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AFJAGS Podcast: Episode 68

**Space Law, Law of War and the Gray Zone with
Major Jessica Tirado (National Security Law Competition)**

Host: Major Erin Davis

Guest: Major Jessica Tirado

This episode is a continuation of our National Security Law Competition series. Major Davis sits down with Major Tirado to discuss how recent advancements in space technology have opened the door for our strategic competitors to take advantage of gaps in space law. Major Tirado examines the potential for updating the Law of Armed Conflict (LOAC) and humanitarian laws to bridge this gap.

[Music: Band playing clip of Air Force song]

Introduction

Major Erin Davis:

Hello everyone, and welcome back to another episode of The Air Force [JAG](#) School Podcast. I am Major Davis. Today I am here with Major Jessica Tirado, a recent graduate of [ACSC](#) and she is a competitor in the National Security Law writing competition hosted by the Air Force JAG School. Today we're going to talk about her paper, *International Laws of War and Gray Zone Space Warfare: How International Humanitarian Law and the Law of Armed Conflict Will Challenge the United States' Ability to Compete Against Gray Zone Warfare in the Space Domain*.

Just to start out, Major Tirado why don't you go ahead and introduce yourself.

Major Jessica Tirado:

Alrighty, so as mentioned already, I'm Jessica Tirado and I'm most recently just prior to this assignment attended Air Command Staff College [ACSC]. While I was there I participated in their Schriever Space Scholars program. So essentially that means my focus while at school was on space warfare rather than air warfare or space power rather than air power. And so that's what kind of brought me to writing this paper and sort of studying this topic.

And I am now stationed at Space Base Delta One legal office as the deputy staff judge advocate, priorly known as just Peterson and Schriever—their legal office. Space Base Delta One now is what it's called. So that's interesting. But that's me. And kind of prior to that I did your normal base legal. I was a Special Victims Counsel, exec, kind of standard rigmarole. But that's me.

Space and the Gray Zone

Maj Davis:

Great, so as you know, the topic of this year's competition was talking about gray zone and gray zone warfare. So just to sort of start off kind of broadly, why are we talking about space in the context of the gray zone?

Maj Tirado:

So in part, I mean, space is now this, you know, the new high ground or the newest, latest and greatest that we talk about potential battle space. And what comes with that is still gray zone warfare tactics. So it's something that we're seeing now a lot in terrestrial warfare, but it's expanding into space. And space is a very fertile ground for these forms of tactics to be used.

And I guess to kind of circle back a little when I'm referring to gray zone warfare, just because I know some people have different definitions. So when I approach this and I was referring to Gray Zone, I'm talking about a nation's ability to achieve their political objectives under the threshold of armed attack. So it's basically, they're able to achieve what they want without having to use a strong military arm and potentially trigger war.

And space just happens to be a really fertile ground for those types of warfare tactics to include lawfare, which I approached as a subset of gray zone warfare, because there are gaps in law that can be exploited. And again, for a nation to achieve their political objective and outer space domain happens to not have a lot of solid law, especially when we're talking about military or aggressive or the types of behaviors in space.

Right now, space is intended for peaceful purposes, and that will continue on to the future. But so that kind of feeds into part of the reason why there's not a lot of rules, but that also creates a lot of gaps and potential for exploitation of gray zone warfare tactics in space.

China

Maj Davis:

Specifically, kind of looking at our great power competition adversaries. I know China has made some comments about their intentions in space. What have they said and what has been like the U.S. response to that?

Maj Tirado:

So generally, if you look towards China's military doctrine, they do view space as a very important part to modern warfare. And they consider using counterspace capabilities as a means to reduce U.S. and other allied partners military effectiveness. So they're already looking at space as a way to affect us economically, militarily. Our stance on just the global stage and trying to sort of take the lead there.

As far as the United States goes, you know, we see this, we acknowledge it, we're preparing for it, from what I can tell. But at the same time, we still want to maintain peace in space and make sure that people have continued access to space. So it seems, from what I can tell, you know, the United States, we're right now trying to really balance this aggressive behaviors.

China kind of making ... they're creating space weapons, you know, so that's something that we're watching and trying to make sure that we don't allow ourselves to fall too far behind while at the same time trying to maintain that peace. So it's kind of a funky balance right now, but China's definitely looking at space as not only a way to get a military advantage, but economically, you know, before I went to ACSC, I didn't really understand the leaps and bounds that they have been taking towards potentially settling or mining or creating stations, not like military bases, but on the moon and or asteroid

mining, there's millions of trillions of dollars that can be generated in space if those sorts of assets are to be exploited.

Also, our military and our civilian population have become more and more reliant on the space domain as far as, I'm sure the [GPS](#) system, we use that not just for our personal navigation, but our military relies on that for targeting or even for communications. Our civilians rely on the space domain more than they know.

Also, as far as all of their electronic banking and ATM access, their safety and security, as far as like calling a police station and knowing or a fire department and them knowing where to go. There's just a significant amount of reliance that the United States has militarily and our civilian population on the domain that China is starting to look at as a way that they can cripple us, either economically or militarily. And that seems to be kind of what I see going on from my studies.

Space Weapons

Maj Davis:

So you mentioned that China is starting to create space weapons, so I would imagine that means kind of kinetic, literal space weapons in the way that we would normally think about any kind of physical weapon. What does that look like? Is it limited to that kind of weapon or have they expanded to other things?

Maj Tirado:

So they have expanded. We have expanded. Other nations have as well. The best way to I guess, to kind of put it is there are your kinetic weapons and there are non-kinetic. So the kinetic weapons essentially they can cause physical damage to a space asset. So your direct asset anti-satellite is also known as ASAT weapons they can come from the ground or they can be in orbit and those can and they've been tested by China I believe it was like 2007 has tested ASAT.

So they've demonstrated their capabilities for their kinetic weapons. Those would cause irreversible damage.

They're easy to detect. They're easier to attribute to who caused that damage. We're going to see, I think, a bigger struggle for the gray zone warfare and the weapon is more of the electronic and cyber type weapons which they have developed and do exist as well.

These are things such as jamming devices, spoofing cyber attacks, radio frequency attacks. These kinds of things are non-kinetic. They can cause either temporary damage that is reversible or non reversible. So they can blind satellites. They can get into sort of like the data that's held within a satellite and change it. So for example, a spoofing—there was I believe in 2017, the United States had several ships out in the Black Sea and it's believed to be that Russia was testing their spoofing capabilities.

All of these ships, I think it was about 20 of them were in the Black Sea and their GPS and navigation systems were showing as though they were at an airport inland, not their actual location. So while that can seem somewhat minor, at the same time, if a nation wants to attack us or we are already in some sort of warfare with a nation and we are to be spoofed, and then our ships or ground troops can't communicate with one another, or they can't get accurate locations for targeting and things like that.

That is something that is a electronic or a reversible weapon that's not going to cause kinetic damage. But they can buy a nation enough time to attack us in other ways on the terrestrial ground.

Space Law

Maj Davis:

That's so interesting. And also really kind of scary to think about. That sounds so science fictiony, but, you know, I guess we're already there. Let's talk a little bit about the current laws that we do have for space and for military activity, because you talk about this in your paper. But most of the space laws that we have, or space treaties are pretty old. You know, definitely written in the same time that we were just starting to send people into space

to begin with, certainly a time before we had the kind of capability that we have now.

So what laws do we current or treaties do we currently have about space and are they doing what they need to do for today's space warfare?

Maj Tirado:

So the main treaty that we have right now is the 1967 Outer Space Treaty [OST]. There have been a few things that have developed and kind of have branched off of that. But your main treaty is the 1967 Outer Space Treaty, and it came into existence following the launch of Sputnik. And then there was sort of all these questions about, okay, well now people can put satellites in space and they can look down into our nations.

And there's the sovereignty issues. And is this a threat? Is it not a threat? And are they allowed to fly over our nation with their satellites? And so this is the first time that we kind of started questioning the need for rules for space. So this treaty came into existence. And at the time, I mean, when you read it, it's very much tailored towards, (A) maintaining, you know, peace in space, maintaining access for everyone to space.

No one really wanted to put any restrictions because I mean, honestly, that was just the beginning. So we didn't know like what the limits could be. So we wanted everybody to still kind of be able to do their thing in space and kind of see what happens. So part of the problem, I guess. Yes. Is that it's very old.

And so technology has developed without the treaty, when it was created, we didn't see technology going to where it is now or, you know, the potential for weapons or colonization and things like that. The things that we're able to do now, I don't know that that treaty fully grasped. So that's creating a lot of questions and, you know, just gaps even outside of the military domain.

But that's what we're talking about today. But yeah, it is very old where it brings in other law, though, is I believe

it's article three. It says that essentially if something is not covered in the OST, all nations must still abide by whatever other international law exists. So based on that, international humanitarian laws that are in existence for terrestrial reasons or terrestrial warfare and the laws of armed conflict, those all still apply to the space domain because of the Article Three from the OST.

Response Gap

Maj Davis:

You spoke in your paper also about the response gap created by the current treaty and the international laws. Can you kind of talk a little bit about that?

Maj Tirado:

Yeah. So the response gap that I refer to I think is created by the fact that, you know, in part the OST was not created to govern military behavior in space for the most part. But for example, Article 51, which applies to the space domain through—I mean Article 51 of the [UN Charter](#), applies in the space domain through Article Three of the OST.

Now, Article 51 basically says is that nations are provided inherent right to self-defense if an armed attack occurs. So part of the response gap that I'm talking about is the fact that just like I mentioned before, there are several ways in the space domain as well as on Earth, but in the space domain for a nation to be attacked and it not be considered an armed attack.

So if we are spoofed or we are jammed or we have a cyber attack on a satellite or something of that nature—right now, under the way Article 51 is written, that would not rise to a level of an armed attack, allowing a nation the inherent right of self-defense under Article 51. So I consider that to be the response gap where and the gray zone, I guess, where we can be attacked and nations can try to get an upper hand or achieve their political objectives.

And we may not lawfully be able to respond because they haven't triggered the Article 51 right of ours. Now

we can take action to politically get a nation to stop whatever action, but we can't, you know, at least not under the eyes of the law, genuinely attack back or do an action that rises to the level of warfare based off of Article 51.

And then there's a few other I guess I'd call response gaps when we get to the part of applying the laws of armed conflict and things like that to space. But generally I was first referring to the Article 51 right.

Maj Davis:

Gotcha. So then kind of pivoting a little bit to the other response gaps. So, looking specifically at international humanitarian law, which you explained before, that in the absence of something being addressed by the Outer Space Treaty, we look to whatever the current international treaties say. What do they say now and how is that working out for us in space?

Maj Tirado:

So laws of armed conflict are also going to apply in the space domain—if and when the right to self-defense was actually triggered. So we have the first problem that, you know, is when would the right to self-defense be triggered, especially with nations trying to trying so hard to remain under that threshold of triggering Article 51. But if it were to be triggered, then the laws of armed conflict are going to apply.

And that's going to be your distinction military necessity, avoiding unnecessary suffering, precautionary measures and proportionality. So I won't go through all of them, I'll kind of just go through what is, I think, applicable and why it's a challenge in space. So in space there are—it's just kind of a unique domain and there's a lot of unique assets and kind of co-mingling of military and civilian a little bit more than we have on Earth.

So, for example, satellites in space, a lot of them are considered dual use satellites, meaning that they service some sort of they have some sort of civilian purpose, but the military may also use it. The easiest one, of course,

is to talk about, you know, GPS. GPS is used by civilians as well as military. So when you talk about this principle of distinction and whether or not a dual use satellite is a valid military target, it's another questionable area.

It's a response gap for us as the United States because if we are to be attacked, we will probably, I think, read the law somewhat strictly and not target something that has a dual use purpose because we don't want to affect the civilian population or violate [LOAC](#) by not properly applying this principle of distinction against the satellite that has dual use purpose.

With that said in the reverse, a nation such as China, I mean under the law can make an argument that our satellites that we're using are civilian satellite, that we are also using and leveraging for military purposes can be targeted because at this point we have not sufficiently separated the civilian and military purpose. So that creates a challenge.

And I think it could come down eventually to the political will of the willingness to actually—how you want to read this distinction, because again, these rules were written for terrestrial warfare. We haven't seen it play out in space and we don't know yet how we or other nations are going to interpret these principles in the space domain.

Another kind of issue is somewhat similar, but multipurpose commercial assets is what I call them. So essentially there is all this continued development going on in space. But, you know, whether it's space stations or if at some point we're mining on a, I don't know, an asteroid on the moon or something. Right now, the way things are going, the United States, the government, the military is relying on the commercial sector to really lead the way.

And we are supporting them and we're encouraging. And at the same time, we are also benefiting and utilizing any research or assets that they're putting into space. You know, right now, Space X does a lot of our

launches and things all of that to say similar situation can or will arise later when we have, let's say, space stations or mining station or a facility for scientific studies. Things like that—in space, that are being used by civilians and commercial companies as well as military. It's expensive.

So the odds of the military having their own and civilians having their own is, I don't know, probably pretty slim. So again, the question is going to be, you know, are those military targets and how will these principles of distinction and military necessity and proportionality be applied when we have so much co-mingling? And then the last one that I addressed in my paper anyways was lack of civilian population in space.

Most of the laws of armed conflict are in place to protect civilians, to not have undue harm or excessive dust or take away their ability to survive. So food, water, things of that nature. So targeting things that occur in space can and will affect our civilian population. But will that rise to a level of a violation of the laws of armed conflict—is really going to be the question. Because I mean (A) they're not going to be directly affected. (B) I don't know that we would really consider taking away their ability to get an ambulance to their house or use an ATM or kind of like the luxuries that we have that are provided by the space domain. Are we going to consider that affecting their survivability?

I mean, if it doesn't directly cause death and they can still get food and water—would that really would any of those like second or third order effects by losing our space capabilities really be a violation of LOAC? Right now, I don't think so. So that leaves just another sort of loophole or gap in which a nation with more political will could target some things, create some suffering within our nation, create some unrest, and still be within the bounds of the law.

And, you know, potentially United States wouldn't be willing to go to that level and affect the civilian population the way another nation may be willing to affect us. So those are just other areas where I kind of

call it a response gap because U.S. may not be able to lawfully respond or may not have the political will to respond because of the laws and how we don't really know how they apply in space yet.

Proposal

Maj Davis:

Awesome. Thank you. So toward the end of your paper, you make some suggestions about how we can start redefining things or rewriting some of our laws to address some of these gaps that, you know, that you just described. So kind of starting with redefinition of armed attack, what are your suggestions for how we can revise that to really address these problems?

Maj Tirado:

Yeah. So when I first kind of approached this and try to think of suggestions that honestly at first I was like, okay, this is just not going to be possible because, you know, LOAC's been around for so long. Article 51 of the UN charter has been around for so long, but I actually kind of had some glimmers of hope. So for the redefining of armed attack.

So actually just earlier this year, I think it was January 2022, [NATO](#) came out with a space policy, and within their policy they first, of course, acknowledged that, you know, attacks, too, from or within space could be harmful to modern society just as a conventional attack. And they now assert that such attacks could lead to the invocation of Article Five. Article Five is essentially the collective defense.

So when you trigger Article Five, that is all nations that are part of the NATO treaty will come to the defense of one another. So the key here really is that they have taken out from their space policy the term armed from armed attack. So now it is such attacks could lead to invocation of Article Five. So this is a departure from just the Standard NATO treaty. Which still is in place.

But for the specific space policy, they've kind of opened up the aperture of it doesn't have to be an armed attack

for the potential of Article Five to be triggered and for the potential of all the nations to come together in the defense of another. So I kind of piggybacked on that and was essentially just suggesting in my paper that the United States and other nations could look to that in revising Article 51 or creating a subset of rules for space that takes away that term armed.

So essentially, since I saw NATO started do it in their policy, I kind of just piggyback that we could expand that on a larger international scale to help with that response gap issue.

LOAC

Maj Davis:

So interesting. So moving on, we also already have talked about LOAC, but you also recommend some redefinition there as well. Tell me about that.

Maj Tirado:

Yeah. So I also kind of talked about redefining LOAC. And that was another area where I was at first like—geez—LOAC, I don't even know how long that's been in existence, but as I did some research, I did stumble upon the fact that LOAC has been changed or revised or expanded over the years. So, for example, after World War, or I guess during World War One, there was a lot of use of mustard gas, aerial warfare was new, tanks, machine guns.

There is these new forms of warfare and that ultimately, after the war led to revisions to laws of war and new treaties that would improve how sick, wounded civilians were treated. And it limited the use of poisonous gas. So that was World War One. World War Two, there was an enormous amount of civilian casualties that again led to revisions that were intended to protect civilians more from the acts of war and atrocities.

And then Cold War, same thing. There was a rise in international terrorism and a lot of people again went and suggested reconsidering international humanitarian, humanitarian laws. So I kind of looked

to that. I didn't go into too much detail on that part of my research. But at the same time, you know, sort of what I suggested was that we can already see that there are new forms of weapons and how these can impact the civilian populations and potentially getting ahead of that of redefining the laws of armed conflict, specific for space. And that might mean, you know, we have to rethink what is a military target in space. Like what does actually look like since that domain is a little bit different. And there's all the you know, there's a lot of co-mingling of assets. Rethinking what sort of suffering do we think is acceptable to civilian populations when you're affecting the things that a lot of populations rely on these days?

Are we still just at the level of, you know, as long as you don't kill people purposely and as long as you don't take away their lives, their ability to survive—food and water. Is that still the standard that we want? Or do we have a higher standard of what we would allow? So I didn't have like very much specifics, I guess, of detail, but just kind of looking forward of how we could redefine some of that and make some rules that are more specific for the space domain and challenges we see in that domain coming forth.

Maj Davis:

So, is there anything else you think that we didn't cover you think is kind of important to address about this topic?

Maj Tirado:

There is the part that, you know, we want space to maintain, to remain a peaceful domain. But at the same time, there's a quote that I like and it's actually come out in different forms depending on who has said it. But it goes something like there's no reason to assume that all nations will voluntarily cooperate in space if for no other reason, than nations do not behave that way on Earth. So when I read that, that kind of struck me because I was like, you know, kind of right. Like we haven't figured out peace on Earth. Do you really think that peace is going to be consistent? You know, for all time in space? As humans start to go out or as we start having settlements or as people start, companies start or governments start

fighting over land and where you can have things based or where is the best place to mine—all of those things.

So I know there are sometimes some thoughts against thinking with a war-like mind for the space domain. But at the same time, I guess if you take the realist look, it is potentially inevitable, depending how you look at it. More of a matter of how long or how far out. So I just think that these conversations are not premature really.

And that thinking about it, talking about it is important. And also, I think another key thing is just I've heard before, you know, if we do these kinds of things—that might just encourage the thought of war or it might make us look like we're ready to, you know, that we want war in space. And I challenge that to the extent that I think it can also serve as a deterrent.

So right now, if we remain . . . meaning the United States, our allies, remain with these response gaps and our hands are somewhat tied, it allows that gray zone or that response gap, it stays and can be exploited if we try to address it and we try to work on the international scale, on addressing it, and we close this response gap some—that can serve as a deterrent to other nations who thought, before I can get away with X, Y or Z, and nothing will happen because I haven't triggered your right to self-defense.

So if we close that gap a little bit, it could also serve as a deterrent in my prospective of okay, well I guess I can't get away with that anymore.

So just my own kind of soap box.

Maj Davis:

Great. So again Major Tirado, thank you so much for taking the time out of your extremely busy job to sit down and talk about this with us. I think you topic is

super interesting. I know a lot of this stuff is stuff that I have never really given a lot of thought to myself. So it's to have these kind of conversations to kind of put it out there that these are things that we should be thinking about when it comes to National Security law.

So again thank you so much. Good luck in the competition. And hopefully we will hear from you again soon.

Maj Tirado:

Thank you.

Major Charlton Hedden:

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Glossary

- **ACSC:** Air Command Staff College
- **AFJAG:** Air Force Judge Advocate General
- **ASAT:** anti-satellite weapon
- **GPS:** Global Positioning System
- **JAG:** Judge Advocate General
- **LOAC:** Law of Armed Conflict
- **NATO:** North Atlantic Treaty Organization
- **OST:** Outer Space Treaty
- **UN:** United Nations