

# International Legal Regulation of Activities for the Safe Use of Outer Space

Submitted: 12 October 2021  
Revised: 27 November 2021  
Accepted: 28 December 2021

Gulmira M. Ishkibayeva\*  
<https://orcid.org/0000-0002-7021-5627>

Daniya Nurmukhankyzy\*\*  
<https://orcid.org/0000-0003-0253-6071>

Article submitted to peer blind review  
Licensed under a Creative Commons Attribution 4.0 International

DOI: <https://doi.org/10.26512/istr.v14i2.40361>

## Abstract

**[Purpose]** It is impossible to imagine the life of a modern person without space technologies. International crews of astronauts have been working in orbit as part of the International Space Station for the past fifteen years. The purpose of the study is to assess the problems of legal regulation of activities related to the use of space communications.

**[Methodology]** According to the specifics of the subject and the purpose of the research, we applied dialectical, historical, comparative and system-structural methods.

**[Findings]** The international legal instruments of general statutory load on outer space subjects and specialised regulation with a focus on individual aspects of the safety of space activities were studied. To clarify the scope of relevant objects of outer space, the causes of emerging dangers as a result of space activities were identified. The development of a set of regulations for the commercial use of space communications was demonstrated.

**[Practical Implications]** The practical significance of the study is determined by the fact that the safety of space activities in recent years has become one of the most serious problems of space activities.

**Keywords:** Insurance. Safety of Space Activities. Outer Space. Licensing. Space Policy. International Legal Regulation.

---

\*Gulmira M. Ishkibayeva is a Doctoral Student at the Department of Civil Law Disciplines, Zhetyssu University named after I. Zhansugurov, Taldykorgan, Republic of Kazakhstan. E-mail: [ishkibayeva6104@uoel.uk](mailto:ishkibayeva6104@uoel.uk). Address: 040009, 187a Zhansugurova Str., Taldykorgan, Republic of Kazakhstan.

\*\*Daniya Nurmukhankyzy is a Professor of Philosophy at the Department of State and Legal Disciplines, Zhetyssu University named after I. Zhansugurov, Taldykorgan, Republic of Kazakhstan.

## INTRODUCTION

The study of any type of activity is impossible without identifying and analysing its two mandatory structural components: the subject of activity (the one who acts) and its object (what the subject's activity is aimed at). The subject is understood as an active, "initiator's side" of purposeful activities, a carrier of activity-related abilities, which is associated with its launching and regulatory mechanisms, i.e., the one who decides on the start and the course of activities and monitors their progress. The status of the subject makes provision for the setting of a certain conscious goal and movement to achieve it. In contrast to the subject, the object represents the passive, initiated side of the activity; something the activity-related ability of the subject is directed at (ANTONI et al., 2020). Therewith, any environmental phenomena, including people, can be considered as objects. The structural "two-dimensionality" of the activity determines the need to consider both components in their interrelation. Extrapolating this provision to the subject area of this study, it should be noted that the concept of subjects and objects of insurance of space activities in their unity are basic for the development of a system of rational views, on the one hand, on "who", and on the other hand, "in whose favour", "for what" develops and ensures the safety of the relevant activities (AVDEEV et al., 2019; GUGUNSKIY et al., 2020).

It is to states and international organisations that the main provisions and principles of international space law are addressed, which formulate the requirements for the safety of space activities (The Outer Space Treaty, 1996). Therewith, it should be remembered that the international space legal personality of states does not depend on any acts or expression of will of other participants in international relations. The scope of their legal personality is not limited and extends to all areas of space activities, including those related to its provision. But the scope of the space legal personality of international intergovernmental organisations is limited: it is determined by their states and is usually enshrined in the constituent international treaty on the establishment of the corresponding organisation.

It is to states and international organisations as subjects of international relations to ensure the safety of space activities that the provisions of a considerable number of articles of international United Nations (UN) treaties on outer space matters, primarily the Outer Space Treaty, are addressed (BLEVINS, 2014). Key areas of the use of outer space that need early international legal regulation:

- demilitarisation of outer space;
- ensuring the safety of astronauts;
- avoiding harmful pollution of space;

– taking security measures to avoid obstacles to operations on stations, installations, equipment, and spacecraft during their visits by the representatives of other states

Therefore, the main purpose of the study is to assess the problems of legal regulation of activities related to the use of space communications. The subject of this paper is a legal mechanism for the safe use of outer space. This article presents the literature review, research method, and the result. After that, it concludes with a summary, limitation, and recommendation for further research.

## LITERATURE REVIEW

The issues of the legal personality of states and international organisations to ensure the safety of space activities have been further developed in other UN treaties on space issues (Final Act of the Conference on Security and Cooperation in Europe (1975); Declaration on Principles of International Law Concerning Friendly Relations and Cooperation among States in accordance with the Charter of the United Nations (1970)). Thus, the regulation of relations between the states, on the territory or under the jurisdiction of which landed the spacecraft that suffered an accident, disaster, forced or unforeseen landing, and the launching states regarding the conduct of search and rescue operations for astronauts, stipulated in the Rescue Agreement. Issues of responsibility of states and international organisations for damage caused by their space object on the Earth's surface or to an aircraft in flight, regulated by the Liability Convention (FRY, 2012; GREENBERG, 1993).

Analysis of the entire range of actors interested in the safety of space activities indicates that those actors that have an economic interest are increasingly coming to the fore today (KOIVUSALO, 2014). These are primarily satellite operators, insurance companies, investors, and lenders. Among the private subjects of ensuring space security, there are also those that are engaged in the technical component of ensuring security, collecting and accumulating data, forming catalogues, modelling, and forecasting. Among such entities, the largest contribution to ensuring the safety of activities in outer space was made by the Satellite Data Association, established by the world's leading satellite operators – Inmarsat, Intelsat, and SES (HITCHENS, 2021). Established by the Association, the system provides one of the most comprehensive databases of situational awareness in outer space, enabling the exchange of reliable data that is important for the safety and integrity of the space environment, as well as the radio frequency spectrum. A number of states, represented by space agencies and ministries of defence, as well as associations of involved scientists and the UN Office for Space Affairs, have similar bases. The difference in these systems lies in the method of obtaining data and their nature (OBUKHOV et al., 2021).

Thus, space agencies and the Ministry of Defence, at the expense of space flight control centres, telescopes, and a number of other components of the ground segment, receive or accumulate information regarding space objects that are being launched or are in orbit and belong to the sphere of their direct interest (YAN, 2019). Other entities receive only actual data within the framework of the existing cooperation, agreements reached with those in charge of certain ground stations, the necessary technical capacities, etc. Accordingly, there is a situation where certain actors in space activities have a considerable advantage in terms of situational awareness over others who are deprived of direct, timely, reliable, and complete access to primary data (WEBB, 2015). The obligation to exchange data is not explicitly stipulated in the existing international legal treaties; in addition, there is no legal requirement regarding the quality of data, its reliability, and speed of transmission (SOLNTSEV, 2021). In this context, the main body of space law includes only the principle of international cooperation, and all practical issues that arise in the relevant context are usually resolved bilaterally within the framework of "contract agreements".

## MATERIALS AND METHODS

The fundamental principles of ensuring space activities are most fully presented in the acts of international space law. Among such special acts, it was analysed the Declaration of legal principles for the Activities of States in the Exploration and use of outer space (1963), Declaration of the Guiding Principles (2012), Constitution of the International Telecommunication Union (1992), and the Outer Space Treaty (1996).

According to the specifics of the subject, the purpose and objectives of the research, in particular, the methods of analysis, dialectical, historical, comparative, system-structural were used. Using the analysis method, it is established that a number of databases and catalogues are developed at the expense of multiple sources of information, which has both advantages and disadvantages. On the one hand, this approach ensures the complementarity of data, which sometimes helps achieve a more complete and general vision of the situation, on the other hand, if contradictions are identified, one can only come to subjective judgements that would be false to take as a basis for modelling and forecasting. As a result, whichever of the above situations develops, there would emerge a relationship with an independent subject of legal relations and a subject dependent on it.

The historical method contributed to the study of the formation and development of space activities. The dialectical method was used to analyse the international legal regulation of the safety of activities in outer space in the process of its development. The comparative method made it possible to fully and

objectively analyze the current state and prospects of space activities. The system-structural method was used in determining the principles of securing activities in outer space, their relationship with the principles of international environmental law and international security law.

## RESULTS AND DISCUSSION

The achievements and practices of space agencies, international intergovernmental organisations, and those specialised agencies – international non-governmental organisations – that have authority among the international space community are submitted for general consideration to exchange experience and highlight those practices that can be used as the basis for rules, guidelines, etc. on the matters of ensuring the safety of space activities. It is due to the work of these institutions that one can speak, with a certain degree of conditionality, of a progressive development of international space law. This convention is connected with the fact that in recent decades such development is carried out exclusively in the "soft" plane (rules, codes of conduct, recommendations are developed, UN General Assembly resolutions are adopted, etc.). Although at the doctrinal level, the attribution of the category of "soft" law to the law as such is actively debated, the authors of this study believe that the existence of established practices, developed, and agreed rules of conduct in outer space, even if qualified as "soft law", is a positive trend. Due to the lack of clearly established treaty provisions in the field of ensuring the safety of space activities and applications, the emergence of new forms of consolidation, further development and implementation of relevant provisions in practice brings the adoption of international treaty law in the relevant field closer (SYMMONS, 2010; HOFMANN and BLOUNT, 2018).

The group of governmental experts of the UN General Assembly on strengthening transparency and confidence-building measures in space activities is also working to strengthen the role of "soft law" in international legal relations on ensuring the safety of activities in outer space. The formation of this group is based on the idea of developing international cooperation, reducing the risks of misunderstandings and problems of communication in the field of space activities between different actors. It is stipulated that the result of fruitful cooperation between all such actors should be the development of compromise recommendations on measures to increase transparency and trust, which would ensure strategic stability in the space sector. In addition to the above-mentioned subjects, the Working Group on the Long-term Sustainability of Space Activities, established in 2010 by the Scientific and Technical Subcommittee of the UN Committee on Outer Space (WENZEL, 2016) also deserves attention. To ensure

the targeted implementation of the tasks set within the Working Group, four expert subgroups were identified in the following areas:

- sustainable use of outer space;
- space debris, space operations, and tools to support the exchange of space situational awareness data;
- space weather;
- legal regimes and guidance for actors in space activities.

Despite the hopes that were placed on this group, one of the cornerstones of limiting its activities was initially recognised as the limited participation in these groups only by representatives of states, taking into account the proposals of the private sector and non-governmental organisations, whose role in this process could be valuable. Over time, a compromise solution was the possibility of indirect access to the relevant working group of representatives of those sectors that may affect the safety of space activities. Such access can currently be provided through cooperation with UN Member States and the participation of representatives of relevant sectors in official state delegations. Identifying the range of actors who have contributed to the provision of space activities, one cannot neglect the scientific component of the relevant process. It is science that has laid and continues to lay the foundations for practical actions of the world space community towards ensuring the safety of the exploration and use of outer space. Thus, such analytical and research centres at the international and regional levels as the Secure World Foundation and the European Institute for Space Policy are actively involved in the field of ensuring space security (MURPHY, 2002; SPASSOVA and BERGAMASCO, 2018; KOKOEVA et al., 2019).

Turning to the existing legal sources of the Institute of Safety of Space Activities, schematically, a distinction can be made between international legal instruments of general statutory load on outer space matters (five major UN treaties on outer space affairs) and specialised regulation (summary practitioner) with a focus on individual aspects of the safety of space activities: space debris; the use of nuclear power sources, etc. In the establishment and development of the latter block, the most active position is taken by such entities as the UN Office for Outer Space Affairs, a working body of the UN Committee on Outer Space, which acts mainly through the legal subcommittee created in its composition, the Inter-agency Coordination Committee on Space Debris, the Committee on Space Research, and the International Atomic Energy Agency (IAEA).

It was within the framework of these four institutions that the UN General Assembly developed and subsequently adopted international legal documents directly related to the sphere of ensuring the safety of space activities. The analysis of the role of space actors in building the capacity of the legal regime for the safety of the exploration and use of outer space has identified certain issues that require special attention of the international community:

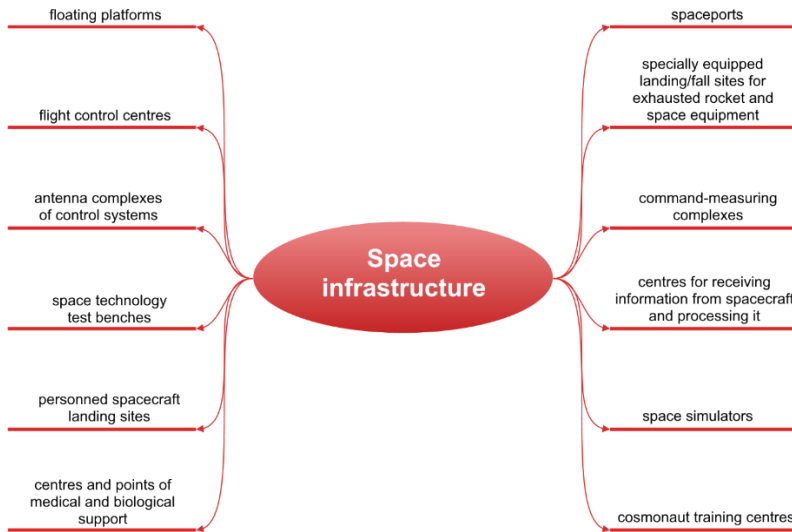
– the need for effective coordination of the activities of all actors involved in the issue of space security – both to avoid duplication and to ensure that all reasonable ideas are taken into account;

– the multiplicity of approaches, ideas, best practices, guidelines, etc., which come from different actors, requires raising the issue of developing a unified comprehensive document that would bring together all existing developments, both of a binding and recommendatory nature, and would become a reference point in ensuring the safety of space activities;

– despite the fact that the development and approval of such an international instrument is not a matter of one year, while (as a transitional stage) there is every reason to initiate the process of "cataloguing" and harmonisation of those international and national provisions and regulations of a legal and non-legal nature that relate to the issue of the safety of activities in outer space.

Shifting to the analysis of objects for supporting space activities, it should first of all be noted that their consideration cannot be carried out at the linear level. To clarify the scope of relevant objects, it is necessary to simultaneously identify possible security threats (risks), that is, the causes of emerging dangers as a result of space activities. Each of these threats also determines the objects that require protection from the danger of exposure to its consequences. Conversely, starting from the objects of protection, one can formulate a list of threats (risks) associated with the implementation of space activities (LESTER and THRONSON, 2011; SALMERI, 2019).

Therewith, the infrastructure of space activities, which is a source of risks, is located and operates not only in outer space, but also to a large extent on the Earth (on its surface, in the bowels, in air, or water spaces). Here it is necessary to understand the concept of "infrastructure of space activities", from the elements of which environmental risks can come. According to the Law of the Republic of Kazakhstan "On Space Activities" (2012), this concept is used as a synonym for "objects of space activities (space technology)", that is, material objects of artificial origin that are designed, manufactured, and operated both in outer space and on the Earth's surface for the purpose of exploring and using outer space. Thus, in this concept, it is necessary to distinguish between the "ground segment", or "ground infrastructure" and the "space segment", or "space infrastructure". The ground segment of space activities is understood as objects intended to serve the activities of the exploration and use of outer space, but located on the surface of the Earth (Figure 1).



**Figure 1.** Objects of outer space

Space infrastructure includes objects launched into outer space and operated there for the purpose of exploring and using outer space. These are all types of space launch vehicles, rocket and space equipment for socio-economic, scientific, and other purposes in orbit, orbital space stations and structures, equipment operated in space, etc. International law and national legislation of states distinguish between objects of space infrastructure: civil, military, and dual-purpose (KULIKPAYEVA, 2020). The latter cover those types of space technology that can be used for both civil and military purposes. The threats posed by space activities, therefore, extend not only to objects located in outer space, but also to those whose vital activity is connected with the Earth.

The above allows distinguishing the first object of legal protection against threats (risks) associated with the exploration and use of outer space – the population and the Earth's environment, which are threatened by the impact of ground-based, as well as, in part, space infrastructures of activities for the exploration and use of outer space (in particular, the fall of spent space objects or their elements). These mainly include environmental threats that can have a negative impact:

- on environmental elements (natural resources, objects, or complexes), causing their pollution, blockage, or other degradation;
- on people, the animal and plant world (that is, the biological resources of our planet), causing harm to their life and health, as well as living conditions;
- on material objects, by damaging or destroying them, especially as a result of emergency situations during the implementation of space activities.



No matter how important it is to protect the Earth's environment from the effects of space activities, it is clear that the main environment for its implementation is outer space, the research and use of which is actually in the focus of the relevant activities. It is here that the main space infrastructure functions, and it is here that spacecraft, including manned ones, are launched. Persons in space, their life and health constitute an independent most important object of insurance for space activities. Until recently, the circle of these persons was limited to cosmonauts (astronauts), that is, people who test and operate rocket and space technology in space flight.

In the 21st century, space flights are no longer limited to purely professional activities. The process of commercialisation of activities in the exploration and use of outer space has led to the emergence of a new phenomenon of "space tourism" and to the diversification of the circle of persons engaged in space flights (in particular, space tourists); therefore, ensuring their life in outer space is an urgent legal issue. When conducting space flights, persons in space are exposed to threats arising from the impact of:

- natural factors of outer space (weightlessness, cosmic radiation, solar radiation, etc.);
- anthropogenic space activities (the danger is primarily caused by "space debris", that is, exhausted space objects, their fragments or parts, as well as equipment, energy sources and other objects available on board of the manned spacecraft or space stations).

Each state launching or arranging the launch of a space object and each state from whose territory or installation the space object is launched shall be internationally liable for damage caused by such space objects or their constituent parts. Legal regulation of private space flights is provided by a number of legislative acts. Thus, the Commercial Space Flight Act (1984) approved the promotion of commercial space enterprises by adding a new clause to NASA's (Commercial Use of Space) mission.

The pace of space tourism has increased since Tito's mission: flights to the International Space Station by South African computer millionaire Mark Shuttleworth in 2002 and American businessman Gregory Olsen in 2005. These travelers were followed by Anushe Ansari, who became the fourth space tourist and the first woman - a space tourist. American video game developer Richard Harriott was launched in October 2008. During his flight, Harriott became the first American of the second generation in space, as his father, Owen Harriott, was a former astronaut. Since 2007, Space Adventures has been offering a space flight around the moon on the Soyuz spacecraft for a fee of \$ 100 million.

An independent object for supporting space activities is outer space (outer space environment or the space environment). This environment, according to the provisions of international space law, must be protected from pollution. Thus,

according to article IX of the Outer Space Treaty, the Member States of the Treaty engage in the study and exploration of outer space, including the Moon and other celestial bodies, in such a way as to avoid their harmful pollution. This requirement of the basic international space legal instrument, despite its rather general nature, is fundamental and a framework, which creates the possibility of further detail. It is important to note that the relevant provision applies to the entire outer space. However, as noted above, outer space is not homogeneous. In international law, a distinction is made between near-Earth outer space and the deep space environment. These two types of space environments are sometimes separate objects of protection. Thus, as already noted, among the threats to space activities today, "space debris" is singled out. Satellites that have exhausted their life resources often remain in orbit, are destroyed by explosion, fragmentation, or are removed from their orbital position, remaining in open space and turning into "space debris", creating a great threat to space traffic, including personned space exploration. The object of insurance against the harmful effects of such "space debris" in the modern period is increasingly becoming the state of near-Earth space, while "far space" due to its weak development does not yet experience threats of this nature.

At the same time, among the elements of the space infrastructure that primarily pose a threat to deep space and which are associated with the risks of its radioactive contamination, special attention is required for nuclear energy sources used in some types of space technology, especially those intended for deep space exploration. Thus, the environment of deep space, including other planets and celestial bodies, is increasingly becoming the object of legal protection from nuclear energy sources used in nuclear reactors during interplanetary flights, as well as at sufficiently high orbits, outside the gravitational field of the Earth. One of the blocks of security objects in the process of carrying out space activities in space are spacecraft, the physical integrity of satellites and their components. The threats that affect them can be divided into internal and external ones. The internal threats are related to the design of the spacecrafts themselves, the technological features of their delivery to orbit, operation, and decommissioning. External risks can be associated with natural factors of the space environment, as well as with collisions with other spacecraft or "space debris". Minimisation of such threats is connected with several factors, which include, in particular, the development of secure de-orbiting from the planned orbit and liquidation of space debris and rocket fuel; waste and residues released into outer space (specifically on space stations), that is, of such particles, the presence of which in outer space ceases to be controlled, and further stay in orbit becomes devoid of meaning; safe launch of satellites into "crowded" orbits and change of position on the orbit (the so-called concept of motion control in outer space which is currently being actively

discussed at the doctrinal level); reduction of nano-satellites (extremely small satellites), which are sometimes considered as the source of the clogging of the space environment and the increase in the multi-functionality of the payload of satellites, reducing the number of launches due to an increase in payload of rockets, etc.

Finally, one of the special objects of ensuring security is the radio frequency spectrum, the continuity of the signal and, accordingly, satellite services. According to the Declaration of the Guiding Principles (2012), the use of satellite broadcasting for the free flow of information, development of education and greater cultural exchange and Part 2 Article 44 of the Constitution of the International Telecommunication Union (1992) (hereinafter referred to as "the ITU"), radio frequency and geostationary satellite orbit constitute limited natural resources that belong to all nations. Their use is regulated by the ITU Convention and its Radio Regulations. International legal protection of a state's radio frequency resource is a set of interrelated measures of an international legal, organisational, and technical nature, aimed at creating favourable conditions for the introduction, development, and use of radio technologies in accordance with the ITU Charter and Convention, the ITU Radio Regulations and international treaties on the use of radio frequency resources.

At the international level, radio frequency assignments are coordinated, reported, and registered with the ITU, international legal protection of radio frequency resources, and international coordination of satellite communication networks. Radio frequency resource of the Republic of Kazakhstan (RK) is the portion of the radio spectrum suitable for transmitting and/or receiving electromagnetic energy by radio-electronic means and which can be used to distribute any information on the territory of the RK and abroad in accordance with the laws of RK and international law as well as on frequency-orbital slots allocated for RK. The radio frequency resource is of great economic and defence importance. For the effective and rational use of the radio frequency resource of RK in the interests of its economic, social, information, and cultural development, national security, defence capability, successful planned introduction of new radio technologies and radio systems, as well as to ensure electromagnetic compatibility of radio-electronic means, the radio frequency resource is protected at the national level. The international protection of the radio frequency resource is called one of the main bases of the management of this resource in the RK (The Law of the Republic of Kazakhstan, 2000).

According to the Constitution of the International Telecommunication Union (1992), the ITU Radio Regulations and other regulations in the field of international legal protection of radio frequency resources, the joint order of the Administration of the State Service for Special Communications and Information

Protection of Kazakhstan, the Ministry of Defence of Kazakhstan dated July 26, 2013 and the decision No. 392 of the National Commission for State Regulation in the Field of Communications and Informatisation dated June 25, 2013 approved the Regulation on the procedure for interaction of state authorities in the implementation of international legal protection of radio frequency resources of Kazakhstan. The main measures for the international legal protection of the radio frequency resource of Kazakhstan include:

- conclusion of international agreements on the use of radio frequency resources;
- participation in the work of international organisations on the management, regulation, and use of radio frequency resources;
- international coordination of assignment of radio frequencies of radio-electronic means of Kazakhstan and other countries;
- registration of assignments of radio frequencies of radio-electronic facilities of Kazakhstan in the ITU.

Considering the appropriate division, the minimisation of the identified groups of risks and threats of anthropogenic origin is controlled by the above-mentioned subjects of ensuring space activities. The analysis of the safety regime for the exploration and use of outer space should be based on the fundamental principles that underlie the relevant regime and form the guidelines for its implementation and development, that is, on the principles of the safety of space activities. An overwhelming majority of well-known international lawyers paid attention to the study of the principles of international law. Their analysis, especially in terms of the reflection of the general principles of law in international law. The scientist was the first Russian researcher to address the principles that are common to national and international law, as well as to the conditions under which the general principles of law can be considered as principles of international law. In the available, reference, and monographic literature of both national and foreign origin, repeated attempts were made to define the principles of international law, as well as to classify them according to various characteristics. The most common approach to the principles of international law is as to generalised rules of conduct of subjects of international law, which are established in practice and are stipulated in contractual or customary provisions of international law. This definition is found in various linguistic modifications that have little effect on the content of the concept.

The fundamental principles of international law are enshrined primarily in the UN Charter, as well as in the Declaration on Principles of International Law Concerning Friendly Relations and Cooperation among States in accordance with the Charter of the United Nations (1970), and in the Final Act of the Conference on Security and Cooperation in Europe (1975), etc. These principles are binding on all subjects of international law without exception, and are not personified.

They prevail over other international law provisions, and in the absence of direct regulation, they are used to fill in gaps, that is, to regulate international legal relations. The violation of the fundamental principles by subjects of international law is more serious than the violation of ordinary provisions. The fundamental principles of international law are complex, that is, the maximum effect is achieved only in the interaction of all the principles. Special principles of international law are usually not universal and apply to a certain area of international legal relations (KULIKPAYEVA, 2020).

Taking into account the preceding considerations regarding legal relations on ensuring the safety of space activities, it should be noted that a range of general (fundamental) principles of international law apply to the relevant area. This primarily refers to a principle of non-use of force or threat of force; the cooperation principle; the principle of the sovereign equality of states; the principle of conscientious performance of obligations under international law and some other principles. Most of these principles have received detailed substantive elaboration in the special international legal principles for ensuring the safety of space activities. Such principles are not singled out in a separate array either in international space law, or in international security law, or in international environmental law, or in international nuclear law. However, they can be distinguished by a substantive study of the acts of these branches of international law, since each of them contains elements of regulation of the fundamental principles of insurance of space activities.

## CONCLUSION

The analysis of international space legal acts suggests that states and international organisations are the main actors in ensuring the safety of the exploration and use of outer space. They are precisely the parties to international legal relations arising in connection with their space activities, as well as with any other activities in outer space carried out under their jurisdiction and control, regardless of whether such activities are carried out by governmental or non-governmental legal entities.

Examining the legal nature of the basic principles of international law, the attention was drawn to the fact that international space legal acts to all subjects of international law and are peremptory provisions, and therefore, any deviation from their commands is unacceptable both individually or by agreement of the subjects of international law. Notably, the basic principles constitute a fundamental part of international law and constitute the most important foundations of the modern world order.

## REFERENCES

- Antoni, N., Giannopapa, C., & Schrogl, K. (2020). Legal and policy perspectives on Civil–Military cooperation for the establishment of space traffic management. *Space Policy*, 53, Article number 101373.
- Avdeev, V. A., Avdeeva, O. A., Shagieva, R. V., Smirnova, V. V., Mashkin, N. A., & Taradonov, S. V. (2019). The mechanism of legal regulation in the conditions of globalization and formation of information environment. regional aspect. *Journal of Environmental Management and Tourism*, 10(7), 1517-1521.
- Blevins, J. L. (2014). Political economy of corporate power and free speech in the United States. *Media Watch*, 5(2), 209-222.
- Declaration of legal principles for the Activities of States in the Exploration and use of outer space. (1963). Retrieved from: [https://www.unoosa.org/pdf/gares/ARES\\_18\\_1962E.pdf](https://www.unoosa.org/pdf/gares/ARES_18_1962E.pdf). Access date: 18 September 2021.
- Declaration of the Guiding Principles. (2012). Retrieved from: [http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/CI/WPFD2009/Russian\\_Declaration.html](http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/CI/WPFD2009/Russian_Declaration.html). Access date: 22 September 2021.
- Declaration on Principles of International Law Concerning Friendly Relations and Cooperation among States in accordance with the Charter of the United Nations (1970). Retrieved from: <https://legal.un.org/avl/ha/dpilfrscun/dpilfrscun.html>. Access date: 11 September 2021.
- Final Act of the Conference on Security and Cooperation in Europe (1975). Retrieved from: [https://www.cvce.eu/en/obj/final\\_act\\_of\\_the\\_conference\\_on\\_security\\_and\\_cooperation\\_in\\_europe\\_helsinki\\_1\\_august\\_1975-en-26511c7f-1063-4ae9-83e5-16859194a144.html](https://www.cvce.eu/en/obj/final_act_of_the_conference_on_security_and_cooperation_in_europe_helsinki_1_august_1975-en-26511c7f-1063-4ae9-83e5-16859194a144.html). Access date: 16 September 2021.
- Fry, E. K. (2012). The risks and impacts of space weather: Policy recommendations and initiatives. *Space Policy*, 28(3), 180-184. <https://doi.org/10.1016/j.spacepol.2012.06.005>
- Greenberg, J. S. (1993). Competitiveness of commercial space transportation services. *Space Policy*, 9(3), 220-232. [https://doi.org/10.1016/0265-9646\(93\)90056-F](https://doi.org/10.1016/0265-9646(93)90056-F)
- Gugunskiy, D., Chernykh, I., & Khairutdinov, A. (2020). Legal models for activities on the exploration and utilization of space resources: Towards the “space-2030” agenda. *Advances in Intelligent Systems and Computing*, 1100, 657-664. [https://doi.org/10.1007/978-3-030-39319-9\\_73](https://doi.org/10.1007/978-3-030-39319-9_73)
- Hitchens, T. (2021). Norm setting and transparency and confidence-building in space governance. *War and Peace in Outer Space: Law, Policy, and Ethics*, 1, 70-105. <https://doi.org/10.1093/oso/9780197548684.003.0003>

- Hofmann, M., & Blount, P. J. (2018). Emerging commercial uses of space: Regulation reducing risks. *Journal of World Investment and Trade*, 19(5/6), 1001-1023.
- Koivusalo, M. (2014). Policy space for health and trade and investment agreements. *Health Promotion International*, 29, i29-i47. <https://doi.org/10.1093/heapro/dau033>
- Kokoeva, L. T., Kolieva, A. E., Gaytova, L. K., & Khadikov, M. K. (2019). The necessity for legal regulation of usage of new information technologies in management. *Advances in Intelligent Systems and Computing*, 726, 403-408.
- Kulikpayeva, M. (2020). Correlation of international space law and national legislation in the field of space activities. *Advances in the Astronautical Sciences*, 170, 939-947.
- Lester, D., & Thronson, H. (2011). Human space exploration and human spaceflight: Latency and the cognitive scale of the universe. *Space Policy*, 27(2), 89-93. <https://doi.org/10.1016/j.spacepol.2011.02.002>
- Murphy, A. G. (2002). Organizational politics of place and space: The perpetual liminoid performance of commercial flight. *Text and Performance Quarterly*, 22(4), 297-316. <https://doi.org/10.1080/10462930208616175>
- Obukhov, V. A., Kirillov, V. A., Petukhov, V. G., Popov, G. A., Svotina, V. V., Testoyedov, N. A., & Usovik, I. V. (2021). Problematic issues of spacecraft development for contactless removal of space debris by ion beam. *Acta Astronautica*, 181, 569-578. <https://doi.org/10.1016/j.actaastro.2021.01.043>
- Salmeri, A. (2019). *Houston, we have a law. A model for national regulation of space resources activities*. Paris: International Astronautical Federation.
- Solntsev, A. M. (2021). Ensuring environmental safety during the rocket and space activities. *Advances in the Astronautical Sciences*, 174, 513-520.
- Spassova, S., & Bergamasco, F. (2018). The role of the ITU in the creation of international legal norms on cybersecurity pertaining to space communications. Paris: International Astronautical Federation.
- Symmons, J. (2010). Policy and regulatory risk considerations for satellite communications. *Space Policy*, 26(2), 121-123. <https://doi.org/10.1016/j.spacepol.2010.03.001>
- The Commercial Space Flight Act. (1984). Retrieved from: <https://www.govtrack.us/congress/bills/98/hr3942>. Access date: 27 September 2021.
- The Constitution of the International Telecommunication Union. (1992). Retrieved from: <https://www.itu.int/en/council/2019/Documents/basic-texts/Constitution-R.pdf>. Access date: 18 September 2021.
- The Law of the Republic of Kazakhstan “On Space Activities”. (2012). Retrieved from: [https://online.zakon.kz/document/?doc\\_id=31112199](https://online.zakon.kz/document/?doc_id=31112199). Access date: 15 September 2021.
- The Law of the Republic of Kazakhstan “On the Radio Frequency Resource of Kazakhstan”. (2000). Retrieved from:

<http://adilet.zan.kz/rus/docs/V1500010730>. Access date: 20 September 2021.

- The Outer Space Treaty. (1996). Retrieved from: <https://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties/introouterspacetreaty.html>. Access date: 18 September 2021.
- Webb, D. (2015). The ethical use of outer space. *Ethical Engineering for International Development and Environmental Sustainability*. [https://doi.org/10.1007/978-1-4471-6618-4\\_4](https://doi.org/10.1007/978-1-4471-6618-4_4)
- Wenzel, A. (2016). Eating together, separately: Intergroup communication and food in a multiethnic community. *International Journal of Communication*, 10, 620-641.
- Yan, Y. (2019). Maintaining long-term sustainability of outer space activities: Creation of regulatory framework to guide the Asia-Pacific space cooperation organization and selected legal issues. *Space Policy*, 47, 51-62.