030218 Air Force Association Mitchell Institute for Aerospace Studies Space Power to the Warfighter Seminar with Major General Joseph Guastella Jr., Director of Integrated Air, Space, Cyberspace, and Intelligence, Surveillance and Reconnaissance Operations at Headquarters Air Force Space Command, on "Space as a Warfighting Domain"

MR. PETER HUESSY: Good morning, everybody. On behalf of the Mitchell Institute for Aerospace Studies and AFA and our partners NDIA and ROA, I'd like to welcome you to this, our second "Space Power to the Warfighter" breakfast event for 2018. Just a few notes of upcoming events, on the 6th of April General Shaunessy (ph) and General Raymond, will talk about integrating space to war fighting.

Also, on the 13th of April my nuclear weapons and missile defense breakfast series will begin its 35th year with Admiral Benedict, his final year, he's going to be retiring and I'm going to honor him with a plaque and a thank you for -- he will have spoken at my seminar series for 11 straight years. We will also have, on the 13th, at lunch, over at the Air Force Association, General Chilton, who is going to be talking about a new article he has written in the Air University Journal.

On March 22nd, over at the Heritage Foundation, my Reagan Legacy Project begins its first inaugural event on SDI. We're going to go through the history of SDI and the currently the lessons of the Reagan administration for today. That invitation Nikki should be sending out shortly. We're going to have a private lunch afterwards which, if you'd like to attend with the speakers, we will do that.

Then on the 23rd I'm hosting General Kehler and Professor Scott Sagan, who are going to have a debate on the Nuclear Posture Review, in particular with reference to Korea. That will be here in the afternoon at 2:30 to 3:30 p.m. My co-host is going to be Jan Nolan of George Washington University, and this is a program that has been started by AAAS.

I also want to thank our guests that are here from Canada, Finland, Belgium and Romania. If you have any other questions about events, please call Nikki or I. I want to thank Major General Joseph Guastella, who is here today, coming and braving this wind. And I want to thank you all for being here.

He is, as you know, the director of Integrated Air, Space, Cyberspace, Intelligence, Surveillance and Reconnaissance Operations at the headquarters of the Air Force Space Command at Peterson Air Force Base in Colorado. The directorate is responsible for organizing, training and equipping Air Force Space Command for globally integrated space, cyberspace and ISR operations, and for assimilating capabilities into the operational level of war. Mission areas include missile warning, space control, space lift, range operations, satellite command and control, nuclear event detection, airfield operations, offensive cyber operations, defensive cyber operations, and Department of Defense information network operations and ISR.

MR. HUESSY: Again, General, I want to thank you and I want to thank Victoria. Thank you and your staff for helping. And, of course, my partner, Kath Ryan.

But General, I know you've got to go back to Colorado Springs fairly quickly. Thank you for being here today. Again, thank you for our sponsors and our guests who are here today and braving the weather. Thank you all.

Would you now welcome Major General Guastella who is going to speak to us today?

(Applause).

GEN. GUASTELLA JR.: Peter, thank you very much. I appreciate the introduction. Thank you to all of you for actually getting out of bed today. When the OPM website indicated "red" -- when I was an action officer in the Pentagon and that little thing said red, the government closed for weather. I mean, we could go straight to Murphy's Pub in Old Town, Alexandria. But now that I'm older, it means I still have to come to work.

I really appreciate the opportunity to address this group today. I want to thank the Mitchell Institute and AFA for putting this on. And I want to thank each and every one of you for your interest in space. As was said, I am the director of operations of Space Command, it's a fantastic job, and it's a fantastic time to be in this command!

From my perspective, I just want to give you a little bit of my background. I consider myself -- I'm actually most proud of being a joint war fighter. I'm a fighter background guy, but I'm also a space operator, and I'm proud to be a joint war fighter.

As a fighter guy, I integrated air into the land scheme of maneuver, working with the Army on the ground, the Marines on the ground, employing ordinance in close proximity with those forces. I worked closely with the Navy to integrate the carrier strike group, the aircraft that come off the carrier, into the fight. I worked with the Navy on ballistic missile defense, both in the Pacific theater as well as in the NATO alliance.

I've worked with the Special Ops community. I've been overhead, as we do counter terror missions and pop a high value target we've been looking at for six months. I've served in three different geographic combatant commands: PACOM, EUCOM and CENTCOM. And I'm proud of the fact that I've been able to lead airmen in three of our nation's wars, and I dropped bombs in every one of those wars.

I've also seen a good buddy of mine shot down and rescued by the Marines. I've also been airborne when some buddies in my squadron shot down four enemy aircraft in about five minutes' time. I've also lost a lot of friends in this business. I lost my former college roommate when we were lieutenants. He died in an F-4 crash.

I've lost 10 good friends in my 20 plus year flying career. Two of them, by the way, are buried right here at Arlington. One of them died in Iraq in a jet and one died in Afghanistan in a jet. So I know a little bit about joint war fighting.

I'll tell you what, as a joint war fighter today, in today's day and age, I'll argue this. The name of this breakfast is wrong. The name of this breakfast is, the space support to war fighters, supporting war fighters. That's the wrong name. Space operations are war fighting operations today. They are today.

The Navy doesn't say we are maritime support to those land forces over there, the war fighters. No, the Navy considers themselves war fighters, right? As an Air Force guy, I don't say I support war fighting, or that I'm an air support asset. Heck no, I'm a fighter pilot, I'm a warrior too.

In the space community, the space operators that we have in our United States Air Force are war fighters. We are at the joint war fighting table. We're not sitting in the back seats, in the cheap seats, anymore. We are at the table.

It's a new day, and that's why it's exciting to be here and have the opportunity to talk to the group. I'm talking a lot about war fighting, and I know that. But I'll say right up front, I'm by no means advocating any kind of war in space, or any other war for that matter.

History has told us, the best way to avoid war is to be prepared to fight it. That's the best way to ensure it will not happen.

So in our space force today, the United States Air Force, we need to able to message, to deter, and to defend and if need be, prevail, i.e. win, in a space conflict. That's exactly what we're building out in our Air Force today. And that's why I say I'm really glad to have a chance to be here.

The way I was going to do this, fighter pilots, when they have a microphone or are standing up, they've always got to tell flying stories. So I'm going to talk some flying stuff and I'm going to connect it to space, because we're all war fighting domains here.

When I first got out of F-16 training back in the '80s, my first assignment was to Ramstein, Germany. It was during the Cold War. When you first get out of F-16 training, or any initial training for a combat aircraft, I could take off, I could land, I could keep sight of my flight league. I could maybe get a bomb off the jet, it probably wouldn't hit anything, and I sure didn't know a whole lot.

As a matter of fact, when I walked into the squadron, a wide-eyed young lieutenant, my flight commander said, Gus, you don't know jack -- and he put another word at the end of it. He said, you need to learn how to be a fighter pilot. There's two places you need to go. First off, you need to go back in the vault where the weapons officer and the intel folks are, and you also need to go to the bar. Well, we'll talk about the bar part later.

But the place a fighter pilot goes to learn about war fighting is in the vault where you can talk classified and you can talk the business. When you go in the vault -- and this vault wasn't very big. This was a 1980s chemically hardened facility. I'd say the vault was maybe half the size of this room.

On one side of the vault was the squadron weapons officer. This guy was the premier tactician of the squadron. He knew every weapon. He knew the radar, he knew every aspect of every missile, he knew where the aircraft had advantages in turn performance.

There was no tactical question I could ask that guy that he didn't know. He was also a phenomenal instructor, and he was the weapons officer. He wore a special patch.

But when you went into the squadron on the left side of the vault, there was an intel officer. And as a fighter guy we would joke about intel folks. You know, they have thick glasses and they'd kind of be crooked, a little disheveled looking, running with scissors, but the intel officer knew every single thing about the threat.

He could describe to me, as a fighter pilot, the surface-to-air threats that were going to come at me that were heat-seeking, that were radar guided. He could describe the air-to-air missiles I was going to face, what kind of adversaries were going to come at me, what kind of radar indications I was going to get, where did the enemy have advantages. He would put up pictures for one second of an enemy aircraft I'd have to identify as friend or foe and what type that was. The point is that there was a war fighting culture in that fighter squadron that made us who we are.

When I went to that bar that night, I remarked to my flight commander, we are sure lucky to have a weapons officer like that and intel guy like that. He was like, yeah you're right Gus, we are lucky to have them in the 526 Fighter Squadron. But you know what? Every fighter squadron in the American Air Force has them, and that's why if they come across the line during the Cold War, that's why we're going to win, because we have talent like this that is going to help us prepare to fight.

But the intel piece of this is where I want to focus for a second. Historically in space 20-something years ago, 10 years ago, we didn't have a need for what I just described. There wasn't a need for it because the domain wasn't threatened.

Today, now, we do and we are fixing it. I'm so happy that headquarters Air Force A1, our personnel folks, and our A2 came out to visit Space Command over a year ago. We have increased the intelligence manning across the command, from the squadron level, the group level, the wing level. We are baking in the importance of intelligence, which drives all operations, into the space force that we have.

Intel is the foundation of war fighting, and we are baking it in. We have established – we've just written a ConOp, a concept of operations. The lead for intel in

the Air Force is Air Combat Command. There's a finite amount of intel resources. What it does is, the ConOp prioritizes intel collection requirements across the space domain, cyber domain, and the air breathing domain.

The ConOps says space is a demand on the intel enterprise, and this is how we're going to solve that demand. It's via prioritization. So I start with intel here because to me that is the key aspect of being ready to fight and deter in space. Its understanding and having a war fighting culture founded in intelligence.

Another little vignette I want to talk about is obviously linked to this, and that is space situational awareness. When each and every one of us flew into Dulles or flew into DCA, our aircraft were under air traffic control. Air traffic control does a phenomenal job of ensuring airplanes don't hit each other…that they take off and land safely, that they can operate in a benign and peaceful environment.

But right next door to us, as we sit here today, we are defended by the D.C. National Guard with F-16s on alert. If an adversary aircraft were to come into this air space, they'd take off and they're not under air traffic control. They're under weapons control. There are controllers that are trained and practiced at making sure those F-16s can either engage the threat by calling them on the radio, or if need be shooting down that threat prior to it affecting us here in the NCR.

So what we have is a peaceful air traffic control mechanism, and we have a weapons control mechanism in the same time. Guess what? That's exactly what we're building towards in space.

Historically in space we treat space objects as non-maneuvering benign objects. We catalog them. We revisit them with a sensor episodically, because there's no reason to predict anything other than normal Keplerian motion out of a satellite.

But when an adversary proves now that they can maneuver in space, we have a different mindset. That's the weapons control mindset that we've taken from the air domain and applied it to the space domain.

Yes, we have sensors. Certain sensors are optimized for a benign environment. When I was down at one of the ground-based radar sites that we have, there was a weapons officer there. I go, tell me how are you changing? Are you guys doing anything to address the fact that adversaries can maneuver in space and that there are threats in space?

He said, absolutely. He goes, you know what we're doing is we're changing our tactics, techniques and procedures to use our radar differently, to pay less attention to the

benign objects and more attention to objects that may actually be adversarial. So it's using what we have differently today for space SA, and it's happening right now. This is happening. So I'm really confident, based on the intelligence piece and the work we're doing in the space SA -- and I'm saying we still have work to do -- but we're making a huge difference in that respect.

Another flying kind of example -- this one has to do with, how do we train successful space operators, fighter operators, bomber pilots, RPA pilots? Something that has gone extremely well for us in the flying community for a long time now is our ability to do simulation, to have high fidelity simulators that you can put someone in a combat environment where they can learn. I'll tell you what, if you get in a four ship simulator for F-16s, you're there with your buddies and you're presented with an air threat.

You may be outnumbered. They are maneuvering. You go in there and you practice. You practice your radar mechanics, you practice the radio calls that you're going to make, you practice the switches that you're going to flip, and you do it right up to the point where one of your guys gets killed in the simulator.

You stop, and then you hit re-wind. You back the whole thing up, like the old school tapes your parents used to listen to. You back it up, hit stop, and you play it again. You run it again and you do that repetition over and over until your mind and your voice and your switches is acting seamlessly. It's happening, and that's how you get good at air war fighting.

Guess what? We're having to build -- we are aggressively pursuing that same concept for space. Our space operators -- historically, you sit in a simulator and the only thing the simulator does is allow them to do operations in a benign environment. It doesn't put a threat up against them. But we have money laid in in last year's budget and this year's budget to get after providing valid simulations so our space operators can operate in a training environment that simulates a contested one, just like we're doing on the air side. That, to me, is a very exciting thing.

In addition to the concept I described where you have a bunch of fighter guys or bomber guys flying together in their own SIM, we can link those SIMs together, we can link those simulators with a real training environment going on, so the learning is maximized. How are we doing that on the space side of the house? It's happening, it's different, but it's happening.

So a Red Flag, for example, a Red Flag is a premier training event for the air domain. That's where we can bring in ISR forces, we can bring in bombers, we can bring in heavies, we can bring in fighters, RPAs, command and control assets, you name it, can fight in a contested environment -- it's probably as good of an air training environment as you can get.

Historically, space in a Red Flag has been kind of a side discussion. It's a support role to the Flag because you can't create a training environment where everyone can train

perfectly all the time. The Army doesn't come to Red Flag and get fantastic land training. No, they may have a presence, but the training is for the air.

But, do you know what we have? We've been doing this now for a couple of years. We have a Space Flag. The Space Flag is a virtual type environment, but it's phenomenal. You take a GPS operator, you take a SBIRS operator, you take a military SATCOM satellite operator, and you put them in a seat with a constellation, and you can now put threats at them. You have adversary tactics in space.

In other words, adversary tactics are like the experts emulating an air threat. We've done that. It's called the aggressors. We've done that for years in the air domain.

We have adversary tactics experts in space that present realistic training for our young space operators, so they can figure out when operating satellite and a threat comes up, can I maneuver my satellite and stay on mission and keep doing what's being expected of me? Or, do I need to do something more drastic and come off mission and survive? And then, what other assets out there can help me?

So that simulation environment at space flag has been an incredible learning opportunity for our space operators, and we're doing this right now. We have one coming up in April. Taking it one step farther as a training environment, we have what's called a Schriever Wargame. We've been doing this for a decade plus.

The Schriever Wargame is an opportunity to put space training not in the current timeframe, but fast forward the clock five years, 10 years, where we can play space capabilities that we have budgeted for, some space capabilities that we're looking at buying, and we can evaluate space capabilities in a simulation event to determine relative value so we can determine what kind of things will really help our operators. So not only is the target audience in space flag and in the Schriever Wargame -- the target audience are the space operators and the intel operators -- but the target audience is also many of the big decision-makers that don't live and breathe space warfare. They can understand now, how does messaging occur in space? How would deterrence occur in space? These simulations allow those policymakers to see and understand that.

Let's talk a little bit about -- and it's really good to have our international partners here today, really, really good to see that. Fighting as a coalition, deterring as a coalition, I think is absolutely key for us to keep our nation secure.

So the war story here is, I'm coming off of a tanker in late '95 during Operation Deliberate Force. It was a NATO-led effort to confront the ethnic cleansing that has been going on in Bosnia at the time. This was a NATO-led operation.

I come off a tanker with four jets, we topped our gas off. We had full gas tanks, we've got bombs onboard. I look out on the left side and there's a four ship of Brits, Tornados which had come up on the left side. They had taken off out of a different base, but they rejoined right on time on my left wing.

I look out over on the right side, and sure enough there were four French Mirages that had also taken off from a base, not my base, and they showed up on my right wing. And just back to the back I saw an Italian four ship, AMX's I think is what they were, and they were out there too. All these different countries had showed up on time ready to execute.

The mission planning, which we had done in advance, we looked at the different targets that had to be serviced, the different effects we had to apply. Because every airplane is different in terms of its capability, we looked at where we could apply the U.S. capabilities against certain targets, we could apply the Italian capabilities against other targets, we could apply the Brit capabilities against other targets, so we could optimize the value of the coalition force we had.

Well, guess what? We're doing the same thing in space. This summer coming up we have -- CSpOC, the Coalition Space Operations Center is going to open up. It's an operations center that we can bring in allies and partners that are interested that have space capabilities. We all know not every ally and partner is going to have the same set of tools the U.S. has. But if you're interested in coming and you have capability, that's going to be the way we integrate those partners in. We're using examples from war fighting in the air domain and we're bringing it to space. It's real, it's happening, and that's something that we're very excited about.

The other thing I want to mention from that example, when I came off the tanker, is on that particular flight I was a mission commander. It was my job to bring together the different assets and lead the mission, lead the force, into the battle. That's something that historically we hadn't done in space.

When you're a space operator you're flying your assets and you're separate from the other assets. But the concept -- when a fighter goes into war, a fighter doesn't go in and try to survive alone. You have a whole team out there trying to help you stay alive and help you get your mission done. The same can be applied in space.

Just because we have different constellations doesn't mean we can't optimize, wrap those together using the ingenuity of our space operators, taught by some of the lessons learned from the air side. How can we do mission command in space? Again, you don't fly out there alone. Why would we employ satellites alone?

So the same concepts apply, it's just in a different domain. That's one of the things that I think I'm really excited about going forward in the future.

No joint war fighting talk would be complete without a discussion of cyber. You should never have a talk about war fighting without cyber, because cyber is going to play before day one in every single imaginable conflict. That is not lost on us in the space fight.

We know that we have some very, very good assets that really enable the joint force and are relied on by practically the entire globe. We got that. And guess what, we're very aware that some of them may have cyber vulnerabilities. But you know what we've done? We've addressed this and we are addressing it aggressively.

We've put in what's called Airmen Mission Defense Teams. These are Airmen that are trained, they are equipped, and they are very capable of identifying cyber vulnerabilities and fixing those vulnerabilities before they become an issue. So if you ever go to the operations floor of a GPS constellation or a SBIRS constellation and talk to those young Airmen there, you'll have enlisted Airmen, you'll have officer space operators, sitting right there, and these guys will fly the satellites.

But right next to them you'll have cyber defenders who are dedicated to protect the system. It's a team. I go in there and I talk to some of our folks at Schriever and I go, do you guys like what you do? Do you guys know what you do?

They're like, heck yeah, we love what we do. We love being space operators providing a service for the entire globe, and we're able to fight in a contested environment. They are super excited about their job and the fact that they have a cyber expertise right there next to them, that's going into battle with a wingman.

That's what we're doing in space today, right now. That's why to me, as a war fighter, I get fired up talking about this stuff.

Lastly, what I wanted to say is that we are in a cultural shift, is what I'm describing here, a cultural shift to a war fighting domain, to a war fighting mentality. We're using the phenomenal lessons learned from all the services that have been in fights for a long time. We're baking in the war fighting culture into the new domain of space.

We seek no conflict in space. My goodness, we want to avoid it. But if need be, we want to be able to deter in space and we've got to be able to defend in space and we have to be able to prevail in space. You have dedicated space operators trying to do that.

I'll say this also, the cultural shift that's happening isn't just something that's in Space Command. We're not the only folks that have to shift culturally and think about being war fighters. What I mean here is, there's a responsibility for the joint war fighters who don't know a whole lot about space to learn about it, to understand the domain just as well as they do their traditional domains of war fighting.

If you are a geographic combatant commander, let's say you're from a land service, you're on land but you're the joint force commander. I've seen the geographic commanders passionately argue -- a land guy -- passionately argue for a carrier strike group presence. I've seen Navy admirals passionately argue for Air Force ISR capabilities or Air Force fighter or bomber capabilities, something that's not in their wheelhouse.

But you know what I'm seeing today? I hadn't heard it before. Do you know

what I'm seeing today? I'm seeing those joint force leaders advocating for space capabilities.

This isn't something that's happened before. The awareness and understanding that for them to be successful in their geographic combatant command, wherever they are: PACOM, EUCOM and CENTCOM, they're going to depend upon space more than ever. We all need to be literate and aware of it.

The inverse is also true. For us to have space superiority we need the joint force to help us. What I mean by that is, the joint force, the geographic combatant commands don't just go "good luck up there in space, I hope you guys do okay". No, it's a team effort.

We may need to prioritize our intelligence collection for terrestrially related space assets. We may need to prioritize our targeting to help the space fight. It's a team effort, is what I'm trying to say, and that's the new dawn. That's the difference that has happened in the space and war fighting culture. The advocacy across the joint force for space is more than it has ever been.

I think I'm going to stop there. I want to say that I'm really happy to have you guys brave this weather and these conditions to come out and talk space war fighting. It is a phenomenal time to be in the Air Force as an operator. We are really proud of what we do. Our Airmen are doing a phenomenal job each and every day in all the domains that we deal with, and I'm proud to be just a part of this team.

Ladies and gentlemen, thank you very much.

(Applause).

MR. : I'm a former intelligence officer. I have a question about capacity in space. Mass has a quality all its own. The challenge of space is the scarcity of assets. Budgets are huge relative to what they were years ago, but still buying space assets fast enough to have an impact at the scale that you're talking about and making it a war fighting dynamic -- the dynamics of the capability you're talking about -- is an issue. How do you see the Air Force, and more broadly the government, dealing with that in the future?

GEN. GUASTELLA: You're absolutely right, capacity is certainly an issue, as it is in all the domains. There's hardly ever enough to go around in every respect. You're right, unlike in some of the other domains you can't land many of these exquisite assets, bring them down, fix them, add more to them, and send them back up. You're kind of stuck with what you have, in some respects.

But I think the answer to your question is prioritization, utilizing the assets where they're most needed, balancing risk across -- just like we balance risk across geographic

combatant commands, we can do the same thing with space assets for the greater good of the nation. So as we build a more resilient architecture -- but the war fighting, like I talked about before, all of it gets back to how we can better utilize what we have. If we're stuck in traditional paradigms of utilization -- this is just how it has always been this way -- let's look at it differently. Does it really need to be there? Could it be covered by an ally in that respect? Could we move this asset differently?

A lot of it is thinking through a better utilization of the capacity that we currently have as we field new capabilities. And that new stuff is coming, it's coming quickly. So hopefully that's our approach to it. But my lens is how to get the most out of what we have as war fighters, like we've done in all the other domains since the beginning.

JIM ARLEIGH (ph): Jim Arleigh with Orbital ATK. I appreciate you bringing the joint war fighting experience to the commands, something we've been trying to do for a couple of decades. As you know, there's a lot of pressure to start a separate Space Corps, or something like that. I don't necessarily advocate that, but I do think it's important having a professional space cadre.

You talked about the intelligence guy. My question is, can you talk a little bit about the development of the space cadre in the Air Force? Are they going to stay or is there a promotion cycle? Is that intel officer you talked about going to just stay there for one tour and go someplace else, or is there sort of a buildup of the profession?

GEN. GUASTELLA: There is absolutely a buildup of the profession. You're right, our most valuable weapons system in space is the human weapons system. Our American Airmen that come and serve our nation as space operators, as cyber operator, as space maintainers, as radar site operators, all of those, that's our most valuable resource.

Therefore, one of my key focuses as the head operator is to develop that workforce and to retain that workforce by showing them the value they bring to our nation. I'll tell you what, the intel piece, the increase in intel we've had, that's here to stay. Anybody can grow up and become an expert in their field. The result of what we're doing on the intel side of the house will build us intel professionals that are steeped in space. That's what we need and that's the trajectory they're on.

Everyone needs some breadth, but you also need a great deal of expertise in some very highly technical domains, just like some of the other services do -- in undersea. Space is not unlike that, so we're going to nurture and build that war fighting intelligence culture. It's part of the space mission force, is the term we use. I just call it human talent development. We're all over that.

The other thing is, like I said before, space operators -- space guys need to know about the joint fight. We have to learn and understand the joint fight. We can't just say

we know space but we don't know anything else. No, we need to learn the joint fight.

But like I said before, the opposite is also true, and we're increasing the amount of space academics in all the upbringing of all our Air Force officers. So when they first come in, they're learning about fighter and bomber and ISR and tanker and command and control and our nuclear mission, and they're learning space right at the beginning. So there's a space aware culture, even if they're not space operators.

We're developing the force right now to get after what you just described, which is to build and retain great space operators and space intel professionals. But we're also doing -- the joint force has to also be inculcated in some of this as well.

MR. BRUCE MCDONALD (ph): Bruce McDonald, Johns Hopkins University. I really enjoyed your comments about the role of our allies and your story about looking out and there are fighter planes from different countries. I've often thought particularly in space one of the great assets when people think about the challenges we face in space, is that China doesn't have a whole lot behind them, but we have Britain, France, Japan, you can go down the line. It's very powerful.

But it raises the question about interoperability. I wonder if you could talk about the importance of interacting. I couldn't agree with you more, but my question is, what are the interoperability challenges that you face? Is it seamless, are there all kinds of problems? How do you tackle those issues so that you have a truly joint ally in the force that can operate smoothly?

GEN. GUASTELLA: That's a great question about interoperability. You're looking at it from the war fighting lens. Step one in interoperability is just talking to each other, well before any conflict, and having the engagements with our allies to understand what we all bring to the table. What does each respective nation bring to the table?

We have a great forum, the Combined Space Operations, or CSpO. The last one was in London. We had seven different allies at that, talking about their capabilities. What are their policies relative to space?

It's a forum to discuss and bring forward what you have, but also a forum to take your homework home and go, is this the right thing for our nation? This is what these other nations are doing, should we consider approaching this differently? We've been doing that CSpO forum for several years now and it's tremendously valuable. That's the first step on the trajectory of interoperability.

Depending on the partner, we certainly integrate in what they bring to the fight. We absolutely have work to do. There's no doubt that releasability of information at classified levels has always been a challenge. Some of these things are the crown jewels and we have to take care of them. So there's no easy fix for that, but I can tell you that the forums exist for allies to bring capability in to discuss and then leverage it into the fight. Just like with the Brits and the French and the Italians on my wing, we trained in a

forum that allowed us to apply force together in a conflict, and we worked through it, because we're war fighters.

MR. : At Schriever you have allies participate.

GEN. GUASTELLA: Absolutely, allies participate in the Schriever war-games as well, and that's a phenomenal forum for that.

MR. COLIN CLARKE: Good morning, Colin Clarke of Breaking Defense. Traditionally space warfare hasn't talked a lot about mobility. Do you think that we are going to see satellites redesigned so they have much larger fuel capacities, and that we assume that instead of simply working on our orbits and twitching them a little, we're going to fundamentally re-jig how we actually anticipate reacting and doing whatever else we need to do?

GEN. GUASTELLA: I'll say this, everything is on the table, I would say. But like I mentioned before, from a war fighting perspective we have the cards that we're dealt with right now. A lot of those cards we're going to have for a significant amount of time. We're going to work to protect what we have as we get after some of the things that you may have described there.

Again, I'm coming at this from the war fighting lens. I'm not coming at this from a requirements lens. I'm not coming at this from the acquisitions side. I want to talk about it from the war fighting perspective.

Think of it like this, an adversary coming to the table with something new that causes us to have concern, there's nothing new to that. We've been facing this in the air domain since the beginning. Bad guys come up with a new widget, a new thing that we hadn't thought about, what do we do? We don't throw our hands up and go oh my God, ground the fleet, we can't fly.

No, we figure out a way to change our tactics, our techniques, our procedures. Who else can we bring in for help? Should we take a little less risk as a result of this and maybe approach it from a different way?

That's that tactician, that war fighter, that patch-wearer kind of guy, the young captains and majors that think about this stuff. They figure out a way to distill the most war fighting capability out of what we have as the big machine, American ingenuity and industry team together to produce some of the solutions that you're talking about. But we're not left out. We're not grounding this fleet. We're actually out there fighting this, and that's why it's an exciting time.

MR. CLARKE: It sounds to me like a yes, but you're not going to give details.

(Laughter).

MS. MAUREEN COATS (ph): Good morning, general. My name is Maureen Coats. I used to have a job called SAF/IE back in the good old days. You said my favorite word earlier, capacity. We used to have the capacity to fly airplanes in and out of Bolling Air Force Base a long time ago, and we don't have it anymore. A lot of people would like to use that very same capacity.

Two things, I'd like to throw something at you, as another friend of our used to say. In fact, your air, land and water domain capacity, otherwise known as national infrastructure, are you most valuable assets only because you can't make any more of those. Number two, a lot of other people want them and it's a zero-sum game automatically.

So could you talk a little bit about the fact that space is now just like air space or just like the room in the Straits of Magellan where everybody is starting to crash into everybody else because you can't widen the Straits or change the pathways of a lot of the satellites and there's lots of new neighbors up there flying around with you. How are you looking at the supply of domain national infrastructure and how are you going to secure that in the future, much like we secure sea-lanes and training ranges and air space today?

GEN. GUASTELLA: That's a great question, and I certainly appreciate the fact that that lens is out there and looking at this. You're right, although in the fighter community when you have a near miss we say, "oh - big sky theory." We didn't hit each other because the sky is big, right? That doesn't work all the time.

Fortunately, space is big. But there are a lot of areas in orbit where things are indeed getting busier. But I'll tell you this, from our perspective the United States is a leader in space. We are the leader in space.

So it's important, as we operate into this new domain, to exhibit appropriate behavior in space, and we do that. We are the world's helper, if you will, about satellite potential collisions. Conjunction, I think, is the technical term.

We warn when things like that could happen. That's something that -- we try to exhibit good behavior in that area so that others who may not have been thinking about it go, oh my goodness, this is something we need to think seriously about. I think we were successful in that recently, not too long ago, in calling out when bad behavior did occur.

That being said, I think there's no arguing that the area will get more and more congested. But we also have technologies as well as a war fighting mentality, and also like I said before, a peaceful mentality in terms of how we look at that. Those together is the only way we can be safe. Having the allies here and having them thinking about this the same way, and exhibiting good space policy, good space behavior, I think that's the way we address your concern.

MS. COATS: I think you need some space habitat designation.

MS. SANDRA ERWIN: Sandra Erwin with Space News. You were talking about the space architecture. A lot of people talk about the space architecture. There are multiple companies and think tanks that are doing space architecture. What do you see happening, who is in charge of that, and what would you recommend as to how that should be done?

GEN. GUASTELLA: Thank you, as well, for that question and the interest in this. You're right, space architecture is something that is -- what we build out into the future is absolutely something we are front and center focused on. My boss, General Raymond, the chief of staff of the Air Force, the secretary of the Air Force, can give you a lot more of those details.

Again, I'm the war fighter fighting to do the best we can with what we have right now. But without a doubt, just like in every other domain, we have follow-on systems in the pipeline. We're doing the same thing in space.

We're getting after the things we described: our space situational awareness, the resiliency of our platforms, how to defend our platforms, and how to deter. We're looking at all those things. Probably in a different forum with a different -- not the operators but our acquirers, would be a great forum to get into more detail on that.

MS. IRWIN: As a war fighter, do you think that there has to be a faster development cycle, a faster procurement cycle than you have now?

GEN. GUASTELLA: I've never heard of a military commander or war fighter that doesn't want stuff sooner. It's just in our nature. I want it all and I want it now. Every commander has always said that.

Space is no different. It's absolutely no different than every other domain. The demand signal is off the chart.

But I'll tell you what, these are very important decisions. These are decisions that aren't quickly reversed. So it's important that we -- we need to move out, but we need to move out smartly.

I think that's exactly what our command is doing. It's exactly what the Air Force is doing. We are working on ways of fighting with what we have right now, to keep all those incredible capabilities available to the joint war fighter, as we make them more resilient.

So the answer to your question is, yes, of course we want things faster. But we also want things smart, and I think our command in the Air Force is doing its absolute best to get after that.

MR. : I wanted to go back to the gentleman's question earlier about establishing a new branch of the service just for space, or space and cyber, or perhaps elevating space so it's a recognizable, it's a quasi-independent aspect of the Air Force much like the Army Air Corps had been in World War II that became the U.S. Air Force. Do you think space needs to be a separate branch of the service, or if not, how can it be better elevated?

GEN. GUASTELLA: Again, I appreciate that kind of a question. The fact that we're thinking and talking about this is interesting. What this question is is about the governance, how we should govern our domain and our space war fighting.

MR. : You were saying that you guys are not going to sit on the sidelines anymore, you're actually real players, your people are in the Navy and Army and other aspects. You know how it is in Washington, usually sometimes it makes an important difference.

GEN. GUASTELLA: From a war fighting lens right now I think it's a great discussion for my boss or for the secretary. But right now, if you look at some of the examples I gave you, how we are learning so much from the war fighting culture that we developed in war with blood in the air domain, we're baking that into the space domain. This is a phenomenal time as an Air Force to grow in a domain that we had considered benign before. This is a wonderful time to distill as much war fighting spirit and understanding as we've ever had.

So I'll leave the governance discussion for a different forum. I'm focused on how we can defend and deter in space today. That's my passion and I think we're doing exactly that for our nation. I think our Air Force is doing exactly that for our nation right now.

(Applause).

MR. HUESSY: I want to thank you. We will be doing a forum on the space organization when RAND finished their report. That's number one, and I don't know when that's going to be.

The other thing I wanted to mention is that the event we're having on the 23rd of March with AAAS and George Washington University with General Kehler and Professor Sagan. It's 30 to 35 people and the people we want more than anybody else are Hill staff. So if you are staff of a member of Congress or a committee, please let me know because the genesis of this program was to provide interesting debates primarily for Congressional staff.

But we are going to allow and invite NGOs and industry and some people from

the administration executive branch as well. So let me know. Again, that's the 23rd of March.

Again, general, thank you on behalf of General Deptula, my boss at AFA, and AFA President Larry Spencer. I want to thank you and thank everybody else for coming here today. We look forward to hearing from you again. Take care.

(Applause).