

Panel 2 - Avoiding Operational Surprise - Transcript

Lt Gen David Deptula: [00:00:00] Okay, well, thank you all. Um, in case some of you may have forgotten, I'm Dave Deptula, Dean of the Mitchell Institute. And, uh, it's my pleasure to welcome you to our panel this morning on Avoiding Operational Surprise, another important tenant of Competitive Endurance for our Space Force. Now, some of you might remember the Rumsfeld Commission, uh, highlighted the imperative to avoid a space Pearl Harbor over 20 years ago.

That charge is even more important today, given the efforts being made by our adversaries to deny the United States and our allies the advantages that we do have in space. In fact, knowing threat capabilities, adversary plans, and tracking their actions is foundational to deterrence. Avoiding operational [00:01:00] surprise is much more than just maintaining awareness of what's going on in space.

Given the weight and the scope of this challenge, we're very pleased to have join us today, a panel of key military and industry leaders, each with keen insight into this critical topic. So first, I'd like to welcome Lieutenant General Doug Schiess, Commander of U. S. Space Forces, Space and the Combined Joint Force Space Component Commander.

We also have with us Major General Greg Gagnon, Deputy Chief of Space, Operations for Intelligence. Next is Brigadier General Jim Smith, Assistant Deputy Chief of Space Operations for Operations Cyber and Nuclear. And we're also very happy to have on the panel, Mr. Scott Forney, the President of General Atomics Electromagnetic Systems.

And finally, we're glad to be joined by Kevin Giammo, Director of [00:02:00] Surveillance and Environmental Monitoring at Northrop Grumman. Um, so thank all five of you for being here today and what I'd like to do is jump straight into questions because we have a lot on the plate and many of you. Um, first, as was mentioned earlier today, news of a new Russian ASAT capability caught some folks off guard.

Certainly it garnered the attention of some key players in our Congress, appropriately so. Um, regardless, it highlights the need for maintaining a solid understanding of the threat environment. Now, that said, what specific

adversary activities would each of you like to know or think is key to avoiding operational surprise?

So let's start with you, General Schiess and then work our way down the line.

Lt Gen Douglas Schiess: Hey, thanks a lot. We're good. All right. Uh, thanks a lot for having us here. Thanks to the Mitchell Institute for doing [00:03:00] this. And first off, I just say, I want to know all of their activities. I don't know that I can specifically say which one, but I want to know all of their activities so that we can continue to avoid operational surprise.

And I know with a lot of people on the panel, I'll be, you know, Quick on my answers here today, but at U. S. Spaces Forces Space, the Space Force components, the U. S. Space Command, we kind of put things in three areas. We protect the joint force from space enabled attack through a Chinese building. All right, so then I'll be cool with this.

All right, um, through a space enabled kill chain, and so we have to make sure that we can protect the joint force. We also have to defend our own assets so that we can continue to operate in a contested and contested environment. And then we have to deliver those effects. And what do we need to do that? We need to have that, that intelligence.

And so we're looking for intelligence that gives us predictive analysis. We need intelligence that, uh, tells us what their next steps are, what they're looking at, what their capabilities are. And so we are maximizing, especially with, [00:04:00] uh, General Gagnon's folks and the, and the intelligence folks that are in a U. S. Space Forces space and U. S. Space Command, we're getting after that.

Because we can't have something that we don't know about, and, uh, and so we have to continue to, uh, look at ways to do that. One of the ways to do that is with a robust space, uh, domain awareness platform. We have to, I think it was talked about earlier in one of the other panels, we have to be able to know our domain, we have to know what's going on in our domain, and we have to be predictive of what the next steps are.

And so, I would just say that we have to continue to, uh, evolve in that, and we have to continue to be better and better in our intelligence, uh, gathering capabilities.

Lt Gen David Deptula: Go ahead, any of you. Um, anyone else have something to add on that?

Scott Forney: Oh, oh, sure. Uh, if you don't mind. First of all, thanks, thanks for this event. We, we appreciate that. Regarding to what was reported in the press, um, you know, first of all, if there is such a capability, do we know what they're gonna do?

Are they gonna use it as a threat? Uh, do we know their, their tactics or their [00:05:00] techniques or their procedures? And that would be very useful. Not just for ASAT, but for many other programs to get as much, uh, information as we can from the intelligence community or from the Title 10 capabilities.

The second area of, of interest is getting real time feedback. I, I don't know, maybe, maybe we just don't have it, but it would be great to get real time feedback from the Combined Space Operations Center, if that's possible, so that industry has a better understanding of, uh, what we can do. We're all investing heavily in space superiority, perhaps not as much as, uh, as we wanted based on this morning's conversation, but I think from an internal investment standpoint, we do want to know what to do with that information, and without TTPs, we're kind of powerless.

And at the end of the day, I think getting that data, like the classified surroundings, we're getting more and more of that data. So we think Space Force and some of the Title 50, uh, customers for that. [00:06:00] But I think getting that realtime would be effective.

GA has the advantage that we have some, uh, very low latency realtime capabilities that's controlled by, uh, certain customers. And we have some commercial capabilities, but it'd be great to, if we could plug in some of the, um, Vandenberg information more real time.

Maj Gen Gregory Gagnon: General Deptula, I'm Greg Gagnon, and all operational surprise is my fault.

Okay, so, I'm the intel guy, okay? Hey, good morning. Space is a large domain, but understanding the activities in Moscow and Beijing is equally daunting. And for the Space Force, about one eighth of our budget is applied against space domain awareness. But what if I told you that I could take that one eighth and I could grow by multiplication.

Right? That's what our national intelligence community offers us. The last time the DNI office publicly [00:07:00] discussed their budget, I think they said it was 68 billion dollars. So as the senior intelligence officer of the Space Force, I have to answer General Schiess' questions. But I'm answering his questions not with just the 1, 500 Guardian intelligence professionals that are inside the service, I'm answering those questions with all of my national IC partners.

So I can take that one eighth of a Space Force budget and I can add to that the 68 billion that the U. S. government spends in the national intelligence community by knowing how to work with NGA, knowing how to work with NSA, knowing how to work with DIA. And that's what we're doing as a service. It's actually having a tremendous change.

My two greatest champions inside the service have actually been General Whiting. General Whiting has consistently called me and told me how well we have improved in just four years in the intelligence function within the service.

Lt Gen David Deptula: [00:08:00] Great to hear. Jim?

Brig Gen James Smith: Yeah, I'm going to agree with what all these gentlemen said and first let me also say thanks for having us here this morning and for this opportunity specific to your question as to what activities we would want to understand our adversaries are performing in the domain.

I think it's important to look at the language that General Saltzman wrote in his C note about avoiding operational surprise. And he says it's important we need to detect perturbations in the domain that are compromising the joint forces abilities to secure space superiority. We look at that and compare it also to our Space Force mission of securing our nation's interest to, from, and through space.

And while understanding all activities would be important, I think we can narrow it down to understanding those activities that impact our ability as a Space Force to do our mission. And that mission is really to secure our nation's interests and to get after the space superiority piece. So, uh, to General Gagnon's point about intelligence, I think the intent piece is really what we may struggle at times or where we can use some help.

Uh, I'll give you a quick vignette. Ten [00:09:00] or so years ago as an operator on an ops floor, uh, flying a satellite, and the vicinity of the satellite was another asset from one of our adversaries, I would say. But we knew that we knew the

asset was there. We knew all the information about the asset, except why they were there and what they were trying to do.

And so, uh, whatever we can do to improve our intelligence, I would agree with General Gagnon that having them as part of the service the last four years has been a tremendous benefit, uh, but continuing to get after understanding that intent and the why behind. And I think we may talk about AI later, maybe norms could come into solving some of this and then finding using AI to find those systems that might be deviated from those norms could be one way to get after that. I would just centralize my answer on intent and understanding intent specifically those that have nefarious intent.

Thanks

Lt Gen David Deptula: kevin?

Kevin Giammo: Yeah. And I'll just I'll just add quickly, you know, from Northrop Grumman, we think of ourselves as a technology company. And really, our mission is to empower the [00:10:00] warfighter with the technologies that you'll need to stay ahead of the threat. So I'll, I'll thank the, you know, the military folks in this room here for the information they share with us about capability, intent, employment strategy.

And then very importantly, what, what you would like to do about that, you know, as time goes on. And of course, we'll bring our ideas as well and use our IRAD budget, uh, the hundreds of millions of dollars we invest to make those capabilities available to you as time goes on.

Lt Gen David Deptula: Well, thank you. Now, this one's for General Schiess and General Smith.

More countries and companies keep deploying sensors into orbit each year. Space Force leaders have emphasized the importance of integrating commercial and allied data and information. Could you both offer your thoughts on the progress that you and your teams are making in this area?

Lt Gen Douglas Schiess: Yeah, happy to. And I heard your comment about C SpOC and how we can get more information out there.

And I think we're getting after it. [00:11:00] We're not as fast as we would like to be. But on that, uh, and Space Force is space with our two centers. We have

the National Space Defense Center out of Schriever Space Force Base, and we have the Combined Space Operations Center at Vandenberg Space Force base.

We're trying to get after that integration with commercial. We do that in two ways right now. One is our commercial integration. So at the C SpOC, I'll just say right right now, that's only 10 companies. We want to grow that. I know we're working with U. S. Space Command and others on how we can grow that.

If you think about cyber calm and some of the collaborations centers that they have and the information they're getting out to our defense industry base. Uh, they have a lot, uh, uh, more people and, and more, uh, ability to do that, and we need to grow that area as well. There is the Space ISAC. There's other things out there that are getting that information, but we have to do that.

With what the commercial integration cell gives us, though, is those companies then have cleared people that can be on our ops floor or that we can have those cleared conversations. So sometimes we can get out [00:12:00] what I'll call unclassified, uh, you know, information. So we do that right now with like a debris causing event.

The 18th Space Defense Squadron puts out information that there's a debris causing event. We do that through NOTAMs that are out there, maybe from, uh, actually working with NOAA and others on a space, uh, solar event. But we have to get better at how we can get that out to a much broader audience, but we also need to do the classified as well.

And so with those 10 companies we're learning our reps and sets on how we get that information out, how we get that cleared information to get to some, maybe some of those uh, intelligence gaps that we talked about and some of the things that we can get out. So we're doing that. The other is more in the National Space Defense Center, but in both areas in our protect and defend and in our deliver mission is the joint commercial office that's out in Schriever there that really supports, uh, the whole enterprise there.

That is a huge effort that we have gone thanks to Space Systems Command and the folks there that put money against bringing in commercial space domain awareness capabilities [00:13:00] that are bringing into a, I'll call it a worldwide web. Uh, we say the sun never sets on the JCO because now we have the UK, we have Australia, we have New Zealand, we have others around the world that can pick up from looking at academic telescopes, information that someone's getting out there just by an astronomer or something like that.

And then we can put it together. Once we get it to a point where we go, "Hey, this is actually something that we have enough information." We send that out to our folks there. That will only continue to grow as we do that to be able to put more information out there. We talked a little bit about commercial augmentation this morning, I think, with the CSO.

Obviously, we have to continue to do that. We have a lot of satellite communications. We have to continue to look at areas. Space domain awareness, remote sensing, all of those things that commercial companies can help us. And then we just have to work as a space force on what are the critical things that we need a government or Guardian or civilian involved in that.

And we can continue to work that. On our allies and I see a lot of our allies [00:14:00] here. Thanks. Looking forward to the conversations and General Gibson and I and U. S. Space Command work with our allies quite a bit in Operation Olympic Defender and in the Combined Space Operations Board. Uh, and so lots of work there out at Schriever are out at Vandenberg Space Force Base.

Right now we have coalition folks that are on our C SpOC floor that provide us. We are in daily contact with the UK SpOC, the Australian SpOC uh, and the CAN SpOC. And so we're putting that together. We're, we're looking to add that. Obviously NATO has got a space center as well, and so we're continuing to work with that.

I think this is a huge force multiplier that we have to continue to do for both our commercial and our, uh, our allies, and we will continue to do that.

Brig Gen James Smith: I agree with all that sir. Of course I do.

Let me refer back to the, the phraseology that General Saltzman used in his C Note again. And we talked about perturbations in the domain that affect our ability to [00:15:00] do our mission. It's not just detecting those perturbations in the domain, but he also talks about preempting them. And so from a Chief Operations Officer perspective. We're focused on, uh, helping integrate that data into a fashion from our allies and our commercial partners, but also using that data in a fashion that we can preempt those threats or activities that may prevent our mission. So a couple of specifics that I would mention, General Schiess mentioned the NATO Space Center.

I was fortunate enough to be out at NATO the last two years before the previous job and to have insight into some of the work that nATO was doing as they

recognize space as a domain and then stood up the entities to get after this problem both in their command structure and in intelligence structure as well.

So we are active participants as the United States in that structure to include leading or directing I should say the NATO Space Center and that's where the data can come together and then give us a format in a forum where [00:16:00] allies that can participate share that data and then figure out ways that we can best preempt some of those threats.

The other thing we're doing, which you heard General Saltzman talk a little bit about this morning, is standing up components, uh, to our various combatant commands. Specifically, in this context, I'm talking about our geographic combatant commands. So, we have a component out of INDOPACOM, a component in EUCOM and AFRICOM, a component in CENTCOM, and I'm missing one. (SPACECOM).

Uh, and then, yes. But specific to the geographic matter, it's a good thing you're here. But the point of those components, uh, many missions, and General Saltzman talked about them this morning, but one of the things that can really help us get after is having that dialogue in theater with those allies and partners and help us get after the mission.

So, we're excited to have them. There's a plan, or continue to plan, I should say, to, uh, add components to those combatant commands that don't have them yet. And I think once we do so, that'll be a [00:17:00] huge benefit as we talk about allies and partners supporting us in this mission.

So

Maj Gen Gregory Gagnon: to add a little scope and scale to General Schiess' comments, um, 14 allied countries work with us inside that construct to use commercial information to help monitor outer space.

Both Leo and Geo. Inside that construct, the Space Force is leveraging over 600 apertures around the world that are geographically dispersed, both Northern Hemisphere and Southern Hemisphere. So it's solving a lot of long term issues that we have had in order to be able to sense on operationally relevant timelines.

It's been very useful. What would be more useful is not just continued spending by the United States government, but spending with our allies and partners as well. So that we can harness more resources against the problem. We have, uh,

particular companies in the U. S. that are [00:18:00] exceptionally good at space domain awareness.

They're able to provide alerts of, like, the SJ series of satellites that that the PLA use in China, and they're able to do that to commercial partners that take their service, or Or to the U. S. government, which is one of the receivers of that information. I will also tell you, that's informative to them for two reasons.

As a foreign partner or as a commercial company. The first is to know that there's a threat to your asset, right? Because somebody moved their, uh, space asset or space vehicle close to you. You'd want to know that. But the second reason, and more for the, for the military partners in the room, you'd want to know that the PLA has their monitoring assets overhead.

So it's, it's not commonly understood, but since the Space Force in China stood up in December of 2015, they've increased their on orbit assets 500%. It's not commonly understood, but for the last two years, they've placed over 200 [00:19:00] satellites in orbit each year, and over half of those satellites are remote sensing.

Designed to watch U. S. forces, Japanese forces, Australian forces. that are operating in the Western Pacific. It's not commonly understood, but they're using outer space in ways to support terrestrial kill chains that are quite profound and different from anything we saw five years ago. Today, in GEO they place remote sensing, which is geospatial intelligence, which seems like a crazy idea at first.

They have both electro optical and synthetic aperture radar satellites in geo. Why? Because this crowd knows this. In GEO, they can stare at the Western Pacific, which is their main operating area. Just this past year, they put a SAR satellite up there that can see at night, can see in day, can see through clouds, and can see with 20 meter, meter resolution, okay?

So they have profoundly changed not just the threats in space, but the threat from space. [00:20:00]

Lt Gen David Deptula: Yeah, thanks very much for adding that. And I would just add that in order for us to operate effectively in that part of the world, if we're forced to do so, we also need the capability to disable and take away that advantage, um, that the PRC has. Which gets to the issue of offensive space.

Uh, but that's another panel for another day. Uh, but thanks very much for adding that info. Um, Scott and Kevin, both General Atomics and Northrop are working on some game changing space domain awareness capabilities. I'm thinking specifically of Oracle and deep space advanced radar capability. Why are these systems so critical and what can be done, if anything, to accelerate their operational use?

Scott Forney: Thanks. Well, great question. So if you look at the numbers, uh, 10 years ago versus today, there's 10 [00:21:00] times more spacecraft that have been launched into space. And who would have thought last year we'd have one company that was capable of doing the entire amount of launchings that we did 10 years ago, exceed that last year.

So that trend's not gonna stop. And right now we're certainly worried about proliferated LEO and MEO and GEO, but now we've got XGEO. And if you look at the XGEO problem, we've got multiple countries now that have made it to the moon. And what else are we doing out around, uh, cislunar? So, when I look at what the AFRL RV is funding for Oracle, I mean, we're very excited to be on the Advanced Space Team, and we're leveraging our GA500 bus from the EOIR weather, uh, program.

Um, we, we are very excited though to do space situational awareness. And I don't think just putting it in the garage point one makes sense. I think we should put it at the garage point one, garage point two, and perhaps other locations. So we're hoping that Congress does come through with additional funding to be able to do really good [00:22:00] viewing.

And then of course, how do you get that data? Back to earth. How do you use that data back to space force needs? And I think at this point we're talking about laser communication is the right answer. I think we can do that from 550, 000 kilometers and have make sure that we reserve L. P. I. L. P. D. For the United States the best we can to accelerate it.

It's to me it's about money. We're, we're only slowed down on the, um, on the Oracle program, uh, based on money and it's nobody's fault. It's just the way it is.

Lt Gen David Deptula: I'd suggest maybe Congress, but that's another discussion.

Scott Forney: I'm trying not to be critical, but you can be quoted, David. Thank you. We're all quoting you today.

But GA is also working on two other cislunar programs. So we, we just think that's got it. We got to put a lot more attention. If we've got 10, 000 or so spacecraft, I think only about 7, 500 are operational today in space. How many more are going to start getting to that XGO? And what, what are our adversaries going to do?

And [00:23:00] back to the C SPOC, I mean, we really need to start getting, uh, information, I think, more real time so that we can help with that. Whether it's with your paid assets or our investment, I think it's all very critical. So, thanks.

Lt Gen David Deptula: Kevin? Yeah.

Kevin Giammo: Well, thank you, uh, for asking about deep space advanced radar capability or DARC.

Uh, you know, first of all, I'll say that, uh, at Northrop Grumman, we are very, uh, honored to be entrusted with the task of providing that system for the nation. And of course it's also in partnership with Australia and the UK. DARC will indeed be a game changing capability and space domain awareness.

Essentially what you're looking at is we've designed a radar, uh, specifically for the deep space mission. So you will get 24 7, all weather capability, which provides a lot of great persistence. Uh, and of course you can have, uh, with the three sites, you'll get full coverage of the entire Geo belt.

Uh, so you put that all [00:24:00] together and DARC truly will always be watching. And that's, that's what will be game changing about it. You know, and as far as operational acceleration, a couple things I'll note. Uh, first of all, when we started this program, our, our customer challenged us to, to move quickly.

And so, uh, the, the first gate was to hit a critical design review in less than a year. So we brought our digital tools, uh, into the mix. Our digital processes to help us go fast. And it was very successful and it was also really, uh, you know, interesting to see that process of our engineers collaborating across all disciplines in a digital environment, but the customer also executing in. Digital partnership with us, evaluating our design in the model while we were going through that design process.

I'll also note that the operational community was brought in very early. They've been very involved, uh, in design decisions, design reviews, iterative [00:25:00] demonstrations that we've conducted along the way. So, they're very quickly coming up to speed on DARC and what it will provide.

And as we field, uh, that system and get through integration and test, that digital twin of the model, modeling and simulation, visualization, performance modeling. All that will be left with the O& M community to really help them unlock the power of that system.

Maj Gen Gregory Gagnon: And, and if I could highlight it, it might actually lead to the next question.

The criticality of adding sensors to an architecture that has a plan, and the architecture has a plan today. And I'm sorry I'm not here for the whole day, but if you haven't talked about the Universal Data Library, that is a critical touchstone of this architecture. DARC in the requirements will feed sensor observations into the Unified Data Library managed by SSC by Barb Gulf.

That's our data lake, and in that data lake is where we have an application layer that allows us to [00:26:00] make the tools specific to the operators who work for General Schiess at both, uh, Schriever and at Vandenberg. Uh, it's very expensive for us to backwards engineer the older sensor suites into the UDL, but we are doing that at a measured pace due to money.

But as we move forward, every new sensor that sensors outer space goes to the UDL, which executes at multiple classification levels to allow us to provide decision advantage to the general.

Lt Gen David Deptula: Okay. This next question is for everybody on the panel, so we'll just go from left to right on the stage. Um, artificial intelligence and machine learning, um, offer powerful tools for pattern recognition.

Thank you. How are your organizations adapting AI and machine learning to help avoid operational surprise?

Lt Gen Douglas Schiess: Now, thanks for that question and kind of dovetailing on what General Gagnon just was talking about with the unified data library there. Uh, we are, we are not doing enough with what I would call [00:27:00] AI and ML, but there are some things that we are doing.

A lot of it is on the backs of young Guardians that are super coders or things like that. Uh, but we need to, we need to go beyond that. So just a couple examples, you know, the 18th Space Defense Squadron, the 19th Space Defense Squadron do conjunction messages on a regular basis. I think the CSO talked about the number of times we've had to alert NASA for a movemene of the International Space Station due to debris.

And so that is an intensive amount of work to look across the space surveillance network, know what's happening, make , make qualitative guesses at what's going to happen and do that as, as much as we can with, uh, the orbital dynamics and the calculations we have. But if we can have AI to be able to do that in a much faster perspective, then we can have those guardians doing other things besides that.

They are getting after that. They are getting, uh, tools to be able to do that as some of you in the room are providing tools to the Combined Space [00:28:00] Operations Center and to 18th and 19th. But we've got to get better at that. Uh, we talked about the, the JCO and some of the things that it is doing. It is using some of those same AI and really machine learning things to get at that predictive or there's been a change or how do we then look at that from that perspective that this satellite over here that we use on our list to look at is now doing something different than it's never done before. And not having to have an operator in the loop to make that decision, but at least bring that, uh, data to an operator to be able to do that.

So, the universal data library is going to help with that, but then we need the tools to be able to get that to the right Guardians that are part of mission planning cells, part of operations teams that are going to get after protect and defend deliver message. And so we have to do a much better job but it is really cool to see the young folks that we've now taken some, uh, given them some education in the super coder world.

And we've given them the ability. I mean, I think back to when Lieutenant, [00:29:00] Captain Smith and Captain Schiess were on an ops floor 24 years ago. I don't know if I should have said that, but you know we would have not been able to do some of the things that we, that they do now, because we didn't have those kind of tools or we weren't given the education, uh, to do that.

And the Guardians are just getting after, they're eating it up and they're, and they're going after that mission. But it's something that we have to continue to, uh, prioritize and put to the top of the list.

Scott Forney: Great, great comments. So at the recent AFA event, the CSO gave a great speech, and one of the analogies he came up with, I'm sure many of you listened to, was when the contestant environment we're dealing with in space today, it's like we've got to take the merchant marine and turn it into the Navy.

Well, I met with him shortly after because he knew I was both in the Merchant Marine and the Navy, so it hit home, actually. And so now I'm going to go back to that analogy. If that's what we're going to do, what can we learn from the maritime environment that applies to space? And GA had, for other reasons, [00:30:00] has been not patterning recognition under sea in a maritime environments and then airborne environments for a while. I think we've delivered probably 1100 1200 UAVs, uh, that have had to do pattern recognition using a bunch of great sensors. But now imagine that we can use smaller and smaller satellites, and these smaller and smaller satellites could be at the Pico scale, and you could put literally hundreds of them on an Esper ring, put them in the barn, and when you're ready to put a lot of sensors up quickly, launch them.

And now you've got them all over the place. So now you have a proliferator, whatever you want to call that. And they'll have unique sensors. They'll be doing all kinds of missions, but you can't possibly have human on the rooftop, uh, hundreds of thousands of satellites at the same time. No matter how good we think we are, we need to have AI and machine learning without question.

So, we've been spending a lot of time, uh, doing pattern recognition, learning as much as we can because we want to be able to make sure that there's autonomy on [00:31:00] some of these, uh, spacecraft programs. Whether it's at GEO, LEO, MEO, doesn't matter, or very low Earth orbit. Back to my Cislunar XGEO comment, we're going to have lots and lots of space situational awareness, or space domain awareness, and you're not going to do that without artificial intelligence, and things are moving at such a speed right now.

Whether the folks sitting in this room, uh, work on it or not, it's going to come because you can't get on the Internet anymore without having AI tell you, you know, what time you want to have coffee or what's your favorite blend of flip flops are. I saw Derek Tournear was bragging about his cowboy boots.

He's got nothing on flip flops, but the fact of the matter is we're going to get there and we have to get there. And unfortunately our adversaries are also getting there. So our job is to get as much information as we can and make sure that we have that one, I don't care if it's two toes ahead of it, I think we have to really focus on, uh, as much AI as we [00:32:00] can, but we have to do something important.

This is more of a policy decision and that is we actually have to let it work. We've got to let the man get out of the loop or the woman get out of the loop so that we can use that capability. It's very exciting. Very, very exciting. Thanks.

Brig Gen James Smith: So, one of the mistakes I think sometimes we make when we think about this concept of avoiding operational surprise is we focus only on red.

And while there is that aspect, and I think AI can help us get after some of, uh, understanding adversary behavior. I talked earlier about if there's norms and you see something deviate from the norm, uh, in the data pool that we're collecting against. I think that's can be helpful. But what we're finding also is a need to understand the operational readiness of blue.

So when we go to pull the trigger or to send the aircraft off the flight line, so to speak, it can actually fly and it's ready to go. And so from the COO office, some of the things we're doing that you may have heard about, we're building Operational test and training infrastructure. We created, uh, or [00:33:00] we're implementing it with the help of General Miller out at SPOC, uh, the SPOC origin, so that there's time to do some training.

But at the end of all these readiness activities, there has to be a measure where you can assess, am I actually ready? And we've done that over time in Air Force systems. That were tailored to measure Air Force readiness. But we're now implementing tools to measure Space Force readiness. One of the tools is called SBIT, Space Force Input Tool.

All this will tie to AI eventually, I promise. But, uh, we're measuring the readiness and then what we have found, we've kicked off a pilot where there's a team that is taking AI and machine learning to take all that data that comes in from a readiness aspect and identify trends. Where are your most significant deficiencies?

What levers could you pull that would have the most impact on a readiness? Then hopefully we can invest the next dollar against those levers. And there was a great question earlier this morning back in this area about Uh, not just the space layer, right? We're talking the ground layer, the links as well.

So, uh, when we look, uh, at Schriever or [00:34:00] Peterson or any of our major Space Force bases, our readiness has to be assessed in terms of the infrastructure that we rely on in order to execute our employed in place mission. So we're tying that into our rest of the measurement as well. And I think there's some great opportunity for AI, both automation in terms of reporting and the status of our systems.

As well as find the trends. Thanks.

Kevin Giammo: Great. I'll say, I'll just add quickly that from a Northrop Grumman perspective, certainly we are leveraging the the advances that are coming out of the commercial marketplace, also investing on our own. You know, you mentioned the UDL earlier, and I want to emphasize the importance of having those large data sets like the UDL will have to train your algorithms as time goes on.

That'll be critically important so the UDL is a great step. And I think also it'll be very important to train those algorithms with exercises and we need to think about exercising how we think, um, competition or conflict [00:35:00] would play out with time. But also what are those edge cases? Where it's not necessarily how we think it will play out, but again, you want your, your algorithms to get exposed to a broad range of possibilities so they can really help you with, uh, proper decision support.

Lt Gen David Deptula: Okay. Good. I do want to leave some time for audience question and answer. Um, so I see a hand already up. I was going to do one more question, but given the time, uh, we'll go right to Q& A. So please let us know who you are. Wait for the mic and then go ahead and answer. Ask your question.

Question 1: Yes. Thank you, gentlemen.

I'm Jim Rice, Nantic Software, uh, U. S. flag company out in the Bay area. The last question is, or my question is about the last comment, and that was about the AI and exercising it, and I'm very curious as to how ready the labs and or the integrators are to take on the ability to take the models that are built [00:36:00] and then apply them in an operational context, and I'd love to talk to whoever has a good answer.

Lt Gen Douglas Schiess: Um, Happy to talk to you afterwards, too. But I'll pivot to the exercise part of this, And then if that doesn't answer your question maybe afterwards we can talk about it. General Smith talked about our operational tests And training infrastructure that we're getting after. So, uh, for those in the SPA 4 gen the Space Force generation model that we're doing From.

How at space operations command under Lieutenant General Rock Miller training forces, getting them ready, and presenting them to Space Force components, so Space Force Space. They need the capability to use some of this AI, this ML, or even [00:37:00] qualitative algorithm and things you were talking about there to be able to test in environments that, uh, that they can't test

every day or that, you know,.. I think of the F 35 and the things that it can do and its simulator and things that it can do without actually ever taking off.

We need that in space too so that our operators can fly their first 10 missions or do those kind of things that we do in other domains. And so we're getting after it. It's not as good as it should be. And I know I think I've said that several times. But the Guardians that are doing this are incredible.

Um, I was at a dinner last night, it was Chatham House Rules, so I won't say too much. But there was a discussion on our, how long is it going to take for our Guardians to be ready to do some of the things that we need to do in the future. I'll tell you they are chomping at the bit right now to get after some of those missions that we have.

And they are doing incredible things and a lot of things that we just can't even talk about in this, this forum. But we need to be able to give them the tools that they need to be able to do that. So I don't know if that answered your question, but happy to [00:38:00] talk to you afterwards too, so.

Maj Gen Gregory Gagnon: And I would tell you from a intelligence perspective, we've already started building red threat models based off of what we know.

We have a few hundred done already, uh, where our goal is to create those models at all classification levels so that they can be used in different training venues with different warfighting forces, both coalition and U. S. It's a very long list that we have to work on, because for every model we make, we really need to make it four different ways and not just make it four different ways, which is a physical model of physics model of behavioral model.

And there's one other that I'm missing, but We also have to make it in two operating systems, so within the Department of Defense, there's sort of like a Windows and a Mac when you get down to simulations and how the services do simulations. So our goal is to take all the information we know. Properly tag it and be able to, for, you know, if we had a model of Eddie, right?

We would actually have eight Eddies, right? It would be in the two different operating [00:39:00] systems at all the different classification levels. I don't know if the world could handle eight Eddies, but we would have eight Eddies.

Scott Forney: From an industry perspective, the answer is we are putting those models in today.

We have the training and you can't do many of the missions today if you can't, uh, already do some of the SAI.

Lt Gen David Deptula: Okay, we got a question on the starboard side of the room.

Question 2: Good morning, sir. Um, Kurt Hackmeyer from Northrop Grumman. Um, I guess it's again a question on readiness. Looking forward, I kind of question if you need it bad, you're going to get it bad.

And right now it seems like the Space Force needs everything and they need it right away. Dr. Tournear prides himself on doing things rapidly. My question really is I see everybody ripping their microphones off and using the old. Old system, but it works. [00:40:00] Um, how are we going to go forward and fight China with systems that have never been tested?

They've never been integrated. And they're really questionable as to whether or not they'll have that kind of performance. And then, General Deptula, you wouldn't have jumped into Cessna 172 to go deliver bombs in Desert Storm. You had a system that was very reliable, tested, and militarily defined for operating.

How are we going to do that and make sure it works going forward?

Maj Gen Gregory Gagnon: So I'll just start with the assumption. The assumption in his question is that we control time. That's a false assumption. Over to you.

Lt Gen Douglas Schiess: It's always great to be on the stage with Greg. I'm going to pivot back to again, General Smith and the operational test and training infrastructure.

Uh, I'm not, uh, I'm not at the Pentagon, thank goodness. I love my job. [00:41:00] Uh, but, so I don't know the amount of money that we're putting towards that. I don't have that off the top of my head. But we're putting significant resources against this ability to do that. You know, in my coming up on 32 years here, um, we have been advocating for simulators, for operational tests, for this environment, for the longest time. For those of us that started out in the ICBM world, you know, we had the simulators that we needed. We had those, uh, to be able to do our training and our ability to practice before we actually did, uh, the mission that we hoped that we would never have to do.

We, we did not have that in the space. And every, every operational, uh, assignment that I had, we were always... we always were trying to get something that would be able to do that. I think we're getting after it now. We are making decisions to get after this operational test and training infrastructure to be able to do that.

As we bring on new systems, we are, you know, the CSO talked about dot MLPF. We are doing things that we're saying, "Hey, we can't operate this. We can't buy [00:42:00] this system if we don't have the training infrastructure to be able to do it." Uh, testing, we have to have the ability to test. Some of that's policy, but we can have other ways to test without actually doing it.

We do that in other domains as well. So we will continue to fight for that. But I would tell you, if I had to get into 172 and drop bombs, you know, I did solo once. Uh, but I, you know, I would do it if I had to. I don't want to have to do that. But what I think I was trying to tell you earlier is, you know, The Guardians are, you know, these big satellites, these big things, they are finding TTPs to make them more resilient until we get the resiliency that we are doing.

They are finding other ways to operate, to be effective. See, I'm running out of time. And so, I just want you to tell you, the guardians are incredible. We're, we're getting after it. We do need what you're, what you're talking about, but we have to, I hope what we have today and look towards tomorrow and back to time as we don't know how much time we have.

And so we have to do [00:43:00] what we can do right now.

Brig Gen James Smith: The thing I would add to all that, if you look at our OTT acronym, the O is operational. And I would say, uh, if you go back to however many years ago it was, General Schiess and I were a Schriever flying GPS. We called that operations, but that was really engineering.

We were experimenting with systems to provide a service to the warfighters. Now we're getting after operational tests. How can we use these systems that are being built in order to, uh, execute a combatant commander's mission? And there is no intent to put these systems into a combatant commander's fight without a testing.

This comes why digital models are important, why OTT infrastructure is important, the range that we're building. Uh, all get, has to integrate in a fashion that we can do exactly what you're saying, which is make sure we're providing. Tested capable capability to our warfighters.

Maj Gen Gregory Gagnon: Let me just highlight two things to operational test and the requirements for [00:44:00] instrumentation and the engineering is very high standard.

Operational training is not as high. So those aren't homogeneous requirements and understanding that's important. I will tell you, uh, the urgency of the need is that we may be out of time. So we must move fast. And if we think the United States doesn't put things in combat before testing them, I just ask you to remember the ISR task force that was run out of the Pentagon 15 years ago when General Deptula was sending prototypes forward to Afghanistan to the 495th Intelligence Squadron to execute it.

We do it all the time. We don't always get to choose when we do national security missions. Sometimes the adversary gets a vote. Our job is to be ready.

Lt Gen David Deptula: Okay, time for one more question from the audience, and if you don't have one, I've got a quick one. Okay, let's finish it up with this one. One of the objectives today [00:45:00] is to foster a debate about General Saltzman's theory of competitive endurance.

So in that spirit, a bit of a lightning round, if you will, what would you like to see added or expanded in the discussion to ensure that we can avoid operational surprise?

Lt Gen Douglas Schiess: Um, I don't think we need to add anything to the CSO's competency. I'm just kidding. I fully concur with the CSO's. Uh, no, but what I would say, and it gets back to, you know, I have both feet here in the Space Force and U. S. Space Command. Uh, and I know that we're getting after at U. S. Space Command is a active campaigning, uh, situation.

And so, uh, goes back to competitive endurance. And so, we have to actively be campaigning out there to show that one, that we know what our adversaries are doing and two, we do have the capabilities that we need. And so, we're going to continue to do that. We're going to work with our allies to do that.

I think that's a part of his, uh, competitive endurance as well. What [00:46:00] can they do that we, in conjunction with them make better. And so I would just say we just need to continue our campaigning because we don't, it's deterrence. We do not want to get to, no one wants a fight in space. And so we have to have the things, the competitive endurance to say that this is not a good idea.

Today is not your day because the United States is ready.

Scott Forney: I have a simple answer, um, it's probably too simple, but we actually need a budget approved on time, simply stated. Waiting six months.

Lt Gen David Deptula: I told you Congress would be the problem.

Scott Forney: It doesn't give us a competitive endurance advantage whatsoever. Because I don't think that PRC is worrying about when the budget is going to get approved.

Lt Gen David Deptula: Well said.

Brig Gen James Smith: So 30 years ago, as a cadet, we learned about this guy named Billy Mitchell, who debated his boss's theories in prop and in public. I'm not sure I want to go that route. He did get it. He did get an institute named that.

So, um, the one thing I would say is let's just be cautious at equating, avoiding operational surprise, uh, with SDA. I think it's [00:47:00] much, much more than just space domain awareness. Uh, as I mentioned earlier, it's understanding intent of the adversary. It's preempting and it's getting after our understanding our readiness of our blue forces.

Kevin Giammo: Yeah. And I'll expand on that comment. I think, uh, one thing we really haven't talked about, but the theory does mention environmental monitoring and I think we need to recognize that it's a difficult environment there. If you think of the history of warfare, how many times an adversary, an aggressor has used the environment to be able to achieve operational surprise, we've got to stay ahead of that.

So we need to think about those environmental monitoring systems and understanding as well.

Maj Gen Gregory Gagnon: How can you help us avoid operational surprise? You can protect your cyber networks and your intellectual property. Because I, for one, am tired of seeing carbon copies of U. S. intellectual property on airfields and in other places in China.

So help us help you.

Lt Gen David Deptula: Wow, what a great way to finish up this [00:48:00] panel. Unfortunately, we've reached the end of our time. But the good news is We've got a lunch coming, so, um, we've got a break, but I would ask you all to please be back in your seats at 1210, you know, food will be served, you can

start eating, uh, but , we've got a lunch keynote with Dr. Plumb, and look forward to that. And now please join me in thanking our panel members.