraft in coalition forces to safely penetrate Afghan airspace. Once air defenses were destroyed, it shifted to jamming enemy communications on the ground, using both its dedicated communications-jamming suite and its improved radar-jamming equipment. In both roles, the Prowler's activities had to be closely coordinated with other airborne



network centric

elements so that it suppressed the most critical enemy nodes while not disrupting frequencies used for friendly communications, intelligence gathering, weapons targeting and control of unmanned aerial vehicles.

Suppressing ground communications rather than radars required Prowlers to fly unconventional flight paths. Normally, enemy air-defense radars are pointed directly at the strike aircraft Prowler is protecting, so the task of achieving optimal orientation for jamming receivers is simplified. But communications transmissions do not have that feature; they may be tightly aimed in other directions, and even when they are omnidirectional the location of the receivers that need to be jammed is often unknown. Moreover, communications jamming has to be precisely targeted to specified frequencies and transmissions so as not to interfere with intelligence gathering and other military missions. For all these reasons, Prowlers were forced to fly closer to the ground than is customary, a dangerous practice made even riskier by age-related restrictions on their maneuverability.

The carrier-based E-2C Hawkeye early-warning aircraft also played an important role in Operation Enduring Freedom, both as a surveillance aircraft and an air controller. During the early stages of the air war, there were not enough AWACS in theater to provide continuous coverage of Afghan airspace, so Hawkeye assumed that role. Once more U.S. and British AWACS arrived, Hawkeye shifted to controlling aircraft movements between carriers and the war zone. Like other Navy aircraft, Hawkeye flew missions both longer than and different than its usual roles, in some cases remaining aloft for more than five hours – the outer limit of its recommended flight time.



## NAVY PERFORMANCE: JOINTNESS

For most of its history, the Navy's ability to operate autonomously in wartime was considered a virtue. Forward deployed far from other friendly forces, the self-sufficiency of the fleet was essential to survival. In recent years, however, Navy leadership became concerned that it was too isolated – both tactically and technologically – from the rest of the military establishment. Operation Desert Storm was a wake-up call in that regard, because sea-based strike forces had difficulty receiving targeting intelligence and air tasking orders from other U.S. forces in a timely manner. Bolstering "jointness" and interoperability has been a major emphasis of Navy modernization efforts since Desert Storm.

Operation Enduring Freedom proved that these efforts are producing tangible benefits. The circumstances surrounding the Afghan air war demanded close cooperation among diverse military elements, and the Navy demonstrated that it is making the investments necessary to be a seamless participant in joint operations. Air tasking orders that once had to be physically transported from joint command centers to the fleet are now transmitted instantaneously via digital communication links. Tactical intelligence about emerging threats can be shared immediately with strike aircraft, which in turn can continuously readjust their targeting objectives. As a result, strike operations that took days to prepare in Operation Desert Storm and hours to prepare in Operation Allied Force could be mounted in minutes over Afghanistan.

There were numerous other examples of enhanced jointness and interoperability. Navy strike forces depended heavily on Air Force and allied aerial refueling to extend their reach deep into the Asian interior. Carrier-based E-2C surveillance and control aircraft meshed closely with Air Force AWACS aircraft in assuring unbroken coverage of Afghan airspace. Sea-based strike forces provided Air Force bombers with tactical targeting intelligence, while receiving the same from the sensors and ground forces of other services. Sea-based jamming aircraft shielded joint forces from enemy air defenses. And special-operations elements from all the services used the carrier Kitty Hawk as an afloat staging platform for their warfighting activities in Operation Enduring Freedom.

No military operation in American history has seen closer coordination among the military services. The resulting synergies reflect heavy investment in high-capacity communications links that make all military elements equal participants in network-centric warfare. In the case of the Navy, they also reflect a commitment by leadership to the principles of jointness and interoperability. After many generations of trying to go it alone, the Navy has learned that it needs the support of other services to achieve its full potential. And the success of Operation Enduring Freedom demonstrates the degree to which other services can benefit from the unique flexibility and responsiveness of sea-based strike forces.

## LESSONS LEARNED

Every war is unique. Operation Enduring Freedom was an especially surreal undertaking, because it required U.S. forces to dislodge a fanatical, elusive adversary that had in effect hijacked one of the world's most remote and exotic countries. It was not the sort of conflict for which the Navy has traditionally postured its forces. Moreover, the Afghan operation has been described as only the first step in a much broader campaign against global terrorism. For all these reasons, it is important not to make too much out of the Afghan experience. Nonetheless, some lessons concerning Navy participation in the conflict seem inescapable.

First of all, the flexibility of naval strike forces in responding to remote threats remains a key feature of the U.S. force structure. Even against unconventional adversaries in a landlocked country, sea-based strike forces managed to deliver nearly half of all the precision munitions expended, and the vast majority of those munitions hit their intended targets. That performance is a clear vindication of the Navy's post-Cold War emphasis on littoral warfare, network-centric operations, and jointness. The Navy of 1990 – with few precision munitions and

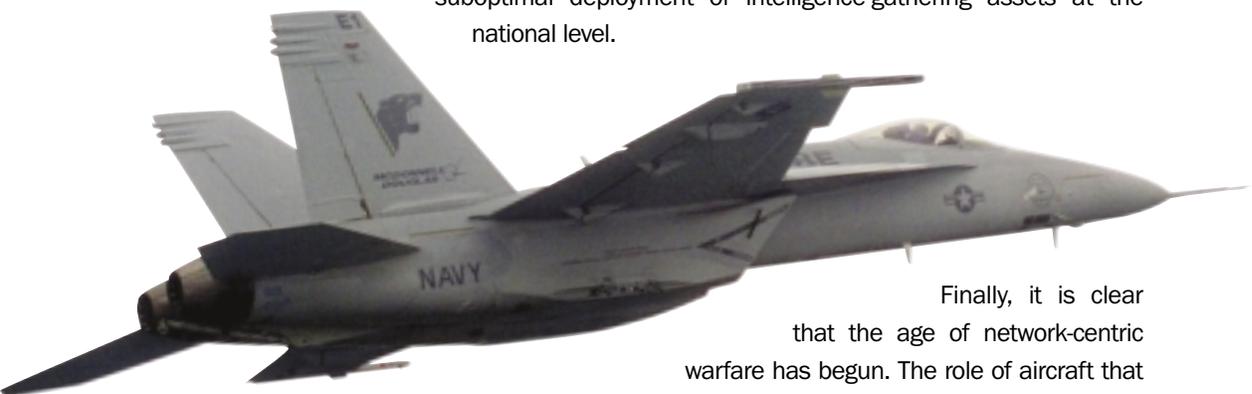


enduring freedom

barely a dozen land-attack warships – could not have accomplished even a small portion of what was achieved in Operation Enduring Freedom.

However, Operation Enduring Freedom also underscored the importance of extending the range of carrier-based strike aircraft. Navy fighter-bombers could not have reached many of the targets in Afghanistan without support from U.S. and British tankers. While most future conflicts will undoubtedly be conducted closer to the sea – where the vast preponderance of global population and commerce is found – other enemies away from the sea will emerge, and joint logistical support may not always be available. It is essential to keep plans for the longer-range F/A-18 E/F on track, and then to progress quickly to the stealthy carrier-based version of the Joint Strike Fighter. Both of these aircraft offer longer ranges, greater survivability and more flexibility than existing strike aircraft. The JSF in particular will greatly reduce requirements for aerial refueling and early introduction of the planned small diameter bombs will further enhance JSF target coverage per sortie.

One chronic problem in past campaigns that does not appear to have been fully fixed in Operation Enduring Freedom is deficient support of tactical military forces by national intelligence agencies. Although steps have been taken to facilitate rapid tactical access to overhead imagery and other forms of national intelligence, pilots participating in the Afghan air war continued to encounter inadequate data and responsiveness from national agencies. The Navy may need to accelerate its efforts to utilize the full spectrum of national intelligence, but that will not resolve problems such as cultural resistance and suboptimal deployment of intelligence-gathering assets at the national level.



Finally, it is clear that the age of network-centric warfare has begun. The role of aircraft that control, shape and exploit the electromagnetic spectrum in wartime has become critical to military success. The U.S. is fortunate that the first adversary faced in the new millennium was so backward, but future enemies will be more capable and resourceful in their use of modern technology. It therefore is important to move forward with plans to modernize the E-2C Hawkeye and EA-6B Prowler, which are core assets in carrier-based electronic and information warfare. The Navy also needs to investigate the full potential of long-range, high-endurance unmanned vehicles for accomplishing a range of electronic and intelligence-gathering missions once reserved for manned aircraft. If the Navy is to further advance its recent transformation of warfighting capabilities, it must invest in technologies that offer the greatest agility, flexibility, precision and economy against a wide spectrum of potential threats.

# Naval STRIKE FORUM

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## MEMBERS

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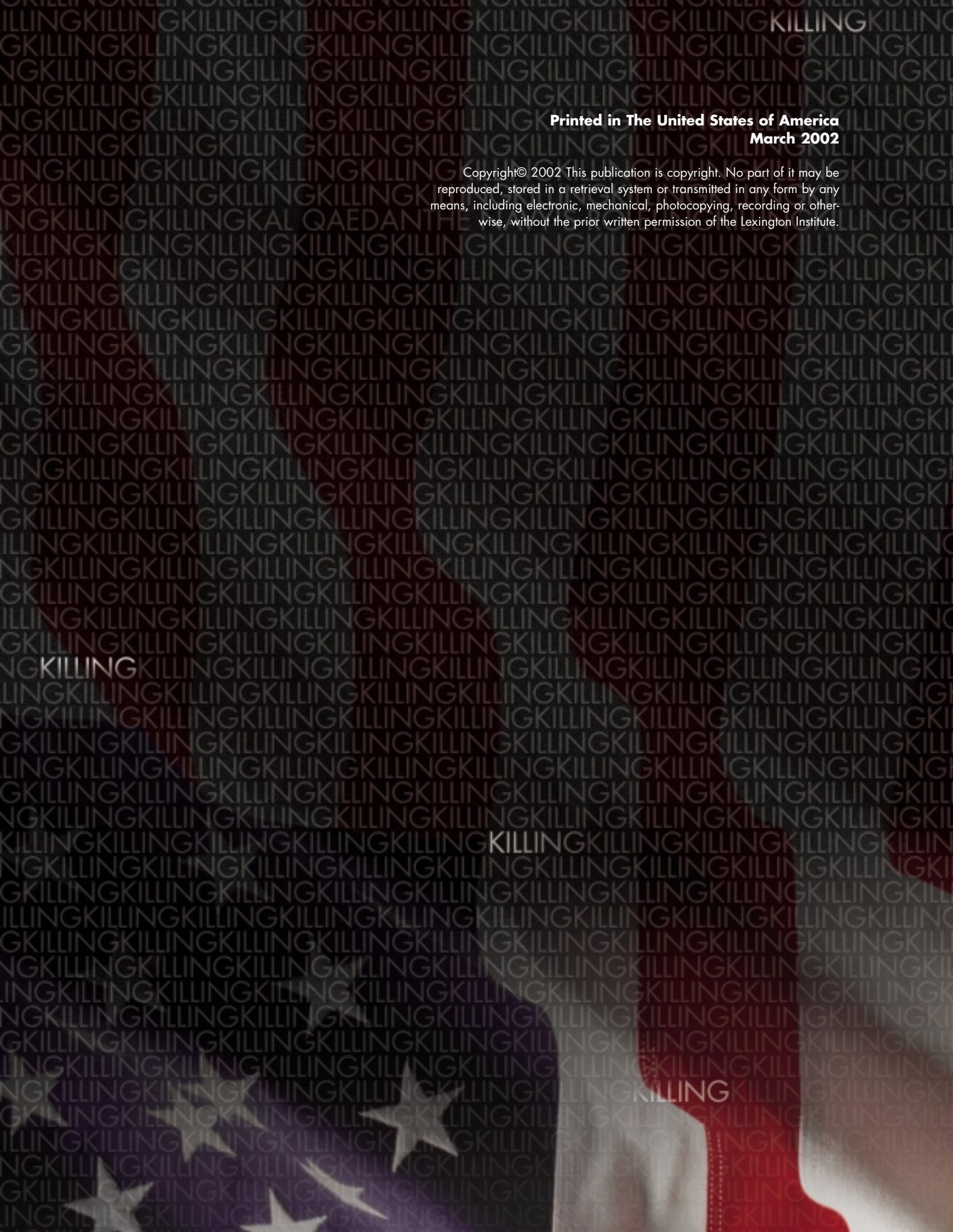
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