

NATIONAL AND INTERNATIONAL SECURITY IN SPACE: INTERNATIONAL LAW IMPLICATIONS OF SPACE FORCE AND PLANETARY DEFENSE

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INTRODUCTION

First, I want to thank the Dean Rusk Center and the organizers, who have done an absolutely wonderful job organizing this conference today. I need to start off by also saying that the views that I'm expressing here today are my personal views as an academic. They do not reflect the views of the Air Force or the Department of Defense or the U.S. Government. So, that being said, there are two things that I want to talk about. First, I want to jump into this "peaceful purposes" conversation and tie in Space Force. Then, I want to talk a little bit about a very different topic, which is referred to as planetary defense, which is how we organize defense against an asteroid threat, a natural threat occurring in the space environment that could pose direct threat to life on Earth.

U.S. SPACE FORCE AND INTERNATIONAL LAW

When Space Force was announced, there was a very interesting public reaction. There was this concern of whether Space Force violates international law and is this a problem? There was an outcry from many folks, and there were articles saying, "Oh, Space Force is arguably a violation of international law."¹ As you have heard, it's not a violation of international law, and, in fact,

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¹ See, e.g., Jeffrey Kluger, *Why Trump's 'Space Force' Won't — and Shouldn't — Happen*, TIME (June 19, 2018), <https://time.com/5316007/space-force-trump/>; Becky Ferreira,

I believe that Space Force could enhance cooperation, transparency and confidence building in the outer space domain on the basis that there is not necessarily a strong understanding, particularly among the general public, of what the Air Force is doing in space, even though a lot of information is publicly available. You can see many of the different systems, a lot of different missions in space that are ongoing.² The public, however, doesn't think about the Air Force as a military organization operating in outer space. So, with Space Force, with defined missions that contribute to global peace and security,³ you could in fact have a greater degree of cooperation and transparency. Of course, the counterargument to that is "Well, sure, that's true, but look at the rhetoric that's coming out of this administration." You hear Vice President Pence at the International Astronautical Congress, as one panelist discussed earlier, referring to cooperation with "freedom loving countries," and using some strong rhetoric in that regard.⁴ One of the Space Force announcements that Vice President Pence made in 2018 addressed the need for American dominance in space,⁵ and that rhetoric does not necessarily contribute to enhanced transparency and confidence building in space or additional cooperation.

When you actually look at the text of Space Policy Directive-4, however, which directs the legislation that would create the Space Force and which directs the creation of U.S. Space Command, the first mission that's articulated for the U.S. Space Force is "[p]rotecting the Nation's interests in space and the peaceful use of space for all responsible actors, consistent with applicable

Trump's Vision of a 'Space Force' May Conflict with the Outer Space Treaty, VICE (June 18, 2018), https://www.vice.com/en_us/article/gynkw/trumps-vision-of-a-space-force-may-conflict-with-the-outer-space-treaty.

² See *About Us*, AIR FORCE SPACE COMMAND, <https://www.afspc.af.mil/About-Us/> (last visited Apr. 6, 2020); *Fact Sheets*, AIR FORCE SPACE COMMAND, <https://www.afspc.af.mil/About-Us/Fact-Sheets/> (last visited Mar. 19, 2020).

³ See, e.g., *Global Positioning System*, U.S. AIR FORCE, <https://www.af.mil/About-Us/Fact-Sheets/Display/Article/104610/global-positioning-system/> (last visited Mar. 19, 2020); *GPS Timing Applications*, GPS.GOV, <https://www.gps.gov/applications/timing/> (last updated Nov. 5, 2019).

⁴ "The United States of America will always be willing to work closely with like-minded, freedom-loving nations, as we lead mankind into the final frontier." This quote represents one of seven times in the speech that Vice President Pence used the phrase "freedom-loving." See Vice President Mike Pence, Remarks by Vice President Pence at the 2019 International Astronautical Congress Opening Ceremony (Oct. 21, 2019), available at <https://www.whitehouse.gov/briefings-statements/remarks-vice-president-pence-2019-international-astronautical-congress-opening-ceremony/>.

⁵ "As President Trump has said, in his words, 'It is not enough to merely have an American presence in space; we must have American dominance in space.' And so we will." See Vice President Mike Pence, Remarks by Vice President Pence on the Future of the U.S. Military in Space (Aug 9, 2019), available at <https://www.whitehouse.gov/briefings-statements/remarks-vice-president-pence-future-u-s-military-space/>.

law, including international law.”⁶ So, when you look at the mission of U.S. Space Force, as articulated in Space Policy Directive-4,⁷ you can actually see there is a respect for international law that is very clear, and that the peaceful use of space is highly prioritized. The language “responsible actors” here mirrors what we tend to see when we’re talking about sustainable uses of space: mitigating debris creation, registration of space objects in accordance with the Registration Convention, and other UN requirements.⁸ So, the language that we’re seeing in the text is very different than the rhetoric, and with that language we could see an increased level of cooperation and an increase in security, both domestically and internationally from the Space Force. I think that’s something that’s not talked about or thought about very often.

In terms of peaceful purposes language in the Outer Space Treaty, I like to ask the question of whether or not we really need to be having a conversation about what “peaceful purposes” means when we’re talking about the void of outer space, orbits, or deep space trajectories.⁹ I carry my UN treaties on outer space—my Outer Space Treaty—around so that when people say the Outer Space Treaty says something I can open up the text and say, “Show me where in the treaty it says that.” When you look at Article IV of the Outer Space Treaty, in the second paragraph it calls for celestial bodies to be used for exclusively peaceful purposes.¹⁰ But, when you look at paragraph one of Article IV, it has specific limitations in the void of outer space.¹¹ You can’t have nuclear weapons or weapons of mass destruction in Earth’s orbit or stationed on a celestial body.¹² There is not a limitation to exclusively peaceful purposes in the void of outer space beyond those limited restrictions established for nuclear weapons and weapons of mass destruction.¹³

⁶ Donald J. Trump, *Text of Space Policy Directive-4: Establishment of the United States Space Force*, WHITE HOUSE (Feb. 19, 2019), <https://www.whitehouse.gov/presidential-actions/text-space-policy-directive-4-establishment-united-states-space-force/>.

⁷ While the Space Policy Directive-4 was all I had to go off when I made these Remarks, the legislation has since been passed creating the U.S. Space Force. For a discussion of that legislation, see Sandra Erwin, *Trump Signs Defense Bill Establishing U.S. Space Force: What Comes Next*, SPACE NEWS (Dec. 20, 2019), <https://spacenews.com/trump-signs-defense-bill-establishing-u-s-space-force-what-comes-next/>.

⁸ Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, art. VIII, *opened for signature* Jan. 27, 1967, 610 U.N.T.S. 205 [hereinafter Outer Space Treaty], Art. VIII; Convention on Registration of Objects Launched into Outer Space, *opened for signature* Jan. 14, 1975, 1023 U.N.T.S. 15 [hereinafter Registration Convention]; G.A. RES 1721 (XVI), International Co-Operation in the Peaceful Uses of Outer Space (Dec. 20, 1961).

⁹ Outer Space Treaty, *supra* note 8, at Art. IV.

¹⁰ *Id.*

¹¹ *Id.*

¹² *Id.*

¹³ *Id.*

Of course, the preamble and other articles of the Outer Space Treaty encourage peaceful uses of outer space and seek to develop further cooperation in the exploration of outer space, utilizing peaceful purposes.¹⁴ But, as long as we are in compliance with the UN Charter and in compliance with that prohibition on the threat or use of force against political independence or territorial integrity of a State,¹⁵ it's my position that we don't need to have an exclusively peaceful purposes discussion about the void of outer space, though we would need to have that conversation with regard to celestial bodies if we start seeing lunar activities. At that point we need to address what adding the language exclusively for peaceful purposes really means. What does that do above and beyond the requirements for peaceful purposes embedded in international law, and more particularly, in the UN Charter?¹⁶

PLANETARY DEFENSE ACTIVITIES

I'm going to move on to talk about planetary defense now, because this has been a topic of interest I've been involved with a couple of times this year. I was on a panel at the American Society for International Law in April in D.C. that addressed the topic of planetary defense.¹⁷ This subject was also addressed at a workshop that several of my colleagues here were also present for, last Saturday in D.C. before the IAC.¹⁸ This is a bit of a hot topic. What's interesting is that you hear it referred to as planetary defense when we're actually talking about potential Near Earth Object (NEO) threats to Earth, but it's not defense in the traditional sense of defense against an enemy. It's defense against a natural threat.¹⁹ It would be similar if we referred to earthquake mitigation or hurricane mitigation as defense. So, you start to hear language creep into the discussion about protection from NEOs that sounds a lot like a traditional defense discussion. This reality is particularly true when you have the conversation about the fact that a large enough body, close enough to Earth would potentially need to be mitigated using a nuclear explosive device. This mitigation method would only be necessary against the very largest and the

¹⁴ *Id.* at pmb., Art. IX, Art. XI.

¹⁵ U.N. Charter art. 2(4).

¹⁶ See U.N. Charter art. 2, 33, 51.

¹⁷ For a summary of the panel's comments, please see Charles Bjork, *ASIL Recap: International Law & Interstellar Events: Who Speaks for Earth*, FCIL-SIS (June 5, 2019), <https://fcilsis.wordpress.com/2019/06/05/asil-recap-international-law-interstellar-events-who-speaks-for-earth/>. For a full audio track of the panel, see *The 2019 ASIL Annual Meeting*, AMERICAN SOCIETY OF INT'L LAW, <https://www.asil.org/events/2019-asil-annual-meeting> (last visited Mar. 22, 2020) [hereinafter *ASIL Annual Meeting*].

¹⁸ ASIL/BNJ Signature Topic Workshop on Planetary Defense: Legal Issues at Tillar House, Washington D.C. (Oct. 19, 2019).

¹⁹ See Tricia Talbert, *Planetary Defense: Did You Know?*, NASA, <https://www.nasa.gov/planetarydefense/did-you-know> (last updated Oct. 30, 2019).

most threatening of NEOs, right? The likelihood is, as we've heard from the NASA Planetary Defense Coordination Office, that it would not likely be an asteroid of that size that we would have to deal with, so we most likely would never have to get to that nuclear discussion.²⁰

This conversation tends to escalate to, "Okay, if we are dealing with this large threat that's close enough to Earth that we can only mitigate it with a nuclear explosion in front of the object to deflect it, what does that mean for international law and what does that mean for the Outer Space Treaty?" With regard to the Outer Space Treaty, I would argue this sort of a nuclear explosive device is not in fact a nuclear weapon. Whether or not you have to put it in Earth's orbit first to get it to the asteroid is irrelevant if it's being used against a natural threat, while it is surely a device, it's not a weapon in that context.²¹ We still have a problem, however, with regard to the Limited Test Ban Treaty, because the Limited Test Ban Treaty, while it's not specifically a treaty dealing only with outer space like the Outer Space Treaty, has provisions that directly apply to outer space that say you cannot have nuclear explosions in outer space.²² It specifies nuclear explosions, not nuclear weapons.²³

Because the United States is party to the Limited Test Ban Treaty, it would be a violation of our obligations if we were to find that we needed to detonate such a device to deflect an asteroid.²⁴ Then, the question becomes, could we either get a UN Security Council mandate that would be agreed upon to call for the use of such a device in a timely fashion that would effectively mitigate the threat, *or* are there other situations precluding wrongfulness that we could apply in international law? The concept of necessity in customary international law would allow us to carry out an action that would otherwise be a violation of a treaty obligation under circumstances where there is grave and imminent peril threatening an essential interest of the state, but where that action does not seriously impair the essential interests of another state or the international community as a whole, and we did not create the situation of necessity ourselves.²⁵ Certainly, an asteroid hurtling towards Earth would not be a situation that we have created for ourselves, and the question becomes whether or not it would be an impairment to the international community's interest to set up a nuclear explosion in outer space to deflect that asteroid because of the requirements under the Limited Test Ban Treaty. Some of the

²⁰ See *ASIL Annual Meeting*, *supra* note 17.

²¹ Outer Space Treaty, *supra* note 8, at Art. IV.

²² Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water, art. I., Aug. 5, 1963, 480 U.N.T.S. 43, 14 U.S.T. 1313 [hereinafter Limited Test Ban Treaty].

²³ *Id.*

²⁴ *Id.*

²⁵ For an articulation and explanation of the customary rule, see Int'l Law Comm'n, Articles on Responsibility of States for Internationally Wrongful Acts, U.N. Doc. A/56/83, Art. 25 (Aug. 3, 2001).

answer to that question depends on our scientific and technical certainty about whether or not we could sufficiently move the trajectory of the asteroid to avoid hitting either Earth or other assets that we may have in space in Earth's orbit.

If, in fact, we were to adjust the trajectory of an asteroid and it caused damage elsewhere on Earth or to manmade space objects, then you would have the question, what are the consequences under international law for that damage? The Liability Convention addresses damage caused by space objects.²⁶ This would lead to the causation question, how attenuated is the cause if we have used a space object to change the trajectory of an asteroid, but the asteroid is then the cause of the damage itself? Would we be under the Liability Convention regime, or would we be under general international law, damage, and liability rules? Would there be liability and responsibility above and beyond simply the damage itself due to the nature of the change of an asteroid's trajectory that caused the damage? I think that these are some really interesting questions to discuss.

The United States has participated in international planetary defense coordination activities through NASA in the International Asteroid Warning Network (IAWN)²⁷ and in the Space Mission Planning Advisory Group (SMPAG),²⁸ which both exist on the one hand to try to enhance cooperation and coordination of data being tracked for NEOs, and then also for the purpose of potentially planning a mission to mitigate such damage or to mitigate such potential for damage if a problematic NEO were, in fact, discovered. The United States has worked on this question internally as well as externally. NASA, DOD, State Department, etc., cooperate on planning potential for that future,²⁹ but it has been NASA that has been integrated through the Planetary Defense Coordination Office in these other international groups to help deal with that issue.³⁰ Thank you.

²⁶ Convention on International Liability for Damage Caused by Space Objects, *opened for signature* Mar. 29, 1972, 961 U.N.T.S. 187 [hereinafter Liability Convention].

²⁷ IAWN, UNITED NATIONS OFFICE FOR OUTER SPACE AFFAIRS, <https://www.unoosa.org/oosa/en/ourwork/topics/neos/iawn.html> (last visited Mar. 23, 2020).

²⁸ SMPAG, UNITED NATIONS OFFICE FOR OUTER SPACE AFFAIRS, <https://www.unoosa.org/oosa/en/ourwork/topics/neos/smpag.html> (last visited Mar. 23, 2020).

²⁹ INTERAGENCY WORKING GRP. FOR DETECTING AND MITIGATING THE IMPACT OF EARTH-BOUND AND NEAR-EARTH OBJECTS, NATIONAL NEAR-EARTH OBJECT PREPAREDNESS STRATEGY AND ACTION PLAN (2018), <https://www.whitehouse.gov/wp-content/uploads/2018/06/National-Near-Earth-Object-Preparedness-Strategy-and-Action-Plan-23-pages-1MB.pdf>.

³⁰ See Talbert, *supra* note 19.