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ON THE COVER



Tech Sgt. Matthew Coleman-Foster

SAVANNAH, Ga.— Two F-35 Lightning IIs from the 388th Fighter Wing, peel left as they return to the Air Dominance Center after completing a banner shoot event during the William Tell Air-to-Air Competition on Sept. 13, 2023.

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By Tobias Naegele

Power Up

On the face of it, the defense of Ukraine and the defense of Israel could not be more different.

Ukraine was invaded by Russia, the world's largest country by land mass, a rich, powerful and well-armed world power. Israel, on the other hand, among the world's smallest nations with none of the natural resources possessed by Ukraine, was attacked by an even smaller foe, Hamas, a terrorist organization that has for years controlled the narrow 140-square-mile Gaza Strip and its 2 million inhabitants.

The entire world saw the coming Russian attack on Ukraine. Russia's armed buildup unfolded through late 2021 and into 2022, as convoys and trainloads of troops and equipment streamed west toward the border. The only doubts were whether Russia would actually pull the trigger and, if so, under what pretense. Otherwise, the intent was clear.

Not so with Gaza. Hamas, which has frequently launched rocket salvos into Israel and occasionally sent terrorist cells across the border, had never before launched such a coordinated, widespread attack, and never before set out so intently to massacre civilians with no apparent military objective other than to provoke a response.

Yet there are similarities and linkages that must not be ignored.

The first is the role played by international despots. In Ukraine, Russia is an inept bully, battering and bloodying its smaller neighbor but failing to impose its will. There, it has become dependent on Iran for drones and other weapons, North Korea for ammunition, and China for oil sales and public support. In the Israel-Hamas war, Iran is the hidden instigator, the evil wizard behind the screen, manipulating Hamas, Hezbollah in Lebanon, the Houthis in Yemen, and other proxy forces in Syria and Africa to kill innocents and provoke violence wherever possible.

The second similarity is one Americans should recognize and possibly replicate. Both Ukraine and Israel's defense are largely in the hands not of a professional full-time military but of citizen-soldiers activated to protect their homelands from foreign foes.

Ukraine had a standing army of some 200,000 in February 2022 when the Russian war began. Weeks later, it had nearly 700,000 men and women under arms, as office workers and plumbers, engineers and waiters, artists and carpenters rose up and volunteered to defend their country. This cobbled-together force has successfully resisted Russian aggression and held its ground. To be sure, arms, intelligence, and training provided by the United States and other allies have been invaluable to that defense. Having the will to win and the moral certitude of one's cause can sometimes be just as important.

In Israel, a nation of just over 13 million that has required military service for nearly its entire population since its creation in 1948, the citizen-soldier story is similar. Service in the reserve is not mandatory, but common, and typically continues until the age of 40. Israel called up 300,000 reservists—3.2 percent of the entire Israeli population—two days after the attack, and still that was less than two-thirds of its reserve force.

If the United States could match that scale and call up 3.2 percent of the U.S. population it would field a force of 10.6 million—more than four times the size of our existing Total Force.

But it's not the size of the force that matters so much as it is the common experience and connections that come with military service, connections that have increasingly been diminished over the course of the past 50 years, since the birth of the All-Volunteer Force. In that time, the percent of Americans with military experience has declined rapidly and the share of American leaders in Congress has plunged.

At the same time—or perhaps as a result—Americans seem increas-

ingly misinformed and disconnected from the roles and responsibilities of their government and their rights and responsibilities as citizens. The result is a growing clamor for government to solve every manner of problem, whether or not it is suited to solving it. More than two centuries ago, the framers of the Constitution made clear the purpose of our federal government. They listed them in the preamble to the Constitution: "to establish Justice, insure domestic Tranquility, provide for the common defense, promote the general Welfare, and secure the Blessings of Liberty to ourselves and our Posterity."

Ensuring domestic peace and providing for the common defense are utmost among these. Without them, the rest are just wishful thinking. But key to the entire paragraph is the final phrase: "to ourselves and our posterity." In other words, it's not just about what we do now, but how we preserve what we've built for future generations.

The answer should be obvious. But what must we do to preserve this treasure we call America? The first thing is to ensure more Americans see themselves not as takers, but as givers to their country. John F. Kennedy's inaugural exhortation—"Ask not what your country can do for you; ask what you can do for your country!"—is even more relevant today than it was then.

The time has come to recognize that the All-Volunteer Force is not sustainable for the long-term. While a return to the draft may no longer be practical or even feasible, a national service requirement or option could prove both useful and effective on many fronts.

Imagine if every American were obligated to complete at least a year of public service before the age of 21. Not everyone would have to serve in the military. Young people could choose from among a range of publicly funded programs ranging from the military to the national parks, hospitals, and other federal agencies: the Border Patrol, the Transportation Security Administration, local food, health and education programs, maybe even the Postal Service.

This is not a panacea. The world is far more complicated and dangerous today than it was just a few years ago. With Russia's war in Ukraine still boiling, Vladimir Putin could still bet that expanding his war might lessen Western resolve and undermine support for Ukraine. Israel's war in Gaza threatens to spill over into Lebanon and could have implications in Iraq, Syria, and Yemen, all of which host Iran-backed instigators. That could further roil the waters of the Persian Gulf.

China and North Korea remain wild cards. China's "unlimited" relationship with Russia makes it a player in that conflict and its ambitions in the Middle East and Africa make it at least a bit player there, as well. More critically, with the U.S. preoccupied by tensions in Europe and the Middle East, China may be emboldened in the South China Sea.

The Air Force, now smaller, older, and arguably less ready than at any time in its 76-year history, is not equipped to meet so many obligations at once. Rushing six squadrons to the Middle East leaves other flanks undermined. Providing for the national defense requires greater investment in the forces most vital to that objective, specifically air and space forces that have the farthest reach, the greatest power to deter, and the most essential capabilities.

Isolationists in Congress want the U.S. to reel in the military and look inward. They have it wrong. The greatest threats to our nation are not coming across our southern border but are challenging America in every region of the world and beyond our world, in space, as well. U.S. military power well managed is the key to both global peace and global prosperity.





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Our mission is to promote dominant U.S. Air and Space Forces as the foundation of a strong National Defense; to honor and support our Airmen, Guardians, and their Families; and to remember and respect our enduring Heritage.

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Is the Sky Really Falling?

The September issue contained both "Old-School" [p. 5], a letter by Col. Art Cole, USAF (Ret.), and an article profiling the 2023 Outstanding Airmen of the Year [p. 58]—how ironic.

The letter is the latest example of the overwrought hand-wringing about diversity found in the Letters section of this magazine. They usually present a false zero-sum game—we can have combat readiness and power, or we can have diversity—not both. As is typical, this letter is long on unsupported assertions and short on facts.

Let us therefore start with something factual. The Air Force's governing directive on diversity and inclusion is AFI 36-7001. It unequivocally states:

1.7. Prohibited Activities.

1.7.1. Numerical Goals. No numerical goals may be set for the hiring or promotion of Air Force military or civilian personnel on the basis of race, color, national origin, religion, sex (including gender identity), age, or sexual orientation. Nor may race, color, national origin, religion, sex (including gender identity), age, or sexual orientation be a basis for admission to any training or development program.

Notwithstanding this formally codified and enforceable standard, the letter nonetheless paints a grievous picture of our service plagued by:

"For straight, White males, however, there is an implicit vilification diversity and inclusion being slammed down members' throats ... given way to pronouns, victims, diversity, CRT (critical race theory), and the like; ... Those ill-conceived notions destroy unit co-

hesion and promote a ruinous victimhood." The letter goes on to imply that diversity efforts have negatively affected recruiting.

Unfortunately, none of this is presented with a single scintilla of fact or evidence to support any of it. Are these assertions supported by readiness and/or discipline data, ubiquitous DOD/AF personnel/unit "climate" surveys, retention exit interviews? Or are they simply the talking points from the cable news and internet echo chambers?

On the other hand, here is irrefutable evidence of the state of our service: the uninterrupted and continuing magnificent performance of our officers and enlisted force in conflicts large and small, near and far, with manpower, budgets and resources at times adequate at others paltry, executed with the same pride, spirit, camaraderie and cohesion that has always been and remains the hallmark of the United States Air Force.

Which brings us to the 2023 OAY article. The 12 honorees are most certainly a diverse bunch. What should we make of that? What I make of it is that without lowering any bar, we embarked on a path in 1948 to accept and integrate those previously shunned. More recently, while continuing on that path, and again without lowering any bar, we've worked hard to ensure all those we do accept have a level playing field on which they can either succeed or fail on their own merit. The cream among those on that expanded bench has risen and been hitting (and continues to hit) home runs for us ever since—go figure.

Any fair reading of the accomplishments of this year's OAY tells us that our force is far closer to those ideals than the unfounded blather spewing

WRITE TO US

Do you have a comment about a current article in the magazine? Write to "Letters," *Air & Space Forces Magazine*, 1501 Langston Blvd, Arlington, VA 22209-1198 or email us at letters@afa.org. Letters should be concise and timely. We cannot acknowledge receipt of letters. We reserve the right to condense letters. Letters without name and city/base and state are not acceptable. Photographs cannot be used or returned.

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from the so-called culture wars. Based on the letter, perhaps the writer might wish these honorees looked more like they did back in (his perception) of the "good old days." But he can take some comfort in the fact that, contrary to his suggestion, at least all their pronouns appear to be just like he likes them.

Col. Dan Koslov,
USAF (Ret.)
Alexandria, Va.

Your continuing to print prejudiced commentary from members and former members embarrasses you and the force. I refer this time to the letter of Col. Art Cole appearing in the September issue, claiming, as a result of the Pentagon's embrace of DEI (diversity, equity, and inclusion) initiatives, that "straight White (sic) males" suffer implicit "vilification." Cole's letter goes on to say that these "ill-conceived notions destroy unit cohesion and promote a ruinous victimhood."

The irony of Cole's extremist claims, not to mention their dubious reliability, is that he casts himself along with all other straight White males as victims. One is moved to conclude that it, indeed, takes one to know one!

You have said in the past that your editorial policy is just to reflect the views of all members of the force past and present. It needs to be recognized that the airing of these kinds of views in an organ purporting to support all of our Air and Space Forces, while ostensibly done to exhibit the breadth of opinion that may be abroad in the force, can act as a demoralizing factor to those who have felt the racist and sometimes homophobic intent that can be read in these letters, flying literally in the face of any semblance of government DEI imperatives.

Col. Raleigh Truitt,
USAF (Ret.)
Red Bank, N.J.

Security Forces Airmen

Just read the article on the 12 Outstanding Airmen of the Year. Being an ex-Security Forces/police officer, it made me feel really good to see that five of the 12 are associated with today's Air Force Security Forces! My beret is off in congratulations to them all!

Maj. Dean Hayes,
USAF (Ret.)
Bellevue, N.H.

Counting Aces

Daniel Haulman's article ["Credit Where It's Due," October, p. 47] about U.S. air combat victories uses an interesting word when he speaks about the record of the 1st American Volunteer Group (AVG), the "Flying Tigers" who defended Burma and China in the early months of the Pacific War, when he writes that they "tallied 286 aerial victories."

Well, not really, if the verb is supposed to mean they actually destroyed that many Japanese aircraft in air-to-air combat. In the first place, the AVG paid combat bonuses for enemy aircraft destroyed on the ground. Subtracting those, the number of AVG aces with five or more victories drops to 19, and the group's "tally" to 230. See the individual breakdown at <https://www.warbirdforum.com/vics.htm>.

But more important, those were claims, not confirmed victories. In the course of writing my history of the Flying Tigers, I worked with American, British, Chinese, and Japanese sources, and I read scores of Japanese accounts of the air war in Southeast Asia. In several cases I was able to identify the man in the cockpit of a Nakajima fighter supposedly shot down in combat, with his version tracking the American account moment by moment, except for the way the fight ended, with the Japanese pilot limping home.

Giving every possible break to the American side, I came up with about 100 air-to-air victories for the AVG. (If a plane crashed on the way home, for example, I counted that as a combat victory.) That was no small accomplishment, and it meant that the Flying Tigers bested the Japanese Army Air Force in almost every encounter from December 1941 to July 1942.

Daniel Ford
Durham, N.H.

—Daniel Haulman responds: My job as a USAF historian was to keep track of the official aerial victories awarded by Air Service, Army Air Forces, or United States Air Force orders or victory credit board reports. The credits earned by the Flying Tigers were awarded not by the Army Air Forces but by the Chinese.

It is very possible that the number of credits awarded by the Chinese was higher than that actually achieved in aerial combat. My source for 286 credits for the American Volunteer Group was therefore not a primary source but a secondary one: "The American Aces

of World War II and Korea," by W. N. Hess, p. 36.

ACE on the Base

Having read Gen. James B. Hecker's words in the September "Verbatim" section [p. 30], I have the following comments:

In 1996-99, I was assigned as Senior Logistician for AIRCENT at Ramstein Air Base, Germany. One of my responsibilities, besides TacEvals, was Aircraft Cross Servicing among our 16 NATO nations. We planned ACS exercises all across Europe, from Norway to Spain and from Turkey to the U.K. Some of these exercises involved as many as 11 nations. There were two types of exercises/evals, one for "gas and go" and the other for "gas, rearm, and go."

All this was after the [Berlin] Wall came down, so it saddens me to think the great work AIRCENT did back then is no longer applied to our forces. It made great sense then, and as General Hecker said, it is relevant now.

On another note, AIRCENT conducted the very first PFP (Partnership for Peace) exercise involving former Warsaw Pact countries in 1998 at Sliač, Slovakia. It was interesting that those countries had the ability to reuse captured NATO aircraft because they had NATO standard adapters. I was the chief of maintenance with 17 nations on my flight line for that exercise which was called Cooperative Chance 98.

Col. Frank Alfter,
USAF (Ret.)
Beavercreek, Ohio

Red Storm Rising

Your September issue was truly excellent in every way. This magazine seems to get more insightful and comprehensive with every installment!

I was particularly impressed—and frightened—by Tobias Naegele's editorial entitled "China Syndrome" [p. 2]. It reminds me of the perfect storm that was the premise for the hostile Soviet actions resulting in a Third World War in Tom Clancy's intriguing novel "Red Storm Rising" (Berkley Publishing Group, 1986).

It is amazing how facts seem to often mimic fiction! Thank you for reminding us how brittle and dangerous China is, and how essential our vigilance is today.

Lt. Col. Allen Q. Thames Jr.,
USAFR (Ret.)
Montgomery, Ala.

By John A. Tirpak

Hamas Attack Is a Wake-Up Call for America

U.S. Secretary of Defense Lloyd J. Austin III, left, walks with Director General of the Israeli Ministry of Defense, Maj. Gen. Eyal Zamir and Deputy Chief of General Staff, Israel Defense Force, Maj. Gen. Amir Baram at Nevatim Air Base, Israel, Oct. 13. Austin traveled to the country to meet with Israeli leaders and see firsthand some of the U.S. security assistance being delivered.



Israel Ministry of Defense/Facebook

The conflict between Israel and Hamas in Gaza—playing out as Russia and the Ukraine fight their own war in central Europe—highlights an increasingly complex world is brimming with dangers, and points to a rethink of American military strategy and investment, says retired Air Force Lt. Gen. David Deptula, Dean of AFA's Mitchell Institute for Aerospace Studies.

"The U.S. military today struggles to meet the demands in one theater, let alone four," said Deptula, who oversaw targeting in 1991's lopsided Operation Desert Storm.

The war in Gaza, which apparently caught Western intelligence services by surprise, should be a wake-up notice to American strategists, Deptula said. The current National Defense Strategy prioritizes China as a peer competitor, and keys in on Russia as an acute threat, while also recognizing strengthening powers like Iran and North Korea and the risks posed by ties among these powers. But it holds fast to the size and scale of the current force, which Deptula says is clearly too small.

It's past time for a "national conversation" on the size and strength of the U.S. military, Deptula argues, yet the topic is almost entirely absent in the presidential debates. It "needs to be a talking point on the campaign trail."

To deter others from expanding the war with Israel, Deptula said the U.S. must demonstrate its willingness to use force. "There cannot be any invisible 'red lines,'" he said. Deterrence requires an unambiguous, credible threat of force. "Saying, 'Don't,' doesn't cut it."

Should Hezbollah in Lebanon or Iran or any other force attempt to open a second front with Israel, the U.S. must be ready to act on President Joe Biden's warnings, or future warnings won't be seen as credible. As the U.S. rushed forces into the region as part of that deterrence effort, however, it was clear the U.S. did not have every capability at the ready. No F-35s or F-22s—the most capable fighters in the force—were included. That alone underscores that the U.S. Defense Department "needs to go back to force-sizing based on a two-major-regional war" construct, Deptula said. That underlying requirement two-MTW requirement remained part of U.S. strategy

from the early 1990s until recently; it no longer is delineated in the national military strategy. It posited that the U.S. should have enough military wherewithal to fight a Desert Storm-size conflict and a second, similar-size regional war, while still being able to defend the homeland.

STRATEGY AND RESOURCES DON'T MATCH

The Biden administration's National Defense Strategy, released in 2022, set China as the "pacing threat" against which the U.S. needed to measure itself, while opting not to specify the number of troops or fighting organizations needed to deter adversaries in this multipolar world. The Pentagon has remained silent on setting any such goals.

As in the Cold War, the U.S. does not intend to compete on a one-for-one basis with its allies. U.S. strategy has long held that superior capability is more important than sheer numbers. Indeed, Air Force Secretary Frank Kendall has said the Air Force continues to focus on introducing new, advanced hardware to deter enemies, while not seeking to match the far more populous China, either man for man or plane for plane.

Kendall admitted that the NDS lacks any kind of force-sizing calculus, but said not to look for major changes anytime soon.

In 2018, then-Air Force Secretary Heather Wilson and then-Air Force Chief of Staff David L. Goldfein defined the Air Force's operational requirement, in response to the National Defense Strategy, as 386 operational squadrons. That represented a 25 percent increase over available resources then and now. Based on a defined requirements, combatant commander demand, and classified operational war plans, that plan defined the need, but the resources were never there to support it. Goldfein considered the analysis as a worthwhile academic exercise, but not a realistic objective, and the service soon dropped 386 as a stated goal.

With increasing demand on U.S. forces in Europe, the Arctic, the Indo-Pacific, and now—again—the Middle East, the shortfall is becoming more clear.

"While we have the most impressive military personnel in the

world, our military today is simply not sized or equipped to succeed in even one major regional war, much less two," Deptula noted. The U.S. military needs the resources to "fight and win, and that is not the case today. So we better get our act together," he said.

There are links among these disparate war zones. While Russia was probably not behind Hamas' savage Oct. 7 attacks on Israeli civilians—"I think they have their hands full with Ukraine," Deptula said—the conflict in the Middle East is nevertheless advantageous to Moscow, forcing the U.S. to supply large quantities of weapons to two countries in two wars, when it was already challenged just to supply one.

Likewise, China benefits, Deptula said. Beijing, he added, is "certainly considering a move on Taiwan," given that the U.S. is backstopping Israel with carrier battle groups and land-based fighter squadrons, while maintaining an alert posture in Europe.

"I'd certainly be watching for indications of potential aggressive action against Taiwan because it would not be beyond the imagination for a President Xi [Jinping] and ... his Chinese Communist Party to take provocative action to stretch and test the United States," Deptula said.

Biden has said the U.S. would come to Taiwan's aid if China attempted to invade, he noted, but China would also pay an economic price for a Taiwan invasion. Xi "understands that he'd be shooting [at] his largest customer, and that would not bode well for the Chinese economy," Deptula said.

"So I think that's a balancing element in here."

The Pentagon, in its annual China Military Power report, released in October, noted that in 2022, China overflowed Taiwan with a ballistic missile and "increased flights into Taiwan's self-declared air defense identification zone," while conducting "large-scale, simulated joint blockade and simulated joint firepower strike operations."

Beijing also stepped up what the Pentagon called "coercive and provocative actions" in the Indo-Pacific region, including "over 180 instances of (People's Liberation Army air and naval forces employing) coercive and risky air intercept against U.S. aircraft in the region" as well as "around 100 instances" of such behavior "in the air domain against U.S. allies and partners."

The report predicted that China will have built and deployed about 1,000 intercontinental ballistic missiles by 2030, several years ahead of previous forecasts, but has resisted military-to-military "hotline"-type communications with the U.S. The report also noted that while China touts its "no limits" partnership with Russia as "integral to advancing [its] development and emergence as a great power," it pursues a "discreet approach" to "providing material support to Russia for its war against Ukraine."

China and Russia continue to sow division in Western democracies through social media, with the aim of making it hard to reach consensus on how to respond to Chinese and Russian aggression, or to raise the forces needed to counter those moves.

PULLING TOGETHER

"Our national leaders must meet the moment and realize that there is a severe cost for prioritizing politics over national security," Deptula said.

"Our leadership has got to pass a federal budget so the Defense Department can be funded," he said. Continuing resolutions—or no action at all—hold spending levels to that of previous years, and "puts a halt on new starts and all kinds of things that we need to do," he said.

"That inhibits our ability to assist Ukraine and Israel with the military equipment that they need to survive."

While ambitious plans have been floated to "beef up" American posture in the Indo-Pacific, "those need to be funded," Deptula said. "We hear all of this about ... Agile Combat Employment on the part of the Air Force, but if it doesn't get funded, it doesn't happen. And

that reduces our deterrent element against the Chinese taking any adventurous action."

Continuous threats of a government shutdown likely make the U.S. look divided and indecisive, and send a bad message to the rest of the world, Deptula said.

"We've got to end the risk of a government shutdown. And we've got to get to a common vision to get past the impasse in getting a speaker of the House Representatives."

There is the perennial "guns versus butter" debate over how much to spend on defense, Deptula said, but the U.S. can afford to spend what's necessary.

"It's not that we can't," he said. "We're operating today at less than half the percentage of [Gross Domestic Product] that we spent [on defense] during the Cold War."

The Pentagon has taken steps to increase production of munitions for the Ukraine conflict, restarting some production lines and negotiating with allies to gear up multiple production lines, in multiple countries, for some high-demand items, like artillery rounds.

Deptula said, though, that the nation must once and for all abandon "this ridiculous notion that we can run the Defense Department like a business."

"Warfare is not a business," he continued. "It is the most wasteful application of resources that humankind has ever devised."

Trying to acquire equipment and weapons at low rates and with commercial-style "just-in-time" delivery is a recipe for trouble when a crisis strikes. "That doesn't work," he said.

JUST IN TIME IS TOO LATE

"We need mountains of stockpiles of weapons, sitting there and waiting, in sufficient quantities, that if we need to use them, we don't have to go back and retool and spin up to produce," Deptula said. "That's what the leadership in the Pentagon has been missing over the last 30 years."

He credits Pentagon acquisition and sustainment chief William LaPlante for recognizing the problem and trying to change direction. Since Russia's invasion of Ukraine, LaPlante's mantra has been "production is deterrence."


"LaPlante ... gets that you can't flip a switch and all of a sudden double your inventory" of a particular munition, Deptula said. "So you have to start to retool now. You also have to change the direction of your national military strategy" and provide the resources needed to carry out the strategy.

When budgets get tight, the services have gotten into the habit of cutting munitions buys first. "There is no constituency for weapons or munitions production during peacetime," Deptula said, so the cut is politically easier than other options. But it's a false economy, he added: Having sufficient munitions on hand for a protracted war is a deterrent, while not having enough is an invitation.

Deptula said he had been "hopeful that the Russian invasion of Ukraine would wake the American public up to the dangers that we face," but whatever alarm it did cause was not long-lasting. The concerns raised by Hamas' attack means America's readiness must no longer be ignored.

"We have to ... get back on track to be prepared and equipped," Deptula stated. "And only then will we be able to deter aggressive actors like we're seeing pop up out of the woodwork today."

What America has today could even be called a deterrence deficit. "Part of the reason they're doing what they're doing ... why Putin invaded Ukraine and Hamas took its egregious actions against Israel, is because they sense a weak United States military, which lacks the will to employ force," Deptula said. "And even if they do [employ force], that force is insufficient in capacity to fight and win."

"The world is on fire, and the United States is woefully unprepared," Deptula said. "That demands a national conversation." 

Airpower, a la Italia

Italy's air force dates its founding to 1923. Beginning in the post-World War II period, it has long flown U.S. aircraft. Italian Air Force Chief of Staff Gen. Luca Goretti now leads Italy's air force, which today features both the MQ-9 and the F-35. He joined retired Lt. Gen. David A. Deptula, dean of the Mitchell Institute for Aerospace Studies for an Aerospace Nation event in October. This transcript has been edited for length and clarity.

Q: The U.S. Air Force and the Italian Air Force are very closely aligned. Could you walk through our relationship?

A: When I was selected to be a wing commander, I was called up by the Air Chief at that time, and he said to me, 'You will be a wing commander in the Mandalay base, and you have two tasks. The first task is to find a way to fly the UAVs and [prepare] an airfield for the new equipment that we're going to buy, the F-35.' That for me, was kind of an adventure, and since then, I've been involved in both programs.

And the first thing I said to myself, 'Let's train together with friends.' So I was able to put up some activities with some U.S. Air Force guys, and they helped me out a lot, to establish a very solid capability on UAVs. And they did the same with the F-35.

And the results are evident. We've been deployed everywhere in the world using our equipment. Of course, we didn't go kinetic for legal reasons, but we are able to do it. We probably will do it if we are required to. And with the F-35, we were the leading nation in Europe to build up this capacity. But without the help of friends and allies from the United States, this wouldn't be accomplished.

Q: What are the benefits and opportunities that the Italian Air Force has discovered in being both a fifth-generation aircraft and a remotely piloted aircraft-equipped force?

A: Just considering flying those kinds of aircraft in Europe is quite different than the United States. For instance, air traffic is very, very crowded and congested because of the limited space. So one thing that we did for the UAVs for instance, is what we call the 'Pope ball effect.' We set up a 5-mile ball around the UAVs, so we are able now to fly everywhere in our country without any problems. You only have to make a request through the normal line of communications, and everybody else moves away from the flight.

... We did the same with the F-35. The F-35 has to be considered not only an aircraft, but it has to be considered a node of data information. So we used that aircraft to change completely the mindset of the people. It is no longer an aircraft to fly, but actually is a data machine available in the air for everyone. And being the leading nation, we were able to test this over the sea, sometimes over unpopulated areas, and pass that information to all the other nations that were actually incoming F-35 users.

Q: Italy has partnered with the United Kingdom and Japan on the Global Combat Air Programme (GCAP), a next-generation fighter. What are your goals for the Global Combat Air Programme and what impact do you envision for that aircraft having on European security?

A: [What] we did with the F-35 was used to change the attitude of the overall [Italian] Air Force. We thought that it could be a good idea just to start planning something very unique, from the



Kyle Lee/Staff

During an Aerospace Nation podcast with Gen. Luca Goretti, Chief of Staff, Italian Air Force, he discussed the Italian Air Force priorities regarding technologies, operational concepts, and associated strategies.

beginning, like we did with the F-35.

So when I was able to talk to my minister of defense, to my premier related to the GCAP program, I found a very positive attitude ... and I really have to thank them because they realized that this was a great opportunity. ...

GCAP no more has to be considered as an aircraft. It is a system of systems, where everybody can play using the technology and digital information, artificial intelligence, in order to be relevant for the fight of the future.

With this in mind, the program is not only a way to increase our knowledge on the technical side, but also how to increase the knowledge and the power of the people that will fly these kinds of systems. So we changed completely also the career of the people that are coming in the academy.

Q: How does this effort relate to some of the other fighter modernization efforts that we see going on around the world?

A: Interoperability and coordination can be a factor. We used to do cross-servicing without any problem by signing papers, and we could have a Spanish guy or a Dutch guy or a U.S. guy jumping on board or doing servicing. Now for several reasons, we need to have technical agreements in order to just have that clearance to fly together. This is something that we have to consider.

So every single system we invent or produce has to be interoperable with other partners. So we cannot afford just to lose time when it's necessary, just because we need a paper to be signed. ... We have to do the same thing for satellites. We have to do the same thing for ASC2, command platforms, in order just to reduce the risk of wasting time, because [at some point]—I hope never—we will not have time to think about it.

Q: The addition of "Combined" to "Joint All-Domain Command and Control" emphasizes the need to integrate with allies and partners. What kind of opportunities and barriers do you see for integrating with international partners, particularly the United States?

A: I don't see many problems. It's just a matter of mutual trust. And this, for me, is a key factor. If we all are on the same side, if we all can prove that we can sustain activities together, I think it is

quite normal that you have to consider everybody mutual friends.

With this in mind, I see [fewer] problems in the future in relation to sharing information.

But on the other hand, I have to also consider that the Ukrainian crisis put this issue [on the table]. So even though we are not considering mutual trust one of the key factors, we have to consider war, actual war, as a key factor to reduce this kind of friction that we might get, in order to share information.

Information sharing is a very important tool, not just in the future, but even today. We cannot afford to wait in order to see information. If we have to cooperate all together, we need to have the common view of what's going on, especially coming from equipment that are capable of providing the light inside the tunnel for everyone. This is something that has to be accomplished by the political leaders and military leaders of all the allied communities.

Q: All of our air forces are seeking to modernize ISR capabilities. What kinds of capabilities are you planning on fielding in the future?

A: We cannot afford not to have ISR platforms available every time [they're needed]. ... In fact, we decided in recent years to buy several platforms capable of accomplishing the full spectrum of ISR. Maybe more than any other capacity. ... With the United States, we established a very close cooperation to acquire platforms that are capable of being relevant. I might say fifth-generation ISR platforms, in order just to be ready and available in case we do need them. And the program is going forward. I'm very, very happy about the progression of the equipment in the acquisition phase.

At the same time, I'm using also the great cooperation we have with the United States Air Force in order to increase the knowledge and proficiency of my people that I intend to utilize for flying those kinds of aircraft.

Q: In August, Italy deployed F-35s to Japan for the first time. What was that all about?

A: First of all, for ourselves, we decided to prove that we were capable of sustaining power projection everywhere in the world. And because the relationships between the Italian Air Force and the Japanese Air Force is very, very sound and profound, we decided to go there.

It was not only just to show the capability to project for the first time European F-35s so far distant in the Pacific, but also to see if I was able to sustain this kind of deployment without canceling any other activities that were already in place in Europe. That means that I was able to prove to me, convince myself, that my Air Force—especially the logistics system over there—was capable of moving fleets and people around without leaving some priorities [uncovered].

So I was able to keep the Air Policing mission in Lithuania, kept the Air Policing in Poland, the detachment in Kuwait, at the same time when I was moving aircraft down in the Pacific.

With the geopolitical situation like it is today, we cannot afford just to be caught by surprise. ... We have to do something in the Indo-Pacific. I cannot afford to receive an order to deploy somewhere and not be able to move around because of diplomatic clearances, for instance, because I cannot do stopover flights somewhere.

So it's a building process, the activities that we are doing, and the first part was to deploy to Japan in three days. Next year, we'll be deploying almost 25 jets in Australia for the Pitch Black exercise, alongside the Navy guys that will be flying onboard the carrier with the F-35Bs. This is another milestone. Normally, Air Force and Navy guys, they don't like to talk to each other. But actually

we are in a very good situation with the [Chief of Naval Operations]. We decided to ... fly to Pitch Black together.

The third objective was, at the end of the Pitch Black, to prepare a nonstop flight from Europe to the Indo-Pacific, using F-35 and Eurofighters at the same time—just to see if we are able to move quickly when it's necessary. ... You never know. With the situation today, we cannot afford just to wake up one day and say to our leaders, we are not ready.

Q: You have spoken about the importance of multidomain training for future forces. Could you go into some more detail on this concept?

A: So we might buy aircraft, we might buy equipment, in a fast way. We cannot buy people and train them in a short time. So we need to prepare them properly and accordingly, in relation to the new equipment that we are buying. And the new equipment requires a multidomain mindset. So we decided to change, in our academy system, in our training system, all these syllabi in order to fit in what is necessary, in order to create an Airman that is capable of sustaining the needs of a multidomain approach.

And it was not easy, because, actually, you have to get rid of the archaic training facilities or training tools and bring new ones. And the problem was to find the person that was able to train them and say to the other people, they are fired, because you are influencing deeply the training methods.


But I think it's necessary. Sometimes we have to do it, and we have to do it rapidly because technology and multidomain operations are already ongoing. Space can play a bigger role in the future. So we need to train those people and have those people ready, and hurry up. Otherwise we are lagging and dragging. We cannot afford this.

Q: One of the other concepts that you put forward is one that is kind of based on the idea of an Air Expeditionary Force centered around the F-35B. How do you plan on developing this idea? And how does it relate to the US Air Force's idea of agile combat employment?

A: We decided to have two versions of the F-35: the F-35As and the F-35Bs. And the decision was made wisely, in my opinion, because we do have many, many short airfields around the world. So we decided, why don't we take some Bs for short-distance takeoff and landing in order just to be relevant everywhere in the world? The Afghanistan scenario gave us a thought on this. So we decided just to get some Bs. And then it turned out to be a wise idea, because if you consider also what's happening in Ukraine, airfield dispersion can be—maybe—one day the only way to protect your high-value assets.

We need to be agile in order to take the aircraft away from your main base, deploy somewhere and be ready to fight for the second day.

With this in mind we decided just to ask to our logistic people to find standard buildings and structures similar to several airfields in our country, and proposing the same thing also to other friendly countries, in order just to have the same buildings, the same equipment, the same block in the same spot, in case you do have to run away from your main operating bases. We cannot afford to lose time. But most of all, we cannot afford to lose our capacity.

We cannot afford just to wait for a hypersonic missile to destroy your base and not knowing what to do the day after. You cannot build anything in one day. You need to preposition everything, think about the worst-case scenario. And if you don't plan accordingly in advance, you will be late. You will be dead. You will fail your mission. 

It can be lonely at the top. Gen. Charles Q. Brown Jr. ascends the air stairs for a flight home from Brussels, Belgium, following a meeting of the Ukraine Defense Contact Group at NATO Headquarters on Oct. 11; in his first weeks as JCS Chairman, Hamas launched an assault on Israel from Gaza; Israel declared war on Hamas; the U.S. mobilized air and naval forces to try to contain the Middle East conflict from spreading, attacks on U.S. bases in the region increased, and the U.S. shot down drones and cruise missiles launched at Israel from Yemen.



A formation of MC-130J Commando II aircraft from the 15th Special Operations Squadron took to the skies near Hurlburt Field, Fla., in September for the 94th Joint Civilian Orientation Conference. Established in 1948, the JCOC is the only Secretary of Defense-sponsored outreach program enabling American business and community leaders to gain an immersive exposure to military life, training, and operations. Participants are influential private-sector American civilians with limited to no experience with their military. Hundreds are nominated annually to fill just 40 available seats.





Wing Inspection Team members from the 374th Airlift Wing, don Mission Oriented Protective Posture 4 during the Exercise Beverly Morning 24-1 at Yokota Air Force Base, Japan, in October. Exercise Beverly Morning, a nine-day base-level readiness training event designed to evaluate the installation's readiness to respond to wartime and contingency crisis scenarios. Events included chemical-biological attack, an active shooter scenario, mass-casualty triage, and rapid airlift, evacuation, and airdrop drills. "This is a test of how well our team can perform our rapid airlift mission," said Col. Andrew Roddan, 374th Airlift Wing commander.



Maintenance personnel assigned to the 319th Expeditionary Reconnaissance Squadron push an MQ-9 Reaper into a hardened aircraft shelter after arrival at Kadena Air Base, Japan, in October. This was the first of several MQ-9s deploying to Kadena to strengthen regional intelligence, surveillance, and reconnaissance capabilities in support of the U.S.-Japan alliance.

Bogged Down



Andy Morataya/USSF

"We just don't have the capacity to do both the modernization effort and the current ops effort. And this isn't just the Space Force. This is every service. This is the Department of Defense. ... That's going to be a challenge in the future."

—**Chief of Space Operations Gen. B. Chance Saltzman**, at the Center for a New American Security [Oct. 18].

Acquisition Disruption

"The professional relationship I hold as my highest priority is the one between my agency and the warfighter. To deliver on my end of that relationship, we have no choice but to change.

Change is hard; change is necessary. And nothing fights change like the paralyzing behavior of going along to get along. ... I will continue to be a 'Maverick,' a 'wild card,' and a 'bad cop.' I encourage all patriots to join with me as we arrest the status quo!"

—LinkedIn post Oct. 5 by Space Development Agency Director **Derek Tournear**.

OUTNUMBERED



People's Liberation Army (PLA)

"China already has a bigger hacking program than every other major nation combined. In fact, if each one of the FBI's cyber agents and intelligence analysts focused on China exclusively, Chinese hackers would still outnumber our cyber personnel by at least 50:1. Let me say that again: 50:1. With AI, China is now in position to try to close the cycle—to use the fruits of their widespread hacking to power, with AI, even-more-powerful hacking efforts."

—**FBI Director Christopher Wray**, comments about China's cyber threats at a conference hosted by cybersecurity company Mandiant [The Washington Post, Oct. 20].

It's All Hype



Mike Tsukamoto/staff; Pixabay

"China is committed to a defensive nuclear strategy, keeps its nuclear capabilities at the minimum level required by national security, and does not target any country. We firmly oppose the U.S. side hyping up various versions of the 'China threat' narrative and making groundless allegations."

—**Liu Pengyu**, spokesman for the Chinese Embassy in Washington, responding to U.S. comments about China's expanding nuclear arsenal [The Washington Post, Oct. 20].

GETTING BIGGER



China Ministry of Defense

"What they're doing now, if you compare it to what they were doing about a decade ago, it really far exceeds that in terms of scale and complexity. They're expanding and investing in their land, sea, and air base nuclear delivery platforms, as well as the infrastructure that's required to support this major expansion of their nuclear forces."

—**Senior U.S. defense official**, speaking on the condition of anonymity under terms set by the Pentagon, about China's nuclear arsenal on track to double to 1000 warheads by 2030 [The Washington Post, Oct. 20].



MC 1st Class Anthony Rivera/USN

My Turf

"Just so we're clear. ... The pressure we're seeing is only from the [People's Republic of China]. Their objective is ... to force the United States out of the region. And that's just not gonna happen."

—**Adm. John C. Aquilino**, Commander, U.S. Indo-Pacific Command, on aggressive and unsafe air-to-air intercepts of U.S. reconnaissance aircraft by Chinese fighters over the South China Sea [The Washington Post, Oct. 17].

FACES OF THE FORCE



Courtesy Photo

New York Air National Guard **Master Sgt. Sarah Chambers**, a member of the 109th Airlift Wing, is currently ranked third nationally in powerlifting and first in New York State for her division. A member of the Air Force for 19 years, she serves full time in knowledge operations in the communications flight. Chambers had been ranked first in her division of submaster (for ages 35 to 39) for the last four years, but she just added a new achievement: In July she became National Champion in two divisions at the 2023 United States Powerlifting Association Drug Tested National Championships.



Senior Airman Rocio Romo

Air Force **Senior Airman Devreountre Buchanan**, a 30th Logistics Readiness Squadron ground transportation dispatcher, is an integral team player at Vandenberg Space Force Base, Calif. "My father and grandfather both served in the U.S. Army," Buchanan said. "My grandfather served in the Vietnam War, and my father did a tour in Iraq." After graduating from college with a Bachelor of Science in Criminal Justice, a friend in the Air Force encouraged him to join. "These three people," he said, "served as my unofficial recruiters, introducing me to military life, providing information about career opportunities."



Airman 1st Class Yendi Borjas

Hispanic Heritage Month allowed **Airman 1st Class Jackie Londono**, 28th Health Care Operation Squadron aerospace medical technician at Ellsworth Air Force Base, S.D., to indulge in her culture, despite her distance from home. "I have been blessed with such a great team that has allowed me to take time to attend celebrations," she said. "We recently held a Hispanic Heritage event at the exchange, where we served traditional Hispanic meals to Airmen across the base. Thanks to my leadership, I could connect with my culture and help out while showcasing my background."



Columbia Southern University

Retired **Chief Master Sgt. Mike Perry** was named as the Dean of the College of Military Studies & Leadership, a new online curriculum offered at Columbia Southern University in Alabama. Perry previously served as Air Force First Sergeant Special Duty Manager. The new program will offer studies in cybersecurity, homeland security, intelligence, supply chain management, IT, and leadership. "Our goal is to give our service members and veterans the credentials they need to advance their lives and the lives of others," Perry said. "The U.S. military is arguably the greatest producer of leaders in modern history."



DeAnna Murano/USSF

Space Force **Specialist 3 Andrew Adams**, a defensive cyber operator for the 645th Cyberspace Squadron, was the first Guardian chosen for Below the Zone at Patrick Space Force Base, Fla., Oct. 2. BTZ allows those currently holding the rank of Airman First Class/Specialist 3 to be promoted to Senior Airman/Specialist 4, six months ahead of their standard qualification date. He was hand-selected to safeguard the first joint space launch between Delta 6 and Space Launch Delta 45. "I'm excited to wear the extra stripe, take on more responsibilities, and have more opportunities to lead," Adams said.



Bradley Clark/USAF

The 908th Airlift Wing, Alabama's only Air Force Reserve Command wing, welcomed **Col. Christopher K. Lacouture** as its 27th commander Sept. 9. Lacouture will oversee the wing's transition to the formal training unit for the MH-139A Grey Wolf helicopter, which will replace the aging UH-1N Huey fleet and mission sets. "We are halfway through the most complex mission change in any wing in AFRC has executed," Lacouture said. "In the next two years, that work will progress as the MH-139 schoolhouse emerges and the wing continues its deployable mission."



Master Sgt. Mlysi Bicosy

The National Guard Bureau designated **Maj. Stephen Brightman** as the first bilateral affairs officer from the Hawaii Air National Guard to serve at the U.S. Embassy in the Philippines. Brightman's mission aims to further enhance the robust relationship between the United States and the Philippines during his three-year tenure, particularly through the State Partnership Program. "There's a strong relationship between the two countries already established, and my objective is to further strengthen it by enhancing our communications and readiness," he said.



Senior Airman Michael Gula

Civilian **Laura Webster** of the 691st Cyberspace Operations Squadron received the 86th Airlift Wing Airlifter of the Week Award June 23 at Ramstein Air Force Base, Germany. Her hard work supports daily administration that enables the unit's mission to operate and defend Air Force networks and advance Air Force core missions. "My 691st COS family is inspiring me to spread love and kindness and make me better every day," Webster said. "I couldn't do it without my Hellhounds!" The 691st COS' role within the wing is to serve the U.S. Air Force's premier Storage and Virtualization Center of Excellence.



Courtesy photo by LBJ Library, Jay Godwin

Dr. Michael K. Hole yearned to serve his country as a young boy. Known as Capt. Hole to fellow Reservists at the 301st Medical Squadron at Naval Air Station Joint Reserve Base, Texas, he gained much of his inspiration to serve from those close to him and the individuals he cares for. "My grandfather, a Bronze Star recipient, fought in Korea," Hole said. "Today, some of my dearest friends are service members and veterans I admire. However, I ultimately joined because so many of my patients—kids from disadvantaged backgrounds—courageously stepped forward ... to swear a solemn oath to this country!"



Airman First Class Ivy Thomas

Master Sgt. Brian Sampson is a great example of a multi-capable Airman. A Religious Affairs Airman with Ohio Air National Guard's 121st Air Refueling Wing, he is also a computed tomography (CT) technologist in his civilian job, and he also has X-ray technician experience. After a deployment to the Middle East, he received the Meritorious Service Medal for contributing to the combat and spiritual readiness of 5,250 personnel. He was lauded by the Medical Group commander after the base's only X-ray tech fell ill, and he assumed radiology technologist duties for more than 1,800 wing personnel.

Tell us who you think we should highlight here. Write to afmag@afa.org.



The formation of Dongfeng-31AG nuclear missiles takes part in a military parade celebrating the 70th anniversary of the founding of the People's Republic of China (PRC) in Beijing, capital of China, Oct. 1, 2019.

DOD's New China Report Details CCP's Growing Military Arsenal

While expanding its global interests, the PRC is gaining ground.

By Greg Hadley

China's military continues to expand its reach around the globe, building up strategic and tactical capabilities, especially its missile programs, according to a Pentagon report released Oct. 19.

The updated annual China Military Power Report says the People's Liberation Army is developing:

- Air-to-air missiles that can strike from beyond visual range;
- Conventionally armed intercontinental missile systems; and
- Increased numbers of nuclear warheads.

Advances in air-to-air missile technology remain vague. The 2021 edition of the China Military Power Report cited China's development of the PL-15 missile, a beyond-visual-range munition comparable to the U.S.' AIM-120 AMRAAM. But the update makes no mention of the weapon. While a senior defense official declined to discuss China's long-range air-to-air missiles in any depth during a press backgrounder,

unconfirmed reports indicate China is now working on a more advanced long-range missile, perhaps dubbed PL-21, and the Pentagon report notes China is "exploring dual-mode guidance capabilities, which uses both active radar and infrared homing seekers that improve target-selection capabilities and make the missiles more resistant to countermeasures."

Regarding surface-to-surface weapons, the senior defense official said that if China does develop a conventionally armed intercontinental missile, it would mark the end of a progression for the PLA Rocket Force, which has steadily developed short-, medium-, and long-range conventional ballistic missiles.

"It would give them a conventional capability to strike the U.S., for the first time for the PLA Rocket Force, and to threaten targets in the continental U.S. and Hawaii and Alaska," the official noted. "And I think as we see them maybe exploring the development of those conventionally armed ICBMs, it raises some questions about risks to strategic stability."

Meanwhile, China continues to rapidly expand its nuclear

forces. China “probably completed the construction of its three new solid-propellant silo fields in 2022, ... [with] at least 300 new ICBM silos, and has loaded at least some ICBMs into these silos,” the report states, estimating that China “possessed more than 500 operational nuclear warheads as of May 2023,” up from 400 a year ago.

China’s nuclear force remains small in comparison to the U.S. (about 5,200 warheads) and Russia (nearly 5,900), according to the Federation of American Scientists, but the rapid growth shows China’s ambition. “We see the PRC continuing to quite rapidly modernize and diversify and expand its nuclear forces,” the senior defense official said. “They’re expanding and investing in their land-, sea-, and air-based nuclear delivery platforms, as well as the infrastructure that’s required to support this quite major expansion of their nuclear forces.”

Meanwhile, China continues to update the People’s Libera-

tion Army Air Force, with the goal “to become a truly ‘strategic’ air force, able to project power at long distances to advance and defend the PRC’s global interests.” The PLAAF “is rapidly catching up to western air forces,” the report concludes, with key programs including:

- Upgrades to its fifth-generation J-20 fighter;
- Developing its H-20 bomber, projected to have both nuclear and conventional roles;
- “New medium- and long-range stealth bombers to strike regional and global targets;” and
- The new Y-20U tanker.

“These new air refuelable aircraft will significantly expand the PRC’s ability to conduct long-range offensive air operations,” the report states. “In addition to aerial refueling, it is expected that there will likely be further Y-20 variants, such as a possible [airborne early warning and control] variant.” ★



A photo from a video taken on June 23, 2022, and released by the Department of Defense captures a PLA fighter jet in the course of conducting a coercive and risky intercept against a lawfully operating U.S. asset in the South China Sea.

DOD

Pentagon Declassifies More Dangerous Chinese Intercepts

By Chris Gordon

Chinese aircraft have engaged in many more risky intercepts of U.S. planes over the past two years than was previously publicly known, with more than 180 dangerous incidents over the South and East China Seas, according to newly declassified information released by the Pentagon. That is more than the previous decade combined.

The incidents are part of a “centralized and concerted campaign to perform these risky behaviors in order to coerce a change in lawful U.S. operational activity and that of U.S. allies and partners,” said Ely Ratner, the assistant secretary of defense for Indo-Pacific security affairs.

One January incident, highlighted during the Pentagon briefing, showed a U.S. plane flying above the South China Sea when a Chinese fighter jet armed with missiles closed within 30 feet and flew alongside for around 15 minutes.

That came just one month after a Chinese J-11 flew within 20

feet of an RC-135 over the South China Sea. In other instances, Chinese fighters came within 10 feet of U.S. aircraft and discharged chaff and flares.

The newly released footage comes as talks between the U.S. and the People’s Liberation Army (PLA) have stalled at both the uniformed and civilian levels. Both Ratner and Adm. John C. Aquilino, commander of U.S. Indo-Pacific Command (INDOPACOM), have had isolated conversations with Chinese officials, but no substantive dialogue is taking place.

“I’ve asked to speak with my counterparts, the Eastern and Southern Theater commanders, now going on two and a half years,” Aquilino said. “I have yet to have one of those requests accepted.”

The newly declassified images were released ahead of the annual congressionally mandated China Military Power Report, which will highlight the rise in incidents, according to U.S. officials.

Images and video newly released by the Department show

a PLA Air Forces fighter jet conducting a coercive and risky intercept against a lawfully operating U.S. asset in the East China Sea. The PLA fighter jet first sped toward the U.S. aircraft, then crossed under the plane's nose, causing it to lose visual contact with the PLA fighter. Later, the U.S. pilot opened the distance between the two planes, but the PLA pilot re-approached coming within 10 to 15 feet.

In addition to incidents with U.S. aircraft, the Pentagon said there had been dozens more involving U.S. allies and partners, for a total of 300 dangerous incidents since 2021.

Looming in the background is the possibility such encounters could turn deadly, even if China's armed aircraft have no plan of intentionally downing a U.S. plane.


"People's lives are at risk," Aquilino said. "One accident is too many. We went through it in 2001."

That's when a Chinese fighter collided with a U.S. Navy spy plane, killing the Chinese pilot and forcing the American plane

to make an emergency landing in China. The American crew was temporarily detained while Chinese officials dismantled the U.S. aircraft.

In a June incident, a Chinese fighter approached within 40 feet of an American surveillance plane and "flashed its weapons," which are visible in a video released by the U.S. "After the U.S. operator radioed the PLA fighter jet, the PLA pilot responded using explicit language, including an expletive," the Pentagon said.

China's territorial claims are expansive and go beyond international norms. China, for instance, claims most of the South China Sea and the airspace above it as its own. The U.S. and international authorities disagree.

"U.S. planes are operating safely, responsibly, and in accordance with international law," Ratner said. "Indeed, the skill and professionalism of American service members should not be the only thing standing between PLA fighter pilots and a dangerous, even fatal, accident." 

MIDDLE EAST

U.S. Air Force F-16C Fighting Falcon fighter jets arrive at an undisclosed location within the U.S. Central Command area of responsibility, Oct. 24. At the direction of the U.S. Department of Defense, 9th Air Force (Air Forces Central) expedited the movement of these aircraft, along with multiple fighter, aerial refueling, and ISR platforms.



Senior Airman Amy Rangel/ANG

USAF Jets, Ships Race to Middle East to Deter Expanded War

By Chris Gordon

In the wake of Hamas' attack on Israel, U.S. forces mobilized to try to deter any expansion of the war to other fronts, in particular Israel's northern border with Lebanon, where Hezbollah militants aligned with Iran, —which analysts believe coordinated and funded the Oct. 7 attack—skirmished with Israeli border forces.

F-15Es arrived from RAF Lakenheath, in the U.K., as U.S. A-10 Thunderbolt IIs from the 354th Fighter Squadron at Davis-Monthan Air Force Base, Ariz., and F-16 Fighting Falcon multirole fighters flew into the region, the Gerald R. Ford carrier battle group deployed to the Eastern Mediterranean and the carrier Dwight D. Eisenhower was ordered to the

Persian Gulf. Air Force F-35 Lightning II stealth fighters are among additional capabilities that were gearing up to deploy.

"The U.S. military is committed to the enduring safety and security across the Middle East," AFCENT commander Lt. Gen. Alexis G. Grynkewich said in an Oct. 13 statement. "By posturing advanced fighters and integrating with joint and coalition forces, we are strengthening our partnerships and reinforcing security in the region."

U.S. Secretary of Defense Lloyd J. Austin III arrived in Israel on Oct. 13 to meet with Israel's Prime Minister Benjamin Netanyahu, Minister of Defense Yoav Gallant, and their newly formed coalition war Cabinet.

"We've augmented U.S. fighter aircraft squadrons in the Middle East, and the U.S. Department of Defense stands fully

ready to deploy additional assets, if necessary,” Austin said during a press conference in Israel on Oct. 13.

In addition to the Air Force fighters, the carriers air wings offer additional airpower and are accompanied by cruise missile-carrying warships.

U.S. aircraft and ships saw increased drone and missile activity and over the past month shot down multiple threats in the region.

The destroyer USS Carney, steaming in the northern Red Sea, shot down three cruise missiles and several drones on Oct. 19, launched by Iranian-backed Houthi rebels in Yemen and believed to be heading toward Israel, the Pentagon said.

“This action was a demonstration of the integrated air and missile defense architecture that we have built in the

Middle East and that we are prepared to utilize whenever necessary to protect our partners and our interests in this important region,” Pentagon Press Secretary Air Force Brig. Gen. Patrick S. Ryder said.

The Pentagon also disclosed additional drone attacks against U.S. forces at the Al Tanf Garrison, a base in southeast Syria used by American troops and their Syrian partners. “U.S. and coalition forces engaged one drone, destroying it, while the other drone impacted the base, resulting in minor injuries to coalition forces,” Ryder said, of the Oct. 18 incident.

“This is an uptick in terms of the types of drone activity we’ve seen in Iraq and Syria,” Ryder said. “These small-scale attacks are clearly concerning and dangerous.”



Rocket-propelled grenades and other captured Hamas weapons taken by the Combat Engineering Corps are displayed at an undisclosed location on Oct. 16.

Israel Defense Force

Hamas Harbored Arms from North Korean

By Unshin Lee Harpley

South Korean officials and independent analysts spotted North Korean weaponry among arms used by Hamas in its Oct. 7 attack on Israeli civilians, including F-7 rocket-propelled grenades and 122 mm artillery shells. A video examined by the Associated Press also showed Hamas fighters with Pyongyang’s anti-tank missile.

Retired Maj. Gen. Larry Stutzriem, director of research at AFA’s Mitchell Institute for Aerospace Studies, said it shouldn’t be surprising that North Korean weapons were used in the attacks. “North Korea has been building its illicit arms sales for a long time,” he said. “The Intelligence Community has been watching this for decades, going back to the early 1990s. The way the regime has raised income is by selling ... to the countries that are opposed to the allied democracies in the world.” He added that Iran probably facilitated the movement of the arms.

Pyongyang denied its weapons were involved in the attacks through its news agency, KCNA, but a North Korean

state newspaper also published an article blaming Israel for its “persistent criminal acts against the Palestinian people.”

Rocket-propelled grenades (RPGs) are dual-use weapons, which “could be used to shoot at Israeli helicopters during landing, liftoff, or in hover,” Stutzriem said. “But what they really want to do is, if the Israelis go into Gaza, use the RPGs to attack mechanized vehicles that are carrying troops and weapons.”

In 2009, Israel reported a North Korean cargo plane seized in Thailand was en route to Hamas and Hezbollah, carrying over 35 tons of weaponry, including rockets and RPGs.

Stopping the regime from profiting through weapon sales is “very hard,” said Bruce Bennett, an international/defense researcher at the RAND Corp. “North Korea can send weapons on ships or aircraft going to Iran. And then Iran can send them forward into Egypt and then into Gaza,” Bennett said. “There are some things we could do to potentially intercept some of those ships, but as long as there are third-party ships or third-party aircraft, it’s difficult to interdict that kind of flow.”

An image from a Firefly Aerospace video shows the successful Victus Nox mission where the company demonstrated its capability to launch on-demand. The team executed the mission with record speed, agility, and flexibility, adding a critical capability to address our national security needs.



Image from Firefly Aerospace video

Rapid 'Victus Nox' Launch Is Like Yeager Breaking Sound Barrier

By David Roza

Likening the record-breaking trek from order to launch of a satellite in September to Chuck Yeager breaking the sound barrier in 1947, Chief of Space Operations Gen. B. Chance Saltzman said the 57-hour turnaround will have lasting implications for how quickly the Space Force can respond to future threats.

"Now the question is, how do we take advantage of that?" Saltzman said Oct. 18 at the Center for a New American Security. "Chuck Yeager breaks the sound barrier. Big deal, it's one airplane, what are you going to do with it? [But actually,] it opens the door, it shows the capability, it shows what you can do, it shows how you do it."

Dubbed Victus Nox, the record-setting Sept. 14 launch from Vandenberg Space Force Base, Calif., demonstrated a concept unheard of in the days of behemoth satellites that took a decade or more to develop. Less than a year earlier, Space Systems Command signed up Millennium Space Systems and Firefly Aerospace to build a satellite for USSF's Space Domain Awareness mission. The aim was to build it quickly and then be ready to take the finished product and get it to the launchpad and into a launch vehicle within 60 hours. Then the waiting began.

"We built a satellite in less than a year and put it in a warehouse," Saltzman said. "And it sat there in a warehouse until we gave an order, and when we gave the order, it had to be ready to launch, on the launch pad, within 60 hours after getting the order. They did it in 57."

Next, launch crews were told to wait again for a launch order, at which point they had 24 hours to get the satellite into space. They missed by three hours, due to a last-minute weather hold, Saltzman said. But the satellite was ready to be "checked out and operational in 48 hours" after reaching

orbit, achieving the overall objective of going from sitting in a warehouse to being on-orbit and mission-capable in a week.

"Think about the contracting work that had to go in place, think about the airlift to get the satellite in place, think about the infrastructure and the telemetry of the launch facility, make sure that's all squared away, all the safety checks that had to be done, the payload integration," Saltzman said. "I mean, these are massive checklists that have to be run. And for those that haven't been in the launch business, I don't think you can fully appreciate all the work that goes into that."


The test proves a capability that will be essential for making the U.S. Space Force and its architecture more resilient. Part of that resilience lies in forming proliferated constellations of satellites, where there are too many targets for an adversary to realistically destroy. Another part is being able to quickly backfill constellations if satellites are attacked, damaged, or lost.

"From the warehouse to an on-orbit capability in a week: That's tactically responsive," Saltzman said. "That's something that you can [use to] respond to irresponsible behavior on-orbit and the response is directly connected to that irresponsible behavior."

The CSO said the Space Force was able to pull off Victus Nox because it could make decisions as an independent service.

"The Air Force didn't have time to put service-level focus on something like this," he said. "They had other things to worry about."

Next up for Saltzman is to operationalize this rapid capability. "Now you start talking about 'how do you build a unit that can do this on a repeatable basis?'" Saltzman said. "How do you do the training? How do you put contract vehicles in place through this augmentation reserve capability?"

The aim, he said is to "put all that together so it's operationalized, not just a demonstration capability." 

A Space Force Strategy Emerges, But It's Mostly Classified

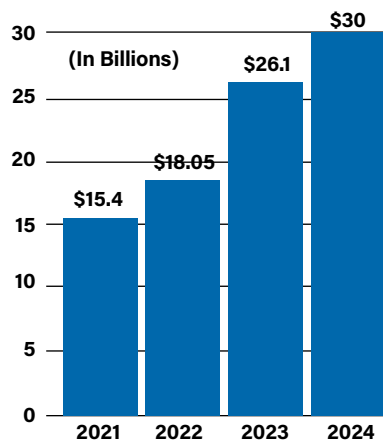
By Unshin Lee Harpley and Tobias Naegele

The Department of the Air Force's Comprehensive Strategy for the Space Force, required by the 2023 National Defense Authorization Act, spells out in broad terms the objectives of the U.S. Space Force, but most of the details are in the unreleased classified version of the report and remain hidden from public view.

AFA advocated for the legislation requiring the report.

"We are excited to see a clearly delineated strategy that draws together the many initiatives driven by Chief of Space Operations Gen. B. Chance Saltzman," said AFA President and CEO Lt. Gen. Bruce "Orville" Wright, USAF (Ret.). "This is precisely what the Space Force has needed and General Saltzman and his Space Force team are now well positioned to argue their case for the resources and support they need to ensure the United States remains a dominant force in space for the freedom and security of all who love freedom, wherever they are throughout the world."

Space Force Budget Requests By Year



Source: Pentagon budget documents

The strategy affirms the Chief of Space Operations as the "Force Design Architect for Space Systems of the Armed Forces," making Saltzman "responsible for presenting coordinated recommendations to the [Secretary of Defense] regarding space-mission force design options to satisfy the requirement of the Joint Force and the Armed Forces," the strategy states. For resourcing, it notes that the Joint Requirements Oversight Council has designated the USSF as the integrator for DOD's Joint Space Requirements. As a result, "The Force Design Architect and Joint Integrator now can bring the entire joint community together to develop cogent space requirements," the strategy states.

One surprise in the report is a projection of reduced investment in future years.

The strategy includes a chart showing the service's projected budget broken down by mission area over the future years defense program—from fiscal 2024 through 2028. The Space Force's 2024 budget request is for \$30 billion, with investments in missile warning systems, GPS, and launch vehicles. That figure declines slightly in 2025 and 2026 before

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rising sharply again in 2027.


The chart indicates reduced spending for the coming years in areas such as Missile Warning/Missile Tracking and classified programs, which a spokesman said is the result of several systems transitioning from development phase into operational readiness following completion of prototype demonstrations.

Last year, lawmakers expressed concerns about the Space Force's capacity to sustain its ambitious plans and growth, particularly regarding missile warning and missile tracking and asked for a new cost estimate by January 2023.

In June, then-Vice Chief of Space Operations Gen. David D. Thompson warned of leaner spending and its potential to slow

Space Force modernization.

"Either the department may need to look at its priorities for various investments, or we will have to throttle the growth that we have seen and the delivery of capabilities," Thompson said during a livestreamed event by Mitchell Institute for Aerospace Studies. "It will simply be incumbent on us to make sure that our leaders inside the Department of Defense and in the White House and Congress understand the risks we'll take if in fact we cannot continue that."

Like the rest of the Pentagon, the Space Force continually revisits its five-year plan and offers updates alongside its budget submissions. 

Chief of Space Operations Gen. B. Chance Saltzman listens while a Guardian briefs him on Perimeter Acquisition Radar Attack Characterization System (PARCS) capabilities in October at Cavalier Space Force Station, N.D.



Airman 1st Class Colin Perkins

New Deltas to 'Streamline Feedback' Between Operations, Acquisition

By Greg Hadley

A month after revealing prototype "Integrated Mission Deltas" to combine operations and sustainment under one roof, Chief of Space Operations Gen. B. Chance Saltzman announced he's creating corresponding "System Deltas" to refine USSF organization still further.

The new units are part of Saltzman's push to align the Space Force around missions rather than functions. In a servicewide 'C-Note' sent Oct. 13, Saltzman described the effort as "Forging a Purpose-built Space Service."

As with the Integrated Mission Deltas, the Space Force will begin with two prototype System Deltas, one focused on electronic warfare and the other on position, navigation, and timing.

Just as the mission deltas fall within Space Operations Command, including their own sustainment and upgrade personnel who used to be in Space Systems Command, the new System Deltas also combine personnel from different areas. Focused on developing and acquiring new capabilities and systems, these units will be part of Space Systems Command, Saltzman wrote, but have close ties with their mission delta

counterparts to "streamline the feedback" from operators to acquirers.

But close ties should not suggest the deltas will be physically co-located. A Space Force spokesperson told Air & Space Forces Magazine that the System Deltas and the Integrated Mission Deltas will instead seek to better coordinate their efforts by eliminating what Saltzman calls "organizational seams."

"There are no perfect organizational structures," Saltzman said at AFA's Air, Space & Cyber Conference in September. "The structuring of people to do their jobs will always create seams. The key is to arrange the organization to maximize performance around what matters most and minimize the negative integration effects that seams naturally create."

Creating System Deltas as a direct counterpart to Integrated Mission Deltas will mitigate the seams between these functions by cutting down on the bureaucratic process by which operations and acquisition personnel typically communicate wants and needs, the spokesperson added.

The two Integrated Mission Deltas officially stood up Oct. 12, as the electronic warfare sustainment offices moved to Space Delta 3, Space Operations Command's EW Space Delta. The other new mission delta, focused on position, navigation, and

timing, is entirely new, and was built by drawing operators out of Space Delta 8 and sustainers from Space Systems Command.

The new System Deltas will form “in the coming months,” according to a Space Force release.

“Corresponding [System Deltas] will follow, but our initial scope is limited so we can quickly execute, learn, and adapt for broader implementation,” Saltzman wrote in his memo.

The Integrated Mission Deltas and System Deltas are fully in line with Air Force Secretary Frank Kendall’s objective to reop-

timize the department for an era of great power competition.

“Form follows function and, as Secretary Kendall has said, it is critical that all elements of the DAF be reoptimized for great power competition,” Saltzman wrote in his memo, the latest in a series of C-Notes he has sent to the service outlining his ideas and ambitions for the Space Force. “Our processes must generate the effects our joint force needs to successfully implement the [National Defense Strategy] in the face of our pacing threat.”



PERSONNEL

Air Force OTS Unveils ‘Most Transformational Change’ Ever

By David Roza

As new trainees arrived to their first day at Air Force Officer Training School at Maxwell Air Force Base, Ala., on Oct. 10, they found themselves in the middle of what OTS Commandant Col. Keolani Bailey described as the school’s biggest change in its 64-year history.

Called OTS-Victory, the new program is meant to give trainees more hands-on experiences; make them better prepared for joint, near-peer conflicts; grow instructors into experts on specific leadership skills; and make it easier for OTS to train more officers in a time of crisis.

“It’s the most transformational change in the history of OTS because every facet of everything we do is different and it’s all done within the same 60 training days,” deputy commandant Col. Derrick Iwanenko told Air & Space Forces Magazine. “Same amount of days, same amount of instructors, but because of how the course is now structured ... it’s concentrated in a far better manner to produce a better graduate at the end.”

MODULES

Unlike the U.S. Air Force Academy and Reserve Officer

Training Corps (ROTC), OTS turns civilians or prior enlisted service members who already have college degrees into Air Force and Space Force officers over the course of 60 days rather than two to four years. The new course is still 60 days long, but the layout is now broken into five modules.

In the first, trainees learn the basics—customs, courtesies, culture, drill, and uniform standards. The next two introduce Air Force organizational structures, wargaming, and basic leadership skills and principles. Module four focuses on planning and “mission command experience.”

The fifth and final module brings into play concepts of warfighting, including anti-access/area denial, Agile Combat Employment, rapid mobilization, and strategic competition, the Department of Defense’s term for competing with near-peer powers such as China and Russia. It also includes a capstone event known as the Commandant’s Challenge, where prospective officers test the skills they learned over the previous weeks.

Unlike the past, course instructors will specialize in particular modules, reducing lesson-planning time for instructors and enabling them to develop expertise. “The instructors become so much more efficient and effective” this way, Bailey said. “Now they become the experts in their two-week modules, and they are able to deliver that content at such a higher level.”



2nd Lt. Kip Turner

The inaugural class of Officer Training School-Victory in-processes at OTS Headquarters, Maxwell Air Force Base, Ala., Oct. 10. OTS-V is the newest officer accessioning program to develop Air and Space Force officers.

HANDS-ON APPLICATION

The instruction itself will be revamped to tie in more real-life stories from Air Force service. A typical day might begin with a TED Talk-style presentation by an officer or noncommissioned officer about a personal experience that illustrates the leadership lesson of the day. The presentation is meant to help trainees learn through the “affective” domain—what Bailey described as “through the heart.”

After the presentation, the students then hit the classroom to learn the lesson in the cognitive domain—“through the head”—and then they apply those lessons in hands-on experiences meant to target the behavioral domain, “the training piece.”

There is more emphasis on training in OTS-Victory than in previous iterations, Iwanenko said. For example, if the lesson is on change management, there will be an exercise where trainees must plan an operation, but when they go out to execute it, they will get an “intel drop” that will force them to change the operation and implement the lessons they learned earlier.

“The way that we would assess change management previously would be through an academic assessment, a test,” he said. “That’s more just rote memorization. Now we’re purposeful in having them exercise through the behavioral domain, that actual hands-on application, the theory they just learned about in the classroom.”

Bailey added that the real learning takes place during the debrief afterward, where trainees get feedback on their decisions. Another example of the behavioral domain is the mission command exercise (MCE) during module four. The MCE could take the form of a multidomain lab, where trainees use flight simulators and command-and-control networks to oversee or execute a mission; a wargame where trainees lead a combined joint task force in a fictional

conflict; or a capstone event where trainees practice agile combat employment operations, a concept where Airmen operate from small airfields that may be isolated from higher levels of command. Practice makes perfect, so each trainee will participate in 15 MCEs during the course and lead at least one.

“They plan, they brief, they write mission-type orders, execute the mission, and then debrief,” Bailey said. “They get lots of reps and sets going through this experience so it becomes natural for them to then operate in the joint environment we need for the future fight.”

SHOCK ABSORBER

Since OTS takes less time than ROTC and the Air Force Academy, the school acts as a “shock absorber” that can ramp up officer production in times of need, Bailey explained. OTS-Victory amplifies that capability by graduating 20 or 21 smaller class sizes per year—with a surge capacity of 26—instead of five graduations of larger classes a year under the old system. The change should make it easier to schedule trainees and instructors.

“These different levers that we’ve orchestrated into this structure allow us to be more responsive to increases or decreases in demand,” he said.

Under the old model, each graduating class was about 500 to 550 students, while the new model will be about 155, with capacity to max out at 175. But yearly output remains about the same, at 3,000 officer candidates per year, with room to scale up if the need arises.

Under OTS-Victory, there will typically be five classes in session, each at a different point in the training course. The staggered schedule means trainees in modules four and five are considered upperclassmen who can mentor newer candidates, something OTS hasn’t seen since at least 2009. ✨

New Recruits Deadlift to Join the Air Force

By David Roza

A tweak to the Air Force accession process meant to help recruits stay safe has also made it easier for women to join more physically demanding career fields. The Air Force changed its strength aptitude test in January from a clean-and-press style strength test to a deadlift test. While the mode of lifting has changed, the minimum weight required to join the Air Force, 40 pounds, has not.

Recruits take the strength aptitude test on an incremental lifting machine at Military Entrance Processing Stations to prove they are strong enough for day-to-day military life. The minimum weight requirement was increased for career fields that are more physically demanding, though the maximum weight is capped at 110 pounds. Security forces requires 70 pounds, while munitions systems (the Airmen who assemble bombs) requires 60 pounds, and firefighting requires 100 pounds, according to a 2018 study conducted by RAND.

The Air Force Recruiting Service (AFRS) told Air & Space Forces Magazine that the change was helped by guidance from the 711th Human Performance Wing at Wright-Patterson Air Force Base, Ohio, and the U.S. Centers for Disease Control and Prevention, which advised “a neutral position” for lifting where minimal twisting at the legs, torso, and shoulders allows recruits to lift more weight more safely

compared to the clean-and-press.

But the payoff is more qualified applicants for more kinds of jobs.

“It has increased our applicant pool, but the most significant impact has been to the job specialty qualifications which are now more gender diverse,” the AFRS public affairs office said.

Since the change took effect in January, 4,111 women have gone through the new strength test, and 1,162 opted into operational specialties such as aircraft maintenance, munitions, security forces, and special warfare/combat support, AFRS said.

The Air Force Acting Chief of Staff, Gen. David W. Allvin, referenced the change in written testimony sent to the Senate Armed Services Committee in September, noting updates like this “better reflect the actual demands of the career fields thus expanding career field opportunities, especially for our female recruits.”

He acknowledged that the Air Force missed its recruiting goals in fiscal 2023, but said the service is not bending the rules on quality, only on factors that are not material to Airmen’s ability to serve. “We have maintained the focus on quality and will follow-up long term to ensure that any changes made thus far have not had a negative impact on readiness or fitness of the force,” he said. ✨

B-52 Pilots Test BUFF's New Instruments

By David Roza

As the B-52 fleet prepares for new engines, radar, and other tech upgrades, a team of test pilots and engineers at Edwards Air Force Base, Calif., is hard at work making the legacy bomber easier to operate for future crews.

New digital engine gauge clusters will replace legacy analog gauges, displaying fuel flow and exhaust temperature for each of the B-52's eight engines, so pilots can more easily anticipate problems and identify malfunctions. The goal is to make the cockpit more intuitive so pilots are better able to focus on mission.

"Flying the airplane is the first step and using it as a weapon system is the ultimate step," said Lt. Col. Scott Pontzer, commander of the 419th Flight Test Squadron and director of the Global Power Bombers Combined Test Force. "So if I can lower workload for the pilot ... I can lower that overall task on the brain."

Today's attention to human systems integration, where systems are designed to support the operator rather than making operators learn an unintuitive system, did not exist in the 1940s, when the first B-52 cockpit was designed, said Dave Prakash, a former B-52 operational test pilot and flight surgeon.

"Whether it's the engine instruments or the navigation instruments, they are all designed to fit compactly in the space there, but they are not designed to be easy to use," he said.

For example, pilots routinely perform cross-checks, where they rapidly check their airspeed indicator, vertical velocity indicator, bank angle, and other instruments in order to make a decision. Time is critical, especially during night landings or flying in inclement weather. But the way the B-52 cockpit was originally laid out costs precious half- and quarter-seconds.

"The instrument clusters are not designed in the most efficient way for a pilot to do a cross-check," Prakash said. "The gauges and instruments are not even consistent between the left and right pilots' seats. So you have to do a different cross-check depending on which seat you're in."

The problem extends to the engine gauges, which display engine pressure ratio (EPR), fuel flow, exhaust gas temperature, revolutions per minute (RPM), and oil pressure. During his time as a test pilot, Prakash analyzed how those and other systems like navigation might be optimized for the operator.

"If there are 20 button pushes required to do one thing, is there a way to make it into just two button pushes?" he asked.

The test team at Edwards is working on those questions at the same time as the B-52 Commercial Engine Replacement Program comes online. The shift to digital gauges should make it easier for operators to rapidly check the new engines.

"This provides better accuracy, readability, and error indications, to name a few things," Maj. Darin Flynn, a B-52H test pilot with the 370th Flight Test Squadron, told Air & Space Forces Magazine. "We also have EPR demand pointers which greatly



Giancarlo Casem/USAF

A B-52 Stratofortress test pilot operates a flight simulator while using one of three new flight instrumentation prototype gauge clusters at Edwards Air Force Base, Calif., recently.

reduces workload during precise throttle setting."

Pilots tested out three different prototype gauge clusters in a simulator, then filled out a questionnaire to record their preferences.


"We are actually measuring their performance on these displays and we're getting really good comments too, because now they've actually seen what the displays look like," Flynn said in a release. "That'll help us to select hopefully the best design choice for the B-52."

The new B-52 engines are militarized versions of Rolls-Royce's commercial BR725, and the software in the B-52J will be a mix of commercial and military software, explained Flynn and Eric Treadwell, B-52 crew systems/human factors lead. Beyond the engine gauge clusters, the entire cockpit is getting a makeover as analog displays are replaced with large, color, multifunction screens.

There are still some dangers in better technology: Prakash warned that issues may arise from automation bias, which is when users do not notice failures in automated decision-making systems—think of autocorrect features on your phone—or when users become desensitized to alarms and warnings and then fail to recognize real danger.

"I don't think automation bias will really be too much of a factor," he said. "We have different levels of alerts that will be displayed or inhibited depending on their severity and phase of flight," Flynn said. "We have already identified some warnings that are commercial in nature and not applicable to military use."

Going forward, the team at Edwards hopes to collaborate with maintainers to get their input on the digital instruments and how those changes affect their work.

"We can solve problems before they ever become problems," Pontzer said. 



Clayton Cummins/USAF

E-3 Sentry (AWACS) #83-0009 takes off from Tinker Air Force Base, Okla., for the final time, Sept. 21. It is now among over a dozen AWACS sent to the 309th Aerospace Maintenance and Regeneration Group (AMARG) in Tucson for reduction.

13th AWACS Jet Flies West to Boneyard

By Greg Hadley

The Air Force's E-3 Sentry AWACS fleet is down to just 18 aircraft with the retirement of the last of 13 aircraft to be divested from Tinker Air Force Base, Okla., this year.

The jet left Tinker for the "Boneyard" at Davis-Monthan Air Force Base, Ariz., on Sept. 21. Of the 13 jets, a dozen AWACS aircraft went to Davis-Monthan over the past six months; the remaining one will remain as a static display at Tinker.

That leaves fewer than 15 AWACS still active at Tinker, which has long been the Air Force's main hub for E-3s. The other remaining airframes are assigned to Joint Base Elmendorf-Richardson, Alaska, and Kadena Air Base, Japan.

Divesting part of the fleet will improve sustainability by adding high-demand, low-availability parts back into the supply chain," the wing said in a release. That should yield at least temporary improvement for overall aircraft availability. E-3 mission-capable rates plunged below 65 percent in recent years, largely because they're based on a 707 airframe that first flew in 1957 and has long been commercially obsolete. The Air Force's AWACS fleet averages more than 40 years old.

Air Combat Command boss Gen. Mark D. Kelly called the E-3s "unsustainable without a Herculean effort" last year, praising "miracle worker" maintainers for getting the aircraft to fly at all.

The Air Force plans to replace the E-3s with new E-7 Wedgetail aircraft, based on the Boeing 737.

The Air Force formally awarded a contract to Boeing for the E-7 Wedgetail in late February, clearing the way for the AWACS retirements to begin. Looking ahead to 2024, the Air Force plans to divest two more AWACS to reach its original goal of 15 aircraft investments.

"The E-3 is a legacy airframe which can't compete in a peer or near-peer conflict and cannot be modified to be part of the next generation of Command and Control (C2)/Airborne Moving Target Indicator (AMTI) systems," Pentagon budget documents state.

The departures from Tinker are bittersweet for Airmen who spent years working in and on the venerable aircraft. The 552nd Air Control Wing noted in a release that Martha "Fran" Stephens, one of the first women to work on the AWACS, got to tour tail number 83-0009 before it departed Sept. 21.

"If someone tells you they worked on an AWACS, that probably means they worked like a dog," said Stephens. "They should be respected for that."



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f. Total Distribution [sum of 15c and 15e]	54,712	50,264
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h. Total [sum of 15f and g]	59,265	59,340
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a. Paid electronic copies	10,045	10,045
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William Tell Revival

The Air Force is breathing new life into its timeless classic fighter competition, preparing a new generation of pilots for high-end combat.



Senior Airman Zachary Rufus/USAF

William Tell 2023 drew F-22s, F-35s, and F-15s to the Air Dominance Center at Savannah Air National Guard Base, Ga., in September. Grounds crew, as well as aviators, competed in various ways. Airman 1st Class Hailey Day, a crew chief with the 27th Fighter Squadron, 1st Fighter Wing, completed preflight inspections in preparation for launch.

By Greg Hadley

There was a distinctly different feeling in the air. The Air Force holds dozens of major training exercises every year, from Red Flag exercises at Nellis Air Force Base, Nev., to multinational events in Europe and the Indo-Pacific.

But the return of the William Tell Air-to-Air Weapons Meet at the Air Dominance Center in Savannah, Ga., in September was something entirely different, a throwback to an earlier era and the anointing of something new.

“Right from the time you set foot down there and we landed the jets, we started seeing all the other aircraft and meeting the other competitors, and you felt that spirit of competition,” said an F-22 pilot with the 1st Fighter Wing. “Like, ‘Hey, we’re all here to demonstrate what we’re capable of and compete. We are going to work together. We’re all effectively on the same team in the big picture. But while we are here for the week in Savannah, we are here to compete.’ And that was evident from literally the first minute.”

The William Tell competition dates to at least 1954, with a history that may go back to 1949, in the earliest days of the Air Force. Named for the Swiss folk hero and legendary archer of the same name, the contest became

“If you’re into football, this is the Super Bowl, if you’re into baseball, this is the World Series, and if you’re into golf, this is the Masters Tournament!”

—Lt. Col. Stephen Thomas, commander, Air Dominance Center

a biennial competition that pitted the best fighter pilots and commands against one another until 1996. This year’s competition was only the second since then, the lone exception coming in 2004, which commemorated the 50th anniversary of the original.

Yet after nearly two decades, many if not most Airmen had never even heard William Tell and the Air Force uttered in the same breath. Others knew of it only through trophies still on display at their bases.

But with China emerging as a peer competitor and Russia at war in Europe, the Air Force is recommitting to the need for high-end competitions to help prepare its best for the kind of high-end aerial combat that could lie ahead. So leaders at Air Combat Command decided to bring back William Tell to “invigorate that motivation through competition,” said competition director Maj. Garrett “Dodge” Getschow.

After months of planning, much of it led by young officers and NCOs, the Air Force officially announced the return of the meet in July, promising an epic show: “If you’re into football, this is the Super Bowl, if you’re into baseball, this is the World Series, and if you’re into golf, this is the Masters Tournament,” said Lt. Col. Stephen Thomas, commander of the Air Dominance Center, in a July press release.

What they got was unlike anything any of the participants had experienced before. “It had an electric vibe

to it,” said Lt. Col. Matthew “Beast” Tanis, who helped select the team that represented the Massachusetts Air National Guard’s 104th Fighter Wing. “It was different than a normal TDY, and I’ve been on several TDYs over my 10 years flying the F-15. And this was different than all of them. It was very much a lot of pride in the unit.”

Hundreds of Airmen took part, and not just pilots and weapons systems officers, but also aircrew, maintainers, weapons loaders, intelligence analysts, and command and control (C2) experts, among others. Together, they planned missions and managed flights for F-15s, F-22s, and F-35s representing eight wings from ACC, Pacific Air Forces, and the Air National Guard.

Adding to the exclusive nature of the event, the Air Force brought in keynote speakers and panelists each night to regale Airmen with USAF history and the stories of past competitions; the F-22 Raptor Demonstration Team showed off its flying prowess; and local residents and distinguished visitors were treated to what amounted to “a mini air show every day,” said Capt. Roberto “Super” Mercado, an F-35 pilot who competed, representing the Vermont Air National Guard’s 158th Fighter Wing.

At its heart, though, William Tell was about sparking a fire among the Air Force’s most elite warriors, pushing them to go head-to-head against some of the very best of their peers.

“When you think about NFL football, like that level of competition, people want to win,” Getschow said. “Airmen have this intrinsic drive to win. So now when you can actually codify that and put it on paper and create an awesome environment outside of that competition, I think that is where it struck everybody, not just from the competitors themselves, but the maintainers that are getting the jets ready, or the logistics guys that are bringing hundreds of trucks to make this happen, knowing, ‘If any of us fail, this might mean our wing fails.’”

Compared to the stress of combat, some participants like Capt. Andrew “Pañic” Munoz, an F-15E pilot from the 4th Fighter Wing, were skeptical at first that William Tell could spark such intensity.

“Fast-forward to being at the step desk before going to fly and I had this pit in my stomach,” Munoz said. I don’t want to let my team down, I don’t want to let the wing down, and I don’t want to let myself down. ... It made me a believer.”

Erecting a large screen in the hangar to display team scores every night amped up the competitive juices, said Brig. Gen. D. Micah “Zeus” Fesler, William Tell Air Expeditionary Wing commander.

“The real difference [from other exercises] that you see is that there’s a scoreboard, and there is a scoreboard that everybody

saw every night,” Fesler said. “They knew how they performed, and they could see how they were doing relative to one another’s peers.”

FLYING

The fighter portion of the meet consisted of four segments:

■ **Dogfighting:** One-on-one basic fighter maneuvers.

■ **Air combat maneuvers:** “So you basically have your lane in the airspace. You have one Red Air [jet] on one side to the east and then the other one to the west, and you sit there in the middle. You pick a direction and you start flying that way, you’ve got to intercept the fighter that’s now coming to kill you guys, and then you work as a team of two Blue Air [jets] to kill the Red Air guys as quickly as possible,” said Mercado.

■ **A gunnery contest:** Participants fired their aircraft guns at a target banner towed by a Learjet, and judges could then examine the banners to determine accuracy. Fesler said teams got to take their banners home with them.

■ **Fighter integration:** “Four F-22s plus four F-35s plus four F-15s against 20 adversaries,” said Fesler. “And those 20 adversaries would regenerate one time, so a total of 40 adversaries. And they had to defend a piece of airspace for a 40-minute period of time. And so over that entire period, you had that team of four-plus-four, plus four that was working together with their air battle managers, as well as their intelligence team, to put together the best game plan and then go out and execute that game plan. And that was probably the pinnacle event of all of them.”

Meet planners wanted a pure test of each wing’s skills, so they discouraged teams from practicing specifically for the competition and required each squad to have pilots with varying degrees of experience. They also ensured aircrews didn’t have to worry about standard administrative tasks like coordinating refueling or setting frequencies. They were simply expected to show up each day, form a plan, and fly.

Organizers threw in their share of “curveballs,” however: Mercado said there were limited weapons loadouts in the air and academic tests on the ground. There were also moments of improvisation, like when one F-15 took off 15 minutes late after swapping jets due to an aircraft malfunction, leading to a dramatic arrival in the nick of time to save Munoz and his weapons system officer, Capt. George “King” Welton, who had already run out of missiles.

In the spirit of competition, there was plenty of friendly trash talk, but pilots stayed tight-lipped about the challenges they



Two U.S. Air Force F-15E Strike Eagles taxi down the flight line during William Tell. The return of the fighter competition signifies not only a celebration of the past but also a testament to the future of air superiority.

Senior Airman Zachary Rufus/USAF

The Competitors

F-15

- 4th Fighter Wing, Seymour Johnson Air Force Base, N.C.
- 366th Fighter Wing, Mountain Home Air Force Base, Idaho
- 104th Fighter Wing, Barnes Air National Guard Base, Mass.

F-22

- 1st Fighter Wing, Joint Base Langley-Eustis, Va.
- 3rd Wing, Joint Base Elmendorf-Richardson, Alaska
- 154th Fighter Wing, Joint Base Pearl Harbor-Hickam, Hawaii

F-35

- 388th Fighter Wing and 419th Fighter Wing, Hill Air Force Base, Utah
- 158th Fighter Wing, Burlington Air National Guard Base, Vt.

COMMAND AND CONTROL

- 552nd Air Control Wing, Tinker Air Force Base, Okla.
- 3rd Wing, Joint Base Elmendorf-Richardson, Alaska
- 18th Wing, Kadena Air Base, Okinawa, Japan

faced in the air to ensure no one gained an advantage from someone who had already experienced one or another stage of the competition.

But there was camaraderie too—and a shared appreciation for the importance of what everyone was working toward.

“It culminated Friday evening, right at the end of the competition, where all the pilots got together from every single [team],” said the F-22 pilot from the 1st Fighter Wing. “We spent some time talking about the things we had seen, the things we did, the things we’ve learned, and really, just kind of understanding the importance of that air superiority mission ... and the importance of continuing this culture of air superiority as we move forward.”

MAINTAINERS AND LOADERS

While the pilots competed in the sky, maintainers and weapons loaders competed on the ground.

Keeping the different fleets flying required coordination across units, along with plenty of work and some late nights, participants said.

“We didn’t lose a single sortie to maintenance,” said Master Sgt. Brandon Bradley, the noncommissioned officer in charge for the 158th Fighter Wing’s maintenance group. “So hats off to our maintenance team for being able to keep up with that ops tempo, the demand for the competition. We knew going down there with our minimal footprint that we were going to be there to work hard, and the team absolutely knocked it out of the park. Their professionalism and their determination to not only go down there and execute but to put on there with the attitude of wanting to win, demonstrate our professionalism was outstanding.”

Maintainers were judged based on “everything following the letter of the law, down to the tech data,” said a maintainer with the 1st Fighter Wing, which won the team maintenance award. “Following the black and white, making sure the process is tight; all the reporting that goes into it, all of the scheduling; the speed and accuracy, because the turns were tight sometimes with flying, trying to get aircraft regenerated to fly, but the guys and gals knew that and they just went after it.”

Individual crew chiefs were also recognized for each aircraft type.

Meanwhile, weapons load crews also competed based on

2023 William Tell Award Winners

TEAM AWARDS

■ Major Richard I. Bong Fighter Interceptor Trophy: 3rd Wing (F-22s), 366th Fighter Wing (F-15Es), 388th and 419th Fighter Wings (F-35s)

■ Lieutenant Colonel James H. Harvey III Top F-15 Wing Award: 104th Fighter Wing, Barnes Air National Guard Base, Mass.

■ Captain Eddie Rickenbacker Top F-22 Wing Award: 1st Fighter Wing, Joint Base Langley-Eustis, Va.

■ Brigadier General Robin Olds Top F-35 Wing Award: 158th Fighter Wing, Burlington Air National Guard Base, Vt.

■ Colonel Jesse C. Williams Top Intel Tradecraft Wing Award: 1st Fighter Wing, Joint Base Langley-Eustis, Va.

■ Big I Task Force Top C2 Wing: 552nd Air Control Wing, Tinker Air Force Base, Okla.

■ Chief Master Sergeant Argol “Pete” Lisse Maintenance Team Award: 1st Fighter Wing, Joint Base Langley-Eustis, Va.

■ Overall Weapons Load Competition: 104th Fighter Wing, Barnes Air National Guard Base, Mass.

INDIVIDUAL AWARDS

■ Top F-15 Crew Chief: 366th Fighter Wing, Mountain Home Air Force Base, Idaho

■ Top F-22 Crew Chief: 1st Fighter Wing, Joint Base Langley-Eustis, Va.

■ Top F-35 Crew Chief: 158th Fighter Wing, Burlington Air National Guard Base, Vt.

■ F-15 Superior Performer: 104th Fighter Wing, Barnes Air National Guard Base, Mass.

■ F-22 Superior Performer: 3rd Wing, Joint Base Elmendorf-Richardson, Alaska

■ F-35 Superior Performer: 158th Fighter Wing, Burlington Air National Guard Base, Vt.

* Awardees names were withheld for operational security.

aircraft type, with the winner from each advancing to a final showdown with packed bleachers and blaring music.

“We will do a demo load for everybody at an air show, but this was something different,” said Tech. Sgt. Preston Hallett, a loader with the 104th Fighter Wing. “You could feel the energy from your whole unit just cheering you on, and it just gives you that much more drive and gumption and you forgot about how tired you were.”

Pilots, planners, and other Airmen cheered them on from the stands.

“To watch that front and center, in a competitive vibe, I was pumped,” Tanis said. “I was so pumped. I lost my voice, I was screaming so much.”

Amid all the excitement, the teams of three Airmen each had to focus on maintaining a fine balance of speed and accuracy, following all the technical and safety procedures in the multi-step process of loading sophisticated weapons. Working as fast as possible, they also had to follow procedures perfectly, or evaluators could deduct points for technical or safety deviations.

COMMAND AND CONTROL AND INTEL

Intel officers and command and control analysts also went head-to-head to see who could best support and coordinate the fighters’ efforts—key parts of the air dominance mission.

“We’ve got what we like to call the God’s-eye view,” said Capt. Kyle Lassiter of the 552nd Air Control Wing. “In a fighter jet, you may have one or two people, they’re trying to put together every-





Capt. Joseph Truschelli/ANG

The William Tell competition included contests for grounds crew, including weapons loading and maintenance, as well as flying and gunnery competitions in the air. The entire program was designed to build competitive spirit and a zeal for excellence among the competing squadrons.

thing in the battlespace. Meanwhile, we have more people that are sitting at one G, that have brainpower, that can put in critical thought, provide recommendations to our fighters, or orders from higher-level leadership, to take [work] off their plates. So having that, that big-picture view allows them to better execute their own mission design series.”

For C2, teams consisted of a briefer, a weapons director coordinating action in the sky, and a mission systems operator responsible for ensuring all the C2 systems are functioning properly. Teams were judged on “how well the crews can execute under a stressful environment,” Lassiter said, and they faced questions from graders on their systems and protocols.

Like their counterparts, the C2 teams felt the pressure of the environment.

“Going into it, I was a little nervous, but it was an excited nervous,” said Staff Sgt. Justin Helman. “Being able to compete in such a big competition with a whole bunch of different players from around the world, just meeting everybody, and then having the level of competition on the side of it, brings that drive to win, to be one of the best.”

COMPETITION FEEDS DETERRENCE

Air wings and squadrons have always held their own competitions, but after seeing that at a new level, with units from across the globe, leaders said they were more convinced than ever that expanding competition is crucial to preparing for peer competition in the future.

“There is an incredible value in healthy competition,” Fesler said. “And it is truly what makes us great as an Air Force. The spirit that we have in competition against one another, when we have the opportunities to do so, is that same spirit that will bring us together as a team when it comes time for us to fight our adversaries.”

ACC commander Gen. Mark D. Kelly and his deputy, Lt. Gen. Russell L. Mack, attended the event, fueling the competitive spirit—“from the top down,” said Getschow—while also underscoring the broader changes leaders are trying to make across the force.

“Take the camaraderie, lessons learned, and the spirit of competition from this week back home,” Mack told the competitors. “Challenge yourselves to improve your units, improve your units to increase mission readiness, and increase mission readiness

to develop a culture of competitive endurance.”

That’s the culture the Air Force that led leaders to create William Tell in the first place.

“What we have realized is air dominance and superiority is not a birthright,” Getschow said in a statement. “It is something we must earn and continue to maintain. So, bringing back William Tell now is significant as the global landscape and our near-peer adversaries continue to change.”

Building a culture takes time, though—and William Tell leaders say they don’t intend to let the competition fade away like it did after 2004.

“We’re already talking about running William Tell again in 2025,” said Fesler, with discussions within Air Combat Command and Headquarters Air Force starting even before the 2023 competition was over.

“We want to make it a regular event, and I think you will also see, there used to be a competition called Gunsmoke that was an air-to-ground competition,” Fesler added. “So I think you may see those continue out over time.”

Like William Tell, Gunsmoke started in the Air Force’s early days and stopped in the 1990s—though a version lives on with the A-10 community’s Hawgsmoke.

For now, William Tell participants have returned to their units and are telling their fellow Airmen about what they saw, learned, and felt in Savannah. And many told Air & Space Forces Magazine they would be happy to see more competition in the future.

“I think both from the selfish personal side, I think it’d be an awesome experience to be able to go back there and fly and compete again,” the 1st Fighter Wing pilot said. “But even beyond that, I think the takeaways and the lessons and the experiences of William Tell, that is what this Air Force definitely needs.”

“Working together with different communities and competing is just awesome,” Mercado said. “It gets you better as a fighter pilot, it gets you better as an F-35 community, as well as force integration between the F-22, F-35, and F-15 communities. Ultimately, competition breeds success and growth.

One anonymous participant was particularly strident in their belief that William Tell needs to live on, said Getschow.

“One of the feedback comments from one of the surveys was, ‘If William Tell ’25 doesn’t come back, there’s going to be a mutiny,’” he noted. ★

Small Base, Big Impact

Morris Air National Guard Base in Arizona has quietly been conducting F-16 pilot training for years.

An F-16 assigned to Air National Guard's 162nd Wing flies over Arizona. Based at Morris Air National Guard Base, the 162nd Wing is the only Air Force unit tasked with training foreign F-16 pilots.



By Chris Gordon

MORRIS AIR NATIONAL GUARD BASE, ARIZONA

The only Air Force unit that trains foreign pilots how to fly F-16s is tucked away in a small section of this modest commercial airport here in Tucson.

The 162nd Wing has been training foreign pilots for decades, ever since the Netherlands agreed to send its Airmen here in 1989. By now, the wing has trained pilots from over two dozen countries to become expert operators on the Fighting Falcon. Next up, are the first Ukrainian pilots who quietly began training here this fall.

For a U.S. military that counts on its allies and partners to be an augmenting force across an array of threats in the Pacific, Europe, and the Middle East, this training mission is both vital and, increasingly, complex.

“Back when I started, it was very, very basic,” said Col. Brant Putnam, the commander of the 162nd Wing. “Fast forward to where we are today, we’re talking countries with precision-guided munitions and a variety of missiles and avionics in the airplane. The airplane is more capable, it’s also more complicated.”

How a small Air National Guard base in Arizona became the go-to hub for dozens of nations to train their F-16 pilots is one of the military’s least-told stories.

Luke Air Force Base, Ariz., was the original center for international F-16 training, but with the introduction of the F-35 Lightning II stealth fighter, Luke moved on to the newer jet and Morris ANGB became the gateway for international F-16 pilot training. Headquartered in a few modest office buildings outside of downtown Tucson, the unit’s motto is “USAF’s face to the world.”

These days the wing averages 18 sorties per day per squadron and trains a steady stream of foreign pilots. The roar of the F-16 flights rattles walls and regularly triggers the alarms of rental cars in nearby lots. A diorama of the base featuring an array of international flags is positioned next to the baggage terminal, a reminder that the small airport has an international role.

By all accounts, it is an ambitious undertaking. The wing trains 54 pilots annually—30 foreigners and 24 Americans—but managed to produce 57 new F-16 pilots last year. Air & Space Forces Magazine got an up-close look at the 162nd Wing’s mission and flew in one of Morris’ F-16s piloted by the Air National Guard Air Force Reserve Command Test Center (AATC).

THROWBACK

In an era of fifth-generation fighters, the workhorse F-16 does not always get the attention it deserves. Over 4,500 F-16s have been produced for the U.S. and allied air forces since the single-seat jet first entered service in the 1970s. Some 3,000 remain in service with 25 countries, according to Lockheed Martin, which continues to produce F-16s in Greenville, S.C. Lockheed has a backlog of more than 120 F-16s on order.

USAF continues to fly more than 800 Active, Guard, and Reserve F-16s today. When tensions soared in the Middle East following Hamas’ attack on Israel, F-16s were among the U.S. combat aircraft rushed to the region to deter the war from spreading, supplementing Vipers that were already hard at work in the region. European allies have pledged to provide Ukraine with F-16s to help it secure its skies against Russia, and Romania plans to buy F-16s second-hand from Norway.

“It’s still an incredibly complex airplane that has great capabilities,” said retired Air Force Gen. Phillip M. Breedlove, the former NATO Supreme Allied Commander and a former F-16 pilot. “Learning to fly the airplane is not that hard. If you truly have to learn all of the multirole capabilities of the aircraft, that is the hard part.”

That is where the 162nd Wing and the Air National Guard’s unique capabilities come in. Pilots here complete the six-month “B Course”—or Basic Course—designed to instruct foreign and American pilots familiar with other combat jets in the fundamentals necessary to transition to the F-16.

“It’s an easy airplane to fly from point A to point B, it’s very responsive, it’s easy to control,” said Lt. Col. Chris “Charger” Morton, a senior instructor pilot. But that masks the challenges of so capable a jet: “I’ve always thought that the F-16 is one of the most difficult airplanes to employ as a weapon system.”

As a Guard unit, the 162nd Wing has roots at the base and in the community. Its pilots and maintainers stay put more than is possible for Active-duty forces, so the unit is better equipped than most to retain experienced personnel and field a stable team of pilots and maintainers.

“There’s a lot of things that we can do because of the fact that we are Guardsmen,” Putnam said. “The maintainers pick, basically, to come work here and they stay here. They don’t rotate out like the Active-duty does every three years. So what happens is we have maintainers that have an average of 12 years on the airplane.”



Tech. Sgt. Hampton Stramler/ANG

An F-16 assigned to the 162nd Wing, Morris Air National Guard Base, Tucson, soars over the skies during a training mission. Morris is home to the Air National Guard’s premier F-16 fighter pilot training unit, the 162nd Wing. It is one of the largest ANG wings in the country.



Tech. Sgt. George Keck/ANG

Lt. Col. Joost Luijsterburg, Royal Netherlands Air Force detachment commander, Morris Air National Guard Base, Ariz., buckles the chin strap of his helmet at Naval Air Station Key West, Fla., before wrapping up Dutch F-16 training with the 162nd Wing.

“Same with pilots,” Putnam added. “I’ve been doing the foreign training mission myself since 1997—right here. You get a level of experience and maintenance that is just unsurpassed.”

As Air National Guard wings go, the 162nd is unusual. About 75 percent of its Airmen are full-time Guardsmen, with only 25 percent part time, roughly the reverse of most units, Putnam notes. That allows us to train so many different countries—and just keep going,” Putnam added.

With access to vast training ranges in the southwestern U.S., the base offers plenty of room to fly unfettered by commercial traffic throughout the 1.9 million acres of the Barry M. Goldwater Complex, a training range roughly the size of Connecticut.

SCHOOLHOUSE ROCKS

“It’s a very unique training mission that we do here,” said Morton.

Students at Morris start off with roughly the first month in classrooms and simulators, which are run by contractors, many of whom are or were F-16 pilots who served in the 162nd. Putnam’s predecessor as commander of the 162nd, Brig. Gen. Jeffrey Butler, retired in September, for example, but will stay on as a civilian flight simulator instructor.

F-16s are single-seat, single-engine airplanes, and the complexities of employing the F-16s, with its hands-on throttle-and-stick (HOTAS) system, are immediately clear upon strapping into the jet. To a layman, the toggle switches and buttons on the flight control can conduct the full range of F-16 functions—something known as the piccolo drill among pilots—but learning the drill is harder than it looks. Extensive simulator time gives new pilots more time to learn the basics so the precious hours in actual aircraft are most productive.

“In the simulator, you perform an event, critique it, and then repeat it,” said Breedlove, who commanded Luke’s 56th Fighter Wing in the early 2000s. “And then, if they don’t get it right again, add a little more instruction. With the repetition and the immediate feedback, you can do the things that you have to learn to do to get good at the piccolo drill. The simulator is amazing at that.”

Even before the simulator drills, international pilots’ first step en route to becoming qualified on an F-16 is ensuring proficiency

in English. That’s an essential skill to facilitate training, enable improved interactions with the U.S. military in future operations, and to understand and use the F-16’s switches and multifunction displays—which are in English. Some of the classroom training uses pictures to help break down language barriers.

“Even small things that don’t seem to matter much when you’re talking to a U.S. student—the way that you phrase your words, using expressions, or slang or that kind of stuff—it can sail right over the head of a student whose English is a second language,” Morton said. “We have to be very careful in the way that we instruct and very diligent with the words that we use because it is a very technical skill set that we’re trying to teach these pilots.”

Eventually, of course, there comes a time for the pilot to step into the jet.

Pilots go through each of the multirole fighter systems, from air-to-air, air-to-ground, to close-air support.

“There is a big difference between learning how to safely take off and land and fly the airplane and then fully employ all of its combat capabilities,” said retired Lt. Gen. David A. Deptula, the dean of the Mitchell Institute for Aerospace Studies and a former F-15 pilot.

To achieve proficiency, a pilot must spend around 90 hours flying to learn and demonstrate all the necessary skills. Roughly three-fourths of those flights are solo, using flights with an instructor heavily weighted toward the beginning of the syllabus.

The course takes around six months of training—typically with the first month spent in the classroom and simulators—before leading up to different phases of flying. Pilots start off with a transition phase, in which they first fly four to five flights with an instructor before piloting the aircraft on their own, typically qualifying to fly an F-16 after about nine sorties. Basic fighter maneuvers take about 12 sorties more, then air combat maneuvering—or dogfighting—is added in. Pilots then progress to working as a team against other aircraft, as the U.S. typically flies in groups of two or four against other aircraft. Halfway through the course, students start to learn surface attack, starting with 26-pound dummy bombs, before adding more complex tactics and larger mock weapons.

The student pilots begin in two-seat F-16D trainers before going solo in single-seat F-16Cs, but whether with an instructor in the back seat by themselves, students are largely on their own to make it through each sortie.

"The student needs to understand that this is a single-seat mentality," Morton said. "Yes, you have an instructor back there and a safety observer. But the intent is, 'Don't rely on the person in the back seat to spoon-feed you anything.'"

Eventually, after ticking off all the boxes, the pilots build up to a large-force capstone exercise that simulates a combat mission. In some cases, the 162nd leverages Marine F-35s stationed in Yuma, Ariz., or Arizona Air National Guard KC-135 Stratotankers from Phoenix, to take part in these efforts.

"We try to make it as complex as possible to really just give the student a capstone experience: 'OK, this is, in theory, almost everything the F-16 can do all packed into one mission planning cycle,'" Morton said.

Doctrinal differences are also a challenge. Each nation brings its own culture and its own air force doctrine and the individual pilots' own experience to the training. Pilots from Eastern Europe typically have little experience with a hands-on throttle-and-stick system, in which the pilot can push a myriad of buttons to employ different weapons. Nor are they accustomed to USAF-style decentralized execution.

"With Poland, when we started training them, they were right out of MiGs," Putnam said. "Their pilots had come right out of a Russian model in 2007. And so we train them and basically had to get them to focus on how we do it in the West, which is making more decisions on their own versus being told what to do. And that took a little while."

Eventually, however, the training stuck. "Gradually, they got away from kind of the MiG Russian mentality into operating a lot like we do," Putnam said.

For each student, the first F-16 sortie is a pivotal test—the early model F-16s of the 162nd, dating from the 1980s, are light and maneuverable, able to pull intense 9G turns with relative ease.

"There's no substitute for pouring your heart and soul into preparing a student for their very first F-16 ride. And they have so many questions, and they're maybe going to absorb 20 percent of what you're telling them today. But they take off and they land," said Morton. "I remember my first sortie in the F-16, and I'll never forget it. I've flown thousands of sorties between then and now, but that one stands out."

As this writer experienced at Morris, one's first flight in an F-16D that conducts steep vertical climbs, pulls 9Gs and then barrel rolls over the desert floor is a heart-thumping experience.

Instructor pilots begin with a mission brief for students, who are by then somewhat familiar, having already played out a similar mission scenario in a simulator. Instructors emphasize the one lesson they want no one to have to learn is what happens if they lose consciousness and tumble toward the Earth or have a near miss in the air.

"One of the biggest threats in the F-16 is just the Gs that it can pull," said Morton. "Some of the students who don't have that level of experience just go and pull and try to roll their socks down, and they're not ready for it."

"Once we get up in the air, I make no assumptions about whether or not the student is going to execute exactly what I briefed, and I'll keep a very close eye on them," he added.

But a lot of the training occurs on the ground. The pilots' head-up display, the aircraft's two multifunction displays, and flight data are all recorded, enabling pilots and instructors to deconstruct the sortie during the debrief.

The mission can essentially be relived in full, examining



A sign outside of the 162nd Fighter Wing headquarters building features arrows with mileage markers pointing to the capitals of countries the unit has trained as well as Moscow.

Chris Gordon/staff

errors and learning opportunities in depth.

"We can hit pause," Morton said. Questions can be asked: "What do you see in your head-up display that you maybe didn't pay attention to about 10 seconds ago that was really important?" And so you can kind of have that back and forth and get that feedback."

In addition, there are other options that offer alternative perspectives. "You can pull up a different debrief program that will show you exactly where your airplane was in relation to all the other airplanes and how everybody was maneuvering," Morton added. "We like to say that things are easier to learn at zero knots and 1G than at 400 knots and 9Gs in the airplane."

Finally, after six months of training, pilots are considered qualified. But that doesn't mean they're ready for any mission that might come along. As a multimission aircraft, the F-16 can fly air-to-air, air-to-ground, close-air support, and other mission profiles.

"What we do really well is that is the basic course," Putnam said. "Everybody wants someone to leave here and to be able to do everything, all the missions, but it just doesn't happen that way."

Seasoned pilots who convert to the F-16, such as the Ukrainian pilots who previously flew Russian-built MiGs and Sukhois, will be in a stronger position to be effective after they graduate. Other Ukrainian pilots will be trained in Europe. Combat proficiency in the F-16, however, can come only with experience and time. Given Ukraine's long-standing appeals for F-16s and the priority it attaches to airpower, the pilots can expect to gain experience quickly. The pace at which the pilots will gain the expertise they need to take on the Russians will depend on skill, training, and even luck.

"For Ukraine, it is going to be tailored for exactly what they need to do, which is multirole, both air-to-air and air-to-ground," Lt. Gen. Michael A. Loh, the director of the Air National Guard, said in September. "Can [the F-16] bring air superiority to that fight? Absolutely. That's what our U.S. fighter pilots train to."

They'll go anywhere in the world to go do that stuff—low altitude, medium altitude, high altitude, whatever it takes," Loh added. "That's the versatility of the F-16." ★

Space-Based Environmental Monitoring for Today's Military

The force that best understands the weather is most often the force that wins.

The Defense Meteorological Satellite Program (DMSP) was developed in 1962 and now is well beyond its anticipated life span. Designed and configured to be large, monolithic, multifunction satellites, the constellation is now depleted and must be replaced.

By Lt. Col. Tim Ryan, USAF (Ret.)

Throughout the history of conflict, commanders who could harness weather insights reaped strategic advantages, while those who neglected to account for weather often fell victim to catastrophic campaign failures.

Operation Eagle Claw, the special operations mission to rescue American hostages in Iran in 1980, failed in part as a result of unforeseen dust storms. Eight service members were killed and the hostages remained captive for seven more months. The failure made clear the importance of environmental monitoring.

More than three decades later, the successful assault on Osama bin Laden's compound in Abbottabad, Pakistan, was carefully planned around troubling weather. Planners delayed the mission by 24 hours due to anticipated surface winds and thunderstorms. Without the ability to accurately forecast weather, the mission might well have been a failure.

Successful environmental monitoring requires a broad range of sensors operating in the air, at sea, on land, and in space. Of these, space-based is arguably the most crucial, given its unique ability to rapidly and persistently surveil and measure a vast expanse of



Lt. Col. Tim Ryan, USAF (Ret.) is a Senior Resident Fellow for Space Studies at the Mitchell Institute for Aerospace Studies. Download the entire report at <http://MitchellAerospace-Power.org>.

territory. In remote regions of the world, this ability to sense from a distance is particularly important. Space-based environmental monitoring (SBEM) satellites capture insights to model and predict cloud cover, surface wind speed and direction, wave heights, snow depth, soil moisture, and more—anywhere on the surface of the Earth.

Chief of Space Operations Gen. B. Chance Saltzman recalled how in the 2003 Iraq War, U.S. commanders were able “to keep track of a maneuvering Iraqi army through a sandstorm,” and to later strike the unit with precision munitions once the storm was over. “This had a devastating effect on the [Iraqi] army, both physically because we were hitting the army, but also mentally,” Saltzman recalled. “They had no idea how we were able to track them through the weather through the night. And a lot of that, of course, was enabled by our space-based ISR capabilities as well as the munitions that we employ with GPS precision.”

Thanks to weather intelligence, the U.S. military held a decisive advantage over the Iraqi forces, enabling U.S. leaders to know precisely when and where to strike.

Yet today, the United States faces a critical challenge in maintaining this advantage. The SBEM mission depends on the Defense Meteorological Satellite

Program (DMSP), a constellation developed in 1962 and now well beyond its anticipated life span. Individuals at all levels of the military enterprise depend on this capability, yet are unaware the function relies on these aging DMSP satellites.

The DMSP was designed and configured when space was generally considered a peaceful operating domain, engineered and purpose-built to be a large-scale, highly capable, multifunction system. Losing one satellite today would cut the current operational constellation by half.

Today, with adversaries increasingly contesting space operations, a numerically larger, more disaggregated set of capabilities is needed to reduce risk and increase resilience. The urgency to move quickly is clear.

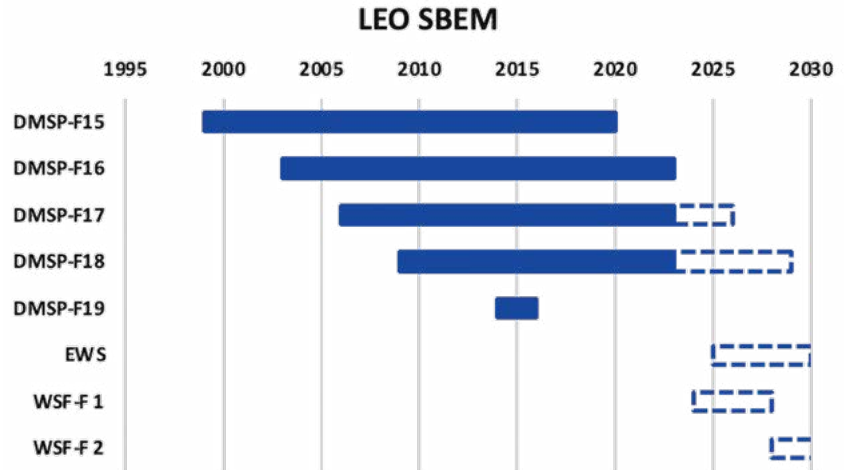
In 2016, a Joint Requirements Oversight Council (JROC) study on recapitalizing the space-based environmental monitoring satellite architecture reviewed an Analysis of Alternatives (AOA) executed in the 2010s, leading to the selection of the Electro-Optical/Infrared Weather Systems (EWS) and Weather Satellite Follow-on Microwave (WSF-M) programs to meet modern sensing requirements.

While this recapitalization effort is designed to provide better resiliency through far more modern, capable satellite systems, it initially calls for fielding demonstration satellites, followed by additional satellites later to deliver the required quality and quantity of weather information. To improve revisit rates and increase near-real-time weather data will require a constellation of a dozen or more satellites. This increased number also guards against the risk that an enemy might try to knock out SBEM capabilities. Importantly, while the JROC study identified the core capabilities of the SBEM architecture, the plan for these capabilities predates concepts like Joint All-Domain Command and Control (JADC2).

In the meantime, leaders are augmenting U.S. SBEM capabilities with a family of systems (FoS) approach, combining data from other weather sensors on orbit through partnerships with the National Oceanic and Atmospheric Administration (NOAA) as well as U.S. allies. This ensures access to weather data in the

DMSP: Last of a Dying Breed

The Defense Meteorological Satellite Program (DSMP) launched its last available satellite in 2014, and has no additional backups left. Only two operational satellites remain. The Electro-Optical/Infrared Weather Systems (EWS) and Weather Satellite Follow-on Microwave (WSF-M) satellites are expected to become operational in 2024 and 2025.



interim, but is not a full-on replacement. Gen. Glen D. VanHerck, commander of U.S. Northern Command and NORAD, warns against dependence on sources of critical information that might not be available when needed most: "The thing we have to ask is do we want to find ourselves where an individual or a business can impact national security by their perception or their political views? And we find ourselves in a situation where now they're impacting our ability to conduct operations around the globe."

Commanders will struggle to meet mission objectives if DOD fails to field its own modern environmental monitoring capabilities.

FUNDAMENTAL TO JADC2

"Every DOD operational mission begins with a weather briefing; either space weather, terrestrial weather, or both. The data required for DOD missions is often unique and necessitates 24/7 global ability to forecast weather in austere and denied environments."

—Gen. David Thompson, former Vice Chief of Space Operations



Airman 1st Class Lillian Patterson

Weather Airmen play a crucial role in mission planning and execution, updating mission planners, pilots, and aircrew on conditions that could affect operations. In July, Airman 1st Class Wesley Ise, a weather journeyman assigned to the 92nd Operational Support Squadron, monitored the Meteorological Observation System at Fairchild Air Force Base, Wash.

12 Essential Weather Requirements

The Air Force identified 12 mission-critical space-based weather capability gaps in 2009, most of which were later affirmed by the Joint Requirements Oversight Council to be core requirements for future weather satellites:

Capability Area	System Addressing
1 Cloud Characterization	EWS
2 Theater Weather Imagery	EWS
3 Ocean Surface Vector Winds	WSF-M
4 Ionospheric Density	NOAA
5 Snow Depth	WSF-M
6 Soil Moisture	WSF-M
7 Equatorial Ionospheric Scintillation	Ground Sensors
8 Tropical Cyclone Intensity	WSF-M
9 Sea Ice Characterization	WSF-M
10 Auroral Characterization	Scientific use only
11 Energetic Charged Particle Characterization	WSF-M
12 Electric Field	NOAA

Weather impacts all levels of warfare, from tactical to strategic. Environmental data plays an important part in closing kill chains to help get the right shooter to the right place at the right time to provide the right effect. Analysts must use imagery and data to determine which sensors have the best line-of-sight and then select the correct weapon given weather and environmental conditions. Weather data will be crucial to Joint All Domain Command and Control, which will demand near-real-time weather data to facilitate dynamic operational planning and to respond to emerging threats.

In the Arctic and Western Pacific, both regions in which the U.S. anticipates heading off conflict, weather data from terrestrial sources is sparse. SBEM will be crucial, therefore, to fight and

win. Consider an aircrew getting ready to launch on a sortie: They need to know about wind speed, icing temperatures, lightning, cloud cover, visibility, sand/dust conditions, and severe weather precipitation. Those factors will impact the entire operation, from when an aircraft can take off and land to which sensors it should employ and what munitions it might expend. They also affect essential support functions, such as search and rescue and intelligence, surveillance, and reconnaissance (ISR) activities.

As decision cycles accelerate, and pressure mounts to empower decisions in the span of hours and minutes across an entire theater, near-real-time weather data will become still more important. Without timely, accurate weather data to inform decisions, commanders face mission failure.

In the Indo-Pacific theater, where U.S. forces will need to transit long distances and fight through complex weather patterns, the lack of land- and ocean-based sensors leaves a gap between available data and the unknown. Satellites are the most efficient way to fill this gap.

SBEM CHALLENGES AND FUTURE REQUIREMENTS

“The Space Force Space-Based Environmental Monitoring capabilities provide key global terrestrial and space weather data for DOD to plan, execute, and assess daily mission operations.”

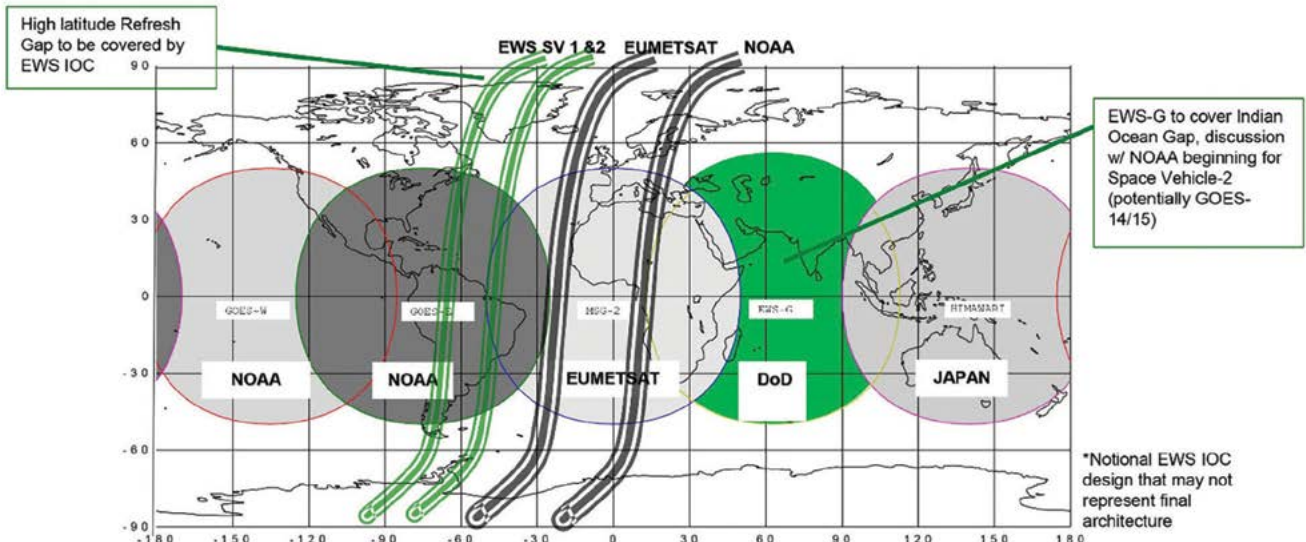
—Lt. Col. Joe Maguadog, Space Systems Command, EWS Program Manager and Material Lead

Built as an exquisite, fully capable SBEM suite, each DMSP satellite hosts seven sensors and answers a broad spectrum of weather sensing requirements. DMSP can “see” a range of environmental factors, from cloud cover to pollution, and collect data to measure cloud type and height, land and surface water temperatures, and more. The satellites can even measure charged particles and electromagnetic fields in space, factors that affect military radars, communications, and satellite operations. Yet while DOD has refreshed these satellites over time, its backfill supply is now exhausted; the last DMSP satellite launched in 2014, leaving the enterprise on a terminal trajectory with no backfills available.

Newest Weather Satellites Cover the Globe

The Electro-Optical/Infrared Weather System-Geosynchronous (EWS-G) and EO/IR Weather System (EWS) will both be in service beginning in the mid-2020s, providing continuous coverage of the Earth, including the high latitudes of the Arctic region.

- EWS-G in-place, Full Operational Capability (FOC) expected mid-2020, EoL 2023-2025
- EWS Initial Operational Capability (IOC) ~2025





General Atomics

Space Systems Command exercised a follow-on option with General Atomics Electromagnetic Systems to develop a prototype weather satellite that can produce operational data as part of the Electro-Optical Infrared (EO/IR) Weather Satellite system.

Over the past two decades, two weather satellite programs that might have addressed this shortfall were canceled, both without ever delivering operational capability. The National Polar Orbiting Environmental Satellite System (NPOESS), canceled in 2010, and the Defense Weather Satellite System (DWSS), canceled two years later—left in their wake a devastated national security weather enterprise. The Air Force launched a refurbished 1990s-constructed DMSP satellite in 2014 as a band-aid solution, and that satellite went offline in 2016 after a catastrophic power failure. Lacking another DMSP satellite to launch, the Air Force reassigned its only remaining retired, on-orbit backup DMSP satellite to a primary system role to fill the gap and meet operational requirements.

To solve this long-term challenge, the Air Force identified 12 potential mission-critical capability gaps in space-based weather, beginning in 2009. Most of these gaps were later highlighted in the JROC study and remain important core requirements for future weather satellite operations: Cloud Characterization, Theater Weather Imagery (TWI), Ocean Surface Vector Winds, Ionospheric Density, Snow Depth, Soil Moisture, Equatorial Ionospheric Scintillation, Tropical Cyclone Intensity, Sea Ice Characterization, Auroral Characterization, LEO Energetic Charged Particle (ECP), and Electric Field.

DEFINING THE PATH FORWARD

In 2016, the Air Force revised its plans based on the requirements set by the JROC study, determining it should replace the monolithic Defense Meteorological Satellite Program with two disaggregated, small satellite constellations, which would together contribute to the desired family of systems model. These are the EO/IR Weather System (EWS) and the Weather System Follow-on Microwave (WSF-M) programs.

Replacing a single large system like the DMSP with multiple systems like EWS and WSF-M operating in their respective constellations promises numerous benefits: improved resilience and more rapid technology updates, delivering progressive constellation modernization.

ELECTRO-OPTICAL/INFRARED WEATHER SYSTEM (EWS) PROGRAM

EWS cloud characterization sensor capabilities are imperative to supporting flying operations, from understanding sensor visibility to determining icing conditions on aircraft wings. Characterizing cloud cover is also foundational to understanding missile warning timelines and the capability to provide timely

missile warning to fielded forces, allies, and partners.

Col. Brian Denaro, Space Systems Command's Space Sensing Program Executive Officer, stated, "EWS continues to blaze the trail on numerous space acquisition tenets. The program is building smaller satellites while minimizing non-recurring engineering." Given the age of DMSP, the criticality of EWS to satisfy the two highest SBEM priorities can't be overstated.

WEATHER SYSTEM FOLLOW-ON MICROWAVE (WSF-M) PROGRAM

WSF-M will operate from a low-Earth orbit, using a next-generation passive microwave imager to collect terrestrial weather information and space environment observations. Projected to launch in late 2023 and become operational by mid-2024, it would be replaced just a few years later by a second WSF-M satellite to be launched in 2028. WSF-M will support meteorologists in generating the weather products necessary for daily global mission planning and operations in a few ways. This single satellite will address six SBEM gaps: It will provide the ocean surface wind speed and direction measurements needed to support naval maneuver operations and aircraft takeoff and recovery; it will provide tropical cyclone intensity measurements and predictions, enabling critical warnings to impacted areas and informing military operations likely to be affected by extreme weather conditions; it will use state-of-the-art algorithms to measure snow depth, soil moisture, sea ice thickness, and sea ice characterization; and finally, WSF-M addresses gaps in characterizing energized charged particles by taking measurements in space to determine space weather impacts on satellites and limit disruptions to HF communications and SATCOM.

DELIVERING WHAT THE WARFIGHTER NEEDS

The growing air and missile threats to the U.S. homeland require access to clear and accurate environmental data, notes NORTHCOM's VanHerck: "To defend our homeland, we must be able to operate in the Arctic, and that requires domain awareness, which also is the weather aspect of that."

Today's two operational DMSP satellites provide only enough coverage to refresh weather data every 10.5 hours. The JROC requirement, however, is a four-hour refresh rate, which would require three satellites. But modern warfare demands still greater accuracy. Consider what happened when the U.S. identified a balloon over North America earlier this year. Lt. Gen. David S. Nahom, commander of Alaskan Air Command and 11th Air



Senior Airman Cedrique Oldaker

In the Arctic, where this F-35 Lightning II from the 356th Fighter Squadron took off from Eielson Air Force Base, Alaska, in June, factors such as temperature, wind, moisture levels and more can affect the way sensors and weapons operate. Unforeseen changes in weather can have a huge impact on operations.

Force, described the response: “In January, in Alaska, in the middle of a blizzard, we had F-35s taking off 30 minutes before a blizzard hit with no idea how they’re getting home. You had tankers taking off in the middle of a fight. You had snowplow drivers working around the clock trying to keep the runways clear. You had HH-60 Air Force rescue guys flying through the valleys of the Brooks Range at night in NDGs in a snowstorm. [Weather] is absolutely on our mind and how we predict it.” The reality is warfighter demands will be closer to one-hour refresh rates with highly accurate short-term forecasts. This will require a bare minimum of 12 satellites to satisfy the dynamic, high-tempo operations both in the harsh environment of the Northern Tier or in a JADC2 environment.

RECOMMENDATIONS

The current SBEM enterprise risks collapse with the end of the operational life of the DMSP satellites. The time to develop and field new technologies has run out and uncertainty over DMSP’s life expectancy and volatile defense budgets leave little buffer. Grasping the seriousness of the situation and to assure the future success of this mission, the time to field EWS and WSF-M and enact the following SBEM enterprise reforms is now:


Congress must protect DMSP replacement efforts. The NDAA should fence EWS and WSF-M for defense requirements only and avoid repeating the past delays, complexities, and dysfunctions involved with merging many government agency requirements into an interagency program in the name of efficiency. Certainly, environmental data from defense-dedicated programs should be appropriately shared. However, the U.S. military is facing the potential for peer conflict without the assurance of weather data support it needs to maximize its ability to project power and employ effectively. Non-defense needs should not delay or suboptimize the rapid replacement of space-based environmental monitoring that underpins weather support to the warfighter.

The U.S. Space Force must continue to develop a resilient SBEM architecture. Adversaries have clearly articulated their intent and demonstrated their ability to disrupt and destroy U.S. space capabilities. To mitigate this risk, the Space Force must continue to embrace a disaggregated SBEM architecture to provide resiliency with smaller, less expensive platforms to offset the loss of one or two systems. The current weather strategy distributes the sensor capabilities from DMSP to EWS

for EO/IR and WSF-M for microwave. Pending their successful launch and demonstration, they could be the first increment of a resilient, assured SBEM capability. A constellation similar to the sensing footprint of DMSP requires a minimum of 12 satellites to gain a one-hour revisit period: Attrition reserves in orbit would be additive.

The U.S. Space Force must continue to develop SBEM requirements to reflect the current and emerging needs of the warfighter. EWS and WSF-M meet the current requirements established in the 2012 AOA and subsequent JROC study, but the Space Force must continue to update requirements that incorporate combatant commanders’ future needs. The U.S. military faces threats from a peer adversary and is developing JADC2 as the future warfighting concept. This drives new warfighting requirements beyond those identified in the AOA and will be imperative for future success in conflict. The DOD must continue to update its architecture requirements to ensure the provided capabilities meet the needs of the warfighter in 2023 and beyond. Additional satellites are likely part of the solution to boost refresh rates and afford enhanced resiliency.

The U.S. Space Force needs a stable, long-term program of record for SBEM. Lacking a defined program of record creates uncertainty in the SBEM architecture. The space-based environmental monitoring enterprise would benefit from a long-term, stable program of record with requisite defined funding to provide a full constellation of satellites. This program of record should be based on mature technologies and current requirements for future developments. The singular EWS and WSF-M satellites currently under contract will provide capability, but rapidly transitioning to fielding the operational constellation within an established program will provide stability and a resilient architecture in line with warfighter requirements.

Nurturing partnerships is imperative to our weather strategy. Partnerships are critical to the SBEM strategy, especially in the near term, because the DOD does not have enough capability currently on orbit or programmed to cover necessary orbits and revisit rates. Until the DOD delivers the SBEM constellation of satellites envisioned in its family of systems concept, the U.S. cannot generate the SBEM data it needs without a combination of allied, partner, civil, DOD, and commercial capabilities. The DOD partnership strategy must prioritize SBEM data assurance through reliable sources and data availability through all phases of conflict. 



Joshua Conti/USSF

A Falcon Heavy rocket carrying three geostationary satellites launches from Launch Complex 39A at Kennedy Space Center, Fla., April 30, 2023. Nearby Patrick Space Force Base will host Space Training and Readiness Command Headquarters.

Driving Accountability in Space Acquisition

Assistant Secretary Frank Calvelli's nine tenets for accelerating acquisition are having an impact. Challenges remain in the detail.

By Maj. Gen. Thomas Taverney, USAF (Ret.)

The U.S. Space Force was established as a separate service in order to respond to evolving threats from China and Russia. Having developed hypersonic and hypersonic glide threats, both those nations had also built and fielded counterspace capabilities to threaten U.S. satellites on orbit, rapidly evolving those capabilities every two to four years.

Accelerating U.S. space development is therefore among the most crucial requirements for the Space Force. In October 2022, Assistant Secretary of the Air Force for Space Acquisition and Integration Frank Calvelli laid out nine tenets for accelerating space acquisition, informative guideposts that have provided a crucial way forward for both the Space Force and industry alike.

“The traditional ways of doing space acquisition must be reformed in order to add speed to our acquisitions to meet our priorities,” Calvelli said in a memo to the force in October 2022. “Former approaches of developing a small number of large satellites, along with large monolithic ground systems taking many years to develop, can

“Success is measured by executing on plan.”

—Assistant Secretary of the Air Force Frank Calvelli

no longer be the norm.”

The nine tenets are now well known:

1. Build smaller satellites, smaller ground systems, and minimize nonrecurring engineering.
2. Get the acquisition strategy correct.
3. Enable teamwork between contracting officer and program manager.
4. Award executable contracts.
5. Maintain program stability.
6. Avoid special access program and overclassifying.
7. Deliver ground before launch.
8. Hold industry accountable for results.
9. Execute.

These tenets demand stable requirements, collaborative customer/developer interaction, executable programs, and most of all “accountability”—exactly what is needed in this world of rapidly changing threats and to assure access to critical space capabilities even when they come under attack.

Yet Calvelli’s tenets, or objectives, raise questions for industry, in particular these three: **awarding executable contracts; holding industry accountable; and executing.**

As a group, the three focus on accountability, both



Mike Tsukamoto/staff

Assistant Secretary of the Air Force for space acquisition and integration Frank Calvelli demands both speed and precision in space systems acquisition. "Success is measured by executing on plan," he says.

for the government and its contractors. These three tenets are challenges to both the government and industry, and it will take collaboration and trust to succeed. Creating executable contracts with achievable goals and schedules and fairly rewarding good execution is the challenge for the former, as performance on executable contracts is the challenge for the contractor. Most importantly, this is about accountability on both sides.

AWARD EXECUTABLE CONTRACTS

Nonexecutable contracts can be defined as those with unrealistic combined technical, schedule, and cost objectives and create downstream cost overruns, missed schedules, and/or incomplete solutions.

While directing that contracts must be executable may be easily stated—it's harder to achieve. Even when a program's objectives seem impossible to execute, contractors may still be willing to try. If a contract is nonexecutable, contractors may still be incentivized to bid, because declining to compete, in effect, costs them future business. Alternatively, bidding an executable program could cost them the contract if it doesn't conform to the government estimate. So, while it is easy to say don't bid nonexecutable contracts, that approach rarely works in practice.

The government, establishing clear expectations and using open communication, can shop around for the best capabilities and quickly identify what contractors are offering and assess whether these are things that they can actually deliver on the government's required timelines. Reverse Industry Days is a good first step, but more detailed discussions on specific acquisitions could be beneficial. Without fully understanding the art of the possible in industry, the main risk to the USSF is that they will find contractors willing to take on the risks of potentially nonexecutable contracts, assuming "greenlight" schedules, then finding themselves persistently seeking engineering change proposals and managing cost overruns. However, properly implemented, a focus on executable programs and continued open communication with industry should alleviate these concerns. To do so requires honest assessments of risks and risk margins from the contractors to the government, allowing government leaders to make informed decisions on the risks and costs involved. Getting the government to work with the contracting community to generate more realism regarding cost and schedule will help avoid low bids and buy-in. Negotiations between government and industry

should be a "win-win," with the public sector quickly receiving a capability that works, and industry getting a fair profit.

HOLD INDUSTRY ACCOUNTABLE FOR RESULT

Calvelli's eighth tenet seeks to empower government buyers to hold their industry providers to higher standards by accepting only functioning capabilities, delivered on schedule, and within cost. He is exhorting his acquirers to be more proactive in managing their programs and to identify and resolve issues as early as possible. "With the urgent need to provide new space capabilities faster and for architecture resiliency, do not tolerate bad performance," Calvelli advised. "Take corrective action and use all tools available for poor performers. A reminder to government buyers: 'Industry works for you, so be a demanding customer.'"

No customer should tolerate poor performance. But the other side of this coin is that the government also needs to incentivize good performance. There needs to be both carrot and stick for this to work. Punishing bad performers is all well and good, but if we don't reward the good performers—and the bad performers get the same opportunities for follow-on or related contracts as the good ones—there is insufficient motivation to perform well. The consequence for poor performance is simply too low.

What is needed is a well-balanced policy that includes both rewards for excellence and penalties for failures. By striking a balance between the two, organizations can create a culture of accountability, reinforcing the quality performance desired by the USSF. An unbalanced policy, however, is inefficient and ineffective, enabling poor performers to fail without cost. While too much emphasis on rewards could encourage companies to take unnecessary risk or to cut corners, an overemphasis on punishment and penalties could yield a culture of fear, stifling creative innovation. More importantly, an unbalanced approach can undermine collaboration with the customer, causing disharmony.

While incentives for good performance is certainly a tool the government can use—the Space Development Agency is leading the way in rewarding good performance by offering \$20 million bonuses to existing commercial production lines meeting scheduling, incentivizing performance—the thing contractors most want is the follow-on work.

To promote and reward performance, the government could include unpriced options on short-duration, continuously competed contracts (those of two to four years in length). Those options would enable the government to open an underperforming contract to re-compete, taking into account the level of performance provided to date on the previous contract. If, however, the contractor performs well, the government could exercise the option to negotiate an extension without additional competition. This would give the contractors an incentive to not only perform, but also to invest independently to ensure they can retain the contract in subsequent phases. The result: Both customer and contractor benefit. External competitors would also have an incentive to invest their own research and development funds to create a differentiator, enhancing their ability to compete with and unseat a struggling incumbent.

EXECUTE—DELIVER ON SCHEDULE AND ON COST

"Success is measured by executing on plan," Calvelli wrote. In doing so, he challenges management on both the government and industry sides of the equation.

Management must focus on results, and therefore must be held to account to deliver on what's promised. This is best done with tight collaboration between the contractor and the customer, or as Chairman of the Joint Chiefs of Staff Gen. Charles Q. Brown Jr. says, "One Team—One Fight". All companies have good engineers

capable of performing well when given the proper resources, tools, and schedule. What separates success from failure then is not so much engineering talent as it is program planning, risk management, schedule and resource planning, active vendor and subcontract management, and, most importantly, executable contracts. Both the government and the contractor have an oar in this water, and Calvelli challenges both.

When a contract is signed, the contractor accepts that it will be judged on performance and contract outcomes, whether good or bad. This means establishing a commitment with the USSF to measure and track progress to achieve success, and a clear understanding that success brings positive consequences while failure brings negative ones.

Yet penalties should fit the crimes. It is rarely in anyone's interest to have a "one strike, and you're out" system; rather, consequences should scale to the shortcoming and necessitate plans to correct the problems with measurable milestones. Utilizing such a constructive approach will encourage companies to take responsibility and quickly address and resolve issues, rather than casting about to place blame. But the better performers should certainly reap more rewards.

Policies must recognize the hard work of companies while still holding those who do not perform accountable. It is therefore encouraging to see the Space Development Agency adopting this approach in all of its programs (Missing Warning/Missile Training, the Transport layer, and the FOO Fighter program), while proving well-structured contracts, using proven technology, with emphasis on schedule and government PM's that embrace these strategies of speed with low technology risk, can be successfully implemented on the short timelines necessary to respond to our adversaries' aggressive timelines.

TWO PARTIES TO EVERY DEAL

To achieve success, the Space Force must clearly define its requirements:

- The objective of the system;
- What success looks like;
- The required schedule;
- Clear alignment between the technical requirements and the cost and schedule of the contract, ensuring the contract is in fact executable.

Likewise, contractor responses must be consistent with the solicitations. But, the government must encourage that communication and not penalize the contractors raising these issues. If the objectives for cost and schedule cannot be achieved, contractors should not promise the impossible. Rather, they should help the customer by defining:

- What would be a reasonable cost and schedule such that success can be achieved?
- What support is needed to do this job successfully?
- What risks are at play and what strategy can be employed to mitigate those risks?

This is where negotiation comes into play, the last chance to define what is required of an executable contract. Time must be invested here to ensure this is done correctly. If the contracting officer tries to negotiate every penny out, the relationship will be strained from the start. If the contractor is forced to bid too low, performance and transparency will suffer from Day One. Again, this should be fair and equitable for both sides, so the government gets a fair deal for its investment and the contractor is able to generate a fair profit for its stakeholders.

PROGRAM EXECUTION

Increasingly short timelines demand tight and positive collab-

oration between the Space Force and its contractors. With every contract, establishing trust, collaboration, and fairness upfront is essential to avoid adversarial relations in the future. If it starts out badly, the deal will remain that way.

The benefit of ongoing open collaboration is that problems can be identified and fixed more quickly, with measurable get-well plans that can be put in place for the customer, who can then make informed decisions on schedule and risk. Moving forward, the program manager and the contractor must own those decisions together.

Accountability for success on any given program means being outcome driven. Contractors who are accountable don't just do what they say they're going to do; they get the results they promise, regardless of the challenges that must be overcome to deliver on that promise.

To build trust and enhance communications, both the contractor and the government customers should provide periodic "report cards" to each other, building on their collaborative relationship, trust, and mutually shared goals. Feedback should flow both ways, and be frequent, not left to the end of the program. If something is going wrong in the relationship, it's best to know early, so it can be fixed.

The Space Force must decide early on how it intends to incentivize success. Award fees are part of the picture, but contractors value the promise of additional work even more. The best way to incentivize success is to enable success to beat a surer path to the next contract.

Follow-through on the part of program managers is the final and arguably most crucial step in the process. Success should be recognized and rewarded, while failure should likewise be recognized and addressed. The Space Force needs consistency to ensure it learns from mistakes and missteps and applies those lessons to future programs to increase the likelihood of success. Ultimately, USSF must reward its successful contractors to motivate everyone to be the good partners it needs for future success.

CONCLUSION


There are three big challenges for the U.S. Space Force in implementing Calvelli's nine tenets of acquisition:

1. Assuring only executable contracts are awarded. This demands input from the contractors to ensure identified cost and schedule issues are discovered early. This must be a win-win for both the government and the contractor.

2. Incentivizing contractors. Determining how to incentivize contractors to be successful and accountable by rewarding good performance will be key to making this work.

3. Ensuring accountability. Determining how to hold poor performers accountable while assisting them to become quality performers in the future. But, rewarding good performers is an essential part of accountability, there has to be a benefit piece of accountability for it to be effective.

The key to all three is rewarding strong performers with an advantage when they reenter the competitive phase of future contracts. Finding ways to turn around poor performers—and not rewarding them for their poor performance—while making sure good performers are rewarded are, in fact, two edges of the same sword.

The success of the Space Force in today's great new Space Race depends on leveraging Calvelli's tenets to make programs work more effectively. 

Thomas "Tav" Taverney is a retired Air Force major general and former vice commander of Air Force Space Command. His last article in Air & Space Forces Magazine was "Responding to Threats in Space," in the December 2022 edition.

By Chequita Wood

The Air Force Association's 12 Founders

John S. Allard
Bronxville, N.Y.

Edward P. Curtis
Rochester, N.Y.

W. Deering Howe
New York

Sol A. Rosenblatt
New York

James M. Stewart
Beverly Hills, Calif.

Cornelius Vanderbilt Whitney
New York

Everett R. Cook,
Memphis, Tenn.

Jimmy Doolittle
Los Angeles

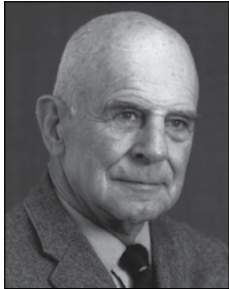
Rufus Rand
Sarasota, Fla.

Julian B. Rosenthal
New York

Lowell P. Weicker
New York

John Hay Whitney
New York

AFA Chairs of the Board¹



Jimmy Doolittle
President
1946-49

Edward P. Curtis
1946-47

Thomas G. Lanphier Jr.
1947-48, 1951-52

C. R. Smith
1948-50

Robert S. Johnson
1949-51

Carl A. Spaatz
1950-51

Harold C. Stuart
1951-53

Arthur F. Kelly
1952-54

George C. Kenney
1953-55

John R. Alison
1954-56

Gill Robb Wilson
1955-57

John P. Henebry
1956-58

Peter J. Schenk
1957-59

James M. Trail
1958-59

Howard T. Markey
1959-61

Julian B. Rosenthal
1959-60

Thos. F. Stack
1960-62

Joe Foss
1961-63

John B. Montgomery
1962-63

W. Randolph Lovelace II
1963-65

Jack B. Gross
1963-64

Jess Larson
1964-71

Robert W. Smart
1967-69

George D. Hardy
1966-67, 1969-72

Martin M. Ostrow
1971-75

Joe L. Shosid
1972-76

George M. Douglas
1975-79

Gerald V. Hasler
1976-79

Victor R. Kregel
1979-82

Daniel F. Callahan
1979-81

John G. Brosky
1981-84

David L. Blankenship
1982-85

Edward A. Stearn
1985-86

Martin H. Harris
1984-88

Sam E. Keith Jr.
1986-90

Jack C. Price
1988-92

Oliver R. Crawford
1990-94

James M. McCoy
1992-96

Gene Smith
1994-98

Doyle E. Larson
1996-2000

Thomas J. McKee
1998-2002

John J. Politi
2000-04

Stephen P. Condon
2002-06

Robert E. Largent
2004-08

Joseph E. Sutter
2008-10

S. Sanford Schlitt
2010-12

George K. Muellner
2012-14

Scott P. Van Cleef
2014-16

F. Whitten Peters
2016-19

Gerald R. Murray
2019-22



Bernie Skoch
Chair, 2022-

¹The Chair of the Board is a volunteer position and has been known by different titles over AFA's history. It was titled President until 2006.

AFA President & CEOs²



Willis S. Fitch
Executive Director
1946-47

James H. Straubel
1948-80

Russell E. Dougherty
1980-86

David L. Gray
1986-87

John O. Gray
1987-90

Charles L. Donnelly Jr.
1988-89

Monroe W. Hatch Jr.
1990-95

John A. Shaud
1995-2002

Donald L. Peterson
2002-06/07

Michael M. Dunn
2007-12

Craig R. McKinley
2012-15

Larry O. Spencer
2015-19



Bruce A. Wright
President-CEO
2019-

VICE CHAIR, FIELD OPERATIONS



Chris Canada
Vice Chair,
Field Operations
2023-

Joseph E. Sutter
2006-08

James R. Lauducci
2008-10

Justin M. Faiferlick
2010-12

Scott P. Van Cleef
2012-14

David A. Dietsch
2014-16

F. Gavin MacAloon
2016-20

Jim Simons
2020-23

NATIONAL SECRETARIES



Michael J. Liquori
National Secretary
2021-

Earl D. Clark Jr.
1979-82

Sherman W. Wilkins
1982-85

A. A. "Bud" West
1985-87

Thomas J. McKee
1987-90

Thomas W. Henderson
1990-91

Mary Ann Seibel
1991-94

Mary Anne Thompson
1994-97

William D. Croom Jr.
1997-2000

Daniel C. Hendrickson
2000-03

Thomas J. Kemp
2003-06

Judy K. Church
2006-09

Joan Sell
2009-11

Edward W. Garland
2011-14

Marvin L. Tooman
2014-15

NATIONAL TREASURERS



Charles L. Martin Jr.
National Treasurer
2020-

Jack B. Gross
1966-81

George H. Chabbott
1981-87

William N. Webb
1987-95

Charles H. Church Jr.
1995-2000

Charles A. Nelson
2000-05

Steven R. Lundgren
2005-10

Leonard R. Vernamonti
2010-14

Nora Ruebrook
2014-16

Charles L. Martin Jr.
2016

Steven R. Lundgren
2016-2020

W. Deering Howe
1946-47

G. Warfield Hobbs
1947-49

Benjamin Brinton
1949-52

George H. Haddock
1952-53

Samuel M. Hecht
1953-57

Jack B. Gross
1957-62

Paul S. Zuckerman
1962-66

VICE CHAIR, EDUCATION



Stephen K. Gourley
Vice Chair,
Education
2021-

L. Boyd Anderson
2006-07

S. Sanford Schlitt
2007-10

George K. Muellner
2010-12

Jerry E. White
2012-15

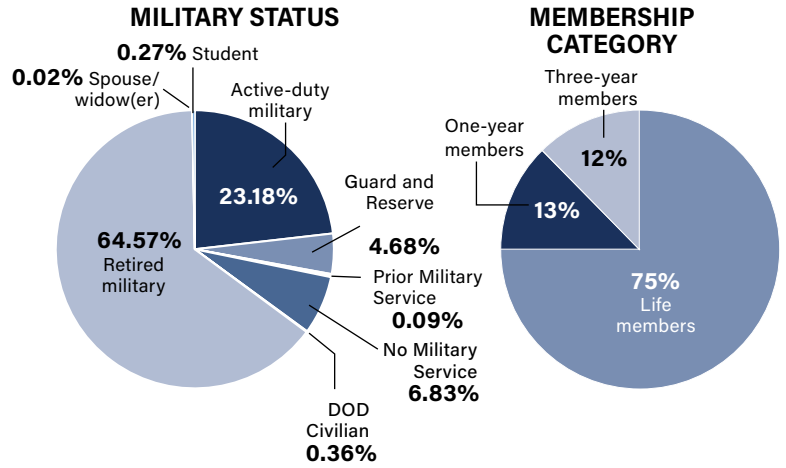
Richard B. Bundy
2015-18

James T. Hannam
2018-2021

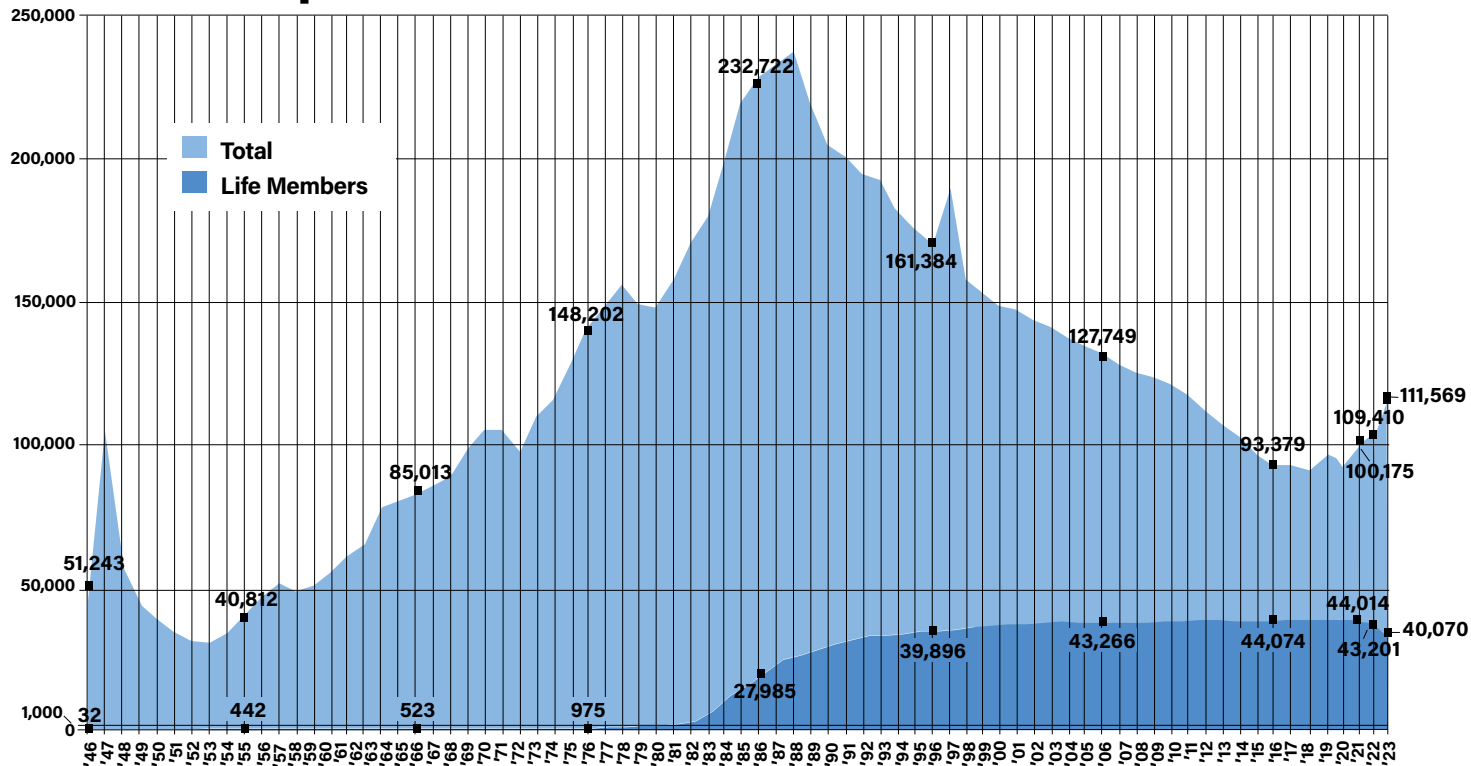
AFA Membership

As of September 2023. Total **111,569**. Numbers are rounded.

AFA Membership statistics peaked in the 1980s when health insurance was a member benefit provided by the association. After TRICARE for Life was established by Congress, membership trended downward. Over the past five years, membership totals have bounced back and are steadily regaining momentum.

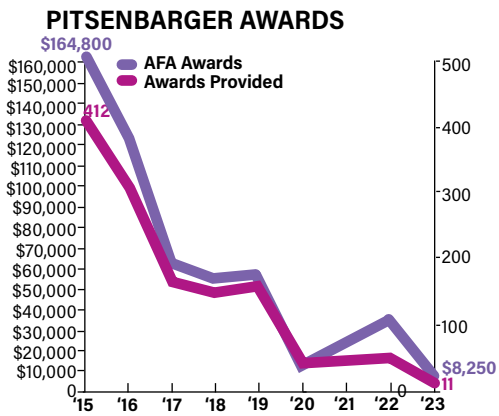
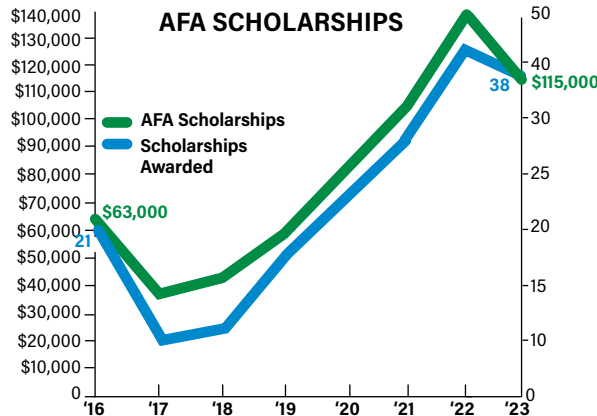


AFA Membership Over The Years



Scholarships

AFA awards **scholarships**, to aspiring college students backed by funds from generous organizations and individuals. AFA also funds **Pitsenbarger** awards for Airmen who complete their associate degree through the Community College of the Air Force (CCAF) and intend to pursue a bachelor's degree.



Note: CCAF graduations were on hiatus this spring, causing the Pitsenbarger numbers to be significantly lower than usual.

National Aerospace Awards

H.H. ARNOLD AWARD

Named for the World War II leader of the Army Air Forces, the H.H. Arnold Award has been presented annually in recognition of the most outstanding contributions in the field of aerospace activity. Since 1986, it has been AFA's highest honor to a member of the armed forces in the field of national defense.

Year	Award Recipient(s)	Year	Award Recipient(s)
1948	W. Stuart Symington, Secretary of the Air Force	1985	Gen. Bernard W. Rogers, USA, SACEUR
1949	Maj. Gen. William H. Tunner and the men of the Berlin Airlift	1986	Gen. Charles A. Gabriel, USAF (Ret.), former Air Force Chief of Staff
1950	Airmen of the United Nations in the Far East	1987	Adm. William J. Crowe Jr., USN, Chm., Joint Chiefs of Staff
1951	Gen. Curtis E. LeMay and the personnel of Strategic Air Command	1988	Men and women of the Ground-Launched Cruise Missile team
1952	Sen. Lyndon B. Johnson and Sen. Joseph C. O'Mahoney	1989	Gen. Larry D. Welch, Chief of Staff, USAF
1953	Gen. Hoyt S. Vandenberg, USAF (Ret.), former Air Force Chief of Staff	1990	Gen. John T. Chain, CINC, SAC
1954	John Foster Dulles, Secretary of State	1991	Lt. Gen. Charles A. Horner, Cmdr., CENTCOM Air Forces and 9th Air Force
1955	Gen. Nathan F. Twining, Chief of Staff, USAF	1992	Gen. Colin L. Powell, USA, Chm., Joint Chiefs of Staff
1956	Sen. W. Stuart Symington	1993	Gen. Merrill A. McPeak, Chief of Staff, USAF
1957	Edward P. Curtis, special assistant to the President	1994	Gen. John Michael Loh, Cmdr., Air Combat Command
1958	Maj. Gen. Bernard A. Schriever, Cmdr., Ballistic Missile Div., ARDC	1995	World War II Army Air Forces veterans
1959	Gen. Thomas S. Power, CINC, SAC	1996	Gen. Ronald R. Fogleman, Chief of Staff, USAF
1960	Gen. Thomas D. White, Chief of Staff, USAF	1997	Men and women of the United States Air Force
1961	Lyle S. Garlock, Assistant SECAF	1998	Gen. Richard E. Hawley, Cmdr., ACC
1962	A. C. Dickieson and John R. Pierce, Bell Telephone Laboratories	1999	Lt. Gen. Michael C. Short, Cmdr., Allied Air Forces Southern Europe
1963	The 363rd Tactical Recon. Wing and the 4080th Strategic Wing	2000	Gen. Michael E. Ryan, Chief of Staff, USAF
1964	Gen. Curtis E. LeMay, Chief of Staff, USAF	2001	Gen. Joseph W. Ralston, CINC, EUCOM
1965	The 2nd Air Division, PACAF	2002	Gen. Richard B. Myers, USAF, Chm., Joint Chiefs of Staff
1966	The 8th, 12th, 355th, 366th, and 388th Tactical Fighter Wings and the 432nd and 460th TRWs	2003	Lt. Gen. T. Michael Moseley, Cmdr., air component, CENTCOM, and 9th Air Force
1967	Gen. William W. Momyer, Cmdr., 7th Air Force, PACAF	2004	Gen. John P. Jumper, Chief of Staff, USAF
1968	Col. Frank Borman, USAF; Capt. James Lovell, USN; and Lt. Col. William Anders, USAF, Apollo 8 crew	2005	Gen. Gregory S. Martin, USAF (Ret.), former Cmdr., AFMC
1969	(No presentation)	2006	Gen. Lance W. Lord, USAF (Ret.), former Cmdr., AFSPC
1970	Apollo 11 team (J. L. Atwood; Lt. Gen. S. C. Phillips, USAF; and astronauts Neil Armstrong and USAF Cols. Buzz Aldrin and Michael Collins)	2007	Gen. Ronald E. Keys, Cmdr., ACC
1971	John S. Foster Jr., Dir. of Defense Research and Engineering	2008	Gen. Bruce Carlson, Cmdr., AFMC
1972	Air units of the allied forces in Southeast Asia (Air Force, Navy, Army, Marine Corps, and the Vietnamese Air Force)	2009	Gen. John D. W. Corley, Cmdr., ACC
1973	Gen. John D. Ryan, USAF (Ret.), former Chief of Staff	2010	Lt. Gen. David A. Deptula, USAF Deputy Chief of Staff, ISR
1974	Gen. George S. Brown, USAF, Chm., Joint Chiefs of Staff	2011	Gen. Duncan J. McNabb, Cmdr., TRANSCOM
1975	James R. Schlesinger, Secretary of Defense	2012	Gen. Norton A. Schwartz, USAF (Ret.), former Chief of Staff
1976	Sen. Barry M. Goldwater	2013	Gen. Douglas M. Fraser, USAF (Ret.), former Cmdr., SOUTHCOM
1977	Sen. Howard W. Cannon	2014	Gen. C. Robert Kehler, USAF (Ret.), former Cmdr., STRATCOM
1978	Gen. Alexander M. Haig Jr., USA, Supreme Allied Commander, Europe	2015	Gen. Janet C. Wolfenbarger, USAF (Ret.), former Cmdr., AFMC
1979	Sen. John C. Stennis	2016	Gen. Mark A. Welsh III, USAF (Ret.), former Chief of Staff
1980	Gen. Richard H. Ellis, USAF, CINC, SAC	2017	Lt. Gen. Christopher C. Bogdan, USAF (Ret.), former PEO, F-35 Prgm
1981	Gen. David C. Jones, USAF, Chm., Joint Chiefs of Staff	2018	Gen. Herbert J. Carlisle, USAF (Ret.), former Cmdr., AFMC
1982	Gen. Lew Allen Jr., USAF (Ret.), former Chief of Staff	2019	Gen. Ellen M. Pawlikowski, USAF (Ret.), former Cmdr., AFMC
1983	Ronald W. Reagan, President of the United States	2020	Gen. David L. Goldfein, USAF (Ret.), former Chief of Staff, USAF
1984	The President's Commission on Strategic Forces (Scowcroft Commission)	2021	Gen. John W. "Jay," Raymond, USSF, Chief of Space Operations
		2022	Gen. Tod D. Wolters, USAF (Ret.), former Cmdr., USEUCOM and NATO SACEUR
		2023	Gen. Glen D. VanHerck, Cmdr., NORTHCOM/NORAD



Mike T. Sukamoto/staff

Gen. Glen D. VanHerck, commander of NORTHCOM, accepts the H.H. Arnold Award from AFA Chair of the Board Bernie Skoch at AFA's Air, Space & Cyber Conference on Sept. 13.

W. STUART SYMINGTON AWARD

AFA's highest honor to a civilian in the field of national security, the award is named for the first Secretary of the Air Force.

Year	Award Recipient(s)	Year	Award Recipient(s)
1986	Caspar W. Weinberger, Secretary of Defense	2004	Peter B. Teets, Undersecretary of the Air Force
1987	Edward C. Aldridge Jr., Secretary of the Air Force	2005	Rep. Duncan Hunter (R-Calif.)
1988	George P. Schultz, Secretary of State	2007	Michael W. Wynne, SECAF
1989	Ronald W. Reagan, former President of the United States	2008	Gen. Barry R. McCaffrey, USA (Ret.)
1990	John J. Welch, Asst. SECAF (Acquisition)	2009	Sen. Orrin G. Hatch (R-Utah)
1991	George Bush, President of the United States	2010	John J. Hamre, Center for Strategic & International Studies
1992	Donald B. Rice, SECAF	2011	Rep. C. W. "Bill" Young (R-Fla.)
1993	Sen. John McCain (R-Ariz.)	2012	Gen. James L. Jones, USMC (Ret.)
1994	Rep. Ike Skelton (D-Mo.)	2013	Michael B. Donley, SECAF
1995	Sheila E. Widnall, SECAF	2014	Ashton B. Carter, former Deputy SECDEF
1996	Sen. Ted Stevens (R-Alaska)	2015	William A. LaPlante, Asst. SECAF (Acquisition)
1997	William Perry, former SECDEF	2016	Jamie M. Morin, Director, Cost Assessment & Prgm Evaluation
1998	Rep. Saxby Chambliss (R-Ga.) and Rep. Norman D. Dicks (D-Wash.)	2017	Lisa S. Disbrow, Undersecretary of the Air Force
1999	F. Whitten Peters, SECAF	2018	Deborah Lee James, former SECDEF
2000	Rep. Floyd Spence (R-S.C.)	2019	Heather Wilson, former SECDEF
2001	Sen. Michael Enzi (R-Wyo.) and Rep. Cliff Stearns (R-Fla.)	2020	Will Roper, Asst. SECDEF (AT&L)
2002	Rep. James V. Hansen (R-Utah)	2021	Barbara Barrett, former SECDEF
2003	James G. Roche, SECAF	2022	Sen. Jim Inhofe, Ranking Member, SASC

JOHN R. ALISON AWARD

AFA's highest honor for industrial leadership.

Year	Award Recipient(s)	Year	Award Recipient(s)
1992	Norman R. Augustine, Chairman, Martin Marietta	2005	Richard Branson, Chm., Virgin Atlantic Airways and Virgin Galactic
1993	Daniel M. Tellep, Chm. and CEO, Lockheed	2006	Ronald D. Sugar, Chm. and CEO, Northrop Grumman
1994	Kent Kresa, CEO, Northrop Grumman	2007	Boeing and Lockheed Martin
1995	C. Michael Armstrong, Chm. and CEO, Hughes Aircraft	2008	Bell Boeing CV-22 Team, Bell Helicopter Textron, and Boeing
1996	Harry Stonecipher, Pres. and CEO, McDonnell Douglas	2009	General Atomics Aeronautical Systems Inc.
1997	Dennis J. Picard, Chm. and CEO, Raytheon	2010	Raytheon
1998	Philip M. Condit, Chm. and CEO, Boeing	2011	United Launch Alliance
1999	Sam B. Williams, Chm. and CEO, Williams International	2012	Boeing
2000	Simon Ramo and Dean E. Wooldridge, missile pioneers	2013	X-51A WaveRider Program, Boeing, Aerojet Rocketdyne, and Air Force Research Laboratory
2001	George David, Chm. and CEO, United Technologies	2014	C-17 Globemaster III, Boeing
2002	Sydney Gillibrand, Chm., AMEC; and Jerry Morgensen, Pres. and CEO, Hensel Phelps Construction	2015	F-22 Raptor, Lockheed Martin
2003	Joint Direct Attack Munition Industry Team, Boeing	2016	SpaceX
2004	Thomas J. Cassidy Jr., Pres. and CEO, General Atomics Aeronautical Systems	2017	Northrop Grumman
		2018	Skunk Works, Lockheed Martin
		2019	Draken International
		2020	Marilyn Hewson
		2021	Tory Bruno, CEO, United Launch Alliance
		2022	Jeff Babione, COO, Sierra Space
		2023	Neal Blue, Chairman/CEO, and Linden Blue, Vice Chairman, General Atomics

AFA LIFETIME ACHIEVEMENT AWARD

The award recognizes a lifetime of work in the advancement of aerospace.

Year	Award Recipient(s)
2003	Maj. Gen. John R. Alison, USAF (Ret.); Sen. John H. Glenn Jr.; Maj. Gen. Jeanne M. Holm, USAF (Ret.); Col. Charles E. McGee, USAF (Ret.); Gen. Bernard A. Schriever, USAF (Ret.)
2004	Gen. Russell E. Dougherty, USAF (Ret.); Florene Miller Watson
2005	Sen. Daniel K. Inouye; William J. Perry; Patty Wagstaff
2007	CMSAF Paul W. Airey, USAF (Ret.)
2008	Col. George E. Day, USAF (Ret.); Gen. David C. Jones, USAF (Ret.); Harold Brown
2009	Doolittle Raiders; Tuskegee Airmen; James R. Schlesinger
2010	Col. Walter J. Boyne, USAF (Ret.); Andrew W. Marshall; Gen. Lawrence A. Skantze, USAF (Ret.); Women Airforce Service Pilots
2011	Natalie W. Crawford; Lt. Gen. Thomas P. Stafford, USAF (Ret.); Gen. Larry D. Welch, USAF (Ret.); Heavy Bombardment Crews of WWII; Commando Sabre Operation-Call Sign Misty
2012	Gen. James P. McCarthy, USAF (Ret.); Vietnam War POWs; Berlin Airlift Aircrews; Korean War Airmen; Fighter Pilots of World War II
2013	Maj. Gen. Joe H. Engle, USAF (Ret.); US Rep. Sam Johnson; The Arlington Committee of the Air Force Officers' Wives' Club—"The Arlington Ladies"
2014	Brig. Gen. James A. McDivitt, USAF (Ret.); Civil Air Patrol—World War II veterans; American Fighter Aces
2015	R. A. "Bob" Hoover; Eugene F. "Gene" Kranz; Gen. Michael V. Hayden, USAF (Ret.)
2016	Maj. Gen. Claude M. Bolton Jr., USAF (Ret.); Lt. Col. John T. Correll, USAF (Ret.); Gen. Charles A. Horner, USAF (Ret.); Lt. Gen. James M. Keck, USAF (Ret.); Gen. Richard B. Myers, USAF (Ret.)
2017	Gen. Ronald R. Fogleman, USAF (Ret.); Col. Clarence E. "Bud" Anderson, USAF (Ret.); Elinor Otto; Lafayette Escadrille Memorial Foundation
2018	Maj. Gen. Alfred K. Flowers, USAF (Ret.); Dan Friedkin; Air Force Scientific Advisory Board; Air Force Enlisted Village; Air Force Aid Society
2019	Gen. John A. Shaud, USAF (Ret.); Gen. T. Michael Moseley, USAF (Ret.); Dr. Benjamin Lambeth
2020	Gen. Lloyd "Fig" Newton, USAF (Ret.); Gen. John M. Loh, USAF (Ret.); Maj. Gen. Michael Collins, USAF (Ret.)
2021	CMSAF James M. McCoy, USAF (Ret.)
2022	Gen. Lance W. Lord, USAF (Ret.); Brig. Gen. Wilma Vaught, USAF (Ret.)
2023	Dr. Paul Kaminski, Chairman/CEO Technovation, Inc.; Pioneers of the Red Flag, presented to Lt. Gen. Glen "Wally" Moorehead, USAF (Ret.)

AFA CHAIR'S AEROSPACE EDUCATION ACHIEVEMENT AWARD

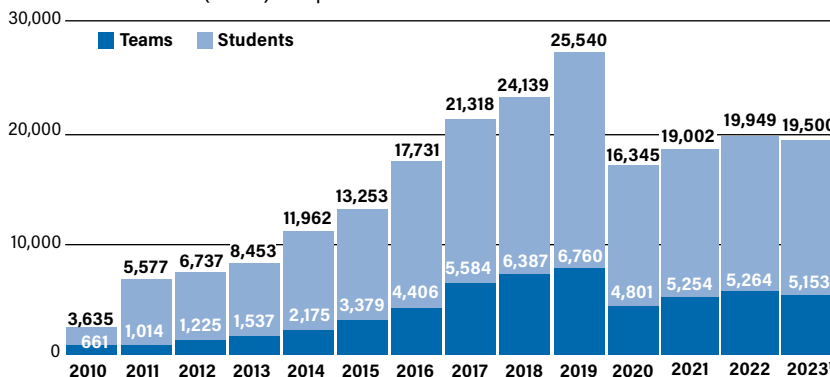
For long-term commitment to aerospace education, making a significant impact nationwide.

Year	Award Recipient(s)	Year	Award Recipient(s)
2009	ExxonMobil Foundation	2016	Harry Talbot
2010	USA Today	2017	Analytical Graphics, Inc.
2011	The National Science Foundation	2018	Project Lead the Way
2012	The Military Channel	2019	Air Force Junior Reserve Officer Training Corps.
2013	The Civil Air Patrol Aerospace Education Program	2020	Bernard K. "Bernie" Skoch
2014	Department of Defense STARBASE Program	2021	The Mitchell Institute for Aerospace Studies
2015	Northrop Grumman	2022	Arnold Air Society and Silver Wings
		2023	Rolls-Royce

STEM Programs

AFA'S CYBERPATRIOT PROGRAM

CyberPatriot is the National Youth Cyber Education Program created by AFA to inspire K-12 students toward careers in cybersecurity or other science, technology, engineering, and mathematics (STEM) disciplines.



¹Estimated—our competitor registration deadline is early November.

AFA Field Awards

AFA MEMBER OF THE YEAR AWARD

State names refer to recipient's home state at the time of the award.

Year	Award Recipient(s)	Year	Award Recipient(s)
1953	Julian B. Rosenthal (N.Y.)	1986	John P. E. Kruse (N.J.)
1954	George A. Anderl (Ill.)	1987	Jack K. Westbrook (Tenn.)
1955	Arthur C. Storz (Neb.)	1988	Charles G. Durazo (Va.)
1956	Thos. F. Stack (Calif.)	1989	Oliver R. Crawford (Texas)
1957	George D. Hardy (Md.)	1990	Cecil H. Hopper (Ohio)
1958	Jack B. Gross (Pa.)	1991	George M. Douglas (Colo.)
1959	Carl J. Long (Pa.)	1992	Jack C. Price (Utah)
1960	O. Donald Olson (Colo.)	1993	Lt. Col. James G. Clark (D.C.)
1961	Robert P. Stewart (Utah)	1994	William A. Lafferty (Ariz.)
1962	(No presentation)	1995	William N. Webb (Okla.)
1963	N. W. DeBerardinis (La.) and Joe L. Shosid (Texas)	1996	Tommy G. Harrison (Fla.)
1964	Maxwell A. Kriendler (N.Y.)	1997	James M. McCoy (Neb.)
1965	Milton Caniff (N.Y.)	1998	Ivan L. McKinney (La.)
1966	William W. Spruance (Del.)	1999	Jack H. Steed (Ga.)
1967	Sam E. Keith Jr. (Texas)	2000	Mary Anne Thompson (Va.)
1968	Marjorie O. Hunt (Mich.)	2001	Charles H. Church Jr. (Kan.)
1969	(No presentation)	2002	Thomas J. Kemp (Texas)
1970	Lester C. Curl (Fla.)	2003	W. Ron Goerges (Ohio)
1971	Paul W. Gaillard (Neb.)	2004	Doyle E. Larson (Minn.)
1972	J. Raymond Bell (N.Y.) and Martin H. Harris (Fla.)	2005	Charles A. Nelson (S.D.)
1973	Joe Higgins (Calif.)	2006	Craig E. Allen (Utah)
1974	Howard T. Markey (D.C.)	2007	William D. Croom Jr. (Texas)
1975	Martin M. Ostrow (Calif.)	2008	John J. Politi (Texas)
1976	Victor R. Kregel (Texas)	2009	David R. Cummock (Fla.)
1977	Edward A. Stearn (Calif.)	2010	L. Boyd Anderson (Utah)
1978	William J. Demas (N.J.)	2011	Steven R. Lundgren (Alaska)
1979	Alexander C. Field Jr. (Ill.)	2012	S. Sanford Schlitt (Fla.)
1980	David C. Noerr (Calif.)	2013	Tim Brock (Fla.)
1981	Daniel F. Callahan (Fla.)	2014	James W. Simons (N.D.)
1982	Thomas W. Anthony (Md.)	2015	James R. Lauducci (Va.)
1983	Richard H. Becker (Ill.)	2016	David T. Buckwalter (Texas)
1984	Earl D. Clark Jr. (Kan.)	2017	James T. Hannam (Va.)
1985	George H. Chabbot (Del.) and Hugh L. Enyart (Ill.)	2018	Russell V. Lewey (Ala.)
1985	George H. Chabbot (Del.) and Hugh L. Enyart (Ill.)	2019	Susan Broderick Mallett (Ala.)
		2020	Mark Tarpley (Okla.)
		2021	Gabrielle "Gabbe" Kearney (Alaska)
		2022	Linda McMahon (Va.)
		2023	Roberta "Bobi" Oates (Nev.)

CyberPatriot Awards

CyberPatriot Mentor of the Year

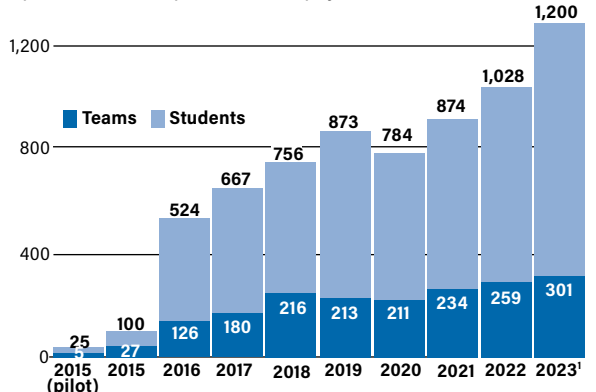
George Hughey
Liberty High School
(Renton, Wash.)

CyberPatriot Coach of the Year

David Kim
Troy High School
(Fullerton, Calif.)

AFA'S STELLARXPLORERS PROGRAM

StellarXplorers is a challenging, space system design competition involving all aspects of system development and operation with a spacecraft and payload focus.



GOLD LIFE MEMBER CARD

Awarded to members whose AFA record, production, and accomplishments on a national level have been outstanding over a period of years.

Name	Year	Card No.	Name	Year	Card No.
Gill Robb Wilson	1957	1	Edward A. Stearn	1992	13
Jimmy Doolittle	1959	2	Dorothy L. Flanagan	1994	14
Arthur C. Storz Sr.	1961	3	John O. Gray	1996	15
Julian B. Rosenthal	1962	4	Jack C. Price	1997	16
Jack B. Gross	1964	5	Nathan H. Mazer	2002	17
George D. Hardy	1965	6	John R. Alison	2004	18
Jess Larson	1967	7	Donald J. Harlin	2009	19
Robert W. Smart	1968	8	James M. McCoy	2013	20
Martin M. Ostrow	1973	9	George M. Douglas	2014	21
James H. Straubel	1980	10	John A. Shaud	2016	22
Martin H. Harris	1988	11	Mary Anne Thompson	2018	23
Sam E. Keith Jr.	1990	12	Bill Croom	2023	24

DONALD W. STEELE SR. MEMORIAL AWARD

Air & Space Forces Association Unit of the Year.

Year	Award Recipient(s)	Year	Award Recipient(s)
1953	San Francisco Chapter	1987	Carl Vinson Memorial Chapter (Ga.)
1954	Santa Monica Area Chapter (Calif.)	1988	Gen. David C. Jones Chapter (N.D.)
1955	San Fernando Valley Chapter (Calif.)	1989	Thomas B. McGuire Jr. Chapter (N.J.)
1956	Utah State AFA	1990	Gen. E. W. Rawlings Chapter (Minn.)
1957	H. H. Arnold Chapter (N.Y.)	1991	Paul Revere Chapter (Mass.)
1958	San Diego Chapter	1992	Central Florida Chapter and Langley Chapter (Va.)
1959	Cleveland Chapter	1993	Green Valley Chapter (Ariz.)
1960	San Diego Chapter	1994	Langley Chapter (Va.)
1961	Chico Chapter (Calif.)	1995	Baton Rouge Chapter (La.)
1962	Fort Worth Chapter (Texas)	1996	Montgomery Chapter (Ala.)
1963	Colin P. Kelly Chapter (N.Y.)	1997	Central Florida Chapter
1964	Utah State AFA	1998	Ark-La-Tex Chapter (La.)
1965	Idaho State AFA	1999	Hurlburt Chapter (Fla.)
1966	New York State AFA	2000	Wright Memorial Chapter (Ohio)
1967	Utah State AFA	2001	Lance P. Sijan Chapter (Colo.)
1968	Utah State AFA	2002	Eglin Chapter (Fla.)
1969	(No presentation)	2003	Hurlburt Chapter (Fla.)
1970	Georgia State AFA	2004	Carl Vinson Memorial Chapter (Ga.)
1971	Middle Georgia Chapter	2005	Central Florida Chapter
1972	Utah State AFA	2006	Enid Chapter (Okla.)
1973	Langley Chapter (Va.)	2007	Central Oklahoma (Gerrity) Chapter
1974	Texas State AFA	2008	Lance P. Sijan Chapter (Colo.)
1975	Alamo Chapter (Texas) and San Bernardino Area Chapter (Calif.)	2009	Paul Revere Chapter (Mass.)
1976	Scott Memorial Chapter (Ill.)	2010	C. Farinha Gold Rush Chapter (Calif.)
1977	Thomas B. McGuire Jr. Chapter (N.J.)	2011	Lance P. Sijan Chapter (Colo.)
1978	Thomas B. McGuire Jr. Chapter (N.J.)	2012	Hurlburt Chapter (Fla.)
1979	Brig. Gen. Robert F. Travis Chapter (Calif.)	2013	Paul Revere Chapter (Mass.)
1980	Central Oklahoma (Gerrity) Chapter	2014	D. W. Steele Sr. Memorial Chapter (Va.)
1981	Alamo Chapter (Texas)	2015	Lance P. Sijan Chapter (Colo.)
1982	Chicagoland-O'Hare Chapter (Ill.)	2016	Paul Revere Chapter (Mass.)
1983	Charles A. Lindbergh Chapter (Conn.)	2017	Enid Chapter (Okla.)
1984	Scott Memorial Chapter (Ill.) and Colorado Springs/Lance Sijan P. Chapter (Colo.)	2018	Langley Chapter (Va.)
1985	Cape Canaveral Chapter (Fla.)	2019	Wright Memorial Chapter (Ohio)
1986	Charles A. Lindbergh Chapter (Conn.)	2020	Mile High Chapter (Colo.)
		2021	Paul Revere Chapter (Mass.)
		2022	Mel Harmon Chapter (Colo.)
		2023	Gen. Bernard A. Schriever Chapter (Calif.)

Aerospace Education Excellence Award

Presented for excellence in aerospace education programming. To qualify, a chapter must have received the Aerospace Education Achievement Award this year.

Small Chapter

Mel Harmon Chapter, Colo.
President Michael Sumida

Large Chapter

Swamp Fox Chapter, S.C.
President David Hanson

Extra Large Chapter

Hurlburt Chapter, Fla.
President James Connors

Aerospace Education Achievement Award

Presented to chapters for outstanding achievement in aerospace education programming.

Albuquerque Chapter, N.M.

President Fred Harsany

Mel Harmon Chapter, Colo.

President Michael Sumida

Ak-Sar-Ben Chapter, Neb.

President Chris Canada

Mile High Chapter, Colo.

President Cliff Klein

Cochise Chapter, Ariz.

President George Castle

Paul Revere Chapter, Mass.

President David DeNofrio

Donald W. Steele, Sr. Memorial Chapter, Va.

President Linda McMahon

Savannah Chapter, Ga.

President Laurie Orth

Gen. Charles A. Gabriel Chapter, Va.

President Michael Sinisi

Seidel Chapter, Texas

President John Campbell

Gen. David C. Jones Chapter, N.D.

President John Conner

Space Coast Chapter, Fla.

President Dwyer Dennis

Gen. Robert E. Huyser Chapter, Colo.

President Michael Peterson

Swamp Fox Chapter, S.C.

President David Hanson

Lincoln Chapter, Neb.

President Kenneth Brownell

Tucson Chapter, Ariz.

President Walter Saeger

Buck Buckwalter Distinguished Sustained Aerospace Education Award

Presented to an individual AFA member whose record overwhelmingly demonstrates distinguished sustained service in any support of the educational mission of the Air & Space Forces Association over a period of years.

Jim Hannam began his AFA career in 1997 serving at the local level as chapter president, state secretary, and region president. In these roles, he was deeply immersed in education programs. In 2008, he joined the AFA Aerospace Education Council as Vice Chair, until he was elected Vice Chair of the Board, Aerospace Education in 2018. He currently sits on AFA's Board of Directors as Director Emeritus.



Mike Tsukamoto/staff

Air & Space Forces Association Chair of the Board Bernie Skoch, with winner of the Distinguished Sustained Aerospace Education Award Jim Hannam, and Vice Chair of the Board for Education Stephen Gourley.

AFA's 2023 Teacher of the Year Award

AFA named **Bill McInnish** the 2023 the AFA Teacher of the Year sponsored by Rolls-Royce North America Defense. The annual award recognizes exceptional teachers who inspire their students through innovative approaches to science, technology, engineering, and math (STEM) education.



Mike Tsukamoto

Bill McInnish, 2023 Teacher of the Year, shows off the prototype of a wheel designed by his students that will equip NASA's Moon Mining Machine in 2025.

Outstanding Chapters by Size

Small Chapter

Mel Harmon Chapter, Colo.
President Michael Sumida

Medium Chapter

Florida West Chapter, Fla.
President Scott Gray

Large Chapter

Gen. Bruce Holloway Chapter, Tenn.
President Dick Webber

Extra Large Chapter

Central Oklahoma Gerrity Chapter, Okla.
President Jeffrey James

Chair, AFA Board of Directors Citation Award

Awarded to those individual AFA members whose distinguished contribution to AFA in a specific field has improved and elevated the effectiveness of the Association in a national sense.

Christina English (posthumous) **Mike Liquori** **Jeff Putnam**
Kathleen Ferguson **Dan Murphy** **Ken Spencer**

Arthur C. Storz Sr. Membership Award

Presented to that AFA chapter which produces the highest number of new members during the 12-month period ending June 20, 2023, as a percentage of total chapter membership as of June 30, 2022.

Langley Chapter, Va.

President Michael Thompson

Unit Exceptional Service Awards (ESA)

ESA United Forces & Families

Mile High Chapter, Colo.
President Cliff Klein

ESA Best Single Program

Florida West Chapter, Fla.
President Scott Gray

ESA Communications

Gen. Bruce Holloway Chapter, Tenn.
President Dick Webber

ESA Community Partners-Small Chapter

Fairbanks Midnight Sun Chapter, Alaska
President Jake Loud

ESA Community Partners-Medium Chapter

Northeast Texas Chapter, Texas
President Bruce Goren

ESA Community Partners-Large Chapter

Tennessee Valley Chapter, Ala.
President John Pennell

ESA Community Partners-

Extra-Large Chapter
Hurlburt Chapter, Fla.

President James Connors

ESA Community Partners-Over 1,100

Gen. Charles A. Gabriel Chapter, Va.
President Michael Sinisi

ESA Community Relations

Hurlburt Chapter, Fla.

President James Connors

ESA Overall Programming

Paul Revere Chapter, Mass.

President David DeNofrio

ESA Veterans Affairs

Paul Revere Chapter, Mass.

President David DeNofrio

ESA AAS/SW Integration

Gen. Bruce Holloway Chapter, Tenn.
President Dick Webber

Individual Awards by Region

Presented for outstanding service.

Medal of Merit

Awarded for exceptional services in local, regional, or national fields and shall denote great initiative on the part of the recipient for specific achievements.

Exceptional Service Award

Presented to those individual AFA members who have performed exceptional services for AFA in local, regional, or national fields.

Central East

Medal of Merit

Gina Giles
James McGuire
Bill Oldham

Florida

Medal of Merit

Dwyer Dennis
Scott Gray
Joe Kinego

Exceptional Service Award

Michael Bohn
Ricardo Soria

Great Lakes

Medal of Merit

Mark Brugh
Tony Cox
Jeff Decker
Chick Duncan
Anna Schulte

Midwest

Medal of Merit

Kathleen O'Shea
Steven Stuer

New England

Medal of Merit

Victoria Martone
Michaela Strobel

North Central

Medal of Merit

Joyce Goodvin
Tom Theis
Tim Uecker

Exceptional Service Award

George Masters

Northeast

Medal of Merit

Ken Beaman
Steve Latus
Robert Rutledge
Edgar Shallenberger
Arthur Snyder

Exceptional Service Award

Joseph Abegg

Northwest

Medal of Merit

Kathy Mayo
Greg Miller

Rocky Mountain

Exceptional Service Award

Michael Sumida

South Central

Medal of Merit

Josh Choate
Courtney Dayton
Dave Garner
Smity Harris
Derek Kern
Ann Reichenbach
Kristine Richardson
Rene Weiderspahn

Southeast

Medal of Merit

Laurie Orth

Exceptional Service Award

Nick Lacey
Mike Trotter

Southwest

Medal of Merit

Bryan Foulk

Exceptional Service Award

Ed Logan

Texoma

Medal of Merit

Geoff Clark
Vance Clark
Sandra Lynn Shelton

Exceptional Service Award

Lori Earl

Overseas

Medal of Merit

Jennifer Cunningham
Mazalenna Rhodes-Holmstrom

Jack Gross Award

Presented to the chapter in each size category with the highest number of new members as a percentage of chapter size at the beginning of the membership year. A minimum of 10 is required.

Small Chapter

MiG Alley Chapter, South Korea
President Trenton Schreyer

Large Chapter

Ramstein Chapter, Germany
President Brett Sydnor

Extra Large Chapter

Mount Clemens Chapter, Mich.
President Doug Slocum

Chapter Size Larger Than 1,100

Langley Chapter, Va.
President Michael Thompson

Community Partner Awards

GOLD AWARD

Presented to chapters whose Community Partners represent at least 6 percent of overall chapter membership, with a minimum number of Community Partners. The minimum number is determined by chapter size.

Cheyenne Cowboy Chapter, Wyo.	Mel Harmon Chapter, Colo.
Fairbanks Midnight Sun Chapter, Alaska	Meridian Chapter, Miss.
Lincoln Chapter, Neb.	Northeast Texas Chapter, Texas
	Ute-Rocky Mountain Chapter, Utah

ACHIEVEMENT AWARD

Presented in the field to chapters whose Community Partners represent at least 3 percent of overall chapter membership, with a minimum number of Community Partners. The minimum number is determined by chapter size.

David D. Terry Chapter, Ariz.	Hurlburt Chapter, Fla.
Gen. David C. Jones Chapter, N.D.	Swamp Fox Chapter, S.C.
Golden Triangle Chapter, Miss.	Tennessee Valley Chapter, Ala.
Green Mountain Chapter, Vt.	

Special Recognition Awards

STATE GROWTH

This state has realized a growth in total membership from June 2022 to June 2023:

Alaska	Georgia	Montana	Pennsylvania
Alabama	Hawaii	Nevada	South Carolina
Arizona	Iowa	New Jersey	Tennessee
Arkansas	Idaho	New Mexico	Texas
Colorado	Louisiana	New York	Utah
Delaware	Maryland	North Carolina	Virginia
District of Columbia	Michigan	North Dakota	Washington
Florida	Mississippi	Oklahoma	Wyoming
	Missouri	Oregon	

REGION GROWTH

This region has realized a growth in total membership from June 2022 to June 2023:

European Region	New England Region	Rocky Mountain Region
Central East Region	North Central Region	South Central Region
Far West Region	Northeast Region	Southeast Region
Florida Region	Northwest Region	Southwest Region
Midwest Region	Pacific Region	Texoma Region

CHAPTER GROWTH

These chapters have realized a growth in total membership from June 2022 to June 2023:

Abilene Chapter, Texas	Edward J. Monaghan Chapter, Alaska	Keystone Chapter, Japan	Snake River Valley Chapter, Idaho
Alamo Chapter, Texas	Eglin Chapter, Fla.	Lake Superior Northland Chapter, Mich.	South Alabama Chapter, Ala.
Albany-Hudson Valley Chapter, N.Y.	Enid Chapter, Okla.	Lance P Sijan Chapter, Colo.	South Georgia Chapter, Ga.
Albuquerque Chapter, N.M.	Everett R. Cook, Tenn.	Langley Chapter, Va.	Space Coast Chapter, Fla.
Altus Chapter, Okla.	Fairbanks Midnight Sun Chapter, Alaska	L.D. Bell Niagara Frontier Chapter, N.Y.	Spangdahlem Chapter, Germany
Ark-La-Tex Chapter, La.	Falcon Chapter, Fla.	Llano Estacado Chapter, N.M.	Stan Hryn Monterey Bay Chapter, Calif.
Austin Chapter, Texas	Florida West Coast Chapter, Fla.	Lloyd R. Leavitt Jr. Chapter, Mich.	Steel Valley Chapter, Ohio
BG Bill Spruance Chapter, Del.	Fort Meade Chapter, Md.	Long Island Chapter, N.Y.	Swamp Fox Chapter, S.C.
BG Frederick W. Castle Chapter, N.J.	Frank Luke Chapter, Ariz.	Lt. Col. B.D. Buzz Wagner Chapter, Pa.	Tennessee Ernie Ford Chapter, Tenn.
BG Harrison R. Thyng Chapter, N.H.	Gen. James R. McCarthy Chapter, Fla.	Lt. Erwin R. Bleckley Chapter, Kan.	Tennessee Valley Chapter, Ala.
Big Sky Chapter, Mont.	Gen. Bernard A. Schriever LA Chapter, Calif.	Maj. Gen. Oris B. Johnson Chapter, La.	The Red Tail Memorial Chapter, Fla.
Blue Ridge Chapter, N.C.	Gen. Bruce K. Holloway Chapter, Tenn.	Martin H. Harris Chapter, Fla.	Thomas W. Anthony Chapter, Md.
Bob Newman Cape Fear Chapter, N.C.	Gen. Carl A. Spaatz Chapter, N.Y.	McChord Field Chapter, Wash.	Thunderbird Chapter, Nev.
Capt. Eddie Rickenbacker Memorial Chapter, Ohio	Gen. Charles L. Donnelly Jr. Chapter, Texas	Mel Harmon Chapter, Colo.	Tucson Chapter, Ariz.
Carl Vinson Memorial Chapter, Ga.	Gen. Charles A. Gabriel Chapter, Va.	Meridian Chapter, Miss.	Tulsa Chapter, Okla.
Central Maryland Chapter, Md.	Gen. David C. Jones Chapter, N.D.	Miami-Homestead Chapter, Fla.	Tyndall Chapter, Fla.
Central Oklahoma Gerrity Chapter, Okla.	Gen. Doolittle LA Area Chapter, Calif.	MiG Alley Chapter, Korea	United Kingdom Chapter, Europe
Charlemagne Chapter, Germany	Gen. H. H. Arnold Memorial Chapter, Tenn.	Mile High Chapter, Colo.	Ute-Rocky Mountain Chapter, Utah
Charleston Chapter, S.C.	Gen. Robert F. Travis Chapter, Calif.	Montgomery Chapter, Ala.	Waterman-Twining Chapter, Fla.
Cheyenne Cowboy Chapter, W.Y.	Gen. Russell E. Dougherty Chapter, Ky.	Mount Clemens Chapter, Mich.	White Sands Chapter, N.M.
Col. Bud West Chapter, Fla.	Gold Coast Chapter, Fla.	Nations Capital Chapter, D.C.	Whiteman Chapter, Mo.
Columbia Gorge Chapter, Ore.	Golden Gate Chapter, Calif.	Northern Utah Chapter, Utah	William J. 'Pete' Knight Chapter, Calif.
Columbia Palmetto Chapter, S.C.	Golden Triangle Chapter, Miss.	Ramstein Chapter, Germany	Wright Memorial Chapter, Ohio
Cochise Chapter, Ariz.	Harry S. Truman Chapter, Mo.	Red River Valley Chapter, N.D.	York-Lancaster Chapter, Pa.
Concho Chapter, Texas	Hawaii Chapter, Hawaii	Richard I. Bong Chapter, Minn.	
David D. Terry Jr. Chapter, Ariz.	Hurlburt Chapter, Fla.	Richmond Chapter, Va.	
Del Rio Chapter, Texas	Inland Empire Chapter, Wash.	Roanoke Chapter, Va.	
Delaware Galaxy Chapter, Del.	Joe-Walker-Mon Valley Chapter, Pa.	Robert H. Goddard Chapter, Calif.	
Denton Chapter, Texas		Rushmore Chapter, S.D.	
Dobbins Chapter, Ga.		Salt Lake City Chapter, Utah	
Dolomiti Chapter, Italy		San Diego Chapter, Calif.	
Donald W. Steele Sr. Memorial Chapter, Va.		San Jacinto Chapter, Texas	
		Savannah Chapter, Ga.	
		Scott Berkeley Chapter, N.C.	
		Scott Memorial Chapter, Ill.	

AFA Chapter Members by Region, State, and Chapter

These figures indicate the number of affiliated members as of September 2023. Listed below the name of each region is the Region President.

CENTRAL EAST REGION	15,783	Michigan	1,380	Highpoint	52	Gen. H. H. Arnold Memorial	195
Linda McMahon		Battle Creek	6	Mercer County	76	Maj. Gen. Dan F. Callahan	373
Delaware	416	Lake Superior Northland	113	Sal Capriglione	178		
Brig. Gen. Bill Spruance	123	Lloyd R. Leavitt Jr.	278	Shooting Star	140		
Delaware Galaxy	293	Mount Clemens	983	Thomas B. McGuire Jr.	283		
District of Columbia	1,703	Ohio	3,492	New York	1,741	SOUTHEAST REGION	6,653
Nation's Capital	1,703	Capt. Eddie Rickenbacker Memorial*	463	Albany-Hudson Valley*	257	Mike Trotter	
Maryland	3,237	Frank P. Lahm	317	Finger Lakes	269	Georgia	2,808
Central Maryland	560	Gen. Joseph W. Ralston	343	Gen. Carl A. Spaatz	116	Carl Vinson Memorial	910
Fort Meade	1,140	North Coast*	168	Genesee Valley	161	Dobbins	1,271
Thomas W. Anthony	1,537	Steel Valley	120	Iron Gate	192	Savannah	407
Virginia	10,221	Wright Memorial*	2,081	L. D. Bell-Niagara Frontier	252	South Georgia	220
Donald W. Steele Sr. Memorial	5,261	MIDWEST REGION	5,209	Long Island	393	North Carolina	2,114
Gen. Charles A. Gabriel	2,308	Fred Niblock		Pride of the Adirondacks	101	Blue Ridge	345
Langley	1,746	Illinois	1,902	Pennsylvania	1,866	Bob Newman Cape Fear	209
Richmond	610	Chicagoland-O'Hare	744	Altoona	117	Kitty Hawk	44
Roanoke	296	Scott Memorial	1,158	Joe Walker-Mon Valley	159	Pope	558
West Virginia	206	Iowa	400	Lehigh Valley	130	Scott Berkeley	310
Chuck Yeager	206	Fort Dodge	26	Liberty Bell	446	Tarheel	648
FAR WEST REGION	7,331	Gen. Charles A. Horner	158	Lt. Col. B. D. "Buzz" Wagner	84	South Carolina	1,731
Wayne Kauffman		Northeast Iowa	177	Mifflin County*	81	Charleston	553
California	6,547	Richard D. Kisling	39	Olmsted	216	Columbia Palmetto	368
Bob Hope	401	Kansas	500	Pocono Northeast	144	Strom Thurmond	359
Brig. Gen. Robert Cardenas San Diego	714	Lt. Erwin R. Bleckley	337	Total Force	288	Swamp Fox	451
Brig. Gen. Robert F. Travis	459	Maj. Gen. Edward R. Fry	163	York-Lancaster	201		
C. Farinha Gold Rush	706	Missouri	1,339	NORTHWEST REGION	3,875	SOUTHWEST REGION	6,072
David J. Price/Beale	238	Harry S. Truman	452	Bill Striegel		Alan Berg	
Fresno*	346	Spirit of St. Louis	483	Alaska	580	Arizona	3,020
Gen. B. A. Schriever Los Angeles	670	Whiteman	404	Edward J. Monaghan	428	Cochise	99
General Doolittle Los Angeles Area*	677	Nebraska	1,068	Fairbanks Midnight Sun	152	Frank Luke	1,590
Golden Gate*	367	Ak-Sar-Ben	870	Idaho	425	Prescott/Goldwater	310
High Desert	87	Lincoln	198	Snake River Valley	425	Tucson	1,021
Orange County/Gen. Curtis E. LeMay	441	NEW ENGLAND REGION	2,664	Oregon	682	Nevada	1,627
Palm Springs	283	David DeNofrio		Bill Harris	171	Thunderbird	1,627
Robert H. Goddard	368	Connecticut	453	Columbia Gorge*	511	New Mexico	1,425
Stan Hryn Monterey Bay	125	Flying Yankees/Gen. George C. Kenney	271	Washington	2,188	Albuquerque	942
Tennessee Ernie Ford	343	Lindbergh/Sikorsky	182	Greater Seattle	635	Llano Estacado	177
William J. "Pete" Knight	322	Massachusetts	1,301	Inland Empire	601	White Sands	306
Hawaii	784	Minuteman	199	McChord Field	952		
Hawaii*	784	Otis	218	ROCKY MOUNTAIN REGION	5,775	TEXOMA REGION	11,549
FLORIDA REGION	8,050	Paul Revere	663	Fran Bradshaw		Dan Ohnesorge	
Dwyer Dennis		Pioneer Valley	221	Colorado	4,277	Oklahoma	1,924
Florida	8,050	New Hampshire	558	Gen. Robert E. Huyser	105	Altus	210
Gen. James R. McCarthy	7	Brig. Gen. Harrison R. Thyng	558	Lance P. Sijan	2,274	Central Oklahoma (Gerrity)	1,229
Col. H. M. "Bud" West	167	Rhode Island	178	Mel Harmon	121	Enid	186
Eglin	1,202	Metro Rhode Island	137	Mile High	1,777	Tulsa	299
Falcon	503	Newport Blue & Gold	41	Utah	1,136	Texas	9,625
Florida Highlands	11	Vermont	174	Northern Utah	408	Abilene	351
Florida West Coast	499	Green Mountain	174	Salt Lake City	388	Aggieland	181
Gold Coast	517	NORTH CENTRAL REGION	2,639	Ute-Rocky Mountain	340	Alamo	3,845
Hurlburt	914	Dan Murphy		Wyoming	362	Austin	963
Martin H. Harris	952	Minnesota	769	Cheyenne Cowboy	362	Concho	287
Miami-Homestead	323	Gen. E. W. Rawlings	639	SOUTH CENTRAL REGION	6,142	Del Rio	136
Red Tail Memorial	409	Richard I. Bong	130	Len Vernamonti		Denton	398
Space Coast	1,080	Montana	337	Alabama	2,131	Fort Worth	1,206
Tyndall	355	Big Sky	272	Birmingham	264	Gen. Charles L. Donnelly Jr.	258
Waterman-Twining	1,111	Bozeman	65	Montgomery	1,121	Northeast Texas	401
GREAT LAKES REGION	6,454	North Dakota	433	South Alabama	170	San Jacinto	834
Craig Spanburg		Gen. David C. Jones	234	Tennessee Valley	576	Seidel	765
Indiana	1,007	Happy Hooligan	65	Arkansas	760	OVERSEAS CHAPTERS	1,246
Central Indiana	356	Red River Valley	134	David D. Terry Jr.	470	US Air Forces in Europe	819
Fort Wayne	108	South Dakota	413	Lewis E. Lyle	290	Charlemagne: Geilenkirchen, Germany	25
Grissom Memorial	172	Dacotah	183	Louisiana	938	Dolomiti: Aviano AB, Italy	191
Lawrence D. Bell Museum	176	Rushmore	230	Maj. Gen. Oris B. Johnson	380	Ramstein: Ramstein AB, Germany	372
P-47 Memorial Chapter	97	Wisconsin	687	Mississippi	872	Spangdahlem: Spangdahlem AB, Germany 103	
Southern Indiana	98	Billy Mitchell	687	Golden Triangle	311	United Kingdom: RAF Lakenheath, U.K.	128
Kentucky	575	NORTHEAST REGION	4,648	Meridian	163	Pacific Air Forces	427
Gen. Russell E. Dougherty	353	Patrick Kon		Mississippi Gulf Coast	398	Keystone: Kadena AB, Japan	153
Lexington	222	New Jersey	1,041	Tennessee	1,441	MI-G Alley: Osan AB, South Korea	206
		Brig. Gen. Frederick W. Castle	199	Everett R. Cook	273	Tokyo: Tokyo	68
		Hangar One	113	Gen. Bruce K. Holloway	600		

*These chapters were chartered before Dec. 31, 1948, and are considered original charter chapters. Ohio's North Coast Chapter was formerly the Cleveland Chapter; Oregon's Columbia Gorge Chapter was formerly the Portland Chapter.

Family Issues Take Center Stage

On the “Families in the Fight! Senior Leadership Perspective Panel,” then-CSAF Gen. Charles Brown Jr., and Sharene Brown talked about family and responsibilities at ASC23, showing that they are regular people trying to navigate what’s best for their families just like everyone else.



Mike Tsukamoto/staff

Nearly 1,000 military spouses attended AFA’s 2023 Air, Space & Cyber Conference in National Harbor, Md.—at no extra cost. AFA’s United Forces & Families (F2) program enabled spouses to attend for free and supported sessions focused on spouse issues, including a leadership panel on the main stage in which Gen. Charles Q. Brown Jr. and his wife, Sharene Brown, took part just weeks before the former Air Force Chief became Chairman of the Joint Chiefs of Staff. Also on the panel: Chief of Space Operations Gen. B. Chance Saltzman and his wife, Jennifer Saltzman; Chief Master Sergeant of the Air Force JoAnne Bass and her husband, Rahn Bass; and then-Chief Master Sergeant of the Space Force Roger Towberman and his wife, Rachel Rush, just days before Towberman retired.

Military family life is always a challenge. “We’re just regular people,” General Brown said. “Our families either embraced this lifestyle through marriage or were born into it. We chose this path, but they had no say in it. So, let’s show them appreciation and say, ‘Thank you.’”

Sharene Brown, long a vocal supporter of military families through her Five & Thrive initiative, said there is no magic to getting through the twists and turns in military life.

“We just have to deal with it in the moment and take it a step at a time,” she said.

In another session, Lt. Col. Angelina Stephens opened up about her experience with severe postpartum depression, traumatic child births, anxiety, and suicidal ideation while in uniform—issues that are often hidden, but need to be brought into the open because they’re so poorly understood. Topics that she said need to be openly discussed, no matter how uncomfortable they might be, in order for the Department of the Air Force to begin taking care of its people and their families the right way.

“Caring in this context really means caring for people or finding a way to care for people, no matter the circumstance—whether they are working in a vault or they’re PRP, if they’re Guard, Reserve, or spouses and family members, or civilians and/or contractors,” said Stephens, who serves as the chief of integration for the SECAF-CSAF Strategic Execution Group, the co-lead of the Department of the Air Force’s “Fortify the Force” initiative team, and the lead of the CSAF’s “Barriers to Mental Health, Wellness, and Resilience” cross-functional team. “We all came here to serve, and I think we found that, in some cases, it just takes the right care and the right connection to fill that gap and grow someone, allow them to grow and to serve

to their full potential.”

Stephens was the moderator for the panel called “Caring for Airmen and Guardians Wherever They Are,” which featured Lt. Gen. Robert Miller, the Surgeon General for the U.S. Air Force and Space Force; Lt. Gen. Tom Miller, Deputy Chief of Staff for Logistics, Engineering, and Force Protection; and Maj. Gen. Chaplain Randall E. Kitchens, Chief of Chaplains for the Department of the Air Force. Together, the panelists represented what Robert Miller called “the perfect triumvirate” of care.


“It’s not all about the medics, although we play a part and there’s medical healing,” he said. “At times you need chaplains, spiritual healing. And at times you need a strong commander, fellow Airmen, Guardians, others that need to be there and provide that care when needed.”

Each of the four family-centric panels connected quality-of-life issues directly to force readiness. During a panel titled “Creative Community Solutions,” Alex Wagner, Assistant Secretary of the Air Force for Manpower and Reserve Affairs, and Dr. Ravi Chaudhary, Assistant Secretary of the Air Force for Energy, Installations and Environment, said their recent work on building and staffing child development centers is not a nice-to-have amenity, but an essential component to building the world’s most dominant Air and Space Forces.

“Everything that I’m doing is focused on lethality,” Wagner said—even child care.

“When Airmen and Guardians are focused on their work—[when] they have confidence that their kids are in the right school, that their spouses are taken care of—they’re not worried about economic security. When they are having challenges, they have access to the right resources—with low barriers to entry.”

The F2 Task Force is dedicated to helping Air Force and Space Force spouses to make the connections they need and to find the resources they need to successfully navigate any challenge. Launched in 2022, it expanded its reach at this year’s conference, presenting its own booth as a “rallying point” for spouses, drawing them to meet others like themselves and to learn more about AFA’s programs.

To further those connections, F2 also hosted its first-ever “Mil-spouse Mixer,” at which Jennifer Saltzman was a guest of honor. F2 has much more in store in the year ahead. To learn more, visit AFA.org/F2. 

Mason M. Patrick

The unusual assignment as head of military aviation.

Patrick was the first real head of American military aviation. He was an engineer for most of his career, and had a reputation as a solid administrator and organizer. He also had a strong personality and kept a firm grip on his subordinates and his unit. It was therefore not too surprising when Gen. John J. Pershing, commander of the American Expeditionary Force in France, tapped him for an unusual assignment in May 1918.

The U.S. Army had bought its first airplane in 1909, but less than a decade later the air arm had burgeoned into a large and complex combat organization in France. The Air Service was young, and more to the point, so were its leaders. The two most capable and forceful of these young aviators were Billy Mitchell and Benjamin Foulois. Thrown together in France, the two could not get along. Pershing told Patrick that those in charge in the air arm were “running around in circles.” He wanted Patrick to make them go straight.

Patrick took over and quickly imposed order. He put the more dynamic and charismatic Mitchell in charge of operations, and the orderly and conscientious Foulois in charge of logistics and training. It worked. When the war ended, Patrick reverted to his permanent rank of colonel and returned to being an engineer. He planned to retire.

Not so fast. Mitchell had returned to Washington as the Deputy Chief of the Air Service. He had not become any more tactful. His boss was Maj. Gen. Charles Menoher, an infantryman. Like many, Menoher had difficulty controlling Mitchell, so Pershing, now Chief of Staff, recalled Patrick from the Corps of Engineers, gave him back his two stars, and put him in charge of the Air Service. Once again, Patrick’s measured but strong personality proved successful. In his memoirs, Patrick tells how Mitchell came to him on his first day of office and proposed a reorganization of the Air Service, one that would essentially put him in charge of everything with the Chief left as nothing but a figurehead. Patrick said flatly that his plan was unacceptable. Mitchell threatened to resign. Patrick took him down the hall to speak to the deputy chief of staff so he could personally turn in his papers. Mitchell backed down.

The two worked together reasonably harmoniously for the next four years. Patrick recognized his subordinate’s many impressive qualities—his creativity, initiative and leadership ability, but he also realized that his infant terrible needed a strong guiding hand. It was only after Mitchell left Patrick’s control that he blundered into trouble he could not handle.

Although coming to aviation late in life—he learned to fly at age 59—Patrick soon recognized the potential of the air weapon. In this sense, Mitchell rubbed off on him, but of course, Patrick was far more astute and tactful. Quietly, and without fanfare, he pushed the cause of airpower behind the scenes. Although postwar financial strictures made it difficult to expand the size and capabilities of the air arm—a problem shared by the other military branches—he nonetheless put his service on a sound administrative footing, while also reorganizing its engineering side at McCook Field, Ohio. More importantly, he realized that if airpower was indeed a new way of waging war and not just another weapon to be used in a traditional manner, then Airmen had to be educated on its special and unique qualities. He therefore gave full support to the Air Service Tactical




Library of Congress

Maj. Gen. Mason Mathews Patrick (1863-1942) who was the leader of the United States Army Air Service learned to fly at age 59.

School that had been established by Mitchell.

Patrick’s most important achievement was his support of the Air Corps Act. Passed by Congress in July 1926, the legislation was a milestone for the Air Service. Besides changing the name to the Air Corps, and thus equating it to the other combat branches, the act had other significant provisions. The size of the air arm was to increase to 1,800 airplanes with 1,650 officers and 15,000 enlisted men. It authorized the temporary promotion of air officers, keeping their career progression in line with their contemporaries in other branches. Two more general officer positions were allotted to the Air Corps, and enlisted men were given more pay for mechanical qualifications. Only flying officers would command flying units, and more Airmen were detailed to the General Staff. Finally, it called for an Assistant Secretary of War for Air. This civilian position put air matters at a significantly higher level in the War Department.

Patrick retired the following year. Combined with his tenure during the war, Patrick served as commander of the Army’s air arm for over seven years. During those years that air arm found its footing and became a force in American military affairs. 

Patrick’s memoir, *The United States in the Air* (Doubleday, 1928) is workmanlike but bland. The biography by Robert White, *Mason Patrick and the Fight for Air Service Independence* (Smithsonian, 2001), is excellent.

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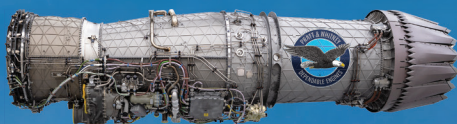
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