

# Developments that Could Create a Fragmented Space Law Regime

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## Abstract

Since its inception, space law has been governed by principles and rules established by governments and primarily applicable to government activities. Today we are experiencing policy changes to encourage private sector initiatives to carry out government missions and to expand potential profit-making opportunities. The space treaties allow for nongovernmental activities in space but only under the auspices of a nation. Each nation approaches legal solutions in their own way. These variations in national law may create challenges for all space-faring nations. If there are no international agreements, they may create a more fragmented, unpredictable, and unsustainable environment for all participants, both governments and private companies in outer space.

The fragmentation of international law is defined by the development of sets of rules pertaining to specific subject areas that may claim autonomy from principles of general international law. Those subject areas reflect the larger global issues that include the environment, energy, resource availability, migration, health, and the proliferation of weapons of mass destruction. Space law is unique and may be considered one of the fragmented areas of international law. The principles of the now 50-year old treaties have been formally acknowledged by all space-faring nations. New developments may threaten that.

At issue are many areas of space law including liability, property rights, and environmental harm. Different on-orbit space activities such as satellite servicing, exploiting resources, and removing debris highlight the types of space activities with many similar legal concerns but which may result in different rules in different nations and even for different rules within a nation. New and growing legal tensions among space-faring nations will arise.

Solutions to this problem are all suboptimal. Neither top-down oversight nor separate bottom-up rules or guidelines will suffice as stable, predictable, and long-lasting regimes that create a favorable legal environment for future public and private space exploration and use.

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## 1. INTRODUCTION

Space law has never been characterized by a uniform, predictable, precise or even unambiguous set of laws, rules, or regulations. International space law is predicated on a set of United Nations treaties that effectively establish broad principles. These principles have been recognized for over 50 years by space-faring nations as the foundation for national legislation, rulemaking and general state practice. Some authors have elevated some of these principles to the status of Customary International Law (CIL).

But, that is not an agreed upon result since the arguments focus much more on the acceptance of these principles through examples of state actions. The traditional two-prong approach to CIL of both state action and *opinio juris* has not been reached since there are both very few space law cases that have gone to court and fewer still that have been subject to judicial decisions reinforcing state actions.

Furthermore, unlike related treaties that also govern specialized areas of space-related international law, the space treaties, have been acceded to by many fewer nations. The Outer Space Treaty, the “master document” and the treaty that sets out most of the basic principles of space law, has been ratified or signed by only 2/3 (130 of the 193 U.N. nations). In comparison, the Convention of the International Telecommunications Union and the Convention of the International Civil Aviation Organization have virtually all of the U.N. nations as members.

Space law is therefore mostly hypothetical, relying on somewhat imperfect analogies to other high-technology industries and to speculation about future scenarios. Using these analogies to more developed legal regimes in aviation, maritime, nuclear and other sectors and relying on the set of national laws, diplomacy, and a common sense of equity and justice, interpretations of space law have been relatively non-controversial. And, the space sector has been lucky in that the few serious accidents that have occurred in space. These accidents have not involved major monetary, environmental, or economic damage.

Of course, this cannot continue indefinitely. One of these days there will be a major incident in space and if it involves:

- Assets belonging to at least two different nations, especially if at least one space asset is owned by a private enterprise,
- An important and valuable active satellite or space asset,
- A serious interruption of critical terrestrial services with high economic value, and
- It involves a threat to the safety of the space environment;

a point will be reached where current space treaty provisions and current space law may not be able to provide a clear or equitable resolution.

The question of fragmentation is that when we need to begin to fill in the lacunae in space law, will we create a special set of rules for space or will the current ties between space law and international law remain strong and supportable?

## **2. DEFINING FRAGMENTATION**

Unfortunately, there is no clear definition of what fragmentation in international law is. The literature discusses sets of special laws for particular international situations or industries. It also discusses fragmentation from the perspective of a self-contained legal regime independent of general international law.

And, most literature on the topic is clear that there have always been rules for situations that diverge from the mainstream of international law and that international law itself is not defined as a clear and consistent set of law.

Space law has developed its own set of special rules to deal with the unique aspects of outer space and the ultra-hazardous activities of some aspects of space activities such as the current state-of-the art launch vehicles that depend on extremely volatile chemical propulsion.

However, the U.N. treaties on space all are specifically coordinated with the provisions of the U.N. Charter and also with international law. For example, Article III of the Outer Space Treaty (OST) specifically ties that treaty to the U.N. Charter, and Article VIII considers matters of ownership subject to terrestrial law. Article XII of the Liability Convention also includes references to international law, justice and equity, when dealing with damages.

Space law, therefore, is not a set of laws isolated from general international law and should not be considered to be “fragmented law.” It establishes only a set of law tailored to the special circumstances of outer space.

## **3. SPECIAL CIRCUMSTANCES THAT APPLY MAINLY TO THE SPACE ENVIRONMENT**

Briefly, the treaties and laws for launching and working in space reflect the need for special consideration. Examples of these include:

Article II of the Outer Space Treaty that does not permit nations to declare sovereignty over celestial bodies in space. Parallels exist in the treatment of the international waters of the high seas and in most of Antarctica, but each location, space, oceans, and ice all have different risks and different operating requirements and limitations.

Weapons of mass destruction are prohibited to be placed in orbit or on the surface of the Moon or other celestial bodies. No similar general prohibitions exist on Earth.

Many important space activities such as telecommunications, GPS, and remote sensing are global and involve applications that are quickly becoming linked to the operations of essential terrestrial critical infrastructures.

Space objects may return to anywhere on Earth, either by design or by chance, creating risks not found in most other technologies.

#### **4. HIDDEN DANGERS**

The internal workings of national governments for defense, civil, and commercial space activities may encourage the establishment of different rules for almost identical government operations and private operations in space. Governments have been lenient in allowing their agencies to accomplish some critical or important nation programs that may involve granting waivers or exceptions to existing rules.

For example, although both the DOD and NASA have well-developed debris mitigation rules, waivers are granted due to the urgency of placing a satellite in orbit where the costs or time needed to meet stricter guidelines may be deemed too burdensome. This practice is not unusual and there are analogies exist in other high technology programs. In aviation, for instance, waivers granted to the Concorde to fly and also to land at the U.S. government owned and operated Dulles International Airport (now operated by local authorities) despite the sonic boom and other technological deviations from the existing Federal Aviation Regulations (FARs).

As we move forward toward more commercial space operations, extensions of the current regulations as well as newer strict rules will be imposed on some commercial activities in space, especially those concerning safety and operational matters. However, it remains to be seen if those rules are applied to companies in the same way that they are to government operations. An even more difficult question arises concerning similar enforcement when applied to commercial operations under government contracts and/or cooperative government/industry partnerships. It will also be important to monitor mechanisms that governments use to pass liabilities for space operations from commercial operators to insurance requirements and also how ultimate government indemnification for 3rd parties potentially harmed by space operations will be handled by legislation and regulations.

It is very possible that, even within nations, a dual regulatory system may evolve. One set of rules may apply to government programs, and another set of rules for commercial and private sector endeavors in space. The civil and criminal enforcement and penalties that governments already do and will continue to impose on private companies for the violation of license requirement will not be imposed on a government agency. And, this can easily happen for each operator executing the very same types of space activities.

This type of fragmentation is not necessarily an international law issue, but one of domestic interpretations of international responsibilities that may vary greatly among nations and within each nation.

## **5. LEGAL ISSUES**

The space treaties were drafted and designed for a different era, different political alignments, and different technologies than we have today. Thus, the need to adopt the space legal regime to meet today's needs will be essential. However this can and should be done within the principles developed in the language found in the existing treaties.

One such area is in space liability. The Liability Convention's rules for harm to 3rd parties needs to be expanded to also include a regime with possibly different rules for finding fault in the event of an accident in space between spacecraft of different nations. This is particularly important for commercial satellites and other space equipment either in orbit or on celestial bodies. The current interpretation of the treaty language that establishes unlimited, both in time and in money, liability to governments that are "launching states" needs to be further studied when applied to private assets. The treaties do not prohibit establishing limits on liability nor do they prevent nations from developing mutually acceptable other liability regimes. In fact, Article X it also sets a time limit after an accident occurs for a state to make a claim, and Article XXIII of the Liability Convention specifically allows nations to bilaterally or multilaterally make agreements outside of the Convention on matters supplementing or extending the Convention.

The Registration Convention is useful for providing information about what is placed in orbit, but is useless today for its initial purpose of preventing accidents in space. A detailed discussion of this is beyond this short essay, but the Registration Convention lacks a number of important requirements. These include, but are not limited to: a lack of a time constraint on states to report the launch to orbit of a space object, the lack of a required update on the movement(s), operating conditions, or ownership of a space object on the U.N. registry, a lack of a requirement or funds to investigate the veracity of the information reported to the U.N. by a state, and the delegation to the reporting state of what objects to include in the registry. Fortunately, today, nations are rapidly advancing their abilities to identify objects in space and the movements of those objects through their space situational awareness networks. This will help to prevent conjunctions and accidents in space. The U.N. registry's information may work to add to this more specific information about a space object in orbit to help designate the responsible state and authority within the state, should that become necessary.

As space becomes more crowded with human created satellites, assets, and debris, the risks of both avoiding collisions and of protecting these assets increases. The risk of intentional and unintentional harm in space also

increases. The provisions of the U.N. Charter are applicable in space law. Article 51 of the Charter dealing with the rights of self-defense can be difficult to interpret with respect to space. Nations can protect their own assets in space. Under Article VI of the OST, every asset in space must be the property of at least one nation and be internationally responsible for it. But, does a right of protection extend to anticipatory self-defense? What is a necessary and timely response in the space environment to a threat? These are only two of the many questions for which there is little precedent and there are no clear answers for space operations.

## **6. SPACE LAW AS A SPECIAL SET OF LAWS**

As mentioned above, unlike the laws of the high seas, today there is no possibility of a government abandoning its space objects with respect to liability, even after their useful life is over. Keeping in mind the principle that a state remains responsible for its national space activities and that does not elapse as long as assets are in space, consideration should be given to allowing a state to declare its space assets salvage. That possibility should only be allowed for a contractual transfer of responsibility and liability to another national entity at the request of the party desiring to use the abandoned asset. Note that this possibility could not be applied without a transferee, as that would leave an object in space without a state responsible for it and violate the principle established by Article VI of the OST. This will become of use only when technology develops to be able to remove or reuse parts of abandoned or defunct space equipment and repurpose them.

Launches are defined to be ultra-hazardous given the chemicals used for propulsion. But, launch risks are different from risks in outer space, which, although not negligible, are different. Activities in space may be risky and hazardous, yet not reach the level of danger or possible harm that would suggest a regime of strict liability. Over 60 years of space operations have proven that rules of the road and operational technologies and techniques can provide a relatively safe (i.e. not ultra-hazardous) environment. The fault liability for innocent victims of accidents in space established in the Liability Convention need to be more clearly defined under a clearly stated regime of negligence, due diligence, due regard that also applies directly to the parties involved in an accident.

Space is defined in Article II of the OST as a location without sovereignty. Space is clearly not one thing—it is a vast area of emptiness, orbits, planets, asteroids, and many other things. But even if these “things” are now owned by any one nation or, derivatively, by any individual or company, human ownership and associated property rights do exist for anything launched into space, manufactured in space, obtained in space (at least under United States Law). Can these rights be enforced to protect those assets, intellectual property and knowledge? Will these rules be different for governments than

private enterprises? Does/should the objective of operations in space (scientific exploration or profit-making activity) make any difference? How will these rights vary among nations?

The above paragraphs only identify some important questions that are clearly evolving with respect to space operations. The answers can, and eventually will be negotiated among the nations of the world. Can this be done within the current treaty language and without a fragmented system of space law? The world has the tools to do this, what are currently missing are the immediate need and therefore the political will. Unlike most terrestrial issues, space is unique and it is imperative that a system is in place before the need exists. If that need for legal coherence in space appears, it may be too late to avoid irreparable damage to both the environment of space and the important uses of space applications terrestrially.

## **7. WILL SPACE LAW BECOME MORE FRAGMENTED?**

This is unlikely, but, as discussed above, special rules will apply. It is also likely that new rules will follow existing analogies that are used in other international legal regimes:

For commercial practice in space, it will also be essential to develop adequate dispute resolution regimes. Some industries and activities such as international trade through the WTO have their own rules and regulations for dispute resolutions. The space sector may need to develop a similar system, or, at the very least, clearly adopt new systems that go well beyond the current space treaty response to have governments negotiate the disputes. That has worked reasonably well for many years as governments owned all space assets. But it is inadequate for the future with significant privately owned assets operating in space.

## **8. CONCLUSION**

The space treaties are not a barrier to a revised legal space regime that deals with issues of space commerce and new space capabilities.

The clear intent of the treaties is to provide principles for the human use of space. They are also explicit in allowing for change over time.

The benefits of 50 years of a relatively stable and uncontroversial space law regime established by the set of U.N. treaties are very clear. But the costs today and in the future of treaties designed for a different set of conditions are also clear. If we don't allow for a measured and responsible review of some of those provisions will become a serious problem.

It is time to invoke the treaty clauses that clearly call for changes in interpretation at the appropriate time. This does not mean that space law should be fragmented or special. It only is a call for the acknowledgement that times have changed and will continue to evolve. The principles outlined

in the treaties remain. What needs to be done is to develop new ways of meeting these new conditions and to allow for future realities as space technology advances and private entities expand their capabilities in space. These exciting future capabilities also demand different approaches to the risks that inevitably will follow.