

AA Ep. 189 - Fighting the Air Base - Transcript

Heather "Lucky" Penney: [00:00:00] Welcome to the Aerospace Advantage Podcast, brought to you by PenFed. I'm your host, Heather "Lucky" Penney. Here on the Aerospace Advantage, we speak with leaders in the DOD, industry, and other subject matter experts to explore the intersection of strategy, operational concepts, technology, and policy when it comes to air and space power.

So, if you like learning about aerospace power, you're in the right place. To our regular listeners, welcome back. And if it's your first time here, thank you so much for joining us. As a reminder, if you like what you're hearing today, do us a favor and follow our show. Please give us a "like" and leave a comment so that we can keep charting the trajectories that matter the most to you.

There's no question about it, America's air bases around the world are under threat. And we're not talking a few random mortars. Instead, adversaries, and specifically China, have developed a suite of integrated long range strike systems that many folks in the defense community call Anti Access Area Denial, or A2AD.

They're building, and already have, [00:01:00] a nascent net of intelligence, surveillance, and reconnaissance capabilities, ISR for short, across airspace and the commercial market. So this ISR net will cue missiles and manned and unmanned aircraft to target US, allied, and coalition forces. We know that China's strategy is system destruction.

They'll use their ISR command and control, and kinetic and non-kinetic forces and fires, to destroy key nodes. Think weapon systems like aircraft and satellites. And the links and comms that connect them to collapse our operations. But adversaries won't just hunt us airborne. After all, they know the strength of US forces is in operation. They will actually seek to nullify our combat power before we even get off the ground, while we're easy targets. For example, China will preemptively strike our bases in what they call "active defense." Adversaries know where to shoot to hurt us, and they've got the means to do it.

And they can. Over the last 30 years, the United States military's ability to defend its [00:02:00] bases from the air threat has atrophied. During the Cold War, airmen routinely trained, exercised, and were inspected on how well they could continue to launch combat sorties while under attack. Anyone who's

spent time in MOPP gear during alarm blacks, stepped to a jet in a plastic bag and chem gear to flush the jets from a base, or was on a UXO team remembers.

But the urgency and realities that face our forces in the Middle East over the past few decades took precedence and in an environment where our forces had total air dominance. There was no threat from the sky. And here's why that's so important. We say it all the time. But no military operation conducted in any domain will succeed unless it's empowered by air power.

Air superiority, long range strike, ISR, air mobility, these missions are all essential for modern combat. For any military service and across any domain. Even space requires air power. Capabilities on orbit don't work if their downlink stations are destroyed by an enemy air raid. To keep air power in the [00:03:00] fight, we need to defend the bases that the aircraft and theater are using.

And this isn't a new lesson. History is full of examples where air bases were a make or break part of the fight. Remember Battle of Britain? That wasn't just about the air fight. The Luftwaffe was targeting Royal Air Force bases as its main target for the first half (of the battle), and the results were debilitating. It was only when Hitler shifted to bombing civilians and cities did the RAF get the respite they needed to repel the onslaught.

And you know what? We did the same thing to the Germans later in the war, bombing their bases and aircraft on the ground. This offensive counter air strike was key to establishing the air superiority that enabled D-Day to even happen. So, it's simple. If the Air Force can't launch and recover aircraft while being shot at, how do we expect to sustain the fight?

It doesn't matter how sophisticated the aircraft are if they get destroyed on their hard stands on the ground. So, bottom line, defending our air bases to ensure sustained operations is critical. We must [00:04:00] be able to fight the base. This means employing passive defenses as well as defending against adversary air threats, whether that's crews or ballistic missiles, or other air attacks.

Repairing and rebuilding base infrastructure and launching and recovering combat sorties from inside China's threat envelope. We must remain an inside force. Not only is a dominantly standoff force more expensive, but a standoff force gives the adversary the gift of time and reaction. And when we stand off, we abandon our allies whose geography is fixed inside the threat ring.

It's a game of go. The more we stand off, the more China stands in. By the way, those who are interested in the trade off analysis between standoff weapons and

penetrating air power, Mark Gunzinger wrote a great and enduring report on this. We'll include Gonzo's report in our show notes. It's pretty eye watering.

So, to discuss how we can fight the base as a stand in force, we have a special guest, our very own Mike "JDAM" Dahm, Senior Resident Fellow here at the Mitchell [00:05:00] Institute. As you know, few understand Chinese military capabilities better than Mike. He's put together an awesome report on air base defense and will walk us through his findings.

We're also joined by Mark "Gonzo" Gunzinger, Director of Future Concepts and Capability Assessments here at Mitchell. Gonzo has written extensively on air based defense over the years and provides some really valuable perspectives on this issue. You put these two together and we've got a dream team of expertise.

JDAM. Gonzo. Welcome.

J. Michael Dahm "JDAM": Thanks. Lucky. Happy to be here.

Mark "Gonzo" Gunzinger: Great to be back on the podcast.

Heather "Lucky" Penney: So gentlemen, before we jump into the conversation, Mike's air based defense report will be published in July. So for our listeners, if you'd like a copy of the report, keep your eyes open, come visit our website, and if you don't already subscribe to our emails and newsletters, do so.

Now, JDAM, I've done my best to help folks understand why air base defense matters, big picture, but you're the expert. I'd like to have you explain it in your own words and start with the "why." Why is this a critical mission to defend our air [00:06:00] bases?

J. Michael Dahm "JDAM": Well, Lucky, so we've already talked about why it's important to generate combat air power and conduct those decisive operations to contribute to deterrence.

So the report finds that the Air Force bases have to have the capacity to counter those complex integrated air and missile attacks. Rapidly reconstitute operational capabilities and when the air bases are damaged by attack we have to get back up and continue to generate combat sorties while under sustained enemy attack.

And a lot of ink has been spilled writing about air base defense. There are a lot of reports out there, but what we tried to do in this report is take the focus off "how many hits to the air base take and how can we reduce the number of hits" to what we think is a better metric for measuring air base defense, "how many combat sorties can we generate before, during, and after an attack on our air bases?"

Mark "Gonzo" Gunzinger: Exactly right.

J. Michael Dahm "JDAM": So what we found is that we need a mix of both active and passive defenses. Active defenses, shooting down missiles and aircraft that are [00:07:00] inbound, and passive defenses. And those passive defenses we really found are more effective, in terms of dollar for effect than the active defenses.

These are things like hardened aircraft shelters, rapid runway repair, camouflage concealment, and deception.

Heather "Lucky" Penney: And we know how to do these things, right?

J. Michael Dahm "JDAM": Absolutely. But it's a combination of these things. There's, there are no magic bullets. There are no, magic weapons that are going to enable 100 percent air base defense.

We need a combination of active defense and passive defense measures to give us the best air base defense resilience, to support that combat sort generation under fire.

Heather "Lucky" Penney: Absolutely, Mike. There's no such thing as immaculate warfare. We have to assume that our bases will be under attack.

There are no more sanctuaries despite what we experienced over the past 20 years, we have to be ready to defend our bases. So, you know, Mike, the more that you talk about this, it's really clear that we need to dial up our investment [00:08:00] for this mission. And investment, obviously, like you said, it's going to be that mix of active and passive.

So what does history have to teach us about air base defense? Like you said, this is back to the future. So we've done this before. In your paper, you talk about the consequences of not having adequate capabilities. And what are some of the standout examples of how air based defense contributed to either victory or defeat in a conflict?

J. Michael Dahm "JDAM": Yeah, so I spent a little bit of time on history in the paper. I like putting some history for context into the things that I write. But, the classic example that we all learn about in War College is the Arab Israeli wars in the 1960s and 70s. So in the Six Day War, that's 1967, the Israeli Air Force launches a surprise attack against Egypt, Syria, and Jordan.

They have no air base defenses, and on the first day, the Israeli Air Force obliterates the airbases and destroys over 400 enemy aircraft on the ground. Virtually the entire combined Arab Air Force. And with [00:09:00] uncontested air superiority for the Israelis, the whole thing is over and well, six days, hence the name. In 73, however, in the last Arab Israeli war, what they call the Yom Kippur War, that comes along and it's a surprise attack by Egypt and Syria.

But this time the Egyptians and the Syrians are ready. The Israelis bring out the same playbook, attack the enemy air bases, but now the Egyptians and the Syrians have hardened aircraft shelters. They have a ground based air defenses. The Israelis try to crater the runways, but they have rapid runway repair.

And a lot of these air bases are up within hours of an Israeli attack. So Israel suffered heavy losses in the early days of the Yom Kippur War, but eventually beat back the Arab attack. Still, the whole conflict really demonstrated how airbase defense and reconstitution capabilities contribute to combat sortie generation and airbase operability.

Heather "Lucky" Penney: So, what did the Air Force take away from those conflicts and how did we respond as we dealt with the Soviet threat in Europe towards the end of the Cold War?

J. Michael Dahm "JDAM": So, [00:10:00] super interesting. We actually kind of ignored it. I mean, the Air Force was very aware of what had happened in the Arab-Israeli wars, but we didn't think it really applied to us.

In the 60s and the 70s, the Air Force was focused on its own experience in Vietnam. Viet Cong were attacking our air bases and hitting our aircraft close to the wire with rockets and mortar attacks. Air base defense was all about perimeter defense and protecting against the close in threat. And at the time, we didn't think the Soviets had the ability to project power and really, hit Europe with long range conventional strikes.

Heather "Lucky" Penney: That sounds really familiar. Sounds a lot like the last 20 years, 30 years.

J. Michael Dahm "JDAM": Exactly. This sounds really familiar. History doesn't repeat itself but it does rhyme. We're fighting in Vietnam, focused on perimeter defense. Fast forward, we're fighting in places like Iraq and Afghanistan and we're worried about perimeter defense.

In both of these cases now we've come full circle and a large communist country comes along with strike capabilities and we're like, "oh, right! [00:11:00] We need to defend our air bases against large scale air and missile attacks!"

Heather "Lucky" Penney: So, Gonzo, you lived through this era as a Cold Warrior, and that's a key reason that you were standing alert on all those SAC bases over the years, to get your B 52 off the ground, while the base was still intact, doing those kinds of flush and alert operations.

So, explain the mentality back then when it came to defending and fighting the base.

Mark "Gonzo" Gunzinger: Absolutely. And thanks for pointing out I'm old.

Heather "Lucky" Penney: Aren't we all?

Mark "Gonzo" Gunzinger: Yep. So our Air Force did maintain part of its bomber force on nuclear alert 24/7 365 during the Cold War. And that force was capable of launching within minutes of receiving notice of a nuclear attack on our homeland.

Now, that was critical to preventing the Soviet Union from launching a bolt from the blue attack to knock out our nuclear Triad with little prior warning. For conventional missions, we were trained to deploy our bombers to multiple remote airfields and fly combat sorties. And in part, that dispersal [00:12:00] was intended to increase an adversary's air base targeting challenge.

Yeah, living out of tents, then flying eight hour sorties every other day was sometimes not so fun, but it was truly training like we would have to fight. Now, I remember discussions when I was in the Pentagon in the early 1990s about the wisdom of giving up training and equipping the Air Force's combat wings to fight their air bases and operate from a diverse posture.

I recall one senior level discussion about how it'd probably take 10 or more years for the Air Force to recover those capabilities if it gave them up, which it

did. Primarily because of the perceived lack of a threat at the time to our air bases and of course, the desire to cut defense expenditures.

Today, we know it's going to take far more than 10 years to fully implement the Air Force's ACE concept and field capabilities to fight and recover, the [00:13:00] service's airbases after attacks.

Heather "Lucky" Penney: That's terrifying given that we're living right now within the, you know, the decisive decade and being a Cold Warrior, I think gives us that experience, gives us that wisdom, given the challenges that we're facing today.

So gentlemen, we've heard a lot about a Cold War exercise called Salty Demo. Can you explain what it was and why does it matter to us today?

J. Michael Dahm "JDAM": Yeah. So this was news to me when I was doing the research for this paper, but Salty Demo is one of the coolest, most useful exercises I've ever heard of.

It's 1985. The Air Force takes Spangdahlem Air Base, which at the time was in West Germany, and they simulated a Soviet airstrike on the base. And you know, I bet people are, showing up for work thinking, "well, this exercise is going to make operations more difficult, but probably won't be a problem."

It was a huge problem. They sent one third of the base personnel home and said, "you are simulated killed or injured." They cut the power and water to different parts of the base. They hung signs on buildings and hangers saying they'd been destroyed and couldn't be used. The Red [00:14:00] Horse combat engineers actually blew up parts of the alternate runway just so they could try to repair it.

Heather "Lucky" Penney: I like that part. They actually blew it up live ordinance.

J. Michael Dahm "JDAM": Live ordinance. And then they had simulated ordinance scattered all over the airbase. So, like, you couldn't go into certain places. You couldn't get to certain hangers, but, you know, according to 1 account that was published in our Air Force and Space Association Magazine, they had this quote, it says "it was a sobering demonstration of the synergistic chaos that ensues when everything goes wrong at the same time." Sounds a lot like combat. So, Salty Demo showed the Air Force in no uncertain terms that it was absolutely not ready in 1985 to deal with a large scale attack on its air bases.

So the Air Force and the Army started putting money into air base defense. Right up until the Cold War ended, and then all the air base defense money and effort dried up in the 1990s.

Mark "Gonzo" Gunzinger: Yeah, so let me add to that, you know, bottom line, expanding the number of airfields our air forces could operate from in Europe, combined with [00:15:00] hardening air base facilities and rapid airfield repair is absolutely critical to ensuring that we could generate the combat air power to halt a Warsaw Pact invasion of Central Europe.

It was a must do then, and it's a must do now, because today our air bases are threatened by cruise missiles, hypersonic weapons, cyber attacks, and other threats, in addition to ballistic missile salvos. And that more diverse set of threats require a more diverse set of countermeasures, which JDAM addresses in his report.

So, the theory of the case behind Salty Demo is just as valid today in Europe, and in the Pacific, and wherever our air forces will have to fight in the future.

Heather "Lucky" Penney: Absolutely. And when you think about how they described the synergistic chaos, that's also a lesson to us as we think about how do we disrupt the adversary, in that we don't necessarily need to rely upon traditional means of doing a battle damage assessments, but when we look at combat effects, that we can [00:16:00] impose those kinds of synergistic chaos on them as well.

But doctrinally, the Air Force is responsible for airborne air based defense, and that's a set of defensive and offensive counter air missions. But ground based air defense, like missile defense, has doctrinally belonged to the Army. But they're not doing this anymore. JDAM, could you describe how we'd fight the base in the Cold War, and the doctrine, the command relationships, the technologies that existed then, and how that's changed?

J. Michael Dahm "JDAM": Yeah, so this is a, this could be a super long discussion. There, there has been a long running dispute between the Army and the Air Force on ground based air defense. And so, like, if you go on the way, way back machine to the end of the Second World War, the Army is a little bit upset that the Army Air Corps is broken off to become the Air Force.

And they, they don't want to lose any more force structure. So the Army makes the argument that these new fangled surface to air missile thingies are just modern versions of air defense artillery and that the Army should retain that

mission. So, it actually gets written into law that the Air Force cannot [00:17:00] have ground based air defense, either tactical or strategic, air defense. So, the Army wins the mission and the budget for ground based air defense in the 1950s.

And over the decades, the Army prioritizes air and missile defense to do what? Well, protect Army maneuver forces. It's sort of an institutional imperative. If I'm spending money on defense, I have to defend myself first, before defending others. The Navy's the same way. The Navy has a budget for air and missile defense.

And the priority is defending ships at sea, not air bases ashore. So who's looking out for the Air Force? And sure, given the military technology available in the first few decades of the Cold War, the Air Force was largely operating from what we were considering rear areas, right? Sanctuaries that weren't necessarily vulnerable to large scale conventional attack.

But then in the 1980s, here come the Soviets with emerging deep strike capabilities. So, in 1984, the Air Force and the Army finally signed a memorandum of understanding. This is the [00:18:00] first time in history this has happened. The Army formally committed to defend Air Force air bases. And after Salty Demo in 1985, Air Force commanders start talking about fighting the air base.

That's what Gonzo was just talking about. Operating and fighting the air base, just like you would any other weapon system. And then... the Cold War ended. The Air Force and the Army were supposed to renew their Memorandum of Understanding for air based defense every two years. And in the 1990s, they just didn't renew the memo.

The Air Force was back to square one for ground based air defense.

Heather "Lucky" Penney: Wow. So Gonzo, let's connect that past to the present. We go from the Cold War where there's been a big priority to the present day. Obviously that Memorandum of Agreement expires and now we have air based defense amnesia. How did this happen?

Mark "Gonzo" Gunzinger: Yeah, so almost two months ago, I was a panelist at an International Missile Defense Conference in London. And one senior officer from [00:19:00] a, an allied military asked me why the US government is still asleep to the threat to our theater bases? Now, my answer was our government is not asleep to the threat, but it is asleep to the fix.

And by that, I mean, the US Congress has not appropriated and DOD has not requested enough funding to field active and passive defenses at the scale required to fight our forward bases that are going to be under attack by a peer adversary. And that's one of JDAM's key recommendations. Fighting forward while under attack is going to require more than buying a relative handful of additional Patriots and THADs, which is the case today.

As great as those systems are, they simply cannot provide the capacity to counter large salvos of a diverse mix of missile threats, and of course, implement ACE, harden air base facilities, and deploy other passive countermeasures. The stakes are extremely high. Failing to fund the [00:20:00] fix will leave our forces vulnerable to absorbing losses that will exceed what happened to Pearl Harbor in 1941.

And imagine the impact to our military and their operations, if they are vulnerable to a Pearl Harbor, day after day,

Heather "Lucky" Penney: absolutely, as usual, it always connects to money. Thank you, Gonzo, for that explanation. You know, and the challenge is that because we become so used to living in this, immaculate warfare, with permissive threat environment and nothing really happening to the bases.

It seems like commanders are unwilling to take any kind of risk or accept that they might have to fight the base or fight through and reconstitute to prosecute the war. But they also, frankly, don't have the resources to be able to do that. And that puts airmen and weapon systems in our capabilities that we need at risk.

So they're standing further off. You know, JDAM, we all know the Department of Defense has identified China as the key threat. What is China's view on attacking our air bases?

J. Michael Dahm "JDAM": Yeah, so real quick, China watched what the [00:21:00] US Air Force did in the 1991 Gulf War, and that was a seminal event for the PLA. Five weeks of airstrikes, 100,000 sorties, widespread destruction of military forces and infrastructure, and then a four day ground campaign to mop up the Republican Guard in Kuwait.

But, that was a huge wake up call for the PLA. So from that moment forward, for the last, what, 35 years, the PLA knew exactly what would happen to them in a fight if the U. S. was allowed to generate air power in mass, and generate that large number of combat sorties. So Chinese Counter Air Raid Strategy and

Doctrine not only includes dense air defenses in and around China, right? Surface to air missiles, aircraft flying cap.

It also includes long range strike capabilities. They want to hit our air bases on the ground and destroy our air base and destroy our aircraft on the ground. There are some folks saying that the PLA threats are now so intense, that if it came to a fight, the Air Force would [00:22:00] have to initiate combat operations from as far away as Guam or Northern Australia, or maybe even the United States bases in Alaska or along the West Coast.

Heather "Lucky" Penney: So, we have to talk about this again. I know we hit this earlier, but we have to talk about why we need to stay an inside force, why that's so important for the Air Force to be able to do that, and how that relates to air based defense.

J. Michael Dahm "JDAM": Right, so, like you said, we have to fight from established and dispersed forward bases. As Gonzo's pointed out, we have to fight alongside our allies and partners. But on an operational level, effective air based defense also supports three operational objectives, and I'll just outline those briefly, right? First, effective combat sortie generation. We've already talked about that. We need to use the strike fighters that we have in our inventory and generate the volume of strikes that we need in the conflict.

Heather "Lucky" Penney: Yeah, because, you know, we've got fighters, they can hit a lot of things. And so unlike a bomber where, [00:23:00] you know, it goes the distance and it can actually, penetrate and it's got an incredible payload, with fighters, you can actually throw them all in different directions. So, to get the attack density and the pacing, we have to stay "inside" because the other thing is that distance, whether or not that's from the Second Island Chain, or Hawaii, or the West coast of the United States, that's time.

And so it thins out your ability to be able to prosecute attacks with density. And it also gives the adversary a lot of time to react, and repair, and prepare.

J. Michael Dahm "JDAM": Right. And so, on the flip side of that. Our second operational objective on the US side is force preservation. We need air based defense so we don't lose the infrastructure, aircraft, and people that we already have, which are in short supply.

If we're in a weeks or months long crisis, there is absolutely no way we're going to be able to regenerate forces or retrain personnel. We're going to have to fight

with what we have. So air based defense allows us to protect what we already have and preserve that.

Heather "Lucky" Penney: Absolutely.

J. Michael Dahm "JDAM": The third operational objective for air base defense is [00:24:00] adversary cost imposition.

You have to raise the cost for the adversary, knowing that they're going to have to expend their best weapons, their most scarce and expensive weapons, in return for minimal operational effect. We're going to shoot down their attacks and, whatever they land on our airbases are going to have minimal effect.

So, without airbase defense, we have to look to a long range strike. And I'd actually ask Gonzo, like, do we have the long range strike capabilities to go after China without our short range strike fighters?

Mark "Gonzo" Gunzinger: No, absolutely not. The sad fact is our air force now lacks enough combat aircraft, with long ranges and a large weapon payloads, are going to be needed to blunt and then defeat Chinese aggression in the Indo-Pacific.

Over the last 30 years, budget realities compelled the Air Force to divest more than two thirds of its bomber force and half its fighters. So, generating combat sorties at the scale needed to blunt and halt, and to [00:25:00] operate from distributed locations, frankly is... it has to be an inside force. It must be an inside force. It doesn't take a military genius to understand the impact of aircraft sortie rates, if our long range strike forces must operate from the west coast of the United States. As you said, simply because of threats to our forward bases. And the same is true for a European crisis.

Fielding the B 21. , F 35s, and even CCAs, is going to help the Air Force to provide the strike density at long ranges that our theater commanders will need in a fight with China. But, their theater bases must be defended because failing to do so will increase risk that the Air Force's combat aircraft will be "pushed" out of the fight. Much like how the Navy's carrier air wings are today.

Heather "Lucky" Penney: Yeah, you know, insufficient budgets have shot down and killed more Air Force capacity and capability than any adversary has thus far. And it's [00:26:00] left us on the wrong side of that power curve.

Mark "Gonzo" Gunzinger: Absolutely.

Heather "Lucky" Penney: So JDAM, as a threat expert, how does China stack up today and what capabilities are they deploying to prevent our access to and operations from air bases?

J. Michael Dahm "JDAM": So, it ain't great. As it stands, china can hold at risk virtually all of our air bases in the Western Pacific. That includes everything in Korea, everything in Japan, everything in the Philippines, Guam, Northern Australia. They've got a long stick, right? But when I say that it means they have weapons, very specific types of weapons.

Like the DF 26 Intermediate Range Ballistic Missile. That can reach out and touch those bases. But they do not have an infinite supply of these weapons. We shouldn't walk away thinking that just because they have these long range weapons, the PLA is the 10 foot tall threat.

Heather "Lucky" Penney: No, they can, we can deplete their magazine.

And if they have to scatter those shots across a wide range, and we can operate through those attacks, that really weakens their ability to threaten our [00:27:00] bases and frankly to win. So, if we force the adversary, if we force China to have to scatter their shot and we reduce the value of those attacks, what are some of the other threats that impact China's ability to attack our air bases?

J. Michael Dahm "JDAM": So, I know math doesn't play well on these podcasts, so I'm not going to try to, do that here. But, the reality is that the PLA has lots and lots of targets that they probably need to hit. Not just air bases, but they also need to target naval bases, aircraft carriers at sea, communications nodes.

They've got a lot of targets that they want to hit. Most of those targets are in Taiwan. That's where most of those missiles are going to go. So, we're talking about a few thousand missiles, most of those are going against Taiwan. The PLA, when it comes to attacking air bases and other US bases, they need to cover a two or three thousand mile front, that extends from northern Japan all the way down to the South China Sea, as far away as Guam and northern Australia. It's an absolutely huge [00:28:00] battle space. And the PLA is covering that with what, thousand missiles? Maybe a few hundred of those?

And I know those sound like big numbers, but the bottom line is they don't have an unlimited supply of these high end ballistic missiles and hard to shoot down hypersonic glide vehicles. And as you've already said, they need to spread these

missiles out. So, if they're not going to run out of weapons in the first couple of days of a conflict, they need to spread those capabilities out.

But more important and to the point of the paper and sort of our operational approach to air based defense, the PLA is probably going to combine those scarce high end missile threats, with a large number of still bad, but not necessarily terrifying aircraft, cruise missiles, and drones. Lower cost, lower capability, lower threat, but we can't shoot 4 million, 8 million, 15 million dollar missiles at, you know, converted third generation aircraft turned into a [00:29:00] combat drone.

Heather "Lucky" Penney: Yeah, that are doing kamikaze attacks, right? I mean...

J. Michael Dahm "JDAM": Exactly..

Heather "Lucky" Penney: So, I love what you did, giving us that perspective of the scale and the scope. I mean, like thousands of square miles and also across time. They might have a thousand missiles, but they're not going to use them all in a single salvo.

They've got to be able to stage that over time. And the same with some of these other capabilities. So the question that everyone wants to know the answer to is, can the U. S. and its allies conduct combat operations from front line First Island or even inside First Island air bases in the face of these threats?

J. Michael Dahm "JDAM": Yes, we can. Next question. No, I'll explain. Okay. So, on any given day, we have to have an air based defense strategy to deal with is, what is probably a relatively small number of high end missile threats, but a larger number of less expensive and probably easier to defeat threats.

So for this report, we conducted an assessment that was focused on combat sortie generation operations. We called it a [00:30:00] Red-Blue conflict in East Asia. You can guess who red and blue were, um, but we showed that a combination of integrated defense capabilities, both active and passive defenses, with substantial runway repair capabilities allows the air force to sustain combat effective sortie generation rates, while under enemy fire.

And I'll let the analysis in the report speak for itself, but a combination of rapid runway repair, agile combat employment hub and spoke dispersal, and air defenses that could defeat maybe 50% of inbound missile attacks, allowed for

the best blue fighter and tanker sortie rates while air bases were under sustained red air and missile attack for, I think a week or 10 days, was the limit of our analysis.

Heather "Lucky" Penney: That was a phenomenal analysis by the way, I mean looking at those graphs and being able to actually see how the different layered defenses had an impact on sortie generation was really heartening, from a warfighter's perspective. When we look at, you know, the US and Israel's [00:31:00] recent defense against the Iranian attack, I think that also shows us that this is possible. That we don't necessarily have to give up in the face of these kinds of attack.

And that the threat is global. It's not just China.

J. Michael Dahm "JDAM": Yeah. And I just want to respond real quick because I wouldn't want anybody to take away from the successful defeat of the Iranian missile and drone attack that, that's the way it's going to play in the Pacific. I think the reality of combat is that if the shooting starts, it's going to be ugly, but there is a way to generate combat sorties and get back into the fight.

Mark "Gonzo" Gunzinger: Absolutely. And as you said, Heather, the threat is global. When I say global, let's not forget that our homeland is increasingly at risk from attacks by conventional ballistic missiles, hypersonic weapons, and even long range cruise missiles. So on April 13th, Iran launched more than 170 drones, 30 cruise missiles, 120 ballistic missiles to strike Israeli targets.[00:32:00]

Imagine how the American people would react if that kind of attack was launched against our homeland. Now the good news is about 98% of those threats, launched against Israel on 13 April, were intercepted by ground based missile launchers and Western Arab Air Forces, including, of course, the US Air Force.

But the sobering news is, using multi million dollar air to air missiles to intercept drones and low cost cruise missiles, is horrendously expensive. Not sustainable and would put our forces way over on the wrong side of the cost imposition curve. And that's why multiple government, non government reports, including JDAM's report, are calling for increasing our military's acquisition of lower cost, higher capacity, kinetic and non kinetic air missile defenses, to protect our bases and our forces, while imposing costs on our enemy.

Flip [00:33:00] that equation around.

Heather "Lucky" Penney: Absolutely. Because we also have to remember that's was a very small front that they were defending against, and it was very short in terms of time of time attack by Iran. And so it was, a small point in time. It's not nearly to the scale and scope that we would see in China across, all of our bases.

Mark "Gonzo" Gunzinger: Absolutely, it was a one off.

Heather "Lucky" Penney: So one of the things I love about the report was your measures of success.

Could you continue to operate combat sorties out of these bases?

Mark "Gonzo" Gunzinger: Yeah. So I'll be the guy in the podcast who does a foot stomp, what JDAM did in his analysis, he took a very different approach. Instead of entering the argument by first talking about air missile defense technologies, as so many analysts have done, he took an effects based approach.

And by that, I mean, one of the key effects that will really count in a fight with China or Russia will be the Air Force's ability to continue to generate combat air sorties while under [00:34:00] attack. It's not just about countering X, Y, or Z number of missile threats.

So, taking that approach, it allowed JDAM to assess how again, the different combinations of countermeasures will allow the Air Force to generate that decisive combat power while under attack. And, as this report says, successfully intercepting every possible inbound threat is not feasible or even necessary. Rather, low cost active defenses, ACE dispersal, rapid airfield repair in combination, is a far more effective way of fighting your airbases.

Amen. As

Heather "Lucky" Penney: a war fighter, I love the fact that you're taking an approach that really is an effects based operations.

How we can continue to prosecute the war and produce and launch sorties, as opposed to trying to maintain pristine bases. So JDAM, bring this all together. What does an operational concept, so we've talked about some of the different ways we'd layer active and passive defenses, but how do we employ that?

How do you actually fight the base?

J. Michael Dahm "JDAM": Right, so [00:35:00] the report outlines the key principles, the ones that we've already been talking about, and it really provides the kind of the core of, what should be the Air Force's air based defense priorities. Gonzo just mention it, right? Agile Combat Employment, where we have aircraft dispersal that can significantly improve our sortie generation and regeneration efforts during a conflict.

We need that dense layered arsenal of active defenses that includes kinetic and non kinetic effectors, that can provide that cost effective protection against incoming attacks, and then passive defenses. And again, I cannot say enough about passive defenses being critical to the air base defense concept. We need hardening, we need substantial reconstitution capabilities, especially rapid runway repair. That's what was born out in our analysis. You know, and then we also need to think about human factors. Medical, how do we treat people who are injured, aircraft maintainers, pilots, on and on.

There's a lot in the report about the different defense measures and some promising [00:36:00] technologies. I'm not going to go through all of that, but, highlighting a few of those more cost effective camouflage concealment and deception. Can't say enough about hardened aircraft shelters.

Maybe we should spend a few million dollars on enough concrete and steel to protect an 86 million aircraft. And then on the active defense side of the leisure, maybe Gonzo can talk a little bit more about what he sees as promising in terms of...

Mark "Gonzo" Gunzinger: Absolutely.

J. Michael Dahm "JDAM": Non kinetic effects like microwaves or directed energy weapons, lasers, things like that.

Mark "Gonzo" Gunzinger: Yeah, so, there are now multiple technologies that are mature enough to begin fielding in scale. And just to list a few, gun launched, command guided projectiles, that cost less than 50,000 dollars each. That would help provide the affordable mass needed to defeat incoming drones and probably cruise missiles.

Airborne UAVs like MQ 9s capable of long duration missions, could help create an outer layer of sensors, [00:37:00] that could detect and provide early warning of inbound missile salvos. And it's also possible to equip those UAVs with kinetic and non kinetic effectors like high power lasers that can begin to,

you know, thin those cruise missile salvos well before they're within range of an airbase's terminal defenses.

Add to that ground based truck mounted high power microwave systems, that can divert and otherwise counter armed drones and cruise missiles at the speed of light and for pennies a shot. Now, these novel defenses could be quickly integrated with the plug and play Integrated Battle Command System, the IBCS, that the Army is beginning to field for air and missile defense.

These capabilities could be a reality in a few short years, if DOD establishes programs of record for them, and if Congress funds those programs, because these capabilities really are more a matter of funding today than it is [00:38:00] maturing their technologies.

Heather "Lucky" Penney: So, Gonzo, I got to ask you, you mentioned the Army and their battle management system.

Is this the Army's job now, or is the Air Force going to have to foot the bill?

Mark "Gonzo" Gunzinger: Yeah, and that's something that Mike does address in this, report. The fact of the matter is the Air force's forward, air bases must be defended, and I have long been agnostic about who is actually going to do the operations.

If it's a role that the Air Force has to take on, Congress must give the resources to the Air Force today. When I say resources, not just ours, but personnel as well. Because that would be a new mission for them. By new mission, it really is the Army's mission. And frankly, the Army has not ponied up the resources to be able to do that.

It is not providing the defenses we need, so the Air Force can generate airpower to protect them, to provide CAS, to provide air security, all these missions that, the Air Force performs in [00:39:00] support of the entire Joint Force.

Heather "Lucky" Penney: Yeah, if you don't have an Air Force, you can't have a Joint Force.

And I don't know why the Army wouldn't be rushing to fulfill this mission, this role of air based defense, given how essential that is to the entire operations in the Pacific. And just to go back to, I'm going to, one of my pet rocks, hardened aircraft shelters. I love them. Not only because they protect aircraft, but they're

also a great deception device, because if you're in an aircraft shelter, or you're not, the adversary doesn't necessarily know.

Anyhow, we're talking about recommendations. JDAM, can you describe some of the recommendations and how we fix what's clearly a massive mission gap?

J. Michael Dahm "JDAM": Yeah, more details in the upcoming report, but just to hit some of the high points, you know, the Air Force needs to continue to develop, codify, and implement its ACE concept, the Agile Combat Employment concept.

Air base dispersal is critical and as part of the effort, the Air Force also really needs to identify the measures of performance and the measures of [00:40:00] effectiveness to assess air base resilience. They talk a lot about air base resilience. We need more air base defense. We need a way to measure that and put budget against it. And to that budget discussion, the points that Gonzo just brought up, Congress really needs to remove or significantly modify the kind of artificial defense budget caps, and they need to fund a dedicated air base defense program. The threat is growing, the Chinese do not care about the Fiscal Responsibility Act.

They are going to keep coming and we simply cannot carve more, better, air base defense out of existing budgets. Both the Army and the Air Force need additional funding to address our air base defense shortfalls. And that Army-Air Force thing you were just talking about, brings me to another recommendation, which is reestablishing that inter service agreement on air base defense.

Something like what we had in the 1980s. Doesn't have to be a rehash of that, but we need something. And again, if they can't get there, then maybe it's, you know, some radical [00:41:00] idea like Gonzo just brought up. Shift all the personnel in the funding over to the Air Force and let the Air Force deal with its own problems.

If you're looking to spend your last dollar on something, invest in passive defenses. We've said it over and over like 3, 4 times in this report. Camouflage, concealment, hardening, even sun shades will give you that, that...

Heather "Lucky" Penney: Shell game.

J. Michael Dahm "JDAM": Shell game. Thank you. The shell game where you can't tell from a satellite, whether there's an aircraft there or not.

So maybe you're going to waste a missile on it. And then, we need those new novel solutions for kinetic and non kinetic capabilities to enable air base defense. Significant investments in a diverse arsenal of integrated active air defense capabilities, cost effective, short range defenses, you know, Patriot and THAD are awesome systems, but they need to be reserved for defending against those high end ballistic missiles and hypersonic glide vehicles. But, we have this gap in short and medium range capabilities that the Army just has not addressed [00:42:00] in terms of air and missile defense.

So again, more to follow in the written report, but I think I'll leave it there.

Heather "Lucky" Penney: Absolutely. We've got to lower that cost exchange ratio, not only to be able to make it affordable, but a lower unit cost means that we can do a better job of defending our air bases.

So, you know, Gonzo, you're in an elevator with a top DOD leader or a member of Congress. How do you motivate them? How do you sell them that this is something we need to begin doing right now?

Mark "Gonzo" Gunzinger: Well, Senator Penney, I know you are strong on defense and are concerned about the growing threat from China, Russia, and rogue states like Iran and their terrorist proxies. Yeah, today's threat environment is unprecedented in our country's history.

And yes, more investments are needed to ensure that our air forces will survive in the air to create those war winning effects that our commanders depend on. But it doesn't make sense to field 5th and 6th generation air forces if they're going to [00:43:00] die on the ground at their undefended air bases. That's what war game after war game told us.

The majority of US combat aircraft lost in a fight with the pacing threat would likely be the result of attacks on their air bases. The fix is available, but it's going to require Congress to take action, even if DOD refuses to request required funding.

Heather "Lucky" Penney: Well, Gonzo, you have me sold. I'm all in, you know, and I think it's important that although those war games showed that we lost our forces on the air bases.

That's not a lesson for us to back off. We have to stay in the fight. We have to stay in inside the force. And this is a no fail mission, so we're not going to be able to create a magic shield, but we've got to do it well enough to keep

launching those combat sorties. And JDAM, I love this one sentence from your report, "There are no silver bullets. No magic weapons will solve the air based defense challenges that the Air Force faces." [00:44:00]

And you're right, we've got to start working these problems now. The science and the technology exists. We just haven't funded them, turned them into programs of record, manned them, and put them into the actual force.

So I think this report puts us on the right path and it gives us a vision that senior leaders and folks in Congress can actually fulfill.

So, gentlemen, thank you again so much for your thought leadership here.

J. Michael Dahm "JDAM": Thanks, Lucky. This has been great.

Mark "Gonzo" Gunzinger: Always a pleasure, Heather.

Heather "Lucky" Penney: With that, I'd like to extend a big thank you to our guests for joining in today's discussion.

I'd also like to extend a big thank you to you, our listeners, for your continued support and for tuning into today's show. If you like what you heard today, don't forget to hit that like button and follow or subscribe to the Aerospace Advantage. You can also leave a comment to let us know what you think about our show or areas you'd like us to explore further.

As always, you can join in on the conversation by following the Mitchell Institute on Twitter, Instagram, Facebook, or LinkedIn. And you can always find us at Mitchell aerospace power. org. Thanks again for [00:45:00] joining us and have a great aerospace power kind of day. See you next time.