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SPACE ENVIRONMENT AND INTERNATIONAL
POLITICS

SPACE ENVIRONMENT & INTERNATIONAL POLITICS

Edited by
Hasret Çomak & Burak Şakir Şeker



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Space Environment and International Politics
Edited by Hasret Çomak and Burak Şakir Şeker

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PREFACE

One of the most recent areas of governmental involvement in the twenty-first century is space. Space is a notion that can be used to describe a variety of phenomena in science, math, and international politics. It is typically assessed in terms of an area or region. It is used to represent the whole of outer space and Earth's orbit.

The area outside of a planet's atmosphere is known as outer space. On Earth, it is thought to start at a height of roughly 100 km (62 miles) above sea level. The Kármán line is the boundary between space and the atmosphere. International law has not firmly established the distinction between space and airspace. Although the terms 'outer space' and 'universe' are similar, the former exclusively refers to the area between planets while the latter also refers to planets.

The Big Bang, 13.8 billion years ago, was the moment of the universe's creation. Telescopes can only observe objects that are 13.8 billion light-years away due to the speed of light. Scientists disagree on whether the cosmos is infinite or finite in size, and it is still growing. Beyond the edge of the observable universe, nothing is known.

At different orbital altitudes, man-made satellites circle the planet. The closest orbit to Earth is the low Earth orbit. This is also where the International Space Station and a large number of Earth observation satellites enter orbit.

Space actors today are not merely nations as they were in the 2000s. Businesses like SpaceX, Blue Origin, and Virgin Atlantic have started to make space travel and using the low-gravity environment commercially viable. Additionally, SpaceX's 4500+ satellites are the only ones that could potentially compromise space security and safety.

Many governments acknowledge the significance of space research and policy. Space studies were initially developed before the Cold War era, and the space race became more significant. The superpower race in space has generated a new dimension in terms of global security. Under this idea of rivalry, other states have started to develop their own space security plans. The superpowers militarized this time.

After the Cold War, space studies persisted with diverse actors and topic. When comparing the Cold War and the post-Cold War periods, it can be seen that the new security paradigms have altered concurrently with the content of the idea of space security.

The major players who controlled space assets during the Cold War preferred to view space security as a matter of national security. The actors that were unable to actively utilise space during this time accepted it as a question of global security.

Concerns about space security, which are believed to impact space activities, have long been considered in an international setting. The armament of space is the most significant issue with regard to space security. Technology for space weapons is expensive and complex to develop. Additionally, deploying weapons

into space puts the states' own space assets in peril. There are individuals who believe that international security will be weakened by weapons in space, in addition to those who consider it as inevitable.

Initially, states stop competing for control in space as a result of the understanding of space as a common space. Relations in space are not all antagonistic. On the agenda is international cooperation in space, which is recognized as a common domain. Since the start of the Cold War, space actors have cooperated (particularly in civil and scientific space activities).

In the years after the 2000s, the likelihood of weapons in space will decline due to international cooperation amongst space agencies. Kazakhstan and Japan, Brazil and Belgium, Ukraine and China, Israel and the European Union, the United States and India, and India and South Korea all inked cooperation agreements in 2010, 2011, and 2015.

The creation of international law is still a priority in order to guarantee the longevity of space activities. Basically, this mission is carried out by the United Nations' entities dealing with disarmament and space. Some of these projects are mandatory and prohibitive, while others are voluntary. The goal of these dedicated efforts is to develop more adaptable legal rules in principle.

The idea of space security is approached differently by different space actors. Space debris and platforms for information exchange regarding space assets and launches are important to the actors who support conducting awareness studies in space to ensure space safety. What will be the precise solution to this issue? The idea that it will be feasible with the construction of an international coordination center is becoming more persuasive.

Regardless of the viewpoint on space security, the need to safeguard the players' space assets motivates them to work together. The largest issue in this direction is space actors' attempts to rule the universe. Because of this, space actors keep a distance from international endeavors. The international community is especially concerned about space actor nations' efforts to materialize military space activities and weapons development efforts through covert programs.

The advancement of space activities in the framework of scientific and commercial endeavors is to the advantage of all humanity. As a result, cooperation has become more crucial. States must have confidence in one another for cooperation to take place. On the other side, armament cannot instill confidence. If states are involved in disarmament accords or indicate their aspirations in this direction, it will be simpler to create a climate of trust.

The goodwill of governments is not diminished by using space for military operations support services. The development of the fundamental space law at the international level is necessary to create international legal laws on the disarmament of space.

The various tiers of space assets used by space actors distinguish the actors' perspectives on space security. The US resists efforts at disarmament and prioritizes space-based situational awareness. On the other side, in order to stop the US from dominating space, the People's Republic of China and the Russian

Federation propose international recommendations to ban weapons.

With a GDP measured in terms of purchasing power parity (PPP) of 28 trillion dollars, the People's Republic of China has the largest economy in the world. Space is important in a specific place. He does not desire to pay for the space weapon. In order to earn reputation, the People's Republic of China aims to exceed the USA, particularly in scientific advancements. It holds the same position as the Russian Federation in this regard and seeks to understand how the disarmament pact affects how the international community views space security. In the meantime, the People's Republic of China uses very secret strategies to develop its military space capabilities. Other actors criticize it because of this. The People's Republic of China is allegedly developing space weapons, according to the United States. In its space policy, the People's Republic of China also states that it will not be the first country to launch a weapon into orbit, but that if the United States does so, it too may do so.

Activities like space exploration, habitation, and tourism will be governed by current regulations and future plans for space security. Through a variety of techniques, efforts are being made to utilize space smoothly and effectively. Disarmament treaties can be used to implement one of these strategies.

Space-related states serve a variety of uses nowadays. Among these goals are

- Establishing a regional location and timing system,
- Consolidating satellite production under one roof,
- Create a spaceport to independently reach space,
- To carry out space weather scientific studies,
- Improving the capacity to view space objects from the ground,
- Establishing a Space Technologies Development Zone;
- Growing the aerospace sector ecosystem;
- Raising public awareness of space issues and increasing workforce.
- Space-related state objectives for the twenty-first century include:
- Creating medium- and long-term strategic plans for space and aerospace technology,
- To identify the fundamental concepts and methods relating to space and aviation,
- To create strategic plans that include aviation and space goals and priorities, performance standards, strategies for achieving those goals, and resource allocations,
- To ensure the growth of a robust aerospace sector,
- To direct the development of scientific and technological infrastructures and human resources in the field of space and aviation technologies,
- To promote the use of space and aviation technologies in accordance with the welfare of society and national interests,
- Enhancing resources and capabilities, making sure to purchase the infrastructure and technology necessary to enable independent

Preface

- access to space,
- To conduct the required research so that other industries within the country can profit from the knowledge and experience in the fields of space and aviation science and technologies,
- Deciding whether to exercise national sovereignty rights over spacecraft and space ground systems;
- Deciding on the management and implementation of these rights' procedures and guiding principles;
- Upholding these rights in accordance with national and international duties;
- To maintain records of objects launched into space in conformity with international regulations;
- To offer coordination between space ground stations;
- To collaborate with international organizations to safeguard and preserve their rights and interests in space;
- To keep records of objects launched into space in accordance with international treaties,
- Coordinating manned or unmanned space access and space exploration operations,
- To carry out plans, projects, and studies to ensure the design, production, integration, and necessary testing of all types of products, technologies, systems, facilities, tools, and equipment related to space and aviation, including satellites, launch vehicles and systems, aircraft, simulators, space platforms,
- To provide the necessary coordination for domestic satellite launches, spacecraft placement in orbit, and their return to Earth,
- To organize all types of design, analysis, production, testing, operation, and integration activities in the field of space and air vehicles and space ground systems,
- Space and aeronautical science and technology; To assess for the country's development, ensuring national security, protecting the environment and public health, determining the availability of natural resources, and determining agricultural productivity,
- To ensure coordination with relevant international institutions for the early detection of natural disasters and to reduce the damage caused by natural disasters,
- Leading the development of national interest in space and aerospace science and technologies,
- To determine the procedures and principles regarding the export of critical space and aviation technologies,
- To carry out research for the development of experimental space and air vehicles, space and ground systems, subsystems, equipment and components, and space exploration,

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- To carry out plans, projects, and studies to ensure the design, production, integration, and necessary testing of all types of products, technologies, systems, facilities, tools, and equipment related to space and aviation, including satellites, launch vehicles and systems, aircraft, simulators, space platform,
- To collaborate with international organizations to design, develop, and otherwise provide the required systems and tools and to plan the execution of the required studies,
- To conduct research to establish national standards while considering international norms for space and aviation science and technologies,
- To boost competitiveness globally and decrease reliance on foreign science and technology in the fields of aviation and space,
- To build the infrastructure for science and technology,
- To create programs to support high-tech entrepreneurs.
- To support astronomy and space science research and to coordinate national research efforts,
- To foster international cooperation and studies on the advancement of observation and measurement system technologies,
- To conduct research in the relevant fields (finance, law, management, marketing and similar subjects) that support the development and dissemination of applications related to space and aerospace science and technologies,
- To follow the developments in international space law,
- Collaborating with international organizations,
- Carrying out studies for the development of space law legislation,
- To be a member of regional or global international organizations related to space and aviation technologies.

A multi-purpose method was used in the preparation of our book, Space Environment and International Politics, to both give depth and richness to the scientific field and to clarify the aforementioned issues.

We would like to express thanks and appreciation to our invaluable colleagues who contributed original book chapters.

We would like to express our deepest appreciation to Prof. Dr. İbrahim Sirkeci and Mrs. Nihal Yazgan who put a lot of thought, effort, and devotion into preparing our book.

We hope that the work will be beneficial to the field of science.
August / 2023

Editors

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