

CSS | ISSUE BRIEF

UK SPACE COMMAND Operations and Possibilities

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INTRODUCTION

Defense research and development has been going on every possible platform. Since World War II, the world has figured out more fields of war than just three, which are land, water, and air. Warfare tactics have gone beyond these three platforms to psychological and biological warfare even. Space has a lot of untapped potential that the US and China are exploring, and the UK has recently announced to develop its technology in the new playing field of security. Space-based capabilities have the potential to provide any country with robust and integral support to defense, military, cyberspace, and commercial applications. The US has been dominating space-enabled security for 25 years. China and Russia are emerging in the space to balance the power meanwhile Iran and North Korea impose a security threat as they developed jamming capabilities. Thus, space capability will emerge as a pivotal area to foster many military operations, to name some are missile warning, target identification, navigation, and geolocation tracking activities. Therefore, dominance in space can be directly proportional to the ability of offensive and defensive military in the world. As of now, nine countries and one international organization can launch a spacecraft independently. These include China, India, Russia, the USA, Japan, Israel, North Korea, South Korea, and European Space Agency (via French Guiana)¹. After Brexit, UK's accessibility to European Space Agency is certainly doubtful and one of the motivations behind Brexit was to attain an individual identity and policies. One of the novel ways to create a global image is to step in 'space' and have a presence there. Thus, UK announced the formation of its Space Command on 1st April 2021.

NEED FOR A SPACE COMMAND

It was high time that the UK announced its command for the space area. As mentioned, after Brexit, the UK's security risks had greatly increased and on the other hand, UK was overwhelmingly reliant on the US for space technology. The UK was looking forward to developing unmanned combat vehicles which depended on space communications. Another hard pill to swallow was their global status in space capability development. According to Harding's triple-tiered vision of space power, countries can be divided into 3 categories based

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¹ DIA, 2019. *Challenges to Security in Space*, Washington DC: Military Power Publications. RAF, 2019. *Forces.net*. [Online] Available at: <https://www.forces.net/news/raf-fylingdales-what-does-royal-air-force-station-do> [Accessed 15 November 2019].

on their capability. Tier 1 consists of countries that can carry out an independent and comprehensive launch, manufacturing, and development. The US, Russia and China are categorized into tier 1². Tier 2 countries have a mix of capabilities, they expertise in a niche but general space capabilities are lesser than tier 1. This category consists of France, India, Israel, and Japan³. Tier 3 countries only purchase space technology and services from other countries. Although the UK does not entirely come under tier 3, it also does not fulfil the criteria to be enlisted as a tier 2 country. Thus, Space Command had become a necessity to keep up with the international security scenario rather than a choice to create dominance in space.

FUNCTIONING

UK Space Command will consist of staff members from Royal Navy, Royal Air Force and British Army⁴. Not only defense forces will be included but civil servants and key members of the commercial sector will also be as much a part of the Command. Space Command will be working on space operations, space workforce training and growth and space capability. The Space Command brings services under a 2-star service. It is different from the US Space Force as USSF is altogether a different branch of US Armed Force and closely follows the naval model while UK Space Command will be working very closely with the Royal Air Force and it is a joint command. Air Commodore Paul Godfrey OBE was announced as the Commander of Space Command.

The need for Space Command was realized after the formation and definition of tasks of the Space Directorate. It looked after strategic thinking and planning. But this is only one part of the enterprise, capability enhancement and management were still missing. Thus, Space Command was brought into existence. Space Command is formed under a single command as it would provide more agile decision-making and flexibility in management risks as well. The Space Commander will also be a part of the Space Alignment Group, chaired by the Space Director. The Commander reports to a four-star space group called Defense Space Executive Board, chaired by the Vice Chief of Defense. Also, the four-star board consists of the Secretary of State to the National Space Council and is chaired by the Prime Minister. Thus, the Vice Chief represents the Space Council before the Prime Minister. Thus, the direction will flow from the National Space Council to Space Directorate and then to Space Command⁵. It will be

² Bowen, B. E., 2018. British strategy and outer space: A missing link?. *The British Journal of Politics and International Relations*, 1(1), pp. 1-18.

³ Bowen, B. E., 2018. British strategy and outer space: A missing link?. *The British Journal of Politics and International Relations*, 1(1), pp. 1-18.

⁴ Defense, M. o., 2021. *GOV.UK*. [Online] Available at: <https://www.gov.uk/guidance/uk-space-command> [Accessed 1 April 2021].

⁵ RAF, N., 2021. *RAF News*. [Online] Available at: <https://www.raf.mod.uk/news/articles/air-commodore-paul-godfrey-announced-as-commander-united-kingdom-space-command/#:~:text=Air%20Commodore%20Paul%20Godfrey%2C%20who,rank%20of%20Air%20Vice%20DMarshal>. [Accessed 1 February 2021].

located at RAF High Wycombe which increases its proximity to the National Air and Space Operations Centre.

CURRENT OPERATIONS AND MISSIONS

Among the initial operations, the earliest ones are taking control of RAF Flyingdales, SKYNET, and the UK Space Operations Centre. RAF Flyingdales is a station based in North Yorkshire and gives continuous inputs on Ballistic Missile surprise attacks. The information of RAF Flyingdales is passed on to both UK and US governments. In 2019, an investment of £30 million was announced to build a small satellite demonstrator⁶. Thus, after UK Space Command takes control of Flyingdales, these missions will be guided by a relevant organization specifically dedicated to space missions. In terms of weaponization of space, the UK has been building Critical National Infrastructure since 2015. Along with the UK, even the US government and intelligence forces have worked to build space intelligence. Another project called Carbonite 2 will provide the RAF with an undefeatable capability. These satellites will provide fighter jets pilots with direct videos taken in space by these satellites, moreover in real-time. This will make the UK pilot's awareness unmatched. Also, Carbonite 2 is an early planned project that would assist the RAF with space capabilities. As the Space Command capabilities and functions become clearer, more of such military projects can be expected. These projects will weaponize UK more and make its capacity relevant for space powers like the US, China and Russia.

UK Space Operations Centre protects British assets in outer space. The Space Command will build a Commercial Integration Cell (CIC). It is congruent to the Combined Space Operations Centre of the US Space Force. The UKSpOC aims to make CIC a part of Operation Olympic Defender, an operation to enhance communication between allied nations in terms of security in space⁷. The UKSpOC and the Space Command will also work towards integrating military and commercial operations wherever required. This explains the formation of a single command even more, which will have comprehensive details about the capability of both teams, security, and commercial operations. CIC will also be concentrating on engagement with more industries. Thus, this depicts that the UK also aspires to foster its security influence in NATO apart from strengthening space security at a national level. Commercial engagement is equally important as stakeholders like SpaceX will have a significant say in the space domain in future. Commercial engagement is something that most space powers have overlooked.

⁶ RAF, 2019. *Forces.net*. [Online] Available at: <https://www.forces.net/news/raf-flyingdales-what-does-royal-air-force-station-do> [Accessed 15 November 2019].

⁷ Space, U., 2020. *UKSpace.org*. [Online] Available at: <https://www.ukspace.org/ukspace-raf-establish-cic-for-greater-military-and-commercial-space-collaboration/> [Accessed 23 July 2020].

SKYNET is a military satellite communication service established by Airbus Defense and Space in 2016 on behalf of the British Ministry of Defense. Skynet was developed to provide services in the Asia-Pacific region and extend itself to become a part of Australian, New Zealand and US Forces operations in the region. Their primary service is to provide tactical secure communications services to defense customers. Skynet has also created a constellation of 8 satellites that would give every Beyond the Light of Sight (BLOS) communications to the UK Ministry of Defense. Also, the allied countries and NATO are given some access to Skynet service as well. The Ministry of Defense has already announced an investment of £6 billion on SKYNET in the recent Defense Command Paper, 2021. Although Skynet was established in 2016, it will be under the jurisdiction of the UK Space Command. Skynet 6 is planned to be launched by 2025 and it aims to establish communication between the Five Eyes countries, allies, and commercial satellites. It will provide a digital architecture enabled by space-based assets. OneWeb is a London based global communications company and the UK government acquired 45 percent of its stakes in 2020. OneWeb is also involved with Airbus in manufacturing and developing Skynet 6. Thus, not only the US-based commercial industry, but the Ministry of Defense is also involving British industries in Space Command operations.

With taking control over these three organizations, as mentioned UK Space Command is set to become a unique organization that is a multi-purpose command addressing both defense and commercial concerns in space. The Space Command is expected to take hold of ongoing operations and even initiate some. For instance, PM Boris Johnson announced the launching of the UK's first rocket, a vertical small satellite, from Scotland in 2022 itself⁸. This project is named "UK Pathfinder" and is being done with the assistance from Lockheed Martin and ABL Space Systems, both of which are US-based companies. Thus, the integration of allied powers is visible⁹. After entering the orbit, it will release six 6U CubeSats, small orbital maneuvering vehicles. Space Command brings immense scope for the United Kingdom to explore space as a domain. Understanding the scope of the Space Command will help us know the possibilities better. Also, more discussions on future possibilities need to be brought up by the Space Command because the mentioned projects were not proposed recently but have been in talks since 2015. These projects are only being implemented in 2021.

Although the current announcement of plans gives some glimpse of prospects of the Space Command. The Space Command has been carrying out training missions for their fighter jets Typhoon. The mission is going in the atmosphere, at the edge of outer space, and destroying hostile satellites by building anti-satellite capabilities. Thus, this proves that the British approach is going to be offensive rather than defensive in outer space. UK has even banned Huawei from carrying out their 5G trials, this opens doors for the commercial aspect of Space Command as well. The importance Space Command holds for the UK Government is apparent

⁸ RAF, 2019. *Forces.net*. [Online] Available at: <https://www.forces.net/news/raf-fylingdales-what-does-royal-air-force-station-do> [Accessed 15 November 2019].

⁹ Williams, A., 2021. *electronicsweekly.com*. [Online] Available at: <https://www.electronicweekly.com/news/first-uk-satellite-launch-use-abl-space-systems-rs1-rocket-2021-02/> [Accessed 9 February 2021].

from the budget and troop size changes the parliament is ready to bring. Defense Secretary of Britain announced that the troop strength of the British army will be reduced to 72,500 by 2025¹⁰. Although the defense budget will be increased, most of it will be allocated to Space Command. In the Defense Command Paper of 2021, the UK Ministry of Defense has promised an investment of £1.4 billion in the next 10 years on Space Command. Thus, UK is working towards making space a combat edge for its security. With so many aspirations, there are quite a few grey areas that are yet to be explained about the Space Command.

CONCERNS AND SHORTCOMINGS

One of the biggest questions regarding Space Command is what took so long for the UK to form such a command. One of the explanations, which also proves to be an upside, is that the UK has learnt from the experiences of its allies and other countries. Since the US, France, India, and Japan have launched their respective space agencies and research centres, their experiences have marked all the red flags that the UK needs to avoid. Thus, they have introduced some measures that other countries took a while to understand, for instance, training of personnel to work in the space domain. Space Academy will be established by the Ministry of Defense only to train the staff and personnel. Yet few concerns have been raised on the functioning of the Space Command. First, Space Command integrates the industrial, commercial, and military aspect of space as a domain. There is a difference between usage of this area as a warfighting domain and an operational domain that also involve different approaches. This is a thin line to walk on and skepticism is growing on how the UK Space Command will handle these two simultaneously. Previously, this has been seen in the cyber domain where defense and firms face a tough time while approaching the domain.

Another concern is very well the reason behind its existence. The UK Space Command was formed primarily because the Conservative Party had promised so, to the Britons, in their manifesto. Thus, Space Command needs to be fostered in such a way that it remains resilient to domestic political changes.

Another concern is that the responsibilities of Space Command and Space Directorate are overlapping in many fields. Thus, this might hamper collaborations and discussion with allies and industry when it comes to taking command of the deals. Another gap that the Space Command has left unexplained is how they will be integrating Small and Medium-sized Enterprises (SMEs) in the commercial department.

Like SMEs, even integration of different armed forces is being questioned. The Air Commodore of both bodies, Space Agency and Space Command are from the RAF meanwhile, taking the example of India, India started their Defense Space Agency in December 2019 to

¹⁰ Ross, T., 2021. *bloomberg.com*. [Online]

Available at: <https://www.bloomberg.com/news/articles/2021-03-22/u-k-cuts-army-and-invests-in-space-defense-and-drone-warfare> [Accessed 23 March 2021].

coordinate the space assets of all three armed forces. The UK Space Command also needs to integrate all three forces and even their cyber domain. Whether these are unintentional gaps that the Ministry of Defense could not attend or are these scopes purposely left to provide more flexibility to the Space Command shall be discerned as the projects progress under it.

INTERNATIONAL COLLABORATION

Discerning future aspects are as important as discussing the present status and shortcomings of the UK Space Command. Making a presence in the space domain cannot be done by a country individually, therefore even UK is forming international collaborations to go ahead with operations. Before Brexit, UK was the leading power in the European Space Agency, even after Brexit, UK will cooperate with Europe to build its capability and save money through a coalition. UK Space Command, further, will be working closely with France and Germany on building space capabilities. UK has also signed an agreement with the EU, making it a participant in EU Space Program as a third country from 2021 to 2027. UK companies will also be bidding for contracts in Copernicus Space Component (CSC-4), Global Monitoring for Environment and Security (GMES) program and Earth Observation Envelope Program and Future EO-1. Not only NATO is benefitting from the UK, but the relationship is vice versa too. Apart from Olympic Defender, NATO is also building NSA Spy Base in North Yorkshire. Menwith Hill is planned to become one of the most important US and NATO overseas bases. In the latest NATO Summit that took place in London, former US President Donald Trump proposed plans to weaponize space and develop policy for warfighting in space. The US is also promoting other NATO members to join the space arms race and boost space defense budgets. This brings a major turn in international security.

UK's collaboration with the EU is as visible as with the US. As mentioned, the US has been closely observing and assisting the UK Space Command. The US is finding ways to establish links between the EU and NATO in the space domain. The UK is the best bridge between these two groupings. Strengthening the UK's participation in both the alliances will make way for US dominance as well. Also, even for the US, collaboration with the UK is important as the country was hugely hit by COVID-19 and thus providing funds as the government used to before the pandemic is difficult. The Space Command is also collaborating with Australia and New Zealand in the Indo-Pacific region. Similarly, for such aspirations, UK is seeking collaboration with India as well. Even if the QUAD looks for expansion, UK might become one of the members, increasing its international presence in the space domain all over the world. These international collaborations not only hold importance for the UK but also have implications on the geopolitics of different regions. This move holds importance for China and India as SKYNET has major implications on the Indo-Pacific region.

While announcing the formation of Space Command, UK had called Russian and Chinese satellites hostile which needed to be tackled by a strong space defense system. This displays a direct implication that UK Space Command will have on China and Russia. Since Space Command will flourish commercial industry, Chinese and Russian companies might bear the

brunt of losing their European and English clients. Also, through Skynet, UK is strengthening its security ties with Australia and New Zealand. This increases its presence in the Indo-Pacific region, thus renewing its ties with ASEAN and South-East Asian countries. The talks of Quad Plus also affect the geopolitics greatly as China perceives Quad as another version of NATO. The partnership that most European nations have been anticipating is the British-French cooperation in space missions. This partnership might turn out to be most impactful for NATO, Europe, allies, and Quad Plus. Thus, operations and possibilities of UK Space Command change the ISR functions scenario at a global level.