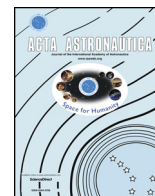




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Past and present engagement in space activities in Central and Eastern Europe



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ABSTRACT

Central and Eastern European (CEE) countries have been facing different cooperation models in the last fifty years regarding space policy and industrial activities. The period before the 1990s provided these countries with a strong heritage of expertise in space engagement which after the fall of the ‘Eastern Block’ offered the basis for cooperation with the other European countries and organisations. The way space policy in the CEE region was shaped during the early period and the way collaboration is conducted today have not been fully analysed. The objective of this paper is to provide a holistic analysis of the evolution of past and present developments of the CEE countries in space activities. The main focus of this paper is given to the Intercosmos period before the 1990s and following that, the integration process of these countries to the European Space Agency (ESA). Additionally, the CEE countries have been engaging in cooperation with other space agencies in Europe and outside. The countries also participate through the EU and its two flagship programmes Galileo and Copernicus amongst others. Furthermore, this paper provides an overview of the ESA accession process established in the early 2000s as ESA responded to the increasing interest of the CEE countries to engage in cooperation in the field of space. The comparison of both, historical and recent developments on CEE countries in space activities, indicates that CEE region has the basis for integrating in the European space sector. Participation in ESA and collaboration with other space faring nations is needed to ensure successful transformation of both their scientific and industrial basis as well as their governance, to the evolving space sector while utilizing the heritage obtained through the past engagements.

1. Introduction

Over the past two decades, the European landscape in space activities has been rapidly changing as the European integration process is evolving. European space programmes are mainly developed through established cooperation with international governmental organisations (IGOs). The main actor in Europe is the European Space Agency (ESA), an intergovernmental organisation established in the mid-1970s. Since then, ESA shapes the development of Europe's space capability and ensures that investment in space continues to deliver benefits to the citizens of Europe and the world [1]. Additionally, European countries participate through their EU membership to EU's space flagship programmes, Galileo and Copernicus programmes, amongst others.

The ESA Convention provides the basis for ESA's purpose and

functioning. It sets out the main goals and objectives of the organisation, the decision making processes and organisational aspects. Countries that become Member States of ESA adhere to the Convention. According to the Convention (Article II), the purpose of ESA is to ‘elaborate and implement a long-term *European space policy*, by recommending space objectives to the Member States, by concerting the policies of Member States, and with respect to other national and international organisations and institutions’. Furthermore, the ESA purpose is to ‘elaborate and implement activities and programmes in the space field’, and to ‘coordinate the *European space programme* and national programmes and integrating them,¹ as completely as possible, into the European space programme, in particular the development of *applications satellites*’. Above all, the ESA purpose is to ‘elaborate and implement the *industrial policy* appropriate to its programme and by

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¹ The competence given by the ESA Convention for integration of national programmes is crucial aspect of the purpose of ESA not only towards the CEE region in particular but also for the latest new Member States.

Table 1
Historical comparison of the international space related cooperation in Europe.

Type of collaboration	Western Europe	Central and Eastern Europe
Economic (scientific) cooperation	EEC (1957–1993/2009) EU (1993/2009)	COMECON (1949–1991)
Military and defense cooperation	NATO (1949)	Warsaw Pact (1955–1991)
Space activities cooperation	ELDO (1961–1975) ESRO (1964–1975) ESA (1975)	Intercosmos (1967–1991)
Space telecommunications	EUTELSAT (1977–2001) INMARSAT (1976–1999) INTELSAT (1964–2001)	Intersputnik (1975)
Meteorology	EUMETSAT (1986)	

recommending a coherent industrial policy to its Member States’.

The Central and Eastern European countries (CEE)² have only recently engaged in ESA activities. The integration of the CEE region into ESA has been taking place in parallel to their integration into the European Union (EU). However, cooperation of the CEE countries had already taken place in the past, during the second half of the 1960s through the establishment of a cooperative programme called ‘Intercosmos’, nonetheless, the individual CEE governments at that time were rarely afforded choices in collaboration in the context of this programme. It was led by the Soviet Union of Socialist Republics (USSR), which provided the main launch facilities and technical capabilities for those countries interested in participating in space exploration. It became institutionalised through the Council of Mutual Economic Assistance (COMECON) and was supported by the national Academies of Sciences of each cooperating state. The Intercosmos programme, the COMECON and other strategic political, economic and military partnerships between the CEE were abandoned during the early 1990s, after the collapse of the USSR. In light of losing such, even limited, conditions for space activities that had been provided thus far by the USSR, the CEE countries reoriented their interests towards ESA. Over the past years the numbers of the CEE countries interested in becoming ESA Member State have significantly increased. ESA, as the responsible IGO for space activities in Europe, is called to react to this increasing interest on its membership and build a tailored integration process reflecting these countries’ need to become successful members.

To successfully engage in space activities, it is necessary to have an overview of the past models of space activities cooperation and integration prior to the 1990s. The CEE countries in the past had built their space potential through the scientific research community without major involvement in industrial capacity building. The latter remained almost an exclusive competence of the USSR. In contrast, the ESA model of integration places a greater focus on strengthening the industrial capabilities in Member States through the geo-return industrial principle. The ways the CEE region space policy, research and development (R&D), science and technology (S&T) and collaboration frameworks were shaped during the early period of space activities has not been fully analysed.

The objective of this paper is to provide an overview of the past and present developments in the evolution of space related activities in the CEE region by comparing both the Intercosmos period and the integration process to ESA. This paper is divided into two main parts. The first part provides a brief historical analysis of the CEE regional space

collaboration evolution before the 1990s, including the description of the Intercosmos programme and its institutional and programmatic outlook. The second part provides a closer look at the ESA accession process by focusing on the ESA European Cooperating State (ECS) period and the mechanisms of ESA for early members to integrate into the European space sector. The complex narrative of these two historical periods and the different cooperation models, is embedded in a broad evolution of engagement in space activities. The data analysis focuses on historical and contemporary studies of the Intercosmos period.

This paper demonstrates that cooperation was an essential perspective for the success of the CEE countries in their quest for engagement in space activities, from the past to present. Furthermore, this study is contributing to the current broad discussion on the European space policy developments, by providing the outlook of existing integration policies and processes in Europe that have been in place since the early beginning of space activities. In this context ESA acts as an enabler for the CEE countries to integrate their scientific and industrial community into the current European space sector.

2. CEE countries and international cooperation in space before the 1990s

The CEE countries have been active in the space domain since the late 1950s; the early beginnings of human space activities and research. For instance, the Committee on Space Research (COSPAR) or the United Nations Committee on the Peaceful Uses of Outer Space (UN COPUOS) became important *fora* for sharing knowledge and supporting the development of national space and scientific activities [2]. In particular Czechoslovakia and Poland got already involved in the UN COPUOS in 1958, followed by Bulgaria, Hungary and Romania in 1959, and other former countries such as Yugoslavia in 1977.³ Moreover, the International Telecommunication Union (ITU), established already during the late 19th century, represents another important international regime for space activities. It regulates the telecommunication activities in the form of radio-frequency and orbit allocations for any satellite missions or terrestrial broadcasting [3].

Table 1 provides a summary of the main organisations that have been further established and participated in space activities in a political division perspective back in the 1990s. The CEE countries had close ties to the USSR through various types of international agreements. These countries were under the ideological and political influence of the USSR which also affected their space capacity building and shaped the form of their international cooperation relations. The most significant areas of cooperation in the Eastern region, including the space activities, were in defence and military (The Warsaw Treaty Organisation also known as the Warsaw Pact), economic collaboration (COMECON), or in telecommunications and broadcasting represented by the International Organisation of Space Communications (INTERSPUTNIK). From the West region political division perspective, several IGOs were established in the domain of economic collaboration, military and defence, space activities, meteorology or remote sensing, or telecommunications. These include the European Economic Community (EEC), the North Atlantic Treaty Organisation (NATO), the European Space Research Organisation (ESRO), the European Space Agency (ESA), the European Launcher Development Organisation (ELDO), the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT), the European Telecommunications Satellite Organisation (EUTELSAT),⁴ the International Maritime Satellite Organisation (INMARSAT),⁵ and the International Telecommunications Satellite

³ Former Czechoslovakia is now officially represented by the Czech Republic. Slovakia joined the UN COPUOS in 2001. Slovenia as a former federal republic of Yugoslavia is not a member of the UN COPUOS.

⁴ In 2001 its operations and activities were transferred to a private company Eutelsat S.A.

² For the purpose of this article the CEE region is represented by the countries (in alphabetical order): Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, and Slovenia.

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