

# The International Landscape of Military use of Space Technological Upheaval and Continuity of Power

Olivier ZAJEC

Lecturer in political science at the University of Jean  
Moulin-Lyon 3.

In January 2019, the African Union (AU) announced to the rest of the world its desire to create an African space agency modelled on the European Space Agency (ESA), with its headquarters in Egypt, whose head of state, Marshal Al-Sissi, has been president of the AU since February 2019. For such an entity to operate effectively, a great number of diplomatic difficulties internal to the AU will have to be ironed out. The symbolism of the announcement is extremely important: setting up an African space agency is one of a number of signals indicating that the strategic race for extra-atmospheric space is no longer to be limited to a select club of technologically advanced countries. This development is all the more significant given that the stampede we are seeing is not limited to civil uses of space.

By dint of the intrinsically dual nature of investment in space, any extra-atmospheric technological advance is likely to carry with it a direct or indirect military dimension, whether or not it is actually admitted by the states concerned. A recent article reminds us that the first satellites for radio-navigation (GPS and *GLONASS*), now indispensable for public use, were in fact military programmes.<sup>(1)</sup> Hence, and just to stay with African examples, Nigeria's new capacity for space observation offers its security forces the facility to obtain satellite imagery that allows the country to track down Boko Haram jihadists and insurrectional groups which are appearing in the oil-bearing delta region in the south of the country.<sup>(2)</sup> The Moroccan earth observation satellite *Mohammed VI-B*, launched by Arianespace from Kourou in French Guiana on 20 November 2017, gives Rabat the ability for better control of its land management programmes and also secure surveillance of its borders in one of the most unstable regional environments.

Space might therefore seem, on first sight at least, to be more and more open to everyone internationally—the military included. Yet is space really on track to

(1) GARDIEN Damien, HAINAUT Béatrice and BOUHET Patrick, *La guerre dans l'espace. Quelles possibilités dans un futur proche ?*, *Défense et Sécurité Internationale* (DSI), No 135, May-June 2018, p. 77 ([www.arcion24.news/](http://www.arcion24.news/)).

(2) CIYOW Yassin, *L'Afrique à la conquête de l'espace*, *Le Monde*, 26 April 2019 ([www.lemonde.fr/economie/article/2019/04/26/l-Africa-a-la-conquete-de-l-espace\\_5455038\\_3234.html](http://www.lemonde.fr/economie/article/2019/04/26/l-Africa-a-la-conquete-de-l-espace_5455038_3234.html)).

achieving real strategic equality that could see outsiders catch up with the traditional powers in terms of extra-atmospheric military status? About ten years ago, when referring to a multi-polar space race, some analyses were already questioning just to what extent the end of space shuttles and the financial crisis would sound the end of American hegemony in space.<sup>(3)</sup> Here we should probably beware of a number of illusions: whilst the number of new entrants has increased exponentially over the past decade with some quite significant technological work, albeit to differing degrees, the rapid changes in the world space hierarchy should nevertheless be viewed with prudence, particularly in the field of military applications. Multi-polarity here is not necessarily synonymous with true polyarchy.

To illustrate the geopolitical changes, and also what has remained permanent regarding power in this new global military space landscape, we will here first summarise the progress and initiatives among players in the extra-atmospheric domain then come back in the second part to the adaptations and breaks with the past made by the traditionally dominant players in the sector, among which are the United States, Russia, China, Japan, India and the European Union.

### **Progress and initiatives of the new entrants: effective, but still limited multi-polarity**

Space activity, especially its military applications, is particularly intense in the Asia-Oceania region. Apart from the advanced countries of India, China and Japan, the main players now emerging in the region are Australia, South Korea, the UAE, Vietnam, North Korea, Pakistan, Singapore, Malaysia, Israel, Iran, and Indonesia. Within this already large group, which is growing larger year by year, it would be appropriate to consider separately those countries that possess independent means of launching, which are (for the moment, at least) North Korea, Israel and Iran. These three countries share a strategic characteristic in that they have a military nuclear capability or are suspected of seeking to have one. In the group of Asian countries that are emerging in both space and nuclear fields only Pakistan, which has declared it has possessed atomic weapons since the tests in 1998, does not yet have its own independent capability of access to space.

Israel, which has nuclear weapons though does not officially admit it, is an actor in space and although not top rank nevertheless stands out markedly in that trio. The first Israeli achievements in the field of satellite reconnaissance date back to the nineteen-eighties and the *Ofeq* programme. Since then progress has been striking, in particular in the field of high-resolution imagery satellites. Most have been put into low orbit by the *Shavit* launcher, designed on the *Jericho II* missile, from the launch site at Palmachim. Despite the failure in April 2019 of the *Bereshheet* (which means 'Genesis' in Hebrew) lunar programme, Tel Aviv, which maintains close links with the

---

(3) VERSCHUUREN Pim, *Géopolitique spatiale : vers une course à l'espace multipolaire ?*, *Revue internationale et stratégique*, No 84, April 2011, p. 40-49 ([www.cairn.info/revue-internationale-et-strategique-2011-4-page-40.htm](http://www.cairn.info/revue-internationale-et-strategique-2011-4-page-40.htm)).

Americans and the Indians in these issues, is keener than ever to boost its regional dominance and not to let Iran catch up in space matters.

For it is indeed the case that Teheran is also advancing in military use of space. In 2003 the Iranians created a national space agency attached, as political control would have it, to a 'supreme space council', itself part of the Ministry of information and communication technologies. Despite two recent aborted Iranian launches in January and February 2019, the Israeli researchers Kevjn Lim and Gil Baram wrote a quite alarming report in *Foreign Policy* saying that the Islamic republic was advancing towards mastery of the final frontier,<sup>(4)</sup> in particular since the successful independent launch of the *Omid* satellite in 2009, followed by four later successes.<sup>(5)</sup>

Moving to the difficult case of North Korea, whilst the current state of negotiations between Donald Trump and Kim Jong-un are part of a clear background of ballistic issues that attract the attention of the media, North Korea's extremely active space activities are less in the limelight. After three failures in 2006, 2009 and at the beginning of 2012, a first North Korean satellite was successfully and completely independently put into orbit in December 2012. The launcher used (*Unha-3*) is thought to be a derivative of the *Taepodong-2* intercontinental missile. According to the Space Threat Assessment 2018 report by the Center for Strategic and International Studies (CSIS), North Korea has yet to develop anti-satellite weapons, although its capability for direct kinetic weapons could progress in the coming decade.<sup>(6)</sup>

The other Asian outsiders, whilst not immediately seeking true independence in launch capability nevertheless have more and more impressive niche capabilities. Australia, which didn't even have a national space agency until 2018, has since announced that it wishes to double the number of employees in the sector by 2030. A recent agreement signed with Boeing will allow the Australian space sector to develop, particularly in satellite navigation and extra-atmospheric surveillance.<sup>(7)</sup> South Korea's military space programme only really started in 2006 with the launch of its first communications satellite. The very recent *Project 425*, composed of four radar observation satellites and an optical observation satellite, illustrates Seoul's growing ambitions in the field of space intelligence even if the launch capabilities required remain external to the country: in particular, South Korea uses the services of Arianespace. Supported by major local industries like Korea Aerospace Industries, the national effort is towards achieving complete strategic independence. Although launching has up to now relied upon Russian technology, in November 2018 Seoul successfully tested a rocket motor for its fully national three-stage launcher, the *Korea Space Launch Vehicle-2 (KSLV-2)*, planned for 2021.

(4) LIM Kevjn and BARAM Gil, *Iran Is Mastering the Final Frontier*, *Foreign Policy*, 14 March 2019 (<https://foreignpolicy.com/2019/03/14/iran-is-mastering-the-final-frontier/>).

(5) *Omid* (which means *hope* in Farsi) was put into orbit by the *Safir* (= *ambassador*) launcher. The new Iranian *Simorgh* launchers that appeared in 2010, seem to be modelled on the North Korean *Nodong*.

(6) *North Korea Overall Space Capabilities*, in HARRISON Todd, JOHNSON Kaitlyn and ROBERTS Thomas G., *Space Threat Assessment 2018*, CSIS Aerospace Security Project, April 2018, p. 20 (<https://aerospace.csis.org/wp-content/uploads/2019/04/SpaceThreatAssessment2019-compressed.pdf>).

Singapore, Malaysia, Indonesia and Vietnam, whilst progressing, are not on the same level as Australia and South Korea. Indonesia stands out by the long history of its space programme, which began in the nineteen-sixties and which today appears overtaken by progress in Vietnam. The latter dynamic newcomer originally counted on the United States, France and Belgium to produce its satellites, but in 2017 announced its aim to produce its own programme independently from 2022. Hanoi does not hide the clear military nature of its projects, justified by growing disquiet resulting from the impressive Chinese launch into space activities. It seems that a geopolitical axis of space cooperation is now developing between Vietnam, Indonesia and India who share sentiments regarding Beijing that range from prudent suspicion to out and out mistrust.<sup>(8)</sup> Malaysia has been following the same path as Vietnam since its space agency was set up in 2002. It is increasing its international cooperation to progress in the field of communications, notably with the *MEASAT* fleet in partnership with Boeing. Among this outsider group of ASEAN member countries, Singapore is probably the one that stands out most because of the leverage effect of its considerable investment in innovative space technologies.<sup>(9)</sup> The local space sector has been lively since 2013, supported by some thirty companies and dynamic universities with satellite programmes, high among which is the Satellite Research Centre of Nanyang University of technology. One of the objectives of this island city-state seems to be to have a position in the field of micro and nano-satellites and in time to put them into orbit with its own lightweight launchers, benefiting from its favourable position close to the equator.<sup>(10)</sup> At the other end of the South-Eurasia rim, the UAE emerges as the most audacious player in Middle-Eastern space geopolitics.<sup>(11)</sup> *KhalifaSat*, the first autonomously constructed satellite, was launched October 2018 by the Japanese H2 rocket. The national plan for the promotion of investment in space, announced at the end of January 2019, is only the latest stage of a conscious plan to see Abu Dhabi launch its first mission to orbit Mars in 2020!

On other continents, other than in the established West, progress has been more contrasted. In comparison to the Asian ‘tigers’, South America has yet to see any space ‘jaguars’ other than Brazil, which has been constantly purposeful in the field and which in 2018 organised a development committee for its space programme in order to have a better structure for creating continuity of innovation between its public and private actors. The Brazilian Air Force is coordinating efforts as well as playing a major role in the field. Across the Atlantic, Africa is in the introductory stages, investing symbolically with its pan-African initiative, even if more tangible programmes are currently being driven on a national level from Nigeria to Morocco, passing through Kenya.

(7) WEITERING Hanneke, *Looking Up from Down Under: Australia Partners with Boeing to Boost Its Young Space Program*, *Space.com*, 13 April 2019 ([www.space.com/boeing-partners-with-australian-space-agency.html](http://www.space.com/boeing-partners-with-australian-space-agency.html)).

(8) In 2018, India and Vietnam signed a memorandum of cooperation to improve their relations in space matters.

(9) Cf. SARMA Nandini, *Southeast Asian space programmes: Capabilities, challenges and collaborations*, ORF (Observer Research Foundation) Special Report, 7 March 2019 ([www.orfonline.org/](http://www.orfonline.org/)).

(10) TEO Gwyneth, *Singapore companies shoot for the stars as space technology gets more accessible*, *Channel News Asia (CNA)*, 5 June 2018 ([www.channelnewsasia.com/](http://www.channelnewsasia.com/)).

(11) FOUST Jeff, *UAE to establish Space Investment Plan*, *Space News*, 22 January 2019 (<https://spacenews.com/uae-to-establish-space-investment-plan/>).

All these emerging countries are progressing in space through the use of their own satellites, the future production of their own launchers or the development of ever-more ambitious space defence programmes, and yet the vast majority remain dependent on launchers controlled by other powers. For a few years yet the services of access to space offered by the Americans, Russians, Europeans and Indians will remain indispensable. The first Tunisian satellite, *Challenge One*, to be operational in 2020 is an example. The ambitious programme aims to add to this first element a constellation of thirty satellites which will work in the field of security among others. The fact remains that this launch will be performed by the Russian company GKLLaunchServices, itself a part of the Russian space agency *Roskosmos*.<sup>(12)</sup>

From the point of view of access into orbit, the New Space companies of course offer outsiders an interesting alternative including for the military use of space. Though private and in the main American, these new players keep have close strategic ties with Washington, which can influence their choice of clientele. It is therefore likely that any real change in the international geopolitical space hierarchy will come in particular from the acquisition of independence of space industrial and technological bases by those outsider states. In Asia, South America and Africa, the new geopolitics of space that are beginning to be reshaped by the emerging players briefly described here will depend as much on the availability of technology afforded by a New Space that is for the moment Western-dominated as by the quest for autonomy of those emerging states that wish to draw on regional cooperation and private development opportunities to boost their freedom of independent strategic action.

The multi-polar shift in extra-atmospheric power balances will therefore be gradual, and the often-predicted 'space catch-up' will in reality be far more incremental given the simultaneous progress being made by the traditional players in military space affairs that must be taken in to account. The latter are far from passive spectators of a multi-polar cauldron of activity that they would be happy to observe and no more: on the contrary they are progressing in great leaps, conscious of needing to keep a major step ahead or, in the case of the United States, to secure absolute domination of the coming new strategic frontier.

### **Progress by the dominant players in space**

The twentieth century checkerboard of power has clearly added a fourth strategic dimension that is no longer content simply to supply support services to the first three (air, land and sea) but now puts itself on the same level as them precisely because it has itself become a theatre for potential conflict. Conscience of this new state of affairs brings with it the widespread intensification in space ambitions whose abundant dynamism has already been mentioned. And yet this new strategic pattern in the international space landscape, though shaped to some extent by the appearance of new players, remains driven in the main by the progress made by the major powers in the

---

(12) *Le premier satellite tunisien sera lancé par une fusée Russe en 2020, Agence Africa*, 2 April 2019 ([www.agenceAfrica.com/16232-le-premier-satellite-tunisien-sera-lance-par-une-fusee-Russian-en-2020.html](http://www.agenceAfrica.com/16232-le-premier-satellite-tunisien-sera-lance-par-une-fusee-Russian-en-2020.html)).

field—the United States, Russia, China, Japan, India and the European Union. The geopolitical rivalries between these top-ranking players motivate and underpin moves of the pieces on a chequerboard of military space whose easier access to technology is not in fact leading to any change in the balance of power.

In Asia, political rivalry between China and Japan is therefore one of the driving forces behind a new space race between the leading actors. The supporting cast is expected to line up behind these two self-proclaimed leaders, as illustrated by the recent creation of two regional cooperation organisations supported respectively by Tokyo and Beijing, which are *de facto* rivals: the Asia-Pacific Regional Space Agency Forum (APRSAF) for one, and the Asia-Pacific Space Cooperation Organization (APSCO) for the other.<sup>(13)</sup> India, the traditional actor in space which has been recording the most significant progress for the past year, is effusing to follow this lead and is presenting an independent and increasingly credible alternative in power and influence on the regional level. In particular it started 2019 with the wonderfully successful launch in January of two surveillance satellites, one of which is said to have played a role in the striking and highly controversial anti-satellite test conducted on 27 March. This clear strategic signal, intended largely for the consumption of India's regional rival China, was only the start of a series of clearly military launches, planned throughout 2019 that will include putting new surveillance satellites into orbit, among which the *Radar Imaging Satellite (RISAT)* and *CartoSAT-3* series. Russia of course has a deal of scientific heritage in this field and appears also to be adopting an extremely offensive posture in the renewal of its extra-atmospheric activities.

Eurasian space geopolitics, which unfortunately we cannot develop further here is also giving rise to a purposeful and innovative dynamism in which China is without any doubt the major strategic stimulus. The effect of the centralised state is not the only aspect coming into play in this general re-launch, since private players in the space game are rapidly developing in India, Japan and China. New Space will not for long be limited to the well-known cases of American entrepreneurs like Bezos (Blue Origin) and Musk (Space X): we will probably soon see Chinese or Indian tycoons with no less ambitious and challenging visions. As in the American case, the clearly apparent links of strategic interest between the private visionaries of this Eurasian New Space and the states that accept and sponsor them are probably very close.

There seems to be a spirit of competitive imitation that is shaping the re-launch of the military and security aspects of space among the major Eurasian powers, which contrasts in large measure with the disparate appearance presented by the Western duo of the United States and the European Union. In Washington we are witnessing a new conceptual, doctrinal, technological, capability and economic build-up of a size not seen since the break with the former objective of space supremacy developed at the beginning of the century by the Bush administration. An overall strategy of space domination, founded on the concept of overmatch and repeated over and over again

---

(13) *Asia in space: Cooperation or conflict?*, ORF, 11 October 2018 ([www.orfonline.org/research/asia-in-space-cooperation-or-conflict-44890/](http://www.orfonline.org/research/asia-in-space-cooperation-or-conflict-44890/)).

in the Trump administration's new National Security Strategy,<sup>(14)</sup> is driving this strong-arm vision in which the announcement of the creation of a new space force is but one of the more visible of its structural aspects. We need to follow the reality of these developments with attention, since the United States seems set to remain the dominant player in the military space field for several decades to come.

In all this the European Union is the exception when compared to the group of uniformly dynamic leaders. It clearly holds on to its position from the point of view of its dual advances in space, witness the long-anticipated arrival of *Galileo*, and can count on solid and innovative industries but the fact remains that, beyond a France coloured by a politically acknowledged realism with regard to space matters, and an increasingly ambitious Germany, the EU seems unwilling to recognise all the consequences of the upheavals caused not only by the increasing number of secondary players keen on catching up strategically but also more fundamentally by the quantum leaps made by the traditional space powers. This problem in itself merits exhaustive study. Let us say simply that without more direct recognition by the continent of space surveillance or establishment of effective space deterrent capabilities, among others, it could well be that the EU finds itself in the worst of scenarios in which it drops from the top rank at the same time as the more dynamic of second rank players catch up as they move across that international space chequerboard mentioned before. Europeans have to avoid the one and slow down the other.

Herein lies the real challenge of making the leap together, to bring continued political and strategic weight by uniting the vital efforts made by each of the Union's nations with regard to military use of space. ♦

---

(14) *National Security Strategy of the United States of America*, December 2017  
([www.whitehouse.gov/wp-content/uploads/2017/12/NSS-Final-12-18-2017-0905.pdf](http://www.whitehouse.gov/wp-content/uploads/2017/12/NSS-Final-12-18-2017-0905.pdf)).

