



# On the settlement of space- and international telecommunications-related disputes<sup>☆</sup>

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## ABSTRACT

This paper aims to describe and assess the dispute settlement mechanisms available to States in the context of space and telecommunications activities. Disputes either between private actors or between private actors and States are beyond the scope of this research. The choice to examine mechanisms and procedures for the settlement of international disputes in these specific areas stems from an elective affinity between these sectors, given the existing interaction between them. At a first level, the paper highlights the importance of mechanisms to prevent the creation of international disputes, both in the field of space law (mainly through Art. IX of the Outer Space Treaty) and in the field of international telecommunications (Arts. 45 para. 3, 48 of the ITU Constitution). Further, the general scheme of peaceful settlement of international disputes, as enshrined in the UN Charter not only applies to the disputes in question but is further specified in the context of space and telecommunications law (Liability Convention, Art. 56 of the ITU Constitution), with a clear orientation towards the use of diplomatic rather than judicial means of resolution. Last but not least, if the settlement of disputes through diplomatic means fails, the preferred judicial mechanism is that of arbitration, as it is clearly demonstrated by the Claims Commission of Art. XIV LIAB, the PCA “Optional Rules for Arbitration” of space disputes, the mechanism of Art. 41 of the ITU Convention as well as the relevant “Optional Protocol”. The specific options for dispute settlement show that, in view of the common interest of States in “international goods” of a technical nature, the actors involved are mainly interested in the non-occurrence of disputes rather than in their resolution through judicial means. And when they do so, they choose to resort to flexible resolution mechanisms (arbitration) rather than to ordinary international courts.

## 1. Introduction

This paper examines the international legal framework of dispute settlement in space-related and international telecommunications activities. It should be clarified, from the outset, that only inter-State disputes are within the scope of this paper, while a dispute is defined, according to long-standing international jurisprudence, as « ... a disagreement on a point of law or fact, a conflict of legal views or of interests between two persons” [1] or, in other words, a “present divergence of interests and opposition of legal views” [2]. However, as will be shown below, the private sector is constantly increasing its presence in space and telecommunications activities, which has resulted in the emergence of disputes either between private actors or between such actors and States. In this latter case, and in the absence of an *ad hoc* dispute settlement mechanism, like the ICSID [3], private claimants will either act against foreign governments before a (competent) domestic

court or seek to upgrade their dispute to State-to-State, through the traditional mechanism of diplomatic protection [4]. In this context, there is indeed an interesting practice of dispute resolution between States and private entities in relation, *inter alia*, to the purchase and transfer of satellites in orbit, the lease of a satellite’s transponder capacity, the right to use frequencies in a given orbital slot or the revocation/cancellation of allocated frequency spectrum [5]. Be that as it may, however, disputes of this category are beyond the scope of this article.

The choice to examine mechanisms and procedures for the settlement of international disputes in these specific areas of human activity – space activities, telecommunications – was not made by chance but stems from an elective affinity between these sectors. Although these activities are clearly distinct, there is in practice an increased interaction between them. However, before highlighting this interrelationship, it is appropriate to briefly describe the activities in question (Part 2,

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Introductory section).

The scope of this paper is to describe and assess the dispute settlement mechanisms available to States in the fields of space and telecommunications. This approach will, first, highlight the importance, for relations between States in the context of these activities, of mechanisms directed primarily at preventing rather than resolving international disputes (Part 3). In the event of failure of such preventive mechanisms, the current institutional framework provides, as a first step, for the activation of diplomatic means of resolution (Part 4). Finally, if diplomacy fails to provide appropriate solutions, the way is opened, at a second level, for an attempt of settlement through arbitral institutions (Part 5).

## 2. Introductory section: outer space and international telecommunications: Affinities and layers of activities

### 2.1. The space domain

Human activity in space dates back to October 4, 1957, when the Soviet Union launched the first ever artificial satellite, Sputnik 1, into an elliptical low Earth orbit. Space law, as a branch of international law, grew rapidly during the Cold War, following the harsh US-USSR competition for dominance in the space area. At present, given that the last international space treaty adopted dates to 1979 [6], it may rightly be contended that space law still reflects the international relations of the Cold War Era. Space law is still governed by principles on the basis of which one can trace the concern of the two former superpowers not to allow each other to gain a military or, in general, strategic advantage in the space domain.

Said principles are contained in the 1967 “Outer Space Treaty” [7] and are mainly the following: Freedom of exploration and use of outer space (which constitutes a “province of all mankind”) by all States without discrimination; Non-appropriation of outer space; Applicability of international law in the outer space domain; Use of the Moon and other celestial bodies exclusively for peaceful purposes; Rescue and return of astronauts in distress (“envoys of mankind”); Establishment of State responsibility with respect to national activities, whether such activities are carried on by governmental agencies or by non-governmental entities; State liability for damages caused by space objects; Preservation of the Earth and the outer space environment.

Some of these principles have been further developed through subsequent international instruments, such as:

- The 1968 “Rescue and Return Agreement” [8];
- The 1972 “Liability Convention” [9];
- The 1975 “Registration Convention” [10]; and
- The 1979 “Moon Agreement” [11].

### 2.2. The telecommunications domain

On the other hand, the international regulation of telecommunications - as well as of its specific form, radiocommunications [12], - is mainly carried out through the International Telecommunications Union (ITU).

The ITU is the United Nations specialized agency whose main purpose is “to maintain and extend international cooperation among all its Member States for the improvement and rational use of telecommunications of all kinds” [13]. Said organization was founded in 1865, as the International Telegraph Union. At present, ITU allocates the global radio spectrum [14] as well as satellite orbits, monitors and facilitates the continuous development of technology in the field of telecommunications and seeks to improve worldwide access to information and communication technologies (ICTs).

ITU has three Sectors: Radiocommunication (ITU-R), Telecommunication Standardization (ITU-T) and Telecommunication Development (ITU-D). In particular, the ITU Radiocommunication Sector (ITU-R)

ensures “the rational, equitable, efficient and economical use of the radio-frequency spectrum” [15] to all radiocommunication services, including those using satellite orbits. A growing number of services important to our daily lives depend on the work of ITU-R: fixed, mobile, or emergency telecommunications, broadcasting, space research, meteorology, global positioning systems, environmental monitoring and communication services [16].

### 2.3. The interaction between space and telecommunications domains

The advent of space activities in 1957 gave the world of telecommunications a promising new field of activity. Today, half a century after the first Sputnik orbited the Earth, space-based telecommunications constitute a widespread commercial industry [17]. A great number of satellites providing broadcasting, mobile, and fixed satellite communications are nowadays placed in geostationary orbit (GEO) [18], which means that orbiting satellites serve, in many instances, as telecommunications hubs.

On the other hand, space activities in orbit cannot take place effectively without the efficient, interference-free use of radio frequencies [19]. Furthermore, the allocation of orbital positions to space users, in particular regarding the geostationary orbit (which has unique characteristics), is carried out in such a way as to avoid harmful interference to satellite communications and to ensure that all users are served, given the finite number of available orbital positions. Avoiding harmful interference constitutes an international obligation for the States members of the ITU, according to Article 45 of the ITU Constitution [20].

This elective affinity between telecommunications and space activities is optimally reflected in Article 44 para. 2 of the ITU Constitution (“Use of the Radio-Frequency Spectrum and of the Geostationary-Satellite and Other Satellite Orbits”), which provides that “radio frequencies and any associated orbits, including the geostationary-satellite orbit, are limited natural resources ... that they must be used rationally, efficiently and economically” and that States “may have equitable access to those orbits and frequencies”.

The problem of harmful interference [21] is expected to intensify in the coming years, given the increasing number of space users and the strong emergence of the private sector in the context of space activities. Most harmful interference cases are usually resolved by bilateral contacts between the satellite operators involved, however, it is possible that the settlement of such an incident will require State intervention and thus may become an international dispute. It should be noted that, if requested, the assistance of the ITU’s Radiocommunication Bureau (BR) to settle the case is also available [22].

### 2.4. Does the evolution and proliferation of activities imply a greater need for effective dispute resolution mechanisms?

At present, the landscape in space is not the same as it was in the 1960s. Although space exploration does not seem to have advanced in line with humanity’s early expectations, nevertheless space activities are critical for our everyday life. Remote sensing applications have radically affected important fields of activity such as mapping, meteorology, hydrology, or disaster management. At the crossroads of space and telecommunications, telecommunication satellites, GPS systems as well as satellite broadcasting provide people all over the world with interconnection possibilities which, until recently, were unthinkable. Furthermore, the increasing involvement of the private sector in space activities brings new challenges, such as space tourism or space resource utilization. Examples are the company Space X, which has been delivering cargo to the International Space Station since 2012, or Blue Origin, the space tourism company owned by Amazon founder Jeff Bezos, which has announced plans to launch a commercial space station [23].

After all, the strength of the space economy is illustrated in the following statistics: The global turnover (of the space economy) has

risen from 216,6 billion US\$ in 2009 to 446,88 billion US\$ in 2020. For the same year, the revenue of the global satellite industry amounted to 271 billion US\$ [24]. It is characteristic of the current state of affairs that the most important sector in the global space economy in 2020 was the commercial space products and services, accounting for almost 50% of the total turnover [25].

Accordingly, the world of telecommunications is also steadily evolving and becoming more and more complex, given the cataclysmic developments in the so-called information and communications technologies (ICTs). Furthermore, access to the Internet is a prominent objective in the context of the Agenda for Sustainable Development: Target 9. c, of the Sustainable Development Goal No. 9 (Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation) urges to “Significantly increase access to information and communications technology and strive to provide universal and affordable access to the Internet in least developed countries by 2020”. However, as the ITU highlights [26], almost half of the world’s population over the age of 10 has never used the Internet, so efforts need to be stepped up, both at international and national level. It is not surprising then that the recently adopted Kigali Declaration, in the context of the eighth World Telecommunication Development Conference (WTDC-22) of the ITU (6–16 June 2022, Kigali, Rwanda), emphatically urged to “accelerat [e] the expansion and use of efficient and up-to-date digital infrastructures, services and applications for building and further developing the digital economy, including mobilization of financial resources for providing universal, secure and affordable broadband connectivity to the unconnected as soon as possible” [27].

A first consideration, on the basis of the above, would be that the continuous expansion and proliferation of space and telecommunications activities will exacerbate frictions between States at the international level, so that most international disputes will arise in these areas. However, given the highly technical nature of these domains, as well as the relevant existing experience to this day, such a conclusion cannot be validly drawn until the end of this research.

### 3. Preventive mechanisms: prevention is better than cure

#### 3.1. In the context of space law

In the context of space law, a number of mechanisms exist aiming to reduce tensions in inter-State relations in the context of the exploration and use of outer space and to avoid the emergence of international disputes. The existence of such mechanisms is justified by the broader philosophy of international space law, at least as it took shape in the 60s and the 70s and is still in force today, grounded on the absence of State sovereignty in outer space [28] and the promotion of international cooperation. The first paragraph of Article IX of the 1967 Outer Space Treaty perfectly reflects this spirit, since it states that, in the exploration and use of outer space, including the Moon and other celestial bodies, States “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* (emphasis added)” [29]. In this context, Article IX lays down the obligation, for the States Parties to the Treaty, to undertake “appropriate international consultations”, before proceeding with any activity or experiment “in the peaceful exploration and use of outer space” that would cause potentially harmful interference with activities of other States Parties [30]. It could, however, be argued that the obligation thus created is weakened by the fact that the assessment of a potential harmful effect is left to the State acting (“has reason to believe”). But even so, this provision introduces an important mechanism to mitigate potential sources of controversy between States when they operate in outer space. And further, the importance of the provision is reinforced by the fact that Article 9, *in fine*, provides a corresponding right for a State which would consider that an activity of another State in outer space “would cause potentially

harmful interference” with its activities, to “request consultation”.

The same rationale seems to be behind Article XII of the same treaty, which provides for a right, of “representatives of other States Parties”, to visit stations, installations, equipment and space vehicles on the Moon and other celestial bodies, “on the basis of reciprocity”. Such a visit also requires “appropriate consultations” and “maximum precautions”, to “assure safety and to avoid interference with normal operations in the facility to be visited”. For this reason, a “reasonable advance notice of a projected visit” is required [31].

A similar mechanism is established under Article 5 para. 2 of the 1979 Moon Agreement: In case of simultaneous activities of States on the Moon (in the same area of or in the same orbit around or trajectory to or around the moon), the State that “becomes aware” of this situation “shall promptly inform the other State of the timing of and plans for its own operations”.

The relatively few incidents in international practice clearly show that States are in favour of preventive procedures, at least as far as space activities are concerned: After the 2009 Iridium 33 – Cosmos 2251 in-orbit collision, the U.S. military has developed procedures to screen, on a daily basis, any close approaches between satellites in orbit around the Earth and warn satellite operators of the possibility of collision [32]. Also, before the destruction of the malfunctioning USA-193 satellite with an anti-satellite missile, in 2008, the U.S Department of Defense had publicly announced and justified the operation. However, this has not been the case in other cases where anti-satellite weapons have been used.

#### 3.2. In the context of international telecommunications law

In the context of international telecommunications, Article 45 para. 3 of the ITU Constitution, dealing with harmful interference, provides for a similar obligation to prevent, given that Member States “recognize the necessity of taking all practicable steps to *prevent the operation of electrical apparatus and installations of all kinds from causing harmful interference to the radio services or communications ...*” (emphasis added). The importance of this obligation is further underlined by the provisions of Article 48 (ITU Constitution), concerning installations for National Defense Services. Although States “retain their entire freedom with regard to military radio installations” (Article 48 para. 1), nevertheless, said installations must, so far as possible, observe statutory provisions relative to *... the measures to be taken to prevent harmful interference ...*” (emphasis added, Article 48 para. 2).

In the light of the aforementioned, it can be argued that, in the context of the relevant applicable international law, there is a tendency to prevent the creation of international disputes, through diplomatic mechanisms (“appropriate international consultations”) as well as through unilateral preventive measures. The - relatively few - major incidents that have occurred in space have indeed not developed into legal disputes [33]. This tendency can be justified in the light of the highly technical nature of the activities concerned (in particular: placing and operating artificial satellites in orbit, avoiding harmful interference with international telecommunications, mitigation of space debris), activities in respect of which all States have a legitimate interest. It is obviously not by chance that the ITU Constitution, in its Preamble, highlights “the growing importance of telecommunication for the preservation of peace and the economic and social development of all States”. Article I para. 2 of the 1967 Outer Space Treaty accordingly provides that “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*” (emphasis added).

This is a community of interests in respect of fundamental “international goods”, of a highly technical nature (uninterrupted operation of satellites in orbit, absence of harmful interference to communications), for the effective protection of which the international space and

telecommunications community as a whole attaches particular importance to the non-creation of international disputes rather than to their resolution. This also explains the relevant inexistence of State-to-State (space or telecommunications) disputes to be resolved, which is discussed elsewhere in this paper.

As far as international space relations are concerned, at least, the above approach may change in the future, in relation to emerging space activities: for instance, the prospect of space resource utilization (and exploitation) is already tempting some States to unilateral approaches and alternative interpretations of Article 2 of the OST, which enshrines the principle of non-appropriation. However, this is a discussion for the future.

#### 4. Extra-judicial mechanisms: It is all about diplomacy

##### 4.1. Mechanisms under general international law

As a first remark: International law is applicable to space activities, pursuant Article III of the Outer Space Treaty. Said provision prescribes that “States Parties to the Treaty shall carry on activities in the exploration and use of outer space, including the Moon and other celestial bodies, in accordance with international law, including the Charter of the United Nations, in the interest of maintaining international peace and security and promoting international cooperation and understanding”. The applicability of international law in outer space brings to the forefront of space activities the obligation of peaceful settlement of international disputes, as contained in Article 2 para. 3 of the UN Charter [34], as well as the whole of Chapter VI, which is devoted to the peaceful settlement of international disputes [35]. The Charter further imposes on (Member) States to “refrain in their international relations from the threat or use of force against the territorial integrity or political independence of any State” (Article 2 para. 4).

Within the framework of Chapter VI, Article 33 indicates specific means of extrajudicial settlement, such as negotiation, enquiry, mediation, conciliation, or a resolution through international judicial institutions (arbitration, judicial settlement - mainly through recourse to the International Court of Justice). It is worth mentioning that, in the context of the peaceful settlement as prescribed by Chapter VI, the Security Council has a recommendatory role: it can “call upon the parties to settle their dispute by [peaceful] means” [36]; “recommend appropriate procedures or methods of adjustment” [37]; or “recommend such terms of settlement as it may consider appropriate”, in case that it “deems that the continuance of the dispute is in fact likely to endanger the maintenance of international peace and security” [38].

The same should be regarded as valid with regard to international differences in the telecommunications sector, although the reference to international law and the UN Charter is not as clear as in the context of the Outer Space Treaty. However, the Preamble to the ITU Constitution clearly mentions “the growing importance of telecommunication for the preservation of peace and the economic and social development of all States”. According to Article 1 of the ITU Constitution, among the purposes of the Organization is “to promote the use of telecommunication services with the objective of facilitating peaceful relations” [39]. Furthermore, Article 56 para. 1 of the ITU Constitution, dealing with “Settlement of Disputes”, provides that “Member States may settle their disputes on questions relating to the interpretation or application of this Constitution, of the Convention or of the Administrative Regulations by negotiation, through diplomatic channels, or according to procedures established by bilateral or multilateral treaties concluded between them for the settlement of international disputes, or by any other method mutually agreed upon” This provision clearly refers to the peaceful mechanisms for the settlement of international disputes provided for in Chapter VI of the UN Charter [40].

Although directly applicable to space and telecommunications disputes, the general scheme of peaceful settlement of international disputes, as enshrined in the UN Charter, is further specified, and confirmed

in the context of space and telecommunications law, with a clear orientation towards the use of diplomatic rather than judicial means of resolution.

##### 4.2. Ad hoc mechanisms

###### 4.2.1. In the context of space law

Further, international space law provides for some specific means of dispute settlement:

In case of damage caused by space objects, international disputes between States parties to the Liability Convention must be settled through diplomatic negotiations. This is an obligation prescribed by Article IX LIAB, pursuant which “a claim for compensation for damage shall be presented to a launching State through diplomatic channels”. Same provision also provides that if a State does not maintain diplomatic relations with the launching State concerned, it may request another State to present its claim to that launching State or otherwise represent its interests under the Convention. It is also possible for the claim to be presented through the Secretary-General of the United Nations, provided of course that both States are members of the UN [41].

It is of interest to note that the procedure for presenting a claim under Article IX “shall not require the prior exhaustion of any local remedies which may be available to a claimant State or to natural or juridical persons it represents” (Article XI para. 1). Furthermore, a State or the natural or juridical persons it might represent are not prevented “from pursuing a claim in the courts or administrative tribunals or agencies of a launching State” (Article XI para. 2). It is therefore concluded that: 1) the exhaustion of domestic remedies is not a prerequisite for the initiation of the proceedings prescribed in Article IX; 2) in order to satisfy their claim, the requesting States also have at their disposal the possibility to pursue it within a domestic legal order (obviously of the State against which the claim is directed); and 3) insofar as the claim in question concerns natural or legal persons (not the States *per se*), such persons are entitled to have recourse to domestic judicial mechanisms in order to pursue their claim. At the same time, it is important to stress that the persons in question may see their claims raised at the international level through the mechanism provided here. However, the Convention does not allow States to use this mechanism if the claim has already been brought before a judicial mechanism under national law; or if it “is being pursued ... under another international agreement which is binding on the States concerned (Article XI para. 2). Such an agreement could be the PCA Optional Rules, which are presented below.

###### 4.2.2. In the context of telecommunications

Now as regards telecommunications, a specific dispute settlement procedure is provided in the context of the ITU: under Article 56 of the ITU Constitution, any dispute between member States “on questions relating to the interpretation or application of [the ITU] Constitution, of the Convention or of the Administrative Regulations” may be settled “by negotiation, through diplomatic channels, or according to procedures established by bilateral or multilateral treaties concluded between them for the settlement of international disputes, or by any other method mutually agreed upon” [42]. If this extrajudicial mechanism is not chosen by the States parties to the dispute, then any Member State [party to a dispute] “may have recourse to arbitration in accordance with the procedure defined in the Convention” [43].

- Settlement of harmful interference issues through State cooperation. The role of the ITU Radiocommunication Bureau [44]: Article 15 of the ITU Radio Regulations urges States to cooperate to settle cases of harmful interference: Para. 14 (15.22) of said article urges States members to “exercise the utmost goodwill and mutual assistance” with respect “to the settlement of problems of harmful interference. In the following paragraphs, reference is mainly made to Section VI of said article (“Procedure in a case of harmful interference”).

The obligation to cooperate emanates from paragraph 17 (15.25), pursuant which “Administrations shall cooperate in the detection and elimination of harmful interference, employing where appropriate the facilities described in Article 16 and the procedures detailed in this Section”. However, “If the harmful interference persists in spite of the action taken”, then “the administration having jurisdiction over the transmitting station whose service is being interfered with may address to the administration having jurisdiction over the interfering station a report of irregularity or infraction in accordance with the provisions of Section V” [45] (para 31, 15.39).

If cooperation fails to resolve the dispute, this may be further sought through the intervention of the ITU Radiocommunication Bureau. In this respect, para. 33 (1) (15.41) provides that the administration concerned, “if it is considered necessary, and particularly if the steps taken in accordance with the procedures described above have not produced satisfactory results ... shall forward details of the case to the Bureau for its information”. In this case, said administration “may also request the Bureau to act in accordance with the provisions of Section I of Article 13” [para 33 (2), 15.42] [46].

Article 13, Section I lays down the framework under which the Bureau shall provide assistance to administrations. In the case of harmful interference, the Bureau “shall, as appropriate, help in identifying the source of the interference and seek the cooperation of the responsible administration in order to resolve the matter”; it will further “prepare a report for consideration by the Board, including draft recommendations to the administrations concerned” (13.2). The “Board” mentioned here is the ITU Radio Regulations Board, which consists of elected members thoroughly qualified in the field of radiocommunications and possessing practical experience in the assignment and utilization of frequencies [47]. The Board deals, *inter alia*, with “the performance of ... duties, concerned with the assignment and utilization of frequencies” [48]. The role of the Board outlined here is grounded in Article 10 of the ITU Convention, which provides that:

“... the Board shall:

- 1) consider reports from the Director of the Radiocommunication Bureau on investigations of harmful interference carried out at the request of one or more of the interested administrations, and formulate recommendations with respect thereto;
- 2) also, independently of the Radiocommunication Bureau, at the request of one or more of the interested administrations, consider appeals against decisions made by the Radiocommunication Bureau regarding frequency assignments”.

Further in the context of Article 13 Section I, the Bureau, “when an administration so requests”, shall conduct a study of reported cases of alleged contravention or non-observance of the Radio Regulations and shall prepare a report for consideration by the Board, including draft recommendations to the administrations concerned (13.3).

Finally, in the specific case that an administration “has difficulty in identifying a source of harmful interference in the HF bands and urgently wishes to seek the assistance of the Bureau”, it shall promptly inform the Bureau [article 15, para. 34 (1), 15.43]. On receipt of this information, the Bureau “shall immediately request the cooperation of appropriate administrations ... that may be able to help in identifying the source of harmful interference” [Article 15, para. 34 (2), 15.44]. In the following, the Bureau shall consolidate all reports received in response to such requests and, “using such other information as it has available, shall promptly attempt to identify the source of harmful interference” [Article 15, para. 34 (3), 15.45]. Then, it shall forward its conclusions and recommendations to the administration reporting the case of harmful interference. These shall also be forwarded to the administration believed to be responsible for the source of harmful interference, together with a request for prompt action [Article 15, para. 34 (4), 15.46].

It follows from the above developments that, regarding the damage

caused by space objects, the Liability Convention calls, in principle, for a settlement through diplomatic mechanisms. Interestingly, this procedure does not require prior exhaustion of any available domestic remedies. However, the same procedure will not be available if satisfaction of the relevant claim is already being pursued through other mechanisms, judicial or otherwise. In other words, the principle *non bis in idem* applies.

However, this procedure has its shortcomings since it is applicable only in the context of the Liability Convention. That is, it only covers claims arising from damage caused by space objects, whether on the surface of the Earth or to aircraft in flight, or in outer space, against another space object, and only for those States which are parties to that Convention. Regarding other claims, or for claims similar to those above, but made by States non-parties to the Convention, the mechanisms for the peaceful settlement of disputes under general international law, as already outlined, will be available.

A similar dispute settlement mechanism is essentially provided for disputes arising in relation to the so-called ITU Law (Constitution, Convention, Administrative Regulations) and in relation to the detection and elimination of harmful interference. If said mechanism, as far as interference issues are concerned, does not work, the Radiocommunications Bureau may intervene; it may further report to the Radio Regulations Board. It should be noted, however, that the Bureau’s role is purely recommendatory since it goes as far as issuing ‘draft recommendations’. However, the intervention of these ITU bodies, despite its non-binding nature, constitutes a form of mediation, provided by the ITU, which can obviously increase the chances for settlement.

## 5. Judicial mechanisms: It’s all about arbitration (although, much ado about nothing)

### 5.1. Space claims under the Liability Convention: The Claims Commission (article XIV LIAB)

In the event of failure to settle a claim by diplomatic means in accordance with Article IX LIAB, the States concerned “shall establish a Claims Commission at the request of either party”, according to Article XIV. Obviously, the creation of this commission is not of a mandatory character since it requires a request by one of the parties. The time-limit laid down for the conduct of the negotiations is “one year from the date on which the claimant State notifies the launching State that it has submitted the documentation of its claim”. Said Commission is, in essence, an arbitral tribunal, since, according to Article XV para. 1 LIAB, “shall be composed of three members”, among which one member is appointed by the claimant State, one is appointed by the launching State and the third member, who shall be the Chairman of the Commission, will be nominated by both parties. Same provision sets a two-month deadline,” of the request for the establishment of the Claims Commission”, for the appointment of the two members by the States. If no agreement can be reached on the choice of the Chairman, Article XV para. 2 allows each State to request, within a period of four months, “the Secretary-General of the United Nations to appoint the Chairman within a further period of two months”.

The Claims Commission shall decide the merits of the claim for compensation and determine the amount of compensation payable, if any [49], and shall act in accordance with the provisions of article XII, that is, “... in accordance with international law and the principles of justice and equity” [50].

The Commission delivers either a decision or an award. Both are final, however only a decision will have binding effect - “if the parties have so agreed”. In case the Commission gives an award, this will be recommendatory in nature and will be considered by the parties “in good faith” [51]. The relevant decision or award must be delivered “as promptly as possible and no later than one year from the date of” the establishment of the Commission, “unless an extension of this period is found necessary by” it [52]. The Commission shall state the reasons for

its decision or award, which shall be made public [53].

It should be noted that, in the case of the fall of the Soviet satellite “Cosmos 954” on Canadian territory, Canada effectively initiated a claim for compensation based on Article IX, through a diplomatic note, although, in the end, the settlement of the dispute did not take place through the application of the mechanism provided for in the Liability Convention, but rather through an agreement between the States involved [54].

### 5.2. The “Optional Rules for Arbitration of disputes relating to outer space activities” [55]

These rules were adopted by the Permanent Court of Arbitration on December 6, 2011 and are based on the 2010 UNCITRAL Arbitration Rules [56], so adapted as to “reflect the particular characteristics of disputes having an outer space component involving the use of outer space by States, international organizations and private entities” as well as to “reflect the public international law element that pertains to disputes that may involve States and the use of outer space, and international practice appropriate to such disputes” [57]. They are equally applicable to “non-space” disputes if the parties so wish [58].

Article 1 para. 2 of these Rules provides for a waiver of immunity from jurisdiction, “in respect of the dispute in question, to which such party might otherwise be entitled”. However, that waiver shall not extend to the execution of an arbitral award, in respect of which there must be express consent of the parties involved [59].

The arbitral tribunal to be established under these rules may make separate awards on different issues at different times. All awards shall be made in writing and shall be final and binding on the parties, which are bound to implement all awards without delay. The arbitral tribunal shall state the reasons upon which the award is based, unless the parties have agreed that no reasons are to be given [60].

The Optional Rules shall also apply to disputes involving international organizations, and private parties; they may be further used in relation to disputes between two or more States parties to a multilateral agreement relating to the use of or access to outer space concerning the interpretation or application of that agreement [61].

Finally, it should be noted that these rules include, as an annex, a model clause that parties may consider inserting in treaties or other agreements to provide for arbitration of future disputes, and a model clause for arbitration of existing disputes is also provided.

### 5.3. The arbitration procedure of article 41 of the ITU convention

As previously stated, if the extrajudicial settlement mechanism prescribed in Article 56 of the ITU Constitution is not chosen by the States parties to the dispute, then any Member State [party to a dispute] “may have recourse to arbitration in accordance with the procedure defined in the Convention” [62]. This “procedure” is prescribed in Article 41 of the Convention, which essentially provides for an internal, *ad hoc* arbitration mechanism within the framework of the ITU:

ITU CONVENTION.

ARTICLE 41.

Arbitration: Procedure.

(see Article 56 of the Constitution).

- 1 The party which appeals to arbitration shall initiate the arbitration procedure by transmitting to the other party to the dispute a notice of the submission of the dispute to arbitration.
- 2 The parties shall decide by agreement whether the arbitration is to be entrusted to individuals, administrations or governments. If within one month after notice of submission of the dispute to arbitration, the parties have been unable to agree upon this point, the arbitration shall be entrusted to governments. [509]

- 3 If arbitration is to be entrusted to individuals, the arbitrators must neither be nationals of a State party to the dispute, nor have their domicile in the States parties to the dispute, nor be employed in their service. [510]
- 4 If arbitration is to be entrusted to governments, or to administrations thereof, these must be chosen from among the Member States which are not involved in the dispute, but which are parties to the agreement, the application of which caused the dispute. [511]
- 5 Within three months from the date of receipt of the notification of the submission of the dispute to arbitration, each of the two parties to the dispute shall appoint an arbitrator.
- 6 If more than two parties are involved in the dispute, an arbitrator shall be appointed in accordance with the procedure set forth in Nos. 510 and 511 above, by each of the two groups of parties having a common position in the dispute.
- 7 The two arbitrators thus appointed shall choose a third arbitrator who, if the first two arbitrators are individuals and not governments or administrations, must fulfil the conditions indicated in No. 509 above, and in addition must not be of the same nationality as either of the other two arbitrators. Failing an agreement between the two arbitrators as to the choice of a third arbitrator, each of these two arbitrators shall nominate a third arbitrator who is in no way concerned in the dispute. The Secretary-General shall then draw lots in order to select the third arbitrator.
- 8 The parties to the dispute may agree to have their dispute settled by a single arbitrator appointed by agreement; or alternatively, each party may nominate an arbitrator, and request the Secretary-General to draw lots to decide which of the persons so nominated is to act as the single arbitrator.
- 9 The arbitrator or arbitrators shall be free to decide upon the venue and the rules of procedure to be applied to the arbitration.
- 10 The decision of the single arbitrator shall be final and binding upon the parties to the dispute. If the arbitration is entrusted to more than one arbitrator, the decision made by the majority vote of the arbitrators shall be final and binding upon the parties.
- 11 Each party shall bear the expense it has incurred in the investigation and presentation of the arbitration. The costs of arbitration other than those incurred by the parties themselves shall be divided equally between the parties to the dispute.
- 12 The Union shall furnish all information relating to the dispute which the arbitrator or arbitrators may need. If the parties to the dispute so agree, the decision of the arbitrator or arbitrators shall be communicated to the Secretary-General for future reference purposes.

It is further noted that the ITU also provides an alternative dispute settlement route, of a binding character, through an “Optional Protocol on the Compulsory Settlement of Disputes Relating to this Constitution, to the Convention, and to the Administrative Regulations”, which “shall be applicable as between Member States parties to that Protocol” [63].

### 5.4. The Optional Protocol (on the Compulsory Settlement of Disputes Relating to the constitution of the International Telecommunication Union, to the convention of the International Telecommunication Union and to the Administrative Regulations) [64]

Said protocol, although optional, provides for compulsory settlement of disputes, through arbitration. Pursuant (its) Article 1, “unless one of the methods of settlement listed in Article 56 of the Constitution has been chosen by common agreement, disputes concerning the interpretation or application of the Constitution, the Convention or the Administrative Regulations mentioned in Article 4 of the Constitution shall, at the request of one of the parties to the dispute, be submitted for compulsory arbitration (emphasis added). The compulsory nature of the arbitration procedure is instituted through an amendment to Article 41

para. 5 of the ITU Convention, which, in the context of the Protocol, reads as follows (The addition to the original text of paragraph 5 is in italics):

“5. Within three months from the date of receipt of the notification of the submission of the dispute to arbitration, each of the two parties to the dispute shall appoint an arbitrator. *If one of the parties has not appointed an arbitrator within this time-limit, this appointment shall be made, at the request of the other party, by the Secretary-General who shall act in accordance with Nos. 509 and 510 of the Convention.*”

Thus, the arbitration procedure becomes mandatory for those States which adhere to this Protocol. At present (September 30, 2022), 64 States have ratified, accepted, approved (or acceded to) the Optional Protocol on the Compulsory Settlement of Disputes relating to the Constitution, to the Convention and to the Administrative Regulations (Geneva, 1992) [65].

##### 5.5. Arbitration mechanisms are here to stay - but where are the cases?

Despite the existence of the aforementioned mechanisms, there is practically no relevant international jurisprudence. The following are incidents in which there was confrontation between States, of varying intensity, and which could potentially have developed into international disputes, in which the States involved would have sought a settlement in accordance with the mechanisms provided for in international and space law.

The most significant such dispute to date is that between Canada and the Soviet Union, in relation to the disintegration of the Soviet satellite “Cosmos 954” over the territory of Canada in 1978. Said satellite, which had been in orbit since September 1977, experienced a sudden decompression issue, re-entered the atmosphere and finally crashed on Canadian soil scattering radioactive remains over a large area (Northwest Territories). Canada claimed compensation for injuries with respect to the operations undertaken by the competent authorities “directed at locating, recovering, removing and testing the debris and cleaning up the affected areas” [66]. It is of interest to note that Canada has based its claims for reparation “jointly and separately on (a) the relevant international agreements and in particular the 1972 Convention on International Liability for Damage caused by Space Objects, ...and (b) general principles of international law” [67]. This case was not taken to court by the parties as it was resolved by an extrajudicial agreement between them, in April 1981, when the Soviet Union paid to Canada CAN\$ 3,000,000.00, “in full and final settlement of all matters” of the case [68].

In February 2009, the first significant orbital satellite collision took place between the inactive Russian satellite “Cosmos 2251” and the US operational satellite “Iridium 33”, both with a mass of more than 450 kg and a rotational speed of 17,500 mph - creating a cloud of more than 700 space debris, capable of threatening space objects in orbit for decades. However, the case was never brought before a court or tribunal, nor was any kind of settlement attempt made between the parties involved [69].

International practice also records significant incidents of (test) use of ASAT weapons: in January 2007, China destroyed the old Feng Yun 1C weather satellite with a ballistic missile. The destruction of the Chinese satellite took place in low earth orbit, 850 km above the Earth’s surface, and created a significant amount of space debris. On February 21, 2008, the US reconnaissance satellite USA-193, which had been launched on December 14, 2006 and was malfunctioning, was destroyed by a modified ballistic missile launched from a US warship. It should be noted that, prior to the destruction of the satellite, the US Department of Defense had announced the operation, claiming that the destruction of USA-193 was made necessary because the satellite would have entered the Earth’s atmosphere without its - hydrazine-filled - fuel tank disintegrating on re-entry. Finally, on March 27, 2019, India also destroyed a (Indian) low earth orbit satellite with a ground-to-space missile. According to NASA estimates, the Indian anti-satellite test created about

400 pieces of space debris capable of endangering the International Space Station. On 5 April and December 5, 2020, the US Space Command announced that Russia had tested direct ascent anti-satellite missiles, with no apparent target. Finally, on November 15, 2021, another Russian anti-satellite test took place, targeting a Russian satellite and generating a considerable amount of space debris, which alarmed the crew of the International Space Station (ISS).

In the field of telecommunications, it is worth mentioning that on October 6, 2022, Eutelsat claimed that Iran had jammed two of its satellites, although this was not a purely state-to-state incident. According to Eutelsat, the jamming “harmfully affect [ed] the transmission of several digital TV and radio channels broadcasting in Persian from outside of Iran, as well as other channels” [70].

Although cases of this kind could have led to a dispute settlement process, no such procedure was ever initiated.

Thus, if the diplomatic means of settlement fail, the way is open for judicial mechanisms, with arbitration as the exclusive option, in accordance with the current international legal framework as regards the activities under consideration. Under the Liability Convention, the Claims Commission of Article XIV is established as an arbitral tribunal, whose decision is binding “if the parties have so agreed”. On the other hand, the PCA Optional Rules may also form the legal basis for recourse to arbitration. Compared to the above Claims Commission, an arbitral tribunal constituted under the Optional Rules is differentiated as to its capacity to issue final and binding awards. Finally, the possibility of using a model clause enables the States concerned to formalize this procedure within the framework of international agreements they conclude.

Recourse to arbitration is also the indicated route within the ITU in case the non-judicial mechanisms do not work. The decision of the arbitral mechanism to be set up under Article 41 of the ITU Convention shall be binding and final. Alternatively, the Optional Protocol (obviously for the parties to it) makes it possible for arbitration proceedings to be initiated by a single party to the dispute. Consequently, it can be said that, as far as telecommunication disputes are concerned, the existing settlement mechanisms within the ITU are pushing towards a strengthening of the arbitral procedure.

At this point, it is worth mentioning that, among the judicial mechanisms provided for, there is no specific role for the International Court of Justice. By comparison, other, “related” branches of international law (air law, law of the sea) in fact provide for the intervention of the International Court in dispute resolution. Pursuant Article 84 of the 1944 Chicago Convention [71], the decisions of the ICAO Council as a judicial body are subject to appeal, either before the International Court of Justice (ICJ) or before an *ad hoc* arbitral tribunal established by agreement of the parties. This is the only case of an international dispute settlement body operating within an international organization whose decisions are subject to appeal at second instance [72]. Further, article 287 of the 1982 United Nations Convention on the Law of the Sea [73] provides that States parties to this convention, at the time of signature, ratification, or accession to it “shall be free to choose, by means of a written Declaration”, one or more of the mechanisms listed in this Article, among which may be the International Court of Justice and the International Tribunal for the Law of the Sea. There is apparently no such provision in the existing *ad hoc* mechanisms for the resolution of space and telecommunications disputes. Given, as already mentioned, the technical nature of the issues involved, the choice of arbitration can mainly be justified in the light of what appears to be the main advantage of this mode of adjudication, namely the parties’ control over the whole procedure. Thus, the States involved can select arbitrators with specialized knowledge, who are able, for obvious reasons, to better meet the technical and specialized requirements of a case of this kind. This fact demonstrates why arbitration is such a widespread judicial mechanism for resolving disputes in areas of high expertise and of a technical nature [74].

However, regardless of the intensity and quality of the various

settlement mechanisms provided for, a particular feature of space and telecommunications disputes is the absence of cases resolved by a judicial body. In any case, the relevant international practice (of dispute resolution) is very limited, and clearly shows the preference of States to resolve the relevant issues, usually of a highly technical nature, through diplomatic/political means.

## 6. Concluding

Inter-State space and international telecommunications disputes can be settled according to international law. In these fields of reference, which are characterized by the highly technical nature of the issues involved, there is a clear tendency, within the framework of the applicable law and the available international practice, to focus on the prevention of international disputes rather than on their resolution. At a second level, efforts are being made to resolve international disputes that do arise through diplomatic means. Finally, if this route fails, arbitration resolution mechanisms are highly preferable. It is therefore obvious that, in these areas, the choice of the judicial dispute settlement mechanism is not particularly attractive since States wish to have as much control as possible over the settlement process. The available international practice in this respect, which is characterized by the existence of only a few international disputes, none of which have been resolved by court or arbitration proceedings, demonstrates that the current international framework for space and telecommunications dispute resolution is working. The effectiveness of the existing mechanisms may, in the future, be challenged, not necessarily because of the proliferation of space activities, but rather because of the emergence of issues on which States will have to assert important interests on a unilateral basis (e.g., in relation to Space resource utilization and exploitation).

## Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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- [3] The International Centre for Settlement of Investment Disputes (ICSID), established in, Is an international arbitration mechanism for the settlement of disputes between investors and States. <https://icsid.worldbank.org/>, 1966.
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- [9] *Convention on International Liability for Damage Caused by Space Objects*, March 29, 1972, 961 UNTS 187 (entered into force on September 1, 1972) [Liability Convention or LIAB].
- [10] 14 January, *Convention on Registration of Objects Launched into Outer Space*, 1975, p. 1023. UNTS 15 (entered into force on 15 September 1976) [Registration Convention or REG].
- [11] See endnote 5.
- [12] Radiocommunication is “Telecommunication by means of radio waves” - ITU Constitution, par. 1009.
- [13] ITU Constitution, Art. 1 para. 1 (a).
- [14] Spectrum management is the process of regulating the use of radio frequencies to promote efficient use and gain a net social benefit. The term radio spectrum typically refers to the full frequency range from 3 kHz to 300 GHz that may be used for wireless communication.
- [15] See Art. 44 para. 2 of the ITU Constitution: “In using frequency bands for radio services, Member States shall bear in mind that radio frequencies and any associated orbits, including the geostationary-satellite orbit, are limited natural resources and that they must be used rationally, efficiently and economically, in conformity with the provisions of the Radio Regulations, so that countries or groups of countries may have equitable access to those orbits and frequencies, taking into account the special needs of the developing countries and the geographical situation of particular countries”.
- [16] See: <https://www.itu.int/en/ITU-R/information/pages/default.aspx>. (Accessed 8 October 2022).
- [17] By way of example, the global turnover of the satellite industry for 2020 is estimated at 271 billion USD, which constitutes 73% of the space economy – see: <https://news.satnews.com/2021/07/20/sias-state-of-the-satellite-industry-global-data-from-2020/>. (Accessed 8 October 2022).
- [18] The geostationary orbit (GEO) presents some unique characteristics: Satellites positioned in GEO circle Earth above the equator from west to east, at an altitude of 35,786 km, following the rotation of Earth, at the same speed at which the Earth rotates around itself. This makes satellites in GEO appear to be ‘stationary’ over a fixed position. This unique feature of GEO is particularly important for telecommunications satellites, since the coverage they provide is continuous and uninterrupted. It has been estimated that a combination of only three satellites in geostationary orbit is sufficient to provide almost global coverage. For more details on the GEO, see: [https://www.esa.int/Enabling\\_Support/Space\\_Transportation/Types\\_of\\_orbits#GEO](https://www.esa.int/Enabling_Support/Space_Transportation/Types_of_orbits#GEO) (Accessed: October 8, 2022).
- [19] See R.S. Jakhu, *Dispute Resolution under the ITU Agreements*, discussion paper submitted to the PCA Advisory Group (2010). <https://swfound.org/media/48115/jakhu-dispute%20resolution%20under%20the%20ITU%20agreements.pdf>. (Accessed 8 October 2022).
- [20] Art. 45 para. 1 of the ITU Constitution reads as follows: “All stations, whatever their purpose, must be established and operated in such a manner as not to cause harmful interference to the radio services or communications of other Member States”. Further, Art. 15 para. 1 of the ITU Radio Regulations provides that “All stations are forbidden to carry out unnecessary transmissions, or the transmission of superfluous signals, or the transmission of false or misleading signals, or the transmission of signals without identification ...”. The mandatory character of the basic instruments of the ITU for its Member States derives from Art. 6 para. 1 of the Constitution, according to which “The Member States are bound to abide by the provisions of this Constitution, the Convention and the Administrative Regulations in all telecommunication offices and stations established or operated by them which engage in international services or which are capable of causing harmful interference to radio services of other countries, except in regard to services exempted from these obligations in accordance with the provisions of Art. 48 of this Constitution”.
- [21] In the context of the ITU, harmful interference is defined as “interference which endangers the functioning of a radionavigation service or of other safety services or seriously degrades, obstructs, or repeatedly interrupts a radiocommunication service operating in accordance with Radio Regulations” (emphasis added) – ITU Radio Regulations, Vol. 1, Edition of 2020, 1.169. Also see ITU Constitution, Annex - Definition of Certain Terms Used in this Constitution, the Convention and the Administrative Regulations of the International Telecommunication Union, 1003.
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- [28] In this respect, Art. II of the Outer Space Treaty, which is considered to be the Magna Carta of international space law in force, provides that “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”.
- [29] Behind the adoption of Art. 9 one can trace the concern of the two superpowers of that time - and, at that time, the only States capable of having regular space activities - about the nuclear tests and other experiments of each one of them in outer space – see S. Marchisio, Art. IX, in: S. Hobe, B. Schmidt-Tedd, K.-U. Schrogl, G. Meishan Goh (Eds.), *Cologne Commentary on Space Law*, Vol. 1, Outer Space Treaty, Carl Heymanns Verlag, 2009, 172 [CoCoSL 1].
- [30] As rightly pointed out, “While the principles of co-operation, mutual assistance and due regard were seen as fundamentally inherent in the freedom of exploration and use of outer space, as well as that of non-appropriation, the principle of avoiding potentially harmful interference was more linked to the critical issue of the use of outer space for peaceful uses, military purposes and military experiments” – S. Marchisio, *op. cit.*, p. 172.
- [31] See also the (similar) Art. 15 para. 1 of the 1979 Moon Agreement.
- [32] [https://swfound.org/media/6575/swf\\_iridium\\_cosmos\\_collision\\_fact\\_sheet\\_updated\\_2012.pdf](https://swfound.org/media/6575/swf_iridium_cosmos_collision_fact_sheet_updated_2012.pdf), 8 October 2022).
- [33] See *infra*, 5.5.
- [34] “All Members shall settle their international disputes by peaceful means in such a manner that international peace and security, and justice, are not endangered”.
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- [41] In this case, the Secretary-General is obviously not acting as the representative of the claimant State – see, in this respect, L.J. Smith, A. Kerrest, Art. IX LIAB, in: S. Hobe, B. Schmidt-Tedd, K.-U. Schrogl, P. Stubbe (Eds.), *Cologne Commentary on Space Law*, vol. II, Carl Heymanns Verlag, 2013, p. 160 (CoCoSL II).
- [42] ITU Constitution, Art. 56 para. 1.
- [43] ITU Constitution, Art. 56 para. 2. For the arbitration procedure, see *infra*, 5.3.
- [44] The Radiocommunication Bureau serves as a permanent Secretariat to the ITU Radiocommunication Sector (ITU-R) and is headed by an (elected) Director – see: <https://www.itu.int/net/ITU-R/index.asp?category=information&rlink=br&lang=en>. (Accessed 8 October 2022).
- [45] Section-V – Reports of Infringements. According to para. 11 (15.19) of this section, “Infringements of the Constitution, Convention or Radio Regulations shall be reported to their respective administrations by the control organization, stations or inspectors detecting them”.
- [46] but it shall then supply the Bureau with the full facts of the case, including all the technical and operational details and copies of the correspondence.
- [47] See Art. 14 of the ITU Constitution and Art. 10 of the ITU Convention.
- [48] Art. 14 para. 2 (c) of the ITU Constitution.
- [49] Art. XVIII LIAB.
- [50] Art. XIX LIAB.
- [51] Art. XIX para. 2 LIAB.
- [52] Art. XIX para. 3 LIAB.
- [53] Art. XIX paras. 2 and 3 LIAB.
- [54] 18 ILM 899 (1979), 907. See also 5.5.
- [55] Permanent Court of Arbitration, *Optional Rules for Arbitration of Disputes Relating to Outer Space Activities, Optional Rules*, 2011.
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- [57] Introduction of the Optional Rules, para. 1,(i) – (ii).
- [58] See Art. 1 of said Rules: “The characterization of the dispute as relating to outer space is not necessary for jurisdiction where parties have agreed to settle a specific dispute under these Rules”.
- [59] The UNCITRAL Rules do not provide for a corresponding waiver of immunity clause and further stipulate that whenever those rules are in conflict with “a provision of the law applicable to the arbitration from which the parties cannot derogate”, said provision will prevail (Art. 1 para. 3 of the UNCITRAL Rules).
- [60] Art. 34 of the Optional Rules.
- [61] See the Introduction of the Optional Rules [para. 2,(i) – (ii)].
- [62] ITU Constitution, Art. 56 para. 2.
- [63] ITU Constitution, Art. 56 para. 3.
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- [68] Protocol on Settlement of Canada’s Claim for Damages Caused by Cosmos 954, 20 ILM 689, The amount finally paid by the Soviet Union corresponded to almost 50% of the initial Canadian claim, (CAN\$ 6,041,174.70.) (1981).
- [69] See, for this case R. Jakhu, *Iridium-Cosmos Collision and its implications for space operations*, *ESPI Yearbook on Space Policy* (2008/2009) 254–275.
- [70] <https://www.reuters.com/world/eutelsat-accuses-iran-jamming-its-satellites-2022-10-06/>. (Accessed 3 July 2023).
- [71] Chicago Convention on International Civil Aviation, UNTS 295 (entered into force on 4 April 1947) (1944) 15.
- [72] See A. Giokaris, G. Kyriakopoulos, *International Law of Airspace, Outer Space, Nomiki Bibliothiki*, Athens, 2020, p. 182 (in Greek).
- [73] United Nations Convention on the Law of the Sea, December 10, 1982, 1833 UNTS 3 (entered into force on November 16, 1994).
- [74] See S.C. Kilgore, *Arbitration rules for disputes arising from outer space activity*, *The Federal Lawyer* (March (2018) 60–61.