



Transcript: Day 2 - September 10, 2020
PANEL 3 - EVERYBODY WANTS A SPACE FORCE

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- **Maj. Gen. Michel Friedling**, Major General, Commander, French Space Command
- **Maj. Gen. Hiroaki Sakanashi**, Director General of the Project Promotion Group for Emerging Domains and Programs, Air Staff Office, Koku-Jieitai (JASDF)
- **Maj. Gen. John Shaw**, Combined Force Space Component Commander, U.S. Space Command, and Commander, Space Operations Command, U.S. Space Force, Vandenberg Air Force Base, California

BRIAN WEEDEN: I'd like to turn to this morning's topic, which is military space activities. Over the last few years, we have increased--heard very much increased concern from many countries about the militarization and even weaponization of space. Space capabilities are playing a bigger role in military power and national security, and multiple countries have been developing ability to deny, degrade, or even destroy someone else's based capabilities.

These include ground based and space based anti-satellite weapons, high powered lasers, radio frequency jamming, and cyber attacks. From SWF's perspective, we have been tracking the proliferation of these counterfeits capabilities through our annual Global Counter Space Capabilities report, which is available on our website. As a result of these growing threats and the increased importance of space for military uses, there has been a more public discussion about what to do about these threats from senior political and military leaders around the world.

Here in the United States, these discussions have led to a significant reorganization of military space activities, which has included the creation of the US Space Force and the resurrection of US Space Command. But the US has not been the only country grappling these issues, as several different countries around the world have all been looking at how they should respond to increasing space threats with organizational, policy, and strategy changes of their own.

So with that bit of background, I'd like to introduce a panel of international military leaders who are joining me to talk about these issues--and if I could ask all my panelists to please go ahead and turn on their audio and video--these leaders have all been deeply involved in grappling with these issues of space security and dealing with threats and challenges in their own countries and implementing changes to try and address those threats.

So I'd first like to introduce Major General John Shaw, who has served as a US Space Force operations professional for nearly 30 years and currently wears two hats, one as the Combined Force Space Component Commander for US Space Command and the other is commander of US Space Operations Command in the US Space Force, and I think we're gonna have a chance to talk a little bit more of what the different hats are as we go along here. I'd also like to introduce Major General Michel Friedling.

He's a distinguished French Air Force pilot and a strategist who currently serves as the commander of the recently created French Joint Space Command. We also have Major General Hiroaki Sakanashi, who has had a long career in cybersecurity and C4 systems with the Japan Air Self Defense Force and currently serves as Director General of the Project Promotion Group for Emerging Domains and Programs, as well as Vice Commandant, Air Command and Staff College at the Air Staff Office for the Joint Air Self Defense Force.

And finally, we have Brigadier General Michael Adamson, who is a career Navigator with the Royal Canadian Air Force and recently been chosen to be the Director General and Component Commander of Space at National Defense Headquarters. We're going to run this session as a conversation and hopefully an interesting one.

As I mentioned earlier, if you'd like to ask a question, please go ahead and drop that into the question and answer, and I will be incorporating those into our discussion as we go along. So I think we'll get started just by talking about what is happening in the space domain that is driving a lot of this discussion. And General Shaw, if you don't mind, I think I'll start with you.

Um, what have you seen in the changes in the space threat landscape over the last few years? And how would you compare it to, let's say, you know, 20 years ago?

MAJ. GEN. SHAW: So Good morning, Brian. And good morning to all those watching today. Good morning from the Central Coast of California here at Vandenberg Air Force Base. And let me also say it's an honor to be on this panel with some terrific teammates that you've already introduced, and I'm happy to be here.

You know, Brian, I think--I think if you don't mind, I'd like to--I think for proper context let me widen your question to not just the threat landscape. What's happened in space that now has probably, has driven what we see as threats within the space domain? So, you know, we're approaching the 63rd anniversary of Sputnik here in a couple of weeks. 63 years, not a long time. And I think we could ask the question, what will historians write about human activity in the space domain say in 2057 looking back 100 years?

And I think that they will write that what humans did in the space domain mirrored what they did in other domains. As they progressed, it started with exploration. Then it started with state only activity and then rapidly expanded to civil activity, academic activity, commercial activity.

We saw this, I think, in history and the maritime domain. We could say the same has happened in a much more compressed timeline in the cyber domain.

And it's in that context that as things evolve, that they're now becomes in that domain--as humans have more activity in that domain--that there is mischief and outright threats.

And I think in some ways it's, we'll see.

We will look back on and say this was a natural evolution of humans expanding into the domain and all kinds of activities. And so what we, what we've seen more recently, we tend to point to 2007, the Chinese ASAT as an inflection point, but what we've seen is a steady drumbeat of, of threats increasing. You've, you've already mentioned a few of those in the last 13 years.

And most recently, even just within the last couple years, Russia in particular has shown a wide spectrum of threats that, that they're developing and fielding. You could talk to some of our commercial partners about concerns of Russian satellites in GEO that might qualify as the mischief piece that I mentioned. And then, even in within the last year we've seen, in April, a Russian ASAT test from the ground into LEO.

And even more recently, we've seen activity in low earth orbit with a Russian satellite shadowing a US government satellite and then later on launching what appears to be an on orbit, satellite, anti-satellite test. And this particular test involved the ejection of a projectile from a Russian satellite. We had seen a similar test in 2017. We saw it again in July. The Russian explanation....that projectile was an inspection satellite. But that doesn't match what we saw.

They called it--if you saw a ship at sea, launch a projectile at relative high speed to the launch platform in a relatively straight line on and didn't do much maneuvering, I'm not sure you would call that an inspection ship. You would probably call that a torpedo.

And that's exactly what I believe we observed the Russians testing, was a space torpedo. I could add, many other threats that we've seen along the continuum of space, of counter space capabilities: the proliferation of electromagnetic spectrum jammers, directed energy, and we--What we have done, I think, is respond to those developments in order to protect our space of capabilities that we rely on, not only for national security means but also for economic prosperity. I think I'll finish my statement by saying, you know, that your title of this panel is a good one.

I think everybody wants a space force. And so I think a fundamental question could be: Why do so many nations now want a space force? And I would, I would propose that the answer is analogous to why do oceangoing or spacefaring nations want a navy? It is to secure that domain for all activity and to deter threats in that domain. Nobody wants a war on the high seas.

Nobody wants a war in space. And I think we're all looking to this domain as extremely important to the future of humans. And I think the development of space forces is a natural evolution in that regard. Thanks.

BRIAN WEEDEN: No, I thank you. That, that's a great opening perspective on this. General Friedling, I wonder if you could maybe expand on that and sort of provide the French perspective of what you've been seeing over the last few years, that has sort of driven this discussion in France and Europe more broadly.

MAJ. GEN. FRIEDLING: Good morning, Brian. And good morning to everybody watching and listening to this panel, I'm not sure I could extend, what--brilliantly said by General Shaw. We share the same concerns. We share the same, the same statements about what is happening in space. So we are fully in line with these words.

So our answer was, you know, our new space defense strategy that we released in 2019--the impulse came from the president himself, saying that space was a matter of national security, like cyber. And we already had a cyber command. We didn't have any space command or something appropriate to face these challenges. So we worked for one year under the direction of our Ministry of Armed Forces, and we made actually made the same statements that General Shaw described very, very well. And first of all, and I don't want to state the obvious, but first of all, the crucial importance of space not only for defense purposes, but only, but also for the daily functioning of our societies and for the economic prosperity.

And this, and from a military perspective, these services are really crucial to our self-sufficiency in terms of decision making and for our military operations. So the second statement was the, you know, the upheaval of the world space ecosystem with the, you know, the democratization of access to space with the appearance of many, many actors, non-government actors in space, commercial projects and the congestion of space.

And then finally, the last statement was the vulnerability of space activities and infrastructure. And very recently, all the events that John Shaw described very well again, we have seen them and we are really concerned about them. So this is the reason why we decided to release the strategy and there are four axes in the strategy. I would say the first one is a new doctrine for military space operations.

And specifically, the main point of this new doctrine is the ability to detect, characterize, and respond to any hostile or non responsible action against our space interests.

The second axis was a new capability ambition, so capabilities to be able to do that. And so we are working on this quite, quite hard.

The third axis was to change the governance, the organization of the Ministry of Defense, by creating a new command dedicated to space and in order to be much more efficient to face these threats. And the fourth axis was to develop and to increase the space expertise in the Ministry of Defense to be able to achieve these missions.

That's excellent. And I think a little, a little bit later in this discussion, I would I'd like to unpack some of those and talk about, you know, some of the details, because I think those are challenges that I think all four of you are trying to address. How do you deal with capabilities, how do you deal with protection, how do you deal with expertise?

So, General Sakanashi, I'll turn to you now, and sort of ask, from the perspective of Japan. Do you see similar challenges as to what General Shaw and General Friedling talked about? What is your view on what is changing in the space domain?

MAJ. GEN. SAKANASHI: Basically, how we see the security environment in the space domain is just as General Shaw and General Friedling said. And the security environment in Japan is changing at extremely high speed. Changes in the balance of power in the international arena, actually I think end up becoming more complex and uncertainty over existing orders increasing. And in addition, the rapid expansion in the use of new domains such a space, is poised to fundamentally change the existing paradigm of the national security.

So, uh, with regards to space security, truly is a problem. One more point is, uh, the sense of space and also the cyber domain want to be used for civilian purposes, so if stable use of these domains is impeded, it may enter serious consequences for the safety of state and the citizens.

Yeah, and from the international perspective with the international community, there is a broadening and diverse array of security challenges that cannot be dealt with by a single country alone, and so, that's basically challenges is a very typical, uh, example for the security challenge. That's all I have.

BRIAN WEEDEN: No, it's excellent. Thank you. So General Adamson, turning over to you now. I think, you know, a lot of people are familiar with Canada's Civil Space Program, and the amazing Canada arm you guys had first on the shuttle and now in the International Space Station, maybe a little bit less familiar with what Canada's military activities have been in space. Can you kind of talk about the history of that and sort of what Canada's military has been thinking about space and how that may have been changing?

BRIG. GEN. ADAMSON: Certainly. First of all, I'd just like to, I thank you for including me on this panel as well. It certainly is a delight for me to be here with such an auspicious group. Canada, obviously, as you mentioned, has a long history of space activities, going back to our initially Annex satellite, uh, years and years ago and the space arm.

From a military perspective, though, there's been a growing awareness within the Canadian defense community, and the government certainly, of the importance that military space is playing in the overall picture of maintaining access to the space commons, maintaining mission assuredness. And so, as a result of that, we published a defense policy in 2017 that really clearly articulates, that recognized the importance of space domain to all of our activities from a military standpoint, but also how clearly they are interlinked with what we're doing on a civil and commercial situation as well. So that policy basically provides us the starting point from which we're moving forward and trying to expand and grow our military operations in space.

We've had a long standing relationship with the US obviously working alongside in the NORAD domain. And then we're expanding our alliance framework, if you will, through the Combined Space Operations Alliance and, uh, and working, you know, as NATO develops an awareness of the space domain as well, working with our alliances there.

So really keeping that military interaction piece with the alliances, understanding that very few nations, can go it alone. Canada always recognizes the importance of that alliance structure.

So we're trying to find those capabilities that we can bring to bear that contribute to the overall awareness picture. So whether it be our Sapphire system which contributes to awareness of space domain or whether or not it be our radar sat constellation which is providing a little bit of maritime domain awareness. And, obviously there are other areas that we want to be, uh, up to speed in and experts in as well, such as global communications and specifically, polar communications.

So the military is looking at those capabilities, those that we have and the ones that we want to, you know, to continue to have and bring forward. But, you know, what that means in the context of our alliances as well to make sure that we're a partner with everyone else that we're doing that with.

BRIAN WEEDEN: Oh, great. Thank you. So each of you mentioned that these challenges you've been experiencing, you have driven changes in your own country. And I wanna kind of go through and touch on those a little more significantly and talk about what those are.

I think General Shaw, I'll start with you because it's probably been the most written and the most kind of public awareness about the recent changes in the US. Can you just briefly, for those people that may have not have been entirely following what's been happening--there has been a lot in the last year and a half or so--to recap what has happened in the US and what the big changes that have been?

MAJ. GEN. SHAW: Sure Brian and you're right. So much has happened, I'm sure I will miss some big pieces just in the interest of time. But I'll start with US Space Force, again approaching nine months--only nine months ago that United States Space Force was formed, and already we've made some tremendous progress. And I would point to, again, my opening remarks of the creation of the United States Space Force was not only necessary, but it was inevitable. As we were going to further security interest in the space domain, it becomes natural that you would have a service dedicated to providing the capabilities and, most importantly, the people, the expertise to provide security in that domain.

And we continue to--General Raymond is our first Chief of Space Operations. [He] has led us through some tremendous progress already in less than nine months in terms of reorganization, bringing people into the Space Force and, uh, and prioritizing the development of capabilities for that force. Then the other--that's one large planet, new planet in the solar system. Another is, as you mentioned before the United States Space Command. Brian, you used the verb, resurrection, I think or resurrected.

I think I would throw out, maybe reincarnation might be a better word, although we could probably find an even better word than either of those because it is not the United States Space Command of 1985 to 2002. This is a command that's now addressing a much wider spectrum of threats, and in some, in many ways, General Dickinson, as the United States--will be a supported commander in future activities as we conduct all the main operations and future conflicts.

And again, as you introduced me, I actually wear hats in either, in both of those organizations, and it's been...quite an interesting experience for me to see us evolve both of those organizations. A couple other pieces, though. One other thing that we did within the last year is we stood up the, we converted what was the Joint Force Space Component Command to the Combined Force Space Component Command and over my left shoulder, you'll see the patch that has that word 'combined' in it.

I'm very proud of that in my duty title because it links to what you've already heard a couple of my colleagues saying, and I'm sure we'll talk more about, is that it means an alliance. It means that we work together as allies and partners to secure the space domain, and I'm happy to be part of that. I would also say it's not just the Department of Defense.

We've seen some movement in other sectors as well, and I think that, for example, I think we will see very soon here, the Department of Commerce taking on a larger role with regard to space situational awareness and space, and complementing Department of Defense activities on space domain awareness. And so it continues to broaden. It continues to materialize.

And I think we'll see much more happening in the next couple of years at the same pace that we've already seen the last, last couple of years.

BRIAN WEEDEN: Excellent point, and your point about the 'combined'--I think that's one of those military terms that I think the general public may not be entirely aware of.

But, you know, 15 years ago I was part of the Joint Space Operations Center, which implied that it was joint across the different services, Army, Air Force, Navy, Marines. And then, as you said recently, that's been changed to combined, which in military lingo means not just joint, but also bringing in other countries, those allies and even those commercial partners which think we'll also talk about a little bit further on the conversation.

Just quickly, to go back to General Shaw again. Can you kind of delineate what the differences between your responsibilities with your Space Force hat and your Space Command hat?

MAJ. GEN. SHAW: Yeah, thanks, Brian, for the opportunity. So I think there's still some confusion in our general American public about US Space Force versus United States Space Command. And I would point to--this is how we organize as the Department of Defense in all domains. We have services, and that would be the United States Space Force analogous to the United States Air Force or the Navy or the Army, that organize, train, and equip and present capability, right?

They're the ones that build the equipment, that train the warfighters and then present that capability for a fight. Those are services. Combatant commands, of which United States Space Command is the 11th of all of the combatant commands in the Department of Defense, and others would include Northern Command or Strategic Command or Central Command, Centcom--that might be a little bit more familiar to folks in the American public, those are actually the warfighters.

It's how we fight as a joint force with multiple services and use those capabilities that the services have developed in operations. And so part of my job is overseeing the service side of our space capabilities, and ensuring that we're training our folks properly and that we're bringing on capability properly and are operating it effectively.

And then in my joint hat, we actually operate those capabilities for the benefit of joint warfighters. If someone in the Indo-Pacific region or in European Command needs satellite communications or needs, uh, other, or missile warning capability, than it's in my joint hat that I ensure that that capability is there for those warfighters. So I hope that helps differentiate between those two.

But I would point again, that is how we do things in the Department of Defense. It's not unique. It is actually normalized to how we do things in other domains and across the planet.

BRIAN WEEDEN: Great. Thank you so General Friedling, I'd like to turn to you and sort of give you a chance to expand on what you mentioned earlier. So we just heard from General Shaw the organizational changes in the US and the US is, I'll say, is different than other countries in that the US military tends to have a lot more forces and a lot bigger of an organization. And so this is their approach in these two separate organizations.

Can you expand a little bit on what France's approach in the past was to military space and what this new change of this new joint command really means?

MAJ. GEN. FRIEDLING: Obviously, this is very different from the US, although we have some kind of similarities between two countries and I will explain them. Ah, first of all, you know, this morning I was with the media, French media, because tomorrow, tomorrow we will have a military ceremony with the chief of the Air Force and the Minister of Defense Parly.

And because we, the French Air Force, is now named French Air and Space Force. So we kind of have a space force too, I would say, but--so this morning I was with the media and explained a little bit history of space in France and the Ministry of Defense.

And actually it started in 1947. And between 1947 and 1962 in Algeria, which was French at that time, we had the first spaceport, would say, French spaceport. And this is the place where the French Air Force and you know, the ancestor of what is today the French Procurement Agency, the DGA, and the ancestor of what is today the French Space Agency.

All these together, they developed the first French rockets to go to space. And this is amazing because this is today what we do. We work with the same people, the French Air Force, the French DGA, and French Space Agency. So this was a long time ago. I would say, in the--in the mid nineties, late nineties, we created within the Air Force the French Air Force, two units, one delegated to the control of the observation satellites, another one dedicated to the space surveillance.

They were belonging to French efforts. And in 2010, 10 years ago, we created a so called joint space command. But my opinion is it was everything but a command. It was kind of departments within the joint staff in Paris. Only 40 people there in charge of the military space policy, this is what--the way we call it in France, means, uh, procurement programs, space capabilities, cooperations, and so on.

And all the operational units were belonging to the Air Force. And during the Space Review last year, we figured out that this organization was not consistent, was not efficient, it was not visible, and we

decided to create a single organization and to put together within this organization, all the different units and people in charge of any aspect of the space domain, either in the joint staff or in the Air Force.

And this command is very small actually, it's not like in the US, it's very small. Today it's a little bit less than 300 people. It will be 5500 people in the three year time, so we grow up and it's--it's a kind of unique and hybrid command because it's at the same time in charge of the military space policies.

So military capabilities, it's a incorporations in the space domain. It's also in charge of creating the space expertise, recruiting and training people. It's also in charge of, it's kind of operational command because it's in charge of conducting some space operations. So, and the other point is that it's a joint command, and this is a crucial point. This is a joint command, but within the Air Force. And I would say this is a kind of similarity that we have with the US.

Because in the US, you have created the space force. So a dedicated service, but within the department of the Air Force. And this is somehow the kind of similarity because we have a joint command dedicated to the space domain, but within the Air Force. And so it's both joint and air.

BRIAN WEEDEN: Mhm, that's excellent. Thank you. So General Sakanashi, actually, turn to you. So Japan is also making quite a lot of changes. You talked about them a little bit, but that that starts with sort of different thinking about the Japanese, the role of the Japanese military in space, which was new. And you've also made some organizational changes recently, very recently. Can you talk a little bit more about what these changes in Japan have been over the last, let's say, 10 years with regard to military in space and the new organization?

MAJ. GEN. SAKANASHI: So, basically, uh, Japan has a long history for basically banning the military space activities and only JAXA is an active space entity. But we changed the law. And we, uh, the government of Japan financed the national defense program guideline for fiscal year 2019 and beyond.

And in that so creating the space unit is decided. So, in this year, 2020 the Koku-Jieitai, the Japan Air Self-Defense Force, we have very first space dedicated military unit called Space Operations Squadron, which is a small approximately 20 personnel and, uh, so far fully equipped, but very epoch making. And very, uh, shows a leap forward for Japan Self Defense Force. So 2020 is really a stretching year for us.

BRIAN WEEDEN: Excellent. General Adamson again, I think, you know, give me a second to expand a bit more on if there's been any recent changes in the way Canada's approaching space, but also something we haven't really talked about yet, is the Combined Space Operations Initiative and I know Canada has been playing a role in that. So if you could talk a little bit about that, I think that would be very useful.

BRIG. GEN. ADAMSON: Certainly. So from a Canadian perspective, we're certainly like most nations, going through an evolutionary process in our organization. Probably not to the same extent is what we see in the US, with the creation of Space Force.

But, a very similar alignment of our organization and how we're structured. Up until a few years ago, sort of a nascent space capability was nested within our vice chief organization with the original stand up of director general space.

As there's been increased awareness and recognition of the importance of the military space aspects, um, a few years ago with the release of our new defense policy, we underwent some organizational changes as well.

It was felt that the importance of space demanded that it really needed to sort of move out of that, sort of offices within the vices organization, and really head over to the Air Force where it could be shepherded with the full scope and benefits of that structure. We've done that, we've moved space sort of underneath the commander of the RCAF, the Royal Canadian Air Force, but as a result of that have been able to leverage the Air Force writ large in things like moving projects forward, interacting with industry, and that kind of thing.

So now the Air Force is responsible for space across the entire spectrum of operations. As a result of that, my position really has become dual hatted as well. So within the Air Force, I'm director general of air, or space rather, which, you know, has an administrative and bureaucratic function to it. On the other side, I'm also the space component commander responding to our operational command.

So as we do with other air platforms, whether it be air mobilities or our fighter or what have you, the Air Force is responsible for generating forces, to make sure we've got the air crews and the capabilities, and when time comes to employ those forces, they are chopped over to the operational command then to employ whatever they might need. And space is now no different than that.

The Air Force is responsible for generating those forces and shepherding them and handling the projects and procurement aspects. And then we take that in a force employment perspective and chop that over to our operational command. As we continue to evolve that even further, we're looking at basically mirroring organizationally and doctrinally what the Air Force is about.

So in that respect, we have air divisions that have got the air power that are generated, and then handed to operational command for employment. And so similarly, we're exploring the possibility of shifting yet again and looking at perhaps a space division with associated wings that would generate the forces that would then go off and work with the operational command.

So it continues to evolve and does so reactive to the environment that we're operating in. You know, it's important, I guess, that we sort of observe what those required interactions are going to be internal to the Canadian armed forces and the joint aspects, but also make sure that we are able to react and interact with our partners. And you mentioned the combined space operations as well. That is a large portion of what we do.

And in no small part, we organize ourselves to make sure that we remain interoperable. For instance, within our operational side we've got the Canadian Space Operations Center, the CANSpOC, which is, you know, on a smaller scale, mirrors what the space operations center within the US is doing.

And, we've got a lot of ties with that organization and with the other CSpO partners and their operation center as well to make sure that we can, you know, back up what is being done.

I think it creates a level of redundancy which also creates resiliency, which is, you know, is extremely important in military operations.

And so I think that really importantly shapes how we're moving forward and evolving our organization as well.

BRIAN WEEDEN: Yeah, it's been interesting to kind of follow the evolution of that. You think back, it was the 2010 Schriever War game exercise, this notion of Combined Space Operations Center that brought in partner, ally partners and commercial partners.

And it's been over the last 10 years, sort of the, ongoing shift in trying to bring at least part of that vision around. And then, of course, now, today we have not only the CSpO, which you mentioned, which is sort of the, how do we talk across different countries space operating centers, but also the Combined Space Operating Center now exists out of Vandenberg, which I think is a pretty interesting, you know--the military is a big bureaucracy, right? It takes a little time to make some changes, but it's been, it's been interesting watching some of these changes over time.

General Adamson, you talked quickly about language General Friedling mentioned earlier about the need for training and sort of building a cadre. You know, I introduced you as a navigator because traditionally that's sort of been one of the main sources of space expertise.

Can you talk about kind of the evolution of the of--because you don't have a specific space career field as far as I understand it in Canada or do you?

BRIG. GEN. ADAMSON: We don't actually, and that's a bit of a function of our size. You know, I don't think we have the ability at the moment to dedicate an entire occupation stream just to space operations.

That said, we do have occupations within the Air Force and the Army and the Navy, um, that have, over time, really been the go-to occupations when it comes to, you know, engaging with space operations for a number of reasons.

And those occupations, air weapons controllers, for instance, within the Canadian Air Force, Air Combat Systems Officers, which is what we've renamed our navigators. Folks with that air domain awareness, um, that that are used to operating in that environment and have relied a great deal on on space capabilities as a consumer in their operational fields are folks that have demonstrated interest in that and have gravitated towards the space employment.

For us, it remains a bit of an attraction issue for us. So, you know, we want to obviously let the rest of the Canadian armed forces know what is going on in the space domain. We want to attract not just Air Force officers, but it is joint. So we want to make sure that we include the Navy, the Army and the special ops folks.

And we do have those folks seated within our organization as well. We are very much a joint organization. I don't know that we will get to a point where we have an occupation specific to space, but it's something certainly we could aspire to, and then something that quite possibly may manifest itself down the road.

But in the meantime, we have a cadre of folks that will sort of come in and out of that space here. Um, they'll come in, they'll do some time within the space realm, perhaps go back to a parent community. Um, you know, go on, move along in their career, come back at the next rank level.

And our hope is, as we continue to grow the enterprise, um, that a future, you know, replacement for me, a future DG space, somebody that has spent their entire career sort of moving in and out of that space here and intimately familiar with the work and the challenges that are out there, and has got a rolodex full of folks that you know are equally interested in that kind of thing as well. So it's, aspirationally it's where we'd like to go. We're getting there slowly.

BRIAN WEEDEN: All right. Thank you. So I'm gonna start pulling in some of the audience questions now. And General Friedling, one of them is to you, and asked this question about whether or not there may be a EU Space Command. Or, more broadly, what do you see is the coordination at the EU level on some of these space issues? And, I guess I'll add into that...

NATO was also recently announced a new NATO space policy, I don't know if you could talk about that at all as well.

MAJ. GEN. FRIENDLING: Regarding EU, uh well, there are there are--work's being done about, you know, space surveillance, at least for civilian purposes. For you know, SST or SSA there are many questions about collision avoidance, debris, and so space surveillance to avoid risks in space.

We are--it's a long shot to have discussions for a kind of military, European space surveillance center. And so right now we are more trying to build national capabilities and to coordinate with allied in Europe. And it's not a secret to say that we work with Germany.

We work with Italy, and we also start to work with Spain to build something, you know, in Europe and to provide Europe with some capabilities. Regarding NATO, I think everybody knows that NATO declared the space domain as an operational domain end of 2019. So this is, uh this is now a very new, the latest domain for NATO. And again, there are thinkings in the NATO on the way to address this new domain.

And this is now the point for me to say that France has proposed to host and-- a center of excellence for space for NATO in Toulouse, where we will set up our space command and space operational center, and, and Toulouse, which is actually the largest space hub in Europe. So this is the place where the largest space expertise is in Europe. So we think it's a very good idea for NATO to have a dedicated space center of excellence to this new domain and to locate this center in Toulouse where the space expertise is--it's so easy across the street and to have a lot of space experts. So it's a, this is the proposal of France for NATO.

BRIAN WEEDEN: All right, thank you. So, General Shaw, question for you. We've used the phrase 'space as a domain' separate domain operation several times now. One of the questions in the chat is where does that begin?

So where--I think this was addressed in the recent capstone document that the Space Force put out--so we could talk about sort of how you guys are seeing where the delineation between the space domain and other domains are and how you're thinking about that.

MAJ. GEN. SHAW: Yeah. So I think in the most, uh, basic sense, what we've defined as a Department of Defense is that the space domain begins 100 kilometers above the surface of the Earth. And that's where the area of responsibility, the AOR, A formal term in our doctrine of United States Space Command begins.

And there is no end limit right now, so it extends upwards indefinitely away from the Earth...and so I think that's the short answer to that question. What it leads to, though, is a discussion of and the need to work--integrate closely with commanders, other combatant commanders that have areas of responsibility that cover the surface of the Earth up to that 100 kilometers, and to ensure that there is seamless all domain operations in a supporting and supported nature between all of those combatant commanders. I guess I could get a little nerdy and say, why 100 kilometers?

And I think the best, the best answer I have is that's the old von Karman line, where the amount of speed necessary for an aircraft to generate lift is actually greater than orbital velocity. So it's a nice physical limit and boundary that we find that separates the atmosphere from orbital activity.

BRIAN WEEDEN: And, excellent, it's actually--I was gonna ask you to follow up with the exact same thing. Just the supported/supporting--again for the listeners that are not deeply versed in sort of the military lingo, can you talk about what that means? And I noticed there was recently another new update to the UCP and sort of this broader question of how US Space Command interacts with the other combatant commands.

MAJ. GEN. SHAW: Yeah, so I--so if we go to when, you know, before space became a war fighting domain, when it was a benign domain and that was most of my career, by the way, our focus in space was to make sure we delivered effects to warfighters in the terrestrial spheres and domains, and ensure that they got the best possible GPS or the best possible SATCOM, the best possible missile warning that they could possibly get.

It was all about supporting terrestrial activity in terrestrial, warfighting operations. But now that space is a contested domain, that it is a war fighting domain, a war could extend or even begin in space. In which case, there may be a need for commanders in the terrestrial spheres to support General Dickinson in the space domain.

For example, if there was an adversary naval vessel that was sending electromagnetic jamming from that vessel into space and it was affecting our ability to do command and control, there might be a

need for the geographic commander of that area where that adversary vessel is to maybe, um ah, take care of that problem, in support of continuing operations within the space domain.

So this idea, this is new, and this is what we're gonna have to work very hard on as a Department of Defense moving forward, is how do we conduct all domain operations effectively in a conti--what I see is a continually dynamic supporting and supported, uh, relationship all the time? It will be working in multiple ways simultaneously.

BRIAN WEEDEN: Got it, thank you. Um, so I'm going to ask the--this is open to all of you. The top rated question right now is: why the establishment of military space forces by Russia and China is generally perceived as threatening,--well, maybe--why not the other countries, as your four countries and others also created their own space forces? Why, why would there be a perception of one is threatening and one is not? Does anybody wanna try and try to address that at all?

MAJ. GEN. FRIEDLING: I am, I would say, I would say that it's not the fact in itself that we have space forces or space commands, which is, uh, concerning. It is, it is what you do with this. It's not the fact of having some space objects in space or ready to go in space, which is concerning, it is what you do with it, it's what you what you show as intents or you know, your well, what you wanted to show with this. So this is actually what is concerning about some, some actors in space and this is the reason why we have to be ready too.

You know, nobody has interest in any conflict in space. But we have to be ready. And General Shaw said, said that very clearly in the introduction. So if you do the--you know, the parallel with the maritime domain, it's not because you have a navy that you want war at sea. It's not because you have space force or space command that you want war in space. So it's basically the same.

BRIAN WEEDEN: Anyone else? So that that sort of--General Shaw?

MAJ. GEN. SHAW: So I think--a great question. I think, again, I'll go back to when historians write the development of space forces in history, it will point to the fact that what we have done is in response to threats that we saw.

We had space--we were using space capabilities again in a benign domain to support warfighting operations on the planet. And it, it was steps taken by other actors to threaten those space capabilities that resulted in making it a warfighting domain and resulted in what we have now done. I think I would add that the idea here is to now protect and defend our space capabilities and provide security so that we deter any kind of threat, threat activity and any counter space activity.

I think our potential adversaries have seen that in order to fight--to conduct modern warfare today, you need space capabilities. And so they are now threatening those space capabilities. And our ultimate goal here, and, you know, my highest hope would be that by making our space capabilities more resilient and deterring attacks on them, that we not only deter a war in space, we deter a war, period.

BRIAN WEEDEN: General Adamson?

BRIG. GEN. ADAMSON: Sure. And I'll sort of pile on, I guess, to General Shaw's comments as well. And I think from a Canadian context, where you've got a domain such a space and a significant overlap in our military and civil and commercial space enterprises, where we've got perhaps multiple utilities for a platform.

And I'll use Earth observation for an example. You know, there's obviously military application to that. But as we see increased incidences of natural disasters, fires, floods, ice storms and those kinds of things, you know, protecting those assets and protecting those capabilities and ensuring that we have the ability to provide that service to the Canadian public or to our allies is, well, it's critically important.

And so there becomes this sort of blurring of the lines, perhaps, between military capability and civil commercial capability, when you, when you've got these platforms. And it's inherent upon the government to make sure that they can protect their assets and their interests and assure freedom of maneuver within that domain as well.

And so I think that becomes critically important. And then, for like a country like Canada, the protect and defend aspects that General Shaw mentioned really comes from strong alliances that provide that resilience and redundancy and the domain itself.

BRIAN WEEDEN: So just to pick up on that that deterrence issue, which I think it's just come up a couple of different times. In other domains, the deterrence is not unique to space. It's a concept that's been around for quite a long time in terms of military operations and perceptions of force.

Generally there are sort of two ways to approach that. One is deterrence by threat of reprisal. Second is deterrence by denying potential benefits through resilience. This is for anyone. How is that--are you approaching that in the space domain? Do you see spaces like the nuclear domain, where the main aspect of deterrence is the threat of a reprisal, of return attack? Or is it, is it more of a denial of benefits, resilience approach to kind of securing that deterrence? General Shaw?

MAJ. GEN. SHAW: Okay, (laughter) I'll go. First, I think I would answer that by saying the biggest, uh, challenge we have right now is protecting and defending capabilities that were built for a benign domain. And so the focus has to be on making those more resilient. So they're there for the war fighter, and they're not an easy target.

I've, you know, our space capabilities were built--the analogy I've used is our satellites in geosynchronous orbit, built during the 1990s and early 2000s are analogous to supertankers, or mega container ships on the high seas. They were built for efficiency. They were not built to be resilient against threats. I'm not sure I would want to be on the bridge of a supertanker that's under threat of under torpedo attack.

And so that is really the big challenge we have right now, is how do we take what is currently an architecture that is not very resilient, that is seen as vulnerable, and now protect it, deter attacks

against it, make it more resilient, and it may start with some resilience at the platform level, but it extends to resilience at the architectural level, and and move in that direction first. So that, I think, is our most near term challenge that we're working on.

BRIAN WEEDEN: Got it. And so it was--yeah, General Friedling?

MAJ. GEN. FRIEDLING: I would add, if I may--so, obviously I fully agree with General Shaw about the architecture--we have to think about new architectures for the future to improve resilience. But the other point is, is probably alliances, partnerships and we come to the point of the coalition working together. We, even today, we improve the resilience of our space capabilities, and this is one of our great and, I would say strategic advantage compared to some other countries that are quite alone in space. Thank you.

BRIAN WEEDEN: So I think, I think part of that, and it has come up a couple times before, is better awareness about what's happening in the space domain to help both detect those threats and figure out what to do about them. This was, you know, previously space--when I was into it--was space situational awareness. It's now space domain awareness. Can I ask each of you to kind of talk about what's been happening in your country to kind of, you know, improve space domain awareness?

I think General Sakanashi, I'd like to start with you because I think Japan of these four countries are part of the newest to that particular domain. But there's also been significant changes recently about what Japan is doing for space situation awareness. Can you talk a little bit about that, please?

MAJ. GEN. SAKANASHI: And so in Japan for years the Japan, Japan Aerospace Exploration Agency has been conducting the SSA mission for civil space partners and then now we have a government plan to enhance the national SSA capability and follow government manner.

So we have planned to establish a new SSA system. It's a kind of a combined, uh, interagency system. The one part is JAXA, the other part is the Ministry of Defense, Koku-Jieitai, Air Self-Defense Force. And, so we now are promoting the programs about the SSA system in each agency. So, we're hoping for a cost effective SSA system capability.

BRIAN WEEDEN: Thank you. General Adamson, I think you mentioned Sapphire before. Can you expand a little of what Sapphire is and sort of other ways that Canada has been working on space domain awareness?

BRIG. GEN. ADAMSON: Right. So Sapphire was launched... I don't know the exact date, but it's currently extended beyond its, or is operating beyond its expected life expectancy. And actually doing quite well for us, but obviously, that's contributing to a more larger alliance awareness of space domain and what's going on there. Acknowledging the fact that Sapphire is certainly not going to be a platform that lasts forever.

Within our procurement practices, we've got Surveillance of Space 2 which is a program that is moving forward. I think we've seen that Canada can sort of find some, perhaps niche areas that we have both

the civil commercial expertise to contribute to this kind of thing and I believe that surveillance of space is one of those areas. So moving forward with a follow-on platform in Surveillance of Space 2 is going to continue our contribution to alliance awareness of what's going on. You know, at the moment the proposal is going to be a combination likely of both space based and ground based assets that will provide that, and of course for us, then we feed into CSpO and our partners and contribute to their overall awareness of what's going on in the domain.

We want to make sure that we're not riding coattails, we want to make sure that we're a contributor to what's happening and maintain our place at the table. So that's our plan looking forward.

BRIAN WEEDEN: Great. General Friedling?

MAJ. GEN. FRIEDLING: So we already have, I would say a significant capability in terms of space surveillance, in France we have different kind of radars. One of them is named GRAB and is in charge of watching the lower orbits.

We have data from different telescopes, optical data from telescope for different orbits and so I would say this is a significant but not sufficient capability and, uh and definitely we intend to improve this capability in the next years. And we are working already on this.

We want much more, much more data from I would say, state owned capabilities and we intend to replace the radars. And we intend to buy some data of different nature from, or I would say to trusted operators, and because we definitely need this huge amount of data of different nature and coming from different places around the world and different sensors and to build consistent and efficient space situation.

And actually, one of the point is that this amount of data that we need is really a huge amount of data. So one of the question we're wrestling right now with the industry, with the French Space agency and with the French DGA, is how we handle this amount of data. So and there are questions like, you know, the AI and you know, so fancy questions like this that we have to address in the, in the next days, weeks, and months. So we have very interesting, fascinating discussions about this.

BRIAN WEEDEN: Just a quick follow up on that. There's also a European Union space surveillance and tracking initiative. Can you talk about what role France plays in that and where the EU SST program may be going in the future?

MAJ. GEN. FRIEDLING: Yeah, EU SST is you know, I would say a combination of nations on a volunteer basis. So right now, we have eight nations contributing to this, to this initiative. And these nations are trying to put together all the capabilities that they have in terms of space surveillance and trying to build a service, uh, given to the European Union and the countries of Europe in terms of space surveillance, space avoidance, collision avoidance.

But it is based again on you know, the contribution of some nations of Europe and so there are progress that have been made.

I would say that we have to wait a little bit more to see whether we can reach a very satisfying level of efficiency.

BRIAN WEEDEN: Okay. General Shaw, US military has sort of long been sort of the goal posts or the goals when it comes to providing space domain awareness. But also, there's been a lot of change recently. I think some new sensors coming online and also changes in terms of the data sharing agreements. Can you talk a little about those please?

MAJ. GENERAL SHAW: Sure. I mean, a subject all by itself, right? I think General Friedling is exactly on--I agree with him one hundred percent. This is, in the end, space situational awareness and space domain awareness are a team effort. And it is a big data problem.

If ever there was a big data problem, it's understand--it's the tyranny of volume that we need to understand what's going on in the space domain and taking all possible data from all possible sensors and fusing that to develop a picture of what is going on. And I'll just briefly point out every nation represented on this panel, we're working together on this.

We routinely are talking with the Canadian Space Operations Center and the French Space Operations Center about what's going on in space. And we are, as I think General Sakanashi could affirm, we are working with Japan on putting a space situational sensor on their QZSS constellation of satellites. That's a teaming effort there.

I think there'll be more teamwork to go. I could go on and on. But just, just to point out that everybody on this panel, we're working with them. It is a team effort. I'll broaden the discussion a bit, Brian, and say that--we have a Space Policy Directive 3 on the current administration that directs that space traffic management move to the Department of Commerce. And I had mentioned that earlier in this, in this session.

And so what we're growing to is a distinction between the general understanding what's going on in space to support safe operations, and that would be more I think in space situational awareness and space traffic management is analogous to what we have in the air domain or the maritime domain to ensure safe operations to minimize the chance of an accident.

Space domain awareness of the other--is a different part of the spectrum. And that's to make sure that we can rapidly identify and characterize threats in the domain and again, that's analogous to domain awareness in the air and maritime domains as well. And I think you will see some differentiation between those as we move, move forward and to this point in our history, the Department of Defense has really kind of done all of that. And that's just how we grew up.

We grew up when we start in space with Department of Defense having the sensors and the ability to understand what's going on in space.

But we're now I think at an inflection point where the Department of Defense needs to move more towards space domain awareness and understanding threats and we would let--the Department of

Commerce is probably the, is the better, uh, organization from a core competence perspective to conduct space traffic management, and how we do that not only within our government but with our partners will be a major effort moving forward.

BRIAN WEEDEN: And just to tie that--one of the questions from the audience here is about transparency. Yesterday we have a lot of discussions about orbital debris and the need for kind of more public information and more sharing and transparency in what's going on. Do you see that as a challenge for the militaries? You know, how do you see this--this tension between trying to, you know, protect information about military activities in space, or national security directives in space and the need for more, kind of, just knowledge about what's going on to protect that safety mission that you mentioned

MAJ. GEN SHAW: Yeah, again, I will--I will point to analogy in other domains. In the maritime domain, the United States Navy and United States Coast Guard providing security in that domain do participate in making sure that they are avoiding possible accidental collisions and are part of a maritime domain awareness picture. And so I think the same will happen in the space domain as well.

BRIAN WEEDEN: Got it. Anyone else want to remark on the transparency question at all?

BRIG. GEN. ADAMSON: I'll just add, I believe it's absolutely critical that we do share that information. Obviously, whether it be debris or what have you, it's not just a threat to military assets, but to commercial and then civil assets as well.

You know, within the Canadian context we're looking at making sure that we have a commercial integration cell within our CANSpOC that will allow us to maintain those lines of communication both with commercial operators and with getting the space agency to make sure that you know if we view a potential conjunction or there are other issues of concern, that you know that information is passed to those that most need it to ensure they have continued operations and are necessarily threatened by something they're not even tracking.

BRIAN WEEDEN: General Friedling?

MAJ. GEN. FRIEDLING: Yeah, I would say it's too soon to the extent that French space defense strategy is the first step in terms of transparency. Because in this space defense strategy, we are saying exactly what we want to do and we will do exactly what we said.

So it's not an issue for us, transparency--I think we all need transparency in space and, and what we did with this strategy is--I would say I wouldn't like to be, you know, the French arrogant panelist, but it's a kind of--it's the kind of unique situation in which we, again, we say exactly what we're going to do, and we're saying exactly what we're going to do and we will do it. And this is not the case of many other actors in space.

BRIAN WEEDEN: And I think that that also gets a bit more to the question we talked about a few minutes ago, which is, you know, this perception of threat and I think that may be part of it, right, is if

you know, you put out more public statements on policy and on doctrine and on intent, and then see how actions line up to that.

As you said, you know that that could go a long way to kind of, you know--is what is being done matching what is being said, I think. I want to pick up something that the General Adamson just talked about that, sort of, the conjunctions, which are close approaches in space, and also bring in a question in the audience here, about the conjunctioning military assets and civilian assets. There have been a couple different analogies to the high seas to the airspace where there are existing traffic rules for how ships and aircraft interact. Those are largely missing at the moment when it comes to space.

So you know, any thoughts or about how--about this issue of, you know, should military assets have a right of way when, when it comes to close approaches or how just in general how we get from the current state, which is, not a lot of established rules or established norms of behavior, to one where we have a lot more of that for space. It's open to anyone. General Friedling?

MAJ. GEN. FRIEDLING: I'm gonna be the first. I think the question that you raise here is the question of the responsible behaviors in space. And this is a crucial question. And this is a difficult question, actually. And this is one of the questions we address in the CSpO initiatives.

This is one of the reasons why this initiative is very, very important. Because we can--we can have this discussion as a seven nation group and we can try to then explain in other, you know, arenas what we think we have to promote as responsible behaviors. And, that is thing, I think, that is the most important. And also, General Shaw?

MAJ. GEN. SHAW: I again, I agree a hundred percent with General Friedling, there.

I think we start from responsible behaviors and safe behaviors are good, are the best place to start as we move forward in this discussion. As I mentioned before, we continue to see more and more kinds of activities in space. We haven't yet talked about in this session, but I know you must have in the, in the overall space sustainability event here about the potential proliferation in low earth orbit of commercial satellites.

In some ways, that might be the greatest threat that we have to space sustainability if we as a planet don't do that properly, don't have way--expectations and norms on how to properly dispose of those capabilities, for the operators of those megaconstellations to provide as much information as they can on how those capabilities are maneuverings and such.

I'll throw another, you know, we will see more and more academic platforms in space, small CubeSats and such that probably aren't maneuverable. We need to think about kind of--and if there are the guidelines and responsible design for those capabilities so that they don't become a navigational hazard. And so I think it starts with that as we expand the--as we continue to expand across all sectors, our presence in space, how do we do that in a responsible way?

BRIAN WEEDEN: So just a tie in that you mentioned the commercial we haven't talked about yet, either--we talked the very beginning about how one of the big changes happening now in this space domain is the emergence and growth of the commercial sector. How do you see that from a military standpoint? Is that something you think is gonna help the deterrence and trying to increase resilience? Or is there other ways you're sort of looking at the role of the commercial sector and interim space activities? For anyone. Yeah, General Sakanashi.

MAJ. GEN. SAKANASHI: I think that growing the commercial space capability and, uh, space technology is a good chance opportunity to enhance the military capability in a very cost effective manner. So we can utilize that commercial capability to not only enhance our capability, but also increasing our resiliency. So growing a commercial space is a good news for us.

BRIAN WEEDEN: General Adamson.

BRIG GEN. ADAMSON: Yeah, I think the comments that have been made on responsible behaviors are absolutely critical. But, you know, those discussions happen in a national level on. Certainly, signatories would be governmental on something like that. Obviously, we want to talk the talk.

You want to walk the walk as well and set the example. And I think our alliance partners are the kind of partners that that would do that. The proliferation of commercial satellites raises another issue because now you've got to have commercial entities and private industry and business on board with responsible behaviors as well. And how do you enforce that? How do you maintain the integrity of what you're trying to accomplish in that regard, perhaps when there's a business model that doesn't necessarily subscribe to responsible behaviors? And I think that raises a whole host of other issues that are probably worthy of further conversation. But something I thought I'd raise.

BRIAN WEEDEN: No, it's an excellent point. And you know that was actually that we talked about yesterday a bit was there are actually some private sector initiatives to develop best practices, responsible behaviors. There's a space safety coalition of forty some operators that has put out a list of behaviors that they pledged to abide by.

There's been some discussion of ways to incentivize their, you know, carrot or stick approach potential behavior. But I wouldn't say--it's not widespread yet, and there's a lot of that is still sort of in the nascent areas. Going back to a little bit more of national security focus of this question.

You know, let's say in the future, militaries are using commercial capability, let's say to augment remote sensing or augment communications. And that then, then then a conflict happens. How do you see that role of the military in protecting commercial? Is it only those that you're directly using?

Or do you think that there's a maybe a--especially on the high seas--a broader role for the military in protecting commercial industry and, sort of, commerce in space, any thoughts on that at all?

MAJ. GEN. FRIEDLING: That's, yeah, I tried to give you a beginning of an answer. This is, you mentioned a few minutes ago. This is one of the issues that we addressed in the recent Schriever Wargames. How do we, how do we coordinate with the private actors in space?

Do they want to be protected or escorted or whatever? And, this was very interesting. Last time, actually, we attended a Schriever Wargame because you know, the opinions of all of the different private players in the room, they were very different. And then--so I think we are the beginning of the story right now here because we, we are still discovering the challenges, the threats and how to handle them and the norms of behavior and whatever. And, you know, I like to say that it's kind of what happened in the first World War where, you know, appeared the submarines, the first submarines attacked the private, the ships in the ocean and then we, at the beginning very rapidly, actually, these boats of these ships on the ocean, Atlantic Ocean, they wanted to be escorted by the allies because, because they were at risk.

At the beginning they didn't want to, because it was, it had too many constraints, I would say, but that rapidly, they were, you know, they were in kind of convoys escorted and to protect them from the threats. And I think we have a kind of parallel here for the future and we ought to think about.

BRIAN WEEDEN: Yeah, I realize this is ah--sort of the theme of our discussion today has been we're at the beginning of a significant change in the space domain, and there's a lot of questions of doctrine and policy that are still being sorted out. And I think that's a excellent sort of a framing of how to think about the answer. And also, I think it's an important point, you know, I've seen it myself.

We've had some discussions with industry on this topic, and there's not a universal perspective on how they view the potential interactions with the military and this whole directive things. So we've got about eight minutes left before you go and wrap up today. I'm gonna go ahead and try and get through as many of the remaining questions again. And, General Shaw, question for you, that's the most highly rated one I should ask at the moment. It relates to actually this afternoon's panel on cislunar activities. And that is: what is the role the Space Force will have, or do you think might have, in cislunar and lunar operations, particularly stability and security standpoint?

MAJ. GEN. SHAW: Yeah, I'll start more, let me more broadly, the last couple of questions about this this--as more commercial activity happens in space, that is wonderful. I mean, that contributes to economic prosperity for our nation, for allies, for the globe. And again, it's analogous to other domains, right? And so we just need to do it right. How do we, how do you do it right so it's sustainable and further economic investment is, uh is incentivized, and I think the Department of Defense does have a role in that regard. And it begins with transparency and understanding what's happening in the domain and then security against potential threats, and that will evolve over time.

Again, it shouldn't be anything new to us. We've seen this in other domains. With regard to cislunar, it's inevitable that we are going to have to, you know, right now we have set our event horizon that we look at into space pretty much at the geosynchronous, orbit. And we've just done that traditionally because that's where the bulk of the activity and whatever sector-- national security, commercial, civil has kind of peaked out.

While it's gonna expand, we will see more activity beyond the geosynchronous sphere out to this cislunar sphere and the Department of Defense, the United States Space Force, the United States Space Command have to keep pace. And leading that charge will be space domain awareness out to the cislunar sphere to understand what's going on there, what potential navigation hazards there could be, and again providing a security mechanism for other actors that want--that are venturing into that realm.

BRIAN WEEDEN: And all the signs--probably I think maybe also extending that space domain awareness out probably to the cislunar sphere. Is that part of it as well?

MAJ. GEN. SHAW: So absolutely, absolutely. You know, there are already platforms operating well beyond the geosynchronous, uh, orbit. They're mostly exploration platforms. But we'll see more communications platforms as NASA advances the Artemis program and the Gateway initiative, we'll probably team with them in some regard with regard to space domain awareness, space situational awareness in the lunar sphere and communications networks, it's inevitable that will be part of that progression. We just need to anticipate that.

BRIAN WEEDEN: Yeah, And just to make it clear, unlike the TV show Space Force, Space Force is not the entity leading the return to the moon, that is still going to remain a civil thing. And any kind of, you know, human military presence is probably going to be a little ways off, the way I understand things.

MAJ. GEN. SHAW: Yeah, just--Yeah, you're absolutely right, Brian. I've said before the United States Space Force will not be putting humans into space for national security purposes anytime soon. I think it will eventually, but not anytime soon. We're gonna rely on, as General Friedling mentioned earlier, on advanced machines, artificial intelligence and such to do those missions with the humans of Space Force commanding and controlling and making the key decisions to operate those capabilities here on the planet.

BRIAN WEEDEN. Thank you. General Sakanashi, there's a question here about how the establishment of the space domain mission unit, meets with the historical concerns about Japan space being peaceful in nature of the military space activities. So I guess--you talk a little bit about how the framing of military space in Japan has changed over the last few years and what it is the space domain unit that is now doing in space--is it more awareness of space? What sort of activities do you envision them doing?

MAJ. GEN. SAKANASHI: The Japanese defense program is, uh, structurally under the Japanese peaceful policy. So, our space domain, you mean space operations unit squadron, it's mission is just for acquiring the awareness, space situational awareness, because of the importance of the space assets for naturally national security, but also the economy or people's daily life. So I don't, I don't think any dilemma between building the space capability and defense force and our long, long time with a peaceful policy.

BRIAN WEEDEN: Great. Sorry, General Friedling, a follow up question to you. Their question was, you mentioned the NATO Center of Excellence for Space. Has that decision already been made to put that in Tolouse, or is that still ongoing?

MAJ. GEN. FRIEDLING: That is still ongoing. There are two different proposals to NATO from two different countries, and these proposals are of a different nature. One is a dedicated center to this new domain, and one is a branch of an existing center dedicated to space. This is a real difference. And this is the reason why we think our proposal is of the best value for NATO. But this is ongoing, to answer your question.

BRIAN WEEDEN: Okay, great. Thank you. So question is to everybody. This is actually at the moment the--we've answered a couple of other top rated questions. The new top rated question is about how we live up to the statement that General Shaw said earlier about nobody wants to have a war in space. What--can each of you or any of you talk about how what you're doing, what your military doing in space can be shaped to helping deter and prevent conflict, as opposed to perhaps being interpreted as something that is aggressive that might lead to conflict.

How are you thinking about this, this new expansion of military activities in a way that is going to try and hopefully prevent conflict in space? General Shaw, you mind going first on that?

MAJ. GENERAL SHAW: Yeah, I'll just give a real quick answer. You know, pretty much any domain in human history, from a military perspective--you look at, you invite conflict when you, when there is weakness. And I believe you deter conflict when there is strength. And so that is the path we're on. We're going to become more resilient. We're going to protect and defend our capabilities in space. And that will lead us, I believe, to a more strategically stable situation that deters conflict in space.

BRIAN WEEDEN: Great, thank you for that. Anyone else like to join on that?

BRIG. GEN. ADAMSON: Sure. I'll echo General Shaw's comments. I think that's well put, and I think that strength comes from certainly shared, like-minded countries, you know, collaborating, forming alliances, whether it be, you know, within NATO or CSpO or beyond all of that. And I think setting a good example through, uh, you know, adopting best principles and best practices in any common domain, that sets the example and raises the bar in terms of expected behaviors for all participants is certainly the way to go. And certainly Canada is going along those lines as well and working with our partners and promoting those behaviors and those responsible behaviors. So, yeah, I think that's the way, you know for sure.

BRIAN WEEDEN: Okay. Alright, General Friedling, any final comment?

MAJ. GEN. FRIEDLING: Oh, final I don't know, but I would say nothing better than General Shaw. And just, once again that there is a legend, proverb that all of you probably know, which is a serious question parabellum that goes, if you want peace, just be prepared to war, and you have peace, then.

BRIAN WEEDEN: Okay, with that, thank you all for participating in this discussion. I thought it was very great. Particularly since General Shaw it was very early start for you today. And General Sakanashi, it's a very late at night. Thank you very much for being up with us. I wish we did this in person so you could hear the thunderous round of applause from the 250 or so participants that are currently listening on. But we cannot, so thank you again.