The U.S. Air Force has a long history of adapting itself to meet its country’s changing security needs. In the past, as the defense challenges facing the United States have changed, the Air Force has sometimes radically changed the emphasis it places on the various missions it performs and how it bases its forces. Now, with the fundamental changes that have occurred in the global security environment in recent years, the Air Force is again transforming itself to meet new defense challenges. In August 1998, General Michael Ryan, the Air Force Chief of Staff, announced that the Air Force would begin a process of remolding itself into an Expeditionary Aerospace Force (EAF). The nature of this transformation, the challenges it presents, and the associated solutions are the subjects of this report.

In any organization the size of the U.S. Air Force, there are obstacles to significant institutional change, as well as substantial costs that must be paid to implement it. For this reason, it is worthwhile considering whether a transformation to a new concept of operations is necessary. In this report, we will start by briefly describing the un-

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1The Air Force defines “expeditionary” as conducting “global aerospace operations with forces based primarily in the US that will deploy rapidly to begin operations on beddown.” Headquarters USAF, Expeditionary Aerospace Force Factsheet, June 1999.

2In this report, the term Expeditionary Aerospace Force, or EAF, will refer to the current efforts to transform the Air Force as an institution into an expeditionary military force. The term Aerospace Expeditionary Force, or AEF, will refer to each of the ten groupings of forces the Air Force is using to schedule eligibility for overseas deployment. Forces that deploy overseas from these AEFs will be referred to as “AEF force packages,” or sometimes as “expeditionary aerospace forces.”
derlying rationale for the current Air Force basing and deployment concepts, concepts that have their roots in the early years of the Cold War. We will then consider how the strategic landscape has shifted, the problems this has caused for the Air Force as an institution, and how a more expeditionary concept of conducting operations is intended to address these problems.

**ANOTHER GLOBAL STRATEGY, ANOTHER AIR FORCE**

The Air Force has a history of transforming itself to meet new strategic challenges. In 1952, the Air Force was forward-based, and had plans to become even more so. As shown in Figure 1.1, the Air Force planned to build 82 overseas bases, many of which were for basing the medium bombers of the Strategic Air Command (SAC). This was the early implementation of the post-war U.S. strategy to contain Soviet expansionism, a strategy that was underwritten by a ring of alliances and bases around the Soviet Union. The Air Force concept of operations relied on a combination of permanent, forward-deployed B-47s on these bases and a mobility plan called Reflex. The plan envisioned the rapid deployment of hundreds more B-47s from the continental United States (CONUS) to overseas bases upon the receipt of strategic warning.

By 1954, this expeditionary, forward-oriented basing approach began to look vulnerable. Improvements in Soviet nuclear delivery capability led Wohlstetter to warn,

> Analysis of the consequences of a Russian A-bomb air attack on the whole of the projected 1956 overseas primary-based system with the projected defenses clearly shows that only small numbers of A-bombs are needed to eliminate the majority of the force...5

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3In the years immediately following World War II, these consisted chiefly of B-29 bases. By 1954, when the limited speeds of the aircraft made them vulnerable to Soviet defenses, they were being replaced by B-47s. Harkavy (1983), p. 116.
4The Reflex deployments are an early example of an “expeditionary” employment of airpower. Each deploying wing was to require the equivalent of 40 C-54 cargo aircraft loads to haul support equipment and personnel to the forward operating location. The bomber crews and aircraft were expected to remain at the forward base for “several days” before generating the first combat sortie. Wohlstetter (1954), p. 4.
Introduction: The Expeditionary Imperative

The warning times available to disperse and launch SAC bomber forces were the critical factor. With the distant early warning (DEW) system of radar sites in place, CONUS bases could expect about two hours of attack warning, whereas overseas bases would get as little as 10 minutes. Wohlstetter recommended that SAC adopt a CONUS-only mode of basing, extending the range of the B-47s with a combination of aerial refueling and overseas transit bases. At the time, SAC was not only forward-deployed but had inherited a World War II CONUS basing structure with most installations located in the south, where the weather allowed more productive aircrew training. Once the decision was made to move to a CONUS-only basing system, a far-reaching adjustment of basing structure and employment concepts took place. A massive base-building campaign was funded to rapidly build SAC bases in the northern tier of states, where transcontinental polar missions could be supported.6 By the 1960s, the more optimal basing structure, along with the procurement of longer-range B-52s and KC-135s, allowed the Air Force to reach the

The Air Force has not always gone “first class.” At around the time of the decision to bring the strategic bomber force home to CONUS, there was a countervailing initiative on the part of the Tactical Air Command (TAC)—the Composite Air Strike Force (CASF), which was operational between 1955 and 1973. The CASF concept was intended to provide rapidly deployable CONUS-based tactical forces that could be sent overseas in response to smaller-scale contingencies. Brigadier General Henry Viccellio, the first commander of the 19th Air Force, described the mission of the CASF in this way: “As SAC is the deterrent to major war . . . so will the Composite Air Strike Force be a deterrent to limited war.” Many of the issues and challenges being encountered today by the Air Force in its movement toward the EAF were presaged by this early expeditionary concept.

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7 Harkavy (1989), p. 82.
A CASF consisted of a small planning and command element, provided by the 19th Air Force Headquarters, to which regular tactical fighter and fighter-bomber units were attached. In 1958, CASFs were deployed to Incirlik Air Base, Turkey, during the Lebanon crisis, and to Taiwan during the Chinese attacks on the islands of Quemoy and Matsu. Both of these deployments encountered a number of problems that would be familiar today, including trouble with overflight rights, shortages of spare parts and munitions, and a lack of training opportunities while deployed. However, in the Incirlik deployment, 36 F-100s were deployed within 24 hours.\(^9\) The complete CASF, consisting of about 100 F-100s, B-57 tactical bombers, and RF-101 and RB-66 tactical reconnaissance aircraft arrived within four days.\(^10\)

Figure 1.2 shows part of the CASF encampment at Incirlik Air Base. Note the tents adjacent to the flightline used for sleeping accommodations, as well as the small size of the nearby munitions storage.

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storage area. Support for this force consisted of 860 personnel and 202 tons of equipment.\textsuperscript{11}

The Air Force did not commit significant research, development, procurement, or training funds to advancing the CASF concept. At the time, the Air Force was focused on its central mission—strategic nuclear deterrence. What is relevant today, however, is the underlying rationale for the CASF, which grew out of the perception that a regional deterrent capability was needed to address communist aggression around the wide periphery of the Eurasian landmass. Instead of maintaining a system of expensive regional MOBs, the Air Force elected to rely on a rapid deployment capability to swing its CONUS-based forces to wherever they might be needed. Today’s AEF, conceived to deal with a similar situation of unpredictable and widely dispersed regional crises, is in many ways a modern heir to the CASF.

AN EXPANDED STRATEGIC PERIMETER

Despite the concerns in the 1950s about containing unpredictable Soviet and Chinese incursions into the Eurasian rimland, the central reality of the Cold War for both superpowers became the maintenance of the strategic nuclear deadlock. Many longstanding ethnic, religious, and national conflicts were placed in a kind of stasis—held in check by their implications for the broader superpower struggle. Today, these conflicts have reemerged, along with an array of additional challenges, including “failed states,” nonstate terrorism, and international criminal organizations. The United States considers that its security is closely tied to the maintenance of regional stability, partly to foster economic development and the growth of overseas markets. The emergent security challenges, while sometimes threatening U.S. “vital interests,” do not threaten the existence of the United States in the same sense that the nuclear struggle with the

\textsuperscript{11}\textsuperscript{Tillford (1997), p. 117. A recent AEF deployment consisting of 36 F-16s and F-15s required 1100 personnel and 3200 tons of equipment and munitions. Although the deployed support requirements of combat aircraft have grown since 1958, it should be noted that the CASF support concept consisted of a small replacement spares package, no component repair capability, and few munitions. The crews were not trained for conventional weapons delivery—the weapons of choice were tactical nuclear weapons.}
Soviet Union did. So while the challenges may be important ones, the United States will usually have a smaller stake in each outcome than will the opposition, whether that opposition is an aggressive regional hegemon or a drug cartel. At the same time, the security threats have become harder to anticipate and plan for. These developments pose problems for defense planners, and represent what amounts to a much-expanded “strategic perimeter”—not just expanded spatially, but expanded with respect to the type and timing of the threats as well. Like a number of great powers in the past, the United States must meet a series of often unpredictable security challenges around the edge of a hard-to-manage frontier. This is the new security environment in which the Air Force has found itself, one for which its defining Cold War experience had not well prepared it.

THE OLD AIR FORCE MEETS THE NEW DEFENSE ENVIRONMENT

The new environment began to manifest itself immediately after the Gulf War. Since that time, the Air Force has been called on to support an almost nonstop series of crises and lesser contingencies. As shown in Figures 1.3 and 1.4, these have ranged from humanitarian operations in Africa to shows of force in the Middle East and coercive airstrikes in Bosnia. Each of these deployments has represented a substantial Air Force effort. For example, Figure 1.5 shows just one of these contingencies, the PHOENIX SCORPION deployment to the Middle East in November 1997. To deploy the relatively small force shown, many thousands of people and tons of equipment, representing a large support “footprint,” were rapidly deployed, then redeployed home again a few months later.

The constant drumbeat of these contingencies during the 1990s has taken a toll on the Air Force, and shows no indications of slackening. Indeed, Figure 1.6 indicates that the trend is toward higher fractions of the Air Force deployed forward from their MOBs on a temporary or rotational basis. This rise is a function of both an increase in the numbers of temporarily deployed personnel (approximately 4000 in
1989 versus 17,600 in 1998) and a decrease in the pool of deployable personnel (approximately 368,000 in 1989 versus 212,000 in 1998). This represents almost an eightfold increase in the proportion of Air Force personnel deployed from the end of the Cold War in 1989 until today. In fact, the proportion of Air Force personnel deployed temporarily overseas today is nearly that of 1990, when Operation Desert Storm required major overseas deployments.

These trends have resulted in the types of pressures shown below:

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12The pool of deployable personnel was roughly estimated by using the number of personnel in force-providing commands—Air Combat Command (ACC), Air Mobility Command (AMC), Air Force Special Operations Command (AFSOC), United States Air Forces Europe (USAFE), and Pacific Air Forces (PACAF).
Frequent deployments of specialized units
- Difficulty in maintaining home bases when troops deploy abroad
- Unpredictable assignments
- Lower levels of readiness
- Retention problems.

Many units, called “low density/high demand” (LD/HD), have specialized training or system capabilities that are constantly in demand overseas by regional commanders-in-chief (CINCs). These units...
have had extremely high rates of deployment, often exceeding 180 days per year. In addition, when Air Force units are deployed overseas from their home MOBs, they take with them many of the personnel that are needed to keep those bases operating, such as security police, aircraft maintenance specialists, and civil engineers. This puts a marked strain on the members remaining behind, in some cases requiring 12-hour shifts, seven days per week, for the entire 90- to 120-day period of the deployment. The taskings themselves are by their nature unpredictable, and make it difficult for families to make plans. Finally, training and readiness have suffered, as deployed personnel do not have the opportunity for quality training to maintain their combat skills. The combined effects of these factors have resulted in drastically declining retention rates in many Air Force career fields. Using the pilot force as an example, the Air Force saw a
shortfall of 800 pilots in 1998 and is expecting 1200 in 1999, rising to 2300 by 2002.\textsuperscript{14,15}

In 1997, the Quadrennial Defense Review recognized that the crises and small-scale contingencies (SSCs) that have been causing these problems for the Air Force were defining characteristics of the new security environment. It formulated a new defense strategy tailored to these challenges that emphasizes regional engagement. The strategy has three precepts. The first is to \textit{shape} regional security situations to foster stability and deter aggression. The second is to maintain a capability to rapidly \textit{respond} if deterrence fails. The last is to \textit{prepare now} by modernizing our forces.\textsuperscript{16} It is to support this new

\textsuperscript{15}Correll (1998), p. 4.
strategy that the Air Force is again recasting its doctrine and concepts of operation.

THE EXPEDITIONARY AEROSPACE FORCE

The Air Force’s answer to the new strategy, the EAF concept, was an outgrowth of several years of thinking and experimentation. The need for a better expeditionary capability became apparent during the VIGILANT WARRIOR deployment to Southwest Asia in October 1994. In response to a movement of Iraqi armor toward Kuwait, the Air Force rapidly deployed more than 200 aircraft to Southwest Asia. The many deployment problems encountered by the Air Force during this contingency indicated that its combat forces needed to be more deployable.17 In particular, the large support “footprint” mentioned earlier needed to be addressed.

General John Jumper, then commander of the Air Force component of U.S. Central (CENT) Command, responded with the concept of the AEF. The original AEFs were packages of 30 to 36 CONUS-based combat aircraft that were available to the regional CINCs on short notice.18 From 1995 through 1998, they were deployed six times to Southwest Asia in response to contingencies, as well as to periodically augment theater forces with the ground-attack equivalent of a carrier battle group. Although these deployments went more smoothly and rapidly, they were by no means done on the spur-of-the-moment. Each one followed months of deployment planning, training, aircraft preparation, and movement of support equipment to the pre-identified forward operating locations (FOLs).

If allowed sufficient strategic preparation, these force packages of aerospace power were and still are capable of rapid deployment. This rapid deployment capability, combined with the fact that they were a pre-identified force capability provided to CINCCENT, sometimes allowed the AEF force packages to be left at their CONUS home

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17 These problems included the transportation of unneeded and redundant equipment, personnel processing delays, and a lack of information about the mission and destination location.

18 These AEF force packages generally achieved the stated goal of being able to place “bombs on target” within 48 hours of receipt of a deployment order.
bases until they were needed. This was seen by the Air Force as a way to better manage the operations tempo (optempo) of its personnel.

Another aspect of the original AEF concept was that it served to highlight the garrison structure of the Air Force, since at the time there was little doctrinal guidance for the deployment and employment of expeditionary forces, nor was it clear how they should fit into a joint command structure. Although much uncertainty about expeditionary operations remained, the drawdown in overseas bases along with the continuing need for forces overseas made it clear that the Air Force as a whole needed to become generally more expeditionary. The process culminated in 1998 with an announcement by General Ryan that the service intended to restructure itself into an Expeditionary Aerospace Force, or EAF.

The EAF concept has two primary goals. The first is to provide greater stability and predictability to Air Force personnel by periodically rotating the burden of deployment eligibility around the entire force of airmen. This is intended to address the readiness, training, and retention problems described above. The second goal of the initiative is to enhance the utility of aerospace forces to joint commanders by improving their deployability and tailorability. The Air Force plans to accomplish these goals by establishing ten servicewide AEFs. These AEFs are different from the original 30 to 36 aircraft concept. As shown in Figure 1.7, each AEF will be made up of about 175 aircraft: fighters, bombers, and aircraft performing search and rescue, command and control, reconnaissance, tactical airlift, and aerial refueling. Although the ten AEFs will not be identical to each other, the Air Force intends to compose them so as to possess roughly equivalent combat capabilities, including precision air-to-ground weapons delivery, air superiority, suppression of enemy air defenses (SEAD), and tactical airlift. In addition to the ten AEFs, two wings will be permanently designated as “rapid response” wings to reinforce the capability of the Air Force to react quickly to crises.
At any given time, two of the ten AEFs and one of the rapid response wings will be eligible to deploy their forces overseas. Each will remain in this status for 90 days before being replaced by another AEF and rapid response wing. This will establish a regular 15-month rotation cycle for the AEFs to enhance the stability of the force. When an AEF enters into its period of deployment eligibility, some of the force will be deployed immediately to support continuing...

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Because AEFs will not all contain the same aircraft, supported CINCs will be asked to request capabilities and not specific aircraft types. It is still uncertain whether the CINC's and their staffs will go along with this restriction, especially if they do not view the weapon systems as equivalent. Also, the CINC's ability to support aircraft may vary, and may indicate the deployment of specific aircraft types.
overseas commitments.\footnote{As of the time of this writing, such commitments consisted of the \textsc{northern} and \textsc{southern watch} no-fly zone enforcement over Iraq, as well as the \textsc{deny flight} missions over Bosnia.} This is intended to support the \textit{shaping} precept of the National Military Strategy, since these forces will be fully engaged and involved in regional security affairs. Remaining behind at their home bases will be a substantial force ready for crises and SSCs. This “on-call” force is intended to be rapidly deployable, to support the \textit{respond} aspect of the defense strategy. The types of contingencies for which this on-call force could be tasked to respond range from humanitarian, to show of force, to early combat against forces invading a friendly country. Although they are envisioned as being rapidly deployable, deployments by AEF force packages will not always need to be fast or early arriving. The timing and phasing of expeditionary aerospace forces into an overseas theater of operations would be at the discretion of the regional CINC.

\textbf{ORGANIZATION OF THIS REPORT}

After announcement of the EAF initiative, the Air Force began planning to implement the concept, with the goal of having the first two AEFs ready for deployment by October 1999. This activity has focused chiefly on the following activities:

- Assigning of specific units to each of the ten AEFs
- Establishing the rotational cycle
- Sourcing of additional support forces to relieve the burden on units assigned to the AEF home bases
- Planning for the deployment of less than squadron-sized numbers of aircraft
- Developing training plans for AEF preparation
- Incorporating expeditionary concepts into institutional culture and training.

The research described in this report does not attempt to duplicate the work in these areas. Instead, it addresses a specific challenge re-
lated to successfully executing rapid expeditionary deployments—gaining access to overseas bases. In Chapter Two, we propose a strategy for global aerospace presence. Next, we examine two key enabling aspects of this strategy. Chapter Three addresses the capability to deploy and sustain AEF force packages at locations anywhere throughout a region of instability—wherever access is provided or operations become necessary. However, without a robust defensive capability, enemy threats could deny access to expeditionary forces. In Chapter Four, we discuss the possible threats to deployed aerospace forces, and the defensive capabilities those forces will need to ensure that their deployment options are not reduced.