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The Air Combat Command commander talks about the realities of modern warfare.

Jumper on Airpower

Gen. John P. Jumper, USAF, is commander of Air Combat Command, headquartered at Langley AFB, Va., and is a former commander of US Air Forces in Europe, from which post he played a key role in Operation Allied Force. He spoke on April 13 to a session of DFI International's Aerospace Power Seminar Series in Washington, D.C. What follows are excerpts of his remarks.

The Air Force at War

"The problem is that we tend to make it [combat] look easy, when it's not. The pilot over Baghdad or over Belgrade—he is not thinking in terms of, 'I'm fighting someone who is not a near peer.' [With] 700 [surface-to-air missiles] launched at us over Serbia, at no time did it cross the mind of the F-16 pilot that he was somehow engaging someone less worthy and that the elements of our superior technology would keep him or her out of harm's way. The F-117 pilots and the B-2 pilots, who, in the middle of the night, [are] flying predetermined routes and altitudes that maximize their stealth profiles, watch the SAMs fly off the rails and come their way, and they trust the technology that has been given to them by this nation. ... The F-16 pilots that we put in there to do close-in, shoot-from-the-hip battle with SA-3s and SA-6s so that the strike forces can get through, engaged in the heart of the SAM envelopes, one vs. one with these SAM operators, and made sure that the forces with the targets that had to be destroyed were able to get through. These duels, if you watch the videotapes, were not trivial duels."

They Call It Cowardice

"There is also the notion that somehow, at 15,000 feet altitude, our airmen were safe. No one in the room can picture standing at parade rest in an open field, 15,000 feet in front of an enemy artillery barrage, but somehow, when that translates into the vertical, it becomes tantamount to an act of cowardice. After all the money that we spent over the years to try [to] overcome our frailties in Vietnam, where AAA took out not only hundreds but thousands of airplanes, ... we took criticism because, somehow, there was something ignoble about not being down among that AAA and that intense small-arms fire that we know would have cost us a lot of airplanes. A laser bomb doesn't care the altitude from which it's dropped, as long as it sees that little laser spot on the ground. And they do—very well. Besides, the restriction wasn't at 15,000 feet. The Forward Air Controllers were down at 5,000 feet doing what they had to do to find those targets."

Battlespace Internet

"We need to be more rapidly responsive. We need to get to the targets when they emerge. This becomes a challenge really to the technology of information. We need to attack, intellectually attack and technologically attack, the seams between the finding, fixing, targeting, tracking, and engagement of targets that emerge on the battlefield. ... We are pursuing in our United States Air Force the idea of a battlespace Internet. It allows the operational commander to reach forward or backward and to have in front of his or her face at all times what I call decision-quality data."

Decision-Quality Data

"Decision-quality data is best illustrated by the contrast of the cockpits of our airplanes today and yesterday. ... Even today in the F-15 and F-16, you have a dial over here, a gauge over there that tells you that you're being threatened by someone. It is picking up a signal of some type, and it is displaying a type of signal. You look at that signal and you say, 'That is a bad airplane. I hear the sound, I look over here on my radar scope, and I think that perhaps that sound is that blip on the scope. I hope it is, but I am not sure.' You correlate this blip with that scope, and there is another sound over here that says there is a threat from the ground-a surface-to-air missile is looking at you. ... So you are correlating this blip with that sound. Where do you think the priority of getting to the target and dropping the bomb was? In our hierarchy of survival needs, it was down there pretty low. Now, the F-22 turns that around for us."

Marvels of the F-22

"In the F-22 cockpit, you have situated in the middle of your screen the profile of your airplane. If there is a bad guy out there, it appears at the top of the scope, and your airplane has a radar fan that comes out and shows your radar range against this particular type of target, taking into account its maneuver and stealth profile, whatever it might be. And you know when you are vulnerable to that guy's radar. On the ground, you see these rings-these rings show the engagement envelopes of the surface-to-air missiles. Those envelopes are sensitive to your stealth profile at the moment, your speed, and your altitude, and what your airplane is capable of doing to limit the size of those rings at any particular moment.

"In your bomb bays you have these smart weapons. Out of the front on the display is an oblate spheroid that comes out and shows you the envelope of that particular weapon. So you take the target, which is represented by a big X on the scope and you put the oblate spheroid over the X and you let the bomb go. It knows how to get there and do the rest of its work. And the rest of the time you are presented with decision-quality data that tells you how to get you and your strike force in and out, in this slalom course you run when engaging or avoiding air targets and avoiding those ground threats. [Meanwhile] your bomb is en route to taking out those vital nodes of command and control or those SA-10s or SA-12s that keep you from doing your job. That is what we can do with today's technology."

"Horizontal Integration"

"It is a fact that our S&T budgets have been going down in the Air Force. We just had an S&T summit with all of the Air Force four stars ... to talk about ways we can reverse that trend. ... In many cases, what we really need is to do the horizontal integration. The idea of this battlespace Internet is to do the horizontal integration that ties together the systems we already have to present this decision-quality information to the operational level. To do this ... is going to take a leap in technology to

make sure these real-time bits and bytes of information that soar throughout the sky during these conflicts can get to the right place at the right time."

Meet the New FAC

"The Predator did us great service. During [the Balkan War] we found ourselves having to use the Predator not the way it was intended originally--go out and collect data and imagery, to come back, scour, and find potential targets--but instead to be able to close that loop between target location (because we knew where targets were), to help us solve the collateral damage problem by putting real-time eyes on the target, and to then converse with the airplanes that had bombs they were ready to drop. This is one thing that we had to learn again in the course of battle. We had to make Forward Air Controllers out of what had previously been intelligence collectors, because essentially their role was the role of a Forward Air Controller."

Global Hawk's Promise

"Global Hawk again will come to us as an experimental aircraft--one that is not in its first configuration, completely operationally suitable for those missions that we design it for, the imagery collection and the signal intelligence, etc., but perhaps suitable for other things. I will tell you my vision for the Global Hawk is a little bit broader than what we read about today. It is not only a replacement for the U-2. I think it is also that sort of 'server in the sky' that enables us to have that battlespace Internet idea. It is the thing that relays the signals and the data links around the battlespace so that everyone who needs it can take advantage of that. It is also potentially suitable for even armed capabilities sometime in the future. But to do that we have to develop the Global Hawk to get it in a configuration that has electrical power and the right characteristics to be operationally suitable. ... I believe that we will find a role for the Global Hawk. I am not at liberty to talk about it here today, but I think that we will find a role for it even in its preproduction configuration. I think that Global Hawk will then go on to be both an antenna farm, an aperture farm, and a great [intelligence, surveillance, reconnaissance] platform that will serve all of the joint forces. I have no doubt about that."

UAV Limitations

"There are operational limitations that we have to take into account. The Predator goes 70 knots, and, in a 70-mph wind, I like to say that it can get to the target and come back, but it can't do both. We have to deal with this. If you have an emerging target miles away, it takes some time for the Predator to get there. These are just practical limitations that we have to deal with when we start to deal with UAVs. When things like the Global Hawk deploy for great distances, we have to worry about how we track these things across the ocean. When they recover in places in the United States or in other people's countries we have to worry whether they are battle damaged or not and what risk we are putting people in the local area in. These are practical considerations. We will overcome all of these things."

Dragging the Decoys

"I am reminded of ... the first night that the B-1s were deployed [in Allied Force]. The B-1s came to us in the Block D/ALE-50 configuration, straight from the test world at Nellis AFB [Nev.]. On the first night, they came down south over the water [Adriatic Sea] in a formation. These were still the test guys flying these things. [The] ALE-50 towed decoys were deployed--and we watched the radars in Montenegro ... track the B-1s as they came down and turned the corner around Macedonia and up

through and into Kosovo. We watched the radars, in real time, hand off the targets to the SA-6s, and the SA-6s came up in full-target track and fired their missiles. Those missiles took the ALE-50s off the back end of the B-1s just like they were designed to do. The B-1s went on and hit their targets."

The B-2 Meets Flex Targeting

"I was trying to get those guys [B-2 pilots] to get into the flex-targeting business. Bomber pilots like to do things in a very preplanned way. I asked Gen. [Richard E.] Hawley, who was the commander of Air Combat Command [during Allied Force] if I could go out to Missouri ... and talk to those B-2 guys personally. He said, 'Yes, go ahead.' I went out there and the young captains and I sat around, and in about three-and-a-half hours we figured out how to do this. On the first night, these guys, with the new process at work, knocked out two SA-3 sites that we had given them only a couple of hours out from the targets."

You Are a Refrigerator ...

"Of course, the world of information warfare is one that is difficult to talk about in any detail. I will tell you that we did more information warfare in this conflict than we have ever done before, and we proved the potential of it. In my view, the future is very bright in this regard. Instead of sitting and talking about great big large pods that bash electrons, we should be talking about microchips that manipulate electrons and get into the heart and soul of systems like the SA-10 or the SA-12 and tell it that it is a refrigerator and not a radar."

"Those are things that we are capable of doing today. That is a world I think that we can get to sooner rather than later. And we need to pursue those things. These are light, lean, and lethal alternatives to many of the things that we do today that take up big spaces on aircraft to bash electrons. But information warfare is one that we are just starting to get our arms around. We pay a lot of attention to it at the strategic level, but I submit that we don't pay nearly enough attention at the operational and the tactical level. We need ways, in my opinion, to get into the command-and-control system, to the surface-to-air-missile systems, and to take those things down in ways that would not require putting a strike force or a HARM missile force to take those things out."

Mobile Targets

"The problem we have with mobile targets is not in finding the mobile targets. We had invested a great deal of money in [getting] Joint STARS and U-2 real-time imagery back to where it can be analyzed, and things like the Predator did a great deal to [help in] locating targets. The question becomes, in the glare of concern about collateral damage, the identification piece, ... especially in the beginning days of the war, when the weather was atrocious. ... Only 25 percent of the time did we have weather that was better than 50 percent cloud coverage.

"So as we get started in this coalition warfare, and we are able to see movers on the road, the problem then becomes one of identification out of an abiding concern and correct concern for collateral damage situations where you have over 850,000 displaced persons wandering the same roads. Even if you can, by virtue of our great technology, look at the track and say that that target is a tracked vehicle, that is probably a bad thing, you still are not at liberty to wantonly bomb below and through the clouds, for risk of collateral damage. ... That next step is ... to network those things that can do that positive identification, one way or the other."

The "Access" Question

"This [the question of permanent bases in Southwest Asia] is the perennial question of access. In my experience, in any country whose very survival is threatened, access has never been a problem. ... I'll tell you, in Southwest Asia, the Saudis and the other Gulf states are magnificent hosts to us. But there is a great cultural difference between the way we live and the way they live, and what they don't want is that cultural difference to turn into cultural change, and they have every right to be worried about that. We get magnificent support. And again, when the chips are down and when the stakes are high, I think we get what we need from our coalition partners."

F-22 Flight Testing

"Testing is always necessary. I don't think anybody has any argument with that. I think the F-22 is the most tested airplane at this stage of development in history, and I think the modern miracle of computer-aided design is going to make the testing of this airplane relatively surprise-free, relative to other things that we've had in the past. We've made agreements on what testing should be done, and I support that. We, above all, have to make sure that the American people ... are satisfied and that the Congress is satisfied that we have done what is required to make sure we are putting something out there in the field that justifies the cost. ... I think whatever it takes to do that, the United States Air Force should support it."

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