AIR FORCE POSTURE STATEMENT 2002

DEPARTMENT OF THE AIR FORCE
WASHINGTON, DC

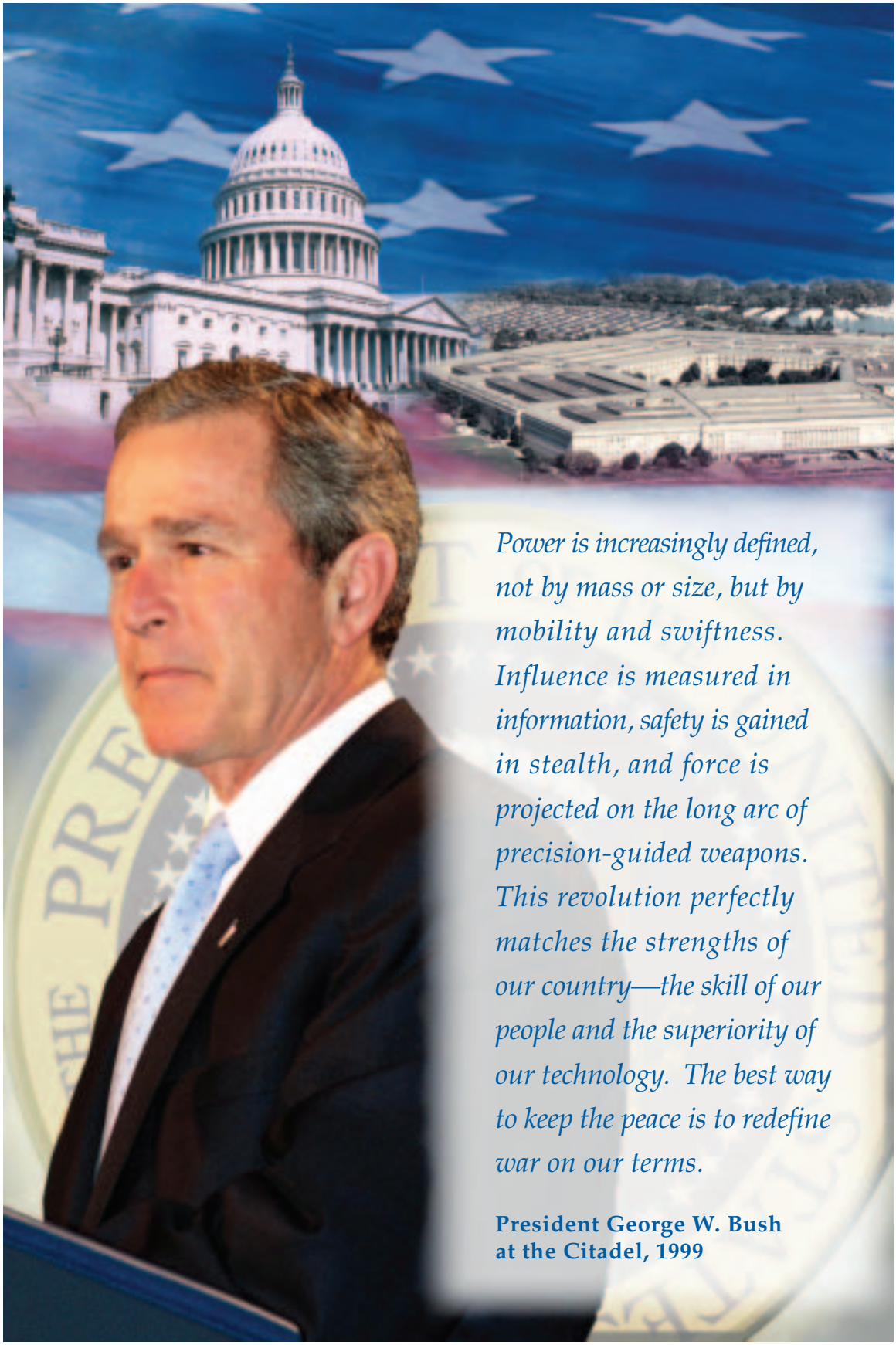
We proudly submit the 2002 Air Force Posture Statement. In this report we discuss our most notable successes, our critical challenges, our deepest concerns, and our expectations for the future. During the past year, the Air Force has had numerous opportunities to implement and validate significant changes in the conduct and strategies of war, exploit the rapid advancement of innovative technologies, and deliver global reconnaissance and strike for America's national security. Our successes are America's successes; they are the direct result of the tireless and unconditional service by men and women of the Total Air Force and their families.

We recognize much work and many opportunities to improve await us. Despite our unassailable dedication to a demanding operational pace at home and abroad—including NORTHERN WATCH, SOUTHERN WATCH, NOBLE EAGLE, and ENDURING FREEDOM—we have not faltered in our steps to continue the tasks of our unprecedented transformation. We are pressing forward to develop and refine our operational and organizational processes and strategies to address the changing national security and economic environments. We are focusing on the horizontal integration of our manned, unmanned, and space assets in order to provide real-time actionable, exploitable intelligence to commanders. We are committed to leveraging technology to combine our air and space capabilities in order to increase asymmetric advantages for our nation. And, as our transformation continues, we will support our people, revitalize the military industrial base, and seek efficiency at every turn. We are the world's preeminent Air and Space Force, remaining true to our vision by providing *Global Vigilance, Reach, and Power* across the spectrum of military and humanitarian operations for America and our allies.

We are able to perform the extraordinary feats asked of our Air Force because we are blessed with full endorsement from the American people, the Congress, and the President of the United States—all of whom provide unwavering support to our efforts and missions. We sincerely appreciate this confidence in our commitment and our capabilities to provide our great nation with superiority in air and space throughout this century.

John P. Jumper
General, USAF
Chief of Staff

James G. Roche
Secretary of the Air Force



Power is increasingly defined, not by mass or size, but by mobility and swiftness. Influence is measured in information, safety is gained in stealth, and force is projected on the long arc of precision-guided weapons. This revolution perfectly matches the strengths of our country—the skill of our people and the superiority of our technology. The best way to keep the peace is to redefine war on our terms.

President George W. Bush
at the Citadel, 1999

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PREFACE

September 11, 2001

If Americans had not fully understood the idea of "asymmetry" before September 11th, they received a horrific education on that day. In a lesson reminiscent of one 60 years earlier, air assets were employed in a malicious fashion on an unsuspecting people. This time, however, the attacks resonated a particular evil, for civil airlines were used to wreak destruction and death upon civilians.

The World Trade Center, the Pentagon and a field in Pennsylvania were the battlefields of asymmetric warfare. A terrorist group exploited the United States' asymmetrical vulnerabilities, far in excess of their relative size and the physical results of the attacks. Within minutes of these attacks, the United States, through Operations NOBLE EAGLE and ENDURING FREEDOM, was providing education on an asymmetry of its own making—the object lesson of joint and combined warfare visited on the perpetrators of the September 11 strikes. The Air Force is fully prepared to execute the missions required—with our air, space and special forces assets—to carry this global war on terrorism to its conclusion, ending as President Bush declared, "at a time and place of our choosing."

Security Forces Airman stand vigilant to protect and defend our Air Bases during Operation NOBLE EAGLE.

Operation NOBLE EAGLE (ONE)

Operation NOBLE EAGLE unofficially began three minutes after North American Aerospace Defense Command (NORAD) received word from the Federal Aviation Administration of two hijackings. F–15 Air Defense fighters from Otis Air National Guard base in Massachusetts raced toward the skies over New York. Thirty minutes later, a similar attack unfolded in D.C. Within minutes, Guard F–16s from Langley AFB were on an intercept track while other Guard F–16s headed to the skies over the Capital. Though notified too late to thwart the attacks, the jets were in place to stop any further strikes, including the aircraft that crashed in Pennsylvania.

Within hours of these attacks, the Air Force had established combat air patrols across America with air refueling support to keep them aloft, and command and control assets to direct them. By December, these sorties exceeded 8,000. Meanwhile, as the Air Force air defenses secured the skies, numerous other combat support enablers—strategic and tactical lift, civil engineers, medical teams, combat communications, command centers, chaplains, and security forces—rolled into action.

Within 24 hours, the Air Force swiftly deployed 500 medics to McGuire AFB, to respond to any Federal Emergency Management Agency (FEMA) tasking for equipment and/or personnel needed at the World Trade Center. State-of-the-art medical emergency facilities were assembled, which included four Expeditionary Medical Support packages (EMEDS) (lightweight modular systems). Critical Care Air Transportable Teams (CCATT), which provide emergency medical attention while in-flight, were quickly established at both the Pentagon and McGuire AFB. The port mortuary also was activated, with over 600 Air Force Active duty, Guard and Reserve personnel deploying to Dover AFB. They

assisted in the identification and preparation of the remains of the Pentagon attack victims, working alongside the Armed Forces Medical Examiner, FBI, Army and Navy personnel. Critical Stress Management Teams conducted counseling to personnel assigned to recovery efforts at both locations. Finally, since the National Disaster Medical System was activated, the Air Force Medical Service (AFMS) also set up its aeromedical evacuation assets at both McGuire AFB and Andrews AFB.

Meanwhile, demonstrating their invaluable integration in the Total Force, Air Force Reserve and Air National Guard airlift crews were among the first to bring in critical supplies, equipment and personnel, including emergency response teams from FEMA, FBI assets, fire trucks, search dogs, and earth moving equipment. In addition, over 70 personnel arrived from Andrews AFB to help coordinate emergency medicine at the Pentagon alongside the Surgeon General of the Air Force. At the time of this writing, more than 10,000 Air Force Reservists and over 20,000 Air National Guard members have been mobilized, and many more continue to provide daily support as volunteers. Thousands of Air National Guardsmen, Reservists, civilians, contractors, and Active duty members are ensuring air and space security over America.

Operation ENDURING FREEDOM (OEF)

When the President decided on the appropriate course of action, air and space forces were called into action. At the outset, Air Force bombers proved instrumental to putting weapons on targets in Afghanistan. The vast mobility capabilities of the Air Force quickly moved assets into the theater, while simultaneously making possible Navy and Air Force fighter attacks.

ENDURING FREEDOM also revealed an improvement from even the most recent operations. Air and space precision assets forward and have found operational successes in advanced employment of Unmanned Aerial Vehicles (UAVs).

This operation is about creating effects—deterrence and defeat of terrorism—so it is more than simply munitions-on-targets. The Air Force is at the forefront of psychological campaigns, applying robust information warfare campaigns while also leading the humanitarian relief mission—essential to any long-term stability in the region. Airdropping millions of rations to a

An H–53J Pave Low III helicopter machine gunner mans his mini gun as he searches for threats while his aircraft refuels during a mission in support of Operation ENDURING FREEDOM. The Pave Low's mission is low-level, long-range, undetected penetration into hostile areas. It can accomplish this mission during the day or night or in adverse weather.

U.S. Navy Seabees provide perimeter security for a C–17A Globemaster III aircraft at an operating location in support of Operation ENDURING FREEDOM. C–17 aircrews airlanded and infilled the Seabees, making it the first ever successful strategic airlift operation by a C–17 aircraft into an undeveloped dirt landing strip.

AC–130 gunships have received new capabilities that have made them even more effective at close air support, air interdiction and force protection. Missions in close air support are troops in contact, convoy escort and urban operations. Air interdiction missions are conducted against preplanned targets or targets of opportunity. Force protection missions include air base defense and facilities defense.

"Let's Roll!"

As it has throughout its history, America will champion the cause of freedom and defeat those who would attempt to deny us this most basic tenet. Guaranteeing our success is "…the strength of our country—the skill of our people and the superiority of our technology."

Chapter 1
INTRODUCTION

The world's premier Air Force begins 2002 under new leadership. The Secretary and Chief of Staff bring unique and complementary experiences to bear upon the dynamic promise of American air and space power in the 21st Century. The Air Force is in the business of global reconnaissance and strike, including the full application of unparalleled mobility forces. Our efforts are fuelled by a vision of Global Vigilance, Reach, and Power to help the Nation assure our allies and friends, while dissuading, deterring or decisively defeating any adversary. The specific concept of "core competencies"* well known among successful organizations has been adapted by Air Force leaders to characterize the capabilities that are central to our mission: air and space superiority, information superiority, global attack, precision engagement, rapid global mobility, and agile combat support.

The Air Force, and the Nation, entered 2001 aware of the challenges and opportunities of a new administration. The Department of Defense was to undergo significant evaluation, with the expectation of dramatic changes to follow. President Bush brought an eminently qualified team to Defense and National Security, and the Air Force welcomed the injection of energy and attention the Nation's defense was to receive. Long a force for innovation, airmen continued their leadership throughout the months of military reinvention. Capabilities-based planning was emerging as the Quadrennial Defense Review (QDR) focal point, and the Air Force strove to maximize the assessment of new technologies, revolutionary concepts of operation and visionary organizational changes. However, amidst this important task, terror struck the United States. The Air Force, and the Nation, exited 2001 at war.

This new adversary, and those of the future, will pose a formidable challenge to American interests at home and abroad. They will attempt to intimidate, deter or defeat our nation through a variety of means, to exploit our asymmetrical vulnerabilities and avoid confronting U.S. military power directly. These strategies will include the use or threatened use of weapons of mass destruction, and the use of terrorism on U.S. soil. They will

According to two leading scholars, successful enterprises "consolidate corporate-wide technologies and production skills into competencies that empower individual organizations to adapt quickly to changing opportunities."

The 3 identifying characteristics of core competencies are:

1) They transcend a single product or service and provide potential access to a wide variety of markets;

2) they are perceived by customers to deliver significant benefit; and

3) they should be hard to imitate.

See C.K. Prahalad and Gary Hamel, "The Core Competence of the Corporation," Harvard Business Review, May–June 1990.

also attempt to counter the tremendous asymmetric advantages of U.S. air and space power.

To meet these challenges, Air Force strategy calls for a capabilities-based approach to defense planning. This enables the Service to answer a broad range of challenges posed by potential adversaries, while also developing the capabilities it needs for the future. This capabilities-based planning must remain tied to ongoing Air Force transformation that continues to develop new technologies, concepts of employment and organizational adaptations.

The Road Ahead

The transformation of the military now runs parallel to the transformation of our Nation. Just as the military is exploring new capabilities and concepts of operation (CONOPs) to engage threats, America as a whole is experiencing new appreciation for the cost of freedom. The Air Force, the Department of Defense and the American people are up to the challenge.

AF four capability focus areas:

1) meet wartime demands through increased readiness

2) recapitalize our aging force structure and physical plant

3) support transformation efforts required to provide needed future capabilities

4) support recruitment/retention by meeting the needs of our most important resource—people

Though a shock, the events of September 11th did not fundamentally alter the course for a transformed military; rather, they served as an affirmation of our current direction. Turning away from decades of restrictive force-to-threat planning, the Air Force along with the Defense Department is on course to define desired effects, and then secure capabilities which allow us to reach that end. Additionally, the QDR and the Defense Planning Guidance (DPG) address organizational changes, which add to the effectiveness of new military methods.

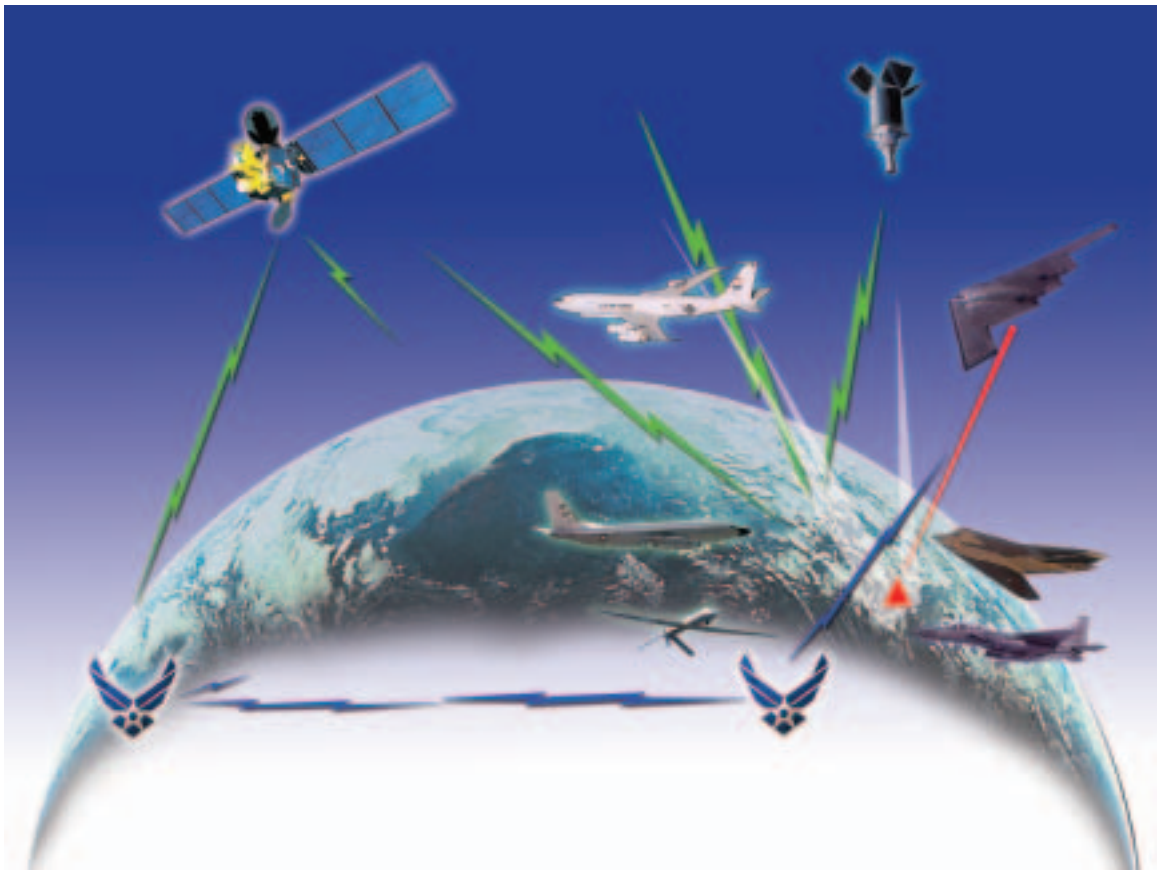
This describes the heart of Air Force transformation. Assessing existing and potential adversaries' capabilities against our own, we are developing Task Forces for a variety of mission requirements, from strategic response to homeland security. For example, Global Strike Task Force, which describes how we will operate in an anti-access scenario, is the next step in our journey to fully achieve our mission while also opening doors to adaptive and innovative operational plans, and relevant organizational structure.

In order to draw the greatest effectiveness from these capabilities, the Air Force will exploit America's technical dominance to elevate our asymmetric advantage over any adversary. This involves harnessing the attributes of stealth, precision, standoff, space, and information technology. The success of our capabilities-based CONOPs depends upon reducing the find, fix, track, target, engage, and assess (F2T2EA) cycle and achieving persistent ISR capabilities. Key to this is the horizontal integration of manned, unmanned, and space assets. By facilitating digital conversations at the machine-level we will provide the Joint Force Commander with the decision-quality information required to ensure success—the "sum of the wisdom" resulting in a cursor over the target. With determined exploration

and exploitation of space capabilities—culture, principles, personnel and assets—we will widen our asymmetric advantages and set the bar beyond reach of any adversary. Such transformation will guarantee America's Global Vigilance, Reach, and Power—establishing powerful national mechanisms to assure, dissuade, deter or defeat.

These are the building blocks to true transformation—technologically elevated capabilities, focused CONOPs and embedded structural changes. The Air Force remains at the forefront of each of these transformational elements. We ensure the freedom to operate around the globe and in the sky and space above, under any circumstances, and for whatever mission the Nation requires. This is asymmetry—exploitation of capabilities no other force in the world possesses—and it is fundamental to redefining jointly fought warfare on America's terms. Maintaining this advantage is critical, and a constant challenge. In the year ahead, we will meet this test by solidifying the roots of our success: Readiness, Transformation, and the resource that makes these possible—our People.

Our domain stretches from the earth's surface to the far reaches of our satellites' orbits integrated across the mediums through voice, imagery and digital data links.



Chapter 2
THE YEAR IN REVIEW

In 2001, the Air Force had an enormous impact on the peacekeeping and combat missions around the world. From the Korean Peninsula to Kabul, across every continent and over all bodies of water, Air Force civilian, Active, Guard and Reserve forces were executing global reconnaissance and strike missions. Through combined exercises, humanitarian interaction around the globe, and decisive combat action, we assured our friends and dissuaded, deterred or defeated our adversaries.

In the Balkans, contributions to the region included fighter, tanker, command and control, ISR, and airlift aircraft. Combat search and rescue (CSAR) forces, special operations units and unmanned aerial vehicles (UAVs) also flew in support of the operation. In 2001, the Air Force flew approximately 1,000 sorties, enforcing no fly zones over the former Yugoslavia.

In Southwest Asia (SWA), the Air Force maintained a continuous, steady-force presence of more than 8,000 airmen in support of Operations NORTHERN WATCH (ONW) and SOUTHERN WATCH (OSW). Air Force ISR assets provided crucial intelligence and situational awareness, particularly in the form of indications, warning and intelligence. We were the vital element in monitoring Iraq's compliance with United Nations' directives. Coalition forces flew over 22,000 combat sorties in SWA during 2001, 70% of which were flown by the Air Force.

In response to the terrorist activity of September 11th, we began providing support to homeland defense via Operation NOBLE EAGLE and support to the war against terrorism via Operation ENDURING FREEDOM. By the end of 2001, we had flown 11,000 combat air patrol, surveillance, and refueling sorties protecting U.S. cities and other high-value assets. We also maintained an alert readiness status on the ground in order to scramble and intercept

Maj Jay Aanrud, foreground, 39th Operations Support Squadron supervisor and Operation NORTHERN WATCH program manager, discuss flight safety procedures as SrA Sarah Anderson, with binoculars, monitors incoming traffic at Incirlik Air base control tower in Turkey.

threat aircraft. Nearly 14,000 airmen have deployed to Southwest Asia in support of ENDURING FREEDOM including nearly every specialty in the Air Force. Of the over 18,500 total coalition sorties flown, almost 46 percent have been flown by the Air Force. These sorties included fighter, tanker, command and control, special operations, UAV, ISR, and airlift aircraft. Initially, the Air Force was the sole provider of airlift for humanitarian relief to the people of Afghanistan. By the end of December, Air Force mobility teams had delivered over 2.4 million humanitarian daily rations and over 4,300 tons of wheat, rice, and cold weather gear. Ultimately, in the land locked country of Afghanistan, everything brought in to build up and sustain our forces was brought in by air.

The Caribbean and South America continued to be the focus of the ongoing war on drugs. Counter-narcotic missions were flown around the clock by all interagency organizations. The Air Force contributed fighter-interceptor, airlift, ISR and CSAR missions. These efforts directly contributed to seizures that totaled over 75,000 kilos of narcotics.

Humanitarian airdrops by the Air Force during Operation ENDURING FREEDOM included packages of dates. Dates are a fruit that Muslims traditionally use to break the fast of Ramadan.

A C–17A Globemaster III aircrew, from the 17th Airlift Squadron at Charleston Air Force Base, SC, hold up the two millionth humanitarian daily ration to be airdropped over Afghanistan in support of Operation ENDURING FREEDOM on November 30th.

Establishing operational imperatives for 2001 and beyond, the Secretary of Defense named the Air Force as executive agent for national security space. We now shoulder the responsibility for planning and programming of space systems for the Department. The Secretary and Undersecretary of the Air Force will direct efforts to nurture a space culture and ensure that the advancement of space capabilities receives focused and heightened emphasis. Throughout the year, we also maintained approximately 100 satellites in earth orbits that directly supported, and continue to support, not only the Air Force but also the other Services and the civilian population. Global Positioning Satellites assisted travelers worldwide, while data provided by Air Force weather satellites and communications and missile launch-detection satellites was used by all services. In order

C–5 Galaxy unloads heavy equipment to support relief operations after India's devastating earthquake. The C–5 is an essential component of our strategic airlift fleet and the primary platform to carry outsized cargo.

to maintain this robust capability, we launched, deployed, and initialized operations of eight additional assets in 2001.

The Air Force provided an American presence in regions of the world where the U.S. is working to build goodwill and improve relations. It also enabled quick humanitarian relief during natural and man-made disasters. Following a devastating earthquake in India measuring 7.7 on the Richter Scale, airlifters transported 115 short tons of humanitarian cargo to Ahmedabad, India. In April, a C–17 airlifted 10 cheetahs from Africa to America as part of a gift to the United States from the people of Namibia. Additionally, Air Force engineers from RED HORSE units completed several school construction and water well drilling humanitarian projects throughout Central and South America.

When the floodwaters rose in Houston in June, a C–17 transported federal relief workers and 30,000 pounds of relief supplies to Texas. Additionally, the Air Force deployed a 92-person EMEDS to the area to relieve local hospital emergency rooms workload. The EMEDS cared for over 1,000 patients from this disaster, and the AMS envisions placing EMEDS throughout the country to offer added future regional quick-response capabilities. Later, in August and September, Air National Guard and Air Force Reserve C–130 aircraft equipped with modular airborne fire-fighting systems flew 185 missions and dropped over 800,000 gallons of fire suppressant on wildfires in Idaho and California. Additionally, they flew 45 support sorties lifting 414 firefighters and over 300,000 tons of cargo into the area.

Air Force medical personnel provided immediate medical response following the Houston floods.

Whether at home or abroad, in combat, humanitarian operations or training, we strive to accomplish the mission effectively, efficiently and safely. Effective risk management directly contributes to readiness and warfighting capability. In 2001, a combination of targeted mishap prevention efforts and chain-of-command commitment resulted in sustained low mishap rates in all major areas. On the ground, a record low was achieved for off-duty sports and recreation fatalities with four total. In the on-duty ground fatality category, the Air Force tied the FY98 all time record low of three. In the air, Class A Flight Mishap performance yielded the third lowest mishap rate in our history.

The Air Force-wide fielding of safety tools and metrics such as the web-based Safety Automation System continues to improve operational and acquisition risk management decision-making. These efforts, coupled with aggressive seasonal safety campaigns, enable leaders at all levels to take proactive action aimed at specific trend areas. The Air Force's commitment to safety as a combat multiplier continues to enhance force preparedness and mission accomplishment.

USAF Participation on Operations Across the Spectrum of Conflict in FY01

- Space Operations
  48 Operational Satellites in Orbit
- JCS Exercise Locations with USAF Involvement (152 in 41 countries)
- Support in Combat/ Contingency Operations
- Humanitarian Missions

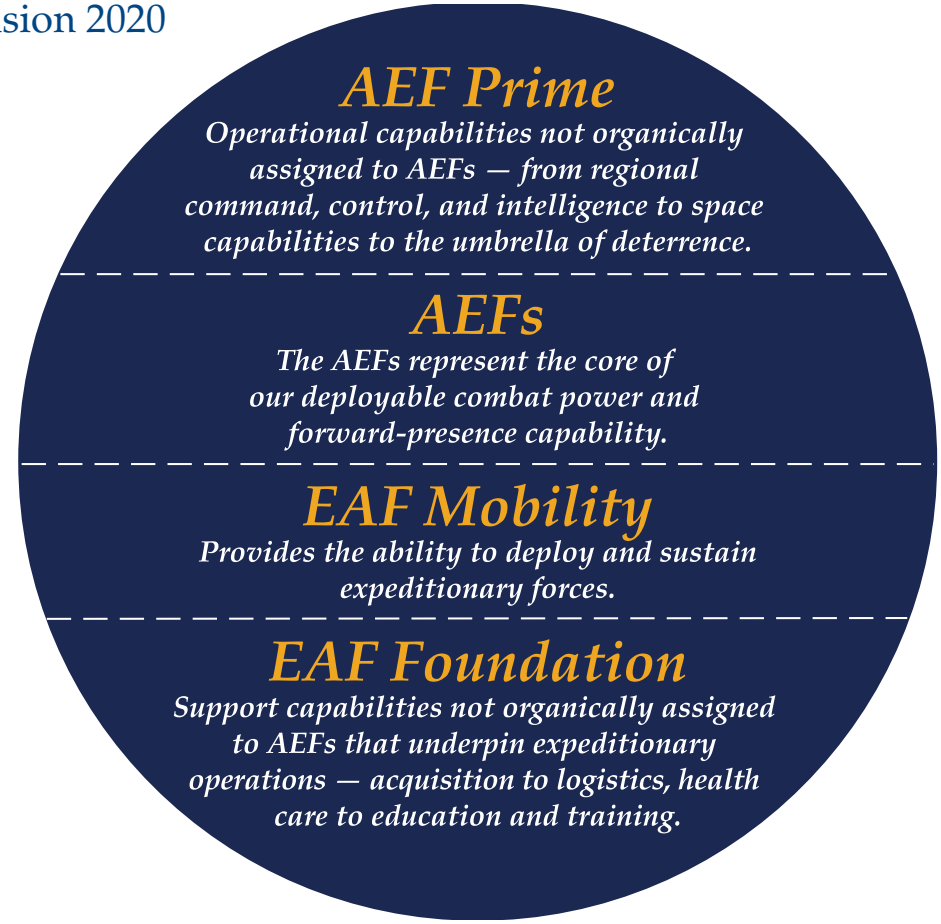
93,000 Air Force people providing overseas presence either forward based or forward deployed in FY01


Iceland
Icelandic Air Defense
Norway
United Kingdom
Denmark
Netherlands
Germany
Poland
Slovenia
Ukraine
France
Switzerland
Italy
Moldova
Romania
Bulgaria
Albania
Balkan Air Operations (JOINT FORGE and JOINT GUARDIAN)
Turkey
Greece
Jordan
Operation NORTHERN WATCH
Operation SOUTHERN WATCH
Morocco
Tunisia
Israel
Egypt
Kuwait
Afganistan Humanitarian Airdrops
Operation ENDURING FREEDOM
Bahrain
Saudi Arabia
Oman
India Earthquake Relief
Japan
South Korea
Hong Kong
Operation VALIANT RETURN
Philippines
Thailand
Nigeria
Operation FOCUS RELIEF
Singapore
East Timor Operation STABILIZE
Mozambique
Australia
Antarctica
Operation DEEP FREEZE

The Expeditionary Air and Space Force (EAF) After 2 Years

Our considerable mission accomplishments in 2001 have in large measure been made possible by the continued maturation of the EAF. Throughout the year, we called upon all facets of our Air Force—Active, Guard, Reserve, civilian, and contractors—to meet the demands of the war on terrorism and our steady-state commitments. In addition to the rotational deployments in support of OSW, ONW, Icelandic Operations, and counter-drug operations; we were called upon to support wartime efforts at home with ONE, and overseas with OEF. The large demand on the Air Force increased the OPSTEMPO drastically and placed a sizeable stress on our most valuable asset, our people. The Air Force is stretched thin, standing up several expeditionary bases overseas while at the same time defending the skies over the U.S. with numerous aircraft on ground and airborne alert. Our people have risen to the occasion in winning this war. We will maintain the Air and Space Expeditionary Force (AEF) structure throughout this effort to the maximum extent possible however, everyone in the Air Force realizes the mission has changed and the requirement to deploy for longer periods of time may increase.

AF Vision 2020



Members of the newly created 18th Logistics Readiness Squadron (Provisional) salute during an assumption of command at Kadena Air Base, Japan. The readiness squadron—a merger of the former 18th Transportation Squadron and the 18th Supply Squadron—is the first such squadron formed under initiatives developed by an Air Force Chief of Staff review that is testing 30 ways to improve logistics handling.

The Expeditionary Air and Space Force Sum of the Parts

Often misunderstood is the difference between the elements that collectively define the Expeditionary Air and Space Force. Whereas the EAF is a *construct* (including everything within the blue ball on the previous page) and *is* the Total Air Force, the AEFs are a subset and represent the *core of our deployable combat power* and forward presence capability. The EAF also enables the Air National Guard and the Air Force Reserve to participate more heavily in Air Force expeditionary operations. The increased predictability of the AEF rotation cycle allows us to schedule voluntary participation well in advance. This voluntary participation currently provides about 25% of the aviation package and 10% of the Expeditionary Combat Support. This support brings both OPSTEMPO relief as well as highly trained and skilled talent to the operations. This interaction lays the basis for the development of our transformational initiative, Future Total Force (FTF) (explored in Chapter 4).

AEF Prime consists of *operational* capabilities neither organically assigned to AEFs, nor incorporated in the rotational cycles. This includes regional command and control, intelligence, space, special

B–1B bomber aircrew and a B–1 crew chief from the 28th Air Expeditionary Wing, discuss the maintenance log before a combat mission over Afghanistan. B–1 bombers have dropped over 3.8 million pounds of weapons and over 60 percent of all Joint Direct Attack Munitions to date.

operations, and the umbrella of deterrence provided by our nuclear forces. AEF Prime enables much of the global reachback we rely on for logistics and analysis.

AEFs are not individual organizations, autonomous fighting forces, or units. Instead, our 10 AEFs represent buckets of capabilities the Air Force can draw upon to satisfy the requirements of theater commanders—flexible, responsive, adaptable. A nominal AEF has about 12,600 people supporting 90 multi-role combat aircraft, 31 intra-theater airlift and air-refueling aircraft, and 13 critical enablers. The enablers provide command, control, communications, intelligence, surveillance, and reconnaissance, as well as combat search and rescue. AEFs are composed of squadron and sub-squadron elements, which are on-call for a period of three months in a 15-month cycle. If deployed, forces from AEFs make up Air and Space Expeditionary Task Forces (AETF). Finally, we have two Air and Space Expeditionary Wings (AEWs) that provide crisis response capability beyond what the two in-cycle AEFs can cover. They also contain unique capabilities, such as stealth aircraft, that are not distributed across the ten AEFs.

Air Force Reserve Command made major AEF contributions in 2001 having met virtually 100 percent of both aviation and combat support commitments, while also deploying 14,000 plus personnel in volunteer status in the last AEF cycle (1 Dec 00–28 Feb 02). The challenge for 2002 will be to meet ongoing AEF commitments with volunteers from a Reserve force which has had a large portion of its operations and combat support mobilized for homeland defense and the war on terrorism.

EAF Mobility—The linchpin of power projection. Below, *C–17's await cargo movement in the Persian Gulf.* Right, *Tankers such as the KC–10 Extender make the inter-continental "bridge" a reality.*

After landing at a remote air base in Afghanistan, four Air Force Security Forces, RAVENs, prepare to exit from the rear of a C–17A. The team provides security for the aircraft and personnel. This particular mission was the first deployment of French soldiers and more than 1,000 tons of security equipment as part of Operation ENDURING FREEDOM.

The Air National Guard alone contributes nearly 25,000 men and women every 15 months to the AEF rotations. During AEF cycles one and two thus far, Guard units provided over 20% of the total force aviation packages and nearly 10% of all expeditionary combat support requirements.

EAF Mobility provides the ability to deploy and sustain expeditionary forces. It includes airlift and air-refueling capabilities—the linchpin of power projection. Many mobility units accomplish the AEF role when specifically assigned to an AEF eligibility period and the EAF Mobility role all other times.

EAF Foundation consists of *support* capabilities not organically assigned to AEFs. This includes acquisition, logistics, health care, education and training. Due to the expeditionary nature of the Air Force, individuals normally assigned to an EAF Foundation organization can still be assigned to an AEF and deploy to contingency operations during their three-month eligibility period.

The EAF is a **force structuring mechanism** because it frames Air Force modernization, recapitalization, and transformation efforts. The AEFs and EAF Mobility provide the rotational basis for steady state expeditionary operations. Therefore, current and future programs must ensure adequate capability in the EAF to respond to global contingencies while providing predictability and stability for our people.

EAF Today

Our current level of commitment exceeds the capability we have available in our two on-call AEFs and one on-call AEW. In career fields such as Security Forces, Engineers, Communications and Information, and Medical, we have reached into future AEFs to source enough people to meet the current requirement. Low Density/High Demand (LD/HD) assets such as Airborne Warning and Control System aircraft (AWACS) and special operations aircraft have *deployed almost*

A full-spectrum Expeditionary Air and Space Force will include 10 AEF's of equal capability.

their entire inventory to meet the war effort. We have been aided greatly in this LD/HD challenge with the deployment of NATO AWACS that have deployed to the U.S. in support of ONE. For the first time ever, the on-call AEW and portions of the remaining AEW were employed. Additionally, a large portion of the total tanker force deployed to support Air Force and Navy strikes, while our mobility forces rapidly moved thousands of airmen and support equipment overseas allowing us to quickly engage the enemy on our terms, not theirs.

Fully Capable AEFs

Providing the flexibility needed for full spectrum operations requires continued efforts to round out capabilities of our AEFs to make them inter-changeable. Currently, our 10 AEFs are not all the same. For example, only three of the AEFs have precision, standoff strike capability, and only nine have an F–16CJ squadron for suppression of enemy air defenses. Until the disparity is rectified, the EAF construct will have limits—many LD/HD and stealth systems remaining tasked at maximum levels.

As the EAF continues to mature and technologies advance, we will expand the capabilities each AEF can provide. With enhanced ISR we will enlarge the battlespace an AEF can control; improve our ability to do real-time targeting; and dramatically increase the number of targets an AEF can engage. Finally, we will continue to improve our expeditionary combat support capabilities—effective, responsive logistics are the key to sustaining expeditionary forces and operating from austere locations.

Reflection and Resolution

After a morning of terror on September 11th, there was reassurance. Aircraft over American cities lent calm rather than fear, for they were the Active, Guard and Reserve Air Force keeping watch. We reacted within minutes of the attacks to establish a defensive posture and to prepare our offensive forces, just as we spent 2001 reacting successfully to humanitarian and combat operations around the globe. While meeting the requirements of the new war on terrorism, we will continue our transformation journey. The capability to deliver massed, discriminate and precise effects anywhere in the world within minutes, and the persistent ISR to evaluate actions are within reach for America's air and space forces. This is the contribution of the Air Force to the Nation—asymmetric capabilities that assure, dissuade, deter or decisively defeat.

Chapter 3
READINESS

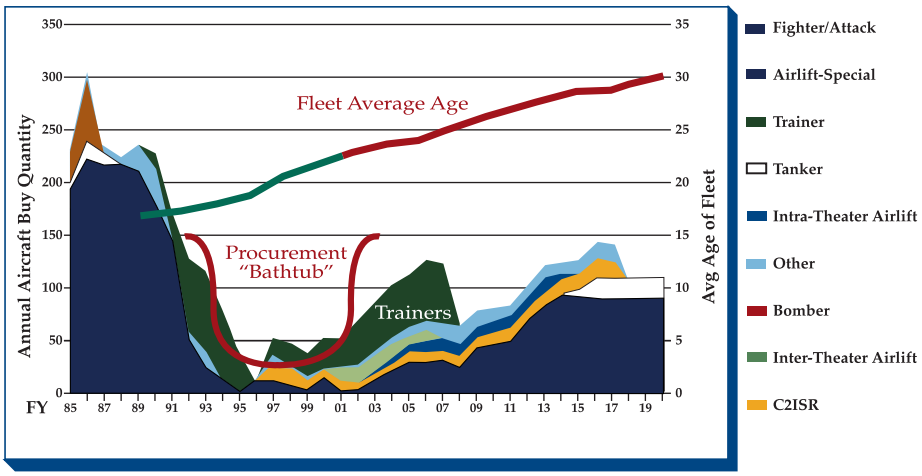
Though no organization in America was ready for the attacks of September 11th, none was more ready for the immediate aftermath than the Total Air Force team. From humanitarian to combat operations, the operational demands *before* the attacks were tremendous. Though significant milestones were reached in terms of reducing the effects of high tempo operations, the advent of war placed many of those gains on hold. The war on terrorism has disrupted the AEF schedules, which will create training, organization and resource impacts in the near future. Unaffected though, is our objective of 10 fully capable AEFs—each a flexible, identical cross-section of capabilities for the Joint Force Commander to employ. America's competitive edge is due in large part to its emphasis on realistic, comprehensive training, and we must continue to ensure our forces get that training. Equally important is ensuring our personnel have the resources needed to accomplish their jobs.

Recapitalization

Our fielded forces have aged to the point that they will not be able to compete with emerging and future threats. In order to deal with the global security environment, the Air Force must rebuild its aging infrastructure and modernize its outdated weapon systems. Higher priorities, however, require that we pursue a structured recapitalization process that will ensure tomorrow's warfighters have the advanced tools, technology, and equipment needed to preserve America's air and space dominance.

The budgetary constraints and spending reductions mandated in the 1990s caused the Air Force to seriously underfund modernization and infrastructure improvements. For example, in 1990 the Air Force purchased 257 aircraft; by 1996, that number had fallen to 30. This dramatic cutback in hardware acquisitions signaled

Limited budget options resulted in a dramatic reduction of aircraft acquisition which has exacerbated the inherent problems of an aging fleet.



an unavoidable shift in USAF priorities. Modernization stalled in order to maintain core operational capabilities and keep the fleet of older aircraft flying. Unfortunately, this financially driven reprioritization placed the nation's mid- and long-term air power readiness at significant risk.

We now face a dangerous situation. Our aircraft fleet is getting older, less capable, and more expensive to maintain—all at the same time. Reversing this negative trend requires the Air Force to structure its recapitalization plans to avoid large-scale procurement spikes and critical modernization gaps.

The recapitalization of our airframes and weapons systems is only a partial solution. The Air Force needs to upgrade its infrastructure and physical plant, which include sustainment, restoration, modernization, transportation, support equipment, and communications systems. At the same time, the Air Force must be prepared to conduct real-world operations on a global scale. While recapitalization is important we can never forget investing in our people. The Air Force needs to take particular care in preserving this resource and expanding its capabilities. With the help of Congress, we have made considerable progress in addressing pay, benefits, and quality of life issues (discussed in Chapter 5) but more remains to be done.

Understanding the range and nature of Air Force capabilities is a prerequisite to comprehending the readiness and transformational requirements. Securing our task forces' potential capabilities demands insightful and bold initiatives. How comprehensively we elevate the systems, processes, and people will determine how effectively America will be able to operate on the global stage in the decades ahead.

Core Competencies

Air and Space Superiority

Air and space superiority is the ability to control the entire vertical dimension, from the surface of the earth to the highest orbiting satellite, so the joint force has freedom from attack and freedom to attack. This is the essential first step in achieving battlespace dominance. As was true with operations in the 20th Century, dominance of the vertical dimension will remain the most critical capability for 21st Century Joint Forces.

Air Superiority

The Air Force is investing in a range of systems encompassed in the entire F2T2EA kill chain. Among the air superiority assets that contribute to this targeting and attack process are the legacy air-to-air platforms. While we await the fielding of new systems, we strive to maintain the viability of our current assets. The F–15 and F–16 programs continue to pursue modernization of radars, engines, and enhanced combat capability to ensure near-term fleet maintenance and air superiority in air-to-air combat environment. Finally, key weapon advances rest with continued development and production of the Joint Helmet Mounted Sight as well as the AIM–9X and AIM–120 next-generation air-to-air missiles. While modernization of current systems is required to make them as capable as they can be, our greatest advantage with current systems is our robust training and the availability of ranges to conduct that training.

Self-defense against enemy air defense systems is a key element to ensure air superiority. Several electronic warfare programs support this important capability. The Joint Services Electronic Combat Systems Tester meets our operational requirement for a mobile verification system to confirm installed electronic countermeasures systems on F–15, F–16,

and A–10 are operable. It tests end-to-end electronic combat capabilities, identifies system problems before takeoff, and provides the highest level of confidence to the warfighter that the EW suite is operational.

Comet Pod is a new infrared (IR) countermeasures system designed to provide covert, preemptive protection for the A–10 against IR surface-to-air missiles (SAMs). Fielding this system will greatly enhance survivability of the A–10 in its low-altitude close air support role. Additionally, the Advanced Strategic and Tactical Expendable program addresses multiple Combat Mission Needs Statements and provides accelerated ramp-up for production of the MJU–46 covert IR flare. This operational requirement acceleration responds to today's air war threat in Afghanistan and currently provides protection to special operations aircraft in the combat zone.

The AF leads the way in Radio Frequency (RF) Towed Decoys on fighter and bomber platforms. These countermeasures provide protection against advanced SAM threats and increase the viability and lethality of current platforms to conduct operations in the modern RF threat arena. These defensive systems have proven invaluable in combat over the last decade, and will continue to add to our legacy force capabilities.

Combat Search and Rescue (CSAR)

The CSAR mission provides friendly forces protection and assurance by recovering downed aircrew members or other persons in isolated locales and returning them to friendly control. Primarily charged with supporting combat personnel, CSAR continues to play an important role in civil search and rescue activities. The aging nature of the CSAR fleet, however, increasingly jeopardizes the Air Force's ability to accomplish the CSAR mission. More over,

Navy personnel from a USAF HH–60H helicopter move in to extract two survivors during a combined combat search and rescue exercise.

CSAR assets lack appropriate compatibility with our advances in strike, command and control, intelligence, surveillance and reconnaissance systems, though some advances in information fusion have been completed.

Other improvements are forthcoming. Air Force Reserve Command (AFRC) will modify nine HC–130's with the APN–241 ground map radar, which enhances position awareness and increases system reliability. Additionally, AFRC is beginning the upgrade of the forward-looking infrared for the HH–60G helicopter fleet.

Space Superiority

Space superiority ranks with air superiority as a top priority. The ability to exploit and assure U.S. access to space assets while denying the same to our adversaries is of great importance, and as the ultimate high ground, space provides America with military advantages that cannot be duplicated.

Space Commission

In 2001, the Secretary of Defense named the Air Force as Executive Agent for Space in his implementation of Space Commission recommendations. This made the Air Force responsible for department-wide planning, programming, and acquisition of space

systems. Consistent with the National Reconnaissance Office's (NRO) long standing approach, the Air Force will manage space systems with a "cradle to grave" philosophy, integrating systems acquisition with operations. To accomplish this, the Space and Missile Systems Center has been transferred from Air Force Material Command to Air Force Space Command. The Under Secretary of the Air Force is now dual hatted as the Director of the NRO, and will have acquisition authority for all Air Force and NRO space systems, as well as Milestone Decision Authority for all DoD space programs. This will allow a comprehensive review of all space systems, to determine the optimal method of satisfying national/military requirements. The first National Security Space Program Assessment was accomplished this year, comparing DoD and NRO program budgets against existing plans. This assessment will be used in drafting the first National Security Space Plan, due in mid-CY02.

Spacelift Range System (SLRS)

Achieving and maintaining space and information superiority requires an operational space launch capability that can deploy satellites to orbit with speed and flexibility—the high ground of military operations. The Spacelift Range System modernization program is replacing aging and non-supportable equipment to improve reliability and efficiency; reducing the cost of operations and standardize equipment on the Eastern and Western launch ranges.

SLRS modernization follows a phased approach. To date, the completion of new downrange satellite communications links, a new fiber optic network, and new range scheduling systems are providing government and commercial users more flexibility at the spacelift ranges. In 2001, these improvements enabled the rapid launch of 3 systems in just 4 days using Cape Canaveral AFS equipment—an unprecedented feat for America's spacelift ranges. The next phase replaces old, base-unique systems with modern, standardized range safety, flight operations and analysis, communications, tracking, telemetry, planning and scheduling and meteorological systems. Once completed, the SLRS modernization program, coupled with the Evolved Expendable Launch Vehicle (EELV) program, will meet the future launch demands of national security, civil, and commercial payloads.

In addition, Air Force spacelift ranges are central to supporting the Department of Defense's cooperation with the National Aeronautics and Space Administration (NASA) in the development of technology, operational concepts, and flight demonstration for the next generation of reusable launch vehicles. This cooperation also offers the basis for the evolution and future development of reliable, rapid, and assured access to space for air and space vehicles.

Information Superiority

Information systems are integral to every mission of the Air Force. Success in achieving superiority in this domain requires an effects-based approach, superior battlespace awareness, well integrated planning and execution, and properly trained and equipped information operations (IO) organizations. Information superiority means that our information systems are free from attack while we have freedom to attack an adversary's systems.

Information is both a critical capability and vulnerability across the range of military operations from peace to war. In coordination with Joint Forces, the Air Force engages daily in conducting IO functions across this spectrum of military operations. We provide information superiority to our Air Force and Joint Forces commanders as well as to friendly multinational forces

by conducting information operations in the air, space, and information domains.

Command and Control, Intelligence, Surveillance, and Reconnaissance (C2ISR)

Currently, many military operations are limited in the area of C2ISR capabilities, which increases the amount of time, it takes to locate and destroy many targets. While we are aggressively pursuing and fielding solutions to streamline this process, some of our current C2ISR systems, which our forces rely on, are vulnerable to adversary manipulation. The challenge still exists to improve our own ability to disrupt the C2ISR systems of our adversaries. Of further concern to our C2ISR capabilities is limited radio frequency spectrum availability. Spectrum is the medium that supports the mobility, dispersion, and high tempo of operations. To meet this critical need for spectrum we must develop a strategy aimed at sustaining expanding spectrum access as we face evolving national security responsibilities.

Our operational and tactical command and control airborne platforms and ground systems organize and direct efforts to create desired effects, whatever their form. Our C2 assets include the air and space operations center (AOC) with its decentralized component control reporting centers (CRC) and Theater Battle Management Core Systems (TBMCS); the Airborne Warning and Control System (AWACS); the Joint Surveillance Target Attack Radar System (JSTARS); and the Multi-Platform Radar Technology Insertion Program (MP-RTIP).

The other half of C2ISR is central to achieving battlespace superiority—knowledge. ISR assets gather and processes the data into decision-quality information. Currently, our limited numbers of airborne ISR systems are in extremely high demand. The RC–135 Rivet Joint, U–2, Distributed Common Ground System (DCGS), Predator, and Global Hawk UAVs have proven indispensable during OEF and the expanding war on terrorism by providing real-time target data, threat warning, and battle damage assessment.

The Air and Space Operations Center is a critical component to ensure air and space dominance for joint forces. It allows the JFACC to instantaneously access information within the area of responsibility.

Air and Space Operations Center (AOC)—The Falconer

As the primary element of the Theater Air Control System, the AOC is responsible for planning, executing, and assessing the full range of air and space operations. It is the premier operational system at the disposal of the Joint Forces Air Component Commander (JFACC). By fusing the data from a vast array of C2 and sensor systems, the AOC creates a comprehensive awareness of the battlespace so the JFACC can task and execute the most complex air and space operations across the entire spectrum of conflict.

Especially significant among these operations is time-critical targeting. This is the development of swift reaction to the threat within theater battle management. Accomplishing this requires combining C2, rapid intelligence collection, analysis, and dissemination with positive control of airspace and the tasking of combat forces to coordinate the entire air battle with joint and coalition partners and component commanders. It is the ultimate goal of the targeting process—to reduce the F2T2EA cycle from hours to minutes.

A crew of the 909th Air Refueling Squadron, 18th Wing, Kadena Air Base, Japan, pose in front of their KC–135R aircraft before launching a refueling mission in support of the India earthquake support mission.

Members assigned to the 633rd Air Mobility Support Squadron, Kadena Air Base, Japan, unload humanitarian earthquake relief in Ahmedabad, India, from a C–17 "Globemaster."

The Air Force has long understood the need to address standardization of command and control of air and space forces. The last decade witnessed the AOC as equivalent to a "pick up game," requiring on-the-job training and hundreds of individuals working long hours to produce an air tasking order. Throughout 2001, we aggressively addressed this problem and the Falconer AOC is now on path to becoming an efficient weapon system. Our focus will be refining the AOC into a standardized weapon system run by operators formally trained in C2 Operations. We must also improve the weapon system's modularity, scalability and interoperability to meet requirements ranging from Major Theater War (MTW) to a Humanitarian Relief Operation (HUMRO) or Non-combatant Evacuation Operation (NEO).

If there are adequate resources to develop Advanced Technology AOC, we will "right-size" the AOC to meet each mission's requirement. The system will be interoperable with internal and external U.S. National, Allied, Coalition and Joint Nodes. Utilizing emerging technologies to maximize reachback, we will dramatically reduce the footprint of the AOC while enhancing JFACC decision processes and timelines, and reduce costs. Supporting combat operations during Operations NOBLE EAGLE and ENDURING FREEDOM validated our strategic vision for C2 systems. We will continue to develop the AOC, which sets the standard for new Air Force capabilities-programming efforts, and keep it on course to revolutionizing the operational level of warfare.

The CRC is the JFACC's ground tactical execution node for C2 and battle management. It provides wide-area surveillance, theater air defense, identification, data link management, and air battle execution. The current system was developed in the 1970s and must be replaced. The CRC replacement, the Battle Control System, will exceed year 2010 requirements for time-critical targeting, open system architecture, small deployment footprint, remote operations, multi-sensor fusion, and AEF responsiveness.

The "engine" of the AOC is the **TBMCS**. It is an integrated, automated C2 and decision support tool that offers the senior air and space commander and subordinate staffs a single point of access to real- or near-real-time information necessary for the execution of higher headquarters taskings. TBMCS supports a full range of functions including threat assessment, target selection, mission execution, battle damage assessment, resource management, time-critical target identification and prosecution, and defensive planning. During ONE and OEF, TBMCS was rapidly deployed supporting both CENTCOM and NORAD operation centers. TBMCS will evolve into an open-ended architecture capable of interface with a variety of joint and coalition data buses, displays and links.

The **Airborne Warning and Control System (AWACS)** remains the premier air battle management and wide-area surveillance platform in the world. Still, aging aircraft issues, obsolete technologies, and the proliferation of advanced adversary systems necessitate several upgrade programs. This year, one third of the AWACS fleet completed an improved radar system upgrade, which will reach full operational capability in FY05. The next computer and display upgrade will replace the 1970 vintage processors with an open architecture system. Finally, a satellite communications access program will provide improved connectivity with regional and national C2 centers.

A North Atlantic Treaty Organization (NATO) E–3A AWACS refuels over the Adriatic Sea from a United States Air Force KC–135R. Seven NATO AWACS deployed from Geilenkirchen, Germany, to augment organic U.S. AWACS assets. This is the first time in history that non U.S. forces patrolled and protected American airspace.

Joint Surveillance Target Attack Radar System (JSTARS) provides battle management, C2, and ground moving-target

The U–2 provides continuous day or night, high-altitude, all-weather, stand-off surveillance of an area in direct support of U.S. and allied ground and air forces. It provides critical intelligence to decision makers through all phases of conflict, including peacetime indications and warnings, crises, low-intensity conflict and large-scale hostilities.

detection. We will replace the on-board computers with commercial-off-the-shelf equipment by 2005 under the JSTARS Computer Replacement Program (CRP). The CRP is the foundation of all JSTARS communications and sensor upgrades, and should reduce life-cycle costs and minimize the number of obsolete parts.

Another 707-airframe C2ISR asset is the **RC–135 Rivet Joint**—the premier aircraft in its class. We continue to modernize the Rivet Joint's sensors using an evolutionary, spiral development program. Recapitalization and modernization efforts promise to keep the RC–135 and U–2 **Dragon Lady** viable well into the 21st Century. As we look to the future, we are examining the growth of the Rivet Joint as part of the Multi-sensor Command and Control Constellation. Although the U–2 is not currently in production, we continue to modernize the aircraft with updated sensors and aircraft modifications to support our ongoing mission needs. Advanced imagery sensors will allow the U–2 to collect top-notch data for the battlefield commander. Aircraft modifications, such as cockpit, defensive and power system upgrades will ensure U–2 survivability and viability. Air Force DCGS continues to provide robust processing and reporting of the U–2, Global Hawk, and Predator collected data. System modifications/upgrades and increase in capacity will ensure continued delivery of timely intelligence to enable time critical target prosecution.

Unmanned Aerial Vehicles (UAVs) provide unmatched access for information, surveillance and reconnaissance missions. Their capabilities expand ISR collection coverage while reducing the need to place our people in harm's way. We are committed to the production and fielding of Global Hawk as the next generation of high altitude airborne ISR platform. We have transitioned Global Hawk from an Advanced Concept Technology Demonstration (ACTD) program to a formal acquisition program. In the spring of 2001, Global Hawk successfully completed a deployment to Australia, where it supported maritime reconnaissance and achieved a number of UAV aerial firsts, including the first trans-Pacific crossing.

Global Hawk's mission is to provide military field commanders with a high-altitude, high-endurance system that can obtain high resolution, near-real-time imagery of large geographic areas.

Due to this success, and a high level of confidence in the platform, Global Hawk was deployed in support of OEF. The development of advanced sensors will enable Global Hawk to support the time critical targeting mission more completely. Finally, demand for the older Predator UAV remains high. The successful weaponization of Predator holds the promise of significantly shortening the time critical targeting timeline. Based on the tremendous successes of Predator A, testing is underway on an improved version, the larger Predator B.

Air Force **weather satellites** enable information superiority every day during joint operations around the globe. The Defense Meteorological Satellite Program (DMSP) constellation provides global weather imagery and other environmental data to support mission planning. Augmented with civil satellites, joint forces are provided timely, accurate pictures of the weather affecting operations. The Air Force is modernizing environmental data collection with the new National Polar-orbital Operational Environmental Satellite System (NPOESS). In conjunction with the Department of Commerce, development of the NPOESS will provide the nation a consolidated system for all national weather monitoring needs. NPOESS will cost the DoD significantly less than building and fielding a DoD-unique follow-on system and will provide enhanced environmental monitoring capability to support emerging weapons systems and concepts of operations.

The **Multi-Platform Radar Technology Insertion Program (MP-RTIP)** is developing a scalable X-band electronically-scanned array (ESA) for use on a variety of platforms for air-ground surveillance, including a future 767 manned wide area surveillance platform, the Global Hawk, and potentially a NATO manned platform variant. On the 767 platform this array would provide five to ten times the air to ground surveillance capability of current JSTARS, reduce target revisit times, improve moving-target track capability, and enhance radar resolution. Furthermore, MP-RTIP on a 767 is envisaged as the first development spiral toward

achieving a Multi-sensor Command and Control Aircraft (MC2A) capability as part of an over-arching and transformational Multi-sensor Command and Control Constellation (MC2C) to support future employment of the task forces addressed in Chapter 4.

Communication

Achieving information superiority depends considerably on the availability of a robust, worldwide communications capability. Communications are critical to the joint fighting forces deployed worldwide. We are modernizing Military Satellite Communications (MILSATCOM) systems to keep pace with this demand. Inseparable from such modernization is Tasking Processing Exploitation and Dissemination (TPED). TPED describes how information is transferred among our numerous systems and highlights bandwidth as a serious topic. Bandwidth is a critical parameter—more is better—defining how much and what kind of information we can disseminate. Over the next ten years, our need for reliable, redundant, and secure communications is expected to increase 15 to 20 times beyond the current capacity. The MILSATCOM systems in use today simply cannot meet that demand and supply commanders with sufficient protected coverage to adequately support the warfighter. Further, in an environment of extremely high worldwide demand and competition, commercial providers cannot be leveraged for they lack the protected bandwidth, security, and coverage necessary to fully support military operations.

Despite shortcomings, the MILSATCOM system is making significant contributions to current, daily operations. The scope and speed of joint operations, including OEF, simply would not be possible without MILSATCOM systems, notably the Defense Satellite Communications System (DSCS) and the Military Strategic and Tactical Relay System (Milstar). In FY01 we successfully launched one DSCS and one Milstar satellite. Additionally, a complete modernization of satellite communications is underway. Wideband Gapfiller Satellites (WGS) are low-cost, high bandwidth communications satellites intended to greatly increase the on-orbit bandwidth available to the warfighter. WGS satellites will help bridge the requirements gap until the Advanced Wideband System (AWS) is brought on-line. Similarly, the Milstar constellation is planned for replacement beginning in 2006 by the new Advanced Extremely High Frequency (AEHF) satellites. The Air Force awarded a System Development and Demonstration contract in November 2001 to design the AEHF satellite system.

TSgt Todd Frazier, a 376th Air Expeditionary Wing, Civil Engineering Squadron electrician, sets up an electrical distribution box designed to provide 110 volts of power to outlets at a deployed site in Kyrgyzstan.

To leverage the full capability of our new technologies, we are combining our

A1C Rachel J. Shields, a Satellite Communications Apprentice and SSgt Thomas A. Schell, a Satellite wideband Communications Journeyman both with the 31st Communications Squadron perform an operational check on equipment in a SATCOM van.

efforts with the other Services to form the joint Global Information Grid (GIG)—a globally interconnected, end-to-end set of information capabilities and associated processes that allow warfighters, policymakers, and support personnel to access information on demand. Currently as the AEF deploys to support combat operations, it connects to the global information grid via the Theater Deployable Communications (TDC) package. This package is replacing legacy deployable AF communications equipment with scalable, lightweight, and reliable transmission, networking, and network management equipment. TDC allows timely reachback to the US for intelligence, logistics and people support that otherwise would have to deploy forward. During OEF operations, we successfully deployed TDC to support combat operations, demonstrating that TDC is the capability needed to support AEF communication requirements.

Contributing to the GIG, the AF is building an enterprise architecture ensuring our diverse projects and initiatives are closely integrated to deliver maximum capability to the warfighter. In support of the enterprise architecture, the AF "infostructure" architecture facilitates system integration by providing timely and cost effective communications and information technology capabilities. The AF infostructure leverages commercial and government developed technologies and ensures these technologies are controlled and integrated.

To provide our people better access to information and applications needed for their specific missions, we have fielded additional capabilities through the Air Force Portal. The Air Force Portal is envisioned as the single access point for practically all our information needs. Leveraging commercial successes in web-enabled information technology and communications, our members now have access to the Air Force Portal almost anywhere in the world.

Information Warfare (IW)

Multi-faceted information warfare planning and execution is another challenge of information superiority. In the effort to create specific effects to accomplish campaign objectives, the Air Force closely coordinates information operations (IO) plans between and among supported and supporting commands to prevent redundancy, mission degradation, or fratricide. The numerous organizations

participating in these coordination efforts include representatives from the COMAFFOR for Computer Network Operations and the Air Intelligence Agency, to IO squadrons and IW flights. To enhance the effectiveness of these organizations, we specifically designed tools for the IW planning and testing efforts. In an effort to normalize IO as a warfighting asset, we integrated AIA into the Air Combat Command, the IW lead for the Combat Air Forces. They directly support the Joint Force Commander through the JFACC/COMAFFOR.

We continue to make every effort to define requirements and layout a viable long-term strategy/roadmap to provide IW capability to the warfighter. The IW MAP has become a leading edge planning tool for the Air Force in this arena. Its expressed purpose is: (1) To define, document, and advocate Air Force IW requirements, (2) To integrate those requirements into the Air Force Capabilities Investment Strategy, (3) To identify solutions meeting validated IW needs, and (4) To provide IW Mission Area expertise to the warfighter and to the Air Force corporate process. Subsequently, the MAP helps to focus disjointed efforts, reduces duplication, promotes integration among architectures and enhances operations.

Information Assurance (IA)

The Air Force maintained a robust IA capability through a Defense in Depth strategy that integrated people, operations, and technology for multi-layered, multi-dimensional protection. People were trained to do the IA mission and protect the network. We changed policies and procedures to ensure IA operations are effective and efficient. We also implemented Finally, technological advances to provide physical protection to our information weapon system. Consequently our IA posture has never been better.

Training initiatives included a year long IA Campaign that focused our attention on such corporate issues as IA roles and responsibilities, network threats and countermeasures, computer network defense, and EAF web security which significantly improved our collective IA knowledge and capability. We also con tinued our emphasis on individual certification for network operators and

Below Left, *A Computer Systems Control Technician troubleshoots a Common Logic Board Card on a Integrated Digital Network Exchange.* Below Right, *Regardless of location our communications professionals are charged with ensuring seamless connectivity within the deployed locations, their home units, and higher headquarters.*

Communications professionals test the fiber optic link in the new communications network control center while deployed in support of Operation ENDURING FREEDOM.

maintainers through the development of a Job Qualification Standard toward mission-ready, deployable people.

Addressing procedures, we implemented a Time Compliance Network Order (TCNO) process. TCNO allows senior leadership to track and ensure completion of critically important computer security configuration changes. This resulted in a ten-fold reduction of network infections attributed to malicious code attacks from 2000 to 2001. Another important operational initiative is the deployment of Scope Network teams to our installations to fine-tune base-level networks. Scope Network's mission is to optimize and tune networks and firewalls and ensure their proper configuration. They deploy throughout the year to measure, analyze, train, and mentor at the base level.

Finally, our primary IA technology initiative is a layered equipment suite to discourage hackers and filter viruses as well as provide tools to identify vulnerabilities like the Combat Information Transport System (CITS), and the Network Management System/Base Information Protection (NMS/BIP). These systems provide a standard tool suite to each Air Force installation.

The requirements for global-level detection and early warning of natural disasters, conventional military or chemical, biological, radiological, nuclear and high-yield explosive (CBRNE) aggression remain as critical as ever. At the same time, September 11th introduced a new category of threat that will challenge the ability of America's C4ISR networks to cope with strategic-level surprise, *fait accompli* or limited objectives strategies, among others. Information superiority, the mastery of prediction, assessment and employment of data, is arguably our Nation's most pressing challenge.

While the B–52 "BUFF" was first built 50 years ago, it shows, on a daily basis, why it remains a powerful work horse.

Global Attack

Global Attack is the ability to create desired effects within hours of tasking, anywhere on the globe, including locations deep within an adversary's territory. It also includes the ability to retarget quickly against objectives anywhere, anytime, for as long as required.

Among Air Force programs supporting these capabilities is our bomber fleet. Our B–1, B–2, and B–52 bombers provide a global rapid response, precision and standoff strike capability, 24/7 battlespace persistence, and a level of time-critical targeting (TCT) capability. The new transformation era reinforces and re-emphasizes our ongoing basic bomber modernization plan—increase lethality, survivability, flexibility, supportability, and responsiveness.

All three platforms now carry the highly accurate 2000-pound Joint Direct Attack Munition (JDAM), and are all being fitted to carry new standoff precision guided weapons. In addition, future integration programs will see the inclusion of smaller precision weapons. To improve their survivability, bombers are receiving a range of upgrades to include defensive system, situational awareness and electronic countermeasure upgrades. To enable attack of time-critical targets, the Air Force is upgrading bomber avionics and communication systems and linking them directly with remote sensor and targeting systems.

To enhance our ability to kick down the door in remote theaters and clear the way for follow-on forces, the Air Force is planning for a mix of new generation manned and unmanned, air superiority and ground attack aircraft. However, until the F–22, Joint Strike Fighter (JSF), and Unmanned Combat Aerial Vehicle (UCAV) become an operational part of our inventory, we will continue to rely heavily on our legacy fighters—the F–15, F–16, F–117 and

F–22 Raptor test fires the AIM 9 Sidewinder.

A–10—to provide a potent mix of air-to-air and air-to-surface capability. These platforms are all programmed to receive upgraded voice and data communication systems linking them to a joint command and control net. Programmed improvements to avionics and situational awareness systems will allow for better all-weather/night operations, combat identification and response to time-critical and moving targets.

F–15E modernization incorporates robust data-link capability and integration of smart weapons to ensure all-weather, deep strike lethality. The recent addition of Global Positioning System (GPS)-guided, precision guided munitions (PGMs) on the F–117 give it an adverse-weather capability. However, these aging platforms are growing more expensive to maintain and operate, and their combat effectiveness is expected to eventually decline as projected surface-to-air and air-to-air threats with greater capabilities emerge. The introduction of

the stealthy F–22 and JSF will maintain America's technological advantage and ensure our ability to defeat next-generation threats while replacing our aging force structure with leap-ahead capabilities.

One of our Guard and Reserve's top modernization priorities is incorporating precision targeting pods into their F–16 aircraft. From 1998 through 2000, we outfitted all our Reserve units and selected Guard units with LITENING II pods. This acquisition gave Guard and Reserve F–16s a critical precision strike capability while configuring these units with the system capabilities of the Active F–16 force. Additionally, the Guard will join the Active force in procuring Advanced Targeting Pod (ATP) for an initial operating capability in 2003.

F–117 dropping a precision guided munition.

Two critical F–16 programs, the Combat Upgrade Integration Details (CUPID) and the Common Configuration Implementation Program (CCIP), will bring decisive combat capability (night vision, helmet-mounted cueing, and data links) to our F–16 fleet. Additionally, the Falcon Structural Augmentation Roadmap (STAR) will ensure the F–16 fleet is structurally sound to perform its mission through its designed service life. Collaborative programs between our Active and Reserve components increase our overall procurement flexibility and close the gap in combat capability.

Guard F–16s with LITENING pods provided tremendous capability to attack targets through inclement weather.

The leverage of systems integration: *Air Force Reserve F–16s, using the information provided by the LITENING II targeting pod combined with Global Positioning System (GPS) software enhancements, combine to form a precise munitions delivery system. Together with the information gained from the Situational Awareness Data Link (SADL), this capability is acknowledged as one of the weapon systems of choice for combat missions. Operations in Southwest Asia, both in Iraq and most recently in Afghanistan show how this capability provides combatant commanders the ability to conduct attacks against "time critical targets."*

Intercontinental Ballistic Missiles (ICBM)

The recent DoD Nuclear Posture Review (NPR) announced a transition from the Cold War nuclear triad to a new capabilities-based triad in response to the more complex, evolving security environment. Consistent with NPR direction, the Air Force is providing for long-term sustainment of ICBM capabilities. Minuteman III (MMIII) ICBMs will be deployed through 2020 and supported by on-going life extension programs. We will begin to look at alternatives for a follow-on ICBM to be fielded as MMIII reaches the end of its service life. Peacekeeper (PK) ICBMs will be retired beginning in CY02. As the PK system is deactivated the Air Force intends to transfer some warheads currently on PK to the MMIII, thereby avoiding a costly life extension program on certain MMIII warheads. This replacement effort will ensure that the newest warhead with all modern safety features remains a part of the ICBM force, an essential nuclear strike element in the nation's capabilities-based triad.

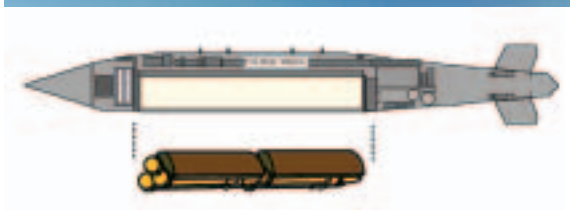
An AF MMIII launches from Vandenberg AFB as part of an ongoing test program to certify readiness of the ICBM fleet to meet its strategic force requirements.

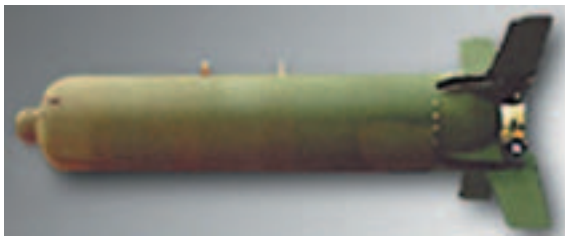
Precision Engagement

Our current operations emphasize the powerful advantage of being able to create precise effects rapidly. The Air Force offers tremendous capabilities to meet this national requirement from pinpoint humanitarian responses to precise weaponry. Precision is fundamental to all of our operations and, in particular, to transformational combat operating concepts. Along with information superiority and stealth, precision engagement enables our forces to identify an adversary's key centers of gravity and relay that information to strike assets, thus reducing risks by avoiding unnecessary engagements (a concept generally referred to as "parallel warfare"). Enhancing precision engagement will allow us to accomplish this cycle in near real-time. This would allow us to maximize the leverage gained from the fluid interaction of joint forces in more effective prosecution of operations.

We have made significant progress in our efforts to develop and field a new generation of weapons that can attack and destroy pin-point, hardened, and relocatable targets at night and in most weather conditions while greatly reducing the risk. By rapidly adapting new technology employed under actual combat conditions in Operations ALLIED FORCE and ENDURING FREEDOM, we now have an array of precision weapons that can be employed from nearly all of our combat aircraft. Our high priority precision engagement programs now include the Joint Air-to-Surface Standoff Missile (JASSM), Joint Standoff Weapon (JSOW), Joint Direct Attack Munition (JDAM), Wind Corrected Munitions Dispenser (WCMD), and eventually the Small Diameter Bomb (SDB).

JASSM is a precise, stealthy, cruise missile that will enable us to destroy heavily defended, hardened, fixed and relocatable





New munitions enhance all-weather, 24 hour capabilities.
Left, *JDAM provides the venerable B–52 with precise attack capability.*
Center left, *JSOW will allow U.S. and allied forces to attack targets from greater range.*
Below left, *WCMD allows greater precision as the sensors on the tail kit compensate for wind drift.*
Below right, *JASSM allows greater stand-off capability to attack high value targets.*

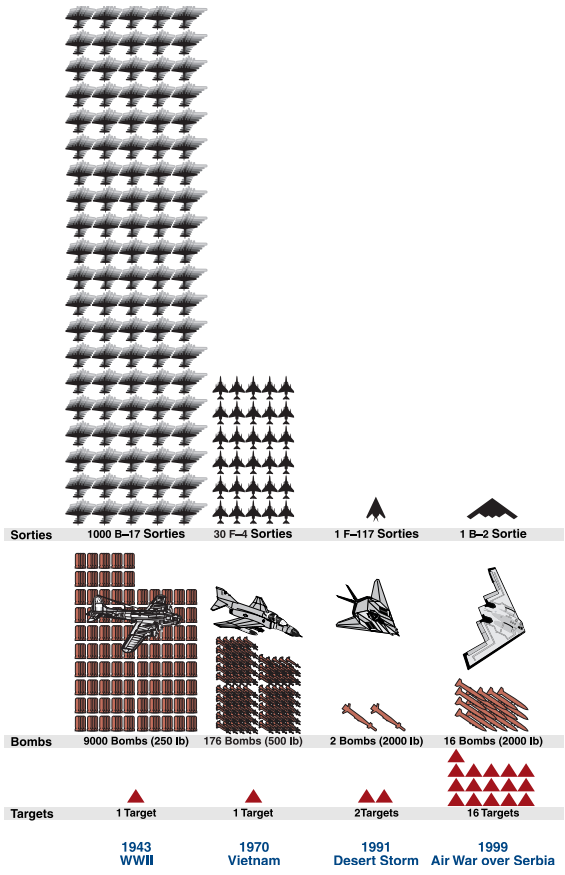
targets from outside of area defenses. JASSM program recently entered low rate initial production and will be delivered to the field in 2003.

JSOW is an accurate, adverse-weather, unpowered, glide munition. We are currently procuring two variants, the AGM–154A and AGM–154B, which are capable of destroying soft and armored targets at ranges exceeding 40 nautical miles.

JDAM employs GPS-aided guidance, incorporated in a tail kit, to deliver general-purpose bombs or penetration warheads with near-precision accuracy. We will use JDAM in all weather conditions from multiple platforms to destroy high-priority, fixed, and relocatable targets. The first operational use of a 2,000-pound JDAM was from a B–2 during Operation ALLIED FORCE and JDAM has been used extensively during OEF. The F–22 will employ the 1000-pound JDAM against anti-access and air defense systems. Using the 500-pound JDAM currently in development, the B–2 that carries up to 16 2,000-pound JDAMs in OAF, would be able to carry up to 80 500-pound JDAMs in future conflicts. This will provide the first step in the Air Force's transition to miniature munitions. Succeeding steps include the Small Diameter Munition (SDM) (discussed in Chapter Four). SDM, under development for the F–22, will offer standoff capabilities against the most difficult surface-to-air threats. The F–22 will carry up to eight SDMs internally.

WCMD has an inertial-guided tail kit that enables us to accurately deliver the Combined Effects Munition, Sensor Fuzed Weapon, and the Gator Mine Dispenser from medium to high altitude in adverse weather. WCMD became operational in late 2000 and has been successfully employed in OEF from the B–52.

Precision and stealth have redefined the concept of mass.



Synergy of stealth and precision: *During World War II, 1000 B–17s delivered 9,000 bombs in order to achieve a 90 percent probability of kill against a single target. With precision strike and stealth, a 90 percent probability of kill is achieved with one bomb on one sortie.*

Key to precision engagement is the GPS navigation signal used by sensors and shooters to assist in targeting the enemy with pinpoint accuracy. Successful joint operations rely on the GPS signal: search and rescue, rendezvous, and mapping are only a few examples. Rigorous upgrades to both satellites and warfighter equipment are currently in work to protect the ability of American and allied forces to employ the GPS signal on the battlefield and deny it to our adversaries while preserving civil use.

Precision capabilities allow the United States to engage in operations with dramatically reduced risk to friendly forces, significantly less costs in men and materiel, and with greater likelihood of success. The strike side of precision engagement enables us to employ one weapon per target to destroy it with minimal collateral damage and greatly increase the number of targets that can be struck per sortie.

The benefits are exponential. By minimizing the number of sorties required to strike a target, we shrink the forward footprint necessary and minimize the number of airmen, soldiers and sailors in harm's way. Indeed over the last decade, the Nation has faced numerous engagements wherein precision has proven the method for success. From the Balkans to Kabul, combatant commanders have required precision capability, not large-scale conventional operations. However, this demand has dramatically reduced our large Cold War reserve munitions stockpiles. As current operations continue to tax existing PGM inventories, the Air Force is working to expand the capacity of our industrial base to fill preferred munitions requirements. This strategic effort, along with our continued acquisition of JDAM, JASSM, JSOW and WCMD, will increase PGM capabilities over the next several years. The changing nature of warfare with its emphasis on precision engagement, necessitates that munitions recapitalization and development of transformational small weapons will remain among our top priorities.

Precision strike, however, is more than simply very accurate munitions. It is also the ability to generate precise effects other than destruction. For that reason we

also invest in various non-lethal weapons, offensive information warfare capabilities, and directed energy weapons that enable the U.S. military to affect targets without having to destroy them. This enables effects-based operations that match precise capabilities to desired effects—the ultimate in deterrence.

Rapid Global Mobility

Rapid Global Mobility ensures the nation has the global reach to respond quickly and decisively anywhere in the world. As the number of forces stationed outside the United States has declined, the need for an immediate response to overseas events has risen. Given that access to forward bases will remain critical and become increasingly risky, the rapid deployment and agile sustainment of expeditionary air and space forces will be key to our ability to operate across the spectrum of conflict.

Airlift and tanker aircraft give the United States the ability to swiftly reach out and influence events around the world. OEF and ONE have, again, shown the utility of rapid global mobility. We have also witnessed the potential need to provide critical tactical lift capability for immediate response at home. However, even with the success of these ongoing operations, the Air Force desperately needs to continue airlift and tanker modernization efforts to ensure the U.S. maintains its ability to operate globally. As part of our on-going effort to assess our airlift requirements in light of current and anticipated needs, Air Mobility Command is undergoing a comprehensive review of our air mobility force structure.

Global Air Traffic Management (GATM)

In addition to aging aircraft problems, the Air Force mobility fleet must also respond to the added requirements of a new air traffic architecture. GATM focuses on increasing system capacity and flight efficiency, while continuing to meet flight safety standards. The most critical technology elements are satellite-based navigation, increased use of data links rather than voice for pilot/controller communication, and improved surveillance that will enhance both ground and cockpit situational awareness. Incorporation of these technologies will ensure our mobility fleet maintains unrestricted access to global airspace.

An essential means to ensure the AF's ability to support its 54.5 million-ton miles per day airlift requirement is through the procurement of additional **C–17s**. The AF has identified a need for at least 180 C–17s, and we'll award a follow-on multi-year

The C–130 is the primary tactical airlift platform for the U.S. Here it employs the Low Altitude Parachute Extraction System (LAPES) to precisely deliver cargo to ground forces.

procurement contract to reach that number. A mobility tiger team with Active, Reserve and Guard representation will continue to study beddown plans for these additional aircraft.

The average age of our **KC–135** tankers is now over 41 years and operations and support costs are escalating as structural fatigue, corrosion, systems supportability, and technical obsolescence continue to take their toll. To keep these aging aircraft operational, we are modernizing the avionics and navigation systems on all Active, Guard, and Reserve KC–135s. Called Pacer CRAG (compass, radar and global positioning system), the project provides for a major overhaul of the cockpit to improve the reliability and maintainability of the aircraft's compass and radar systems. The project also meets the congressionally mandated requirement to install the global positioning system in all Defense Department aircraft. As an added safety measure for formation flying, a traffic collision avoidance system (TCAS) will be installed. TCAS gives pilots the ability to actively monitor other aircraft and provides advance warning of potential mid-air collisions.

The ongoing war on terrorism is further stretching the tanker fleet, motivating the Air Force to consider accelerating replacement options. The Boeing 767 Global Tanker Transport Aircraft (GTTA) is a promising alternative to quickly replace the KC–135E, our least capable and most costly to maintain tanker aircraft. While considering this and other lease options, the Air Force is focused on acquiring the world's newest and most capable tanker; increasing fuel offload, increasing availability, and increasing reliability—all with far lower support cost.

The Air Force is pursuing a two-phased modernization plan for the **C–5 fleet**. Phase I is the Avionics Modernization Program (AMP) and Phase II is the Reliability Enhancement and Re-engining

The C–17 Globemaster is the newest addition to our strategic airlift fleet. Here a row of 5 C–17s await cargo upload.

Program (RERP). C–5 AMP replaces unreliable/unsupportable engine/flight instruments and flight system components, installing GATM equipment to assure complete access to global airspace and installing navigation/safety equipment to reduce risk of mid-air and ground collisions (i.e. TCAS). C–5 RERP improves aircraft reliability, maintainability and availability by replacing the power plant and other unreliable systems. Several C–5 aircraft will undergo multi-year testing to evaluate the potential for modernizing this aging, but important mobility asset. The results of that evaluation will determine the need for additional C–17 acquisitions or other alternative.

Modernization of the **C–130 fleet** is proceeding with a two-pronged approach to maintain an intra-theater airlift capability well into the 21st Century. Procuring 168 new C–130Js to replace our oldest C–130s and modifying the remaining fleet will reduce total ownership costs and simplify maintenance, training, and operational employment. New C–130Js will replace eight EC–130Es and 150 of our most worn-out C–130E combat delivery aircraft. In addition, 10 C–130Js will replace the Reserve's 10 WC–130H aircraft at Keesler Air Force Base,

In preparation for takeoff, a boom operator and crew chief re-evaluate the fuel weight balance of their KC–135 air refueling aircraft.

The Tunner 60–K loader dramatically expedites the handling and processing of cargo pallets for our strategic airlift fleet. Tankers such as the KC–10 (above) and the KC–135 (left) are critical enablers for that strategic airlift.

A critical special operations asset is the MC–130. Here, 3 MC–130s head out into the night from Hurlburt Field, FL.

MS. These aircraft and crews are specially trained and equipped to penetrate severe storms while collecting and transmitting extensive meteorological data necessary to track and forecast the movement of these severe storms to a special ground station. C–130Js will also replace the Air National Guard's aging Commando Solo platform, as well as complete other Guard units. The remainder of the AF's C/AC/EC/HC/LC/MC–130 fleet will undergo an Avionics Modernization Program (C–130 AMP). This will include state-of-the-art avionics and a new "glass" cockpit that will eliminate the need for a navigator in the combat delivery aircraft. Along with increased reliability, this modernization will make the fleet compliant with the GATM and the DoD's navigational safety requirements.

Rapid Global Mobility is also dependent upon expeditious **airfield support**. Moving aircraft tails in-and-out of a field quickly can determine success or failure of an operation. The Air Force is procuring the Tunner (60K) and Halvorsen (formerly next generation small loader or NGSL) loaders to replace older equipment, providing a new capability to interface directly with all military and commercial cargo aircraft. The Tunner is optimized for high volume to support operations at major aerial ports while the Halvorsen is C–130 deployable to support mobility operations at forward, austere bases.

Large Aircraft Infrared Countermeasures (LAIRCM)

The Air Force has begun a new self-protection initiative to counter man-portable air defense systems (MANPADS). LAIRCM will use state-of-the-art technology to provide an active IR defense for the AF's airlift and tanker aircraft. LAIRCM builds on existing systems designed to defend helicopters and small, fixed-wing aircraft. It will add a laser, which provides the increased power needed to protect aircraft with large IR signatures like the C–17 and the KC–135. Operational capability is expected on the first C–17s in late FY04. Additional airlift and tanker aircraft will be LAIRCM-modified in the future.

CV–22

The CV–22 is the Air Force designation for the special operations variant of the V–22 Osprey - a vertical takeoff and landing airplane designed for long range, rapid,

The CV–22 will provide Air Force Special Operators unprecedented range and lift for a vertical take off and landing platform.

clandestine penetration of denied areas in low visibility, adverse weather, and/or at night. With twice the range and speed of a conventional helicopter and state-of-the-art avionics system, the CV–22 will be able to complete most of its missions under the cover of darkness without being detected. We will use the CV–22 to infiltrate, exfiltrate, and resupply Special Operations Forces (SOF) and to augment personnel recovery forces when needed. Currently, the entire V–22 program is undergoing a major restructuring that will address technical and safety concerns. Flight tests of the two CV–22 test vehicles, suspended through 2001, will resume in 2002 and continue through 2005.

VIP Special Air Mission/Operational Support Airlift (VIPSAM/OSA)

The Air Force continues to modernize the VIPSAM/OSA fleets to provide senior leaders with improved capabilities to respond to national crises. Aging support aircraft are being replaced with modern commercial aircraft with intercontinental range and robust communications (leased Gulfstream Vs, designated the C–37, and Boeing 737–700 designated the C–40B). This innovative strategy to leverage the commercial aircraft industry should be completed by fall 2002. The President's VC–25s will receive major upgrades to the passenger cabin infrastructure. Additionally, major upgrades to the communications suite will provide airborne capabilities comparable to that of his White House office. The four C–32s (Boeing 757s) will also receive advanced "office-in-the-sky" upgrades to include broadband data and direct broadcast service. As funds become available, remaining VIPSAM aircraft will be evaluated for similar upgrades.

Agile Combat Support (ACS)

Responsiveness, deployability, and sustainability—the cornerstones of American expeditionary operations—are the mandate of agile combat support. The basic objectives established set to achieve these goals remain intact. The Air Force established set objectives to elevate the capabilities of the ACS elements by developing lighter, leaner, and more rapidly deployable forces; creating more responsive planning and execution capability; executing improved agile combat support command and control; and assuring an agile, responsive, and survivable sustainment capability.

While progress has been made toward achieving these objectives, much of the deployment strain in support of OEF has fallen on our expeditionary combat support forces. Some high-demand support areas have exceeded their on-call capabilities in current AEF rotation cycles, as a result of our surge mode activities, which are likely to continue for some time. Consequently, we are continuing to make gains in right-sizing deployment teams so they are postured efficiently and effectively for expeditionary needs. We are placing high emphasis on the development of expeditionary site planning tools that provide the means to tailor our deployment capability based on assets pre-positioned in the theater.

Reconstituting our current bare base systems and wartime stocks, as well as developing and acquiring bare base assets and other types of support equipment that are "lighter and leaner" and more rapidly deployable are also integral to achieve force responsiveness. Essential investments in infrastructure and pre-positioning are mandatory ingredients of improved reception and beddown capabilities at our fighter and bomber forward operating locations (FOLs).

The fielding of the Integrated Deployment System at all of our AF Wings has improved the responsiveness of our Wing deployment process. Our information technologies must continue to mature with

expansion of such capabilities as the virtual logistics suite hosted on the Air Force Portal. These essential components provide real-time situational awareness for ACS command and control that leverages logistics and combat support across simultaneous operations in multiple theaters that now include the CONUS. The CSAF's Logistics Review (CLR) and ongoing Logistics Transformation are reengineering our logistics processes to achieve an agile, effective, well integrated logistics chain that is responsive to AEF requirements.

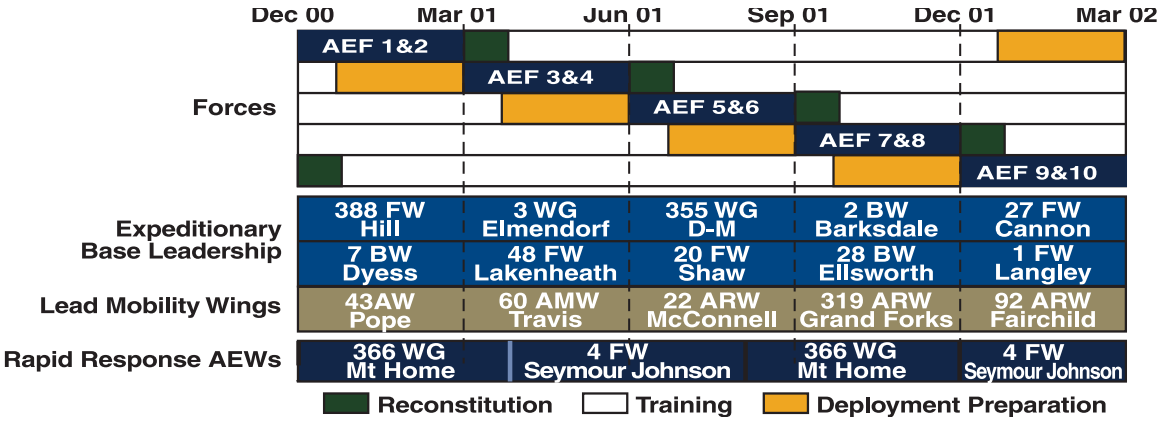
Whether forward deployed in AEF operations, or completing homeland security missions, we must be prepared to operate under any conditions. Protecting critical bases of operations and defeating CBRNE weapons and their means of delivery is one of the most complex challenges facing the DoD. Our balanced response to the proliferation of these weapons, integrates the four pillars of counterproliferation—proliferation prevention, counterforce capabilities, and active and passive defense measures.

Our counter-NBC operational readiness initiative sets Air Force-wide standards for readiness, identifies shortfalls and develops capabilities to effectively cope with CBRNE attacks. This initiative includes a counter-NBC roadmap and an enhanced counter-chemical warfare CONOPS. The roadmap is an innovative investment strategy that cuts across Air Force plans and programs to increase counter-NBC visibility, while offering enhancements for effective air and space operations in NBC environments.

Regardless of contamination, combat or humanitarian settings, the medical service plays an important role in agile combat support. Through training initiatives and innovation in field systems this year, AFMS has raised the bar on its capabilities. The results of these efforts are the addition of state-of-the-art equipment and training facilities which guarantee AFMS' ability to respond effectively when the nation calls.

One example is EMEDS, which is a lightweight modular medical system that allows the AFMS to tailor its response to each situation. Another revolutionary disaster response system is the Lightweight Epidemiological Advanced Detection and Emergency Response System (LEADERS), designed to enhance the current medical surveillance process and provide the earliest possible detection of covert biological warfare incidents or significant outbreaks of disease. The Air Force will continue to work with its civilian counterparts to develop and fine-tune this technology over the coming year.

The EAF construct has dramatically improved the predictability of deployments for our airmen. Knowing in advance which AEF is "in the box" (below)*, allows other AEFs to train or reconstitute to meet the demands of a changing world.*



Along with developing relevant facilities and equipment, the AFMS is expanding its training capabilities through the development of the Coalition Sustainment of Trauma and Readiness Skills (CSTARS) program. CSTARS creates learning opportunities in which civilian academic centers serve as training platforms to provide clinical experience to help sustain necessary readiness skills for AFMS providers. The CSTARS arrangement allows for synergistic relationships between academic medical centers and military medical assets, while simultaneously improving wartime readiness and homeland security capability. Finally, AFMS training also extends to allied and friendly nations. The Institute of Global Health (IGH), located at Brooks AFB, Texas, is a worldwide educational program for medical providers to develop and improve their medical response skills. Programs are tailored to the host nation's infrastructure and resources and are taught on-site.

This cross-section of examples of initiatives that will help achieve the four ACS objectives are producing meaningful results. There is, however, more to be done to better prepare our ACS capability for supporting the EAF vision. For example, we need to fill readiness shortfalls in key logistics resources strained by expanded operations including people, skills, spares, munitions, bare base assets, vehicles, etc. We need to improve our capability to rapidly develop deployment and sustainment plans for fast-breaking contingencies. Enhancements need to be made to our ACS command and control capability to make it more responsive, better integrated, and sufficiently robust to support AEF needs worldwide. Finally, modernization of equipment and the tools essential to complement skilled personnel require investments in R&D in Science and Technology initiatives that will help reduce our "footprint" while improving our ACS capability.

Our aging infrastructure is in desperate need of upgrade. Our airmen are doing a wonderful job of keeping our older facilities operational, however, we must do more to improve our bases.

Additional Readiness Concerns

Facilities and Infrastructure Air Force installations and facilities that are available when and where needed, and with the right capabilities, form the foundation supporting current and future operational requirements and readiness. Our installations and facilities are the platforms from which we launch and recover Air Force and Joint weapon systems while simultaneously providing work and living environments for personnel and their families. For example, bases like Whiteman AFB, Missouri and Ramstein AB, Germany, are important nodes in the global network that sustains OEF operations while also sustaining thousands of airmen, dependents, and their communities.

Regular and planned upgrades are an essential part of keeping a healthy infrastructure upon which to build and sustain air and space capabilities. In FY02, operations and maintenance (O&M) sustainment funding precluded fully maintaining Air Force facilities and infrastructure and will increase the backlog

of necessary repairs. In the near term the Air Force facilities recapitalization rate falls short of DoD's 67-year facilities recapitalization goal. In FY02, our military construction (MILCON) and O&M restoration and modernization accounts allowed us to achieve a recapitalization rate of 163 years. With Congressional assistance we were able to reduce our FY02 rate to 118 years.

In the FY03–07 Adjusted Program Objective Memorandum we were able to fully fund O&M sustainment across the FYDP and achieve a restoration and modernization recapitalization rate trajectory that will meet the OSD's 67-year goal by 2010. This track must be maintained. Sustaining and modernizing our facilities and infrastructure will ensure we have the right facilities at the right time and place to support military readiness.

Aging equipment become more costly to operate and maintain. Our vehicle fleet is in desperate need of additional funding.

Vehicle Replacement Program

The Air Force vehicle fleet is in serious need of recapitalization. Underfunding of the program during the past decade has created a backlog of more than 41,000 general and special purpose vehicles that have exceeded their life expectancy. This backlog represents half of the entire Active, Guard and Reserve vehicle fleets. The backlog continues to grow each year, despite efforts to lease vehicles and extend vehicle life expectancies through enhanced technology. Current funding is below the annual requirement. On-going operations have created a need for 879 additional leased and procured vehicles valued at $42.4 million to support the mission. Failure to replace aging vehicles has a direct impact on of readiness and ultimately our combat capability.

Norton AFB, CA, is one of the thirty-one bases successfully closed to date.

Realignments and Closures

Reductions in Air Force manpower and force structure continue to outpace those in infrastructure. As a result, the Air Force continues to fund unneeded facilities while struggling to maintain its vital operational readiness. Our physical plant today is too costly, and we have too much of it. Excess infrastructure continues to waste precious dollars that could be better used for force modernization and quality of life. The Air Force needs to close unneeded installations and direct the savings into readiness areas: base operating support, real-property maintenance, family housing, and military construction at crucial operational bases. The Air Force will comply with the Secretary of Defense's guidance for conducting the Base Realignment and Closure (BRAC) process in 2005, as authorized in the 2002 National Defense Authorization Act.

Environmental Leadership

The Air Force continues to be a leader in the stewardship of our environment through compliance, pollution prevention, resource conservation, and environmental restoration. We have achieved the Defense Planning Guidance goal for 2002 for the environmental restoration program, to have cleanup remedies in place for 50% of our active installations high-risk sites. The next goal is to have remedies in place for 100% of the high-risk sites by the end of 2007. We are on track to achieve that goal, as well as having remedies in place for all medium risk sites by the end of 2011 and all low-risk sites by the end of 2014.

The Air Force has a tremendous range of flexible, rapidly responsive capabilities—the skill sets that allow us to meet any mission requirement. Constant improvement will require innovation, creativity and re-assessment, but also the funding support to recapitalize critical components.

Towards Developing Systems

Experimentation and Wargames

We conduct experiments and wargames to evaluate near- and far-term air and space capabilities and operational concepts. Joint Expeditionary Forces Experiment (JEFX) is the Air Force's large-scale experiment, which is fully integrated with Joint Forces Command's Millennium Challenge series of experiments. It is a live and constructive event focused on improving time critical targeting; command and control of intelligence, surveillance, and reconnaissance; and alliance participation in an open-floor Combined Air and Space Operations Center. The Global Engagement (GE) wargame is held every other year to explore the potential capabilities of joint air and space power and future concepts 10 to 15 years into the future. GE V demonstrated air and space power's unique capability to ensure access to operational areas where the enemy employs robust anti-access strategies. In August 2001, we completed a year of post-game analysis from GE–V. This analysis showed the Air Force is on the right vector toward the future in the area of force capabilities and is making great strides in addressing time critical targeting requirements. GE V also provided substantive recommendations for improvements in space control, information operations, and forward logistic support.

Planning is underway for the next Global Engagement (GE VI), scheduled for November 2002. This game will explore mid-term joint/combined operational concepts, such as rapidly dominating the battlespace and setting conditions for transitioning to sustained joint operations.

During odd-numbered years, we conduct the Air Force Future Capabilities wargame that takes a longer view, striving to shape our strategic vision by testing alternative concepts, systems, and force structures that may appear 20 to 25 years into the future. These wargames have produced new air and space concepts, such as long-range standoff warfare, reach-forward C2 capability, space force application, and the link between C2, ISR and target engagement, which continue to mature through follow-up analysis and subsequent wargames. We have just concluded the 2001 Futures Game that focused on defining C2 and ISR for the 2020 air and space campaign; overcoming anti-access strategies; survivability of space capabilities; future transformational capabilities; computer network operations; and conducting future joint/coalition operations. Insights from this game will be developed, analyzed and investigated further throughout 2002.

Advanced Concept Technology Demonstrations (ACTDs)

ACTDs marry new operational concepts with mature technologies meeting warfighter needs in two to four years at a reduced cost. The Air Force currently has 21 ongoing ACTDs. An example is the Hyperspectral Collection and Analysis System ACTD that will demonstrate various hyperspectral sensors on operational platforms and integrate them into the existing tasking, processing, exploitation, and dissemination architecture. Another example is the Thermobaric Weapon ACTD, which provides an energetic thermobaric penetrator payload to defeat enemy tunnel facilities and weapons with two to three times the lethality of conventional high explosive payloads.

Battlelabs

Since their inception in 1997, Air Force battlelabs have developed over 120 initiatives, including the application of commercial scheduling software for the Air Force Satellite Control Network, telecommunications firewalls for base phone systems, and the use of speech recognition to reduce mission planning time. The recently commissioned Air Mobility Battlelab, with a charter to rapidly identify and assess innovative operational and logistics concepts, joined the ranks of the Air and Space Expeditionary Force, Command and Control, Force Protection, Information Warfare, Space, and Unmanned Aerial Vehicle Battlelabs.

Enhancing Fundamental Practices

Agile Acquisition

The Air Force launched Agile Acquisition to streamline and synchronize the business of defining, funding, developing, acquiring, testing and sustaining the weapon systems our Air Force uses to defend America's freedom. The goal is simple: Field today's technology…TODAY. While we've had many individual successes in the past, individual successes do not translate into fundamental reform. We must get to the point where doing things smartly is not news. Agile Acquisition is the strategy to achieve systemic improvement.

As a strategy, Agile Acquisition has three major thrusts: First, we will relentlessly attack our own processes and get rid of those steps that are not value added. Second, we are going to free our leaders to lead and demand that they take the initiative. We are going to train them to be innovative and think creatively, provide periodic refresher training, and then hold them accountable for being agents of change. Finally, we're going to offer a lot of help through our new Acquisition Center of Excellence, which opened for business on December 2001.

The acquisition reform of *Lightning Bolts 2002* gives us the tools to make those changes. They will focus our acquisition efforts and, at the same time, reinforce our other initiatives to transform and improve the services and products we provide. The Lightning Bolts will also reinforce and complement the headquarters reorganization announced in December 2001 by the Secretary and Chief of Staff. In addition, the AF is an active member of DoD's Rapid Improvement Team, chartered to streamline the Information Technology system acquisition process to less than 18 months. Towards that end, we are leading prototype programs aimed at eliminating serial and redundant oversight processes, expanding participation by interested parties, and sharing accountability from program inception. Achieving agile acquisition is not a luxury; it is a requisite for success. We must provide absolutely the best and

newest capabilities to our fighters in the shortest time possible. Our acquisition processes, too often seen as a roadblock to real progress, must become as agile as our warfighters.

Another key aspect of acquisition reform involves bringing the warfighter into the process early on. This is an essential element of our capabilities-based concept of operations which is discussed in the following chapter.

Long Term Depot Maintenance Plan

Depot maintenance is another critical element of our overall warfighting capability. The current depot posture has been influenced by the downsizing of our operational force; the reduction of our organic infrastructure; the introduction of new technologies; and recent depot legislative changes. In order to maintain a ready and controlled source of depot maintenance, the Air Force has prepared a Long Term Depot Maintenance Plan for submission to OSD and Congress by the summer recess of the Congress.

The overarching objective of this plan is to ensure that Air Force equipment is safe and ready to operate across the whole range of contingencies, from training to supporting major theater wars. Partnering with private industry is a key element of our plan and provides the best value approach for maintaining our depots. And, benchmarking our depots is essential for us to understand where best to invest. Leveraging the best of public and private capabilities ensures the Air Force will take advantage of what each does best. Partnering is also the method by which we will be able to most efficiently utilize our current facilities as well as bring in technologies to support core capability requirements in the future. However, taxing programs to fund capital improvements is a contentious process. We continue to explore the concept of depot capital appropriations to smooth out the investment streams.

The Air Force Long Term Depot Maintenance Plan will provide military strength by ensuring we possess an organic "core" capability sized to support all potential military operations. It will be a living document and postures our three organic depots to continue to support the warfighter.

Organizational Experimentation

- Future Total Force

In the 21st Century, the U.S. Air Force anticipates deriving its strength from the flexibility and the diversity of its integrated Active duty, Air National Guard, Air Force Reserve and civilians more than ever before. Optimum use of Air Force component resources is critical in providing the complete potential of American air and space power. Future Total Force (FTF) efforts will include new ways to optimize the components to make the best use of our resources and people and to build on a foundation of high standards and strong cooperation among the components.

In the 1990s, the force restructuring of the Air Force placed a greater emphasis on the Air Reserve Component. Today, the Guard and Reserve account for over 65% of the tactical airlift, 35% of the strategic airlift capability, 60% of air refueling, 38% of fighters, and significant contributions to rescue, bomber, and combat support missions. Additionally, the Guard and Reserve have an increasing presence in space, intelligence and information systems. Their units also provide support for pilot training; radar and regional control centers manning; Edward's Test Center, California; Test and Evaluation missions in Arizona;

weapon system school houses; flight check functions at Air Force depots; and helping to develop the Homeland Defense mission. Guard and Reserve components are no longer simply a "reserve" force—their collective capabilities make operating as an expeditionary Air Force possible.

Future success will depend upon our ability to develop an even closer partnership between the components and a "seamless" integration of all assets. FTF will explore expanding the integration of our people and systems, seeking efficiencies and leveraging their individual strengths by combining operations into new organizational structures-blended units. Together, Active, Civilian, Guard and Reserve form a more capable, more efficient and more effective organization than any could provide individually.

Blended units will integrate component capabilities in creative new ways, that may appear as radical departures from the past but which have actually been part of Air Force business practice for years. Flying and support functions, for example, will be so integrated with component personnel as to be invisible to outside observers. This will focus attention on conserving valuable manpower, resources, and skills while reducing overall costs and providing a "best mix" of personnel for the assigned mission.

Developing blended units will not be without challenge. Out-dated laws and policies would have to change to reflect requirements in command and control, fiscal and personnel issues. Demands for more efficient use of resources (personnel and aircraft), greater flexibility and integration of personnel and administrative systems, higher reliance on the commercial marketplace skills of individuals, and rapid adjustment to changing cultural, social, and economic influences on the Air Force institution will serve to further promote blended organizations.

The Guard and Reserve are more than just our partners in providing air and space power, they are an integral part of today's Air Force and form a special link between the Active duty Air Force and America's citizens. To a great extent, they are citizens first. Blended units would take advantage of that connection to the citizenry and their broad base of knowledge and experience, in both civilian and military matters. The Air Force goal is to create a truly "seamless" force of airmen—one organization of airmen who are interchangeable but who also operate in a different status at particular periods in their air and space careers. The Air Force is committed to evolving its FTF to meet the highly complex security demands in its future.

An F–16C Fighting Falcon from the New Jersey Air National Guard's 177th Fighter Wing, flies a combat air patrol mission in the Northeastern United States in support of Operation NOBLE EAGLE. More than 11,000 airmen, the majority Air National Guard and Air Force Reserve, have generated thousands of sorties to patrol American skies 24/7 since September 11.

Enhanced Homeland Security Missions

As operators of two legs of the nuclear triad, the Air Force remains at the heart of homeland security. Since its establishment in 1947, the Air Force has been actively and successfully deterring aggressors, intercepting intruders, and providing ballistic missile warning. The September 11th attacks brought homeland security to the forefront with the publication of Executive Order 13228, establishing the office of Homeland Security. The Air Force is being called upon to counter a new class of foreign and domestic terrorist threats through both defensive and offensive actions. Air defense capabilities remain on high alert to intercede and prevent further misuse of our nation's civil aviation assets. Expeditionary capabilities have been called upon to help destroy terrorist operatives where they live. In all actions, the air and space expeditionary force construct provides the flexibility to place forces where and when we need them.

Ground-Based Midcourse Defense (formerly: National Missile Defense)

The Rocket Systems Launch Program provided targets and interceptor vehicles for two National Missile Defense tests in 2001. Using decommissioned Minuteman II's, simulated incoming missiles were launched from Vandenberg AFB while a Minuteman II stage two and three combination, with test interceptor on board, was launched from Kwajelein Island. In the two 2001 tests, both successfully intercepted the target vehicle, meeting a huge technical milestone in the quest for homeland missile defense.

Conclusion

Air Force capabilities provide America with a unique set of strengths—asymmetric advantages. However, today's technological advantage is no guarantee of future success. Maintaining our current leadership position requires addressing our aging infrastructure, modernizing outdated weapon systems and harnessing technology to achieve our vision. To be sure, this requires funding, but a significant part of the improvements rests with ingenuity. In fact, how we maximize the collective potential of our Active, Guard, Reserve, and civilian resources will affect our ability to exploit the advantages our core competencies create. Realizing this potential through better business practices, more sophisticated training methods, acquired technologies, and other innovative means will be even more challenging given our ongoing efforts in the war on terrorism. Yet the risks of failing to meet the requirements for readiness are unacceptable. Readiness is one prerequisite for American military success.

Another is transformation.

Chapter 4
TRANSFORMATION

New Impetus to Transform
- The evolving geopolitical context

The terrorist attacks of September 11th have forever changed the world we live in. Now, more than ever, our military must transform to preserve the asymmetric advantages it currently enjoys—specifically, its air and space capabilities. These advantages are in danger of eroding in the face of emerging security threats including the diminishing protection of geographic distance; the proliferation of weapons of mass destruction; rapidly advancing technologies (such as sensors, information processing, and precision guidance) available to adversaries; escalating competitions in space and information operations; greatly reduced access to forward bases; the prospect of operations in urban areas; and finally, the prominent threat of global terrorism, especially within our open borders. The demonstrated superiority of our air and space forces over Afghanistan, and the asymmetric advantage they continue to provide the nation must not be taken for granted. Success is not a birthright, we must continue to transform to stay ahead of our adversaries.

America's future success requires us to fully exploit our current technological dominance to seek asymmetric advantage over our adversaries. Such transformation will encompass the horizontal integration of manned, unmanned, and space assets and require us to successfully address emerging and time-critical targets. It will require digital communications at the machine level which result in providing Joint Force Commanders with decision-quality information. The sum of this wisdom is a cursor over the target.

Transformation can include multiple technologies that enable new missions, significantly improved old systems and processes, or using existing capabilities or organizations in new ways. Ultimately, transformation will drive how the military is organized, trained, and equipped. Transformation can also involve changes in military doctrine or tactics, techniques, and procedures that determine force deployment, employment, or the way forces are led or interact with each other to produce effects. It is also important to remember that transformation extends into every aspect of the Air Force—be it warfighting or support capabilities. For example, transformation of our business systems is currently being embraced to take advantage of new technologies and processes already proven in commercial industry. These ideas and products will enhance our efficiency and increase the crossflow of information across Air Force communities.

A recapitalized force is fundamental to the realization of transformational forces. Though we are shortening acquisition cycles, new systems still take years to reach the field. Therefore transformation in the immediate future must begin by using legacy systems in new ways. We will continue to adapt and innovate in order to push the envelope of our capabilities.

Transformation - Realizing Potential Capabilities

In the 2001 QDR, the Secretary of Defense provided specific direction for military transformation. Future defense planning will shift from the previously "threat-based" approach to a "capabilities-based approach," focusing on "how an adversary might fight, rather than specifically on whom the adversary might be or where a war might occur." To support the SECDEF's goals, the Air Force remains in a continued state of evolution and transformation, aggressively pursuing advanced technologies, innovative methods of employment, and bold organizational changes. Transformation is nothing new to the Air Force. It has been an innate characteristic of airmen from the Wright Brothers to airmen operating in the 21st Century.

Continued AF transformation will enable the United States to defeat an adversary by giving the Joint Forces Commander the exact warfighting effects he needs, at the right place, and at the right time. AF transformations will help DoD achieve its "operational goals;" give the United States more operational flexibility and capability to address the future security environment; defeat adversaries' asymmetric strategies; reduce friendly casualties and collateral damage; and sustain America's current asymmetric advantages into the future.

QDR Operational Goals:

1) Protect critical bases of operations (U.S. homeland, forces abroad, allies and friends) and defeat CBRNE weapons and their means of delivery;

2) Assure information systems in the face of attack and conduct effective information operations;

3) Project and sustain U.S. forces in distant anti-access threats;

4) Deny enemies sanctuary by providing persistent surveillance, tracking and rapid engagement with high-volume precision strike against critical mobile and fixed targets at various ranges, and in all weather and terrain;

5) Enhance the capability and survivability of space systems and supporting infrastructure

6) Leverage information technology and innovative concepts to develop and interoperable, joint C4ISR architecture and capability that includes a tailorable joint operational picture.

Capabilities-Based Concepts of Operations (CONOPs)

AF warfighters are working hard to lay the foundation for the next step in our transformation to a capabilities-focused Expeditionary Air and Space Force. Our goal is to make warfighting effects, and the capabilities we need to achieve them, the drivers for everything we do. The centerpiece of this effort is the development of new Task Force Concepts of Operations (CONOPS) that will guide our planning and programming, requirements reform, and acquisition. We have identified several Task Force CONOPS that we are fleshing out—Global Strike Task Force (GSTF) is a prominent example and is the farthest along in development.

GSTF defines how the AF plans to operate when faced with an anti-access scenario. It will meet the immediate needs of our regional CINCs by leveraging our current and near-term capabilities to overcome anti-access threats like the next generation surface-to-air missiles and other defensive networks. By incorporating the stealth and supercruise capabilities of the F–22 with advanced munitions like SDB we will enable our stealth assets like the B–2s and F–117 to take apart the enemy defenses. This capability guarantees that follow-on air, space, land, and sea forces will enjoy freedom from attack and freedom to attack. Key to the success of the entire family of Air Force Task Forces will be the horizontal integration of manned, unmanned, and space ISR assets. A key component of horizontal integration is the Multi-sensor Command and Control network that will help provide the actionable, exploitable intelligence the JFC needs to make effective decisions

What warfighting effects will the AF provide? What capabilities do we need to deliver these effects? Our family of Task Force CONOPs will provide the answers to these questions. With this focus, we then understand what key requirements are needed to support these CONOPs.

Advanced Capabilities

Manned Assets

Stealth provides the ability to fly largely undetected in hostile airspace and penetrate air defense systems. Stealth will be absolutely essential to establish air superiority in the decades ahead against rapidly improving air defense systems and fighters. The F–22, JSF, UCAVs, improved B–2 bombers, and highly stealthy stand-off weapons comprise the critical stealth capabilities under development now and into the future.

*The capabilities of the F–22 (*above and at right*) will preserve the ability of US Joint Forces to rapidly obtain and maintain air and space dominance.*

The F–22, with its revolutionary combination of stealth, supercruise (i.e. supersonic-cruise without afterburner), maneuverability, and integrated avionics, will dominate the skies. The F–22 is clearly needed to counter the rapid deployment of third generation fighters to potential U.S. adversaries. In addition, when outfitted with the SDB, the F–22's ability to penetrate an adversary's anti-access airspace and destroy his most critical air defense capabilities, will enable 24 hour stealth operations and freedom of movement for all follow-on forces—fully leveraging our nation's asymmetric technological advantages.

In 2001, flight-testing continued to demonstrate the revolutionary capabilities. Specifically, the F–22 successfully completed an AIM–120 guided missile launch, and initial radar detection range measurements (met specification requirements the first time out—an unprecedented accomplishment).

On 14 Aug the Defense Acquisition Board approved the F–22's entry into low-rate initial production (LRIP). Entering operational service in 2005, this transformational leap in technology is the linchpin to preserving the nation's most important military advantage for the warfighter: the capability to rapidly obtain and maintain air and space dominance.

Acting in concert with the F–22 will be the JSF. The JSF program will develop and field an affordable, lethal, survivable,

next-generation, multi-role, strike fighter aircraft for the Air Force, Navy, Marine Corps, and our allies. With its combination of stealth, large internal payloads, and multi-spectral avionics, the JSF will provide persistent battlefield stealth to attack mobile and heavily defended targets. Furthermore, JSF planned reliability and maintainability will enable an increase in sortie generation rate and mission reliability, and will reduce the logistics footprint as compared to legacy aircraft.

In addition to being able to detect, locate and track large numbers of ground vehicles, the JSTARS radar has a capability to detect helicopters, rotating antennas, and low, slow-moving, fixed-wing aircraft.

The Airborne Laser will destroy ballistic missiles in the boost-phase with direct energy. The ABL is a revolutionary force protection and homeland defense capability.

On 25 October 2001, the Secretary of Defense certified to Congress that all JSF Concept Demonstration Phase (CDP) exit criteria had been accomplished; the technological maturity of key technologies was sufficient to warrant entry into the System Development and Demonstration (SDD) phase; and both CDP contractors achieved greater than 20 hours of short take-off, vertical landing (STOVL) aircraft operations. On October 26, 2001, the JSF program officially entered the SDD phase with the award of contracts to Lockheed Martin for the airframe and Pratt & Whitney Military Engines for the propulsion system. During the SDD phase, the program will focus on developing a family of strike aircraft that significantly reduces life-cycle cost, while meeting the Services' operational requirements. The program will use a block upgrade approach, based upon an open system architecture, which addresses aircraft and weapons integration and supports the Services' Initial Operational Capability (IOC) requirements in the 2010–2012 timeframe.

International partners will share the cost of JSF development. The United Kingdom signed an agreement in January 2001 to contribute $2 billion to the SDD program, and negotiations are underway with other potential international partners. International participation in JSF will result in substantial benefits to the United States in such areas as future coalition operations and interoperability; financial savings; appropriate U.S.-foreign industry technology sharing; and strengthening political-military ties with our allies.

For ballistic missile defense, one of the most important manned assets is the Airborne Laser (ABL). ABL is a transformational boost-phase intercept weapon system that will contribute significantly to our multi-layered missile defense architecture. Structural modification of a 747 aircraft, the first of two ABL prototypes, was completed in CY01. In CY02, ABL will begin an intensive period of subsystem integration and flight testing, progressing toward a lethal demonstration against a ballistic missile. The ABL program transferred to the Missile Defense Agency in October 2001 and will return to the Air Force for production and deployment. The ABL will also provide critical data for the development of a Space Based Laser (SBL).

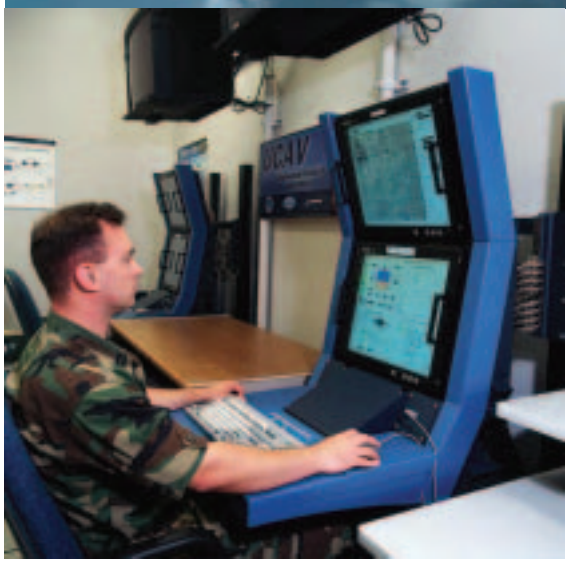
Unmanned Assets

Unmanned Combat Aerial Vehicles (UCAV) have the potential to provide revolutionary suppression of enemy air defenses (SEAD) and strike capabilities to future joint force commanders. Our UCAV X–45 system demonstration program with DARPA will demonstrate the feasibility of UCAVs to affordably and effectively accomplish these missions in the high threat environments of the 21st Century. The first demonstration aircraft test flights will begin in 2002. UCAVs will eliminate the operator from harm's way for high-risk missions and, in conjunction with manned platforms, be a crucial enabler for GSTF and other Air Force Task Forces.

Space Based Assets

Maintaining and developing space superiority is critical to the transformation of the U.S. military to meet the challenges ahead. At the forefront of this development is leveraging the resident expertise of our space warriors, and integrating their cultural strength and wisdom with air forces in order to achieve maximum operational effects. The ability to exploit and deny access to space is of great importance in this new era where dominance in information systems may determine battlefield success or failure. The Air Force is investigating or pursuing revolutionary new capabilities to ensure adequate space situational awareness (in addition to traditional space surveillance) as well as defensive and offensive counterspace capabilities.

We are transforming our space situational awareness with a much needed improvement to the nation's missile detection and warning capability. The highly accurate Defense Support Program (DSP) satellite system on orbit today was developed over 30 years ago to provide strategic missile warning. Modernization to meet 21st Century warfighter needs is



Above—*Artist's concept of the UCAV.* Below—*A UCAV operator at his ground control station.*

critical. The new Space Based Infrared system (SBIRS) provides a single architecture for the nation's infrared detection needs—a "system of systems"—meeting our security requirements for 24/7 strategic and tactical missile warning, missile defense, technical intelligence and battlespace characterization. This transformational space system consists of two primary components: SBIRS High and SBIRS Low. SBIRS High includes four satellites in Geosynchronous Orbit (GEO)

Combining multiple orbit profiles, SBIRS will be a key component in the nation's next-generation missile defense system.

and two in a Highly Elliptical Orbit (HEO) that will work hand-in-hand with the 20–30 Low Earth Orbit (LEO) satellites being developed through the Ballistic Missile Defense Organization's (BMDO), (since renamed the Missile Defense Agency (MDA)), SBIRS Low program. Both programs currently are under review. SBIRS High has experienced unacceptable cost growth and is being considered for restructuring. SBIRS Low may be delayed as the state of the program's maturity is being evaluated.

Air Force Satellite Control Network (AFSCN)

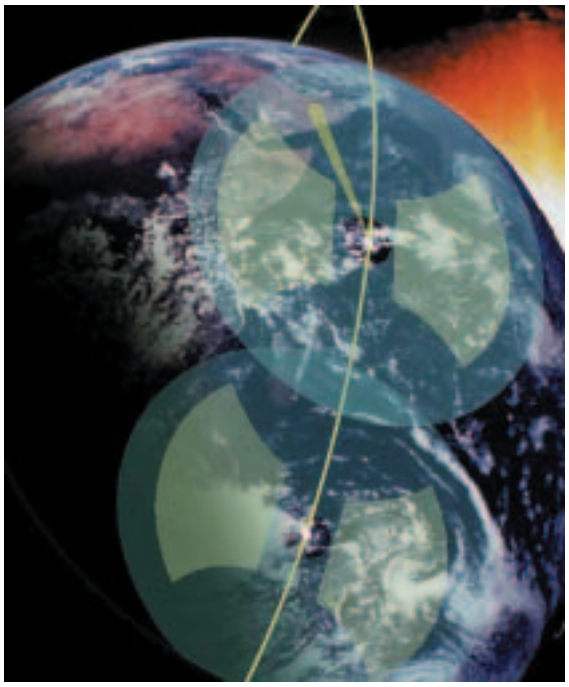
AFSCN is a global system of control centers, remote tracking stations, and communications links used to establish initial contact with all deploying military satellites, and to control early checkout operations. In addition, the AFSCN enables common satellite operations such as telemetry, tracking and commanding, mission data receipt and relay, and emergency satellite recovery. We also use the AFSCN to update the navigational database of GPS satellites, which ensures effective support to the warfighters. In FY02 we initiated an AFSCN modernization program using commercial-off-the-shelf equipment. It is critical that we continue this effort since much of our current infrastructure is so old that spare parts no longer exist. Moreover, since nearly 50% of the total AFSCN workload supports National requirements, the system's viability is essential. Preservation of both the AFSCN infrastructure and the frequency spectrum it uses for military satellite operations is vital to successful national security space operations.

Launch Systems

Our heritage launch systems continue with a 100% success rate this year. The Evolved Expendable Launch Vehicle (EELV) will build on past successes while transforming today's fleet of Delta, Atlas, and Titan space launch vehicles into low-cost, efficient space transportation systems. The EELV will deliver navigation, weather, communications, intelligence, early warning, and experimental satellites to orbit on time

An Air Force Atlas launch vehicle sits at Cape Canaveral awaiting the launch sequence.

and on budget to meet warfighter needs. Boeing Delta IV and Lockheed Martin Atlas V rocket families are currently in Engineering Manufacturing and Development to provide launch services beginning next year through the year 2020 and beyond. Our partnership with industry will meet military, government, and commercial spacelift requirements at 25% to 50% lower costs than current systems.



The Spaced Based Radar is a pioneering approach to providing near continuous, worldwide surveillance.

Space-Based Radar (SBR)

From the ultimate high ground, space-based ISR will provide near continuous overflight of enemy targets to complement airborne and ground-based sensor platforms. SBR will revolutionize battlespace awareness by providing deep-look, wide area surveillance of areas in a manner unaffected by political sensitivities and most denial efforts—absolute leap-ahead technology. Persistent ISR will be achieved with day/night, all weather detection and tracking of moving and fixed targets; improved mapping, charting, and geodesy; and responsive targeting data from sensors to shooters. Due to its basing mode, SBR can provide the nation a non-provocative, long-range capability to enable early situational awareness *in advance of hostilities and throughout the spectrum of conflict*. This will allow us to tighten the timelines for prompt attack of both anti-access systems and enemy centers of gravity. SBR is being designed to fit into the portfolio of other ISR assets.

Information Warfare (IW) and Information Assurance (IA)

Of primary importance to IW operations is the horizontal integration of manned, unmanned, and space systems to achieve the machine-to-machine interface of command and control, communications, computers, intelligence, surveillance and reconnaissance (C4ISR) systems. This integration provides executable decision-quality information to the commander in near-real-time. Second is our ability to protect these systems from adversary manipulation through defensive information warfare. Third, is the ability to deny adversaries these same capabilities through offensive information warfare.

Information superiority enables our military to achieve "decision cycle dominance" and allow us to act and react much more rapidly and effectively than our adversary – creating transformational military advantages. While technology will never completely overcome Clausewitz's "fog of war," achieving information superiority as described here could certainly minimize it for us and maximize it for our adversary.

Information superiority also yields additional benefits. First, a reduced forward deployment requirement expedites the time to begin effects-based operations and reduces the number of personnel and equipment exposed to threats. Second,

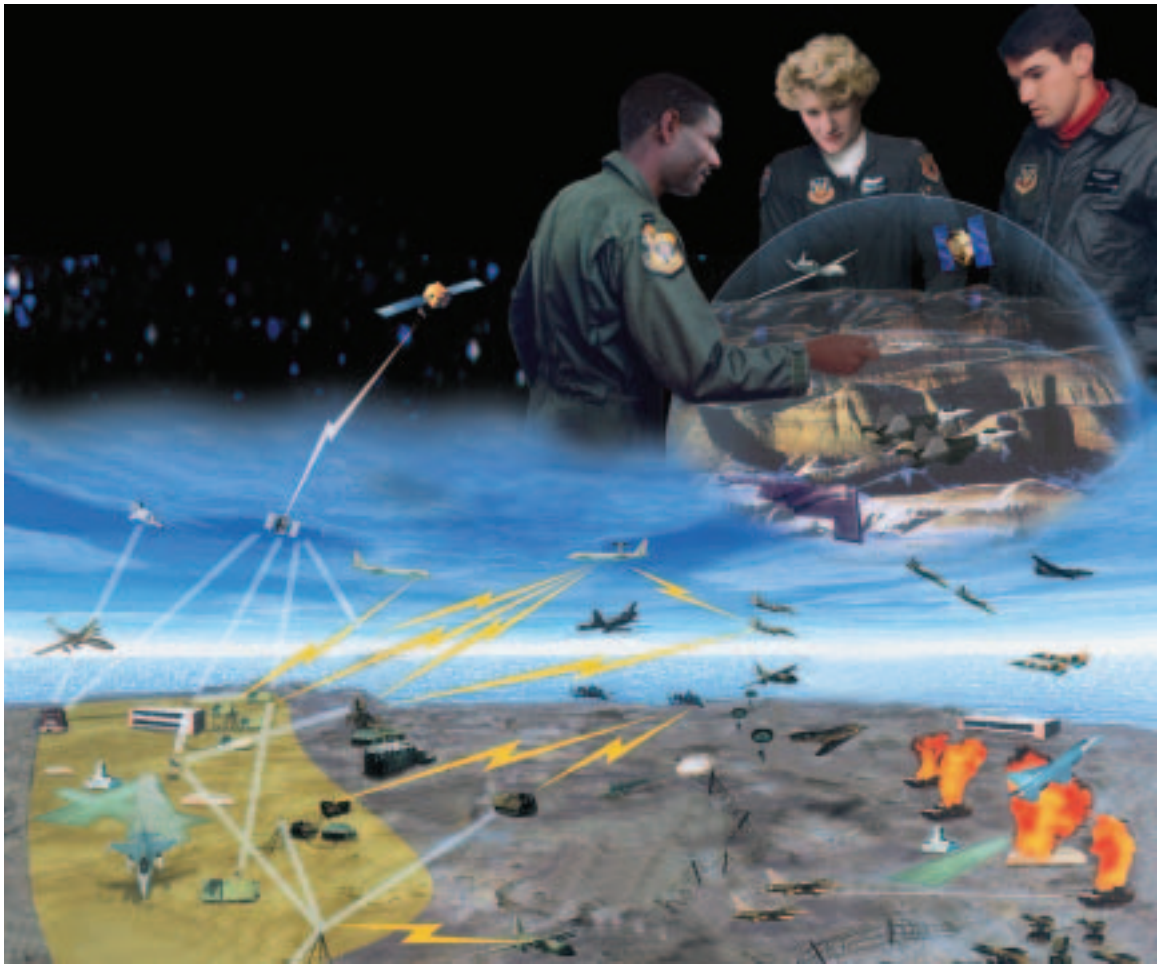
by avoiding massive attrition tactics, it would result in far fewer casualties and collateral damage. Third, under the right circumstances, effective offensive information warfare capabilities, which include computer network attack, military deception, public affairs, electronic warfare, and psychological operations (PSYOP), could prevent the need for destruction by influencing our adversaries to capitulate before hostilities begin. This latter possibility will be crucial in many of the environments the military will have to operate in the future, such as urban areas and various military operations other than war, in which employing highly destructive kinetic weapons would not be desirable.

In the future, the Air Force will field C4ISR capabilities that enable dynamic assessment, planning, and the rapid execution of global missions. The system will be tailorable across the spectrum of operations and be horizontally and vertically integrated across components, functions, and levels of command. Joint Force Commanders will be able to exploit knowledge and awareness to use the *right* tools at the *right* time in the *right* way—and do it all *faster* and with higher *fidelity* than the adversary.

Predictive Battlespace Awareness (PBA)

PBA involves those actions required to understand our adversaries to the extent

"The Sum of the Wisdom" provided by the seamless integration of manned, unmanned, and space assets provides U.S. and Joint forces with a cursor over the target.



of being able to accurately anticipate his actions before they make them. This includes understanding how our adversaries organize and employ their forces. It means knowing their centers of gravity, capabilities, and weaknesses. PBA is an on-going intelligence effort which begins long before forces are deployed. Ultimately, PBA allows finite ISR assets to be focused on confirmation of anticipated actions instead of the more time-consuming discovery.

Communication Enhancement

We are now transforming the way information technology is used in the Air Force as we implement the One Air Force…One Network initiative. This enterprise-wide approach to IT will allow more responsive and more robust service to the whole Air Force. In addition, Global Combat Support System-Air Force (GCSS-AF) will integrate combat support information systems, thus removing the business inefficiencies resulting from numerous, independent stand-alone systems. With GCSS-AF, the Air Force will finally have the means to provide an enterprise view of combat support information. GCSS-AF, through the Air Force Portal, will provide the warfighter, supporting elements, and other Air Force members the means to seamlessly integrate agile combat support information necessary to efficiently field and sustain our Air and Space Expeditionary Forces.

Another piece of integration is the Joint Tactical Radio System (JTRS). We aggressively accelerated development of this enabler of machine-level, digital conversations between our C2ISR and strike platforms so that the "sum of our wisdom" results in a cursor over the target. JTRS will also provide a flexible and adaptable information exchange infrastructure, which moves the joint force forward in getting operators and commanders the timely decision-quality information needed in today's warfighting environment.

Precision Engagement

The small diameter bomb, the first "miniature" munition in development, will provide an evolutionary capability in kills per sortie. The SDB weapon will use a common carriage system for fighters and most bombers, to carry at least four and potentially up to 12 SDB weapons per 1760 data bus aircraft station. This will allow a fighter-size platform to carry 16 or more SDBs and a bomber to carry up to 288. We will employ the SDB from low-to-high altitude, from standoff or direct attack ranges, and in adverse weather conditions. Each SDB weapon will employ GPS-aided guidance and be independently targeted. The Phase I SDB will have a capability against fixed or stationary targets, while the Phase II SDB will add a seeker with Automatic Target Recognition to provide a capability against mobile and relocatable targets.

To increase our capability against time-critical and moving targets, we are experimenting with existing and miniaturized versions of precision weapons on UAVs. The range and loiter time of the "hunter-killer UAV" coupled with the direct feed of real-time targeting data, will increase our opportunities against moving targets—tightening our decision cycle and maximizing our warfighting effects. What these systems and our other advancing capabilities indicate is that we are within range of our goals of persistent ISR, the finding to targeting to assessing within minutes cycle, and fidelity in the integration of our systems. We seek near instantaneous attack capabilities once a target is approved for attack.

Innovation and Adaptation

All of the new systems and technologies in the world cannot supplant ingenuity. Whether modifying current systems, developing streamlined efficiencies in organizations, or simply thinking creatively, innovation and adaptation are at the heart of any transformation, and embedded in Air Force heritage. The same visionary essence behind the flight at Kitty Hawk works today to link emerging technologies with dynamic future concepts of operation. The driving spirit of innovation in past times of war exists today in the impetus to evolve our air and space capabilities and elevate the security of the nation. Innovation and adaptation will be tremendously important again in FY03, and they will resonate in all the systems we develop, in our fundamental practices, how we organize and even in our evolving roles and missions in homeland security.

The prerequisite to achieving the transformation force outlined in the QDR is our commitment to a strong Science and Technology (S&T) program. S&T is the critical link between vision and operational capabilities. We continue to invest in a broad and balanced set of technologies derived from basic and applied research, and advanced technology development on a continuum of maturity levels from short- to long-term. This time-scaled approach keeps emerging capabilities in the pipeline and fosters revolutionary developments.

The Air Force S&T community is working closely with operators and strategic planners to explicitly link research activities with our core competencies, critical future capabilities, and future concepts of operation. This effort has produced eight short-term goals and six long-term challenges to focus our S&T investment. The short-term S&T objectives are focused on warfighter priorities in the following areas: Target Location, Identification, and Tracking; Command, Control, Communications, Computers, and Intelligence; Precision Attack; Space Control; Access to Space; Aircraft Survivability and Countermeasures; Sustaining Aging Aircraft; and Air and Space Expeditionary Force Support. Long-term S&T challenges also involve revolutionary capabilities in Finding and Tracking; Controlled Effects; Sanctuary; Rapid Air and Space Response; and Effective Air and Space Persistence. Successful pursuit of these challenges and objectives will meet the transformation goals of the Air Force and maintain our air and space dominance today and well into the 21st Century.

Our new homeland security environment will necessitate both traditional and non-traditional responses, with significant coalition, joint, and interagency involvement. Whatever the threat, the AOC provides the critically important real-time predictive battlespace awareness for decision-makers. The Air Force will work closely with the other agencies to form a tightly knit web of resources that will be readily available to answer the call. In this way, Homeland Security efforts will be interwoven and fundamentally aligned with the Air Force's top priorities.

Additionally, Air Force counterair and ISR capabilities are significant contributors to the multi-layered missile defense system, incorporating air and space-based elements that provide effective, affordable, global protection against a wide range of threats. Future space capabilities such as the SBIRS will greatly enhance our ability to track and engage ballistic missiles while space-based radar technologies will identify and track fixed and mobile ballistic missile launchers. Finally, the ABL will engage ballistic missiles in their boost phase, while the F–22, working with advanced ISR systems, will defend against cruise missiles.

The Air Force Medical community has developed tactics and procedures that dramatically improve their ability to deliver world-class medical care.

Consequence Management

The Air Force has played an important role in consequence management. We have provided critical resources such as airlift, command and control, and disaster preparedness response forces to other lead agencies and the Joint Forces Civil Support Teams. The AFMS is acquiring a variety of modular packages that can be used to support civilian authorities requesting our assistance at home or abroad. Within two hours of notification, the Small Portable Expeditionary Aeromedical Rapid Response (SPEARR) teams deploy ten specialists with the capability to provide a broad scope of care, including initial disaster medical assessment, emergency surgery, critical care, and patient transport preparation. This will increase the state medical response capability for homeland security. Additionally, Air National Guard men and women both command and contribute to the nation's current Civil Support Teams–including critical mobility requirements that support the air transportation of these teams to sites of potential CBRNE or WMD attacks.

In the QDR, the Secretary of Defense identified Homeland Security as a top priority for the Department of Defense. The Air Force has a role in each aspect of preventing, protecting from, and responding to attacks against our homeland. The Air Force has a robust array homeland defense capabilities today and will improve and transform as necessary for the future. As in the past, we stand ready today to contribute these unique capabilities and develop new technologies to aid our national command authorities in combating threats or attacks to our homeland.

Conclusion

The same relative advantages of speed, flexibility, range, lethality and the like that have defined air power since its inception also define the collective talents of airmen—military and civilian alike. The partnership among all of the components of the Air Force is elevating the nation's air and space capabilities to even greater heights than ever conceived. Yet we are not satisfied. We will continue to aggressively pursue our critical future capabilities through every avenue, drawing on all of our resources, and finding no satisfaction in compromise. While funding is critical to securing new and revitalized systems, the Air Force is focused on the source of the most exponentially beneficial results—our innate skill at integration, innovation, and visionary implementation of ideas and processes. Ultimately, it is from our airmen, our most essential resource of people that transformation will accelerate, accelerate and continue.

Chapter 5
PEOPLE

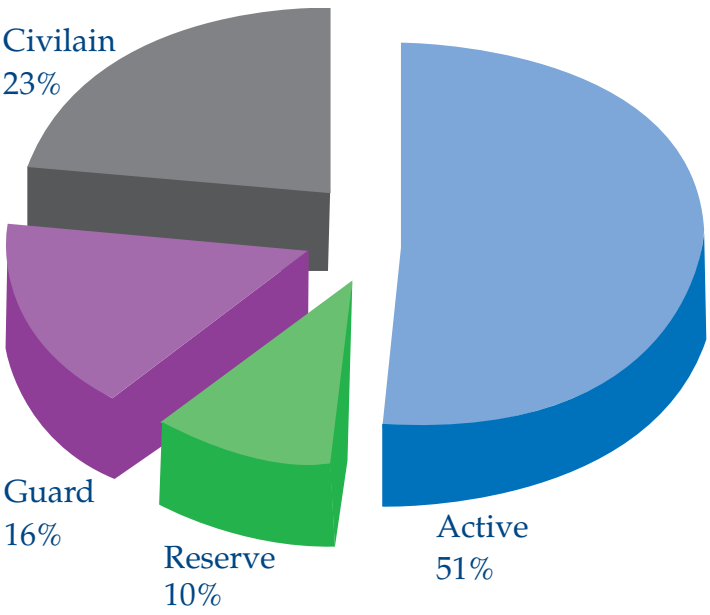
"People are a priority" is not just a slogan in the Air Force, it is an imperative. Historically, the Air Force has been a retention-based force and continues to be so today. We rely on recruiting and training technically and mechanically gifted individuals to develop and operate our advanced air and space systems. Though we exceeded our FY01 recruiting and accession goals, there are some critical skills in need of special attention—scientists and engineers in particular. We must take action now to address these and other developing personnel gaps in the uniformed and civilian Air Force alike.

Before September 11th, we were deploying our people at a rate three times higher than we were a decade earlier. Though we were narrowing the gap between force structure drawdowns and increased commitments, the marker has been shifted significantly and we anticipate a growth in requirements. The addition of Operations NOBLE EAGLE and ENDURING FREEDOM and the creation of new homeland security requirements to an already strained personnel tempo (PERSTEMPO) warranted an assessment of our total manpower requirements. We are working with our sister services and OSD on this issue.

Recent events have accentuated the contributions our Total Force—Active duty, Air National Guard, Air Force Reserve, and civilians—brings to our National Defense team. We must now size this force appropriately to meet new demands by capitalizing on positive recruiting results, honing retention programs, and examining closely tasks that might better be performed by civilians, or members of the Guard or Reserve. To attract and retain the best people in a high-technology world, we will accelerate our efforts to develop, educate, train and compensate our people to continue to lead the world as a technologically superior military force.

Retention is more than a quality of life issue. It involves letting our people know that what they are doing matters. It is about instilling our Airmen with pride in a mission well done. At the end of their careers they will remember being part of a team that made a difference. To this end, we have initiated a major "re-recruiting" program.

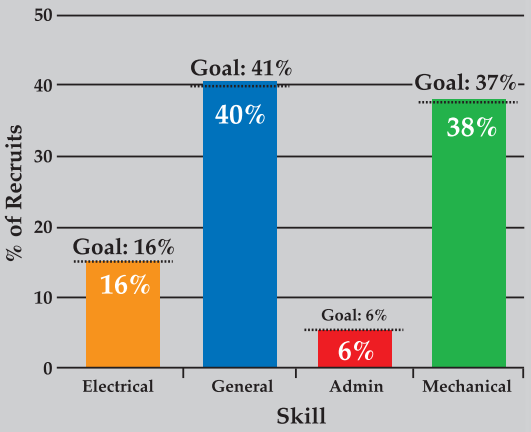
Total Force Structure



Recruiting

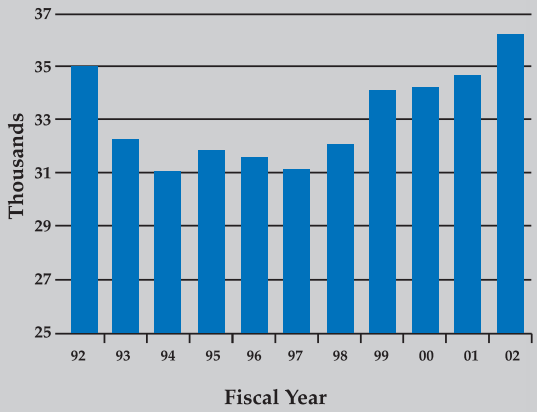
The Air Force exceeded FY01 enlisted recruiting goal of 34,600 by almost 800. We still require 99% of our recruits to have high school diplomas and nearly 75% to score in the top half of test scores on the Armed Forces Qualification Test. In addition, we brought 1,155 prior-service members back on Active duty, nearly double the number from FY99.

Recruit Skills Mix



Successful Air Force recruiting is more than a number—it also means enlisting Airmen whose aptitudes match the technical skills we need.

Enlisted Accession Requirements



Enlisted Accession History/Projecton

FY92	FY93	FY94	FY95	FY96	FY97	FY98	FY99	FY00	FY01	FY02
35100	31500	30000	31000	30700	30200	31300	33800	34000	34600	36450

(FY02 goal of 36,450 combines non-prior service and prior service)

FY02 goal of 36,000 combines non-prior service and prior service.

We must enlist airmen whose aptitudes match the technical requirements we need. In FY01 we implemented targeted recruiting programs for mechanically skilled recruits. These efforts paid off, allowing us to exceed our recruiting goal for these skills by 763. We did, however, fall short of our recruiting goal by 203 in the general skill area. This includes the Security Forces career fields, which have become vital in light of current operations.

Airman Basic Wendell Rush stands in front of his fellow airmen prior to basic military training graduation October 6, 2001. AB Rush, of Centralia, IL, signed the 34,000th enlistment contract of fiscal 2000, in July, signifying the Air Force's attainment of its recruiting goal. The Air Force eventually surpassed its goal, sending 34,369 new airmen to basic training.

Gen Hal Hornburg, then commander of Air Education and Training Command, enlists the 34,600th recruit into the Air Force, September 20, 2001.

The Air Force is postured well to increase recruiting goals to meet new requirements. Previously approved increases in advertising, a more robust recruiting force with broader access to secondary school students, and competitive compensation prepares the Air Force to meet future recruiting challenges. We budgeted $77 million for recruiting advertising in FY02, which is nearly five times the amount from FY98. For FY02, we programmed an additional $9 million for the enhanced initial enlistment bonus program, and the prior service reenlistment program, up from $123.8 million in FY01. These bonus programs help to recruit hard-to-fill critical skills and to encourage recruiting during historically difficult recruiting months.

Officer recruiting faces many of the same challenges as enlisted recruiting. However, we continue to draw America's best and brightest, even given the lure of a competitive job market. In the ROTC programs, we implemented several initiatives to attract more candidates, offering contracts to freshmen cadets rather than waiting until their sophomore year, and a one-year commissioning program to attract both undergraduate and graduate students. Overall in FY01, we achieved 105% of our line officer accession target, up from 97% in FY00. Recent legislation, which increased the maximum age for appointments as cadets into Senior ROTC scholarship programs, further increases our recruiting opportunities. We also are examining changes to the program to reduce attrition during the ROTC cadet years.

Of particular concern, however, is the area of military and civilian scientists and engineers. We fell short of our accession goal for these groups by nearly 250, and have begun an all-out effort to plus up recruitment and target retention of these critical specialties. For example, in FY03 we begin a college sponsorship program to attract scientists and engineers from universities where there is no ROTC program. Thanks to prompt Congressional action, we have the authority to implement bonuses, adjust funding to create retention allowances, and work toward implementing special salary rates for the most difficult to retain fields. At the December 2001 Scientist and Engineer Summit, the Secretary and the Chief of Staff embraced these and other initiatives to remedy the accession challenge. The Air Force recognizes the great need for these bonuses and has programmed funds accordingly. However, funding levels were cut during the appropriations process.

In honor of the Air Force's 54th anniversary, 54 airmen gathered in the Pentagon auditorium on September 17, 2001, for a special reenlistment ceremony co-hosted by Secretary of the Air Force, Dr. James G. Roche and Chief of Staff of the Air Force, General John P. Jumper.

We have also found recruiting health care professionals especially difficult. Many medical, dental, nurse and biomedical specialties are experiences critical shortages. For example, only 80% of our clinical pharmacy positions are currently filled. We are now reviewing accession initiatives for pharmacists.

In FY01, the Air Force Reserve exceeded its recruiting goal for the first time in five years—accessing 105 percent of their target. However, there are significant challenges ahead in recruiting citizen-airmen. Historically, 30 percent of Reserve accessions come from eligible members (i.e. no break in service) separating from Active duty. In FY02, recruiting will have to make up that part of the goal, more than 3,000 people, from other applicant sources until Stop Loss is lifted. Once lifted, we expect there will be challenges in filling many vacated positions. One of the biggest challenges for Reserve recruiters this year is Basic Military Training (BMT) quotas. While recruiting services increased emphasis on enlisting non-prior service applicants, BMT allocations have not kept pace. This problem is forecasted to worsen this year as a result of Stop Loss. Reservists are working diligently to increase BMT allocations and explore solutions to address BMT shortfalls.

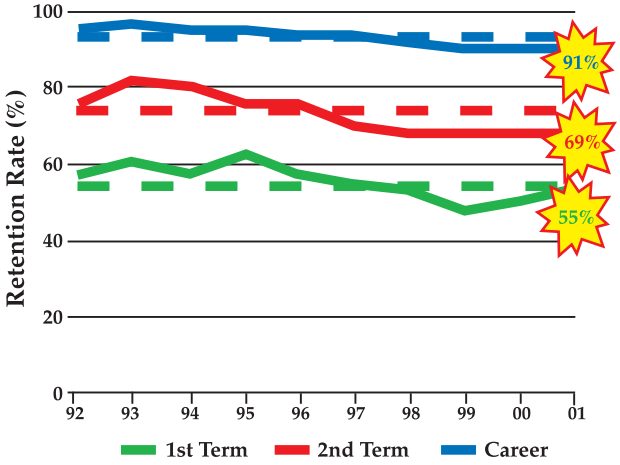
The Air National Guard has placed recruiting and retention emphasis on Air Force Specialties where shortages exist by offering enlistment and reenlistment bonuses, Student Loan Repayment Program, and the Montgomery GI Bill Kicker Program. As a result, many of the Air National Guard critical maintenance AFSCs have seen real strength growth from 2 – 6% over the last two Fiscal Years. These incentives have contributed greatly toward enticing and retaining the right talent for the right job. Though recruiting and retention rates have increased, the Air National Guard realizes that potential problems exist that may affect future sustained capability.

Airmen test their ability to perform everyday operations in a chemical environment. Other ability to survive and operate processes and scenarios are tested, including self-aid and buddy care, post attack and unexploded ordnance reconnaissance, and setting up a contamination control area.

Retention

Over 128,000 Active duty airmen, 46% of the enlisted force, are eligible for reenlistment in FY02/03. Although positive about a career in the Air Force, our people are being lured away by the availability of higher-paying civilian jobs. To sustain our readiness posture for rapid deployment, we must retain our highly trained, experienced, and skilled people. By keeping our experience, we reduce recruiting and training requirements and continue to build and maintain our technical expertise.

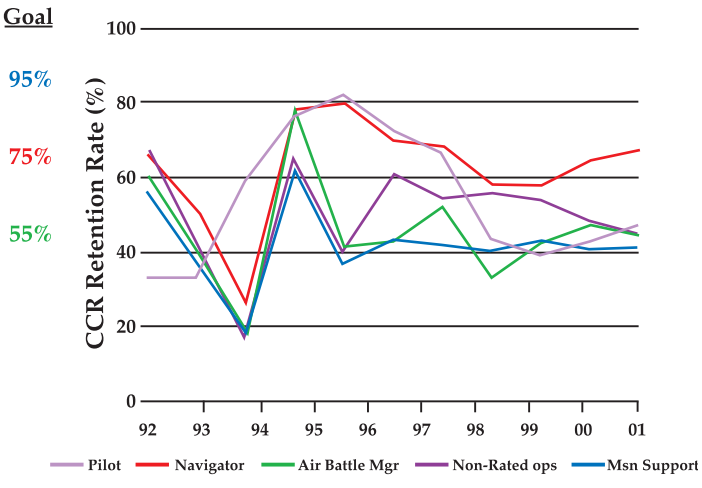
Enlisted Retention Trends



Retention will continue to be a priority and a challenge in the future. We are aware Stop Loss and the increased tempo of ONE and OEF may have a negative affect on retention and we are planning for offsets already. We must provide a robust compensation package that rewards service, provides for a suitable standard of living, ensures a high quality of life, and retains our high caliber professionals. We must continue to reduce out-of-pocket expenses incurred through frequent moves, deployments, and other temporary duty. Our airmen must view a military career as a viable and competitive option if we are to maintain an all-volunteer force. To that end, we have initiated an aggressive campaign to "re-recruit" our force, through individualized mentoring and career counseling. This effort began with scientists and engineers as well as Battle Managers, and will include other critical skills in the coming months. Pilots were to be the initial focus, but the demands of ONE and OEF required that we delay the re-recruiting of this group. Congress has rallied to the Air Force's needs in all of these, and we will rely on continued help, particularly in the year ahead.

Officer retention trends continue to raise concerns. We monitor these trends through the officer cumulative continuation rate (CCR), or the percentage of officers entering their fourth year of service (six years for pilots and navigators) who will complete their eleventh year of service, given existing retention patterns. Although the FY01 CCR for pilots increased from 45% in FY00 to 49%, it's significantly lower than the high of 87% in FY95. We have fully manned our cockpits, but our rated pilot staff manning has fallen to 51%. Airline hires in FY02 will be down from over 3,000 last year to approximately 1,500 this year; however, we anticipate the hiring will surge again shortly thereafter. Therefore, we can

Officer Retention Trends



expect the USAF pilot shortage to continue for at least the next eight years until we fully realize the effects of the ten-year Active duty service commitment for undergraduate flying training. We are optimistic that our "re-recruiting" effort will further enhance pilot retention and help alleviate the shortage sooner.

The mission support officer FY01 CCR has held steady at 44%. However, retention rates for several high-tech specialties have decreased—scientists (36%), developmental engineers (42%), acquisition managers (40%), and air battle managers (47%). Conversely, navigator rates improved in FY01, rising three percentage points to 72%. Navigators are a critical rated resource being used to fill many pilot vacancies at headquarters level. In the next few years, we expect a rapid decline in this large retirement-eligible population. We also need to retain every experienced air battle manager (ABM) we can to preserve our warfighting capability. This high-demand, low-density career field retention is negatively impacted by increased operations tempo.

The Air Force Reserve exceeded Command retention goals for their enlisted airmen during FY01. Again, it was the team effort of the members, first sergeants, supervisors and commanders that led the Reserve to this exceptional achievement. Bonuses also continue to be an effective tool in retaining our members. The flexible Aviation Continuation Pay (ACP) program is an important part of our multi-faceted plan to retain pilots. In FY01 we offered ACP payments through 25 years of aviation service, resulting in a substantial increase in committed personnel. Because of this success, we plan a similar design for the FY02 ACP program, and extension of this program to navigators and ABMs.

Seventy-eight percent of our enlisted skills are now receiving re-enlistment bonuses, up two percentage points from FY00. The authorization to pay officer and enlisted critical skills retention bonuses should help retain individuals in high demand by the civilian sector. We are initially targeting this new authority to Science, Engineering, and Communications

SrA Rickett Edwards, a fuels specialist from the 374th Supply Squadron/Fuels Management Flight, Yokota Air Base, Japan, performs an icing inhibitor test on JP-8 fuel. The laboratory conducts more than 500 tests monthly.

Col Steve Hicks, Commander of the Virginia Air National Guard's 192nd Fighter Wing, is helped into his aircraft by his crew chief, TSgt Benny Saunders, before a morning mission in support of Operation NOBLE EAGLE.

and Information. Also, the authority to increase special duty assignment pay provides the flexibility to target our most pressing enlisted skills. The FY02 National Defense Authorization Act (NDAA) authorizes installment payment authority for the 15-year career status bonus, and an educational savings plan to encourage re-enlistment in critical specialties. Additionally, the Air Force Reserve is studying special duty pay initiatives for senior enlisted positions, such as command chief master sergeants and unit first sergeants for future implementation.

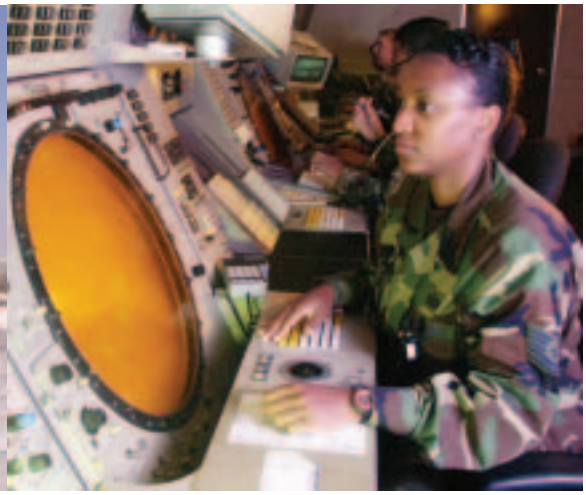
The Air National Guard's number one priority is to increase their traditional pilot force, which has maintained a steady state of 90%. During the past year, the Guard continued to see an increase in ACP take rates to 93%. ACP has accomplished its goal by retaining qualified full-time instructor pilots to train and sustain our combat force. The Guard and Reserve continue to pursue substantial enhancements to the Aviation Career Incentive Pay (ACIP) and Career Enlisted Flyer Incentive Pay (CEFIP) to increase retention in the aviation community, as well as attract/retain individuals to aviation. These initiatives, which affect over 13,343 officers and enlisted crew members in the Guard and Reserve, are aimed at those traditional aviators who do not qualify for the ACP for AGRs and the Special Salary Rate for Technicians.

Training

Training the world's best Air Force is challenging in today's rigorous, expeditionary environment. Increased accessions stress our training facilities and personnel. During surge periods, we operate at maximum capacity by triple-bunking students in two-person dorm rooms. We are currently seeking funds to improve the training infrastructure.

Lower than required enlisted retention rates are increasing our training burden. Also, fewer experienced trainers are available to train 3-level personnel. Despite these challenges, our technical training schools have been able to meet their mission.

A1C Derek Geske (left) *and SrA Randy Fox* (center) *from the 366th Expeditionary Security Forces Squadron and A1C Boyd Clinton* (right) *from the 366th Expeditionary Civil Engineering Squadron pack sand into expandable barriers at an Operation ENDURING FREEDOM location.*



TSgt Regina Jefferson, from the 374th Operations Support Squadron, Yokota Air Base, Japan, uses a radar to track civilian and military aircraft. TSgt Jackson ensures that proper radar separation is maintained between aircraft using their airspace.

We increased our use of technology and streamlined the training processes to produce fully qualified apprentices ready to support the warfighter.

Even with the EAF, our tempo can make educational pursuits difficult. Our learning resource centers and Advanced Distributed Learning initiatives address this situation by offering deployed personnel education and testing opportunities through CD-ROM and interactive television. Additionally, we have joined with the other Services, the Department of Labor, and civilian licensing and certification agencies to promote the recognition of military training as creditable towards civilian licensing requirements.

Defining the Air Force's institutional training and educational requirements for leadership development allows the services to weigh resource decisions better and to emphasize to our people the institution's investment in their careers. The Air Force is pursuing leadership development and career mentoring strategies, to prepare the Total Force for the 21st Century. These competency-based strategies are focused on understanding the leadership needs of our transforming force and creating a development process that will better prepare Airmen to serve and lead. The Air Force is examining more deliberate career broadening, emphasizing two categories of competencies—occupational (what we do) and universal (who we are). We are also examining potential changes to the professional growth of officers including the rationalization of advanced degrees and professional military education. Force readiness, sustainability, and mission performance all depend on selecting, training, and retaining the best individuals with the necessary skills, as well as motivating every member of the service and taking care of Air Force families.

Controllers in an Airborne Command and Control Center monitor the complex systems aboard the modified C–130.

Civilian Workforce Shaping

Ms. Penny DeFino was recognized as one of 18 outstanding DoD employees with disabilities recently. Ms. DeFino works as a Unix system administrator for the Defense Information Systems Agency at Wright-Patterson AFB, OH.

Today, less than 10% of our civilians are in their first five years of service. In the next five years, more than 40% will be eligible for optional or early retirement. Historical trends indicate that approximately 33% of white-collar employees and 40% of blue-collar employees will retire the year they become eligible. In addition, downsizing over the past decade skewed the mix of civilian workforce skills, compounding the loss of corporate memory and lack of breadth and depth of experience.

While we are meeting mission needs today, without the proper civilian force shaping tools, we risk not being ready to meet tomorrow's challenges. To help shape the civilian workforce, it is imperative that we fund civilian force development initiatives to include skill proficiency and leadership training, and tuition assistance programs. The FY02 NDAA did authorize the payment of expenses to obtain professional credentials.

MSgt Gayle Thomas and Ms. Hiroe Aoki, both members of the Defense Finance and Accounting Service-Japan, use a centralized disbursing system to verify yen payments to local vendors. The mission of DFAS-J is to provide finance and accounting services to Department of Defense activities operating in Japan and the Western Pacific.

In addition, management tools are essential in shaping the force by opening the door to new talent so we can gather the right skill mix. These initiatives include pay comparability and compensation, a streamlined and flexible hiring process, recruiting incentives for technical skills and student employment programs. Also, the FY02 NDAA provided the authority for a pilot program allowing for payment of retraining expenses and extended the use of Voluntary Separation Incentive Pay (VSIP) and Voluntary Early Retirement Authority (VERA) for workforce restructuring. To incentivize key senior personnel to accept critical positions, we continue to support implementation of a last move home benefit.

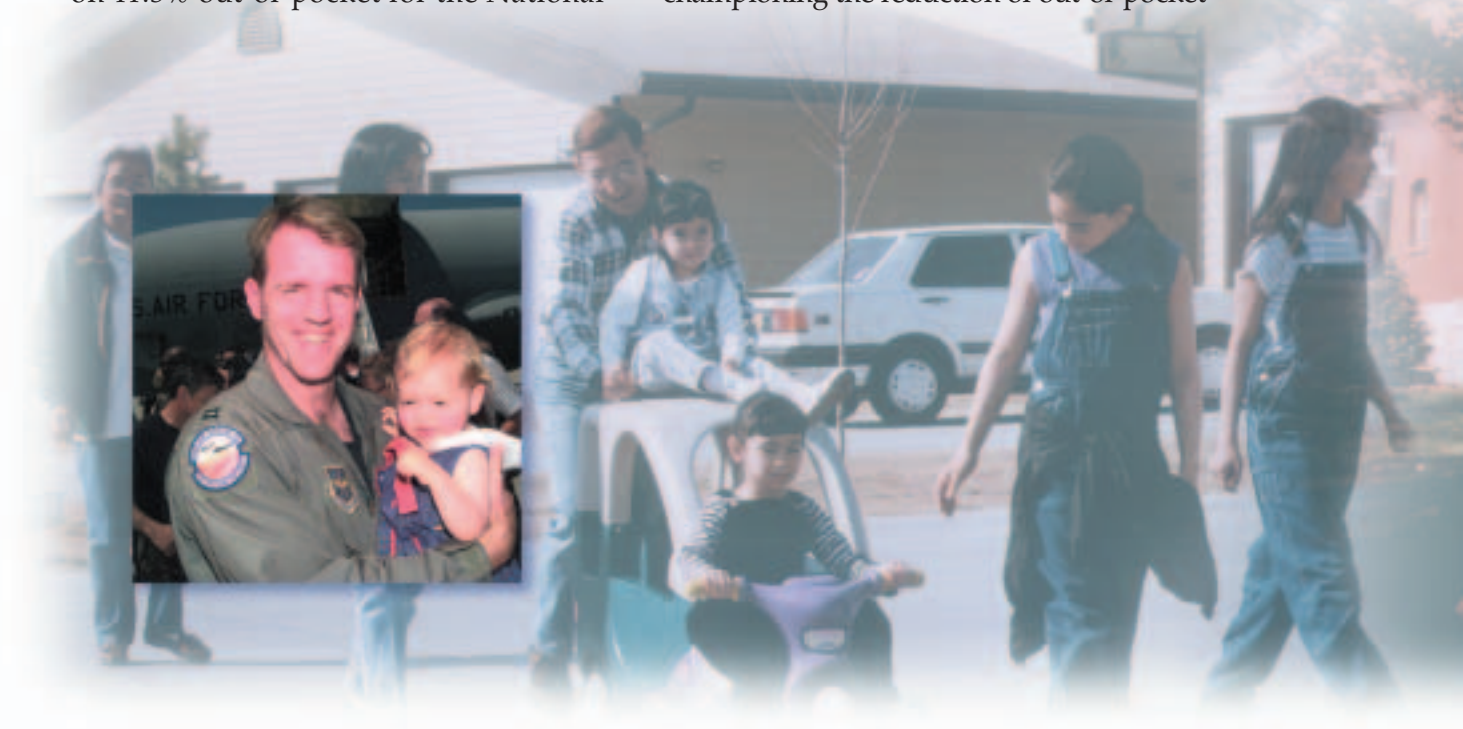
Quality of Life

Quality of life ranks as one of the Air Force's top priorities, so our quality of life initiatives attempt to balance the intense demands we place on our mission-focused Total Force. With continued congressional support, the Air Force will pursue adequate manpower; improved workplace environments; fair and competitive compensation and benefits; balanced deployments and exercise schedules; safe, affordable, and adequate housing; enhanced community and family programs; improved educational opportunities; and quality health care, as these have a direct impact on our ability to recruit and retain our people and sustain a ready force.

The FY02 NDAA provided for the largest raises for mid-level and Senior NCOs (7%–10%) to improve pay based on their education and experience levels. Junior enlisted members received a 6%–6.7% pay raise and captains and majors received a 6%–6.5% raise while all other personnel received a 5% raise. Basic Allowance for Housing rates effective 1 Jan 02 will be based on 11.3% out-of-pocket for the National Median Housing Cost for each grade and dependency status. Additionally, the FY02 NDAA authorizes several additional travel and transportation allowances that will reduce out-of-pocket expenses for our military personnel.

Higher priorities have led to a deferral of much-needed infrastructure sustainment, restoration, and modernization of the workplace. Together with spare parts and equipment shortfalls, budget limitations impede successful execution of mission requirements, cause lost productivity, and negatively impact quality of life. It will take increased funding levels focused on infrastructure restoration and modernization to allow us to optimize the condition of the workplace environment and, furthermore, help eliminate the risk to our near- and long-term readiness.

Providing safe and adequate housing enhances readiness and retention. The Air Force Dormitory Master Plan and Family Housing Master Plan identify and prioritize our requirements, while DoD is championing the reduction of out-of-pocket



housing expenses by FY05. We project significant improvements in our military family housing by reducing our inadequate units from 59,000 at the beginning of FY02 to 46,000 at the beginning of FY03, and with the help of privatization efforts underway, eliminating inadequate units by 2010. During FY01–04 we plan to privatize over 21,000 housing units at 26 installations. Similar improvements are being made in our unaccompanied housing, where more than 1,600 dormitory rooms will be constructed as a result of the FY02 program.

The Air Force continued to set the standard in providing quality childcare and youth programs. In addition to 100% accreditation of Air Force child care centers, the Air Force achieved 100% accreditation of all of its before- and after-school programs for youth 6–12. In FY01, the Air Force expanded the extended duty childcare program for members required to work extended duty hours and in FY02 will test using this program for members working at missile sites and those who need care for their mildly ill children. Many youth initiatives implemented in FY01 are part of the affiliation of the Air Force's youth program with the Boys & Girls Clubs of America.

The Air National Guard also identifies childcare as a readiness issue. With increasing demands from Commanders and family members, the ANG formed a Childcare Integrated Process Team (IPT) to study innovative childcare options. The IPT yielded a website developed for internal use by ANG field units to pursue childcare alternatives in relationship to the unit's location, demographics, and legal issues. Additionally, the Guard has proposed a cost-sharing pilot program based on the Air Force childcare cost model.

Tremendously important to child and family quality of life are the commissaries and exchanges. The Air Force continues to support these benefits as vital non-pay compensation upon which Active duty, retirees, and Reserve component personnel depend. Commissaries and exchanges provide significant savings on high quality goods and services, and a sense

of community for airmen and their families wherever they serve. As a result, commissaries and exchanges are cited as a strong influence on retention and a highly valued component of quality of life.

Additionally, lodging facility improvements and temporary lodging facilities have become a higher quality of life priority. Constructing facilities in sufficient quantity and maintaining existing facilities not only supports our members and families in TDY and permanent change of station status, but also yields significant savings in travel costs and ensures force protection. All new construction and

SSgt Natasha Schelper, a broadcaster from the Air Force News Agency, deployed to Incirlik Air Base, Turkey, signals TSgt Robert Robinson and his family, to begin their holiday greeting to family at home. The AF news team produced more than a thousand greeting spots to help families at home see their loved ones assigned overseas.

renovations meet the recently adopted VQ standard "one size fits all ranks" mirroring the industry standard of 280 square feet per room with private baths for all grades.

Physical fitness is unquestionably a force multiplier, and investment in fitness facilities, equipment, and programs directly impacts readiness. An independent assessment of our fitness centers documented a requirement of $645M for construction and renovation at Active duty and Reserve bases. The Air Force committed $183M in FY00–05 Quality of Life funding and has steadily increased annual MILCON funding, including $52M this year.

Meanwhile, today's Air National Guard member families are in immediate need of dedicated full time family readiness and support services—specifically information referral support and improved communications and education capabilities. The Air National Guard has developed a program solution in FY01 to fund a full-time contracted family readiness program at each Wing and Combat Readiness Training Center. While funding for FY02 has been added in the FY02 Supplemental Appropriations, there is no sustained funding in the FYDP. Properly funded and resourced, the ANG family readiness program will significantly enhance mission capabilities by reducing pressures on personnel and their families and improving their Quality of Life.

Retired military working dog, Tosca, relaxes in family housing at Holloman AFB with her newly adopted family, Maj Mark and Judy Eichin.

Jason Shoffit, McChord AFB, WA, guards the goal against a soldier during a soccer tournament at Naval Station Everett, WA.

Healthcare

The recent implementation of DoD health care initiatives, such as TRICARE for Life, provided the missing link to the Air Force Medical Service's population-based health care strategy. Now, the AFMS has the foundation to provide whole care to its beneficiaries. The TRICARE Senior Pharmacy Benefit, started 1 April 2001, brought an expanded benefit to the Air Force's retired population. TRICARE for Life, the program that makes TRICARE second payer to Medicare, and TRICARE Plus, the program that allows seniors to enroll in a primary care program at selected MTFs, both began concurrently on 1 October 2001. These new programs will undoubtedly enhance the quality of life for the Air Force's older retiree population. TRICARE Plus will also strengthen the AFMS's medical readiness posture by expanding the patient case mix for our providers.

The AFMS continues to make great strides in its population health initiatives and customer satisfaction. Central to the AFMS's population health plan is its Primary Care Optimization program, which improves clinical business processes through maximizing medical support staff skills and duties and through robust information management that supports effective decision-making. The Primary Care Manager by Name program provides much-needed continuity of care and, ultimately, better patient management by providers. Other population health initiatives include the Air Force Suicide Prevention program, which has served as a model for DoD and the nation in their efforts to address this significant public health issue. As a result of AFMS' initiatives, health care customer satisfaction continues to rise in the Air Force. According to the latest Customer Satisfaction Survey Results, 90 percent of the Air Force's enrolled beneficiaries indicate they would enroll or re-enroll in TRICARE Prime if given the option. The overall satisfaction with clinics and medical care exceeds national civilian HMO averages.

(Top) *Recent improvements to the Tricare System ensures our entire Air Force family receives world class medical care.* (Bottom) *The Air Force is committed to quality of life efforts such as improved health care. Here a five-week-old child gets a routine check-up at the base hospital.*

Conclusion

The Air Force implemented structural and cultural changes via EAF concept to enhance responsive force packaging, as well as to provide more stability/predictability in deployment and home station scheduling. We must continue to address force-wide balanced tempo issues with manning, infrastructure and equipment, training, recruiting and retention, and mission requirement assessments. High OPSTEMPO has taken its toll: our people are still deployed three times more often than prior to Desert Storm-based on a force 60% its former size. Air National Guard and Air Force Reserve participation has steadily increased since Desert Storm, which has created unique challenges for Guardsmen and Reservists balancing civilian careers with increased military requirements. Trends show demand for air power will only increase; EAF holds promise by giving airmen predictability and stability. We must also take care of our families with adequate housing programs, medical facilities, and base support services. Our efforts continue to pay off, yet they must be actively renewed and revitalized—flexible enough to adapt to new circumstances and demands in a changing world.

CLOSING THOUGHTS

*The events of September 11th reaffirmed the importance of the Air Force's focus on **People**, **Readiness**, and **Transformation**. Our future success hinges on our ability to recruit and retain highly qualified airmen, to provide these dedicated warriors with the resources required to accomplish their mission, and to continue to explore new and innovative approaches to the art of warfare.*

While the world's security environment changed dramatically, one thing that remains constant is America's need for Global Vigilance, Reach, and Power. That is your Air Force Vision, and what we strive to deliver every day. Fully exploiting our advantages in air and space capabilities is not an option—the risk of failing to do so is too great. We must remain the dominant air force in the business of global reconnaissance and strike (attack and mobility).

Through recapitalization efforts, we will maintain the fundamental basis from which to perpetuate our transformation journey. This is a daunting task, and it cannot be achieved without substantial costs. Integration of systems, mastering real-time targeting, and the exploitation of new CONOPs, are more than mere objectives, they determine our ability to project power in tomorrow's battlespace.

With America's continued support, the United States Air Force is poised for unprecedented success. The future holds sober challenges for America's military forces. Some may find easy remedy, while others will require tremendous sacrifice. In whatever scenarios lie ahead, the United States will be able to look to the Air Force for asymmetric capabilities that ensure our dominance of air and space. These capabilities, when employed in joint warfighting operations, will prove to be the resident military strengths that will enable America to assure, dissuade, deter or decisively defeat the adversaries of freedom.