

# AIR FORCE

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USAF Photo by SrA. Greg L. Davis

Swiftly delivering fire and iron on distant targets constitutes a signature capability of the Air Force. Not long ago that capability-requiring speed, mass, and long reach--was seen as residing primarily in the fleet of heavy bombers and fighter-bombers. These long-legged aircraft continue to play a vital role, but Air Expeditionary Forces have broadened and deepened the concept of long range airpower.

Through AEFs, USAF is working to revolutionize the way it responds to crises. The national military strategy requires the US to be able to fight and win two Major Theater Wars that might occur at more or less the same time. Much of the responsibility for carrying out this task--especially in the early going--would fall on the Air Force.

The Pentagon's Quadrennial Defense Review in 1997 said that the power to rapidly halt an enemy's advances short of objectives in two theaters in close succession is "absolutely critical" and that "failure to halt an enemy invasion rapidly can make the subsequent campaign to evict enemy forces from captured territory much more difficult, lengthy, and costly."

The "halt phase" is the focus of much AEF planning.

Speed is of the essence in this strategy, and Air Force officials have spent the last few years refining the way that the service will meet the test. The challenge is twofold: Be able to arrive quickly, ready to fight. Then, be able to follow up the initial blows with attacks that can be sustained for as long as it takes to do the job.

### **Global Power Missions**

In a part of the world in which no air units already have been put in place, heavy bombers would still provide the fastest response to aggression. USAF's B-1B, B-2A, and B-52H bombers, from a cold start at their home bases in the continental United States, could attack virtually anywhere on Earth in 18 hours.

The heavy bombers, armed with new types of munitions that could destroy hundreds of armored targets on a single pass, would be able to stop an enemy column on the march and, armed with new precision weapons, destroy time-critical enemy command-and-communications nodes, infrastructure, and other targets.

Lt. Gen. Ronald C. Marcotte is the commander of 8th Air Force, headquartered at Barksdale AFB, La., which is responsible for all USAF bombers. He said that the crews of all three types of heavy bombers practice such Global Power missions on a regular basis. The 30-to-40-hour-long missions entail a launch from the continental US, flight to a spot halfway around the world, and a return to home base.

According to Marcotte, the Air Force's bomber force could sustain these kinds of missions, at a high sortie rate, for weeks, if need be.

The bomber fleet practices "all options" with regard to how they may be used in combat, added Marcotte, who noted that bomber employment is very "scenario-dependent." Missions are affected by "availability of the forward operating location, type of bomber available, ... and other factors," he said. "Obviously, if you forward locate, it improves the sortie rate [and] you can react much more quickly."

Increasingly, that's just what is happening.

The force of heavy bombers, which during the Cold War focused heavily on nuclear operations and had limited involvement in planning for conventional operations, more and more is being integrated with other kinds of theater forces, particularly in AEFs. This has been done to help coordinate attacks and to make the most effective use of the bombers' greatest assets-huge payload, high speed, long range, and, in the case of the B-2, stealth.

According to Marcotte, bomber officials still pay "very close attention" to the nuclear war commitment. Beyond that, he said, learning to operate within AEFs is "the No. 1 priority for the foreseeable future." This is, he added, "the focus of what we do."



*Bombers once defined strategic airpower-nuclear or conventional-but they are becoming more integrated into the "deploying" force. Here, a B-52H tanks up from a KC-10 en*

*route to Diego Garcia. (DoD photo by SrA. Eric D. Beaman)*

### **"In Your Face" Airpower**

This step is favored by Gen. John P. Jumper, currently the commander of US Air Forces in Europe but also viewed by many as the father of the AEF concept. According to Jumper, heavy bombers at home station, ready to attack anywhere in the world, are an impressive strike instrument sure to provide some degree of conventional deterrence, but the forward deployed AEF, possibly including bombers, provides a more immediate, "in your face" deterrent.

As a package of airpower tailored to the situation at hand, the AEF can be deployed quickly to show that the US is "willing to put aircraft forward ... on the ground, to share risk with a nation under duress," Jumper explained.

With some mixture of fighters, attack airplanes, heavy bombers, tankers, airlifters, air defense suppression airplanes, and other types, an AEF can deploy to a forward base, arm airplanes, and strike enemy targets in force within a few days. The AEF's first bombers could hit targets within 24 hours, but fighters could deploy and do the same within 48 hours, according to the Air Force. Such quickness begins to put a fighter-heavy AEF on a par with bombers alone for speed of response.

Success can be attributed in part to successful change in the fleet of heavy bombers. The bomber force, once thought too dependent on extensive home support facilities, has demonstrated that it, too, can be a deployable force, Marcotte asserted.

"We've proved, of course, that we can forward deploy," he said, citing recent B-52 short-notice excursions to Diego Garcia, B-1B deployments to Bahrain, and the B-2 exercises in Guam. The B-2 deployments were particularly important, having disproved claims of critics that the B-2's exotic stealth materials couldn't be maintained in an austere, forward location.

Marcotte said that the deployments have been learning experiences, which have helped identify which support items must go forward with the airplanes and what can safely be left behind. In addition, "we've done site surveys at our most likely deployment locations" to determine what items will need to be pre-positioned for future deployments.

Their range also gives the bombers the option of either staying home, going forward, or heading to some intermediate location, depending on the sensitivity of the situation, Marcotte said.

### **Next Up, a Bomber Roadmap**

The Panel to Review Long Range Airpower, headed by former Air Force Chief of Staff Gen. Larry D. Welch, struck a nerve last spring with its observation that the Air Force has no plan for long range airpower beyond upgrades and modifications to the existing fleet.

As a result of the Welch panel's report, Congress ordered the Air Force to prepare a bomber roadmap and hand it over to lawmakers next spring.

Air Force Chief of Staff Gen. Michael E. Ryan said the lack of a bomber roadmap was not an oversight by the service. It was premature, he said, to look to the next aircraft while introducing a brand-new bomber with unprecedented capabilities, especially given the uncertainties over whether the B-2 line would be reopened. Several intervening studies about bomber and munitions requirements further delayed the process of "looking at the next generation, 20 to 30 years away."

The bomber roadmap will include "munitions, capabilities, bombs on the airplanes, and future requirements for long-range aircraft," Ryan said. The roadmap will tell whether "there's a B-3 out there someplace."

"Sometimes time is of the essence," Ryan said, "either from a reconnaissance standpoint or a force application standpoint. And if you have something that positively has to be there overnight, I think we need to look at faster ways to do it."

Ryan said his "gut" feeling is that the requirement will be stated as "rapid response at intercontinental ranges," suggesting the next craft to do the mission might be a hypersonic craft, a spaceplane or transatmospheric vehicle.

Whether that means a spaceplane or a B-3 or smaller aircraft with long range "doesn't make any difference," Lt. Gen. Ronald C. Marcotte, 8th Air Force commander, said. "It's the concept of Global Reach, Global Power."



*Leave it home: AEFs are trying to deploy with fewer and fewer people, to save airlift, save time, and reduce the strain on the force. "Reachback" to Rear Air Operations*

*Centers offers real-time answers from the real experts. (DoD photo by PH2 Leland B. Comer)*

## **Making a Statement**

The typical AEF is made up chiefly of fighter airplanes, which can be portrayed as a defensive instrument. Bombers make a "more overt, aggressive political statement," he observed. Besides political considerations, bombers might need a different operating location because of their need for more ramp space.

Current Air Force plans call for organizing and keeping ready two AEFs at all times. Most of the time, one would be deployed forward to some austere site and one would be on-call in the United States for any contingency that might occur. If it were necessary to deploy both

AEFs, a third would be formed up and made ready.

Because of the critical requirement for deployment speed, the Air Force has looked at any and all means to whittle down the size of its deploying units. Only a bare minimum of spare parts, maintenance personnel, force protection assets, and crews go on a deployment. This practice not only reduces the number of cargo transports necessary to move an AEF--inherently reducing the scope of the deployment and the time needed to do it--but it also reduces the turbulence in the force by reducing TDY.

Jumper does not think the Air Force has reached the limits of compression. He envisions the typical future AEF as being a minimalist force, "living under the wing" at a bare-bones runway, able to get in and when the mission is over-out within hours. It's a job the Air Force actually did very well in the 1950s, he remarked, and he's anxious to restore USAF's proficiency.

The Air Force believes that the whole force needs to be lighter, leaner, and more lethal, if it is to do its job properly in the years ahead. Jumper maintains that, in an ideal world, an AEF commander-or a Joint Forces Air Component Commander, in a Smaller-scale Contingency or Major Theater War-would deploy to the war zone carrying little more than a small man-portable satellite dish, a laptop computer, and a printer.

With this goal in mind, the Air Force recently conducted Expeditionary Force Experiment 98, the first of what is planned to be many annual lab sessions for creating the force of the future. The goal is to sharpen the emphasis on moving forward only what is absolutely necessary-and getting even greater effectiveness out of what does move forward.

## **Deterrence and Contingency Operations**

**Information, Surveillance, and Reconnaissance.** Increase situation awareness, tailor operations tempo, gain information superiority, and improve responsiveness. ISR assets can help deter an aggressor by letting him know the US is interested and watching closely.

**Show of Force.** Highly visible deployment of aerospace power on short notice can deter crisis. Example: Dispatch of an AEF to Kuwait in 1997, which deterred hostile Iraqi actions.

**Forced Entry.** Establish local air superiority to permit injection of ground or naval power or aerospace power directly to restore stability. Example: Operation Just Cause in Panama in 1989 featured forced entry airpower delivering surface forces.

**Aerial Occupation.** Employ air and space forces to prevent hostile forces from operating effectively in specific areas. Example: No-fly zones established over Iraq following the Gulf War.

**Raids.** Rapid projection of aerospace combat power into hostile space to secure information, confuse the enemy, or attack key targets. Example: 1981 Israeli airstrike against Iraq's Osirak nuclear reactor.

**Coercion.** Deterring an enemy from performing hostile action or compelling an enemy performing such an action to cease. Example: Operation Deliberate Force in 1995 to force Bosnian Serbs to remove heavy weapons from designated exclusion zones.

**-From Air Force Doctrine Document 2, "Organization and Employment of Aerospace Power," September 1998.**

## **The Power of Reachback**

Numerous experiments were carried out in EFX 98, run in September at Eglin AFB, Fla. Eglin stood in for an airfield in an allied country under attack. A major goal was to see how small and light the Air Force could make the forward Air Operations Center--which manages air

tasking orders, passes intelligence, and coordinates US and allied forces. To run the AOC, only 115 command-and-control personnel deployed forward with the AEF commander, Lt. Gen. Lansford E. Trapp Jr.

However, they had some assistance, acquired courtesy of a concept called "reachback." Supporting them were about 300 people at a Rear AOC established at Langley AFB, Va. Using video teleconferencing, the Internet, radios, telephones, and other means of data transfer, the forward-based people could see and hear their counterparts at Langley and from there, could "lay hands on" and "reach back" to get the best subject matter experts all over CONUS, according to Lt. Col. Rocky Kimpel, deputy director of EFX 98.

Kimpel noted that the 1991 Persian Gulf War required the management effort of nearly 2,000 people based in Riyadh, Saudi Arabia. It would be "a nightmare" if, in a similar conflict, a large forward-based AOC took a hit from a missile or car bomb, which would effectively decapitate the allied war effort, Kimpel noted. The Gulf War AOC was underground and well-protected, but in other theaters, such facilities might not be available. A smaller AOC, backed up by the Rear AOC at Langley, is easier to hide, protect, move, and reconstitute, if necessary, he said.

The Rear AOC at Langley can accommodate hundreds of terminals in a building reminiscent of NASA's mission control in Houston, and the parking lot outside has been wired with cables and electrical lines so that the facility can be expanded with tents and trailers in a real war.

Not only does employing reachback sharply reduce the amount of cargo and people that must be airlifted forward, but many people who otherwise would have to deploy can stay at their home base. This reduces the stress of deployment on individuals, allowing them to work from a place where everything they might need to give the full answer is at their fingertips.

In remarks to reporters as EFX 98 was wrapping up, Gen. Michael E. Ryan, USAF Chief of Staff, said that the "distributed" command-and-control effort worked "in some cases ... very, very well."

The impetus for reachback comes from several sources. First, the world is witnessing a boom in telecommunications high technology, making the systems of Gulf War vintage seem almost primitive by comparison.

More important, however, is the changed operational outlook. Gen. Richard E. Hawley, commander of Air Combat Command, pointed out that the Persian Gulf buildup was a huge logistic effort that took a long time to get forces in place and operational. "In the world we're looking at," said Hawley, "we think we'll have to be more agile than that and must be able to set up a command-and-control capability to employ aerospace power on very short notice."

That's why the reachback concept is so important, said Hawley. Instead of deploying thousands of people and tons of equipment, small bits and bytes of information will move between command centers.

The concept of reachback gets major attention in the Air Force's new operational doctrine manual, "Organization and Employment of Aerospace Power," published this fall. It stated, "Reachback, for both additional forces and materiel, will become increasingly important for

reducing the deployment footprint, thus preserving critical lift."

### **War-Winning Operations**

**Destruction.** Maximum long-term damage to targets such that the enemy cannot recover in immediate future or for the duration of the conflict. Example: Operation Desert Storm.

**Disruption.** Temporary incapacitation of enemy strength, preventing deployment of assets. Example: 1944 Allied air attacks on Panzer division trying to contain Allied landings in France.

**Diversion.** Attacks against targets that compel an enemy to shift forces from offensive to defensive duties. Example: World War II strategic bombing campaign against Germany.

**Delay.** Direct or indirect attack on advancing or retreating enemy forces to slow or stop their movement. Example: Fall 1950 USAF air interdiction campaign that lengthened amount of time for North Korean troops to reach the Pusan perimeter.

**Deception.** Actions to mislead an enemy about operations. Example: Operation Bolo in 1967, when USAF F-4s, masquerading as F-105s, lured North Vietnamese MiG-21s into battle and defeat.

**Halt.** Combination of destruction, disruption, diversion, delay, and deception that denies an enemy the ability to employ his forces in an offensive. Example: Israeli air attacks that stopped Syrian offensive on Golan Heights in 1973 Mideast War.

**Deployment/Sustainment.** Interruption of a commander's ability to conduct operations over time. Example: World War II Allied air interdiction that prevented German Field Marshal Erwin Rommel from obtaining reinforcements and resupply.

**Information Operations.** Both air and space reconnaissance and

surveillance to provide accurate information to US planners or information warfare. Example: Operation Desert Storm, in which Iraqi air defenses were blinded and communications destroyed.

**-From Air Force Doctrine Document 2, "Organization and Employment of Aerospace Power," September 1998.**

### **En Route Planning**

EFX 98 also spotlighted another "get-fast" initiative--en route planning. The experiment, in fact, began on the run. The AEF commander, Trapp, deployed immediately following the "go" order, using USAF's Speckled Trout electronics experiment airplane as a kind of flying AOC.

Trapp was able to stay in constant contact with all his forces during his transit time, which he used for evaluating targeting information, issuing orders, and crafting the air tasking order. Previously, JFACCs have had largely "dead" time in transit, able to communicate but not do much substantive planning or decision making based on real-time data.

This en route Expeditionary Operations Center was an EFX initiative developed by the operational units and the AEF Battlelab at Mountain Home AFB, Idaho. It provides intelligence and weather analysis, mission planning capability, air defense integration, aircraft status monitoring, and command post functions.

The en route EOC has a "roll-on, roll-off" capability. Built on a standard aircraft pallet, it was loaded onto a specially equipped KC-135R Stratotanker at Mountain Home at the beginning of EFX 98. The aircraft was outfitted with a phased array communication antenna to receive large amounts of data at global distances. Once unloaded, it formed the core of the forward AOC.

Similarly, two B-1B bombers took off from Mountain Home for the notional allied nation, armed for a strike, but without any targeting information. The targeting data were passed to the bombers in transit, and the bomber crews programmed their weapons en route.

However, just minutes before the B-1s were to "release" weapons at previously planned aimpoints, officials ordered changes in the targets and pumped new data into the system. Both airplanes recast their targeting and scored "shacks," or direct hits, on the objectives at Eglin.

In-flight targeting changes were also tested with fighters. Such a capability is vital for rapid response to a fast-changing battlefield or in missions such as Scud hunting.

### **Hacked**

Other experiments included information warfare defensive operations. The latter was particularly important--though its conclusions are

classified--because an enemy able to cut off the flow of information or corrupting the information being passed back and forth from CONUS could achieve significant disruption of the AEF's operations. Simulated hacking of the system was conducted and studied.

"A lot of these things ... pushed the envelope," Ryan said. However, EFX "gives us a jump start on the next iteration of capabilities" necessary for AOCs and AEFs.

Trapp said the exercise was useful in "changing the mind-set" of the Air Force. "Where you're located ... shouldn't matter if you're hooked together through this global grid ... of information," he said.

Nevertheless, he asserted that no one believes the time of running a war by remote-control is at hand. The JFACC needs to see and feel the situation firsthand in order to make good decisions, he said.

How small can a deployed AOC get? The size of the forward AOC, Jumper said, should be dictated "more by the representational requirements--the hand-holding, the presence of the other services, the coalition partners--than by command-and-control requirements."

Ryan said that regional commanders in chief are becoming more accepting of AEFs.

While they would prefer having dedicated forces on hand under their command, USAF is successfully demonstrating that an AEF on call in CONUS is "almost as good" as having one already deployed, Ryan said. "They understand we have worldwide tasking, and ... they go to the head of the list if they have a problem."

Hawley, the ACC chief, said he saw a turning point in the concept of AEFs last summer, when US forces, having quickly deployed to the Persian Gulf region to deal with Iraq's recalcitrance on UN weapons inspections, were ordered home again. A Defense Department spokesman, Hawley recalled, told the national media that the Air Force could return to the Gulf with substantial striking power within 48 hours.

"That tells me that we have gained acceptance, at the senior levels of our government, of our concept of having forces on alert in the States, ready to deploy and respond with meaningful combat power in a short period of time," Hawley asserted. "We think it's the right way to use airpower."

## What Is Attrition Reserve?

Today, USAF has 196 bombers, 126 of which are available for combat. Others are in test, training, depot maintenance, or the status called attrition reserve.

The attrition reserve was created in the early 1990s as a way to pay for needed upgrades to the bomber fleet. By not flying some airplanes, not buying spares for them, or not assigning flight or ground crews, the Air Force saved money for upgrading the bombers with new munitions and avionics.

In practice, however, Air Combat Command continues to try to maintain attrition reserve aircraft at the same rates as the combat-coded ones, cycling them in and out of flight status from time to time in order to age the fleet at a uniform rate and to prevent maintenance problems.

As a result of the attrition reserve, as well as shortfalls in funds for operations and maintenance, spares, and ground crews, bomber mission capable rates have fallen.

In Fiscal 1996, 1997, and 1998, bomber mission capable rates averaged 58.2 percent, 58.5 percent, and 56.4 percent, respectively. Worst off is the B-1B fleet, for which the standard is 67 percent; in Fiscal 1998, it averaged 50.9 percent, and the cannibalization rate hit 97 percent. The B-52H averaged 78 percent against an 80 percent standard. No mission capable standards have been set yet for the B-2 fleet, only half of which has been delivered.

ACC plans to "buy back" some airplanes in the attrition reserve, increasing the number available for combat. About 20 B-1Bs are to be returned to full combat status by the end of 2001. The B-2 fleet will gain 12 airplanes for a total of 21--of which about 16 will be ready at all times. Twenty-three B-52Hs are to be retired in the same period.