

Current Space Law Limitations and Its Implications on Outer Space Conflicts

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MICHAEL BEAVER, JUN 16 2015

The human species stands at the precipice of the next great advancement as an ever-increasing technological civilization. We have reached a point in our development where two very powerful forces, technological development and commercial aspirations, are coming together to spark innovations with could push humans further away from our home planet of Earth and for longer periods of time. While this is an exciting time for the entirety of human civilization, it is important for all parties involved in the planning of the forthcoming human expansion into outer space (space industry, policymakers, IR theorists, etc.) to look forward and try to predict the possibilities regarding international relations among states who would be racing to the riches outer space may hold.

The aim of this research paper is to provide an educated prediction on whether outer space development and exploration in the next few decades will take one of two roads based on the most predominate of international relations theories – Realism and Liberalism. Realism is a dominant theory in the study of international relations that stems from the thought of historically significant individuals such as Thucydides, Machiavelli, Thomas Hobbes, and Jean-Jacques Rousseau who argued that, in international affairs, leaders should protect the interests of the citizenry who reside within their state and provide them security (Vrabic 2014, pg. 289). Kauppi and Viotti further define this definition of Realism by identifying four key assumptions of the theory: 1) States are the principle and most important actor, 2) the state should be viewed as a unitary actor, 3) the state is a rational actor, and 4) national security is the most important international affairs issue (2007). In realism, the state is central to all political interactions due to the fact that the environment in international relations is anarchical and perilous which therefore pressures leaders of individual states to bolster their own power to ensure its continuation and survival (Vrabic 2014, pg. 289). The dominant counter theory to the state-centric model of Realism is known as Liberalism. While many believers of Liberalism believe, as do Realists, that the state is the most powerful single entity in international relations, Liberalists champion that these individual states can best be secured from war and conflict by making cooperative efforts with other international players (Walt 1998, pg. 32). Among these cooperation efforts are economic interdependence that would discourage conflict due to the threat to each state's prosperity and the empowerment of international institutions such as the International Monetary Fund (IMF) and the International Atomic Energy Agency (IAEA) which could encourage cooperation among states on issues in areas that could be more beneficial to all parties if they were to work together (Walt 1998, pg. 32).

Using these two definitions of the two prominent international relations theories today, this research paper will make the ominous prediction that the next stage of outer space development and exploration will not occur in a peaceful, cooperative manner as would be championed by Liberalism. Instead, I will argue that there is great potential that the beginning of prolonged outer space exploration and development will occur in a competitive environment that creates a possibility for inter-state conflict. This paper makes this argument based on two pillars: 1) The current limitations in the power international legislation and policy can exercise over the actions of individual states and commercial entities and 2) The ongoing development of space-directed weaponry by the militaries of advanced nations. It is the aim of this paper to illustrate that the combination of these two factors creates a dangerous cocktail in which nations acting to ensure their own economic and military well-being (as championed by the IR theory Realism) could take drastic measures against one another in outer space to maintain or gain relative dominance. Before providing information regarding these areas, this research paper will give the reader a background regarding space law and

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the role it has historically played in outer space development.

What is the Current Outer Space Legislative Regime (Space Law)?

Space law, in a broad sense, can be described as an interdisciplinary bucket of various different types of established law that may govern or apply to man's interaction or activities dealing with the "outer space" domain (Lyall & Larsen 2013, pg. 2). The need for a set of laws governing mankind's interactions with outer space began with the launch of the world's first artificial satellite, the USSR's Sputnik, in 1957. In reaction to this world-changing event, the United Nations General Assembly issued the Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space in 1962. This content of this resolution containing many of the ideas that would be essential to the creation of the five UN Treaties and Agreements on Space Law that would be ratified between 1967 and 1984 (UNOOSA 2015).

The first of these five treaties was the Outer Space Treaty, which required nearly 10 years of negotiation following the launch of Sputnik in 1957 to be ratified (Weeks 2012, pg. 47). As the first effort to regulate space activities, this piece of legislation became the cornerstone of future international space law as it codified principles such as the peaceful use of outer space among space-faring nations and the extension of the rule of law into outer space (Weeks 2012, pg. 47). The next four treaties signed through 1984 would largely build upon the overarching principles of the Outer Space Treaty of 1967 and would include topics including the rescue responsibilities for astronauts, liability for the damage caused by space objects, the identification of launched space objects, and the activities allowed by signatories on the Moon and other "celestial bodies" (UNOOSA 2015).

Space Laws' Evolution in Conjunction with Power Politics

The development and implementation of laws similar to the major pieces of space legislation previously mentioned closely align with the macro-political interactions that were prevalent during the time period. Due to the fact that all five of the major international space treaties were crafted and signed during the "Cold War", the United States and the Soviet Union played a major role as the architects of these cornerstones of space law and shaped them in accordance with the geopolitical climate between the superpowers at the time (Blount 2011, pg. 516). The primary goal for both of these countries during this time was security and the launch of Sputnik demonstrated to both superpowers that technology was progressing to the point where international ballistic missiles could deliver a nuclear payload in short order. Hence the Outer Space Treaty of 1967 was born which would allow tensions over the technological developments to ease while still enabling all signatories to pursue their own security interests regarding space activities (Blount 2011, pg. 518).

Moving past the initial phase of space legislation into what Dr. Edythe Weeks, in her work titled *Outer Space Development, International Relations, and Space Law: A Method of Elucidating Seeds*, describes as the Second Epoch of outer space development (1980 to 1991), there is a marked shift away from the Realist interactions observed previously due to security concerns to a climate in which space law development on the international level has stalled and domestic space law development is at the forefront. This reflects the global pattern at the time of a shift towards privatization and globalization as the Soviet Union and its Communist influences began to weaken. As a result, domestic policies within each state began to form dictating policy regarding commercial space activities (Weeks 2012, pg. 84). It is important to note that this time of domestic policy creation did not coincide with the development of corresponding international law on the issue of commercialization, which leads to differing views of the appropriate actions for private entities to take in outer space.

With the end of the Cold War in 1991 to the present day, there has been very little action in regards to further development or modernization of existing international laws governing outer space activities and development, as there has been a continuation of domestic outer space policy development without much effort taken on the international level. The United States provides a clear example in which domestic policy updates concerning commercial space activities has outpaced its international equivalent when, in 2004, President George W. Bush announced the creation of the New Vision for U.S. Space Exploration Policy which reasserted the interest of private industry by calling for the commercialization of space exploration and "assuring appropriate property rights" are

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granted to “those who seek to develop space resources and infrastructure” (Weeks 2012, pg. 105). This legislation marks a clear delineation from the previous international agreement the United States is signatory to, the Outer Space Treaty of 1967. This lack of action on the part of the international community to update space-related legislation has created the first issue in which this research paper uses to hypothesize the potential of conflict in future outer space activities among different states and private organizations – the limitations of current international legislation in regards to the activities of commercial actors and property rights.

The Limitations of Outer Space Legislation

As previously discussed, in the current international law regime governing outer space development, there are five main treaties that are active. Unfortunately, the space industry and actors have changed drastically in the last 40 years, leaving existing legislation in dire need of updates that incorporate concerns such as property rights and the activities of commercial corporations. The space industry is quickly entering an uncharted age in which commercial entities have space exploration capabilities that can at least equal those of advanced countries. Examples of these advances include the development of SpaceShipTwo by Virgin Galactic and the efforts by Bigelow Aerospace to develop a commercial orbital space complex out of modular units similar to those used by the International Space Station (Beck 2009, pg. 4). These rapid advances in commercial space technology and the possibilities for exploitation of outer space resources that come with them are occurring at a much more rapid pace than current international space legislation can account for however.

A very notable example of this can be seen through close examination of the Outer Space Treaty, widely considered the most accepted piece of international space legislation with 91 signatory nations (U.S. Dept. of State). This issue with this piece of legislation is its largely ambiguous and idealist nature, indicative on the drafters' intention for future generations to clarify emerging space related issues as the years passed (Johnson 2011, pg. 1500). Review of various articles within the Outer Space Treaty leave much room for interpretation especially regarding the idea of commercial entities undertaking space mining operations. A prime example of this openness to interpretation is the issue that the Outer Space Treaty only prohibits the *national* appropriation of outer space and the celestial bodies, which leaves open the possibility of an individual or private association lawfully appropriating any part of outer space (Pop 2000, pg. 276). Another example can be seen in Article One of the Outer Space Treaty, which states that outer space is the province of all mankind and that its exploration shall benefit all nations. Language such as this has been interpreted several ways, but it is generally accepted that it confirms the “freedom of use” of space because every state has an equal right to pursue space activities (Johnson 2011, pg. 1501). With this interpretation of Article One combined with the vast increase of space actors since the initial drafting of the Treaty, there exists a potential for conflict as more nations/corporations have access to the possible wealth outer space exploitation could provide. Moving on to Article Two of the Outer Space Treaty, which prohibits national appropriation of outer space territory, more confusion is injected to the equation. In David Johnson's article titled *Limits on the Giant Leap for Mankind: Legal Ambiguities of Extraterrestrial Resource Extraction*, he identifies that when “Read together with Article 1, the prohibition on national appropriation establishes that outer space is a *res communis*, not subject to the common heritage doctrine, which means that states are free to use the area so long as their activities do not deprive other states of the same right. The OST fails to incorporate all of the common heritage elements: while it provides for non-appropriation, peaceful usage, and some form of benefits sharing, it does not require the establishment of an international body to manage natural resources, nor does it guarantee their preservation for future generations.” (2011, pg. 1502). In this case, the development of celestial bodies is not off limits to development as long as space actors have equal rights (or opportunity) to the asset. Without international oversight, these individual interpretations of insufficient international space law can cause conflict between space actors attempting to gain economic benefit.

In essence, the limitations of currently drafted international space legislation have created an anarchical system in regards to the exploitation of outer space resources. This is similar to the Realist view of terrestrial international relations in which the international system is considered anarchical and therefore individual nations must take actions to protect their national security. Carrying this Realist theory forward to the space arena, it can be predicted that nation-states would take actions to ensure that their economic aspirations concerning space exploitation were protected from other states or hostile actors (Duvall et al. 2008, pg. 765). With the advancement in capabilities of space-directed weaponry by militaries, nations now have an avenue for which to directly address these concerns.

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The Development of Space-Directed Weaponry

As economic activity is central to many countries' efforts to ensure their national security, it is safe to assume that a country would take every avenue necessary to protect those economic interest, even in the case of development and exploration efforts by commercial entities which base themselves inside the country. These actions could include both diplomatic and military methods to gain an advantage in the outer space domain. Focusing on these possible military methods, the second pillar used as a basis to predict that the forthcoming expansion of human activities by various political actors will occur in a contested and dangerous environment is the ever increasing importance of the development of weaponry with the primary purpose to attack satellites in outer space. In 1991, the first military conflict occurred that showcased the awesome combat enhancing capabilities space platforms could provide to a nation's military. During this conflict, known as the "Gulf War", the United States used capabilities provided by satellites to include reconnaissance, position, timing, communications, and weather information, to greatly improve its capability to execute attacks with an accuracy and timing not seen before in human history (Butterworth 2012). While this increased capability allowed the United States to end the conflict in relatively short order, this "Gulf War" also happened to be the first conflict with was tracked by the mass media in near real-time. This allowed other countries with relatively equal military power when compared to the United States (China, Russia, etc.) to witness the great importance the U.S placed on space as a domain in which it would fight its wars and the dangers these capabilities could have against their own countries in a possible conflict with the United States (Cliff et al. 2007, pg. 21). Therefore, these countries began adapting their military doctrine and acquisition strategies to counter the space-based capabilities of the United States.

Focusing on China in particular, there have been demonstrations over the past decade that indicate at least a capability for a terrestrial based weapon to take action against a satellite in space. The most notable of these demonstrations occurred in 2007 when the Chinese launched a ballistic missile armed with a kinetic kill vehicle from a mobile launch platform to destroy a defunct Fengyun-1C weather satellite in low earth orbit (Kan 2007). This missile test created a resulting debris field of around 3,000 pieces which continue to threaten human missions and satellites operating in this orbital plane (Martin 2015). A more recent test of a possible anti-satellite weapon occurred in May of 2013. During an interview with the news show 60 Minutes, Brian Weeden of the Secure World Foundation, indicated that this missile test may have gone as high as 30,000 kilometers, which could threaten satellites in orbits previously thought to be safe from ground based space weapons (Martin 2015). Both of these tests provide indications of the ongoing development and improvement of weapons systems which could be used to impact space operations in the event of conflict.

If having the technological ability to attack space objects is one side of the weaponization of space; the other side would have to be the intent to use the capability. Following the aforementioned use of the SC-19 anti-satellite weapon in 2007, Michael Pillsbury issued a report to the US-China Economic and Security Review Commission which examined three books published by China's National Defense University: Colonel Li Daguang's *Space War* (2001), Colonel Jia Junming's *On Space Operations* (2002), and Colonel Yuan Zelu's *Joint Space War Campaigns* (2005) (Moore 2014, pg. 165-166). Pillsbury summarized the ideas contained in these text and underlined that each author recommended that "that the acquisition of the systems and even their deployment are to be done covertly in a manner that cannot be detected by the United States until the moment of their use by China in a crisis" (Moore 2014, pg. 166). Finally, Michael Pillsbury outlined several recommendations that the Chinese authors gave their high command to include the development of a space combat capability, a plan to destroy or temporarily incapacitate all enemy space vehicles above Chinese territory, and various different methods to stealthy deny space capabilities through various domains (Moore 2014, pg. 166-167).

It can be safely assumed that ideas such as the ones mentioned above are not limited to only Chinese military planning. Therefore, a conflict between any advanced militaries has the possibility to have damaging impacts to outer space developments or explorations efforts. As this "arms race" with space weaponry continues, there is increasing possibilities that these weapons can come into play and have lasting impacts on any possible commercial or state-sponsored activities in space in the future.

Conclusion

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In conclusion, this research paper has argued that there is a very real possibility that the next stage of human interaction in the outer space domain will not be a peaceful and cooperative endeavor. Instead, it is the predication of this paper that this period of outer space development is rife with possibilities of conflict and perhaps even war. I believe this scenario is more likely than a cooperative outcome due to two distinct factors that, when occurring simultaneously, encourage a competitive environment among nation-states and commercial organizations. These two factors are 1) The lack of updated international legislation regarding the actions commercial entities can take in the outer space domain and 2) the increasing pace of development in weapons a nation's military may choose to use in the event of conflict which threatens their national security. This assumption is based within the international relations theory of Realism, which sees the sovereign state as the ultimate player in the international system. The international system is defined as anarchical, which leads these states to take rational actions to ensure their continuation. If no efforts are taken on the international stage to update space legislation and deal with the space "arms race" occurring between technologically advanced nations, the two aforementioned factors can combine to provide a non-diplomatic avenue in which issues of national security will be settled. Patrick A. Salin reaffirms this possibility in his article titled *Privatization and Militarization in the Space Business Environment* when he states that "Outer Space only knows national flags, so the increasing presence of private entities will inevitably lead to raising protection issues, diplomatic and military, paving the way for the militarization issue" (2001). This would not be the ideal situation to move into the next stage of outer space development and human civilization.

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