

# THE VISEGRAD GROUP: EMBRACING THE DOMAIN OF OUTER SPACE

**Peter Pindják, M.P.I.A.**

Slovak Republic

## Abstract

*Space has become an increasingly relevant domain in security and defense policy. The study draws attention to significant interrelations among trends in modern warfare, emerging technologies and dependency on outer space, which pose both threats and opportunities. In particular, it highlights the indispensable role of space within prominent defense programs, including Remotely-Piloted Aircraft (RPA), Ballistic Missile Defense (BMD) as well as the prospective Prompt Global Strike (PGS). Hence, presence in the ultimate high ground of military affairs turns out as ever more important.*

*While the Visegrad countries have not yet recognized space as a platform for regional cooperation, recent political developments show that by 2020, all of the members of the Visegrad group may become members of the European Space Agency (ESA). By becoming active members of ESA, the V4 countries can prospectively embrace new opportunities such as the development of cosmic industry and strengthening their defense and security capabilities. Furthermore, regional cooperation in space may bring about the effects of synergy, which will provide the Visegrad countries with a substantial added value. In line with initiatives to develop multinational capabilities, the paper advocates that the Visegrad countries venture into space by launching a joint satellite in orbit by 2025.*

**Key words:** space, outer space, regional cooperation, defense, security, Visegrad, V4

## Introduction

Regional security and defense cooperation initiatives have recently gained an increasing importance within the efforts to streamline and modernize European defense capabilities. Until recently, outer space remained largely unnoticed by small and medium-sized countries. That may well change in coming years as an increasing number of states has decided to venture into this unique domain. Whereas Poland, the Czech Republic, Hungary, and lately also Slovakia have shown their interest in becoming relevant players in space, the Visegrad group may through the effects of synergy attain a substantial added value in several areas of public life, including economy, security and defense<sup>1</sup>.

The era, in which only a handful of great powers possessed capabilities enabled by space platforms, is long over. Nowadays, nine spacefaring nations, two American private companies<sup>2</sup> and the community of states gathered in ESA can launch satellites into orbit. Presence in the ultimate high ground of military affairs turns out as increasingly expedient. Besides the military and intelligence use of outer space, satellites provide an essential tool in many different public services, including weather forecasting, communication, navigation and the transmission of different types of signal. In recent years, space efforts have concentrated mostly on communication -- civilian and military -- followed by science services, remote sensing and meteorology<sup>3</sup>.

In order to better understand the importance of the domain of outer space, especially in the realm of security and defense, one must take a close look at the nexus of air and space as the two increasingly interdependent mediums that prove indispensable in crisis management operations. Recent trends in military affairs have convincingly shown that the continuum of air and space will continue to play a crucial role in prevailing in future conflicts. Orbital and aerial platforms prove

---

1 Pindjak, Peter and Jankowski, Dominik. *Importance of Space Domain within Visegrad Defence and Security Cooperation*. New Atlanticist. Atlantic Council of the United States (ACUS), 2012. Accessed on June 1, 2013 at: [http://www.acus.org/new\\_atlanticist/importance-space-domain-within-visegrad-defense-and-security-cooperation](http://www.acus.org/new_atlanticist/importance-space-domain-within-visegrad-defense-and-security-cooperation).

2 Two U.S. companies have demonstrated the ability to launch satellites in orbit – SpaceX Corporation and most recently also Orbital Sciences Corporation.

3 Al-Ekabi, Cenani. *Space Policies, Issues and Trends in 2011/2012*. European Space Policy Institute (ESPI), 2012, pp. 34-35.

essential, for instance, in the use of precision-guided munition (PGM), RPA<sup>4</sup>, BMD, and also other prospective projects such as PGS<sup>5</sup>, all of which form the core of modern warfare.

## Growing Importance of Air and Space in Modern Warfare

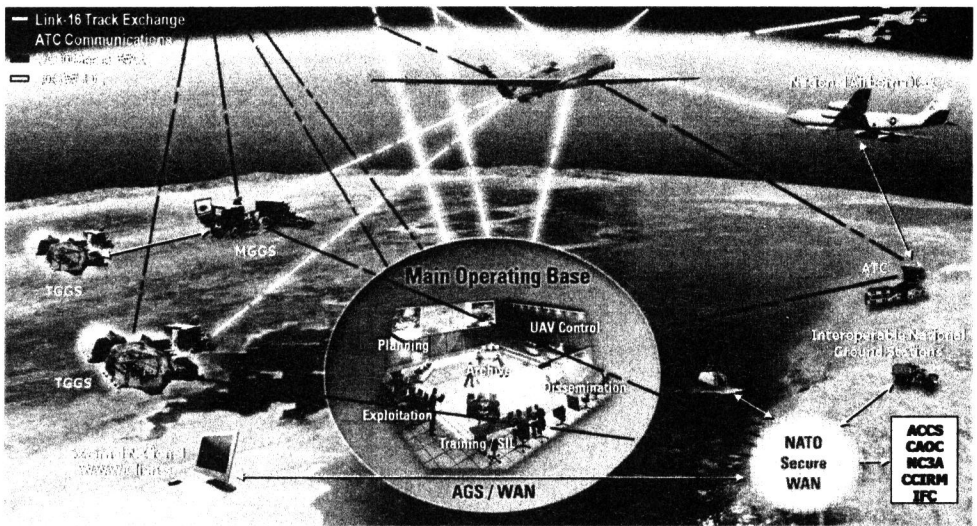
While most of the technological advances that allow for the use of RPA and proper functioning of BMD and PGS have been spearheaded by the United States, European nations will have to assume a greater role by investing into research and development, particularly in the domain of outer space. Otherwise, Europe will become ever more dependent on the U.S. assistance and gradually lose the ability to maintain the security of the old continent by itself. Notably, the Visegrad nations already participate in several multinational projects that take advantage of air and space, both through NATO and the EU. One of such programs, in which three of the V4 countries take part, represents the NATO Alliance Ground Surveillance (AGS) system. It has become one of the flagship multinational initiatives of NATO to develop modern capabilities for emerging security challenges. The AGS will provide the Alliance with a critical capability as a part of NATO's Joint Intelligence, Surveillance and Reconnaissance (JISR) ambition. The core system of the AGS comprises five RQ-4B Global Hawk high-altitude, long-endurance RPA operated out of Sigonella base in Italy. The RPA Command and Control (C2) as well as the Intelligence Surveillance and Reconnaissance (ISR) data transmission will be conducted through a space component.<sup>6</sup> Indeed, AGS presents a prime example of the importance of air and space domains in modern warfare.

---

4 For further reference in the paper, the term RPA refers to Unmanned Aerial Vehicles (UAV) that operate beyond line-of-sight using orbital platforms such as the RQ-4 Global Hawk and MQ-9 Reaper aircraft.

5 The paper mainly refers to the conventional version of the PGS concept known as the Conventional Prompt Global Strike (CPGS).

6 NATO Alliance Ground Surveillance Management Agency (NAGSMA). *General Information*. NAGSMA Website. Accessed on June 1, 2013 at: [http://www.nagsma.nato.int/Pages/AGS\\_General\\_Information.aspx](http://www.nagsma.nato.int/Pages/AGS_General_Information.aspx).



**Table 1. NATO AGS Concept (Source: NAGSMA)<sup>7</sup>**

Whereas the AGS remains one of the NATO’s most prominent smart defence projects, RPA projects are also developed by the EU as well as some other multinational groups in Europe. The EU leads an RPA project intended for civilian use only under the program named Remotely Piloted Aircraft Systems (RPAS). It advocates the utility of RPA as a unique platform capable of delivering a wide range of services including monitoring of natural resources, communication services and infrastructure inspection.<sup>8</sup>

Another notable multinational project developing a military RPA is led by France and involves government and industry partners from Greece, Italy, Spain, Sweden and Switzerland. This group works on the prototype of a first European Unmanned Combat Aerial Vehicle (UCAV) known as Neuron. The Neuron UCAV took off for its maiden flight in December 2012. By reaching full operational capability, Neuron will fly at the speed of sound and carry PGM, either with conventional or nuclear payload.<sup>9</sup>

<sup>7</sup> Ibid.

<sup>8</sup> European Commission. *Remotely Piloted Aircraft Systems*. European Commission Website. Accessed on June 1, 2013 at: [http://ec.europa.eu/enterprise/sectors/aerospace/uas/index\\_en.htm](http://ec.europa.eu/enterprise/sectors/aerospace/uas/index_en.htm).

<sup>9</sup> Dassault Aviation. *nEUROn program*. Dassault Aviation Website. Accessed on June 1, 2013 at: <http://www.dassault-aviation.com/en/defense/neuron/introduction/>.

To ponder upon the future use of European RPA, one has to follow the advances spearheaded by the United States, which recently crossed two important milestones in this field. Whereas the Central Intelligence Agency's (CIA) Counter-Terrorism Center (CTC) operates more than 80 RPA, including Reapers and Predators that are specially outfitted for intelligence missions and covert actions, U.S. Navy recently conducted the first ever RPA aircraft carrier launch with its X-47B Unmanned Combat Air System demonstrator, initially developed by the Defense Advanced Research Projects Agency (DARPA).<sup>10</sup> Meanwhile, DARPA works on several projects involving hypersonic cruise vehicles. One of them, the X-51A Waverider recently made a successful test flight that lasted more than three minutes and reached the hypersonic speed of five times the speed of sound. In the future, the amazing scram-jet engine could not only be used in aircraft, but also in cruise missiles. According to U.S. Air Force, the technology may be integrated in hypersonic weapon systems by 2020–2025 time frame and prospectively enter the battlefield by 2030.<sup>11</sup> In any case, whether it will be used on RPA, missiles, or both, the system will be dependent on satellites for communication, navigation and guidance.

Yet RPA will not only serve in military capacity as the European Union already considers introducing RPA in civilian airspace. Under the project DeSIRE, ESA and the European Defence Agency (EDA) recently conducted a series of tests to integrate military RPA in civilian airspace. The last test was conducted in close cooperation of Spain and Israel. In the exercise, the on-ground pilot of an Israeli Heron 1 RPA successfully communicated via satellite with the pilot of a Spanish manned aircraft and managed to divert a possible collision.<sup>12</sup>

---

**10** Roston, Aram. *CIA's Fleet of 80+ UAVs Unlikely to be Transferred to Military*. DefenseNews, 2013. Accessed on June 1, 2013 at: <http://www.defensenews.com/article/20130515/C4ISR/305150026/Targeted-Killing-CIA-s-Fleet-80-UAVs-Unlikely-Transferred-Military>.

**11** McGarry, Brendan. *Air Force Sees Hypersonic Weapons in 2025*. DefenseTech, 2013. Accessed on June 1, 2013 at: <http://defensetech.org/2013/05/13/video-air-force-sees-hypersonic-weapons-in-2025/>.

**12** Opall-Rome, Barbara. *Israel Tackles the Last Frontier of UAV Technology*. DefenseNews, 2013. Accessed on June 1, 2013 at: <http://www.defensenews.com/article/20130603/C4ISR01/306030015/International-ISR-Israel-Tackles-Last-Frontier-UAV-Technology>.

## Space as Indispensable Component of BMD and PGS Concepts

Besides RPA, space provides for an essential component in other high-tech defense programs such as BMD and PGS. Even though these technologically sophisticated projects remain largely the prerogative of the United States, European allies, and to some extent also Visegrad countries, carry the potential to actively engage in them. With regard to BMD, Poland remains the strongest protagonist of this initiative within the Visegrad group. Following up on the scrapped plan of the George W. Bush administration, in which the Czech Republic and Poland supposed to host the core European element of the U.S. national BMD system, the biggest V4 country now expects to host a BMD interceptor site within the Barack Obama's plan known as the European Phased Adaptive Approach (EPAA). By 2018, the Polish base complemented by a similar site in Romania will form an integral part of EPAA and perhaps also NATO missile defense system, which will provide coverage of all European NATO territory against ballistic missile threats launched from states like Iran and North Korea. Within the Alliance itself, the issue of BMD has resonated for already a few decades. The main focus of NATO lies in the limited, area-specific BMD protection. Known as Active Layered Theatre Ballistic Missile Defence (ALTBMD), the NATO system seeks to protect forward-operating troops from short- and medium-range ballistic missile threats using a sophisticated BMD architecture. As any sophisticated BMD system, ALTBMD also counts on an early warning space-based component. Pursuant to the first operational capability declared in 2010, NATO plans to achieve full operational capability of ALTBMD by 2018.

Yet Poland does not seem to reconcile with the idea of relying solely on either bilateral or multilateral agreements when it comes to BMD. In April 2013, Polish President signed an amendment that earmarks more than 30 billion Euro to build a national BMD system.<sup>13</sup> Poland seems resolute in building an area-specific BMD system that will provide protection against short-range ballistic missiles.

---

13 Agence France-Presse. *Poland Guarantees Funds for Missile Shield*. DefenseNews, 2013. Accessed on June 1, 2013 at: <http://www.defensenews.com/article/20130412/DEFREG01/304120012/Poland-Guarantees-Funds-Missile-Shield>.

Furthermore, Poland remains open to any negotiations to extend its BMD umbrella project to regional partners, which certainly presents a unique opportunity to the Visegrad group. In line with the growing significance of air and space continuum, in addition to the protection against ballistic missile, any BMD system includes components relevant to air defense. While some of the V4 countries have already engaged in discussions on a joint radio-location field as well as signed bilateral cross-border air operations agreements, the prospect of initiating consultations on a regional BMD initiative may not seem too distant.

Space Capability	NATO Joint Air Power Competence Center	Member States
Position, Velocity, Time and Navigation	<ul style="list-style-type: none"> <li>• Precision strike</li> <li>• Force navigation</li> <li>• Support to PRADISAR</li> <li>• Networking</li> </ul>	<ul style="list-style-type: none"> <li>• Global Positioning System (US)</li> <li>• Galileo (EU)</li> </ul>
Integrated Tactical Warning and Threat Assessment	<ul style="list-style-type: none"> <li>• Force protection</li> <li>• Attribution</li> <li>• Missile defence</li> </ul>	<ul style="list-style-type: none"> <li>• Space Based Infrared System (US)</li> <li>• Cosral (FRA)</li> </ul>
Environmental Monitoring	<ul style="list-style-type: none"> <li>• Mission planning</li> <li>• Munitions selection</li> <li>• Weather forecasting</li> </ul>	<ul style="list-style-type: none"> <li>• Defense Meteorological Satellite Program (US)</li> <li>• EUMETSAT (EU)</li> </ul>
Communications	<ul style="list-style-type: none"> <li>• Command and Control</li> <li>• Unmanned Aerial Vehicle ops</li> <li>• Deployed communications</li> </ul>	<ul style="list-style-type: none"> <li>• Syracuse (FRA)</li> <li>• SICRAL (TA)</li> <li>• SKYNET (UK)</li> </ul>
Intelligence, Surveillance and Reconnaissance	<ul style="list-style-type: none"> <li>• Order of battle</li> <li>• Battle damage assessment</li> <li>• Targeting</li> </ul>	<ul style="list-style-type: none"> <li>• SAR Lube (DE, UK)</li> <li>• COSMO SKYMED (TA)</li> <li>• HELIOS (FRA)</li> </ul>

**Table 2. NATO use of space (Source: NATO JAPCC)<sup>14</sup>**

The United States does not only present a leader in technology used in RPA and BMD, but also in the concept of PGS, a long-term U.S. program to develop the capability of engaging geographically remote targets with hypersonic strikes. The non-nuclear PGS project, which involves the sole use of conventional strikes, known as the Conventional Prompt Global Strike (CPGS) has received much attention among military planners and policy makers, particularly after the U.S. Nuclear Posture Review of 2001 that emphasized the role of conventional weapon systems in long-range strike missions. Whereas initially the U.S. Department of

<sup>14</sup> NATO Joint Air Power Competence Center (JAPCC). *Filling the Vacuum: A Framework for a NATO Space Policy*. JAPCC, 2013.

Defense considered ballistic missiles as the primary vehicle for the CPGS mission, emerging technologies have gradually paved the way for experimenting with innovative concepts. Most of these draw on a modified ballistic missile fitted with a hypersonic glide vehicle.<sup>15</sup> While the proposed missile would not follow regular ballistic trajectory, it would alleviate strategic concerns that its launch might have been misinterpreted as the launch of an Intercontinental Ballistic Missile (ICBM). Prospectively, CPGS may comprise of several launch platforms and hypersonic vehicles such as the X-51A that may eventually travel at up to 15 times the speed of sound. Regarding the launch platform, forward-based systems with global reach such as aircraft carriers, submarines, and possibly even space-based system that could deorbit an air-breathing vehicle into the atmosphere represent the most effective option for the successful implementation of the CPGS concept. In any case, the proper functioning of a military system with global reach such as CPGS will be dependent on space.

Trends in modern warfare suggest that future conflicts will continue to involve and to a large degree become reliant on space-enabled capabilities. The weaponisation of outer space itself, however, remains the subject to future national policies and prospective international norms that seek to prevent a cosmic arms race. Nevertheless, the most prominent space warfare simulation exercise known as Schriever Wargames, which is conducted annually in the United States, does consider scenarios that deal with conflicts extending to the domain of space. In 2012, the Schriever Wargame featured an irregular warfare scenario, in which allied forces became vertically flanked as the opponent forces interfered with their space and cyberspace capabilities. The wargames not only highlighted the importance of these domains in future conflicts, but also pointed to several weaknesses of the Alliance to respond to evolving challenges. NATO does not seem to have embraced space with all the threats and opportunities concerned. It lacks space policy, responsive organizational structure and also subject matter

---

<sup>15</sup> Scheber, Thomas and Guthe, Kurt. *Conventional Prompt Global Strike: A Fresh Perspective*. Comparative Strategy - Volume 32. Routledge, 2013, pp. 21-23.



experts. While some allies would welcome the inclusion of similar scenarios in NATO STEADFAST exercise series, the Alliance as a whole does not seem ready to handle such a challenge yet<sup>16</sup>.

## Conclusion: Prospect for Regional Cooperation in Space

Pursuant to the U.S. shift of geostrategic focus to the Asia-Pacific region, Europe needs to assume greater responsibility for the security of the continent. In line with the concept of smart defence, regional security and defense cooperation has continued to attract attention of European policy makers, particularly in Nordic and Visegrad countries. Indeed, the V4 nations recently significantly boosted their cooperation in several areas of defense, including the joint EU Battle Group (EU BG) and Special Operations Forces (SOF). In contrary to the Nordic countries, however, the Visegrad group has not yet embraced the domain of space as a prospective area for cooperation. The Nordic Defense Cooperation (NORDEF) acknowledged the importance of outer space in Stoltenberg report of 2009, which proposed the establishment of a joint polar orbit satellite system for communication and remote sensing purposes. The Nordic countries expect that the space system will in the long-term bring the users tangible benefits, including the provision of own space-based communication and ISR capabilities. While the V4 nations continue to shore up cooperation in different areas, space may in the short-term become another subject of joint interest. Recent trends in military conflicts have convincingly shown that space will continue to play a significant, if not indispensable role in international crisis management operations.

Whereas most of the Nordic countries are members of ESA, only the Czech Republic and Poland enjoy membership in the European space club within the Visegrad group. In light of recent developments, however, all Visegrad nations may become members of ESA by 2020. The Czech Republic joined ESA in 2008 and has been spearheading space endeavors within Central Europe. Poland joined

---

<sup>16</sup> Waller, H. Todd. *Schriever Wargame 2012 International*. NATO Joint Air Power Competence Center (JAPCC) Journal – Spring/Summer 2013. Accessed on June 1, 2013 at: [http://www.japcc.de/fileadmin/user\\_upload/journal/Edition\\_17/2013-04-10-Journal\\_Ed-17\\_web.pdf](http://www.japcc.de/fileadmin/user_upload/journal/Edition_17/2013-04-10-Journal_Ed-17_web.pdf).

ESA structures in late 2012 and has already shown a strong interest in security dimension of outer space. Hungary expects to become a member of the agency in a few years. Last, but not the least, Slovakia recently announced it would like to sign the European Cooperating State (ECS) agreement as well as a plan of cooperation with ESA, which would set the country on a 5-year road to join the agency.

Venturing in space by launching a joint V4 satellite by 2025 would bring the Visegrad group lasting benefits including bolstering of its defense and security capabilities as well as building up its cosmic industry. Establishing a satellite support infrastructure is not only about space, but also about ground segments that may prove useful in other missions such as the surveillance of air and space. Furthermore, if the countries continue to build their forces to support multinational expeditionary operations, space-enabled capabilities will continue turn out as ever more indispensable. In summary, regional cooperation in space may bring the Visegrad group about the effects of synergy, which will provide the nations with a substantial added value in several areas of public life, including economy, security and defense.

---

*The author works at the Defence Policy Department of the Slovak Ministry of Defence and pursues a doctorate in national and international security at the Armed Forces Academy of General Milan Rastislav Stefanik in Liptovsky Mikulas, Slovakia. He holds a Jack Kent Cooke Graduate Scholarship and is a member of the Inter-Ministerial Commission for Cooperation of the Slovak Republic with the European Space Agency. He earned an MPIA in Security and Intelligence Studies from the University of Pittsburgh's Graduate School of Public and International Affairs (GSPIA) and a BA and BM from the Louisiana Scholars' College at Northwestern State University. From 2004 to 2008, he attended the U.S. Army ROTC program as a foreign cadet.*