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# Not Going Gently, or Alone, Into that Good Night: Why Nations Should Enter into an International Space Convention for the Furthering of Cooperation in Space Exploration

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*Not Going Gently, or Alone, Into that Good Night: Why Nations Should Enter into an  
International Space Convention for the Furthering of Cooperation in Space Exploration*  
by  
Jourdan Rasmussen

Submitted in partial fulfillment of the requirements of the  
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Michigan State University College of Law  
under the direction of  
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NOT GOING GENTLY, OR ALONE, INTO THAT GOOD NIGHT: WHY NATIONS SHOULD ENTER INTO  
AN INTERNATIONAL SPACE CONVENTION FOR THE FURTHERING OF COOPERATION IN SPACE  
EXPLORATION

BY  
JOURDAN RASMUSSEN<sup>1</sup>

I. INTRODUCTION

For a very long time, the United States was a rather lonely leader in space exploration. From being the first to put a man on the Moon,<sup>2</sup> to being the first to send successful missions to Mercury, Venus, Mars, Ceres, Vesta, Jupiter, Saturn, Uranus, Neptune, and, quite soon, Pluto,<sup>3</sup> to being the first to send a spacecraft officially out of the Solar System,<sup>4</sup> the United States has been a leader in spaceflight for a long, long time, and often with little company. Of course, the Soviet Union was there pushing the United States every step of the way and can boast some of its

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<sup>1</sup> I wish to thank all astronomers and all those involved in the study of space law that have come before me and have contributed in their own way to space exploration and growing society's interest in outer space, especially Carl Sagan, Neil deGrasse Tyson, Carl Q. Christol, and Bill Nye. May the desire to explore space grow stronger forevermore.

<sup>2</sup> John Noble Wilford, *Men Walk on Moon*, NY TIMES, (July 21, 1969), <http://www.nytimes.com/learning/general/onthisday/big/0720.html#article>.

<sup>3</sup> The missions were as follows: Mariner 10 was first to Mercury. Elizabeth Howell, *Mariner 10: First Mission to Mercury*, SPACE.COM, (October 31, 2012), <http://www.space.com/18301-mariner-10.html>. Mariner 2 was first to Venus. *Mariner 2*, NASA, <http://nssdc.gsfc.nasa.gov/nmc/spacecraftDisplay.do?id=1962-041A>. Mariner 4 was the first successful mission to Mars. *Mariner 4*, NASA, <http://nssdc.gsfc.nasa.gov/nmc/spacecraftDisplay.do?id=1964-077A>. Dawn was the first mission to visit Vesta the asteroid and later Ceres the dwarf planet. Tariq Malik, *NASA Spacecraft Enters Orbit Around Asteroid Vesta - A Space First*, SPACE.COM (July 17, 2011), <http://www.space.com/12321-nasa-spacecraft-orbits-asteroid-vesta-space-success.html>; Mike Wall, *NASA Dawn Probe Enters Orbit Around Planet Ceres, a Historic First*, SPACE.COM, (March 6, 2015), <http://www.space.com/28754-nasa-dawn-ceres-dwarf-planet-arrival.html>. Pioneer 10 was the first to visit Jupiter. *Pioneer 10*, NASA, [https://solarsystem.nasa.gov/missions/profile.cfm?MCode=Pioneer\\_10](https://solarsystem.nasa.gov/missions/profile.cfm?MCode=Pioneer_10). Pioneer 11 in turn was the first to visit Saturn. *Pioneer 11*, NASA, [https://solarsystem.nasa.gov/missions/profile.cfm?MCode=Pioneer\\_11](https://solarsystem.nasa.gov/missions/profile.cfm?MCode=Pioneer_11). Voyager 2 was the first and only probe to visit Uranus and Neptune. Jason Major, *27 Years Ago: Voyager 2's Visit to Uranus*, UNIVERSE TODAY, (January 24, 2013), <http://www.universetoday.com/99616/27-years-ago-voyager-2s-visit-to-uranus/>; *Voyager Celebrates 25 Years Since Uranus Visit*, NASA, (January 21, 2011), [http://www.nasa.gov/mission\\_pages/voyager/voyager20110121.html](http://www.nasa.gov/mission_pages/voyager/voyager20110121.html); Mike Wall, *A New World: NASA Recalls Voyager 2 Probe's 1989 Neptune Encounter*, SPACE.COM, (August 26, 2014). Finally, New Horizons is due to visit Pluto this summer. Mike Wall, *NASA Probe Captures Images of Pluto and Its Moon Charon*, SCIENTIFIC AMERICAN, (February 13, 2015), <http://www.scientificamerican.com/article/nasa-probe-captures-images-of-pluto-and-its-moon-charon-video/>.

<sup>4</sup> Mike Wall, *It's Official! Voyager 1 Spacecraft Has Left Solar System*, SPACE.COM, (September 12, 2013), <http://www.space.com/22729-voyager-1-spacecraft-interstellar-space.html>.

own achievements. From its famous Sputnik orbiter<sup>5</sup> to being the first to capture color pictures of Venus's surface,<sup>6</sup> and now even being NASA's personal taxi service to the International Space Station,<sup>7</sup> the Soviet Union and now Russia was and remains a healthy rival.

More encouragingly now, however, is that it seems that more nations are becoming more and more capable of their own space research. India recently got its first probe to Mars<sup>8</sup> and China just landed its first rover on the Moon.<sup>9</sup> Further, the UK, through a project that was crowd funded by private citizens from around the world, just completed plans to send a rover to the Moon's South Pole that will dig into the Moon's surface for research purposes.<sup>10</sup> Even private companies like Google are getting involved with its contest to pay \$30 million for the first private research probe that can land and travel on the Moon.<sup>11</sup> The times are changing and a new norm is becoming more and more clear: the world is entering a time where space research is growing and interest in space is at an all-time high.

With all that being said, the number of space-faring nations, out of all the nations in the world, is still quite slim. Only 17 out of 195 countries have space programs.<sup>12</sup> That's just under 9%. Further, it is also still an incredibly expensive endeavor to do anything related to space

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<sup>5</sup> *Sputnik and the Dawn of the Space Age*, NASA, <http://history.nasa.gov/sputnik/>.

<sup>6</sup> Elizabeth Howell, *Venera 13: First Color Pictures from Venus*, SPACE.COM, (November 19, 2012), <http://www.space.com/18551-venera-13.html>.

<sup>7</sup> Kenneth Chang, *Off to Space for a Year, an American's Longest Journey*, NY TIMES, (March 26, 2015), [http://www.nytimes.com/2015/03/27/science/space/nasa-sends-scott-kelly-to-space-for-a-year-an-americans-longest-journey.html?\\_r=0](http://www.nytimes.com/2015/03/27/science/space/nasa-sends-scott-kelly-to-space-for-a-year-an-americans-longest-journey.html?_r=0).

<sup>8</sup> Rama Lakshmi, *National Pride Soars as India Puts Spacecraft into Mars Before China*, THE WASHINGTON POST, (September 24, 2014), [http://www.washingtonpost.com/world/asia\\_pacific/national-pride-soars-as-indian-spacecraft-reaches-mars-orbit-before-china/2014/09/24/14542c2f-4cfa-4e9a-a121-c80144646255\\_story.html](http://www.washingtonpost.com/world/asia_pacific/national-pride-soars-as-indian-spacecraft-reaches-mars-orbit-before-china/2014/09/24/14542c2f-4cfa-4e9a-a121-c80144646255_story.html).

<sup>9</sup> Leonard David, *China Lands on the Moon: Historic Robotic Lunar Landing Includes 1<sup>st</sup> Chinese Rover*, SPACE.COM, (December 14, 2013), <http://www.space.com/23968-china-moon-rover-historic-lunar-landing.html>.

<sup>10</sup> Katie Collins, *UK Successfully Crowdfunds Lunar Mission*, WIRED, (December 16, 2014), <http://www.wired.co.uk/news/archive/2014-12/16/lunar-mission-one-kickstarter>.

<sup>11</sup> Megan Gannon, *Private Moon Race Will be Televised, Aims for 2015 Lunar Landing*, SPACE.COM, (April 7, 2014), <http://www.space.com/25356-private-moon-race-televised-live.html>.

<sup>12</sup> *Global Space Programs*, SPACE FOUNDATION, <http://www.spacefoundation.org/programs/public-policy-and-government-affairs/introduction-space/global-space-programs>. Further, some of these programs are quite limited in their abilities thus far. *Id.*

exploration. The rivalry that boosted the U.S. and Soviet space programs is in the past, and as the rivalry faded, so too has the funding for NASA.<sup>13</sup> But that doesn't mean countries must stop pushing each other. Quite the contrary, if nations, including nations that don't have fully functioning space programs but understand the value in more space exploration missions, committed funding to further space research through an international convention, such a backing would have the potential to drive space research to a level never before seen in mankind's history.

Because space research benefits all of mankind, a new International Space Convention would be right in line with the intent of the parties of the original Outer Space Treaty.<sup>14</sup> This new convention could establish a new international space agency with the capability to raise funds, and, in turn, fund new space missions. An analysis of how such an agreement would function in international law would serve the purpose of providing a framework for international law scholars to debate the merits of a potential convention. Through careful analysis of the why and how of such an agreement would look, it can be determined that the time is ripe for spacefaring and not yet spacefaring nations of the world to unite to a more committed pact to explore space, and that a new convention under international law to establish a new international space agency would prove a sound way of accelerating space exploration and, moreover, would function well under current international law.

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<sup>13</sup> Simon Rogers, *Nasa (sic) Budgets: US Spending on Space Travel Since 1958 UPDATED*, THE GUARDIAN, (February 1, 2010), <http://www.theguardian.com/news/datablog/2010/feb/01/nasa-budgets-us-spending-space-travel>.

<sup>14</sup> *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies*, UNITED NATIONS OFFICE FOR OUTER SPACE AFFAIRS, <http://www.unoosa.org/oosa/SpaceLaw/outerspt.html>. See Discussion *infra* II, A.

## II. BACKGROUND

To first understand how a new international space cooperation convention may fit into the current international law framework, it is important to understand what the current international space law framework is. The four main treaties that make up current international space law, and these are their colloquial names, are the Outer Space Treaty,<sup>15</sup> the Rescue Agreement,<sup>16</sup> the Liability Convention,<sup>17</sup> and the Registration Convention.<sup>18</sup> There is also the Moon Agreement, but this treaty does not enjoy the same level of support that the previous four treaties do.<sup>19</sup>

### A. The Outer Space Treaty and Origins of Space Law

Before The Outer Space Treaty was adopted, the United Nations in 1963 adopted the *Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space*.<sup>20</sup> The Principles were very similar to language later found in The Outer Space Treaty.<sup>21</sup> This 1963 declaration was adopted by a unanimous vote of the General Assembly of

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<sup>15</sup> UNOOSA, *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies*, <http://www.unoosa.org/oosa/SpaceLaw/outerspt.html> (last visited March 31, 2015) [hereinafter *Outer Space Treaty*]. The Outer Space Treaty is available at UNOOSA, *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies*, available at [http://www.oosa.unvienna.org/pdf/publications/st\\_space\\_61E.pdf](http://www.oosa.unvienna.org/pdf/publications/st_space_61E.pdf) (last visited March 31, 2015) [hereinafter *Moon Agreement*].

<sup>16</sup> *Agreement on the Rescue of Astronauts and the Return of Objects Launched into Outer Space*, UNOOSA, *Agreement on the Rescue of Astronauts and the Return of Objects Launched into Outer Space*, available at [http://www.oosa.unvienna.org/pdf/publications/st\\_space\\_61E.pdf](http://www.oosa.unvienna.org/pdf/publications/st_space_61E.pdf) (last visited March 31, 2015) [hereinafter *Rescue Agreement*].

<sup>17</sup> *Convention on International Liability for Damage Caused by Space Objects*, UNOOSA, *Convention on International Liability for Damage Caused by Space Objects*, available at [http://www.oosa.unvienna.org/pdf/publications/st\\_space\\_61E.pdf](http://www.oosa.unvienna.org/pdf/publications/st_space_61E.pdf) (last visited March 31, 2015) [hereinafter *Liability Convention*].

<sup>18</sup> *Convention on Registration of Objects Launched into Outer Space*, UNOOSA, *Convention on Registration of Objects Launched into Outer Space*, available at [http://www.oosa.unvienna.org/pdf/publications/st\\_space\\_61E.pdf](http://www.oosa.unvienna.org/pdf/publications/st_space_61E.pdf) (last visited March 31, 2015) [hereinafter *Registration Convention*].

<sup>19</sup> See Discussion *infra* II, B, 2.

<sup>20</sup> MICHAEL P. SCHARF, CUSTOMARY INTERNATIONAL LAW IN TIMES OF FUNDAMENTAL CHANGE: RECOGNIZING GROTIAN MOMENTS, 128 (2013).

<sup>21</sup> *Id.* at 128-32. A full version of the Principles can be found at [http://www.oosa.unvienna.org/oosa/en/SpaceLaw/gares/html/gares\\_18\\_1962.html](http://www.oosa.unvienna.org/oosa/en/SpaceLaw/gares/html/gares_18_1962.html).

the United Nations.<sup>22</sup> While both the Soviet Union and the United States considered the Principles to be rules of international law, some countries did not.<sup>23</sup> To help mitigate the concerns of some countries that the Principles were not an official agreement, they were incorporated into the Outer Space Treaty of 1967.<sup>24</sup> Importantly, the only two space-faring nations at the time, the United States and the Soviet Union, ratified the Outer Space Treaty.<sup>25</sup>

This new treaty, the Outer Space Treaty of 1967, remains the most important source of space law.<sup>26</sup> It has been referred to as the “Magna Charta [sic] for outer space activities.”<sup>27</sup> The preamble and first two articles of the Outer Space Treaty can be read as “establishing an overarching motif for the entire treaty and . . . for space law.”<sup>28</sup> As of 2011, 101 nations have ratified the Outer Space Treaty.<sup>29</sup> Some of the key provisions of the Outer Space Treaty, according to the United Nations Office for Outer Space Affairs (UNOOSA),<sup>30</sup> include Article I, which states, “[T]he exploration and use of outer space . . . shall be carried out for the benefit and in the interests of all countries and shall be the province of all mankind,”<sup>31</sup> and that “outer space shall be free for exploration and use by all States,”<sup>32</sup> and Article II, which stipulates that “outer space is not subject to national appropriation by claim of sovereignty, by means of use or

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<sup>22</sup> See SCHARF, *supra* note 20, at 132.

<sup>23</sup> *Id.*

<sup>24</sup> *Id.*

<sup>25</sup> Department of State, United States of America, *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies*, (last visited March 25, 2015), available at <http://www.state.gov/www/global/arms/treaties/space1.html>.

<sup>26</sup> *Id.*

<sup>27</sup> SCHARF, *supra* note 20, at 133.

<sup>28</sup> NATHAN C. GOLDMAN, *AMERICAN SPACE LAW: INTERNATIONAL AND DOMESTIC*, 69 (2 Ed. 1996).

<sup>29</sup> *Id.* at 134.

<sup>30</sup> UNOOSA’s website can be found at <http://www.oosa.unvienna.org/>.

<sup>31</sup> *Outer Space Treaty*, *supra* note 15, at Art. I.

<sup>32</sup> *Outer Space Treaty*, *supra* note 15, at Art. I.

occupation, or by any other means.”<sup>33</sup> Clearly then, it would seem that the original intent of outer space law was to cooperate and benefit all of mankind.

To be fair, the Outer Space Treaty is not anything close to resembling a comprehensive Constitution for international space law. An example of a common violation of the preamble is military satellites, which obviously do not serve the “interest of all countries.”<sup>34</sup> Also, to be fair, ambiguity and a “lack of clearly defined duties” do somewhat make the preamble more of a set of principles as opposed to enforceable rules.<sup>35</sup> Thus, although the Outer Space Treaty is considered by far the most important document to international space law, its main principles are really the only significance it holds in modern space law.<sup>36</sup>

#### B. Evidence of Space Cooperation from the Other Four Treaties and the Failure of the Moon Agreement

After the Outer Space Treaty became law but before the Moon Agreement was ratified, three treaties that are more specific in subject areas were ratified.<sup>37</sup> These three additional treaties are the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space, the Convention on International Liability for Damage Caused by Space Objects, and the Convention of Registration of Objects Launched into Outer Space.<sup>38</sup> These treaties may be referred respectively as the “Rescue Agreement,” the “Registration Agreement,” and the “Liability Convention.”<sup>39</sup>

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<sup>33</sup> *Outer Space Treaty*, *supra* note 15, at Art. II. United Nations Office for Outer Space Affairs, *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies* (last visited March 25, 2015) (quoting the UNOOSA’s web site on what are considered some of the key provisions of the Outer Space Treaty), <http://www.unoosa.org/oosa/SpaceLaw/outerspt.html>.

<sup>34</sup> *Id.* *Outer Space Treaty*, *supra* note 15, at Preamble.

<sup>35</sup> GOLDMAN, *supra* note 28, at 70.

<sup>36</sup> *Id.* at 76, 86. *See also* Discussion *supra* II, A (referring to the principles of nations cooperating in space).

<sup>37</sup> UNOOSA, *Treaties, Declarations, and Principles*, UNOOSA <http://www.oosa.unvienna.org/oosa/SpaceLaw/treaties.html> (last visited March 25, 2015).

<sup>38</sup> *Id.*

<sup>39</sup> SCHARF, *supra* note 20, at 134, n.27.

### 1. *The Three “Minor” Treaties*

First it should be noted that the Rescue Agreement, Liability Convention, and Registration Convention are much more internationally accepted than the Moon Agreement.<sup>40</sup> Whereas the Moon Agreement has only fifteen parties, the Rescue Agreement has ninety-one parties, the Liability Convention eighty-eight, and the Registration Agreement fifty-six.<sup>41</sup> These treaties entered into force in the late 1960s and early to mid-1970s,<sup>42</sup> at a time when only the United States and the Soviet Union were capable of any space flight.<sup>43</sup> The Rescue Agreement has only been somewhat used once, and for that reason has never been much of a source for discourse in international space law.<sup>44</sup>

Similarly, the Liability Convention has only been used once.<sup>45</sup> The only time it has been used was when a Soviet satellite that relied on nuclear energy crashed onto Canadian soil, and Canada sent Russia a bill.<sup>46</sup> Even then, it wasn't completely clear that the Soviets had to pay at all, and the Soviet Union only paid Canada half of what the bill was anyway.<sup>47</sup> As for the Registration Agreement, it has the fewest number of parties out of the four treaties.<sup>48</sup> Its only

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<sup>40</sup> The Rescue Agreement has 92 parties, the Liability Convention 89, and the Registration Convention 60, whereas the Moon Agreement only has 15. UNOOSA, *Status of International Agreements relating to Activities in Outer Space*, UNOOSA, <http://www.oosa.unvienna.org/oosa/en/SpaceLaw/treatystatus/index.html> (last visited March 25, 2015).

<sup>41</sup> *Id.*

<sup>42</sup> UNOOSA, *United Nations Treaties and Principles on Space Law*, UNOOSA, <http://www.oosa.unvienna.org/oosa/SpaceLaw/treaties.html>. Specifically, the Rescue Agreement entered into force in December of 1968, the Liability Convention in March of 1972, and the Registration Agreement in September of 1976. *Id.*

<sup>43</sup> Brian Beck, *The Next, Small, Step for Mankind: Fixing the Inadequacies of the International Space Law Treaty Regime to Accommodate the Modern Space Flight Industry*, 19 ALB. L.J. SCI. & TECH. 1, 4 (2009)

<sup>44</sup> *See id.* at 13-14. The only notable use of this treaty was during the Apollo 13 crisis, when the Soviet Union stopped using certain frequencies so as not to interfere with the rescue. *Id.*

<sup>45</sup> *Id.* at 15-16. See also GLENN H. REYNOLDS, *OUTER SPACE: PROBLEMS OF LAW AND POLICY* 299 (2nd ed. 1989).

<sup>46</sup> Beck, *supra* note 43, at 15.

<sup>47</sup> *Id.* Specific amounts included that the cleanup cost Canada approximately 14 million Canadian dollars, while the U.S. spent about \$2-2.5 million dollars. *Id.* Canada only billed the Soviet Union for C\$ 6 million dollars, and the Soviet Union only paid Canada C\$ 3 million. *Id.*

<sup>48</sup> SCHARF, *supra* note 20, at 134, n.27.

real significance is that it requires “launching State[s]” to register all space objects that are launched into the Earth’s orbit “or beyond.”<sup>49</sup>

In reality then, the three minor treaties have not been incredibly important to developing international space law. They simply have not had relevance to many problems encountered by the international community. How they are relevant, however, is that they serve as evidence of States being ready and willing to cooperate in their space exploration efforts.

## 2. *The Moon Agreement*

The Moon Agreement is a much stickier subject than its previous four space treaties brethren, and can be used as strong evidence of what not to do when developing international space law. The Moon Agreement’s original purpose was to be a second more general treaty, unlike the three minor treaties.<sup>50</sup> Officially named the “Agreement Governing the Activities of States on the Moon and Other Celestial Bodies,” the Moon Agreement entered into force when a fifth country, Austria, signed it in 1984.<sup>51</sup> “Entered into force” should be taken with a moon-sized grain of salt, however, as neither the United States nor the Soviet Union was a signatory.<sup>52</sup> Technically, two now spacefaring countries have signed the Moon Agreement: India and China, but still, it would be more than fair to say that the Moon Agreement has never developed much support from spacefaring nations.<sup>53</sup>

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<sup>49</sup> *Registration Agreement*, supra note 18, at Art. II.

<sup>50</sup> See *Moon Agreement*, supra note 15.

<sup>51</sup> UNOOSA. *Agreement Governing the Activities of States on the Moon and Other Celestial Bodies*, <http://www.unoosa.org/oosa/SpaceLaw/moon.html> (last visited March 25, 2015). See also Carl Q. Christol, *The Moon Treaty Enters into Force*, 79 AM. J. INT’L L. 163, 163 (1985).

<sup>52</sup> James Martin Center for Nonproliferation Studies, *Agreement Governing the Activities of States on the Moon and Other Celestial Bodies (Moon Agreement)*, <http://cns.miis.edu/inventory/pdfs/ospace.pdf>, (last visited March 28, 2015). The original signatories to it were Austria, Chile, France, Guatemala, Morocco, The Philippines, and Romania. Carl Q. Christol, *The American Bar Association and the 1979 Moon Treaty and the Search for a Position*, 9 J. SPACE L. 77, 77 (1981). Currently, UNOOSA lists the number of signatories at only 4. UNOOSA, *Status of International Agreements Relating to Outer Space*, <http://www.unoosa.org/oosa/en/SpaceLaw/treatystatus/index.html>, (last visited March 25, 2015).

<sup>53</sup> *Id.* at 6. To be fair, India and China are reaching new heights with their space programs. See Discussion supra I.

In fact, currently, the Moon Agreement has only fifteen parties to it.<sup>54</sup> Thus, it can definitely be considered not all that relevant to international space law. As further evidence of general disregard for the Moon Agreement, the Space Station Intergovernmental Agreement, the treaty governing the International Space Station, acknowledges the first four treaties but not the Moon Agreement.<sup>55</sup> With that being said, understanding why it never gained traction in the international community can still help guide the discussion as to what future space agreements should strive to look like.

The Moon Agreement had been debated since 1970.<sup>56</sup> It was opened for signature in 1979.<sup>57</sup> A substantial delay in its ratification and a lack of support from space-faring nations were significant contrasts compared to the four prior space treaties.<sup>58</sup> A key difference between the Moon Agreement and the Outer Space Treaty was the “Common Heritage of Mankind” (CHM) doctrine, which was announced in the Moon Agreement.<sup>59</sup> This principle was brand new to space law.<sup>60</sup> Third World forces largely influenced the inclusion of this provision.<sup>61</sup> However, the Moon Agreement did not define what CHM meant, leaving it to be further enounced by a “new international legal regime.”<sup>62</sup> Theoretically though, one way of explaining what the CHM principle is that it stood for the notion that all of humanity was the sovereign over

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<sup>54</sup> UNOOSA, *Agreement Governing the Activities of States on the Moon and Other Celestial Bodies*, available at [http://www.unoosa.org/pdf/limited/c2/AC105\\_C2\\_2013\\_CRP05E.pdf](http://www.unoosa.org/pdf/limited/c2/AC105_C2_2013_CRP05E.pdf).

<sup>55</sup> Space Station Intergovernmental Agreement, Preamble, available at <http://www.state.gov/documents/organization/107683.pdf>.

<sup>56</sup> GOLDMAN, *supra* note 28, at 90.

<sup>57</sup> Carl Q. Christol, *The Moon Treaty Enters Into Force*, 79 AM. J. INT'L L. 163 (1985).

<sup>58</sup> *Id.*

<sup>59</sup> Christol, *supra* note 52, at 77.

<sup>60</sup> *Id.*

<sup>61</sup> Christol, *supra* note 57, at 164.

<sup>62</sup> See Christol, *supra* note 52, at 77. Professor Christol summarizes the provisions of CHM extremely well: “*In sum, the CHM provisions of the Moon Treaty are to be implemented through the formation of a future international legal regime pursuant to the foregoing sharing formula so that benefits derived from the resources will go both to States possessing the capabilities of exploitation and also to other States. Until such a regime and the attendant appropriate procedures have been brought into being the traditional res communis principle will continue to be operative. The analogy of the freedom of the high seas will apply.*” *Id.* at 78.

the international commons.<sup>63</sup> However, there simply was no definitive agreement on what the definition of CHM precisely was.<sup>64</sup> The general idea stemming from it though does seem to be that all parties had rights to the resources in the CHM area and that generally no individual country or individual could claim areas for themselves.<sup>65</sup>

Other controversial provisions of the Moon Agreement included that resources were supposed to be shared amongst all countries, with instructions that special consideration was to be given to developing countries.<sup>66</sup> Additionally, the CHM provision seemed to contradict the Outer Space Treaty's provision that allowed for the natural resources of celestial bodies to be freely and equally explored.<sup>67</sup> Along these same lines, opponents feared the Moon Agreement might cause them to lose control or jurisdiction over potential property and personnel in space, which would again contradict the Outer Space Treaty.<sup>68</sup> Thus, the Moon Agreement was seen as a departure from the Outer Space Treaty and a threat to countries that would actually invest in spaceflight and the potential harvesting of resources.<sup>69</sup> It is questionable whether that criticism was fair or not, as the language and the negotiating history of the Moon Agreement still seemed "protective of interests of private entrepreneurs."<sup>70</sup> However, one can see how nations that did engage in spaceflight reasonably wanted to be protective of their investments.

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<sup>63</sup> See Scott J. Shackelford, *The Tragedy of the Common Heritage of Mankind*, 28 STAN. ENVTL. L.J. 109, 110-11 (2009) (explaining that disagreements have led to different definitions in different areas of law over the exact definition of the CHM doctrine).

<sup>64</sup> *Id.* at 110. There are, however, five common ideas to the CHM principle. *Id.* at 111. They are "[f]irst, there can be no private or public appropriation of the commons. Second, representatives from all nations must manage resources since a commons area is considered to belong to everyone. Third, all nations must actively share in the benefits acquired from exploitation of the resources from the common heritage region. Fourth, there can be no weaponry or military installations established in commons areas. Fifth, the commons should be preserved for the benefit of future generations." *Id.*

<sup>65</sup> See *supra* note 64 and accompanying text.

<sup>66</sup> Christol, *supra* note 57, at 165.

<sup>67</sup> *Id.* See *Outer Space Treaty*, *supra* note 15, Art. I.

<sup>68</sup> Christol, *supra* note 57, at 166.

<sup>69</sup> *Id.* at 163-167.

<sup>70</sup> See *id.* at 166.

The Moon Agreement, as a whole, was ultimately a failure, as it was never ratified by either the United States or the Soviet Union, the only space-faring nations at the time the treaty was proposed.<sup>71</sup> President Carter's administration supported the Moon Agreement,<sup>72</sup> although one theory suggests that fears that any future mineral claims in space by the United States being subjected to potentially being handed over to an international regime of developing nations ultimately led to the United States not signing the treaty.<sup>73</sup> At any rate, the concerns over how the CHM principle would affect how the United States had to share whatever benefits it gained from exploring the moon, or, theoretically, other space bodies, certainly did not increase the chances of the Moon Agreement being accepted by the United States.<sup>74</sup>

Another potential reason of why the Moon Agreement was not widely accepted was that the Moon Agreement failed to "face the reality of the [new] era."<sup>75</sup> Differences amongst space-faring and earthbound nations led to deeper divides as the value of space became more obvious.<sup>76</sup> Overall then, there seem to be a variety of reasons as to why the Moon Agreement ultimately failed. However, the strong and common theme seemed to be that spacefaring nations were afraid of investing in space travel and exploration and then being exploited by nations that had not made similar investments to space exploration.

### C. Laws Governing International Conventions

In addition to understanding the previous space treaties, it's important to make a quick note of the laws governing treaties and their formations. First it should be noted that the use of

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<sup>71</sup> REYNOLDS, *supra* note 45.

<sup>72</sup> *Id.*

<sup>73</sup> See Christol, *supra* note 52, at 82-83.

<sup>74</sup> See Christol, *supra* note 57, at 167.

<sup>75</sup> See GOLDMAN, *supra* note 28, at 90.

<sup>76</sup> *Id.*

the word “International Convention” is largely interchangeable with the word “Treaty.”<sup>77</sup>

Treaties between states, the presumed plan of this International Space Convention, are governed by the Vienna Convention on the Law of Treaties, or just “Vienna Convention” for short.<sup>78</sup> The Vienna Convention defines treaties as “an international agreement concluded between States in written form and governed by international law, whether embodied in a single instrument or in two or more related instruments and whatever its particular designation.”<sup>79</sup>

### 1. *The Vienna Convention*

The Vienna Convention was finalized in 1969, after nearly twenty years of preparation by the International Law Commission beginning in 1949.<sup>80</sup> It was then opened for signature and ratification, and officially entered into force in 1980.<sup>81</sup> While the United States has not yet ratified the Vienna Convention, the Executive Branch of the United States does recognize the Vienna Convention as the “authoritative guide to current treaty law and practice.”<sup>82</sup> Overall, the Vienna Convention has 113 parties to it as of 2013.<sup>83</sup> The Vienna Convention is often even seen as more than just a treaty itself and is often even seen as a codification of international customary law itself.<sup>84</sup> The Vienna Convention governs how treaties are formed, how they operate, and how they may be terminated or suspended.<sup>85</sup> The Vienna Convention is pretty widely regarded as

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<sup>77</sup> LORI FISLER DAMROSCH & SEAN D. MURPHY, *INTERNATIONAL LAW: CASES AND MATERIALS* 117 (6 ed. 2014). International convention is used sometimes; treaty is the most common term and is generally word used in America when referring to these international agreements. *Id.*

<sup>78</sup> *Id.* at 119. The Vienna Convention is available to read on the UN’s website at <https://treaties.un.org/doc/Publication/UNTS/Volume%201155/volume-1155-I-18232-English.pdf>.

<sup>79</sup> Vienna Convention, Art. 2(1)(a).

<sup>80</sup> DAMROSCH & MURPHY, *supra* note 77, at 118.

<sup>81</sup> *Id.*

<sup>82</sup> *Id.* (citing S. Exec. Doc. L. 92-1 (1971)).

<sup>83</sup> *Id.*

<sup>84</sup> *Id.* at 119-120. For a short overview of international customary law, see Discussion *infra* II, D, 2; *infra* note 89.

<sup>85</sup> DAMROSCH & MURPHY, *supra* note 77, at 118.

primary source of treaty law,<sup>86</sup> and thus is quite important in analyzing the formation of any international convention or treaty.

## 2. *International Customary Law*

The Vienna Convention does not prejudice other forms of non-written international law, so any interactions between nations would still be governed by any relevant international customary law and also jus cogens. Customary law is defined as “Traditional common rule or practice that has become an intrinsic part of the accepted and expected conduct in a community, professor, or trade and is treated as a legal requirement.”<sup>87</sup> However, international customary law specifically can be pretty difficult to actually define. International customary law is generally agreed upon to have two distinct elements: the general practice of states and “the acceptance by states that such practice is necessary by rule of law (*opinio juris sive necessitates*).”<sup>88</sup> Other than that though, it is a pretty fluid concept, and at any rate, further defining it would be outside the scope of this piece. Custom by logic and by definition is something that is generally more indicative of practice than the actual writing down of some “formal” agreement. Thus, for now, the above definitions will suffice for this discussion.<sup>89</sup>

## 3. *Jus Cogens*

Jus cogens is a special set of customary norms, or, peremptory norms, that enjoy a special ranking of importance above any treaties or all other international customary law.<sup>90</sup> The only thing one really needs to know about jus cogens for purposes of this discussion is that if a new

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<sup>86</sup> *Id.* at 120.

<sup>87</sup> *Customary Law*, BUSINESS DICTIONARY, (last visited April 5, 2015), <http://www.businessdictionary.com/definition/customary-law.html>.

<sup>88</sup> DAMROSCH & MURPHY, *supra* note 77, at 60-61.

<sup>89</sup> For a more detailed discussion what international customary law is, *see* DAMROSCH & MURPHY, *supra* note 105, at 57-115.

<sup>90</sup> *Id.* at 101.

international space convention went against any of the jus cogens principles, the treaty would be invalidated.<sup>91</sup> However, it is extraordinarily unlikely that the sort of international space convention being proposed here would ever come remotely close to violating a jus cogens principle.<sup>92</sup> Thus, so long as a new international space convention does not violate one of the jus cogens principles listed in footnote 92 or something along the lines of that list, it is unlikely that jus cogens will become a problem for developing a new international space convention.

#### D. Other Forms of International Jurisdiction and Cooperation in Common Areas

Since this proposed new international space convention may also serve as an adjudication authority, it is important to see how international law has served in developing law in other common areas that require international cooperation. On one hand, there is the Arctic Circle and specifically Antarctica, an actual landmass, but an area that lacks any actual permanent residents, and is subjected to many territorial claims. Then there are also the high seas, the oceans that almost virtually every country must use or deal with in order to engage in international trade with other countries. The “common heritage of mankind” has been a principle that the international community has to various degrees sought to implement in each of the high seas, Antarctica, and, yes, the Moon and outer space.<sup>93</sup> Thus, exploring the laws governing Antarctica and the high seas can potentially shed light on future jurisdictional and cooperation issues in outer space.

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<sup>91</sup> *Id.* at 102.

<sup>92</sup> For the record, the most frequently accepted jus cogens principles include the prohibition of the aggressive use of force, the right to self-defense, the prohibition of genocide, the prohibition of torture, crimes against humanity, the prohibition of slavery and the slave trade, the prohibition of piracy, the prohibition of racial discrimination and apartheid, and the prohibition of hostilities directed at civilian population, or, another way of saying it, the basic rules of international humanitarian law. *Id.* at 104. Again, it is hard to see an international space convention coming remotely close to violating any of these.

<sup>93</sup> HELMUT TUERK, REFLECTIONS ON THE CONTEMPORARY LAW OF THE SEA, 31 (2012).

## 1. *International Law and Cooperation in Antarctica*

Antarctica is another example of a common area where international law has had to develop over the years. Both Antarctica and space are common areas that are difficult to explore, yet they are also both attractive to many nations for their resources and learning opportunities.<sup>94</sup> Antarctica is governed by the Antarctic Treaty.<sup>95</sup> In light of the many claims were being made to Antarctic Territory at the time, and for the purposes of preserving Antarctica as a region for scientific research and international cooperation, the governments of Argentina, Australia, Belgium, Chile, France, Japan, New Zealand, Norway, South Africa, the Soviet Union, the United Kingdom, and the United States signed the Antarctic Treaty in 1959.<sup>96</sup> Similar to the Outer Space Treaty, the Antarctic Treaty promoted international cooperation and scientific research, seemingly a running theme in the international community.

As for dispute settlements, the Antarctic Treaty was quite vague merely calling upon the signing nations to basically “consult together” and “reach a mutually acceptable conclusion.”<sup>97</sup> Further, disputes in Antarctica are simply far more rare; thus far being barely existent at all since the signing of the Antarctic Treaty.<sup>98</sup> Basically, the countries that had territorial claims have not sought to expand them since the signing of the Treaty, and basically all have cooperated in the management of the resources there so far without much controversy to speak of.<sup>99</sup> A

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<sup>94</sup> See Armel Kerrest, *Outer Space as International Space: Lessons from Antarctica*, Antarctic Treaty Summit 2009 (2009), available at <http://www.atsummit50.org/media/book-18.pdf>.

<sup>95</sup> The Antarctic Treaty, Article I, (December 1, 1959), available at [http://www.ats.aq/documents/ats/treaty\\_original.pdf](http://www.ats.aq/documents/ats/treaty_original.pdf).

<sup>96</sup> Antarctic Treaty, Preamble, Art. II, Art. III.

<sup>97</sup> Antarctic Treaty, Art. VIII, sec. 2.

<sup>98</sup> DONALD R. ROTHWELL & TIM STEPHENS, *THE INTERNATIONAL LAW OF THE SEA*, 87, (Hart Publishing, 2010).

<sup>99</sup> *Id.*

forewarning to the international community though, controversies in the future can be expected, with ice melting in Antarctica and exposing new land for the first time.<sup>100</sup>

## 2. *The Law of the Sea*

The high seas are another common area where international law has had to develop to further international interests. One of the first internationally relevant opinions of the sea was that of the Roman Empire, which was that the seas were “free and common to all.”<sup>101</sup> Emerging European powers later attempted to appropriate some seas, but these claims ultimately failed as it was ultimately “preposterous” to make claims to such large areas that the European powers were unable to actually control.<sup>102</sup> From these juridical controversies, modern international law on the high seas came to be.<sup>103</sup>

Currently, the international law of the sea is composed of many sources, including: customary international law, treaties and conventions concerning the seas, unilateral declarations, subsidiary sources of law, and soft law.<sup>104</sup> The most comprehensive source of international law in regards to the sea is the International Convention on the Law of the Sea.<sup>105</sup> It was actually the third convention of the kind, and therefore is commonly referred to as UNCLOS III, which was originally presented in 1982 and came into force in 1994.<sup>106</sup> One of the key achievements of UNCLOS III was the establishment of a detailed dispute settlement system.<sup>107</sup>

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<sup>100</sup> *Id.*

<sup>101</sup> DONALD R. ROTHWELL & TIM STEPHENS, *THE INTERNATIONAL LAW OF THE SEA*, 2, (Hart Publishing, 2010).

<sup>102</sup> *Id.*

<sup>103</sup> *Id.*

<sup>104</sup> *Id.* at 22-25.

<sup>105</sup> *See id.* at 14-20.

<sup>106</sup> *Id.* at 10. *See also id.* at 6-10.

<sup>107</sup> IGOR V. KARAMAN, *DISPUTE RESOLUTION IN THE LAW OF THE SEA*, 1 (Eds. Vaughan Lowe and Robert Churchill, 2012).

Under UNCLOS III, when disputes first arise, parties are of course required to settle such disputes peacefully and are free to choose their own forum or method of dispute settlement if the parties can agree on a common mechanism.<sup>108</sup> However, if they cannot, then a key feature of UNCLOS III is that the parties are bound through compulsory procedures that end with binding decisions, via the UNCLOS III provisions on dispute settlement.<sup>109</sup> The biggest reason for including these Conventions were because nations wanted to avoid other parties bowing to political and economic pressures.<sup>110</sup> Further, under this system, parties have the options of going before two judicial bodies, the International Court of Justice (ICJ) and the International Tribunal for the Law of the Sea (ITLOS), or going before two different arbitrations, both of whom are in accordance with the Law of the Sea Convention (LOSC).<sup>111</sup> It was quite notable that UNCLOS III had these provisions, as the Optional Protocol for the 1958 Geneva Law of the Sea Conventions was considered a failure since practically no state was ultimately bound by it.<sup>112</sup> UNCLOS III was thus quite a departure from the old way of doing things.

The style of having multiple judicial bodies was agreed upon after much debate and disagreement over what judicial body should or would be in charge of disputes concerning the LOSC.<sup>113</sup> Ultimately, it was at least agreed that the states would never be able to agree on one single judicial or arbitral tribunal.<sup>114</sup> Thus, the system of allowing options was implemented.

Since a new space court is proposed below, it is prudent to look at the success of the International Tribunal for the Law of the Sea (ITLOS). ITLOS, one of the options for judicial dispute listed above, and the one option specific to sea disputes, has developed a reputation for

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<sup>108</sup> *Id.* at 7.

<sup>109</sup> *Id.*

<sup>110</sup> *Id.* at 5.

<sup>111</sup> *Id.* at 8.

<sup>112</sup> *Id.*

<sup>113</sup> *Id.* at 5.

<sup>114</sup> *Id.*

quick and efficient management of cases.<sup>115</sup> ITLOS has served to develop international law well and has a reputation among the General Assembly for solving disputes in a satisfactory fashion.<sup>116</sup> Although nations have been somewhat reluctant to bring many cases before the tribunal due to maritime issues being politically sensitive issues, ITLOS recently did have its first maritime boundary case, which has been cited as evidence of the international community's confidence in bringing more and more cases to ITLOS.<sup>117</sup> It would seem then that since ITLOS's first case in 1998,<sup>118</sup> it has overall been considered quite a success and bonus to the international community for the most part.

### 3. *Disputes in the Arctic Circle*

That being said, UNCLOS and ITLOS do not have a perfect record for quickly settling claims. The Arctic Circle, which is governed by UNCLOS as it lacks any substantive land and therefore is governed as the Arctic Ocean, has had its share of disputes.<sup>119</sup> The opening of new passageways through the melting of ice due to climate change in the Arctic Circle have created new areas and seaways for nations to attempt to claim.<sup>120</sup> In fact, there have already been a myriad of disputes over new Arctic region claims. There is the case of Russia, Canada, and Denmark (through Greenland)<sup>121</sup> all trying to lay claim the Lomonosov Ridge, which, if granted

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<sup>115</sup> See TUERK, *supra* note 93, at 153.

<sup>116</sup> *Id.* at 154.

<sup>117</sup> *Id.* at 156.

<sup>118</sup> *Id.* at 154.

<sup>119</sup> See Marc Sonntag & Felix Lüth, *Who Owns the Arctic? A Stocktaking of Territorial Disputes*, GLOBAL: THE GLOBE JOURNAL, (December 21, 2011), <http://theglobaljournal.net/article/view/439/>.

<sup>120</sup> Flavia Krause-Jackson & Nicole Gaouette, *Melting Ice Opens Fight Over Sea Routes for Arctic Debate*, BLOOMBERG, (May 12, 2013), <http://www.bloomberg.com/news/articles/2013-05-13/melting-ice-opens-fight-over-sea-routes-for-arctic-debate>.

<sup>121</sup> Greenland, despite self-rule, is actually a part of the overall Danish Kingdom, and thus Denmark is in charge of Greenland's national affairs; thus, Denmark is in charge of making these claims. *Greenland Profile – Overview*, BBC NEWS, (February 19, 2015), <http://www.bbc.com/news/world-europe-18249474>.

to Russia, would give Russia “nearly one-half of the Arctic area.”<sup>122</sup> Lomonosov Ridge is a massive 1,100-mile ridge that runs under the middle of the Arctic Ocean through the North Pole region.<sup>123</sup> Because of the continental shelf provisions of UNCLOS,<sup>124</sup> Denmark, Canada, and Russia can, and have, all made claims to it due to emerging new exclusive economic zones created by the melting of the ice in the Arctic Ocean.<sup>125</sup> These claims remain in dispute as of 2015.

In a smaller and much older dispute, Canada and Denmark are still in dispute over Hans Island, “a tiny, barren piece of rock.”<sup>126</sup> To be fair, the dispute is key because they are concerned over who could control the seaway between Greenland and Ellesmere Island if one country or the other were to acquire sole jurisdiction over it.<sup>127</sup> As for solutions, Denmark and Canada have taken the route of negotiating rather than submitting their dispute to any international body.<sup>128</sup> The latest is that Denmark and Canada had negotiated to split up Hans Island down the maritime boundary that would otherwise run through the middle of the island, although that deal has not since been finalized.<sup>129</sup> As one can see then, while ITLOS has had some initial success with

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<sup>122</sup> Ronald O’Rourke, *Changes in the Arctic: Background and Issues for Congress*, 21-22, CONGRESSIONAL RESEARCH SERVICE (2013), available at <http://www.fas.org/sgp/crs/misc/R41153.pdf>.

<sup>123</sup> *Lomonosov Ridge*, ENCYCLOPEDIA BRITANNICA, <http://www.britannica.com/EBchecked/topic/346795/Lomonosov-Ridge> (last visited May 6, 2015).

<sup>124</sup> The specifics of this are outside the scope of the present discussion. For further reading on continental shelf disputes under UNCLOS, see Rothwell & Stephens, *supra* note 98, at 98-119.

<sup>125</sup> O’Rourke, *supra* note 122, at 21. For a great map of the situation and problem, see Tim MacFarlan, *Denmark Stakes Claim to North Pole Thanks to Greenland ridge, as Three-Way Battle for Vast Arctic Oil and Gas Deposits Hots (sic) Up*, DAILY MAIL, (December 14, 2014), <http://www.dailymail.co.uk/news/article-2873808/Denmark-claims-North-Pole-Greenland-ridge-link.html>.

<sup>126</sup> *Id.* at 22.

<sup>127</sup> Adrian Humphreys, *New Proposal Would See Hans Island Split Equally Between Canada and Denmark*, NATIONAL POST, (April 11, 2012), <http://news.nationalpost.com/news/canada/new-proposal-would-see-hans-island-split-equally-between-canada-and-denmark>.

<sup>128</sup> *Id.*

<sup>129</sup> *Id.* See also O’Rourke, *supra* note 122, at 22.

traditional seafaring issues,<sup>130</sup> new emerging problems in the Arctic may prove problematic for it and require additional methods for solutions to be reached.

## E. Current Cooperation in Space Exploration

Returning to the subject of outer space, cooperation in modern space research has begun to happen. This is evidenced in a few ways, and such endeavors point towards nations' desires to work together in space research.

### 1. *The International Space Station*

The International Space Station, or ISS, is certainly the most obvious example of what is possible when multiple countries pool their resources. The ISS is governed by the Space Station Intergovernmental Agreement, a treaty amongst the United States, Russia, the member states of the European Space Agency, Japan, and Canada.<sup>131</sup> The purpose of the International Space Station Agreement was to establish a “long-term international framework among the Partners.”<sup>132</sup> The Partners' goals were to “enhance the scientific, technological, and commercial use of space.”<sup>133</sup>

The ISS has served as a bastion of international cooperation in space research since its inception. Since being initially boarded, the Station has been inhabited by 215 individuals from a total of fourteen different countries.<sup>134</sup> Construction, assembly, and operation of the ISS

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<sup>130</sup> See Tuerk, *supra* note 93, at 154-157.

<sup>131</sup> Space Station Intergovernmental Agreement, Preamble, available at <http://www.state.gov/documents/organization/107683.pdf>. The 11 member states of the European Space Agency at the time of the signing were Belgium, Denmark, France, Germany, Italy, the Netherlands, Norway, Spain, Sweden, Switzerland, and the United Kingdom. *Id.*

<sup>132</sup> *Id.*

<sup>133</sup> *Id.*

<sup>134</sup> See *International Space Station: International Cooperation*, NASA, [https://www.nasa.gov/mission\\_pages/station/cooperation/index.html](https://www.nasa.gov/mission_pages/station/cooperation/index.html); *International Space Station: Facts and Figures*, NASA, [https://www.nasa.gov/mission\\_pages/station/main/onthestation/facts\\_and\\_figures.html](https://www.nasa.gov/mission_pages/station/main/onthestation/facts_and_figures.html); *International Partners and Participants*, NASA, [http://www.nasa.gov/mission\\_pages/station/structure/elements/partners.html](http://www.nasa.gov/mission_pages/station/structure/elements/partners.html).

requires countries from all over the world to work together in supplying its parts and keeping them operating.<sup>135</sup> There are many more wonderful things one could say about the international cooperation required for the ISS, but suffice to say it serves as the greatest example of how much can be done through international cooperation in space research.

## 2. *Other Forms of International Space Cooperation*

Another example of the amazing things that can come from international cooperation of space missions is the Cassini-Huygens mission. The Cassini-Huygens mission is a mission from the combined efforts of NASA, the European Space Agency, and the Italian Space Agency.<sup>136</sup> Cassini is a NASA probe that has been orbiting Saturn since 2004, amassing loads of scientific information and some of the most beautiful pictures known to mankind.<sup>137</sup> Huygens was the first probe to ever land on a world in the outer solar system, Saturn's largest moon, Titan.<sup>138</sup> This was an extremely significant mission in space exploration, as Titan is the only other world in our solar system with stable liquids, albeit in the form of methane, on its surface.<sup>139</sup> Titan is also believed to be quite similar to what the early stages of Earth looked like.<sup>140</sup> Thus, this was an incredibly important mission in space exploration. By combining the two probes to one spacecraft, NASA and the ESA were able to run two of the most successful space exploration missions in space exploration history.

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<sup>135</sup> See *ISS: IC*, *supra* note 134.

<sup>136</sup> *The Mission*, ESA, [http://www.esa.int/Our\\_Activities/Space\\_Science/Cassini-Huygens/The\\_mission](http://www.esa.int/Our_Activities/Space_Science/Cassini-Huygens/The_mission).

<sup>137</sup> *Cassini-Huygens Mission Facts*, ESA, [http://www.esa.int/Our\\_Activities/Space\\_Science/Cassini-Huygens/Cassini-Huygens\\_mission\\_facts](http://www.esa.int/Our_Activities/Space_Science/Cassini-Huygens/Cassini-Huygens_mission_facts).

<sup>138</sup> *Id.*

<sup>139</sup> Nola Taylor Redd, *Titan: Facts About Saturn's Largest Moon*, SPACE.COM, (February 4, 2015), <http://www.space.com/15257-titan-saturn-largest-moon-facts-discovery-sdcmp.html>. In fact, Titan has rivers, lakes, seas, and even rain, a full hydrological cycle. *Id.* Titan is the only other place besides Earth that we know of with such a system that we can study like this, making Titan vastly unique. *Id.*

<sup>140</sup> *Id.*

A different, more unplanned example of international cooperation in space includes a rather embarrassing example for the United States. Since 2011, Russia has served as United States astronauts' personal taxi service.<sup>141</sup> While NASA has awarded contracts to private companies Boeing and SpaceX to have them become the new transport for NASA astronauts to the ISS, for now Russia remains NASA's only way to get its astronauts to the ISS.<sup>142</sup> Impressively, none of this has ever seemed at risk of changing even with heightened tension between Russia and the West in recent months. It would seem then that space research seems to be an area where humans are more prone to cooperation. We are all Earthlings after all.

Speaking of Earthlings, over 7,000 of them from around the world raised over \$1 million for Lunar Mission One.<sup>143</sup> Lunar Mission One is a probe that will be sent to the South Pole of the Moon to study lunar soil and gather samples.<sup>144</sup> It will also test the viability of a possible moon base or even a type of manned spaceport.<sup>145</sup> This is all possible because individuals from around the world were willing to give their own personal funds to a cooperative space research project.

Overall then, it is clear that mankind has shown its ability to rise above and cooperate when the focus is on space exploration. However, most countries remain disenfranchised when it comes to the ability to explore space and help choose mankind's path in space exploration. With all of this being said, the case becomes clearer for a new international space convention

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<sup>141</sup> Curtiss Thompson, *NASA Picks Boeing, SpaceX to Transport Astronauts to International Space Station*, PENNY4NASA, (September 16, 2014), <http://www.penny4nasa.org/2014/09/16/nasa-picks-boeing-spacex-to-transport-astronauts-to-international-space-station/>.

<sup>142</sup> *Id.*

<sup>143</sup> Kelly Dickerson, *Private Moon-Drilling Mission Raises Over \$1 Million via Crowdfunding*, SPACE.COM, (December 19, 2014), <http://www.space.com/28064-private-moon-drilling-mission-crowdfunding.html>.

<sup>144</sup> *Id.*

<sup>145</sup> *Id.*

that would further space exploration that can be fueled by mankind's ability to cooperate in space exploration.

### III. ANALYSIS –HOW INTERNATIONAL LAW CAN MAKE SUCH A THING POSSIBLE, AND WHY

What follows then is the analysis of how such an international space convention might come about, and what its strengths and weaknesses would be. For now, the working title of the convention can be the IASA Convention. IASA stands for The International Aeronautics and Space Agency.<sup>146</sup>

#### A. The Drafting of the Convention

The first question that comes along in the question of forming such a revolutionary treaty is: how would it come about in the first place? Questions like who the parties would be and who would primarily design the language are questions that have to be answered for any major treaty.

##### 1. *Parties to the Treaty*

Parties to the treaty could include anyone theoretically. However, ideally it would include nations that are at least somewhat serious about space exploration. After all, as discussed below, nations would be making commitments that bind them to funding. Just like all members of the United Nations pay for the United Nations,<sup>147</sup> nations would be bound to provide funding on a yearly basis for this new international space agency. Thus, it could be any nation ready to commit to funding more space research. That being said, the more nations that would join, the cheaper commitments presumably would be. More details on the funding agreement will be discussed below.<sup>148</sup>

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<sup>146</sup> To be clear, this is merely a working title, but it did seem appropriate to fashion the name after mankind's greatest space agency.

<sup>147</sup> *Everything You Always Wanted to Know About the United Nations* 10, UNITED NATIONS (2008), available at [http://www.un.org/wcm/webdav/site/visitors/shared/documents/pdfs/Pub\\_United%20Nations\\_Everything%20U%20Always%20wanted%20to%20know.pdf](http://www.un.org/wcm/webdav/site/visitors/shared/documents/pdfs/Pub_United%20Nations_Everything%20U%20Always%20wanted%20to%20know.pdf).

<sup>148</sup> See *infra* Discussion IV, B, 1.

## 2. *Reservations to the Convention*

Reservations to Conventions are defined under the Vienna Convention as “a unilateral statement, however phrased or named, made by a State, when signing, ratifying, accepting, approving[,], or acceding to a treaty whereby it purports to exclude or to modify the legal effect of certain provisions of the treaty in their application to that State.”<sup>149</sup> Further, according to the International Court of Justice, if a reserving party makes a reservation to a Convention and an objecting State finds that reservation incompatible with the “object and purpose” of the convention, then that objecting State can consider the reserving state as not a party to the Convention.<sup>150</sup> Finally, under Article 19 of the Vienna Convention, it is allowable for treaties to ban reservations or specific reservations, and such a restriction is binding on parties to the treaty.<sup>151</sup>

Here, if countries wanted to make reservations about the ability to maintain their own space programs to make their constituents comfortable, that would be fine. Not that IASA would have any provision or seek to have any purpose to replace existing space programs anyway, but again, if it were a matter of clarification, that kind of reservation would be acceptable.<sup>152</sup> The main type of reservation that would not be allowed would be reservations that excused nations from paying their dues to IASA, yet maintaining the right to be a member of the decisionmaking panel of IASA. This is because the main purpose of the IASA Convention is to further space exploration and research. This is primarily to be done by acquiring funding from member nations of IASA. A reservation that fully abrogated the responsibility of a state to pay its dues would defeat the object and purpose of IASA. To prevent this from being an issue, a clause has

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<sup>149</sup> Vienna Convention on the Law of Treaties, Art. 2, 1(d).

<sup>150</sup> Reservations to the Convention on Genocide, 1951 I.C.J. 15, 18 (1951).

<sup>151</sup> Vienna Convention on the Law of Treaties, Art. 19, (a).

<sup>152</sup> It is also possible that a section clarifying this could be added to the IASA Convention avoid this problem, although such a hypothetical provision is not included in the analysis below.

been inserted into Section 2 below in order to remove the possibility of a State making such a reservation. By directly inserting this clause, the object and purpose of the IASA Convention is far more likely to be adequately protected.

## B. Proposed Sections of the Convention

Listed below are sections of proposed language for a new international space convention to establish the International Aeronautic and Space Agency, IASA.<sup>153</sup> After each section is an analysis of why such language and provisions are recommended, including how they are designed to work under current international law. Please note that these offered propositions are not meant to be comprehensive; they are simply examples of the kinds of ideas that this new international space convention should strive to represent.

### 1. *A Governing International Space Agency: IASA*

Proposed Provision:

**Section 1:** (a) *An international panel named the International Aeronautic Space Administration, IASA, is hereby created to advance the coordination of the global community in outer space research and exploration. IASA shall be governed by a board consisting of one official delegate from each nation that wishes to join. Spacefaring and non-spacefaring nations alike may become members; however, dues shall be equal regardless of the joining member's spacefaring status. IASA has no power to force individual space programs to do anything, although IASA obviously may contract with individual space programs or companies to perform missions that IASA wishes to be done.*

(b) *The main purpose of IASA is to propel more space missions through existing space agencies. This will primarily be done by providing funding to individual space agencies for missions that the international community, as represented by IASA, sees as beneficial to the international community*

(c) *Unless IASA later determines that it would be beneficial to IASA to develop and maintain its own facilities, IASA will rent the facilities of individual space agencies and coordinate with such individual space agencies to launch, monitor, and run its missions. .*

The reason for creating a new international board to oversee the coordination of new space missions is mostly for the purpose that such endeavors require extensive coordination and planning, especially if some parties to IASA are relatively new to space exploration. Such an

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<sup>153</sup> Again, this is just a working name, of course, and a nod to the world's most successful space agency, NASA.

organization should be seen as an embodiment of the evidence of nations' desires to work with each other as seen in the first four space treaties.<sup>154</sup> Moreover, having organizations to help coordinate common areas such as Antarctica is something that nations do, such as the organization of Antarctic Treaty Consultative Meeting (ATCM), so something like IASA is definitely not unprecedented as far as traditional international relations would go.<sup>155</sup> Also similar to ATCM is the existence of the distinction of decisionmaking parties and parties that can simply advocate for positions; this is discussed in more detail in Section 2 below.<sup>156</sup> This bilateral structure allows for the highest level of participation, while still ensuring that countries that are more serious about advancing space exploration have a greater say in funding decisions.

Admittedly, the United Nations Office for Outer Space Affairs (UNOOSA) and the United Nations Committee on the Peaceful Uses of Outer Space (COPUOS), the only committee dealing exclusively with international cooperation in the peaceful uses of outer space, both do already exist to advance cooperation in outer space.<sup>157</sup> However, IASA would go further than these two organizations. IASA would have the direct capacity to fund its own space missions. It would allow nations that perhaps before felt unable to engage in space exploration to finally make that leap into the spacefaring community. In this way then, the creation of IASA serves both a distinct purpose and also an admirable one.

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<sup>154</sup> See Discussion, *supra* II, A; II, B, 1.

<sup>155</sup> For example, the Antarctic Treaty Consultative Meeting is a group of parties to the Antarctic Treaty that meets once every two years to further advance the ideas of the Antarctic Treaty to provide regulations and guidelines for the management of the Antarctic Treaty area. *The Antarctic Treaty Consultative Meeting (ATCM)*, SECRETARIAT OF THE ANTARCTIC TREATY, (last visited April 4, 2015), [http://www.ats.aq/e/ats\\_meetings\\_atcm.htm](http://www.ats.aq/e/ats_meetings_atcm.htm).

<sup>156</sup> See Discussion *infra* III, B, 2.

<sup>157</sup> See *United Nations Office for Outer Space Affairs*, UNOOSA, (last visited April 4, 2015), <http://www.unoosa.org/>. See also *United Nations Committee on the Peaceful Uses of Outer Space*, UNOOSA, (last visited April 4, 2015), <http://www.unoosa.org/oosa/en/COPUOS/copuos.html>.

## 2. Funding Commitments

Proposed Provision:

**Section 2:** (a) *Members of IASA shall contribute funding in an equal manner, unless some sort of later agreement is agreed upon, in which the underfunding member may then still maintain a representative on the decisionmaking panel. The approval of the privilege of voting while not providing equal funding must be annually approved by four-fifths of the full-paying voting members of IASA.*

(b) *The initial amount of funding that fully paying members of IASA must contribute annually shall be determined by a simple majority of IASA members at the first meeting of IASA and may be changed annually after that by a simple majority vote of decisionmaking members.*

(c) *Members of IASA that do not pay dues or whom pay dues below the required amount may advocate and participate in official IASA business otherwise, but may not be involved in any final decisions by the IASA decisionmaking panel.*

(d) *Members of IASA that fail to pay their dues in a timely manner shall be given notice and a chance to pay their dues or to mediate with an IASA representative and an IASA chosen mediator. Voting privilege may be reinstated by payment of all past and current dues, by forgiveness of the IASA voting board, or by an appropriate arbitration panel, as described in Section 3.*

(e) *No party to the Convention may make a reservation regarding its obligation to pay dues to IASA.*

The greatest thing about IASA's structure is that it allows traditionally non-spacefaring States to finally become a part of something that directly lets them participate in space exploration. At the same time, spacefaring states can be relieved of the heavy lifting. That is to say, spacefaring states may continue to operate their own space programs, but can also now join an international organization that will allow for more missions to be accomplished at lesser costs to them. Of course, it is possible only traditionally non-spacefaring nations will be drawn to IASA. That is okay too. IASA is at first intended to contract out its launches and missions to individual space agencies and even private companies anyway, as seen in Section 1(c).<sup>158</sup> The future of space research and exploration is currently really taking off.<sup>159</sup> It is certainly possible that the future of space exploration may be bolstered by nontraditional spacefaring countries

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<sup>158</sup> See Discussion *supra* III, B, 1.

<sup>159</sup> Bill Wright, *Private Space Companies*, THE SPACE SETTLEMENT INSTITUTE, (last visited April 6, 2015), <http://www.space-settlement-institute.org/private-space-companies.html>.

teaming up with private companies to do their bidding. If that indeed ends up being the case, then IASA could certainly help to speed along that process and thus accomplish the IASA Convention's main goal of furthering space exploration and research.

### 3. *Forms of Alternative Dispute Resolution and the IASA Court*

Proposed Provision :

**Section 3:** *Disputes between members to the International Aeronautic Space Administration concerning IASA policies shall first be handled through negotiation between the disputing members. If negotiation does not solve the disagreement, then the matter should be submitted through mediation, with the mediator being provided by the IASA decisionmaking panel. If mediation does not solve the matter, the dispute shall be submitted to either an independent arbitration panel or the IASA Court. The arbitration panel shall be composed of a panel of three international law experts. The parties in dispute shall select one arbiter each, with the third being mutually selected by the first two arbitrators. The parties, as an alternative, may also bring their case to the IASA Court.*

*Disputes between members of IASA and IASA itself shall be handled in the same manner as above: first through negotiation, then mediation if necessary, and finally adjudication if necessary. The mediator will be mutually agreed upon between IASA and the disputing member. The arbitration panel will consist of three arbitrators, one selected by each party and the third a mutually agreed upon selection of the first two arbitrators.*

*Members of IASA agree to be bound by arbitration settlements as agreed above or by the IASA Court's decision in disputes between IASA members, whichever method is chosen, and by the independent arbitration panel's decision in disputes between IASA and a disputing member.*

**Section 4:** *IASA members may each choose one member to represent them on a specialized IASA Court. The IASA Court may have a maximum of 15 members at any given time. If and when IASA exceeds a total of fifteen members, the IASA court shall consist of the top twelve contributing members to IASA's funding. The remaining three members of the IASA Court shall consist of an annual rotating panel of three members that do not qualify as one of the top twelve funders to IASA.*

*If there are more than 12 members that give the highest amount to IASA's funding, then these 12 seats are to be randomly selected from all top-paying members.*

First, in regards to this judicial clause, it should be noted, if it is not already obvious to the astute reader, that the part of this section that refers to an IASA Court seemingly diverts from the main purpose of the IASA Convention. To clarify, first, the main purpose of any hypothetical IASA Court would be simply to adjudicate claims as far as payments between members go. This type of problem admittedly would probably rarely ever have to reach a

hypothetical IASA Court. Thus, it is also possible though that an IASA Court could serve as an international court option between members that perhaps did have disputes in space, say, if a mission were to go awry, or if one member damaged another member's satellite or spacecraft off due to a collision or the like in space.

Of course, no one court would be able to solve all of international law's problems with dispute resolution, and a new court under the IASA Convention would obviously be an inexperienced court entering a global community with dozens of adjudication options for sparring countries. That being said, as evidenced above, spaceflight is entering a new age. Gone are the days where the US and Russia were the only two countries in the realm. New space programs are emerging, and private companies are really getting into the game. Based on all of this, the international community is going to eventually need an international body that is going to be able to answer questions about disputes in space.

Could IASA serve such a function? Well, ITLOS has successfully carved out a niche for itself in being able to adjudicate disputes over international maritime issues.<sup>160</sup> The fact that a maritime boundary dispute between Myanmar and Bangladesh was brought before ITLOS shows that members of the international community are starting to take ITLOS's role and ability in international law much more seriously.<sup>161</sup> Admittedly, ITLOS has only had 23 cases submitted to it since its first case in 1997,<sup>162</sup> and that might not seem like a lot, but the International Court of Justice (ICJ), the international community's court of general jurisdiction, has only had 161 cases since its first case in 1947.<sup>163</sup> If you compare the two, that's 2.36 cases a year for the ICJ

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<sup>160</sup> See Tuerk, *supra* note 93, at 123-158.

<sup>161</sup> *Id.* at 156-157.

<sup>162</sup> *List of Cases*, INTERNATIONAL TRIBUNAL FOR THE LAW OF THE SEA, <https://www.itlos.org/cases/> (last visited May 6, 2015).

<sup>163</sup> *List of Cases Referred to the Court Since 1946 by Date of Introduction*, INTERNATIONAL COURT OF JUSTICE, <http://www.icj-cij.org/docket/index.php?p1=3&p2=2> (last visited May 6, 2015).

and 1.35 cases a year for ITLOS. When one then considers that one is a court of general jurisdiction and can hear a variety of claims, whereas ITLOS is limited to law of the sea disputes, and additionally that members to UNCLOS do not have to choose it as its forum, ITLOS's seemingly low numbers all of a sudden appear to mark it as much more prevalent than one thinks. Would an IASA Court enjoy such numbers? Well, by the time an IASA Convention was agreed to, perhaps ten years from now, one can imagine a world in which parties could average at least one space dispute a year, if not more, and all of a sudden an IASA Court seems like it could be at least as relevant as other international adjudicatory bodies.

Now, to be clear and to be fair, there is a difference between the equivalent of a Convention that essentially establishes international crowdfunding for space missions, and establishing an international space court. The main point of having this proposed IASA Convention is to better foster international cooperation in space exploration and to secure better funding for space missions going forward, and, in turn, the main purpose of any "IASA Court" would be to settle disputes related to that fundamental purpose. With that being said, it is possible that such an IASA Court would possibly begin to develop a special expertise for space related issues. If such a situation arose, one could see the international community perhaps coming to the IASA Court for settlement of their disputes, even if they were not funding members to IASA, and, as a reminder, one can be a member to IASA under the language above without being a funding member. Thus, parties could join IASA and give IASA jurisdiction in that sense, or parties could possibly just request IASA to hear their case anyway. The endless limits of what such an IASA Court could evolve into are, unfortunately for now, outside the scope of this proposal.

To be sure, any new international space agency that could help settle disputes could be a welcome development to an area of international law that lacks much substantial development since its inception.<sup>164</sup> Some scholars feel a new framework for dispute settlement is becoming increasingly necessary for space law in general as it is.<sup>165</sup> It is possible the IASA Court could one day serve that purpose.

Now, to be fair, some might argue that such a need is too remote to warrant serious discussion. However, again, many countries and other private companies are getting more and more involved with space travel and space exploration at all times.<sup>166</sup> Further, it seems that specialized international courts can be quite useful, and can be quite missed if they are not there. For example, right now the major Lomonosov Ridge dispute in the Arctic Circle does not seem any nearer to be reaching a conclusion; in fact, it is actually getting more complicated by the year.<sup>167</sup> Admittedly, the Lomonosov Ridge dispute is a relatively new problem what with the ice melting open up new passageways. Still, if some specialized case law had already developed over the Arctic Circle, that, at worst, would not be a negative, right? The same thing applies to outer space, and, unlike the Arctic Circle, far more countries than just five will soon be laying claim to its resources. Indeed, the number of parties with potential for a need for dispute resolution pertaining to space issues could soon be quite high.

It is possible that interaction in outer space could develop more akin to that seen in Antarctica.<sup>168</sup> However, Antarctica has remained mostly a place for research. Conversely, there already has begun a race for space's valuable resources. Japan has already launched a mission to

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<sup>164</sup> GERARDINE MISHAN GOH, *DISPUTE SETTLEMENT IN INTERNATIONAL SPACE LAW*, 1 (Marinus Nijhoff Publishers, 2007). *See also* Discussion *supra* II.

<sup>165</sup> *See* GOH, *supra* note 164, at 1.

<sup>166</sup> *See* Discussion, *supra* I.

<sup>167</sup> *See* MacFarlan, *supra* note 125.

<sup>168</sup> *See* Discussion *supra* II: D: 1.

return samples of an asteroid,<sup>169</sup> and with good reason too. One average mid-sized asteroid would be more valuable than Great Britain's whole economy with the amount of platinum the average asteroid carries.<sup>170</sup> Thus, in analogy, outer space seems much closer to the oil-rich Arctic Circle. It does not take much imagination to think of the kinds of disputes that could come from claiming different asteroids or claiming different mineral resources on the Moon, Mars, etc. It thus seems that it would be more prudent for the international community to get ahead of the problem rather than wait for it to develop, as seen in the Lomonosov Ridge dispute. UNCLOS may be working for the seas, but the specialized Arctic region seems to be a bigger problem. It seems space may soon be the next big and specialized problem. A more expansive IASA Court could help be a solution to that impending problem.

As for the other provisions concerning mediation, negotiation, and arbitration, international law typically prefers negotiation and mediation before arbitration or a hearing before the ICJ.<sup>171</sup> Thus, while the provisions above may seem lengthy, they are really just an exhaustive way of explaining that disputes must go through the standard negotiation, mediation, arbitration procedure, as international law prefers. Also, as a lesson learned from the drafting and negotiation of UNCLOS III,<sup>172</sup> the IASA Court provision above does not bind parties to being forced into solving their dispute before the IASA Court. Due to the averseness nations had to this when agreeing to UNCLOS III, it seemed prudent to avoid such a binding provision to IASA. IASA, after all, is about voluntary and willing members, as explained below.<sup>173</sup>

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<sup>169</sup> Karl Tate, *Japan's Hayabusa2 Asteroid Sample-Return Mission Explained*, SPACE.COM, (December 2, 2014), <http://www.space.com/27910-japan-hayabusa2-asteroid-mission-infographic.html>.

<sup>170</sup> Orion Jones, *One Mined Asteroid Would Eclipse Britain's Whole Economy*, BIG THINK, (April 23, 2015), <http://bigthink.com/ideafeed/one-mined-asteroid-would-eclipse-britains-whole-economy>.

<sup>171</sup> DAMROSCH & MURPHY, *supra* note 77, at 535-545.

<sup>172</sup> See Discussion *supra* II: D: 2.

<sup>173</sup> See Discussion *infra* III:C.

In conclusion of this IASA Court discussion, the IASA Court Section of the proposed IASA Convention is admittedly the section certainly most open to interpretation and speculation of its future. However, it is included for two reasons: first, and certainly foremost, for the purpose of being able to settle funding disputes or any other possible disputes between members of the IASA Convention, so as to further IASA's primary purpose of international cooperation and funding more space missions; second, so that should the need arise, the international community could have a specialized court of expertise in situations governing outer space, so as to provide an additional forum to which those involved in outer space could submit their disputes to. These are admittedly two rather different things, but if the international community is finally going to go through the work of developing international space law, it should consider all options of what it would like to do in going forward.

### C. Enforcement of and Abiding by the Convention

The biggest foreseeable problem with this creation of IASA is if member-states choose to withdraw because they do not feel like making payments, or if they even simply fail to make payments. The 2001 International Law Commission Articles on State Responsibility are the result of an extensive study by the International Law Commission (ILC).<sup>174</sup> They are not a treaty of any sort and states are not bound to them, but they do carry a heavy influence in international law, even being used by the International Court of Justice.<sup>175</sup> Thus, making sure a new international convention is in conformity to them is highly recommended. Article 12 of the ILC's Articles states that "There is a breach of an international obligation by a State when an act

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<sup>174</sup> DAMROSCH & MURPHY, *supra* note 77, at 487-488.

<sup>175</sup> *Id.*

of that State is not in conformity with what is required of it by that obligation.”<sup>176</sup> Those words are pretty straightforward, and to be clear, breaches of a treaty like failing to pay dues to IASA, hypothetically speaking, are covered.<sup>177</sup> Another Article of the ILC Articles on State Responsibility that would directly apply to the above provisions, specifically on funding requirements, would be that of proportionality. As Article 51 states, “Countermeasures must be commensurate with the injury suffered, taking into account the gravity of the internationally wrongful act and the rights in question.”<sup>178</sup> Further, before invoking countermeasures, i.e., rescinding the breaching state’s vote, notification and a chance to make reparations must be afforded to that state.<sup>179</sup>

Thus, the IASA Voting Board would have the right to remove the breaching member’s voting privilege. Further, removal of voting rights is proportional as required by Article 51. This is because the main focus of IASA is to raise funding by having many States pay dues to fund new space research missions. Without strict requirements to pay or a lack of a strict punishment for states that fail to pay, the main purpose of IASA would be severely frustrated. Thus, this system keeps IASA funded while also conforming to the ILC’s Articles on State Responsibility.

Unfortunately, what these provisions cannot do is keep states from withdrawing from providing funding when they do not feel like funding IASA anymore. However, that is okay. The goal of IASA and this new international space convention in general is to stimulate more space research. This is most easily done with ready and willing parties.

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<sup>176</sup> *International Law Commission Articles on State Responsibility*, Art. 12, available at [http://legal.un.org/ilc/texts/instruments/english/draft%20articles/9\\_6\\_2001.pdf](http://legal.un.org/ilc/texts/instruments/english/draft%20articles/9_6_2001.pdf).

<sup>177</sup> DAMROSCH & MURPHY, *supra* note 77, at 486.

<sup>178</sup> *ILC State Responsibility*, *supra* note 176, at Art. 51.

<sup>179</sup> *Id.* at Art. 52.

The reason that there is no clause or section binding countries from withdrawing from IASA is based on lessons learned from the five major space treaties. Looking at the four widely accepted space treaties,<sup>180</sup> it is clear enough that nations are quite willing to work together and coordinate with each other in space.<sup>181</sup> What nations were not willing to do, however, is be willing to all enter into a pact where they become could become compelled by an “International Regime” as the Moon Agreement called for.<sup>182</sup> This idea of IASA also better avoids a main problem that plagued the Moon Agreement, the division of interests by spacefaring and non-spacefaring nations.<sup>183</sup> Here, IASA is a completely voluntary treaty that nations can join into when and if they please. IASA provisions only apply to current members to the treaty, so States need not be afraid of joining. IASA thus incorporates the concept of international cooperation by States without any reason to cause the fear and skepticism that the Moon Agreement did. By being an international convention that completely relies on voluntarism of its member-States, no State need feel afraid of being compelled by other States or losing resources to other States. Thus, while the ability to leave IASA may be seen as a weakness, it is a necessary weakness to avoid the mistakes of the Moon Treaty. Thus, as far as space law is concerned, IASA’s weakness is also its strength.

#### D. Additional Reasons to Support a New International Space Convention

As almost always, bold propositions will have their many detractors, and proposing a new comprehensive and international space program is no different. Many proponents will ask why do this at all or why cooperate. There are several reasons why this would be a good step forward in human history.

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<sup>180</sup> The Outer Space Treaty, the Liability Convention, the Registration Convention, and the Rescue Agreement.

<sup>181</sup> See *supra* Discussion II, A; II, B, 1.

<sup>182</sup> See GOLDMAN, *supra* note 28, at 93.

<sup>183</sup> *Id.* at 90.

The first reason is perhaps the most obvious. Despite our efforts of the last fifty years, there is much we don't know about even our own solar system. In the 70s, NASA expected that we would be colonizing space by now.<sup>184</sup> Now, even hope for a manned mission to Mars seems like it would require some serious ambition given the cuts to NASA's funding levels. Indeed, the severe cuts to NASA's funding have resulted in NASA estimating that they do not even expect to land a human on Mars before the 2030's, at least.<sup>185</sup> Primary things that NASA said will be needed for a successful mission to Mars are adequate funding and, interestingly enough, "international cooperation."<sup>186</sup>

This of course does not even consider all of the other missions that would be vitally important to understanding our universe. Jupiter's moons Europa and Ganymede both have underwater seas that have a potential to harbor life, yet remain completely unexplored except for some flybys of probes exploring Jupiter in general.<sup>187</sup> Likewise, Saturn's moons Enceladus, the only other world in the solar system with known hydrothermal vents warming water like in Earth's oceans, and Titan, the only other world in our solar system with a known hydrologic system, both contain potential for alien life, yet are also almost virtually unexplored.<sup>188</sup> Further, even though we have since learned that Uranus and Neptune are far more different from Jupiter and Saturn than previously thought, our only visits of them are from the very brief and one-time

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<sup>184</sup> Catharine Smith, *Torus Space Colony: NASA Predicted Huge Orbiting Settlement in 1975*, THE HUFFINGTON POST, (October 22, 2011), [http://www.huffingtonpost.com/2011/08/22/torus-space-colony-nasa-1970s-video\\_n\\_933631.html?](http://www.huffingtonpost.com/2011/08/22/torus-space-colony-nasa-1970s-video_n_933631.html?)

<sup>185</sup> Miriam Kramer, *Manned Mission to Mars by 2030s is Really Possible, Experts Say*, SPACE.COM, (January 14, 2014), <http://www.space.com/24268-manned-mars-mission-nasa-feasibility.html>.

<sup>186</sup> *Id.*

<sup>187</sup> Charles Q. Choi, *Icy-Moon Discoveries: What They Mean for Alien Life Search*, SPACE.COM, (March 31, 2015), <http://www.space.com/28978-enceladus-europa-ganymede-alien-life.html>.

<sup>188</sup> *Id.* See Nadia Drake, *Saturn's Largest Moon Would Host Really, Really Weird Life*, NATIONAL GEOGRAPHIC, (March 17, 2014), <http://phenomena.nationalgeographic.com/2014/03/17/saturns-largest-moon-would-host-really-really-weird-life/>. For additional analysis of potential life on Titan, see Katia Moskvitch, *Could There Be Life in Titan's Sea?*, COSMOS MAGAZINE, (January 27, 2015), <https://cosmosmagazine.com/space/could-there-be-life-titans-methane-sea>. As previously mentioned, Titan has only been visited for about 90 minutes (before losing battery power) by the Huygens probe. *Id.*

flybys conducted by NASA's Voyager 2 in the 80s.<sup>189</sup> Finally, our Moon remains vastly underexplored compared to the early days of the space age. From 1969 to 1972, NASA's Apollo program conducted six manned space missions.<sup>190</sup> Over the past forty years since then, we have yet to go back.<sup>191</sup> Not surprisingly, NASA has stated that its biggest problem is a lack of funding.<sup>192</sup> Imagine how much easier it would be to go back if twenty, thirty, or even more nations participated in the funding and planning for such a mission.

On the topic of funding, another primary reason why combining space efforts to an international space effort is simple math. Obviously, sharing launch pads, pods, and fuel costs makes any mission cheaper by simple logic. It also allows for more missions to be done off of one launch, as exemplified by the combined Cassini and Huygens missions.<sup>193</sup>

Moreover, as the original drafters and signers of the Outer Space Treaty intended, such a new international space convention would continue to ensure that space exploration benefits all of mankind.<sup>194</sup> The Outer Space Treaty has been called an exemplification that space exploration is "an endeavor for all mankind."<sup>195</sup> This new international space convention and creation of IASA would better involve the "Third World," similar to the goals of the Moon Agreement. Importantly though, different from the Moon Agreement, is that any sharing of resources or information from space exploration would be justified in that countries that were parties to the agreement would be providing joint funding for any new missions. Thus, fears of

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<sup>189</sup> Astronomy Department, *The Jovian Planets: Uranus and Neptune*, NEW MEXICO STATE UNIVERSITY, <http://astronomy.nmsu.edu/tharriso/ast105/UranusandNeptune.html> (last visited April 4, 2015).

<sup>190</sup> Denise Chow, *NASA Has Lost Hundreds of Its Moon Rocks, New Report Says*, SPACE.COM, (December 9, 2011), <http://www.space.com/13878-nasa-apollo-moon-rocks-misplaced-lost-report.html>.

<sup>191</sup> Clara Moskowitz, *40 Years After Moon Landing: Why Is It So Hard to Go Back?*, (July 20, 2009), <http://www.space.com/7015-40-years-moon-landing-hard.html>.

<sup>192</sup> *Id.*

<sup>193</sup> See *supra* discussion, I, C, 2.

<sup>194</sup> See Outer Space Treaty Preamble, *supra* note 14.

<sup>195</sup> Amy Shira Teitel, *The Outer Space Treaty Promised Peace in Space*, DISCOVERY NEWS, (October 10, 2013), <http://news.discovery.com/space/history-of-space/the-outer-space-treaty-promised-peaceful-exploration-of-space-131010.htm>.

old from the late seventies when the two space powers were frightened that their hard work would have to be shared with countries that contributed nothing to the endeavor are of no concern under this new IASA Convention. These key differences between the IASA Convention and the Moon Agreement show why this proposed IASA Convention would fare far better than the Moon Agreement and would serve as the long overdue successor that international space law and international space coordination has needed for some time now.

Finally, as explained above, this convention fits all parameters of and would function quite well under international law. Only countries that want in have to join, and countries that want to also still maintain their own separate space programs are welcome to do so. At the same time, limits on reservations thus requiring member nations to pay annual dues will keep IASA funded. Thus, this proposed IASA Convention would not only help the world solve mysteries of our solar system and the universe, and potentially finally lead to us confirming the existence of alien life, but most importantly it also functions well under international law, and thus has a strong potential to be a very strong new international program.

#### IV. CONCLUSION

“Every revolutionary idea goes passes through three stages of reaction: 1. It's impossible. 2. It's possible but not worth doing. 3. I said it was a good idea all along.” - Arthur C. Clarke.<sup>196</sup> At first, the idea of this IASA Convention may seem brash or, at best, unnecessary. However, at many stages of history, humanity has faced challenges, but we have never backed down; we have always survived, risen to the challenge, and come out with another revolutionary idea.<sup>197</sup> Maybe the IASA Convention is not the next light bulb, but if it leads to a mission that discovers alien life, then maybe it is bigger.

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<sup>196</sup> *Private Space Companies*, *supra* note 159.

<sup>197</sup> Neil deGrasse Tyson, *Cosmos: A Spacetime Odyssey*, 21ST CENTURY FOX (2014).

At any rate, what is apparent is that countries have shown a willingness to work together in space, far more countries possess some sort of spacefaring country than ever before, and more and more countries are developing to the point where they will possess funding that they can contribute to space missions. What is also apparent is that the IASA Convention could function adequately under international law. Again, it may be really easy to look at something like this and think it has too remote of a chance to work, or think that it is too removed from how countries generally act. But why should that matter? Should ideas that are easy to get behind be the only ones advocated for? Of course not. As John F. Kennedy once said before America launched its decade-long mission to the Moon, “We choose to go to the moon. We choose to go to the moon . . . and do the other things not because they are easy, but because they are hard . . . .”<sup>198</sup> The international community should not avoid a progressive step in space exploration because it may seem hard at first. Indeed, the above analysis shows how the IASA Convention can make things far easier for countries to do in the long run. All in all, the international community does not have to go lonely into the dark night of space. Rather, it can go together, and if it does, it may just find another community out there waiting for it.

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<sup>198</sup> John F. Kennedy, *Moon Speech*, NASA (at Rice Stadium, September 12, 1962), available at <http://er.jsc.nasa.gov/seh/ricetalk.htm>.