

Course of
International Law

Norm-setting in outer space:

A "small step" for international cooperation, a
"giant leap" for the hegemonic rivalry between
the United States and China

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ABSTRACT – KEY WORDS

Abstract:

No one can deny that tensions between the United States and China have increased since the beginning of the new millennium. We can observe this in many areas, including and especially in space. Indeed, although space, as a common good, is an area conducive to international cooperation, it is also an area conducive to competition since it abounds in valuable resources. Nevertheless, we would like to draw attention to the fact that, rather than being militarily opposed, these two space nations are competing ideationally. They both want to dominate normative power, which is not without consequences for existing international space law and the space environment itself. Thus, given that these two space nations are seeking hegemony in the neo-Gramscian sense, the purpose of this paper is primarily to examine the recent evolution of international space law in the context of current global politics. This will allow us to demonstrate that the current impotence of international space law to guarantee the sustainability of outer space, increasingly threatened by space debris and the exploitation of celestial objects, is nothing more than the result of the hegemonic rivalry between the United States and China. Indeed, driven by hegemonic ambitions rooted in their national identity, they form two historic blocs adopting such opposite positions concerning the management of outer space that this has led to the blocking of international cooperation, but also to the commercialization and weaponization of outer space, to the detriment of the space environment. This is why we will also show that, in order to face this urgent and worrying problem, the space actors had no other choice than to turn to other types of legal instruments.

Keywords:

United States; China; hegemony; international law; international space law; international cooperation; commercialization of outer space; weaponization of outer space; space debris

INTRODUCTION

In spite of decades of partnership with NASA, the hardening of relations with the United States finally prompted Russia to announce, last July, that it would withdraw from the International Space Station by 2024. And that is not all. In the meantime, Russia is strengthening its ties with China, with which it has already signed an international memorandum of understanding in March 2021 that, with their joint lunar missions, should rival NASA's Lunar Gateway project. This sudden change of course on the part of Russia thus reflects the ongoing reconfiguration of space dynamics and shows that the growing rivalry between the United States and China, already palpable on Earth, has even been exported beyond the sky.

We arbitrarily place the turning point in spatial dynamics in the 2000s. This corresponds indeed to an important period of change in world politics, even if the modification of the balance of power was already latent for several years. In fact, it was especially from 2008 onwards, after the financial crisis, that the trajectory of the world highlighted the fragility of Western powers and the weight of China at the international level. From then on, the idea of the United States on the verge of losing its status as world leader began to spread. At the same time, having succeeded in developing economically very rapidly -to the point of being considered by the IMF and the World Bank as the largest economy in the world in terms of PPP- the idea of China aspiring to hegemony began to spread too. As a result, the United States, anxious to preserve its rewarding title as the world's leading power, and China, eager to assert itself on the world stage, started to compete in almost every area, and inevitably their relationship began to deteriorate day by day.

One of the main manifestations of this rivalry can be observed in the space field, where we are indeed witnessing an endless weaponization of outer space. Thus, it turns out that science is no longer the main driver of space exploration. Rather, space is now primarily coveted for geopolitical interests. In addition, despite the image of outer space as conducive to international cooperation, it seems that two blocks of alliances opposing the United States, on the one hand, and China, on the other, are forming and clashing in the form of a new space race. However, the peculiarity of the rivalry between the United States and China is that it does not necessarily materialize in the form of a military confrontation, or at least it has not yet materialized as such. Notwithstanding the fertile imagination of many science fiction film directors, a space war remains unlikely at this

time. Indeed, in addition to the many technical obstacles, such a scenario could incur reputational costs, something that neither the United States nor China would like in order to maintain or acquire the status of hegemon. Therefore, it appears that, through the American as well as the Chinese lenses, space is seen more as a playground to assert hegemony than a genuine battlefield for a hegemonic war.

The concept of hegemony will therefore be the focus of our study. It has been widely addressed by various approaches in academic literature, but we will limit ourselves to the ideas developed by the power cycle theory. The neo-Gramscian approach and the life-cycle model will also serve as a theoretical framework insofar as they are particularly relevant to our case study. Indeed, the neo-Gramscian approach emphasizes international law as a tool for hegemony: it enables an actor to impose its domination through norms rather than through physical force, which is more durable over time because it is more easily accepted by the subordinate actors. However, even though the link between hegemony and international law as well as hegemony and control of outer space have already been discussed in the academic debate, we will try to make our contribution by articulating these three elements altogether. Besides, since our study focuses on outer space, it is necessary to look specifically at international space law. We consider here international space law as a specific branch of international law constituted by a set of treaties, multilateral or not, concluded in order to regulate outer space. It is important to note that this is a relatively recent branch of international law, created during the space race between the United States and the Soviet Union. As a dependent variable in our work, we will therefore analyze the influence of the hegemonic rivalry between the United States and China on the evolution of international space law. Nonetheless, as international space law governs many issues related to the management of outer space by the international community, we must narrow the scope of our study. In this work, attention will be paid to the role of international space law for the protection of the outer space environment more specifically. As a matter of fact, because the safeguarding of outer space is in everyone's interest and because the entire humanity is at stake in the years to come, we consider it of the utmost importance to dedicate a full-fledged investigation on this matter. In this sense, the words of Gagarin, the first man to go into space, resonate more than ever:

“Orbiting Earth in the spaceship, I saw how beautiful our planet is. People let us preserve and increase this beauty, not destroy it.” – Yuri Gagarin

Indeed, 60 years later, people are still as concerned -if not more so- about space debris and the impending overexploitation of celestial bodies. This suggests thus that international space law has been insufficient to handle these threats. In fact, international space law has not kept pace with technological advances and has not adapted to the entry of an increasing number of private actors into the commercial space sector. Therefore, in the current context of awareness of climate change and ecological issues, it will be interesting to further examine the evolution of space law to address the issue of sustainability of the space environment. However, as the contribution of international space law to the protection of outer space has already been explored by some scholars, our objective will rather consist in the examination of the correlation between the protection of the space environment by international space law and the current hegemonic rivalry. This work is thus an opportunity to analyze, once again, the role of hegemonic rivalry in the deterioration of outer space sustainability, in particular its responsibility for the impasse in international cooperation efforts, and its impact on the use and forms of space law. In other words, the state of space environment protection will be treated like a case study and as an epiphenomenon of the hegemonic rivalry between the U.S. and China occurring in the normative realm.

In summary, the central question that will guide our analysis throughout this paper is whether international space law is truly contributing to international cooperation or rather a tool at the disposal of great powers seeking hegemony. In a nod to Neil Armstrong's famous quote, we argue that norm-setting in outer space is a "small step" for international cooperation and a "giant leap" for the hegemonic rivalry between the United States and China. To account for this, we refer to the specific evolution of international space law dealing with the protection of the space environment. That is why, we have been led to ask ourselves more generally:

To what extent does international space law constitute an ongoing battleground reflecting the hegemonic rivalry between the United States and China?

To this end, this work will be built on two chapters.

The first chapter is devoted to explaining the instrumentalization of international space law by space faring nations with hegemonic ambitions. To do so, the first step is

to use different theoretical frameworks to highlight the relevance of outer space and international law for a state in quest of hegemony. In doing so, we recall the dependence of our economy on space resources in order to understand why space has become a geostrategic area for hegemonic powers. This then helps us understand how international space law can serve as a mechanism to assert hegemony in a more effective way than by waging war. On this basis, we can explain why the current space legal order, characterized by the secular influence of the U.S., is being challenged by the rise of China and how it will impact the very substance of space law. Therefore, in the third step, we pay particular attention to the ongoing creation and content of the two historic blocs, led by the United States and China and fueled by nationalistic narratives. We demonstrate that they are fighting against each other in this war of position, with international space law as a battleground, so as to gain hegemony.

Building on this observation, the second chapter offers an explanation of the limited impact of international space law on the protection of the space environment. We claim that it is the product of the hegemonic rivalry between the United States and China for dominance upon the norm-setting power. This will be observed at three levels. First, we show that hegemonic rivalry has led to a stalemate in international cooperation efforts and has prevented states from relying on international law to correct the existing space legal order. We then develop the case of space debris to illustrate this phenomenon. Second, we show that, in a context of hegemonic rivalry, the United States and China have preferred to turn to national norms to regulate their space activities in order to benefit from the commercialization and weaponization of space, but at the expense of the space environment. This will be the occasion to analyze their space policies in more depth. Finally, we point out another impact of the hegemonic rivalry on the evolution of international space law concerning the environmental protection of outer space, which is the increasing use of other non-binding or non-internationally produced legal instruments to compensate for the inefficiencies of current international space law.

CHAPTER 1: INTERNATIONAL SPACE LAW AS A PROPITIOUS GROUND TO A « WAR OF POSITION » GIVEN THE CONTEXT OF RIVALRY BETWEEN THE U.S. AND CHINA

On the one hand, I would like to stress the salience for great powers to shape international space law in their battle for hegemony as we are currently witnessing it with the U.S. and China. Indeed, even though international space law is a relatively recent field which has been created in the midst of the Cold War, it has already undergone many changes, especially since the collapse of the USSR in the 1990s and the rise of China as a new competitor to the U.S. shortly afterwards. For this reason, first, it is interesting to ask why space deserves special attention from great powers with hegemonic ambitions before examining then how and why the changing balance of power between the United States and China on Earth is reflected in outer space through the evolution of international space law.

Section 1 : The nexus between outer space, international law, and hegemony

First of all, although it has long been sheltered from human disturbance, today no one can deny that space is increasingly coveted. Indeed, space-faring nations such as the United States and China are aware of its potential given the huge richness it contains. In such a context, we will see that international law -and in our case international space law- can be a useful tool to secure the benefits that one may derive from space and thus establish its dominance. To do so, we will apply a neo Gramscian approach combined with a realist perspective to examine the relationship between these three elements - namely, space, international law, and hegemony- in order to account for the long-standing U.S. advantage in space as well as in international space law and the recent challenge of China's space power.

1. Astropolitik and geopolitics of outer space

Let's start by giving an overview of the wealth that outer space has to offer in order to better understand why it has become a crucial geopolitical zone as well as an

indispensable resource for the great powers in the quest of hegemony since the last century.

Outer space resources and potential

Perhaps because it is so far away from us, we, ordinary people, tend to forget that outer space is omnipresent in our daily lives. Yet, judging by the number of operational satellites -about 2,300¹- our dependence on space has become undeniable. Whether it is weather forecasting, remote sensing, telephone operating companies, financial transactions or even arms control treaty monitoring, nearly all of our activities are made possible by the plethora of space-based assets orbiting the globe. Thus, insofar as satellites contribute to the proper functioning of our societies, states, unlike us, are very concerned about what is above our heads. Indeed, on the one hand, in terms of security, satellites allow states to conduct effective military operations on Earth. The Gulf Wars in Iraq are often cited as an example of the significant military advantages that the United States enjoyed thanks to the decisive role of its satellites in detecting missile launches, facilitating military communication, assisting in weapons guidance, or improving the surveillance of targeted facilities and cell phones. On the other hand, knowing that 60% of our economy is directly and indirectly linked to space devices, there is no doubt that satellites support the economic growth of the states².

Nevertheless, the economic potential of outer space is not limited to the use of satellites. Indeed, one should not neglect the economic weight of the commercial space sector which today represents 76% of the space economy³. More precisely, the recent boom in the commercial space sector is driven by the space industry. To give you an idea, Christophe Carreau, a former French officer at the European Spatial Agency, estimates the world space industry at 370 billion of dollars. On this subject, it should be noted that this has been mainly enabled by technological advances that have facilitated the entry of private actors in the space field. Indeed, technological innovations, by significantly reducing the price of space transportation and increasing the reliability of spacecraft, have democratized and secured access to space. And as commercial opportunities have become feasible and profitable, private actors have become increasingly involved in space activities, thereby stimulating states' national economies.

¹ R. V. Rao, V. Gopalakrishnan, K. Abhijeet. *Recent Developments in Space Law*, Springer, 2017

² P. Arostegui, J.Revill, A. Ortega, J. West, J. Su, S. Cleobury. Norms for outer space: a small step or a giant leap for policymaking? UNIDIR zoom web seminar. 2021

³ R. V. Rao, V. Gopalakrishnan, K. Abhijeet. *Recent Developments in Space Law*, op. cit.

Nevertheless, most of these private actors remain billionaire entrepreneurs and CEOs of digital giants who want to invest in space tourism as we have seen, for instance, with SpaceX, an American firm headed by Elon Musk, the well-known businessman. But there are also other space sub-markets that interest both private actors and states and that potentially bring as much prestige as money, such as asteroid mining. Indeed, scientific explorations have discovered that celestial bodies are rich in platinum, gold, and titanium; minerals that are particularly rare and expensive on Earth (\$30, 000). Thus, even if technical obstacles make this activity still pending, in view of the tremendous financial gains, the exploitation of celestial bodies will not be long in coming.

In short, all these space resources of strategic significance for the security of the states or with a high market value for the economy make outer space an area more and more coveted by the space actors. Hence the importance for states like the United States and China to control or, at least, to engage in outer space activities.

Outer space as a key for great power status

Space is not only a source of enrichment or of security concern for states. It is also a battleground in which the great powers confront each other so as to assert their dominance. That is why, some theorists have developed the notion of *Astropolitik*⁴. In other words, they believe that the management of outer space is the key for states with hegemonic ambitions to gain power. Everett Carl Dolman, Professor at the US Air Force's elite School of Advanced Air and Space Studies, is one of them. Inspired by other thinkers, the scholar applies to outer space Mahan's theory of naval power according to which the control of the sea is the key to great power status. Indeed, for him, space assets -just like earth, oceans, and air space in the past⁵- have acquired the capability to disrupt the world political chessboard. For example, enjoying space superiority confers the ability of a state to secure trade while preventing enemies from securing theirs. However, to obtain the *command of space*, he also emphasizes the crucial role of controlling chokepoints like the geostationary belt where most communication satellites are placed in orbit. Plus, he demonstrates how a rhetoric of space cooperation, by defining outer space as the province of all people while doing everything possible to increase technological capacities and find legal principles to

⁴ Meijer, H. L. (2009). Reflections on Politics, Strategy and Norms in Outer Space. *Defense & Security Analysis*, 25(1), 89-98

legitimize its position in the eyes of others, may be useful for space-faring states with a hegemonic ambition.

From this perspective, we can interpret the space race that we are currently witnessing between the United States and China as the by-product of the hegemonic competition between the United States and China in space, that is a question of *astropolitik*. Indeed, astro-strategy is part of both the broader American and Chinese strategy of hegemony. On the one hand, for the United States, since the Cold War, ensuring space superiority has always been a national priority. General Lance Lord, former Commander of Air Force Space Command even declared that “Space superiority is the future of warfare. We cannot win a war without controlling the high ground, and the high ground is space⁶.” On the other hand, since the beginning of the new millennium, and especially from 2003 onwards, outer space is back on the political scene in China. However, no one can deny the U.S. *command of space*. Indeed, in 2001, the United States itself concentrated 50% of the total number of satellites, both the military and commercial⁷. Moreover, the huge amount of money that the United States dedicates to outer space compared with other countries can also serve as evidence of the American stranglehold on outer space. To give you an idea, the Pentagon spends more than \$165 billion on space-related activities according to Donald Rumsfeld, the Secretary of Defense. Consequently, the American space superiority is such that it makes other states dependent on the U.S. and thus deters any potential attack from its rivals. Nonetheless, it should be noted that the American command of space is less and less clear today as U.S. rivals challenge its strategy of using space to project its power on a global scale.

2. The role of international space law to assert and sustain U.S. hegemony

After what we have seen about the role of space in defining great powers’ status, it makes sense that spacefaring nations are willing to enter the legal battlefield to influence international space law so as to secure their long-term space advantages. That

⁵ Jiang, S., & Zhao, Y. (2021). China's National Space Station: Opportunities, Challenges, and Solutions for International Cooperation. *Space Policy*, 57, 101439

⁶ General Lance Lord, “Space Superiority,” High Frontier (2015)

⁷ Posen, B. (2003). Command of the Commons: The Military Foundation of the U.S. Hegemony. *Quarterly Journal: International Security*, 28(1), 5-46

is why, we will start by demonstrating that, as the neo-Gramscian and realist perspectives of International Relations support, international law allows states to embed and to legitimize their dominant position in the world order before illustrating this phenomenon with the prevalence of the United States' interests in the international space order.

The nexus between hegemony and international law

We have often used the term hegemony previously. However, it is a concept that has been studied extensively by researchers in International Relations. It is therefore appropriate, for the sake of rigor, to begin by defining it more precisely before explaining its relationship to international law. Generally, hegemony is defined as a state of domination of one country over another and, to some extent, as a euphemism for imperialism⁸. However, adopting a neo Gramscian approach may be all the more relevant in our case study insofar as it stresses the link between hegemony and norms. Indeed, it considers that “World hegemony, furthermore, is expressed in universal norms, institutions and mechanisms which lay down general rules of behavior for states”. Nonetheless, it is worth noting that, since powerful states have greater material capabilities, they can more easily access and monopolize norm-setting power. And, as a result, by anchoring their standards in international law, they will be able to safeguard their interests and consolidate their power position in the world order⁹. In short, Paul Musgrave wrote that hegemony is a situation “in which a political community uses its superior economic and military capabilities -its position atop interstate hierarchies in these domains- to create international order¹⁰.”

This leads us now to consider the notion of international law. International law is a web of legal norms that affects the international community as a whole by providing definitions of what constitutes good behavior as well as sanctions to be applied in case of violation of a normative expectation. However, with regard to international law in International Relations, there is a consensus among realist, Marxist and critical scholars to say that international law is primarily instrumental to the pursuit of power. Indeed, according to realism, international law can sometimes serve as “rhetorical cover for

⁸ Cox, R. W. (1983). Gramsci, hegemony and international relations: an essay in method. *Millennium*, 12(2), p. 172

⁹ Dennerley, J. A. (2016). Emerging space nations and the development of international regulatory regimes. *Space Policy*, 35, 27-32

¹⁰ Ikenberry, G. J., & Nexon, D. H. (2019). Hegemony studies 3.0: The dynamics of hegemonic orders. *Security Studies*, 28(3), 395-421 Reynolds, G. H. (1992). International space law: Into the twenty-first century. *Vand. J. Transnat'l L.*, 25, 225

policies whose real purpose is to maximize power and influence¹¹.” Gilpin further argues that setting the rules of the game allows dominant powers to mold and maintain the underwritten order that benefits the most its interests¹². Thus, with what we said above about hegemony, we can now easily see how international laws can be biased if the law-making process is concentrated in the hands of a single state, and more likely a major power. Furthermore, the advantage of international law for states with hegemonic ambitions is that it allows them to disseminate their norms in such a subtle way that they seem universal and natural. The reason is that international law is recognized as a set of legitimate rules to follow. That is why, even though it mirrors ideas, practices, and institutions of a dominant group, powerful states manage to make less powerful states comply with international law. Moreover, compliance can be even more easy to obtain if powerful states manage to inscribe their parochial interests into legal norms while presenting them as common interests, i.e. harmonizing the interest of the dominant state with the interests of the dominated states.

This strategy is what Gramsci, using a military metaphor, also calls a *war of position*. For him, albeit more complex and time-consuming, it is a more effective method of overturning the world order¹³. Indeed, unlike control through the threat or use of force that would have resulted from a *war of maneuver* -a term belonging to Gramscian vocabulary as well and to be understood in its literal sense to refer to the second option for overturning the world order- control of a group of subordinate states by international law through a *war of position* has several advantages. First, it has the advantage of making hegemony more acceptable. Indeed, oppression is concealed, and counter-hegemonic ideas are absorbed. In such a way, states tend to forget that international law is the expression of an underlying geopolitical structure and tend to regard international law as an objective framework on which international society is built¹⁴. Secondly, controlling a group of subordinate states through international law by waging a *war of position* has the advantage of making hegemony more sustainable over time. Indeed, international law crystallizes power position. The reason is that, once established, a norm is difficult to change since, due to its entrenchment in mores and its internalization, a norm is rarely questioned. Consequently, owing to the intrinsic nature

¹¹ Lebow, R. N., & Kelly, R. (2001). Thucydides and hegemony: Athens and the United States. *Review of International Studies*, 27(4), p. 550

¹² Ikenberry, G. J., & Nexon, D. H. (2019). Hegemony studies 3.0: The dynamics of hegemonic orders. *Security Studies*, 28(3), 395-421 Reynolds, G. H. (1992). International space law: Into the twenty-first century. *Vand. J. Transnat'l L.*, 25, 225

¹³ Egan, D. (2014). Rethinking war of maneuver/war of position: Gramsci and the military metaphor. *Critical Sociology*, 40(4), 521-538

¹⁴ Cox, R. W. (1983). Gramsci, hegemony and international relations: an essay in method. *Millennium*, 12(2), 162-175

of international law, the hegemon can maintain its supremacy throughout the years even though the balance of power may change¹⁵. That is why, in sum, Gramsci believed that the combination of material capabilities and ideological dominance is the key to a successful hegemony in a capitalist world.

However, the hegemon must sometimes also make compromises in order to reduce the risk that secondary states, dissatisfied with the system, will develop the desire and then the capacity to challenge the world order. That is why the hegemon ought to make them understand that they can also benefit from the situation while not bearing the costs of maintaining the system. A dilemma may arise, however, because the more the hegemon relies on international law to obtain consent and legitimacy, the greater the constraints. Hence the behavior of dominant states regarding compliance of international law will vary between two poles: instrumentalization and withdrawal¹⁶. The attitude of the hegemon will adopt depends on a cost-benefit calculation and on the attitudes of other states, especially if there is a rising power, but we will discuss this in more depth later.

International space law as a legacy of U.S. hegemony during the Cold War

With this theoretical framework in mind, we will now be able to show that international space law is no exception to the rule: trends in space policies reflect trends in world politics. Indeed, we can see that international space law was mainly the product of the United States and the Soviet Union. This is because at the time of the creation of this subfield of international law, that is, during the Cold War, the two superpowers that dominated the world political landscape were also the only two major space-faring nations¹⁷. Being the most able to influence the establishment of international norms relating to outer space, the norm-setting power was therefore monopolized by the U.S. and the USSR, which inevitably led international space law to be shaped in favor of the two great powers. However, to limit the scope of our study, we will only report on the influence of American hegemony on international space law.

Firstly, one way to account for U.S. hegemony in the field of international space law is to examine international standards in space management. Indeed, thanks to its

¹⁵ Krisch, N. (2005). International law in times of hegemony: unequal power and the shaping of the international legal order. *European Journal of International Law*, 16(3), 369-408

¹⁶ Krisch, N. (2005). International law in times of hegemony: unequal power and the shaping of the international legal order. *European Journal of International Law*, 16(3), 369-408

powerful domestic space industry and its active participation in international forums and organizations, the United States has succeeded in imposing its standards on the international scene and in making everyone adopt them. The United States thus has a stranglehold on the norm-setting power in outer space. Moreover, one can observe that the American regulatory system concerning outer space is often imitated by other space-faring nations. Let us take the Intelsat agreements for example. Signed in 1964, these international agreements created an international organization whose purpose is to provide telecommunication services on an international scale. However, it is important to highlight that, at the beginning, the system elaborated by the agreements granted the main functions to Comsat, an American public company, while few functions were left to the other member states¹⁸. Consequently, the United States managed to impose its standards for satellite management through its leadership of IntelSat, written and protected by the agreements. Similarly, the U.S. is very influential in other standards setting bodies such as UNCOPUOS or the Inter-Agency Space Debris Coordination Committee¹⁹. So, they can be interpreted as a manifestation of American hegemony in that they illustrate how the United States has succeeded in establishing itself as a standard industry through which it has been able to safeguard its dominant position.

Another way to reveal the instrumentalization of international law by the United States is to look at the evolution of international space law over time. We can first point out that the creation of international space law was itself motivated by the United States in an effort to reduce the technological gap it had accumulated with the USSR at the beginning of the space race, at the height of the Cold War. Indeed, it was shortly after the launch of Sputnik, in 1957, that negotiations were initiated to establish an organization that would resolve legal issues to control space activities. Two years later, COPUOS was created under the auspices of the UN, and, in 1967, the Outer Space Treaty was signed. Besides, here again, this legal achievement can be understood as a compromise between the two superpowers of the time. Indeed, although it binds the states to respect the main principles that guarantee order in outer space, it also confers a great deal of freedom, as the United States requested, so that space activities would not be too restricted by law and so that the superpower could continue to develop its space superiority. Nonetheless, when the United States regained the lead in the space race after its successful Apollo 11 mission which put the first man on the Moon, trends in space

¹⁷ Bhatt, S. (1973). International problems concerning the use of space. *International studies (New Delhi)*, 12 (2), 256-274

¹⁸ Fawcett, J. E. S. (1973). Outer Space: New Perspectives. *International Affairs (Royal Institute of International Affairs 1944-)*, 49(3), 358-370

policy began to be characterized by new cooperative endeavors. For example, the U.S. signed important treaties to limit the increasing militarization of outer space, such as the Strategic Arms Limitation Talks and the ABM treaty in 1972, to name but a few. Nevertheless, from the late 1980s onwards, when the U.S. had become by far the leading great power, as there was no need to legislate from its standpoint, no more major treaties were concluded even though space activities continued to develop thereafter.

So, we have just seen how the United States managed to quasi-monopolize the normative power in the space domain in the past before illustrating it with some examples. But now that the balance of power has shifted, what will happen? It seems that, despite the backward-looking character of international law, the U.S. hegemony, that has long been guaranteed by international space law, may be undermined by the emergence of new space-faring nations with hegemonic ambitions...

Section 2 : The recent evolution of world politics and its implications on international space law

The major problem we face today is that the spatial order we described earlier no longer corresponds to the reality of current world politics, which paves the way to a wave of contestation, especially from China. Indeed, now that it has the capacity to do so, China wants to change the international space law so that it is more to its advantage. Thus, in order to better grasp the trajectory that the space order is taking, we will first describe the desuetude of the current space order before combining once again a neo-Gramscian approach with a realist perspective and applying them to the case of China to point out its recent space performances and weight in the international space order.

1. The obsolescence of the existing legal framework

As we mentioned previously, the bulk of the existing international spatial legal framework dates back to the Cold War era and, therefore, does not coincide with the course of events. This is highly problematic not only because the system in place is not relevant anymore, as we will emphasize in the first part, but also because of the many

¹⁹ Dennerley, J. A. (2016). Emerging space nations and the development of international regulatory regimes. *Space Policy*, 35, 27-32

inconsistencies and gaps that this system has never managed to fill, as we will argue in the second part.

An outdated space order

Even though the Outer Space Treaty of 1967, by laying down the fundamental principles for outer space, is often considered as the cornerstone of international space law, it was created during the Cold War between the U.S. and the USSR. Therefore, it stems from a very specific historical context. This is what we are going to show by focusing on the situation in which the Outer Space Treaty was built before emphasizing its unsuitability for today's needs. To begin with, in order to account for the link between the historical context and the emergence of specific provisions, we can refer to the second Article of the Outer Space Treaty which is about property rights (*See Appendix 1*). Its creation is nothing but the result of the fear that both superpowers shared about the other during the Cold war. Indeed, frightened at the idea that their rival would take the lead if able to proclaim their sovereignty over celestial bodies, they agreed on this provision as a sort of armistice²⁰. Similarly, the peaceful ideals that are inscribed in the Outer Space Treaty are another good example to illustrate the context in which international space law was founded. Indeed, despite the American rhetoric, these peaceful ideals did not appear out of pure altruism from the U.S.²¹. Rather, they were designed to address the increasing weaponization of outer space that threatened peace at that time. For example, because both the United States and the Soviet Union feared that outer space would become another battlefield that could jeopardize the survival of humanity on Earth, Article IV of the Outer Space Treaty provided for the ban of the deployment of nuclear weapons in outer space (*See Appendix 1*). Likewise, the principle of “freedom of space” that is established in Article I of the Outer Space Treaty was primarily promoted by the American President Eisenhower so as to justify the presence of spy satellites above the air space of the USSR (*See Appendix 1*).

The problem is that, consequently, some of the issues we are currently facing find no legal answer in the Outer Space Treaty or in other space legislation, which shows the desuetude of the Outer Space Treaty. It is the case for the regulation of private ventures in outer space. Indeed, during the negotiations of the Outer Space Treaty, the United States was in favor of the participation of private actors contrary to the USSR. So, to

²⁰ Reynolds, G. H. (1992). International space law: Into the twenty-first century. *Vand. J. Transnat'l L.*, 25, 225

satisfy both parties, they agreed on the involvement of private actors on condition that the latter were submitted to the responsibility of the states as written in Article VI (*See Appendix 1*). The thing is that today, with the rise of the commercial sector, it will be harder and harder for states to comply with this provision²². Of course, no one can demand that the treaties concluded in the past anticipate all the challenges that will arise in the future, such as those related to space debris or property rights for the exploitation of asteroids. Nevertheless, while 30 years have passed since the end of the Cold War, international space law has remained more or less the same instead of adapting to the new situation.

A space order full of inconsistencies and shortcomings

International space law not only reflects more the interests of the U.S. and the USSR at the time of the Cold War than those of the international community as a whole today, it also contains many legal loopholes because of the way it was formulated. The danger is that “as language deteriorates, so does behaviors²³.” Indeed, the alteration of meanings may transform a longstanding collective understanding and thus transform the way we interact with each other. This could especially have dramatic consequences for the world order if the collective understandings in question are about obligations we were previously bound to respect. Hence the problem that international space law is full of legal ambiguities. Indeed, this paves the way for states to develop their own interpretations for certain norms. However, the more ambiguity, the more interpretations, and the more likely it is that they enter into conflict or create issues. More concretely, we can start by citing the problem surrounding the notion of “astronaut”. Astronauts are defined as “envoys of mankind in outer space” by Article V (1) of the Outer Space Treaty (*See Appendix 1*). Nevertheless, there is no consensus on whether such status can be attributed to new categories of individuals such as space tourists and space crew members. And even though the 1990 draft Convention on Manned Space Flights tried to address this issue, it never entered into force, which is quite problematic since, depending on the status assigned to them, they will not be

²¹ Denny, B. (2016). International Security in Space: Presidential Leadership and the Future of Outerspace. *The Owl-Florida State University's Undergraduate Research Journal*, 6(1)

²² Dempsey, P. S. (2016). National laws governing commercial space activities: Legislation, regulation, & enforcement. *Nw. J. Int'l L. & Bus.*, 36, 1

²³ Lebow, R. N., & Kelly, R. (2001). Thucydides and hegemony: Athens and the United States. *Review of International Studies*, 27(4), p. 602

subject to the same rules. So, because of this legal vacuum, the fate of these new categories of space participants remained dependent on domestic regulation.

Secondly, since they could not envisage the growth of the private sector at the time of their elaboration, none of the five UNCOPUOS treaties (the Outer Space Treaty, the Rescue Agreement, the Liability Convention, the Registration Convention, and the Moon Agreement) provide all the answers for the allocation of responsibility in case of wrongful behavior. The problem is that, as this unclear legal framework benefits the private sector, it is unlikely to change, and this, to the detriment of security and the space environment. In addition, even though, in accordance with Article II of the Liability Convention, in case of damage caused by the space property of one state, the state at fault is liable to the other victim state, on the one hand, it is very difficult to prove the responsibility, and even it is possible, on the other hand, the provisions are only addressed to States (*See Appendix 2*). So, in case of an accident, private actors as well as states are not fully protected so that in many cases the victims, whoever they are, cannot use the treaty to file a complaint and ask for compensation²⁴.

Moreover, the expression “peaceful purposes” contained in Article IV of the Outer Space Treaty with regard to the use of outer space has been very controversial (*See Appendix 1*). On the one hand, it is debated because, paradoxically, it is not interpreted as synonymous with nonmilitary purposes²⁵. Article IV does not “prohibit the actual use of weapons²⁶.” In fact, the only thing that the Outer Space treaty totally forbids is the nuclearization of outer space, but this does not amount to a demilitarization. In other words, military means deployed in space are allowed as long as they are not aggressive. Hence the question of dual-use satellites, that is to say satellites that are officially launched for civilian purposes but that could be utilized as weapons. What is more, anti-satellite weapons, non-kinetic physical weapons, or nuclear weapons that simply transit through space do not fall into the scope of banned weapons while they are extremely dangerous as well. In the same vein, there is no explicit repetition of the prohibition of the threat and use of force in outer space. It is merely stated that international law and the UN Charter -which guarantees this norm by Article 2 (4)- also apply in outer space (*See Appendix 7*). For this reason, many scholars and lawyers have warned against the lack of rigor and against the ambiguities that international space law could trigger. On the other hand, because of its vagueness, some states have interpreted the terms

²⁴ R. V. Rao, V. Gopalakrishnan, K. Abhijeet. *Recent Developments in Space Law*, op. cit.

²⁵ Orr, S. (1998). Peace and conflict in outer space. *Peace Research*, 30(1), 52-63

²⁶ R. V. Rao, V. Gopalakrishnan, K. Abhijeet. *Recent Developments in Space Law*, p. 1, op. cit.

“peaceful purposes” very broadly and in such a way that they do not prevent the exploitation of celestial bodies, even if it may harm the environment²⁷.

Finally, with regard to the environment, it should be noted that, like Part VII of UNCLOS with the high seas, the Outer Space Treaty considers outer space as a global common. This notion is not without legal effects since it implies that, even if states have free access to outer space, they cannot claim sovereignty over the resources coming from outer space. However, the problem with this regulatory regime is that it does not outlaw the exploitation of space resources. Therefore, the threat posed by the development of the commercial sector is not properly countered by international space law. The Moon Agreement, nonetheless, went further by defining the moon as a common heritage of mankind in Article 11 (1) (*See Appendix 3*). Just like the Montego Bay Convention with the soil and subsoils, this entails that access to, and exploitation of the moon are very regulated: no free access, no appropriation, and an obligation to share the resources derived from its exploitation. But, because of this strict regulation, many states, including powerful ones, have unfortunately not ratified it. So, in spite of all the progress they constituted at the time, the main sources of international space law do not make it a self-sufficient regulatory regime to protect the space environment. They should be supplemented in order to solve the issues it contains. In the meantime, the problems that arise from it further fuel the rivalry between states today as we will see in the next part.

2. The current challenge of the spatial order

As a result, owing to these numerous inconsistencies, the current space order is criticized, notably by China which is becoming a powerful space-faring nation and is no longer satisfied with such a legal framework. Casting a glance at the theories of the power cycle and the norm cycle will then give us some insights to better understand to what extent is China able to challenge the U.S. dominant position in space.

Power cycle theory and its impacts on international law

In a situation where a rising power challenges an established one, war is not only more likely to occur as power cycle theories point out, but international law is also more

²⁷ Berkman, P. A. (2018). Outer Space Law: Russia-United States Common Challenges and Perspectives. *Moscow journal*

likely to become a battlefield for challenging or maintaining hegemony as we will demonstrate. Prior to that, it is therefore necessary to elaborate on what is meant by hegemonic rivalry drawing on power cycle theories. The idea is that, once established, hegemony is temporary. Indeed, at some point, a hegemonic order is the object of contestation²⁸. It usually happens when an emerging state with revisionist orientations accumulates such power that it threatens the dominant power. It is worth recalling that, while the dominant power bears the costs of maintaining the international order, secondary powers grow to the point of attaining sufficient capabilities to challenge the hegemon. As a result, as the actual distribution of power no longer matches the hierarchical structure of the world order led by the hegemon and as the interests of the rising power are no longer satisfied by it, the international system becomes unstable. Besides, it is at this point that other states, also dissatisfied with this unequal system, take advantage of the situation to ally themselves with the rising state so as to challenge the dominant power²⁹. The hegemon then finds itself trapped by “its own rhetoric or equality and universality” that it had put in place to gain the consent of the subordinate states. Subsequently then, according to power cycle theories, a hegemonic war may be waged: either as soon as the rising power considers that it has at least as enough power as the hegemon to hope to overthrow the system or, preventively, by the dominant state in order to counter the challenging state before it accumulates too much power.

As for the consequences of such war for international law, it depends on the outcome of the war. Either existing international laws remain the same if the dominant power is victorious, or, if not, as the structure on which international law has been built is transformed, the established norms are changed to reflect the distribution of power of the new system. If so, a new cycle led by the former rising power would then begin. However, it must be remembered that hegemonic wars are rare because both the rising and the declining states know in advance that they will suffer greatly from it and that the expected gains are not guaranteed. Moreover, Graham Allison reminds us that hegemonic wars are not inevitable. Plus, sometimes, in a situation where a rising power challenges the dominant power, the hegemon’s attitudes towards international law may vary even before the war potentially takes place so that a change in international law is not necessarily implied by a change in the international order after a hegemonic war. Indeed, “if a dominant power regards the status quo as beneficial, it will usually have a

of international law, 50(1)

²⁸ Ikenberry, G. J., & Nexon, D. H. (2019). Hegemony studies 3.0: The dynamics of hegemonic orders. *Security Studies*, 28(3), 395-421 Reynolds, G. H. (1992). International space law: Into the twenty-first century. *Vand. J. Transnat'l L.*, 25, 225

far greater interest in its stabilization into the future, and it will feel less constrained in working through existing institutions. This is particularly likely if it expects to decline rather than rise³⁰.” So, in those areas where international law still serves to stabilize its dominance, it will follow it, but in other areas where the costs of respecting international law are greater than the benefits, it will retract from it³¹. It is this phenomenon that will merit most of our attention.

The reason we will focus more on changes of international law during a *hegemonic rivalry* rather than after a *hegemonic war* is that, to use Gramscian vocabulary, there is very little likelihood of a *war of maneuver* taking place at the international level³². Indeed, as we already said, a war of position through international law in the long run is more effective nowadays, or at least is a necessary step before waging a war if one wants to be victorious³³. Gramsci puts it this way: “basic changes in international power relations or world order, which are observed as changes in the military-strategic and geo-political balance, can be traced to fundamental changes in social relations³⁴.” But what does this consist of? In fact, this type of war implies the confrontation of two social structures -or *historic blocs* to use the Gramscian terminology- which are the hegemonic and the counter hegemonic ones. Applying Gramsci’s theory at the international level, we can argue that a counter-hegemonic bloc emerges when a subordinate state establishes its hegemony over other subordinate states by using the same strategy as the one used by the hegemon established before it, i. e., by instrumentalizing international law both to make its interests appear as the common interest and to present itself as a bulwark to the hegemonic bloc. Then, as it arises, its social structures and norms naturally become more and more influential so that they can be seen as alternatives to the norms stemming from the hegemonic historic bloc. The clash finally happens when the rising state believes that it can no longer benefit from the current framework, or at least does not want to follow it. However, it is important to highlight that, because of path dependency, the rising state must also produce an active

²⁹ Lebow, R. N. (2001). Thucydides the constructivist. *American Political Science Review*, 95(3), 547-560

³⁰ Krisch, N. (2005). International law in times of hegemony: unequal power and the shaping of the international legal order. *European Journal of International Law*, 16(3), p. 375

³¹ Krisch, N. (2005). International law in times of hegemony: unequal power and the shaping of the international legal order. *European Journal of International Law*, 16(3), 369-408

³² Cox, R. W. (1983). Gramsci, hegemony and international relations: an essay in method. *Millennium*, 12(2), 162-175

³³ Egan, D. (2014). Rethinking war of maneuver/war of position: Gramsci and the military metaphor. *Critical Sociology*, 40(4), 521-538

³⁴ Cox, R. W. (1983). Gramsci, hegemony and international relations: an essay in method. *Millennium*, 12(2), p. 167

effort to promote its norms in order to actually overturn the hegemonic historical bloc, not just to challenge it. This leads to studying how a norm can be expanded.

The process of imposing a norm is long and difficult. Plus, if a norm is weak, it is easy to discard or to ignore it. This is because a norm, once created, must gain legitimacy in the eyes of others in order to survive, which requires a great deal of rhetorical effort, especially since the introduction of a norm is always a matter of debate³⁵. Finnemore and Sikkink's model of the three-stage process of the norm life cycle provides us with the theoretical framework we need to analyze this phenomenon³⁶. The two researchers propose a three-step explanation for the evolution of a norm's influence. Firstly, they focus on the origin of a norm: a norm emerges first and foremost at the domestic level. Second, it is through the efforts of *norm entrepreneurs* -whose role is to build a specific cognitive frame making the alternative norm appears appropriate and in the interest of all- and through organizational platforms that a norm may be able to gain international visibility. But after exposure, a norm must gain strength. There are several ways to do this. One of them is to receive the support of a large number of parties. But sometimes, it is enough to get the support of powerful parties. That is why it is important to participate in international forums and organizations: it allows norms entrepreneurs to put forward their interpretation of a norm and to persuade others to adopt it. Norm entrepreneurs can also use different strategies to convince states: either to praise those states that adhere to the norm or to ridicule those that violate it. Not to forget that, in addition, a norm is more likely to be successfully endorsed depending on its content and the world time. Then, whatever the reason for its popularity, at some point the norm reaches the *tipping point*, meaning that, because there are enough states or relevant states supporting it, the norm is adopted by more and more states. That is called a *norm cascade*. After that, it becomes imperative for other states, including the norm breakers, to adopt this norm. Otherwise, it may be costly for them not to comply with the new norm because of reputational costs or social ostracism. It should be noted that it is therefore more out of pressure for conformity than out of state's desire to enhance its international stature that the norm is being implemented in that case. Finally, once the norm has been widely accepted, it undergoes a process of *institutionalization*, making the norm even more powerful to the point that,

³⁵ Arostegui P, Reville J, Ortega A, West J, Su J, Cleobury S. Norms for outer space: a small step or a giant leap for policymaking? UNIDIR zoom web seminar. 2021

³⁶ Finnemore, M., & Sikkink, K. (1998). International norm dynamics and political change. *International organization*, 52(4), 887-917

over time, it becomes *internalized*. In other words, the norm is taken for granted, and is no longer questioned since it is perceived as the natural and legitimate way to behave. We have thus seen that, while it is generally not easy to question established norms, imposing an alternative norm in a situation of hegemony turns out to be less complex. However, as a situation of hegemonic rivalry is conducive to change, the norms are also more likely to be challenged.

China as a powerful space-faring nations challenging the U.S. space order

Applying what we have just studied to our case study, we can argue that the rise of China in the space field heralds a hegemonic rivalry with the U.S., the harbingers of which can already be seen in international law, and more specifically in international space law. To support our point, it is first necessary to demonstrate what China's capabilities are so that we can understand why it is considered as a rising space-faring nation capable of challenging the United States. First it is necessary to recall that, as we have said many times before, since the end of the Cold War, the space landscape has evolved considerably: it is no longer dominated exclusively by the United States and the USSR and, instead, we can observe a multiplicity of stakeholders ranging from rogue states like North Korea to private actors like Space X³⁷. However, there is no doubt that China stands out from the rest and is the one that most deserves the title of competitor to the United States. Indeed, although its space ambitions date back to the 1950s, China has in fact become a major space power in the last twenty years by elaborating its own space program all by itself. The reason is that, since the United States refused to collaborate with China in the 1990s, the latter had no other choice but to develop space capacities indigenously, which today allows it not to be too dependent on foreign expertise³⁸. In addition, China has invested and continues to invest a lot in the space field. Nowadays, it is estimated that China spends about \$10 billion on its space program, and this figure is expected to increase by 2040³⁹. As a result, China has made many breakthroughs. In the 1990s, China was the third largest supplier of rockets. Ten years later, in 2003, it became one of the few nations to successfully send its own taikonaut into space. Symbolically too, 50 years after the United States had done it, China planted its flag on the far side of the moon⁴⁰. Finally, more recently, China launched its first permanent space station, officially named Tiangong, which is

³⁷ Pace, S. (2016). Space cooperation among order-building powers. *Space Policy*, 36, 24-27

³⁸ Goswami, N. (2018). China in space: Ambitions and possible conflict. *Strategic Studies Quarterly*, 12(1), 74-97

³⁹ Conférence L'Europe dans les étoiles : l'agence spatiale européenne, Christophe Carreau, 07/02/2023

particularly important since the ISS will cease all operations by the end of the decade, making Tiangong the only manned space station⁴¹. Among many other things, China is also distinguished by its Changzheng rockets, its series of Long March launch vehicles, its BeiDou Navigation Satellite System, or its deep space exploration programs as evidenced by its numerous missions to the Moon and Mars⁴². Moreover, it should be emphasized that China is ranked first in the launch and orbit of spacecraft⁴³. And China's success is likely to last as it has already planned to assemble a lunar research station by 2025 and has announced that a manned landing mission is underway to set the foot on the moon in 2036⁴⁴. Likewise, China is preparing to deliver nuclear-powered space shuttles to tap into space resources and a space-based solar power station by 2040 and 2050 respectively⁴⁵. Another way to account for China's success in outer space, especially at the national level, is to mention that since 2016, April 24 has been declared Space Day in a nod to the first Chinese satellite, Dongfanghong-1, that was put into orbit in 1970. What is more, the success of China does not only lie in the strengthening of its space activities but also in its ability to meet deadlines contrary to other space-faring nations. This increases its credibility as well as the legitimacy of the Chinese Communist Party at the head of the government⁴⁶. So, after this overview of China's intense space activity, no one can deny that its materiel capabilities have increased significantly. It may be interesting to see how this can make it influential in the contestation and shaping of international space law.

The rise of China in the domain of space activities disrupts the architecture on which international space law was founded and reaffirms the need for its renovation. China is aware that it has accumulated enough power to challenge the spatial hegemonic order and can therefore hope to impose its own norms. It knows that the more it grows, the more its norms may be seen as alternatives. Faced with this challenge, China does not remain silent. Indeed, since 2005, China has been part of the Asia-Pacific Space Cooperation Organization whose goal is to organize forums on space policies and laws in order to develop awareness as well as solutions to the problems related to outer space management. However, this can be seen as a way for China to work with regional

⁴⁰ Okrent C, Soubès-Verger I, Pasco X, Niquet V, Patarin-Jossec J. La Tête dans les Etoiles. *Affaires Etrangères*. 2020

⁴¹ Rao, R. V., Gopalakrishnan, V., & Abhijeet, K. (2017). Recent Developments in Space Law

⁴² Wu, X. (2018). China's space law: rushing to the finish line of its marathon. *Space Policy*, 46, 38-45

⁴³ Yeshchuk, O., & Vasina, A. (2019). Chinese Space Law: Problems and Areas of Reforming. *Advanced Space Law*, 3(1), 140-150

⁴⁴ Rose, F. A. (2020). Managing China's rise in outer space. *Brookings Institution*, April

⁴⁵ Goswami, N. (2018). China in space: Ambitions and possible conflict. *Strategic Studies Quarterly*, 12(1), 74-97

⁴⁶ Goswami, N. (2018). China in space: Ambitions and possible conflict. *Strategic Studies Quarterly*, 12(1), 74-97

powers to unite around similar norms in order to gain more influence in challenging the already established U.S. standards. The thing is that, before expanding globally and not only regionally, China must still also obtain the support of more states or of relevant space-faring nations. In that sense, it is worth noting that Russia is often aligned with Chinese space policies as proved by their common proposal for the Prevention of an Arm Race in Outer Space. On the other hand, the rapprochement of Russia towards China can also be seen as part of the strategy of a state that takes advantage of the situation to ally itself with the competitor in order to challenge the American system that does not meet its interests either. Nonetheless, as for the other great space-faring nations, China still entertains weak ties, especially with the Western ones. That is why, more generally, scholars agree that China fails to impose alternative norms, at least for now⁴⁷. The example of Article IX remains an exception (*See* Appendix 1). To contextualize, after its 2007 ASAT weapon test, China was accused of not respecting Article IX of the Outer Space Treaty stating that “If a State Party to the Treaty has reason to believe that any activity or experiment planned by it or its nationals in outer space [...] would cause potentially harm interference with activities of other States Parties [...] it shall undertake appropriate international consultations before proceeding with any such activity or experiment⁴⁸.” China had indeed decided to interpret international consultations as a non-binding obligation. However, this Chinese norm can be considered a success since no state made direct legal claims against it, and that, one year later, the United States too did not feel obliged to undertake international consultations before destroying USA-193, an ASAT intercept as well⁴⁹. Nonetheless, in almost all the other cases, although it has developed its own norms and that the current situation is conducive to challenging the space order, Chinese norms have not yet reached the “tipping point” to use the expression of Finnemore and Sikkink. This can be explained by the fact that, because of path dependency, the norms established by the U.S. during the Cold War are so deeply rooted that it leaves almost no place for alternatives. In brief, if China has managed to question the hegemonic order of the United States, it has however not yet managed to overturn it. The future of space norms will depend on Chinese norm entrepreneurs to present them as being in the interests of the whole community in order to encourage adoption.

⁴⁷ Ikenberry, G. J., & Nexon, D. H. (2019). Hegemony studies 3.0: The dynamics of hegemonic orders. *Security Studies*, 28(3), 395-421 Reynolds, G. H. (1992). International space law: Into the twenty-first century. *Vand. J. Transnat'l L.*, 25, 225

⁴⁸ Outer Space Treaty, Article IX

⁴⁹ Blount, P. J. (2011). Renovating space: The future of international space law. *Denn. J. Int'l L. & Pol'y*, 40, 515

Section 3 : The ongoing battle between two historic blocs

It is now time to look in more depth at how international space law constitutes an ongoing battlefield between the United States and China. To do so, on the one hand, we will demonstrate that they have adopted and maintained divergent positions on the management of space resources over time to the point of forming two distinguished *historic blocs*. On the other hand, we will underline the role of the national identity of these two space-faring nations in shaping competing interests in order to show that their hegemonic rivalry stems from deeply held ideas that one state has towards the other as well as their shared and longstanding appetite for power.

1. An overview of the U.S. and China's stances regarding outer space

First of all, it should be noted that although the United States and China promote a different type of space management, each of them wants to expand and gain acceptance of its model in order to make the most of outer space. In Gramscian terms, we can say that their historic blocs are competing for hegemony through a war of position. This can be evidenced in the space field as we are going to study. To do so, let's see more concretely what these blocs consist of for each of them by focusing on their main characteristics in order to draw attention to what they oppose each other on before studying their origins then.

The U.S. hegemonic bloc

On the one hand, we will limit ourselves to describing the American space behavior to account for the characteristics of the U.S. historic bloc. To begin with, it should be noted that American space behavior is primarily driven by politics and varies to some extent from president to president⁵⁰. For example, under President Clinton, the American space policy was characterized by international cooperation, whereas under President G.W. Bush and President Trump, it was much more oriented towards unilateralism. Obama, as for him, sought to restore American legitimacy by encouraging multilateral endeavors, as expressed in the 2010 National Space Policy⁵¹. But, in

⁵⁰ Reynolds, G. H. (1992). International space law: Into the twenty-first century. *Vand. J. Transnat'l L.*, 25, 225

⁵¹ http://www.whitehouse.gov/sites/default/files/national_space_policy_6-28-10.pdf

practice, he did nothing besides maintaining the status quo⁵². For example, while President Obama has engaged the country in multilateral transparency and confidence-building measures -like the 2016 U.S.-China Space Security Talks- and has strengthened relationships with both old and new allies, he has also been careful not to openly reject the proposals for space arms control proposed by its rivals, China, and Russia⁵³. So, despite everything, there is a certain continuity in American foreign policy. Indeed, all presidents consider space access as well as space-derived data as a national priority⁵⁴. That is why, on the one hand, all have invested a lot in space programs. To give you an idea, the American budget represents more than half of the ones of the other countries in the world put together. This large amount of money has therefore allowed NASA, the American federal agency responsible for civilian space programs, to remain a leader in space activity and to develop expertise in a wide variety of domains⁵⁵. Moreover, American Presidents have often been reluctant to cooperate with China⁵⁶. Indeed, in 2011, the U.S. passed the Wolf Clause (*See Appendix 8*), a bill ceasing all operations with China in space if not authorized by the FBI and Congress beforehand⁵⁷. However, this attitude towards China was not like this at the very beginning. As a matter of fact, during the 1980s, shortly after their diplomatic normalization and when the Soviet Union was declining and could no longer restrict the transfer of sensitive space technologies from the West to its satellite countries, the two countries began to collaborate in conducting space activities. For example, China sold its Long March rockets to the U.S., and, in exchange, the U.S. sold communication satellites to China at preferential prices⁵⁸. They even signed a Memorandum of Agreement on Satellite and Technology Safeguard and a Memorandum of Agreement on Launch Responsibility.

“The United States will engage in expanded international cooperation in space activities. The United States will pursue cooperative activities to the greatest extent practicable in areas including: space science and exploration; Earth observations, climate change research, and the sharing of environmental data; disaster mitigation and relief; and space surveillance for debris monitoring and awareness”

⁵² Denny, B. (2016). International Security in Space: Presidential Leadership and the Future of Outerspace. *The Owl-Florida State University's Undergraduate Research Journal*, 6(1)

⁵³ Rose, F. A. (2018). Safeguarding the Heavens: The United States and the Future of Norms of Behavior in Outer Space. *Brookings Institution*. <https://www.brookings.edu/research/safeguarding-the-heavens-the-united-states-and-the-future-of-norms-of-behavior-in-outer-space>

⁵⁴ Rose, F. A. (2018). Safeguarding the Heavens: The United States and the Future of Norms of Behavior in Outer Space. *Brookings Institution*. <https://www.brookings.edu/research/safeguarding-the-heavens-the-united-states-and-the-future-of-norms-of-behavior-in-outer-space>

⁵⁵ Mahoney, E. (2022, October 25). 2018 Global Exploration Roadmap. NASA. <https://www.nasa.gov/exploration/about/isecg>

⁵⁶ Rose, F. A. (2018). Safeguarding the Heavens: The United States and the Future of Norms of Behavior in Outer Space. *Brookings Institution*. <https://www.brookings.edu/research/safeguarding-the-heavens-the-united-states-and-the-future-of-norms-of-behavior-in-outer-space>

⁵⁷ Zhang, Z., & Seely, B. (2019). A historical review of China-US cooperation in space: Launching commercial satellites and technology transfer, 1978–2000. *Space Policy*, 50, 101333

But, in the 1990s -and increasingly since then- when the U.S. became aware of the Chinese potential in space as in other fields, it started to act to prevent China from accumulating too much power. The situation also deteriorated because, meanwhile, the U.S. suspected China of technological thefts and feared for its national security⁵⁹.

In addition, another characteristic of the U.S. hegemonic bloc is the American superiority. For example, American participation in the International Space Station can be interpreted as a product of a U.S. political bet to assert its hegemony rather than a genuine desire to collaborate with other space-faring nations on an equal footing⁶⁰. Indeed, American statesmen understood that this international project would have allowed the U.S. to acquire greater legitimacy in the eyes of subordinate states by satisfying the interests of secondary powers like Russia, Japan, Canada, and European states. That is why it is written in the 1998 Agreement Concerning Cooperation on the Civil International Space Station that each member state enjoys ownership and sovereignty over its respective component of the station. But it should be noted that notwithstanding the rhetoric of international collaboration, the ISS remains primarily American. As a matter of fact, it was mainly designed by NASA and most of its contributions can be attributed to the United States. In the law, this idea is even explicitly reflected in the way Article 2 (1) is worded: it portrays NASA as the leader in the management of the ISS (*See Appendix 4*).

Furthermore, the historic bloc of the United States is also characterized by American supremacy over the command of the commons. On the one hand, this implies that, thanks to its political, economic, and military weight in space, the United States has the capacity to control the access to space for others. In this sense, for example, we can see that the United States has managed to dissuade other states from deploying military assets. Indeed, some states have abandoned the idea of launching weapons into space⁶¹. Moreover, the American supremacy over the command of the commons fosters the willingness of space-faring nations to cooperate with the U.S. since they can develop while the U.S. bears the cost of maintaining the system⁶². The United States accepts this

⁵⁸ Zhang, Z., & Seely, B. (2019). A historical review of China-US cooperation in space: Launching commercial satellites and technology transfer, 1978–2000. *Space Policy*, 50, 101333

⁵⁹ Zhang, Z., & Seely, B. (2019). A historical review of China-US cooperation in space: Launching commercial satellites and technology transfer, 1978–2000. *Space Policy*, 50, 101333

⁶⁰ Roberts, D. (1988). Space and International Relations

⁶¹ Posen, B. (2003). Command of the Commons: The Military Foundation of the U.S. Hegemony. *Quarterly Journal: International Security*, 28(1), 5-46

⁶² Posen, B. (2003). Command of the Commons: The Military Foundation of the U.S. Hegemony. *Quarterly Journal: International Security*, 28(1), 5-46

reality because, in return, it obtains the acquiescence of subordinate states, which is necessary to maintain its hegemony. Consequently, this allows the United States to maintain its supremacy in the space field since, at the same time, its national interests are served by the rules of the system that it maintains⁶³.

Finally, another feature of the U.S. historic bloc is that it generally favors the status quo of international space law, meaning that it does not want to create new binding space laws. Indeed, the U.S. clearly rejected the idea of participating in new multilateral agreements in its National Space Policy released in 2006⁶⁴. The reasons are numerous. Among them, the United States deems that it costs time and that treaties represent an additional financial burden. Besides, as the U.S. benefits from the system it has itself established in the past and can benefit from its loopholes to develop its commercial and defense sectors, it would not be in its interests to change it. In this regard, as in other areas, the United States often makes extensive use of reservations, to the point of rendering treaties meaningless⁶⁵. That is why, there is even concern that the U.S. could eventually withdraw from the Outer Space Treaty by claiming that the circumstances under which it initially ratified the treaty have fundamentally changed as provided for in Article 62 of the Vienna Convention of the Law of Treaties (*See Appendix 6*). However, such a move would considerably impair the U.S. legitimacy⁶⁶. The problem is that, as a relevant state, the failure of the U.S. to enter into new treaties discourages countries from promoting the creation of binding norms knowing that they will not be followed⁶⁷. Therefore, in response to today's challenges, the U.S. nevertheless resorts to regulation but tends to prefer the use of soft law mechanisms because it allows it more leeway to undertake its space activities.

In summary, we have seen that the U.S. historic bloc is characterized by an aversion towards China, international space cooperation efforts (but only if it contributes to maintaining its hegemony), and the promotion of status quo of international space law.

⁶³ Rao, R. V., Gopalakrishnan, V., & Abhijeet, K. (2017). Recent Developments in Space Law

⁶⁴ Berkman, P. A. (2018). Outer Space Law: Russia-United States Common Challenges and Perspectives. *Moscow journal of international law*, 50(1)

⁶⁵ Krisch, N. (2005). International law in times of hegemony: unequal power and the shaping of the international legal order. *European Journal of International Law*, 16(3), 369-408

⁶⁶ Denny, B. (2016). International Security in Space: Presidential Leadership and the Future of Outerspace. *The Owl-Florida State University's Undergraduate Research Journal*, 6(1)

The Chinese alternative historic bloc

On the other hand, we will paint a portrait of China in terms of space behavior so as to compare it with the American one. This will allow us to see to what extent its space behaviors can be considered as components of a counter hegemonic historic bloc. First and foremost, we can point out that one of the major characteristics of the Chinese historic bloc is China's penchant for revising international space law. This is not surprising since international law was mainly formulated while China was not yet visible in the space landscape, and therefore does not meet its interests. To justify a change in international law, China's strategy consists thus in claiming that international law has proven ineffective. Hence its commitment to banning ASAT weapons for example. Indeed, since international law has been unable to stop the weaponization of outer space, along with Russia, China has been advocating stricter regulation of these dangerous weapons. That is why, besides, since 2008, it has actively supported the signature of the PAROS Treaty -namely the Prevention of an Arms Race in Outer Space- at the Conference of Disarmament sessions. Likewise, in 2014, jointly with Russia, China voted in favor of the "No First Placement of Weapons in Outer Space"⁶⁸. However, these alternative norms face opposition from the bulk of Western states -the U.S., EU member states, Canada, and Australia- too scared of being bound, which hinders consensus and therefore the adoption of the treaty. The United States officially explains it by saying that such norms would not be applicable because of the lack of agreement on the notion of space weapons and the lack of a mechanism to verify compliance with its provisions. However, in reality, such a stance is taken by the United States because it fears that, if adopted, the ban on ASAT weapons would allow China to catch up with its space capabilities. Indeed, the promotion of PAROS can also be interpreted as a way for China to feel less threatened by its vulnerability to the American arsenal, rather than a genuine concern for the protection of humanity⁶⁹.

Another characteristic of the Chinese historic bloc is China's preference for international cooperation. Indeed, we can mention that, for example, China has signed

⁶⁷ Kofinas D, Johnson-Freese J. Space Warfare and the Weaponization of Outer Space. Hidden Forces. 2017. <https://open.spotify.com/episode/0qIT7tvaURwhlvHnA8zOsM?si=ZvFBWrjOSA2ybEhub17zcQ>

⁶⁸ Rose, F. A. (2018). Safeguarding the Heavens: The United States and the Future of Norms of Behavior in Outer Space. *Brookings Institution*. <https://www.brookings.edu/research/safeguarding-the-heavens-the-united-states-and-the-future-of-norms-of-behavior-in-outer-space>

⁶⁹ Okrent C, Pasco X, Duchâtel M, Gaillard-Sborowsky F, Porras D. La Nouvelle Guerre des Etoiles. *Affaires Etrangères*. 2018

cooperation agreements with 29 space agencies from all around the world between 2011 and 2016. Among them, it is interesting to note that we find agencies of developed space-faring nations such as Russia but also agencies of developing space-faring nations such as Algeria. Paradoxically, we can even find cooperation agreements with Western space agencies, such as ESA which has agreed to lead joint missions for relay communication tests in orbit⁷⁰. Thus, the China-led cooperation model is based on inviting developed as well as developing space-faring nations to participate in its space programs⁷¹. However, China does not promote international space cooperation just out of mere generosity. We argue that this is in fact no more, no less than a strategy to gain the consent of subordinate states in order to build an alternative and legitimized hegemonic bloc. To attest for it, we can point out that China's rhetoric, based on the instrumentalization of the principle of the free and equal access to outer space contained in the Outer Space Treaty, presents international cooperation as a means of satisfying the interests of all, whereas international cooperation allows China to satisfy its particular interests above all⁷². Indeed, on the one hand, promoting international cooperation is in China's interest because it makes it appear to be a responsible and inclusive space-faring nation, which is essential to ensure the acquiescence of other states in the long term, and all the more so since, in parallel, the United States is increasingly resistant to signing multilateral treaties or tends to disengage from them. On the other hand, promoting international cooperation is in China's interests because it compensates the high costs of space activities, diminishes the risk of failure, and secures raw material imports by bargaining with Brazil for instance, and therefore also more generally contributes to the growth of the country's economy⁷³.

Finally, in the same vein, it should be added that China already enjoys the benefits of international cooperation at the regional level, with its neighboring powers. Indeed, China has leadership in the Asia-Pacific Space Cooperation Organization whose headquarters, it is important to highlight, are located in Beijing. In addition, within this organization, China has plans to develop the Regional Center for Space Science, an ambitious project which consists in the transfer of technologies and the training of

⁷⁰ International Astronautical Federation. (2022, 26 septembre). *GNF INTERNATIONAL COOPERATION PROSPECTS ON CHINA LUNAR & DEEP SPACE EXPLORATION PROGRAM Wednesday 21* [Vidéo]. YouTube. <https://www.youtube.com/watch?v=RQPKzeIPBIE&feature=youtu.be>

⁷¹ Jiang, S., & Zhao, Y. (2021). China's National Space Station: Opportunities, Challenges, and Solutions for International Cooperation. *Space Policy*, 57, 101439

⁷² Jiang, S., & Zhao, Y. (2021). China's National Space Station: Opportunities, Challenges, and Solutions for International Cooperation. *Space Policy*, 57, 101439

⁷³ Jiang, S., & Zhao, Y. (2021). China's National Space Station: Opportunities, Challenges, and Solutions for International Cooperation. *Space Policy*, 57, 101439

individuals to the benefit of the developing space-faring nations of the region, which would allow China to impose its regional leadership.

In short, the Chinese historic bloc is mostly characterized by the promotion of new hard law norms that challenge the legitimacy of the U.S hegemonic historic bloc and international cooperation with a greater emphasis on developing space-faring nations compared to the United States. But now it is legitimate to ask ourselves what has led the U.S. and China to adopt such stances to the point of forming two distinct historic blocs competing for hegemony today?

2. The reciprocal influence between outer space and the American and Chinese national identities

This being said, it might be interesting not to stop at this observation -that is, the United States and China often have irreconcilable postures when it comes to codifying outer space- but to dig a little deeper by questioning the notion of national identity. Indeed, norms and identity are deeply linked: they mutually influence each other and determine the content of states' interests and, thus, the way they act in world politics or, in our case, regulate the space order. We will therefore attempt to shed light on the way the United States and China respectively perceive outer space, hegemony, and their relationship in order to grasp the very origin of the opposition of these two historic blocs⁷⁴.

Outer space and hegemony through the American lenses

On the one hand, focusing on how the American national identity shapes its hegemonic interests and its relationship with China will allow us to understand the type of behavior the United States adopts as well as the norms it promotes in outer space. First, it should be noted that a part of the identity of the United States is based on the space conquest⁷⁵. Since the Cold War, space has been associated with American superiority in the collective memory. Indeed, thanks to its space breakthroughs and victory over the Soviets in the space race, the U.S. presence in space has fueled and continues to fuel national pride among its citizens. As a result, space is seen, from the

⁷⁴ Rao, R. V., Gopalakrishnan, V., & Abhijeet, K. (2017). *Recent Developments in Space Law*

⁷⁵ Okrent C, Pasco X, Duchâtel M, Gaillard-Sborowsky F, Porras D. *La Nouvelle Guerre des Etoiles*. Affaires Etrangères. 2018

American perspective, as an instrument to project its power on the world stage and as a means in its hands to maintain its long-standing hegemony⁷⁶. Nevertheless, we can point out that, in the absence of a strong rival, the United States has progressively taken its hegemony in space for granted, and to the point that it takes the liberty of disregarding international space law although it is the founding father of it. In other words, the United States has developed a sense of "exemptionalism", which is now deeply rooted in its national identity⁷⁷. As a matter of fact, there are numerous examples illustrating this new tendency. One is the destruction by the United States of its USA-193 reconnaissance satellite, only one year after the scandal of the Chinese ASAT test and despite the ban on weapons of mass destruction in outer space. Then, another manifestation of the American sense of "exemptionalism" is the promulgation of the 2015 Commercial Space Launch Competitiveness Act which allows U.S. private citizens to enjoy property rights on the space resources it has recovered even if Article 2 of the Outer Space Treaty prohibits the claims of sovereignty (*See Appendix 1*).

Another characteristic of the American national identity that is translated in its space behavior is its aversion towards China. Indeed, the United States tends to interpret all its moves in a negative way, i.e., as if China was deliberately developing its space activity to counter the United States⁷⁸. That is why one of the articles in the Global Times was entitled "It's an 'American disease' to make an issue of China in all aspects"⁷⁹. The fact is that, since the link between space and American superiority is deeply rooted in its national identity, the United States feels threatened by the rise of China and therefore grants particular attention to maintaining the technological gap with China in the space field. However, it is important to note that the reluctance towards China has existed for a long time. Indeed, this was already the case during the Cold War even though this aversion was mainly based on the rejection of communism. For example, during the McCarthy era, the United States considered the Chinese space program as a tool for spreading the ideology of the enemy, and therefore refused to supervise Chinese

⁷⁶ Peoples, C. (2008). Assuming the inevitable? Overcoming the inevitability of outer space weaponization and conflict. *Contemporary Security Policy*, 29(3), 502-520

⁷⁷ Lebow, R. N., & Kelly, R. (2001). Thucydides and hegemony: Athens and the United States. *Review of International Studies*, 27(4), 593-609

⁷⁸ Peoples, C. (2008). Assuming the inevitable? Overcoming the inevitability of outer space weaponization and conflict. *Contemporary Security Policy*, 29(3), 502-520

⁷⁹ *It's an 'American disease' to make an issue of China in all aspects : Global Times editorial.* (s. d.). Global Times. <https://www.globaltimes.cn/page/202204/1260565.shtml>

engineers⁸⁰. From then on, any prospect of cooperation was significantly compromised. Secondly, the aversion to China has become especially acute since the mid-1990s after the several scandals of intellectual property thefts⁸¹. For instance, in 1997, the “Chinagate” revealed that Chinese officials of the China Aerospace International had bribed Johnny Chun, a Taiwanese American businessman, in exchange for the acquisition of sensitive data on American missile technologies⁸². Thus, even before the threat of China’s rise, the aversion to communism was so deeply nurtured during the Cold War that it became an integral part of American identity and may still explain U.S. antipathy towards China today.

Furthermore, since the theory of inevitability - a popular belief according to which space has no other destiny than to turn into a battlefield like the earth, the sea, and the air before it due to the inherent bellicose nature of human beings⁸³- is deeply rooted in the minds of American military officers, the immoderate fear of a repeated space Pearl Harbor by China -as expressed in 2001 by Donald Rumsfeld, former American Secretary of Defense- or of a scenario similar to the Sputnik shock could thus turn the American psychological bias into a self-fulfilling prophecy⁸⁴. All the more so in view of the current context of hegemonic rivalry between the United States and China⁸⁵ and although Graham Allison has demonstrated that hegemonic wars are not inevitable⁸⁶. It is in this sense that James. R Schlesinger, former U.S. Secretary of Defense during Nixon and Ford administrations stated that “the danger of overindulging America’s worst fears about China is that it might actually produce the hostile opponent that some Americans foresee⁸⁷.”

Outer space and hegemony through the Chinese lenses

⁸⁰ Zhang, Z., & Seely, B. (2019). A historical review of China-US cooperation in space: Launching commercial satellites and technology transfer, 1978–2000. *Space Policy*, 50, 101333

⁸¹ Logan, J. (2007). China's space program: options for US-China cooperation. LIBRARY OF CONGRESS WASHINGTON DC CONGRESSIONAL RESEARCH SERVICE

⁸² Zhang, Z., & Seely, B. (2019). A historical review of China-US cooperation in space: Launching commercial satellites and technology transfer, 1978–2000. *Space Policy*, 50, 101333

⁸³ Peoples, C. (2008). Assuming the inevitable? Overcoming the inevitability of outer space weaponization and conflict. *Contemporary Security Policy*, 29(3), 502-520

⁸⁴ Okrent C, Pasco X, Duchâtel M, Gaillard-Sborowsky F, Porras D. La Nouvelle Guerre des Etoiles. Affaires Etrangères. 2018

⁸⁵ Hunter, C. (2019). The Forgotten First Iteration of the ‘Chinese Space Threat to US National Security. *Space Policy*, 47, 158-165

⁸⁶ Kofinas D, Johnson-Freese J. Space Warfare and the Weaponization of Outer Space. Hidden Forces. 2017

⁸⁷ P.E. Tyler, The word : Seeing China’s challenge through a cold war lens, N.Y. Times (14 February, 1999), IV: 3, <https://www.nytimes.com/1999/02/14/weekinreview/the-world-seeing-china-s-challenge-through-a-cold-war-lens.html?searchResultPosition=1>

With a similar approach, let us focus on China. We will look at the influence of the Chinese national identity on the Chinese perception of the U.S. hegemony in outer space, on the one hand, and on national prestige, on the other. First, it should be noted that, although the Chinese culture has always condemned expansionism from a strategic point of view, China entered the space field with counter-hegemonic ambitions. The reason is that, traumatized by the “century of humiliation”, which refers to the period from 1839 to 1949 when China was submitted to Western powers after its defeat in the Opium War -a historical event deeply rooted in its national identity- China feared that, if it undertook a passive attitude, space would be colonized by the U.S. and this to the detriment of its own benefit, once again. Therefore, as early as the 1950s, China started to develop its space technology. However, as another cultural strategy dictated, when China is in an inferior position, it is better to avoid direct confrontation. Thus, aware of the imbalance of its space capacities with those of the United States, China has long viewed outer space more as a means to weaken U.S. hegemony or as an area to show its power than as a battlefield to attack the United States, contrary to U.S. perceptions⁸⁸. What is more, in a situation of inferiority, a Chinese cultural strategy advises “surface harmony⁸⁹.” Indeed, in this way, China can conceal its longstanding mistrust of the West and its hegemonic goals while satisfying its own interests under the guise of a great power responsible towards the international community. This may therefore be an explanation for its recent efforts of international cooperation as we mentioned earlier.

As far as China’s perception of outer space is concerned, its access to and use of outer space is seen primarily as a vector to boost the national economy and prestige⁹⁰. Indeed, economic growth is China’s number one priority, and this objective is deeply rooted in its national identity. China admires the example of its neighboring country, namely Japan, which, by rapidly and successfully industrializing after World War II, was able to restore its national power. Thus, rather than as a resource to enhance its military capabilities as it is perceived from an American perspective, space is viewed by China as a resource to modernize and prove its value to its people. That is why space, in fostering technological prowess, economic dividends, and national prestige, is also instrumentalized by political leaders. Indeed, Chinese statemen are aware of the symbolic and political advantages that space could bring them. Hence space

⁸⁸ Peoples, C. (2008). Assuming the inevitable? Overcoming the inevitability of outer space weaponization and conflict. *Contemporary Security Policy*, 29(3), 502-520

⁸⁹ Goswami, N. (2018). China in space: Ambitions and possible conflict. *Strategic Studies Quarterly*, 12(1), 74-97

⁹⁰ Goswami, N. (2018). China in space: Ambitions and possible conflict. *Strategic Studies Quarterly*, 12(1), 74-97

development is backed by the PRC⁹¹. For example, the Chinese Communist Party is investing in space missions to harvest space resources as well as longer-term programs such as the 2050 space based solar power station projects. The expected effects are to further boost China's trade sector and to make China the leader in the future energy market, which would eventually upset the balance of power in the international system by making China the world's leading power while legitimizing the political regime of Xi Jinping at the national level. Thus, the lines are blurred between the purely selfish attitudes of the Chinese towards space and the hegemonic ambitions of the Chinese leadership.

We have thus demonstrated that international space law is a breeding ground to “a war of position” by pointing out that, because of the resources of space, because of the current international political context, and because the two powerful space-faring states under study are driven by hegemonic ambitions embedded in their national identities, the United States and China prefer to confront each other through international law by supporting opposing stances with respect to outer space management. The reason is that, unlike a war of maneuver, this war of position allows them to shape a model of international space order to their advantage so that their superiority is more easily accepted by the others. However, this demands a lot of time and effort because norms do not change overnight. We will now be able to see in the following chapter that the competitive environment between the United States and China prevents cooperation for the establishment of new laws in favor of the outer space ecosystem and also favors the emergence of national laws to the detriment of the space environment, which is, unfortunately, only partially protected by the use of new types of other legal instruments.

⁹¹ Roberts, D. (1988). *Space and International Relations*

CHAPTER 2: THE IMPACT OF THE HEGEMONIC RIVALRY BETWEEN THE U.S. AND CHINA ON INTERNATIONAL SPACE LAW TO SAFEGUARD THE OUTER SPACE ENVIRONMENT

Section 1 : The deadlock of international cooperation to regulate the space environment with international space law

First of all, we will assess the consequences of the lack of international cooperation resulting from the hegemonic rivalry between the U.S. and China on the outer space environment, specifically using the cases of space mining and space debris as examples. The aim is also to qualify the liberal argument in International Relations that might overestimate the role of international law in fostering collaboration.

1. The overall standoff of international cooperation endeavors due to the new space race: a manifestation of hegemonic rivalry between the U.S. and China




To start with, we will demonstrate that international efforts to protect the outer space environment have recently reached a general impasse, not only owing to the limitations of international space law itself but also owing to the growing competition, contestation, and congestion in outer space caused by the hegemonic rivalry between the United States and China.

Legal deficiencies impeding further international cooperation efforts to protect the space environment

We have already mentioned the inadequacy of the international space order to the world political configuration today. The same is true for the environmental protection of outer space. Indeed, nowadays, the sustainability of outer space, and thus of our own

survival, is threatened by space mining and space debris⁹². Therefore, regulating space is urgent. But for this, since outer space is everyone's business, a necessary condition is international cooperation. Nevertheless, first of all, it should be noted that international space law, as it currently stands, does not provide for a fully-fledged and permanent diplomatic mechanism nor a compliance monitoring system associated with the management of the space environment⁹³. This is because, as we have seen, the international space order was mostly designed in the past, at a time when the environmental issue was not yet raised on the political scene. Moreover, although according to Article IX of the Outer Space Treaty, international cooperation is a core principle of international space law (*See Appendix 1*), given that states often disregard hard law when it comes to the use of global commons in general, relying on the existing legal framework, even if complete, would not be sufficient to protect outer space⁹⁴. This is all the truer with the great powers because, as we have shown, they tend to exempt themselves from international obligations that would be too restricted for them. Thus, international cooperation and, by extension, the space environment are further undermined by the current hegemonic rivalry between the U.S. and China. Furthermore, the principle of international cooperation is weakened by the fact that not all nations are equal in terms of space capabilities. To understand it, we can refer to remote sensing practices that allow developing nations to access space-based observations of their sovereign resources via another space nation's satellite. Indeed, this practice can also be viewed as a means of exploitation by powerful states given that, since “Asymmetrical access to satellite imagery and processing capabilities provides substantial advantages for some states over their neighbors”⁹⁵, the state owning the satellites and assessing the natural resources may not share all the data and, therefore, knows more about the natural resources than the primary stakeholder itself. Thus, it is not surprising that, in such a climate of mistrust, developing space-faring nations tend to beware of international cooperation and rather choose to engage in cross-regional cooperation initiatives. Nonetheless, this further fragments efforts for international cooperation, and again is detrimental to the space environment.

⁹² Rao, R. V., Gopalakrishnan, V., & Abhijeet, K. (2017). Recent Developments in Space Law

⁹³ UNIDIR — the UN Institute for Disarmament Research. (2022, November 1). *UNIDIR Outer Space Security Conference 2022, 1 November 2022*    #OS22 [Video]. YouTube. <https://www.youtube.com/live/G6OUetBUc8?feature=share>

⁹⁴ Martinez, L. F. (2019). Legal regime sustainability in outer space: theory and practice. *Global Sustainability*, 2

⁹⁵ Rao, R. V., Gopalakrishnan, V., & Abhijeet, K. (2017). Recent Developments in Space Law, p. 50

However, one of the greatest false hopes for the protection of the outer space environment is probably the 1979 Moon Treaty. Indeed, the main contribution of this treaty, contained in Article 11 (1) (*See Appendix 3*), was that the Moon and other celestial bodies were defined as “common heritage of mankind.” In comparison, under the Outer Space Treaty, they are only considered as *res communis omnium*. Thus, the Moon Agreement could have provided a much stricter legal framework in terms of environmental regulation and could have therefore better protected the resources of the moon and other celestial bodies. Likewise, Article 6 (1), 7 (1), 11 (5), and 11 (7) (d), by ensuring the equal sharing of the resources derived from the exploitation of the moon or other celestial bodies under the supervision of a specific international regime and preventing the contamination of their environment (*See Appendix 3*), could have helped to protect the outer space environment in view of the threat that poses space mining and space debris nowadays. However, the Moon Treaty is a failure since only five states have ratified it. Plus, neither the United States nor China are subject to it because they did not want their space activities to be limited in the future⁹⁶. So, since the main space-faring states are not parties and given that states can only be bound to the treaties they have accepted according to international law, the U.S. and China hegemonic rivalry risks to damage the space environment in the future and this, completely legally. And it does not stop there. It is worth noting that the Moon Treaty is also a failure since it has discouraged any international cooperation negotiations for another legally binding and multilateral agreement since then. The moon treaty is therefore seen as a turning point in the evolution of the law-making process of international space law⁹⁷. It announced the end of the era of creating hard law mechanisms to regulate outer space and the beginning of a new one characterized by bilateral, national, and soft law instruments.

An increasing competition that limits international cooperation efforts

Furthermore, as space cooperation depends above all on political will, any prospect of future cooperation is compromised by the recent proliferation of actors involved in outer space. As an indication, today, 70 countries have their own satellites⁹⁸ and 50 countries have developed the capacity to conduct space activities⁹⁹. Not to mention that

⁹⁶ Blount, P. J. (2011). Renovating space: The future of international space law. *Denn. J. Int'l L. & Pol'y*, 40, 515

⁹⁷ Berkman, P. A. (2018). Outer Space Law: Russia-United States Common Challenges and Perspectives. *Moscow journal of international law*, 50(1)

⁹⁸ Okrent C, Soubès-Verger I, Pasco X, Niquet V, Patarin-Jossec J. La Tête dans les Etoiles. *Affaires Etrangères*. 2020

⁹⁹ Okrent C, Pasco X, Duchâtel M, Gaillard-Sborowsky F, Porras D. La Nouvelle Guerre des Etoiles. *Affaires Etrangères*. 2018

new actors are not necessarily states: private companies and international organizations are also flourishing and have become equally influential in the space field. As a result, even if there were a will to modernize or implement new international space laws, it would be extremely difficult and time-consuming to get everyone to agree on the same provisions. Indeed, the more actors they are, the more complicated it is to reach an agreement, their interests being extremely diversified and divergent¹⁰⁰. For example, developing space-faring nations coming from Asia, Africa or South America do not have the same interests as established space-faring nations or private actors¹⁰¹. Thus, the danger with this is that, by extension, space becomes the screen of all the conflicts that are developing on Earth, which, consequently, would prevent space actors from completing new treaties protecting the space environment. In that regard, tensions are already tangible between private players and states. For example, the discrepancy between the 2015 U.S. Commercial Space Launch Competitiveness Act and Article 2 of the Outer Space Treaty that we have already mentioned is exacerbating tensions between American firms exploiting this gap and Russia defending the integrity of international space law (See Appendices 1 and 9). In short, the stability and environmental sustainability of outer space will be determined by the convergence of interests in the development of international space law, not only to promote and manage the space environment in a cooperative and responsible manner but also to ensure their endorsement. Indeed, for example, even though the ITU has promulgated a regulation requiring satellite operators to move their end-of-life satellites from geostationary orbit to higher graveyard orbits to mitigate the risk of collision of space assets, two thirds of the satellite operators have not yet complied with it¹⁰².

We will now see that hegemonic rivalry, by creating two alliance blocs, deteriorates the prospect for future global international cooperation, which is nevertheless necessary to deal with ecological issues. Indeed, the hegemonic rivalry between the United States and China has pushed these two nations to confront each other in a new space race, which is naturally not unlike the one between the United States and the Soviet Union 60 years ago, except that the objectives of the competition are not exactly the same. Today,

¹⁰⁰ Rose, F. A. (2018). Safeguarding the Heavens: The United States and the Future of Norms of Behavior in Outer Space. *Brookings Institution*. <https://www.brookings.edu/research/safeguarding-the-heavens-the-united-states-and-the-future-of-norms-of-behavior-in-outer-space>

¹⁰¹ Rao, R. V., Gopalakrishnan, V., & Abhijeet, K. (2017). Recent Developments in Space Law

¹⁰² Martinez, L. F. (2019). Legal regime sustainability in outer space: theory and practice. *Global Sustainability*, 2

the ultimate goal is Mars. Their motivation: to be the first to land on the Red Planet. Indeed, the victorious nation would derive many benefits from such a feat, including writing the rules of the game for the exploitation of space resources. Moreover, with potentially hundreds of billions of dollars at stake, the outcome of the space race will be crucial for the winning nation. That is why, in order to prepare their space programs for Mars, both countries have pledged to return to the Moon in the coming years, in 2024 and 2025 respectively¹⁰³. However, constrained by the financial and technical barriers, the states had to organize themselves. That is why we are witnessing the formation of two blocks of alliance. On the one hand, we have the bloc of the United States which is based on the Artemis Accords, signed in 2020, by 22 countries and whose main goal is to set the guidelines for a lunar and Martian program as well as for the mining of the Moon as stipulated in Section 13 (2) (*See Appendix 5*). However, it is important to emphasize the American centrism. Indeed, this multilateral, non-legally binding arrangement gives NASA a leading role¹⁰⁴. With similar goals, on the other hand, we have the China-led bloc which gathers mainly China, Russia, and developing nations with space ambition. Here again, it is important to highlight the centralism of China and Russia. As part of their collaboration, the two countries have indeed already established a joint data center for lunar and deep spaces explorations, and they even have plans to build an International Lunar Research Station¹⁰⁵. Moreover, they can count on the complementarity of their space technologies: China has managed to land a spacecraft on the far side of the moon for the first time in history while Russia is good at producing generators¹⁰⁶. So, while a united international cooperation would be needed to address the threats of space debris and space mining, this space race between the two superpowers splits international cooperation at the expense of the protection of the space environment¹⁰⁷. That is why the former U.S. Secretary of Commerce Ross warns that “We risk a ‘Wild West’ situation¹⁰⁸.”

In a nutshell, we have seen that, despite the urge to protect the space environment, the hegemonic rivalry between the United States and China does not create a favorable

International Telecommunication Union (ITU) (2010). Recommendation ITU-R S.1003-2 (12/2010), Environmental Protection of the Geostationary-Satellite Orbit. Retrieved from https://www.itu.int/dms_pubrec/itu-r/rec/s/R-REC-S.1003-2-201012-I!!MSW-E.docx

¹⁰³ Winter L. The new race to the moon is not just about bragging rights. Aljazeera. 2019. [The new race to the moon is not just about bragging rights | Space | Al Jazeera](#)

¹⁰⁴ Okrent C, Soubès-Verger I, Pasco X, Niquet V, Patarin-Jossec J. La Tête dans les Etoiles. Affaires Etrangères. 2020

¹⁰⁵ Cunningham P. International Cooperation And Competition In Outer Space. Beyond Infinity. 2019

¹⁰⁶ Cunningham P. International Cooperation And Competition In Outer Space. Beyond Infinity. 2019

¹⁰⁷ Winter L. The new race to the moon is not just about bragging rights. Aljazeera. 2019. [The new race to the moon is not just about bragging rights | Space | Al Jazeera](#)

environment for cooperation since it prevents the increasingly diverse - and therefore even less easily reconcilable - space actors from resorting to legally binding mechanisms or modifying existing international space law in order to address the threat of space resources exploitation and space debris.

2. Space debris: an example of the tragedy of the commons due to U.S.-China hegemonic rivalry

The management of space debris is of utmost importance. However, as a global common, its management is getting complicated because of the current world politics. We will explain this issue by recalling how the lack of international cooperation with the US-China hegemonic rivalry as a backdrop is all the more worrisome due to the global nature of space management.

The global nature of space management and its concerns

It turns out that states have made good use of the exercise of their freedom of access to outer space guaranteed by Article 1 (2) of the Outer Space Treaty (*See Appendix 1*). Indeed, while less than a century ago outer space was still free of human interference, today it is saturated with an increasing number of artificial objects launched by humans. Among them, we often think of communication satellites, spacecrafts, the International Space Station, and so on. However, we hardly think about space debris even though space is full of it. We tend to forget all those fragments of spacecrafts that result from past space missions or from the collisions of space objects, like those caused by the collision between an Iridium satellite and a dysfunctional Russian communication satellite in 2009¹⁰⁹. Not to mention those satellites that are no longer operable and yet continue to orbit. The problem is that these space debris threaten our planet and jeopardize our accessibility to space in the future. Moreover, it represents a threat to the safety of our satellites which are necessary for the functioning of our economy. Their exact number is difficult to estimate but, to give you an idea of the magnitude of this phenomenon, one study assesses that there are approximately 670,000 pieces of space debris between 1-10 cm size, a huge figure that does not even take into account the

¹⁰⁸ Winter L. The new race to the moon is not just about bragging rights. Aljazeera. 2019. [The new race to the moon is not just about bragging rights | Space | Al Jazeera](#)

¹⁰⁹ Rao, R. V., Gopalakrishnan, V., & Abhijeet, K. (2017). Recent Developments in Space Law

hundreds of millions of smaller fragments that are undetectable¹¹⁰. In addition, most of this space debris is concentrated in the frequently used orbital altitude zones, namely the low and geostationary earth orbits, which increases even more the probability of collision¹¹¹. And even if they naturally move to a lower orbit, it will still take years before they reach the atmosphere and get disintegrated¹¹². Furthermore, it is important to note that space debris are not only the byproduct of man-made causes but also natural hazards which humans cannot control. With that being said, we cannot but be worried. However, we have known this issue for a long time. Indeed, already in 1978, a NASA scientist called Donald J. Kessler raised the issue of sustainability of outer space, defined as the ability to maintain and improve the conduct of outer space activities indefinitely into future in a manner that ensures continued access to the benefits of the exploration and the use of space for peaceful purposes, in order to meet the needs of the present generations while preserving both the earth and the outer space environment for future generations¹¹³. This definition makes us realize that the subject of space debris is thus alarming for the survival of humanity, if not more so today. Indeed, in such a context of hegemonic rivalry and space race between the U.S. and China -that are, by the way, the two main contributors of space debris¹¹⁴- the number of launches of spacecraft and tests of ASAT weapons is expected to increase, as is the risk of space debris in consequence¹¹⁵. Despite all this, with promising proposals for scavenging space debris, we can look forward to a better future. But, to do so, we must be able to rely on an effective regulatory framework that promotes international cooperation.

Indeed, because space activities are costly and demand a high level of technological capabilities, the dimension of entanglement of space actors is characteristic of the management of outer space. As a result, a state cannot address the challenge of space debris alone. That is why international cooperation is necessary¹¹⁶. For this, as the liberal approach to International Relations emphasizes, international law is of great help. Otherwise, space actors could be tempted to satisfy their private and immediate interests

¹¹⁰European Space Agency, How many space debris objects are currently in orbit (2013), http://www.esa.int/Our_Activities/Space_Engineering_Technology/Clean_Space/How_many_space_debris_objects_are_currently_in_orbit last accessed on 2 November 2016

¹¹¹ Rao, R. V., Gopalakrishnan, V., & Abhijeet, K. (2017). Recent Developments in Space Law

¹¹² Rao, R. V., Gopalakrishnan, V., & Abhijeet, K. (2017). Recent Developments in Space Law

¹¹³ Foti, G. A. (2021, October 1). *Rules to Explore the Heavens: an Overview of Chinese National Space Law*. European Guanxi. <https://www.europeanguanxi.com/post/rules-to-explore-the-heavens-an-overview-of-chinese-national-space-law>

¹¹⁴ Rose, F. A. (2020). Managing China's rise in outer space. *Brookings Institution*, April

¹¹⁵ Rao, R. V., Gopalakrishnan, V., & Abhijeet, K. (2017). Recent Developments in Space Law

¹¹⁶ Rao, R. V., Gopalakrishnan, V., & Abhijeet, K. (2017). Recent Developments in Space Law

to the detriment of common and future ones, like by carrying out launching satellites while it jeopardizes the capability to do it in the future. In addition, the norms that international law creates ensure transparency, which further promotes trust and cooperation¹¹⁷. For example, mutual sharing of satellite position can prevent collisions or the use of ASAT weapons in the event of a security threat, and thus reduce the risk of additional space debris¹¹⁸. It is what is imposed by Article II of the Registration Convention (*See* Appendix 10). Furthermore, if we look more in depth at international space legislation, we can see that international cooperation for the mitigation of space debris is in fact guaranteed by many principles, major treaties, and international organizations. First, international cooperation is recognized as a fundamental principle and is cited several times in Article 1, 3, 9, 10, and 11 of the Outer Space Treaty¹¹⁹. Second, other agreements indirectly address the issue of space debris, such as the Liability Convention which, according to Article II (1) and pursuant to Article VI of the Outer Space Treaty, makes states liable for the wrongful acts committed in the course of a space activity performed by them or by private actors under their responsibility (*See* Appendices 1 and 2). This provision is useful because it discourages space actors from engaging in dangerous space ventures, and thus limits the risk of creating new space debris. Third, incentives to move toward international cooperation can be cultivated by international organizations by providing guidelines for space debris mitigation measures like UNCOPUOS, the main organizational and legal body for outer space since 1958¹²⁰. Even so, for international law and international cooperation to be effective, the obligation of diligence must be universally respected. And this poses a big problem, as we will show now.

The limits of international cooperation in space to deal with space debris

We have seen that the issue of space debris can only be resolved through international cooperation, which in turn depends on international space law. However, as we have underlined throughout our study, the absence, and gaps in international space law, either engendered or complicated because of hegemonic rivalry between the United States and China, prevent the reduction of space debris. Let us take stock of the main loopholes

¹¹⁷ Arostegui P, Revill J, Ortega A, West J, Su J, Cleobury S. Norms for outer space: a small step or a giant leap for policymaking? UNIDIR zoom web seminar. 2021

¹¹⁸ Rao, R. V., Gopalakrishnan, V., & Abhijeet, K. (2017). Recent Developments in Space Law

¹¹⁹ Jiang, S., & Zhao, Y. (2021). China's National Space Station: Opportunities, Challenges, and Solutions for International Cooperation. *Space Policy*, 57, 101439

¹²⁰ Orr, S. (1998). Peace and conflict in outer space. *Peace Research*, 30(1), 52-63

related to our case study. First, we must recall that the provisions we mentioned in the previous paragraphs are included in specific treaties to which all states are not necessarily bound because not all states have necessarily signed them¹²¹. For example, in 2019, the Outer Space Treaty has been ratified by 109 of the 193 states recognized by the United Nations. Likewise, the Registration Convention and the Liability Convention include 72 and 98 state parties, respectively. Plus, they are only binding on states, which further limits the scope of international space law. Private actors are only indirectly bound by them as they are under the responsibility of the state and, therefore, must usually comply with domestic regulations, which may vary from state to state. Thirdly, launch states have a bad habit of abandoning its space objects even though this results in the loss of ownership¹²². However, such a behavior raises the question of liability since the Liability Convention does not provide for any answer in case of accident for damage caused by an abandoned object. What is more, it is worth recalling that, even though the principle of international cooperation between space and non-space faring states is guaranteed by Article 1 of the Outer Space Treaty, in practice many developing countries feel aggrieved, as evidenced by the Space Benefits Declaration of 1996-1997¹²³. Indeed, in this text, developing states point out that their interests are barely represented in international norms of international space law, despite the mention of “in the interests of all” and the promotion of multinational collaboration. However, if the participation of developing countries is compromised owing to their discontent, the issue of space debris, a concern common for all, will not be properly solved. Finally, one of the main problems comes from the very nature of outer space. Indeed, as a global common as considered by the Outer Space Treaty, it is rivalrous -its use is limited by others- and non-excludable -free to access for all- in the economic sense. However, since international space law does not guarantee a supranational institution to ensure its application and respect by all, states, having free access to space, can easily make their individual interests prevail over those of the community, which puts at stake the sustainability of space. So, as we have already demonstrated in the general case, international law contains a lot of loopholes and international space law on the protection of outer space is no exception. As a result, space debris are proliferating to the detriment of space sustainability, and with no change in perspective due to the hegemonic rivalry between the U.S. and China which dooms international cooperation efforts to a dead-end.

¹²¹ Lyall, F., & Larsen, P. B. (2017). *Space law: a treatise*. Routledge

¹²² Rao, R. V., Gopalakrishnan, V., & Abhijeet, K. (2017). *Recent Developments in Space Law*

We will now argue that the hegemonic rivalry between the United States and China hinders the application of hegemonic-stability theory to our case study. The latter states that “The provision of international public goods requires the existence of a leading state -one both willing and able to act as an international quasi government and deploy its superior economic and military resources to create those goods¹²⁴.” Many attribute the role of such a leading state to the United States. Indeed, being the first space-faring nation and interested to bear the cost of maintaining system in exchange of acquiescence of its superiority from the other states, the United States is both willing and able -at least until recently- to be entrusted with the command of the common, in this case for the protection of outer space. For this reason, we can notice that it participated in the development of international space law in the late 1960s and throughout the decade that followed. It was also actively engaged in the Interagency Debris Coordination Committee and UNCOPUOS to propose guidelines to strengthen the protection of outer space¹²⁵. However, today, in such a context of hegemonic rivalry with China, the United States is no longer able to maintain such a policy of primacy and no longer benefits from it¹²⁶. This is why the U.S. has recently changed its behavior and started to disengage from certain obligations. As an example, we can refer to the American ASAT intercept in 2008 which created 174 pieces of orbital debris and evidenced its neglect for international space law. As a result, the United States may cease to act as a surrogate for supranational authority to the point we might fear that outer space will result in a “tragedy of the commons¹²⁷”, meaning that outer space not being managed by a supranational authority or hegemonic power, the sustainability of outer space will be irreversibly altered. Such a scenario could turn out particularly worrying considering the current situation of proliferation of space debris if there will be nothing to thwart it.

¹²³ Dennerley, J. A. (2016). Emerging space nations and the development of international regulatory regimes. *Space Policy*, 35, 27-32

¹²⁴ Ikenberry, G. J., & Nexon, D. H. (2019). Hegemony studies 3.0: The dynamics of hegemonic orders. *Security Studies*, 28(3), 395-421
¹²⁵ Reynolds, G. H. (1992). International space law: Into the twenty-first century. *Vand. J. Transnat'l L.*, 25, 225, p. 401

¹²⁵ Rose, F. A. (2020). Managing China's rise in outer space. *Brookings Institution*, April

¹²⁶ Posen, B. (2003). Command of the Commons: The Military Foundation of the U.S. Hegemony. *Quarterly Journal: International Security*, 28(1), 5-46

¹²⁷ Rao, R. V., Gopalakrishnan, V., & Abhijeet, K. (2017). Recent Developments in Space Law

Section 2 : The increasing use of national regulations to boost the economic growth and increase power at the expense of the space environment

Secondly, another transformation of Space Law that is caused by the hegemonic rivalry between the United States and China is the recent tendency of states to turn to national laws, especially in the commercial and military realms since outer space constitutes a particular source of wealth and is a key geopolitical arena for states. We will therefore take a look at the national laws enacted by both the U.S. and China, in these two sectors successively, in order to demonstrate how they contribute to the deterioration of the outer space environment.

1. The rise of a commercial sector monitored by the state: the new threat for the space environment

Let us begin by examining the commercial sector and how its recent growth, facilitated by the emergence of private actors and national aspirations, is threatening the outer space environment. We will first point out how deficiencies in international space law and international private law have encouraged space-faring nations to find domestic remedies before paying particular attention, then, to the national laws enacted by the United States and China in order to stimulate their economy, but to the detriment of the space environment.

The regulation of the commercialization of outer space

We stated earlier that, as the costs of entry into the space field decrease, more and more space actors, whether they are states or private entities, can now afford to engage in space undertakings. However, their space activities have long been limited by international space law. Indeed, even though the basic provisions were created at a time when the commercialization of outer space had not yet begun, the founding states of international space law had already anticipated this phenomenon. Consequently, commercial activities such as the use of navigation and communication satellites or space tourism, are regulated, to some extent, by international space law¹²⁸. For example,

¹²⁸ Lyall, F., & Larsen, P. B. (2017). *Space law: a treatise*. Routledge

commercial activities performed within the scope of space tourism depend primarily on the provisions contained in the Outer Space Treaty, the Rescue Convention, and the Liability Convention. The same applies for telecommunication operators who must comply with ITU regulations, to which all the member states of the United Nations belong. Nevertheless, it is obvious that the founding states could not foresee all the contemporary problems that we would be facing. It is particularly true for space debris. For instance, the Liability Convention does not clearly provide compensation to space tourists victims for damage caused by space debris insofar as the provisions are only relevant for states¹²⁹. Moreover, as the number of private space actors increases, we are witnessing the development of private international space law as exemplified by the 2012 Space Protocol, which is part of the 2001 Cape Town Convention and was negotiated under the aegis of UNIDROIT. Pursuant to Article VIII of the Outer Space Treaty, this protocol simplifies the use of asset-based secured financing for the space sector by providing for security, title reservation, and leasing agreements governing the ownership and transfer of rights in space assets between creditors and debtors (*See Appendix 1*)¹³⁰. Nevertheless, because they are an additional financial burden and make private actors more liable, this protocol was strongly criticized by the lobbies of the space industry. As a result, no State has ratified it¹³¹. Thus, the commercialization of outer space threatens the outer space environment since, without an efficient international regulatory mechanism that protects and makes space actors more accountable, the latter can enjoy an unfettered ability to plunder space resources, which could be even more problematic in the event of resource disputes among space actors.

That is why looking now at domestic space regulations may be interesting. First of all, it should be reminded that the enactment of space laws at the national level is not something new. However, the motivations for states to enact these laws have changed. Where once space laws were created for security concerns, they are now created for economic reasons and reasons of responsibility¹³². Indeed, with the private sector booming, states, which are held responsible for all national activities in space, whether performed by governmental or non-governmental actors, according to Article VI of the Outer Space Treaty, want to be protected from the consequences of dangerous space ventures (*See Appendix 1*). Hence the popularity of licensing regimes that assess the

¹²⁹ Rao, R. V., Gopalakrishnan, V., & Abhijeet, K. (2017). *Recent Developments in Space Law*

¹³⁰ Comi, D. (2021, 19 juillet). *Space Protocol*. UNIDROIT. <https://www.unidroit.org/instruments/security-interests/space-protocol>

¹³¹ Lyall, F., & Larsen, P. B. (2017). *Space law: a treatise*. Routledge

technical and financial suitability of the applicant depending on the criteria chosen by the state. However, it is worth noting that the lack of harmonization may also encourage space actors to sign up “to the jurisdictions with the lowest taxes and lowest cost regulatory structure, at the expense of safety and environmental harm¹³³.” Moreover, another explanation for the recent craze for national space legislation is to compensate for the deficiencies and lack of protection for private actors in international space law. Indeed, because outer space is a hostile environment, a national regulatory framework can serve as a substitute for international space law by reducing the risk of doing business and providing greater protection for the rights of private actors, which gives incentives for private entrepreneurs to invest in space, and thus can strengthen the national economy¹³⁴. With this in mind, we can better understand how the private sector has been able to grow very rapidly in recent years and to the point that, henceforth, financial debt for space activity is taken on by American private companies rather than by NASA¹³⁵. Finally, two other advantages of national legislation for space activities are that it is produced quickly and that it ensures a better system of compliance-monitoring¹³⁶. Indeed, in comparison, international legislation is hampered by the lack of multilateral efforts caused by the hegemonic rivalry between the United States and China, as we have already pointed out on several occasions. So, the enactment of national legislation could be useful to enhance the legal protection of the outer space environment. Nevertheless, for now, only about 30 states have decided to set up a specific national framework regulating the space activities of their nationals¹³⁷. Additionally, it should be recalled that the risk associated with the proliferation of national regulation is that it could impinge on international obligations, which would constitute a violation of Article 27 of the Vienna Convention on the Law of Treaties stating that “A party may not invoke the provisions of its internal law as justification for its failure to perform a treaty (*See Appendix 6*).”




A case study of the United States and China

¹³² Blount, P. J. (2011). Renovating space: The future of international space law. *Denn. J. Int'l L. & Pol'y*, 40, 515

¹³³ Dempsey, P. S. (2016). National laws governing commercial space activities: Legislation, regulation, & enforcement. *Nw. J. Int'l L. & Bus.*, 36, 1, p. 43

¹³⁴ Kofinas D, Johnson-Freese J. Space Warfare and the Weaponization of Outer Space. Hidden Forces. 2017

¹³⁵ Roberts, D. (1988). Space and International Relations

¹³⁶ UNIDIR — the UN Institute for Disarmament Research. (2022, November 1). *UNIDIR Outer Space Security Conference 2022, 1 November 2022*    #OS22 [Video]. YouTube. <https://www.youtube.com/live/G6OUetBUpC8?feature=share>

¹³⁷ Dempsey, P. S. (2016). National laws governing commercial space activities: Legislation, regulation, & enforcement. *Nw. J. Int'l L. & Bus.*, 36, 1

On the one hand, let us cast a glance at the national regulations enacted by the U.S. Congress which stimulate the commercialization of outer space, albeit to the detriment of the environment. First, we can highlight that the United States is the only country to offer suborbital tourism services¹³⁸. Indeed, this has been made possible because it is also the only state that has addressed the issue concerning the status of space tourists in its Commercial Space Launch Amendments of 2004, spurring thus the space industry¹³⁹. Second, according to the 1984 Commercial Space Launch Act, space licensing is under the authority of the Federal Aviation Administration. The latter issues licenses to launch space objects to all its citizens, regardless of the location chosen for the launch, and to any individual who wants to launch a space object from the American territory¹⁴⁰. However, we can observe that, when it comes to granting these licenses, in practice, the United States tends to privilege economic interests over environmental considerations. For example, despite the debris mitigation policy, in 2018, the Federal Communications Commission allowed Space X to deploy a constellation of over 12,000 satellites, which will congest even more the space environment¹⁴¹. Then, a third characteristic of the American space legislation is that it incentivizes private actors to invest in the space field by ensuring them property rights¹⁴². Indeed, thanks to the 2015 Commercial Space Launch Competitiveness Act, American citizens are granted the right to own the space resources they recover in space, which can be particularly interesting for private entrepreneurs in view of the exploitation of celestial bodies. That is why, despite the controversy it has generated and even if it has not yet been implemented, this bill has further motivated private actors to invest in outer space, and to such an extent that today the United States is outsourcing to the private sector. For example, Space X has already sent NASA astronauts and will be increasingly called upon for the use of its Starship reusable transport system. In short, all these major measures, to name but a few, by filling the gaps in international space law and encouraging the private sector to develop, have enabled the United States to assert itself as a major player in the commercial sector and to boost its economy in order to widen the gap with China. However, we have also demonstrated that this has often been done without ecological considerations.

¹³⁸ Rao, R. V., Gopalakrishnan, V., & Abhijeet, K. (2017). Recent Developments in Space Law

¹³⁹ Berkman, P. A. (2018). Outer Space Law: Russia-United States Common Challenges and Perspectives. *Moscow journal of international law*, 50(1)

¹⁴⁰ Dempsey, P. S. (2016). National laws governing commercial space activities: Legislation, regulation, & enforcement. *Nw. J. Int'l L. & Bus.*, 36, 1

¹⁴¹ Rose, F. A. (2020). Managing China's rise in outer space. *Brookings Institution*, April

"FCC Boosts Satellites e Broadband Connectivity and Competition in the United States," U.S. Federal Communications Commission, November 15, 2018, <https://www.fcc.gov/document/fcc-boosts-satellite-broadband-connectivity-competition>

On the other hand, let's give a quick overview of the current national regulations contributing to the commercialization of outer space in China. First and foremost, it is important to point out that China is also interested in the exploitation of outer space. As Ouyang Ziyuan, a Chinese scientist of the Moon exploration program stated it "The Moon could serve as a new and tremendous supplier of energy and resources for human beings¹⁴³." However, unlike the United States, China does not rely on the private sector to engage into commercial activities. Indeed, even if there is a growing number of private launch service providers like Linkspace, most activities are conducted by the state, and in the case of launch services by the China Great Wall Industry Corporation. That is why, at first sight, we might expect domestic regulation to be slightly different. But in fact, China does not even have a special regulatory framework for space activity. However, this does not mean that there are no legal regulations at all. Rather, Chinese space activities depend on international norms and "low-level civil by-law and closed-ended military regulations"¹⁴⁴. Nonetheless, because of the complex bureaucratic organization and the ubiquity of the military in the space field that prevent transparency, we do not really know how the policies are made or what they substantially consist of. In addition, although there are some ministerial regulations such as the 2001 Measures for the Administration of Registration of Objects Launched into Outer Space and the Interim Measures on the Administration of Licensing the Project of Launching Civil which place the responsibility for registration and licensing on SASTIND, this institution lacks information to be truly efficient, and thus is often overlooked. In addition, it should be noted that what structures the most Chinese space activities is undoubtedly Chinese White Papers. For example, in 2011, the Chinese White Paper suggested the creation of a new investment system¹⁴⁵. Nevertheless, they have no legal value, they only present the general orientations, principles, and policies of the Chinese space program. Be that as it may, they could serve as a basis for the creation of space law in the future. Moreover, with regard to the environment, as China committed to mitigating space debris, it has had to develop some kinds of regulations. For example, in 2010, China implemented the Space Debris Interim Instrument, but again it takes the form of an administrative document. Thus, the problem with the lack of a clear-cut and

¹⁴² Kuo M, Samson V. China in Space: Impact on China-US Competition. TheDiplomat. 2021. [China in Space: Impact on China-US Competition – The Diplomat](#)

¹⁴³ Goswami, N. (2018). China in space: Ambitions and possible conflict. *Strategic Studies Quarterly*, 12(1), 74-97

¹⁴⁴ Yeshchuk, O., & Vasina, A. (2019). Chinese Space Law: Problems and Areas of Reforming. *Advanced Space Law*, 3(1), 140-150 p. 147

concrete regulatory regime in China is twofold: on the one hand, it prevents China from ensuring that international law is transformed into the domestic legal order; on the other hand, it prevents China from compensating for the shortcomings of international space law at the domestic level. And, without effective law, the sustainability of the space environment is threatened by extension. It is worth noting, however, that the issue of space law was included in the five-year legislation plan of the National Peoples' Congress in 2013¹⁴⁶. Likewise, this issue was emphasized by some Chinese scholars in the Special Study of the Theory and Practice of the Development of Chinese Space Law¹⁴⁷. So, this might change in the coming years.

2. The weaponization of outer space and the problem for the space environment

It is now time to turn our attention to the military sector and to show how the weaponization of space, fueled by the uncertain interplay of world politics on Earth and not effectively hampered by international space law, is threatening the outer space environment, especially since the hegemonic rivalry between the United States and China. To do so, we will successively take a look at both the American and Chinese military space policy.

The threat of a growing weaponization for the space environment

To start with, we will report on the weaponization of space and how it threatens the sustainability of space, with particular attention to the influence of current hegemonic rivalry and international space law. First and foremost, it should be noted that, because of their mutual mistrust and aversion, reinforced by the lack of cooperation and information sharing, the United States and China are likely to perceive each other with the worst intentions. For this reason, they are constantly seeking to increase their security by deploying more space assets. Thus, even if the escalation of such a security-dilemma situation is not in their interest, they are trapped in a negative dynamic that leads them to adopt policies establishing guidelines for space defense programs, which

¹⁴⁵ Yeshchuk, O., & Vasina, A. (2019). Chinese Space Law: Problems and Areas of Reforming. *Advanced Space Law*, 3(1), 140-150 p. 147

¹⁴⁶ Wu, X. (2018). China's space law: rushing to the finish line of its marathon. *Space Policy*, 46, 38-45

¹⁴⁷ Yeshchuk, O., & Vasina, A. (2019). Chinese Space Law: Problems and Areas of Reforming. *Advanced Space Law*, 3(1), 140-150

indirectly leads to the weaponization of space. Moreover, although there is international space law that is supposed to contain this problem, it has many loopholes. For example, we saw that the Outer Space Treaty does not proscribe the militarization of outer space. And the prospects for change are not promising due to the current stalemate in international cooperation endeavors, caused in part by the hegemonic rivalry between the United States and China. In any case, even if legally forbidden in the best-case scenario, this weaponization of outer space could be easily circumvented by the dual use technology, which characterizes 95% of space assets¹⁴⁸. Plus, even if they were able to agree on a treaty, states could easily neglect them: either because of the absence of pressure from their citizens, who may not be informed about what is happening in space, or because of the difficulty of attributing wrongful behavior to a specific actor in such a hostile environment that is outer space¹⁴⁹. This is already the case with respect to the general principles of international law. For instance, even though the principle of non-intervention is guaranteed by Article 2 (7) of the UN Charter (*See Appendix 7*) - which is also valid in international space law, as it is difficult to determine the responsibility in case of a state jamming the communication of another's satellite, the latter can often violate its international obligations without fear of being condemned¹⁵⁰. Furthermore, knowing that the space objects confer a considerable advantage in conducting military operations on Earth, they inexorably become the focus of attention in the event of conflicts, whether they are initiated on Earth or in space and whether are conducting from Earth or from space¹⁵¹. However, the side effect of such a situation is that it would result in the creation of a huge amount of space debris. Indeed, on the one hand, states, anxious to maintain a stable balance of power, will be led to deploy more and more space objects. However, this will increase the congestion of outer space and thus the risk of collision creating space debris. On the other hand, states will also be tempted to annihilate the space objects of the other. And, with the development of new technologies such as ASAT weapons, this has not only become feasible but also less costly, so much so that space is increasingly likely to be converted into an actual battlefield¹⁵². The problem is that, again, the destruction of space assets will also produce a huge amount of space debris in the space arena. With all what have been said, we can therefore better

¹⁴⁸ Kofinas D, Johnson-Freese J. Space Warfare and the Weaponization of Outer Space. *Hidden Forces*. 2017

¹⁴⁹ Szymanski, P. (2019). Techniques for Great Power Space War. *Strategic Studies Quarterly*, 13(4), 78-104

¹⁵⁰ Rao, R. V., Gopalakrishnan, V., & Abhijeet, K. (2017). Recent Developments in Space Law

¹⁵¹ Rao, R. V., Gopalakrishnan, V., & Abhijeet, K. (2017). Recent Developments in Space Law

¹⁵² Rao, R. V., Gopalakrishnan, V., & Abhijeet, K. (2017). Recent Developments in Space Law, p. 144

understand why the current situation of hegemonic rivalry, paves the way for “a new round of arms race” at the expense of the space environment¹⁵³.

A case study of the United States and China

On the one hand, let’s cast a glance at the American domestic norms that drive the weaponization of outer space to the detriment of the space environment. To begin, it is important to recall the importance of the space-based system in the American economy as well as its homeland security. Indeed, its heavy dependence on outer space makes it extremely vulnerable in return. That is why the U.S. seeks to protect its valuable space assets by adopting certain norms, although at the same time this implies the weaponization and then the degradation of the space environment. Indeed, as Bruce DeBlois has declared “What is internationally unsettling and even threatening is not the existing space weapons posture, but [...] space weapons policy¹⁵⁴.”

Before anything else, it could be interesting to look at the military doctrine that prevails in the country. Indeed, it reflects the interests of a fringe of the American population that can influence the country’s norms and behaviors in space. As a matter of fact, paradoxically, we can see that the United States has not developed a space warfare doctrine¹⁵⁵. This can be explained by the fact that the United States has never really felt the need to do so, at least until recently. However, with the rise of China, this might change very soon. In this regard, it is worth noting that the American rhetoric of a new Cold War with China seems to be moving in this direction¹⁵⁶. Not to forget that the inevitably thesis is deeply rooted in the mentality of the American officials, especially within the Air Force Space Command, so that the prospect of a war is not totally excluded. Similarly, the US Law of War Manual reaffirms the point that Article IV of the Outer Space Treaty does not amount to a total de-militarization of outer space, which shows the willingness of the U.S. to be prepared in case of an armed conflict¹⁵⁷.

What about U.S. space policy as such? It should be noted that it may vary from president to president, but, in a nutshell, three U.S. presidents have had a significant impact on the weaponization of outer space, namely Reagan, Bush, and Trump. If we go back to the Reagan administration first, it is clear that the U.S. President has contributed

¹⁵³ Rao, R. V., Gopalakrishnan, V., & Abhijeet, K. (2017). Recent Developments in Space Law, p. 144

¹⁵⁴ DeBlois, ‘The Advent of Space Weapons’ (note 8), p. 32.

¹⁵⁵ Szymanski, P. (2019). Techniques for Great Power Space War. *Strategic Studies Quarterly*, 13(4), 78-104

¹⁵⁶ Okrent C, Soubès-Verger I, Pasco X, Niquet V, Patarin-Jossec J. La Tête dans les Etoiles. *Affaires Etrangères*. 2020.

to reinforcing the weaponization of outer space, notably with his Strategic Defense Initiative, albeit it never materialized. In the same vein, in 2002, Bush withdrew from the ABM Treaty, undermining any hope for the conclusion of an ASAT arms control treaty in the future. The year 2006 was also a turning point. Indeed, with the promulgation of the US National Space Policy, the United States sought to prevent other countries from developing the means to compete with it in space, even though it turned out that this aggressive policy indirectly encouraged other countries like China to develop weapons in response¹⁵⁸. Finally, in 2019, Trump further intensified the weaponization of outer space with his creation of a Space Force, the 6th branch of the military as it stands in the National Defense Authorization Act, whose role would be to conduct military operations in space¹⁵⁹.

On the other hand, despite the limited data available due to confidentiality, let us try to show how Chinese national regulations contribute to the weaponization of outer space. To do this, we must first point out that, although the Chinese space program is designed for civilian purposes -to increase domestic growth- as it is presented by the Chinese government, there is no doubt that it participates in the weaponization of outer space too¹⁶⁰. One only has to look at the Chinese budget to understand this: part of the money that China spends in the military sector is in fact used in space equipment, both defensive (space situational awareness networks) and offensive (anti-satellite weapon)¹⁶¹. Besides, China owns four communication satellites that are exclusively used for military purposes¹⁶². However, obviously, this investment pushing China to launch more and more potential weapons in space is the product of national regulations. It is often interpreted, and even justified by Chinese officials, as a response to the aggressive unilateral space policies of the United States, but it would be too simplistic to be satisfied with this explanation¹⁶³. Indeed, the weaponization of outer space may also be

¹⁵⁷ Department of Defense Law of War Manual (June 2015) United States of America Department of Defense 926 [14.10.3.1] www.archive.defense.gov/pubs/law-of-war-manual-june-2015.pdf.

¹⁵⁸ Denny, B. (2016). International Security in Space: Presidential Leadership and the Future of Outerspace. *The Owl-Florida State University's Undergraduate Research Journal*, 6(1)

¹⁵⁹ Kuo M, Samson V. China in Space: Impact on China-US Competition. *TheDiplomat*. 2021. [China in Space: Impact on China-US Competition – The Diplomat](#)

¹⁶⁰ Logan, J. (2007). China's space program: options for US-China cooperation. LIBRARY OF CONGRESS WASHINGTON DC CONGRESSIONAL RESEARCH SERVICE

¹⁶¹ Okrent C, Pasco X, Duchâtel M, Gaillard-Sborowsky F, Porras D. *La Nouvelle Guerre des Etoiles*. Affaires Etrangères. 2018

¹⁶² Rose, F. A. (2020). Managing China's rise in outer space. *Brookings Institution*, April

¹⁶³ Peoples, C. (2008). Assuming the inevitable? Overcoming the inevitability of outer space weaponization and conflict. *Contemporary Security Policy*, 29(3), 502-520

fueled by China alone considering the great influence of the military sector in the decision-making process of space regulations.

Moreover, in the absence of access or existence of Chinese space regulations, it may be interesting to study Chinese military doctrine instead. Let us recall that the doctrines can be considered as a reflection of a fringe of the Chinese population that can influence the policies. In doing so, it turns out that the Chinese military thinkers promote a kind of space blitzkrieg scenario in case of hegemonic war. Indeed, they believe that, given the current U.S. advantage in material capabilities, a surprise attack like Germany during the beginning of the Second World War might be more favorable to China. However, such a military conception of space would push the Chinese to implement new regulations contributing to the weaponization of space in the future, which would also damage space environment by the way ¹⁶⁴.

Section 3 : The excessive enthusiasm for new kinds of legal instruments to address space sustainability

Finally, we will evaluate the effectiveness of new types of legal instruments that are increasingly used to compensate for the inability of international space law to deal with outer space protection given the lack of international cooperation triggered by the hegemonic rivalry between the United States and China. We will argue that, notwithstanding their promising contribution, whatever their forms, they turn out to be not as effective as we might hope.

1. The hope of soft law to address the deterioration of the space environment and their relative efficiency

On the one hand, it is worth noting a major development in international space law, that is the increasing recourse to soft law. Indeed, it looks like soft law would be able to fill the gaps of the existing legal framework related to outer space. We will therefore demonstrate on the one hand that, even if this trend for soft law is the product of the hegemonic rivalry between the United States and China, soft law contributes to preserving the sustainability of outer space by bringing together and empowering the

¹⁶⁴ Szymanski, P. (2019). Techniques for Great Power Space War. *Strategic Studies Quarterly*, 13(4), 78-104

actors concerned. However, in a second step, we will also highlight its limitations, which we too often tend to forget or, at least, to underestimate.

The contribution of soft law

In light of the current state of the space environment, there is no doubt that action is urgently needed. However, as space debris accumulates and the exploitation of outer space looms dangerously large due to the hegemonic rivalry between the United States and China, the latter, at the same time, intensifies, which renders international space law impotent and international community unable to agree on new binding norms to address these environmental issues. Indeed, time has passed since we became aware of this danger, and yet there are still no international space laws binding space actors to clean up the space environment that they have polluted¹⁶⁵. There is also still no international obligation for state to undertake a space project alongside another state to deal with the management of the space environment for instance¹⁶⁶. Nevertheless, since the prospect of an ecological disaster is in no one's interest, it seems that space actors have found a way to compensate for the problem, at least partially and temporarily¹⁶⁷. The solution in question is the use of soft law. This consists of the adoption of norms that, albeit non-legally binding, encourage responsible behavior by space actors in the use of space. They can take a variety of forms, ranging from supporting an existing space principle to proposing a new international space norm instead of the conclusion of a binding treaty¹⁶⁸. This flexibility and non-binding nature make them a relevant tool for two reasons: first, as the pace of technological progress increases, norms can be more quickly updated; second, given the hegemonic rivalry, these norms give states the impression that their sovereignty is not too limited, so that they are more willing to adopt to new norms. Thus, non-legally binding norms can be a good way to adopt new regulatory mechanisms quickly and with less risk than with binding law so as to regulate the space environment¹⁶⁹.

¹⁶⁵ Ivanishchuk, A., & Markina, M. (2020) Space Activity Regulatory Matters of Space Law. *Advanced Space Law*, 6

¹⁶⁶ Jiang, S., & Zhao, Y. (2021). China's National Space Station: Opportunities, Challenges, and Solutions for International Cooperation. *Space Policy*, 57, 101439

¹⁶⁷ Berkman, P. A. (2018). Outer Space Law: Russia-United States Common Challenges and Perspectives. *Moscow journal of international law*, 50(1)

¹⁶⁸ Rao, R. V., Gopalakrishnan, V., & Abhijeet, K. (2017). Recent Developments in Space Law

¹⁶⁹ Arostegui P, Revill J, Ortega A, West J, Su J, Cleobury S. Norms for outer space: a small step or a giant leap for policymaking? UNIDIR zoom web seminar. 2021

In fact, it should be added that, even though the preference for soft law dates back to the failure of the Moon Agreement, it is even more topical today owing to the hegemonic rivalry between the United States and China. More precisely, in the domain of space environment protection, one of its major achievements is probably the 2007 Space Debris Mitigation Guidelines produced by the Working Group on Long Term Sustainability of Outer Space Activities, adopted by UNCOPUOS, and endorsed in Resolution 62/217. Indeed, based on the preceding 2002 Inter-Agency Space Debris Coordination Committee Guidelines, they provided a framework for states to implement at the national level in order to deal with space debris¹⁷⁰. Concretely, for instance, they reaffirmed the principle of cooperation to avoid harmful contamination in outer space, enshrined in Article IX of the Outer Space Treaty (*See Appendix 1*)¹⁷¹. What is more, they urged space-faring countries to reduce the generation of space debris during the launch phase and to place end-of-life satellites in graveyard orbits, that is, at the highest and less congested orbital altitudes, since LEO and GEO are considered “protected zones” in the IADC¹⁷².

The issues of soft law

Nonetheless, despite its success in the space field, especially in regulating the sustainability of outer space, soft law itself has many issues. Firstly, although it is considered a substitute for binding treaties, it should be remembered that it remains non-legally binding, meaning that a state is not sanctioned if it decides not to follow it. Indeed, as in the case with the LTS guidelines, one of the main features of soft law is that there is no mechanism to ensure their enforcement or compliance¹⁷³. This can then explain why about a quarter of end-of-life GEO spacecrafts have still not been returned to graveyard orbit, contrary to what was suggested by the IADC guidelines. Moreover, even if a violation usually generates reputational costs, these are sometimes not high enough to prevent states from not complying with the soft law. For example, despite the recommendations to limit space debris from its space activities, as the security gains were greater, India concluded an ASAT weapon test in 2019 under the Mission Shakti¹⁷⁴. Thirdly, even if the use of soft law shows the willingness of states to protect

¹⁷⁰ Martinez, L. F. (2019). Legal regime sustainability in outer space: theory and practice. *Global Sustainability*, 2

¹⁷¹ Berkman, P. A. (2018). Outer Space Law: Russia-United States Common Challenges and Perspectives. *Moscow journal of international law*, 50(1)

¹⁷² Rao, R. V., Gopalakrishnan, V., & Abhijeet, K. (2017). Recent Developments in Space Law

¹⁷³ Martinez, L. F. (2019). Legal regime sustainability in outer space: theory and practice. *Global Sustainability*, 2

¹⁷⁴ Martinez, L. F. (2019). Legal regime sustainability in outer space: theory and practice. *Global Sustainability*, 2

the space environment, it also demonstrates that they are not ready to completely assume their responsibilities¹⁷⁵. In addition, as illustrated by the rejection of the European Union's 2008 Initiative for Code of Conduct for space activities promoting the environmentally friendly use of outer space, soft law proposals, just as hard law, can also fail because of the general stalemate in international cooperation endeavors caused by the hegemonic rivalry between the United States and China¹⁷⁶. However, we should not forget that, as we saw during the Cold War, against all odds, it is perhaps during these periods of tensions that the great powers are more likely to adopt hard norm to prevent their mutual annihilation¹⁷⁷. Furthermore, if we look at their substance, because the international organizations that produce them may not be inclusive, soft law may not reflect the interests of the international community as a whole, or of all the stakeholders involved in space activity today and are therefore more likely to be contested. Indeed, lack of inclusiveness was one of the main criticisms of the EU Code of Conduct from Russia and China, for example¹⁷⁸. Also, imprecision is often characteristic of soft law like guidelines, which undermines their effectiveness since the minimum standard for implementing them tends to be favored by space actors. Last but not least, the risk with soft law is that, if it becomes too popular, it may completely displace the use of and need for hard law, which would be extremely unfortunate in terms of security, as in the case of arms control agreements or the protection of private actors' rights¹⁷⁹. Therefore, all the problems listed above highlight the fact that we are facing a "double sustainability challenge". In other words, the sustainability of the space environment and the sustainability of the regulatory regime are at stake and mutually dependent¹⁸⁰.

2. The other kinds of hard law instruments to protect the space environment: a more or less powerful strategy

On the other hand, we will focus on two other types of legal instruments, namely national space regulations and international space principles having potentially acquired a customary nature. Again, we will evaluate the effectiveness of these new solutions to mitigate the negative impacts of the hegemonic rivalry between the United States and

¹⁷⁵ Rao, R. V., Gopalakrishnan, V., & Abhijeet, K. (2017). Recent Developments in Space Law

¹⁷⁶ Rao, R. V., Gopalakrishnan, V., & Abhijeet, K. (2017). Recent Developments in Space Law

¹⁷⁷ Rao, R. V., Gopalakrishnan, V., & Abhijeet, K. (2017). Recent Developments in Space Law

¹⁷⁸ Rose, F. A. (2018). Safeguarding the Heavens: The United States and the Future of Norms of Behavior in Outer Space. *Brookings Institution*. <https://www.brookings.edu/research/safeguarding-the-heavens-the-united-states-and-the-future-of-norms-of-behavior-in-outer-space>

¹⁷⁹ Rao, R. V., Gopalakrishnan, V., & Abhijeet, K. (2017). Recent Developments in Space Law

China on international cooperation, and more particularly on the ecological management of space.

National space regulations, a false hope?

First, we can note that national space regulations are developing in parallel with the entry of more and more space actors in the space field and with the development of soft law. As we have shown in relation to the commercialization and weaponization of outer space, they make it possible to overcome the current deadlock in international cooperation to stimulate the exploitation of space or to protect national interests by developing a military space policy, but this is often to the detriment of the space environment. However, it should not be assumed that national regulations cannot be used to improve the protection of the space environment. Indeed, nothing prevents a state from taking a unilateral measure in this matter. For example, Russia and China have committed not to be the first to place weapons in space, which limits to some extent the weaponization of space and thus reduces the risk of creating space debris. Nonetheless, the effectiveness of such a unilateral move depends on the ability of one state to influence others to adopt its norm, which is not without bias. Indeed, first, such a practice would probably only be followed by like-minded states. Second, most national space regulations that have acquired an international dimension are likely to be shaped by major space faring nations. Moreover, national space regulations may be needed either to provide a compliance-monitoring system or to adapt an international space norm into the domestic order. It is especially the case for certain treaties that are not fully self-executing or soft laws as well. For instance, the LTS Space Debris Mitigation guidelines do provide the legal framework for a state to respect the space environment by suggesting, among other things, that it should increase the number of environmental requirements with which an applicant must comply before granting a license. However, it is necessary for the state, then to enact national laws in order to make these suggestions binding and respected by its nationals¹⁸¹. Finally, it is worth noting that, paradoxically, although it can constrain them, even private actors are pressuring states to adopt national space regulations to make their space activities more secure, knowing

¹⁸⁰ Martinez, L. F. (2019). Legal regime sustainability in outer space: theory and practice. *Global Sustainability*, 2




¹⁸¹ Affairs, S. O. F. O. U. N. (2023, February 7). *Day 3 Session 6* [Video]. YouTube. <https://www.youtube.com/watch?v=1DuDH8u5IFg&feature=youtu.be>

that it could increase both their investment opportunities and reputation¹⁸². So, the use of national regulations in the space field is an indirect consequence of the hegemonic rivalry between the United States and China. Indeed, as we have just shown, they may be useful to overcome the gaps of international space law and soft law stemming from the stalemate in international cooperation. Nonetheless, we should not forget to point out that it also contains its own limitations to fully address the problem of the deterioration of the space environment and should rather be used as a complementary tool than as a substitute of international law.

The uncertain customary nature of international space law

Finally, another way to safeguard the space environment despite the hegemonic rivalry between the United States and China that undermines the effectiveness of the protection provided by existing international space law by hindering international cooperative efforts or by forcing space actors to turn to soft law or to national regulations, is to rely on the customary nature of international space principles. Indeed, if these principles are recognized as international customs, they could be binding on all without the necessity of a treaty given that international customs are one of the sources of international law according to Article 38 of the Statute on the International Court of Justice (*See Appendix 11*). However, to be considered an international custom, a norm must meet two conditions. First, it must reflect state practice, that is, it must be followed consistently, continuously, generally, and uniformly by the states. Second, it must reflect an *opinio juris*. This means that it must be followed because states believe it to be a legal obligation. The question that now arises is: have international space principles become international customs?

First of all, it is important to identify the principles in question. Many of them have their roots in the Outer Space Treaty¹⁸³. This is the case of the principle of the exploration and use of outer space for the benefit and in the interests of all mankind; the freedom of exploration and use of outer space, the prohibition of national appropriation of outer space and celestial bodies, the international responsibility for national activities in space and the authorization of the private entities activities by the State concerned, the avoidance of harmful interference, to name but a few. The thing is that, as the Outer Space Treaty has not been ratified by all the states, according to Article 34 of the Vienna

¹⁸² UNIDIR — the UN Institute for Disarmament Research. (2022, November 1). *UNIDIR Outer Space Security Conference 2022, 1 November 2022*    #OS22 [Video]. YouTube. <https://www.youtube.com/live/G6OUetBUc8?feature=share>

Convention on the Law of Treaty, only the states parties to the treaty can be bound to it (See Appendix 6). However, this could radically change if the principles enshrined in the Outer Space Treaty are recognized as international customs. Indeed, if they are proven to possess the two constitutive elements of an international custom, they would be binding on all, even on the non-members of the Outer Space Treaty. And this could have a considerable impact on the fate of the space environment.

The problem is that the customary nature of these international space principles is very difficult to justify. The fact that they have been recognized in UNGA resolutions leads us to think that some of the international space principles have gained universal acceptance and reflect a “strong unanimity of opinion on the issue”¹⁸⁴. Some of them, such as the avoidance of harmful interference, could even be considered as peremptory norms, meaning that no derogation from this norm in any case is allowed under Article 53 of the Vienna Convention on the Law of Treaty (See Appendix 6). Nonetheless, we must underline that, on the other hand, many nations were not yet visible at the time of the treaty’s conception, and therefore are unlikely to “accept the imposition of customary law created almost exclusively by wealthy states”, which could undermine the evidence of *opinio juris*¹⁸⁵. Furthermore, since not all nations have the capability to access outer space, it is hard to establish a general state practice. Thus, although they would have created binding norms for all without international cooperation endeavors, as the customary nature of international space principles is controversial, they are not a tool powerful enough to offset the problems caused by the hegemonic rivalry between the United State sand China, and thus do not effectively contribute to the protection of the space environment.

In a nutshell, based on different theoretical frameworks, we have argued that the failure of international cooperation endeavors to address legal and environmental issues was nothing less but the product of the confrontation of two historic blocs promoting different norms and with competing interests in such a coveted area that is outer space. A clear manifestation of this phenomenon was illustrated in the management of space debris, in the future exploitation of outer space, and in the increasing use of substitute instruments such as national regulation and soft law.

¹⁸³ Blount, P. J. (2011). Renovating space: The future of international space law. *Denn. J. Int'l L. & Pol'y*, 40, 515

¹⁸⁴ Rao, R. V., Gopalakrishnan, V., & Abhijeet, K. (2017). Recent Developments in Space Law, p. 15

¹⁸⁵ Lyall, F., & Larsen, P. B. (2017). *Space law: a treatise*. Routledge, p. 462

CONCLUSION

In conclusion, the objective of this work was to analyze the extent to which international space law provides fertile ground for the confrontation between the United States and China in their struggle for hegemony and to assess the consequences of this hegemonic rivalry for space law as well as for the space environment. To do so, after having recalled the importance of space resources in our everyday life to explain why it is a geostrategic area, we sought to examine the potential of international space law to shape power relations in the international world order and to regulate the space environment. In many ways then, we have managed to attribute the recent evolution of international space law -characterized now by the absence of new multilateral treaties, and the shift to the use of national or soft law- to the hegemonic rivalry between the United States and China.

Indeed, if the United States dominated the space landscape for a long time and even laid the foundations on which the existing legal framework is still based today, it seems however that the rise of China on the international scene, and on the space scene, since the end of the last millennium more precisely, has changed the deal. Now that it has demonstrated its power in space by its space achievements such as the sending of the first taikonaut in 2003, by its military capabilities with the acquisition of ASAT technologies, and by its promising Martian and lunar missions, China can, henceforth, hope for hegemony. This would corroborate the power cycle theory. However, instead of engaging in a hegemonic war, we can observe that China is waging a war of position, in the neo-Gramscian sense of the term, i.e., challenging the established space norms. And while China is already promoting alternative standards, following the norms life cycle model, their expansion will depend on China's ability to make them appear legitimate so that other states will adopt them in the future. But this is not without concern for the United States, whose relationship with China is already strained in many other areas and whose mutual aversion is deeply rooted in their national identity. The United States is all the more concerned that this challenge to the standards it has set in the past will cause it to lose its hegemonic position as the leading space nation. Therefore, the U.S. too has been forced to modify its space behavior to accommodate the new situation. Thus, as a result of the hegemonic rivalry between the United States and China,

international space law has become a veritable battlefield where the two historic blocs that the United States and China constitute are trying to impose, through a subtle process, their own norms on the entire international community.

Nevertheless, blinded by their hegemonic ambition, they have also contributed to the commercialization and weaponization of outer space with their national regulations or policies that have had the indirect effect, by protecting a burgeoning private and military sector, of damaging the space environment, notably through the space debris generated. But this damning observation is also the result of numerous loopholes in the space legal framework, which, even though restricts the exploitation of the celestial bodies to a certain extent, does not grant clear and complete protection to outer space. Thus, powerful space faring states have been able to exploit outer space by circumventing and ignoring many international obligations. Moreover, because of their ongoing opposition, the United States and China are hampering any international cooperation efforts to address this problem. However, they are also well aware that, as space is a global common, the current inaction could have irreparable effects on the sustainability of outer space, and thus their hegemonic ambition. This is why we can see that they have opted for the use of new legal instruments that would replace hard law mechanisms at the international level. Nevertheless, we have also shown that these efforts cannot be considered as a satisfying solution in the long term.

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Appendix 1

Provisions of the Outer Space Treaty

Article I

The exploration and use of outer space, including the moon and other celestial bodies, shall be carried out for the benefit and in the interests of all countries, irrespective of their degree of economic or scientific development, and shall be the province of all mankind.

Article 1

2. Outer space, including the Moon and other celestial bodies, shall be free for exploration and use by all States without discrimination of any kind, on a basis of equality and in accordance with international law, and there shall be free access to all areas of celestial bodies.

Article II

Outer space, including the moon and other celestial bodies, is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means.

Article IV

States Parties to the Treaty undertake not to place in orbit around the earth any objects carrying nuclear weapons or any other kinds of weapons of mass destruction, install such weapons on celestial bodies, or station such weapons in outer space in any other manner.

The moon and other celestial bodies shall be used by all States Parties to the Treaty exclusively for peaceful purposes. The establishment of military bases, installations and fortifications, the testing of any type of weapons and the conduct of military manoeuvres on celestial bodies shall be forbidden. The use of military personnel for scientific research or for any other peaceful purposes shall not be prohibited. The use of any equipment or facility necessary for peaceful exploration of the moon and other celestial bodies shall also not be prohibited.

Outer space, including the moon and other celestial bodies, shall be free for exploration and use by all States without discrimination of any kind, on a basis of equality and in accordance with international law, and there shall be free access to all areas of celestial bodies.

There shall be freedom of scientific investigation in outer space, including the moon and other celestial bodies, and States shall facilitate and encourage international co-operation in such investigation.

Article V

States Parties to the Treaty shall regard astronauts as envoys of mankind in outer space and shall render to them all possible assistance in the event of accident, distress, or emergency landing on the territory of another State Party or on the high seas. When astronauts make such a landing, they shall be safely and promptly returned to the State of registry of their space vehicle.

Article VI

States Parties to the Treaty shall bear international responsibility for national activities in outer space, including the moon and other celestial bodies, whether such activities are carried on by governmental agencies or by non-governmental entities, and for assuring that national activities are carried out in conformity with the provisions set forth in the present Treaty. The activities of non-governmental entities in outer space, including the moon and other celestial bodies, shall require authorization and continuing supervision by the appropriate State Party to the Treaty. When activities are carried on in outer space, including the moon and other celestial bodies, by an international organization, responsibility for compliance with this Treaty shall be borne both by the international organization and by the States Parties to the Treaty participating in such organization.

Article VIII

A State Party to the Treaty on whose registry an object launched into outer space is carried shall retain jurisdiction and control over such object, and over any personnel thereof, while in outer space or on a celestial body. Ownership of objects launched into outer space, including objects landed or constructed on a celestial body, and of their component parts, is not affected by their presence in outer space or on a celestial body

or by their return to the Earth. Such objects or component parts found beyond the limits of the State Party to the Treaty on whose registry they are carried shall be returned to that State Party, which shall, upon request, furnish identifying data prior to their return.

Article IX

If a State Party to the Treaty has reason to believe that any activity or experiment planned by it or its nationals in outer space [...] would cause potentially harmful interference with activities of other States Parties [...] it shall undertake appropriate international consultations before proceeding with any such activity or experiment.

Article IX

In the exploration and use of outer space, including the Moon and other celestial bodies, States Parties to the Treaty shall be guided by the principle of cooperation and mutual assistance and shall conduct all their activities in outer space, including the Moon and other celestial bodies, with due regard to the corresponding interests of all other States Parties to the Treaty.

Appendix 2

Provisions of the Liability Convention

Article II

A launching State shall be absolutely liable to pay compensation for damage caused by its space object on the surface of the earth or to aircraft in flight.

Article II

1. When a space object is launched into earth orbit or beyond, the launching State shall register the space object by means of an entry in an appropriate registry which it shall maintain. Each launching State shall inform the Secretary-General of the United Nations of the establishment of such a registry.

Appendix 3

Provisions of the Moon Agreement

Article 11

1. The moon and its natural resources are the common heritage of mankind, which finds its expression in the provisions of this Agreement, in particular in paragraph 5 of this article.

Article 6

1. In carrying out scientific investigations and in furtherance of the provisions of this Agreement, the States Parties shall have the right to collect on and remove from the moon samples of its mineral and other substances. Such samples shall remain at the disposal of those States Parties which caused them to be collected and may be used by them for scientific purposes. States Parties shall have regard to the desirability of making a portion of such samples available to other interested States Parties and the international scientific community for scientific investigation. States Parties may in the course of scientific investigations also use mineral and other substances of the moon in quantities appropriate for the support of their missions.

Article 7

1. In exploring and using the moon, States Parties shall take measures to prevent the disruption of the existing balance of its environment, whether by introducing adverse changes in that environment, by its harmful contamination through the introduction of extra-environmental matter or otherwise. States Parties shall also take measures to avoid harmfully affecting the environment of the earth through the introduction of extra-terrestrial matter or otherwise.

Article 11

5. States Parties to this Agreement hereby undertake to establish an international regime, including appropriate procedures, to govern the exploitation of the natural resources of the moon as such exploitation is about to become feasible.

7. The main purposes of the international regime to be established shall include:

(d) An equitable sharing by all States Parties in the benefits derived from those resources, whereby the interests and needs of the developing countries, as well as the efforts of those countries which have contributed either directly or indirectly to the exploration of the moon, shall be given special consideration.

Appendix 4

Provision of the Agreement Concerning Cooperation on the Civil International Space Station

Article 2

NASA, RSA, the GOJ, ESA, and CSA will join their efforts, under the lead role of NASA for overall management and coordination, to create an integrated international Space Station (hereinafter “the Space Station”). NASA and RSA, drawing on their extensive experience in human flight, will produce elements which serve as the foundation for the Space Station. The GOJ and ESA will produce elements that will significantly enhance the Space Station’s capabilities. CSA’s contribution will be an essential part of the Space Station.

Appendix 5

Provision of the Artemis Accords

Section 13 – Final Provisions

2. The Government of the United States of America will maintain the original text of these Accords and transmit to the Secretary-General of the United Nations a copy of these Accords, which is not eligible for registration under Article 102 of the Charter of the United Nations, with a view to its circulation to all the members of the Organization as an official document of the United Nations.

Appendix 6

Provisions of the Vienna Convention on the Law of Treaties

Article 27

A party may not invoke the provisions of its internal law as justification for its failure to perform a treaty.

Article 34

A treaty does not create either obligations or rights for a third State without its consent.

Article 38

Nothing in articles 34 to 37 precludes a rule set forth in a treaty from becoming binding upon a third State as a customary rule of international law, recognized as such.

Article 53

A treaty is void if, at the time of its conclusion, it conflicts with a peremptory norm of general international law. For the purposes of the present Convention, a peremptory norm of general international law is a norm accepted and recognized by the international community of States as a whole as a norm from which no derogation is permitted and which can be modified only by a subsequent norm of general international law having the same character.

Article 62

1. A fundamental change of circumstances which has occurred with regard to those existing at the time of the conclusion of a treaty, and which was not foreseen by the parties, may not be invoked as a ground for terminating or withdrawing from the treaty unless:
 - (a) the existence of those circumstances constituted an essential basis of the consent of the parties to be bound by the treaty.

Appendix 7

Provision of the UN Charter

Article 2

7. Nothing contained in the present Charter shall authorize the United Nations to intervene in matters which are essentially within the domestic jurisdiction of any state or shall require the Members to submit such matters to settlement under the present Charter; but this principle shall not prejudice the application of enforcement measures under Chapter VII.

Appendix 8

Provision of the Wolf Clause

SEC. 1340.

(a) None of the funds made available by this division may be used for the National Aeronautics and Space Administration or the Office of Science and Technology Policy to develop, design, plan, promulgate, implement, or execute a bilateral policy, program, order, or contract of any kind to participate, collaborate, or coordinate bilaterally in any way with China or any Chinese-owned company unless such activities are specifically authorized by a law enacted after the date of enactment of this division.

(b) The limitation in subsection (a) shall also apply to any funds used to effectuate the hosting of official Chinese visitors at facilities belonging to or utilized by the National Aeronautics and Space Administration.

Appendix 9

Provision of the Commercial Space Launch Competitiveness Act

51303. Asteroid resource and space resource rights “A United States citizen engaged in commercial recovery of an asteroid resource or a space resource under this chapter shall be entitled to any asteroid resource or space resource obtained, including to possess, own, transport, use, and sell the asteroid resource or space resource obtained in accordance with applicable law, including the international obligations of the United States.

Appendix 10

Provision of the Registration Convention

Article II

1. When a space object is launched into earth orbit or beyond, the launching State shall register the space object by means of an entry in an appropriate registry which it shall maintain. Each launching State shall inform the Secretary-General of the United Nations of the establishment of such a registry.

Appendix 11

Provision of the Statute of the ICJ

Article 38

1. The Court, whose function is to decide in accordance with international law such dispute as are submitted to it, shall apply:
 - a. international conventions, whether general or particular, establishing rules expressly recognized by the contesting states;
 - b. international custom, as evidence of a general practice accepted as law;
 - c. the general principles of law recognized by the civilized nations;
 - d. subject to the provisions of Article 59, judicial decisions and the teachings of the most highly qualified publicists of the various nations, as subsidiary means for the determination of rules of law.

RIASSUNTO

È innegabile che le tensioni tra gli Stati Uniti e la Cina siano aumentate dall'inizio del nuovo millennio. Lo si può osservare in molti ambiti, tra cui e soprattutto in quello spaziale, tema di cui tratta questa tesi. Infatti, sebbene lo spazio, in quanto bene comune, sia un'area favorevole alla cooperazione internazionale, è anche un'area favorevole alla competizione poiché abbonda di risorse preziose. Tuttavia, in questo lavoro l'obiettivo era mettere in luce il fatto che, più che contrapporsi militarmente, queste due nazioni spaziali sono in competizione ideologica. In altre parole, viene argomentato che entrambe vogliono dominare il potere normativo. Ciò non è però privo di conseguenze per il diritto spaziale internazionale esistente e per l'ambiente spaziale stesso, come verrà analizzato. Pertanto, postulando che queste due nazioni spaziali stiano cercando l'egemonia in senso *neogramsciano*, lo scopo di questa tesi è principalmente quello di esaminare la recente evoluzione del diritto spaziale internazionale nel contesto dell'attuale politica globale. In poche parole, questo lavoro permette di dimostrare che l'attuale impotenza del diritto spaziale internazionale nel garantire la sostenibilità dello spazio extra-atmosferico, sempre più minacciato dai detriti spaziali e dallo sfruttamento degli oggetti celesti, non è altro che il risultato della rivalità egemonica tra gli Stati Uniti e la Cina. Infatti, spinti da ambizioni egemoniche radicate nella loro identità nazionale, essi formano due *blocchi storici* che adottano posizioni così polarmente opposte riguardo alla gestione dello spazio che ciò ha portato al blocco della cooperazione internazionale, ma anche alla commercializzazione e alla *weaponization* dello spazio esterno, a danno dell'ambiente spaziale e nonostante l'uso della *soft law* e di altri rimedi legali.

Per cominciare, il primo capitolo di questa tesi mira a sottolineare l'importanza che le grandi potenze hanno nel plasmare il diritto spaziale internazionale nella loro battaglia per l'egemonia, come stiamo vedendo attualmente con gli Stati Uniti e la Cina. Viene evidenziato che, anche se il diritto spaziale internazionale è un campo relativamente recente, creato durante la Guerra Fredda, ha già subito molti cambiamenti, soprattutto dopo il crollo dell'URSS negli anni '90 e a seguito dell'ascesa della Cina come nuovo concorrente degli Stati Uniti poco dopo. Questa trasformazione viene spiegata in tre fasi: dapprima viene esaminato il motivo per cui lo spazio merita

un'attenzione particolare da parte di grandi potenze con ambizioni egemoniche, prima di esaminare come e perché il mutato equilibrio di potere tra gli Stati Uniti e Cina sulla Terra si riflette nello spazio esterno attraverso l'evoluzione del diritto spaziale internazionale.

Per essere più precisi, nella prima sezione, si comincia con l'evidenziare che, sebbene sia stato a lungo al riparo dal disturbo umano, oggi lo spazio è sempre più ambito da nazioni spaziali come gli Stati Uniti e la Cina, che sono ben consapevoli dell'enorme ricchezza che lo spazio costituisce. Per questo motivo descriviamo lo spazio come una zona geopolitica cruciale e una risorsa indispensabile per le grandi potenze alla ricerca dell'egemonia. Detto questo, è facile capire perché il diritto internazionale - e nel nostro caso il diritto spaziale internazionale - possa essere concepito come uno strumento utile per assicurarsi i benefici che si possono trarre dallo spazio e quindi stabilirne il dominio. In effetti, le nazioni spaziali sono disposte a scendere sul campo di battaglia legale per influenzare il diritto spaziale internazionale in modo da assicurarsi vantaggi spaziali a lungo termine. Per dimostrarlo, abbiamo combinato le prospettive *neogramsciane* e realiste proprie della disciplina delle Relazioni Internazionali per mostrare che il diritto internazionale consente agli Stati di radicarsi e legittimare la loro posizione dominante nell'ordine mondiale. Poi, abbiamo illustrato questa idea con il nostro caso di studio, sottolineando la prevalenza degli interessi degli Stati Uniti nell'ordine spaziale internazionale.

Tuttavia, nella seconda sezione, introduciamo un problema importante che ci troviamo ad affrontare oggi nell'ordine spaziale che abbiamo appena descritto: quest'ultimo non corrisponde più alla realtà dell'attuale politica mondiale. Di conseguenza, abbiamo prestato particolare attenzione alla contestazione delle norme a cui stiamo assistendo da parte di altre nazioni spaziali, in particolare la Cina. Infatti, ora che ne ha la capacità, la Cina vuole cambiare il diritto spaziale internazionale in modo che sia più a suo vantaggio. Pertanto, per comprendere meglio la traiettoria che sta prendendo l'ordine spaziale, abbiamo innanzitutto sottolineato la desuetudine dell'attuale ordine spaziale. Abbiamo infatti dimostrato che la maggior parte del quadro giuridico spaziale internazionale esistente risale all'epoca della Guerra Fredda e, pertanto, non coincide con il corso degli eventi odierno. Tuttavia, ciò è notevolmente problematico anche a causa delle numerose incoerenze e lacune che questo sistema non è mai riuscito a colmare. Poi, in una seconda fase, dopo aver trattato le *teorie del ciclo del potere* e del *ciclo della norma*, queste ultime vengono applicate al nostro caso di studio. Questo

esercizio permette di affermare che la Cina è stata recentemente in grado di sfidare la posizione dominante degli Stati Uniti nello spazio grazie alla rilevanza che ha acquisito nel tempo all'interno dell'ordine spaziale internazionale e, quindi, di introdurre nuove norme per la gestione dello spazio extra-atmosferico.

La terza sezione si concentra in maniera più approfondita su questa sfida normativa, ovvero su come il diritto spaziale internazionale costituisca un campo di battaglia continuo tra le norme attinenti allo spazio degli Stati Uniti e della Cina. Nella prima sottosezione, dimostriamo che queste due nazioni sono in competizione attraverso una *guerra di posizione* -secondo la terminologia *gramsciana*- per l'egemonia col fine di espandere e ottenere l'accettazione del proprio modello di gestione dello spazio. In effetti, si sostiene che esse formano due *blocchi storici* distinti che adottano e mantengono posizioni divergenti sulla gestione delle risorse spaziali. Da un lato, il *blocco storico* statunitense viene descritto come caratterizzato principalmente da un'avversione nei confronti della Cina e dalla promozione dello status quo del diritto spaziale internazionale, mentre quello cinese come caratterizzato dalla promozione di nuove norme di *hard law* - che metterebbero in discussione la legittimità del *blocco storico* egemonico statunitense - e da una maggiore enfasi sulla cooperazione internazionale, in particolare con i paesi in via di sviluppo. D'altra parte, viene sottolineato il ruolo dell'identità nazionale di queste due nazioni spaziali nel plasmare gli interessi in competizione, per dimostrare che la loro rivalità egemonica deriva da idee profondamente radicate che uno stato ha nei confronti dell'altro, oltre che dalla loro comune e antica brama di potere. A questo proposito, si può constatare che una parte dell'identità degli Stati Uniti si basa sulla conquista dello spazio e, di conseguenza, lo spazio è visto come uno strumento per proiettare il proprio potere sulla scena mondiale e come un mezzo per mantenere la propria egemonia ormai stabilita da tempo, anzi spesso data per scontato. Un'altra considerazione riguarda il fatto che l'identità statunitense sia caratterizzata da un'avversione storica nei confronti della Cina e da una *teoria dell'inevitabilità* profondamente radicata nel settore militare. Per quanto riguarda la Cina, è possibile affermare che l'attività spaziale cinese sia profondamente influenzata dalla sua identità nazionale, a lungo plasmata dal "secolo dell'umiliazione" - per cui la Cina ha sviluppato una naturale ostilità nei confronti delle potenze occidentali - e dalla volontà di sviluppare la propria economia e il proprio prestigio nazionale.

Di conseguenza, dopo aver dimostrato che il diritto spaziale internazionale è un terreno fertile per una *guerra di posizione*, evidenziando che, a causa delle risorse spaziali, dell'attuale contesto politico internazionale e delle ambizioni egemoniche profondamente radicate nelle identità nazionali, gli Stati Uniti e la Cina preferiscono confrontarsi attraverso il diritto internazionale, è stato più semplice indagare, nel secondo capitolo, perché il rapporto estremamente competitivo tra gli Stati Uniti e la Cina impedisce la cooperazione internazionale per la creazione di nuove leggi a favore dell'ecosistema spaziale e, allo stesso tempo, favorisce la nascita di leggi nazionali a scapito dell'ambiente spaziale, che purtroppo è solo parzialmente protetto dall'uso di nuovi tipi di altri strumenti giuridici.

In questo senso, la prima sezione ci permette di valutare le conseguenze della mancanza di cooperazione internazionale derivante dalla rivalità egemonica tra gli Stati Uniti e la Cina sull'ambiente spaziale, utilizzando come esempi i casi dell'estrazione mineraria dallo spazio e dei detriti spaziali. Viene infatti dimostrato che la sostenibilità dello spazio è minacciata da queste attività, a maggior ragione se si considera lo scarso quadro giuridico che le regola; per non parlare del clima di sfiducia che scoraggia qualsiasi iniziativa di cooperazione internazionale, del numero crescente di soggetti interessati allo spazio che riduce la probabilità di raggiungere un accordo comune sulle questioni spaziali e della nuova corsa allo spazio che alimenta le tensioni tra i due *blocchi storici*. Inoltre, vediamo che, nonostante l'articolo IX del Trattato sullo spazio extra-atmosferico e il Trattato sulla Luna, dato che gli stati spesso non rispettano la legge quando si tratta di utilizzare i beni comuni globali in generale, affidarsi a un quadro giuridico, anche se completo, non sarebbe sufficiente a proteggere lo spazio extra-atmosferico allo stato attuale delle cose.

La seconda sezione affronta poi un'altra trasformazione del diritto spaziale internazionale, anch'essa causata dalla rivalità egemonica tra gli Stati Uniti e la Cina e che può contribuire al deterioramento dell'ambiente spaziale esterno: la recente tendenza degli stati a emanare leggi nazionali per regolare la gestione dello spazio. Dopo aver sottolineato come le carenze del diritto spaziale internazionale e del diritto privato internazionale incoraggino le nazioni spaziali a trovare rimedi interni, abbiamo esaminato da vicino le leggi nazionali emanate sia dagli Stati Uniti che dalla Cina nei settori commerciale e militare. Da un lato, ciò permette di sostenere che è in due modi diversi - ma entrambi a scapito dell'ambiente spaziale - che gli Stati Uniti e la Cina stimolano la loro economia sulla base di regolamenti spaziali, in particolare con i

Commercial Space Launch acts e il Commercial Space Launch Competitiveness Act di 2015 per gli Stati Uniti e con i White Papers e i regolamenti militari o le leggi secondarie civili di basso livello per la Cina. D'altra parte, nel settore militare, viene prima spiegato come la *weaponization* dello spazio, alimentata dall'incerto gioco della politica mondiale sulla Terra e non efficacemente ostacolata dal diritto spaziale internazionale, stia minacciando l'ambiente spaziale, poi vengono analizzate più a fondo le norme peculiari americane e cinesi che portano a questa *weaponization*, come quelle derivanti dalle dottrine militari e dai programmi militari elaborati dall'autorità esecutiva.

Infine, la terza sezione conclude l'argomentazione menzionando l'ultima grande trasformazione del diritto spaziale causata dalla rivalità egemonica tra gli Stati Uniti e la Cina, ovvero il crescente utilizzo di nuovi tipi di strumenti giuridici per compensare l'incapacità del diritto spaziale internazionale di occuparsi della protezione dello spazio a causa della mancanza di cooperazione internazionale. In effetti, per prima cosa viene sottolineato che sembra che la *soft law* sia sempre più considerata in grado di colmare le lacune del quadro giuridico esistente in materia di spazio. Le Space Debris Mitigation Guidelines di 2007 ne sono l'esempio canonico. Tuttavia, in secondo luogo, si ricorda che, nonostante il loro promettente contributo, qualunque sia la loro forma (linee guida, codici di condotta, memorandum d'intesa, risoluzioni ONU, ...), non si rivelano così efficaci come si potrebbe sperare. Tra i problemi sollevati, si evidenzia che il principale è che le *soft laws* spesso non vengono rispettate perché non c'è alcuna sanzione applicata a un attore che sceglie di aggirarle per qualsiasi motivo. Per fare un esempio concreto, viene citato il problema del rispetto delle linee guida IADC. Poi, si fa riferimento anche al problema dell'equilibrio costi-benefici nell'implementazione di norme autocostrittive, la difficoltà di concordare le stesse norme nel contesto di *blocchi storici* in competizione e di un numero crescente di attori spaziali (come abbiamo visto con il rifiuto del Codice di condotta dell'UE da parte di Cina e Russia ad esempio), e il problema dell'imprecisione del linguaggio nella formulazione delle disposizioni di *soft law*. Per questo motivo, in una seconda fase, l'attenzione è posta su altri due tipi di strumenti giuridici, anch'essi sempre più utilizzati a causa dell'attuale rivalità egemonica, ossia le normative spaziali nazionali e i principi spaziali internazionali che hanno potenzialmente acquisito una natura consuetudinaria, come quelli radicati nel Trattato sullo spazio extra-atmosferico. Tuttavia, si dimostra che, anche in questo caso, questi strumenti giuridici presentano dei limiti. Infatti, da un lato, per il primo tipo, si può affermare che le misure unilaterali faticano ad espandersi e ad essere adottate a livello internazionale. E anche se lo fanno, tali norme sono di fatto spesso modellate dalle

nazioni più potenti in ambito spaziale e sono quindi potenzialmente parziali e dannose per lo stesso perché tendono a favorire gli interessi economici. D'altra parte, viene sottolineato che la natura consuetudinaria dei principi spaziali internazionali è molto difficile da giustificare e quindi non è universalmente accettata, per cui non è possibile fare pieno affidamento su di essi per proteggere l'ambiente spaziale.