Japan’s Space Diplomacy in a World of Great Power Competition

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Summary

This article probes Japan's space diplomacy in a world returned to great power competition. Today, Japan's space diplomacy manifests in a wide variety of contexts at the global, regional and bilateral levels. The principal argument is that the Japanese state is responding to gathering external threats through diplomacy that communicates, persuades and bargains in the country’s science, economic and military space interests. This proactive positioning allows Japan to situate its advanced technologies in the context of fierce economic competition, cultivate an image as a pacifist and responsible actor in the turbulent international order, and set pragmatic expectations about building peaceful prospects in outer space.

Keywords

1 Introduction

The opening premise of this article is that space diplomacy matters and that it manifests in processes of dialogue through which states attempt to communicate, persuade and bargain with some goal in mind. In practice, these processes are situated in pre-existing or emerging contexts in the space domain — formal and informal organisations, hard and soft law, international and national instruments — through which states reveal, craft, position and advance their various interests. Taken together, these are useful building blocks for understanding and mapping Japan's international relations in the new space race. Japan's space diplomacy has unfolded unevenly over time, and it is not one thing alone. This diplomacy has also remained remarkably underappreciated. This article probes Japan's space diplomacy in a world returned to great power competition, focusing on the wide variety of the country's diplomatic engagements at the global, regional and bilateral levels.

Today, Japan's space diplomacy is best summed up as proactive positioning. The principal argument is that, in the face of gathering external threats, the Japanese state is purposefully designing its space diplomacy to serve the country's economic and security interests while also carefully cultivating the country's image as a pacifist and responsible actor. To be clear, this does not mean that the Japanese state is always coherent or omniscient, or that its preferences somehow magically prevail in foreign relations. Rather, the point is that the numerous state actors share an increasingly uniform understanding of external political and security threats related to the space domain, namely orbital debris intertwined with space weaponisation in an unfolding great power competition. They are proactively responding to them, as evidenced in a wide variety of their diplomatic efforts to communicate, persuade and bargain with Japan's economic and security interests in mind.

The remainder of this article is in three parts. First, using a state-centric lens from neoclassical realism that is attuned to both material and ideational forces, it sets out an analytical framework for thinking about space diplomacy. Second, the bulk of the article focuses on how, in response to gathering external threats amid geopolitical flux, Japan is carrying out foreign space relations at the global, regional and bilateral levels and blending science, economic and military space diplomacy in its own various interests. Third, the article

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1 I thank all the reviewers and the participants at the space diplomacy workshop for their thoughtful and constructive feedback. I also thank Caralee Casto for her assistance.

2 Pekkanen 2022, 779.
concludes with some implications for Japan’s space diplomacy in a world returned to great power competition.

2 A Conceptual Framework for States and Space Diplomacy

The idea of space diplomacy in this special volume draws attention to several interrelated questions that are of general interest — who is carrying it out, how, why and through what governing modes. This presents an opportunity to draw together thinking and scholarship at the nexus of international relations, international law and regional studies.\(^3\) In this article, drawing broadly on neoclassical realist frameworks, I draw attention to the central role played by self-interested states responding to the aforementioned threats in the international space order, and what that suggests for the conduct of space diplomacy.\(^4\)

Using these conceptual building blocks, my modest goal is to see how purposeful states such as Japan, mindful of their economic and security position in the new space race, engage with others diplomatically in different settings, and what kinds of communication, persuasion and bargaining processes they bring to bear on their interactions.

Despite the rise of new and innovative actors, I assess states will remain the principal actors in outer space activities for the foreseeable future. This is because states back and consume space technologies, craft strategies in the interest of national prosperity and defence and, of particular interest here, channel their diplomatic interactions to position and advantage their countries in as many fora as possible.\(^5\) This state-centric reality is reinforced by the contemporary space treaty regime in which, while states certainly have rights to use and explore outer space, that ‘freedom falls within the sphere of relations between equally sovereign States’.\(^6\) Any such freedom is of course also limited by the commercial, civilian and military space capabilities that a state has under its jurisdiction and that it can leverage in interactions with its counterparts. Controversies in the contemporary international legal system — treaty decline,\(^7\) treaty exit,\(^8\) and treaty stasis\(^9\) — only serve to reinforce the centrality of states to the future of space governance.

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3 Slaughter, Tumello and Wood 1998; Byers 1999.
4 Rose 1998, 146-147; Ripsman, Taliaferro and Lobell 2016, 5, Fig. 1.1; 33-34, Fig. 2.1.
5 Pekkanen 2019.
6 Masson-Zwaan and Hofmann 2019, 5.
7 Meyer 2014; Trachtman 2014.
8 Helfer 2017.
9 Israel 2014.
How and why purposeful states conceptualise international threats and opportunities in the space domain, leverage their domestic capabilities to adjust and respond, and align their diplomatic statecraft on some principled basis to serve their national interests is foundational to understanding what space diplomacy is and where it may be headed. In their responses, I assess also that both material and ideational elements matter to statecraft in the unfolding space saga. This is why I advocate for the ‘productive interactions’ of neoclassical realism with space governance, the latter of which has received sustained attention in the fields of law and policy. This serves, analytically, to expand the ‘intellectual orbit’ of neoclassical realism, bringing it into dialogue with diplomacy, governance and norms that draw on international law. States may well be motivated to acquire, safeguard and advance their relative space capabilities with an eye on their long-term position in the unfolding and uncertain technological realities.

But, pragmatically, the wide variety of legal and organisational milieus in which their space diplomacy is embedded infuses the substance and scope of their statecraft. The milieu, in short, principles the pursuit of state interests, clues states about what may or may not be shared in terms of expectations, socialises them in appropriate standards of behaviour, legitimates their conduct and their image projections, and allows them to capture the intellectual and moral high ground in diplomatic wranglings. In practice, then, even as states position their interests, they also remain engaged in an iterative ‘justificatory discourse’ with, for example, the treaty organisation and the wider public over time. This is because states are not all equally enthused by or engaged in all contexts bearing on space diplomacy. The nature and degree of their engagement in any institutional setting can change over time, sometimes moving in a predictable fashion and other times quite contrary to expectations. When one governing context appears stuck, states need to be aware that their counterparts may reasonably seek other ways to channel their diplomacy to other settings in search of compromises, solutions and pathways that benefit their own countries.

Moreover, it helps to keep an eye on the wide variety of contexts and settings through which states channel their statecraft. A focus on well-known formal and legalistic fora at the global level alone prevents us from seeing many

10 Wohlforth 2008, 145-146.
11 Jakhu and Pelton 2017a; Larsen 2019.
12 Walt 2002, 199-200, 228.
others that give states diplomatic opportunities for positioning their countries, iterating their diplomacy in uncharted technology frontiers, and both engaging and learning interactively from their counterparts through communication, persuasion and bargaining. The fact is that for the pragmatic purposes of space diplomacy, a wide variety of means and ways are as likely to remain relevant in the foreseeable future as they were sensibly deemed to be so at the early stages of the old space race.\textsuperscript{15}

In short, no combination or pole is privileged relative to the others, and states may find one or another more or less useful at different stages and in different scenarios for purposes of their diplomacy.\textsuperscript{16} If analytical eclecticism matters to theorists,\textsuperscript{17} eclectic pragmatism governs the world of decision-makers. A context that works for diplomatic communications, whether informal or formal, for example, may not work for diplomatic bargaining in meaningful ways. Focusing on the United Nations Committee on the Peaceful Uses of Outer Space (COPUOS) at the global multilateral level is as important as assessing diplomacy carried out through, say, regional governing institutions such as the Japan-led Asia-Pacific Regional Space Agency Forum (APRSAF) or the China-led Asia-Pacific Space Cooperation Organisation (APSCO). How states such as Japan or NATO members position themselves under the rubric of a formal military alliance is as substantively important as how they engage on space matters in more informal emerging economic and security architectures such as bilateral partnerships.

By casting a wider net, this holistic analytical approach allows us to construct meaningful narratives about both established and emerging actors who do not have visibility in debates about global space governance and space diplomacy. Our analytical failure to be inclusive about all possible contexts and settings is one reason I believe Japan’s space diplomacy has not received the attention it deserves. Given its long-standing and painstaking efforts, as discussed in the next section, I would venture to say Japan was practising space diplomacy through multiple fronts long before it became fashionable as a topic. A wide-ranging lens on the institutional landscape also keeps us comparatively grounded in terms of what works, is useful, or may be changing in the complexities of space diplomacy within and across regions, such as Asia with its rising space powers and Europe with its more established players.\textsuperscript{18}

\textsuperscript{15} McDougal and Lipson 1958, 429-433.
\textsuperscript{16} Pekkanen 2016, 13, table 1.1.
\textsuperscript{17} Katzenstein and Sil 2008; Sil and Katzenstein 2010.
\textsuperscript{18} Moltz 2016.
There are, in short, no cookie-cutter approaches to diplomacy in the contemporary space realities, and no one setting or outcome is predetermined.

To my mind, these are the kinds of interwoven strands, blending both material and ideational forces, to which we should remain deeply attentive; they hew close to the painstaking, slow-moving and non-linear reality of the practice of space diplomacy and not some noble imagination of it. They complicate our understanding of well-established but continuously debated approaches to the study of Japan's foreign policy, such as balancing, bandwagoning, hedging, engagement, neutrality and so on. The approach I deem best suited to what we see unfolding today on the technology frontier is proactive positioning. Proactive positioning is admirably suited to diplomacy because it is inherently about doing what you can with what you are given to situate your interests in a strategic domain such as space — an all-fronts strategy to lock in any specific advantage for the nation, big or small, economic or military, with whomever or wherever possible, knowing full well that some will work out and others will not.

These conceptual analytics resonate well with existing scholarship on Japan. They give us a handle on the wide sweep of Japan's rising space diplomacy across institutions and regions. What the emerging evidence reveals at this stage is that the Japanese state is engaged in the painstaking process of shaping interstate relations on many fronts — some more visible than others — to benefit its civilian, commercial and military space interests. Japan is also endeavouring to do so through a wide variety of fora at a time of great geopolitical flux, in which there are uncertainties not just about the promise of space technologies but also about the pecking order of the great powers.

3 Japan's Space Diplomacy in Practice

The state-centric analytics noted previously are especially relevant for understanding Japan and in general continue to infuse Japan-related scholarship of various stripes. Whether in theory or policy debates, the Japanese state has long loomed large in navigating the interface of domestic and international politics and the cross-currents of economic–security linkages. It would be simplistic to portray the Japanese state as all powerful in the post-war period,

19 Heginbotham and Samuels 2002; Matsuda 2012; Sahashi 2017; Koga 2018; Liff 2019; Michishita 2022; Green 2022.
20 Katada 2020, 5-6.
one where autonomous bureaucrats came up with and pushed through their policy preferences by fiat without regard for mediating compromises among interest groups or negotiations with politicians; however, even with diminished prestige or capacity, in a comparative context they continue on with remarkably cohesive cultures and organisational capabilities in their own jurisdictional realms. The Japanese state has historically been watchful of positioning in critical technology frontiers such as space, where it has long stressed their economic benefits and spillovers and downplayed their military significance. Its continuing ‘obsessive concern’ for the competitiveness of Japanese firms and the future of Japan’s economic and technological base has been fortified by the worrisome security threats that Japan faces today.

This concern is shared across Japan’s changed space policy establishment, which today reflects the broader institutional changes favouring top-down cabinet-led policy-making. Chapter IV of the country’s first ever Basic Space Law in 2008 establishes the Strategic Headquarters for Space Policy, which is chaired by the prime minister; its work is supported by input from the Cabinet office (National Space Policy Secretariat) interacting with the Cabinet Secretariat, advice from the Committee on National Space Policy, and co-ordination among the various ministries (economic, defence, foreign affairs, communications, etc.) along with the Japan Aerospace Exploration Agency (JAXA).

This state apparatus is watchful and prudent about the intertwined civilian, commercial and military frontiers in the space domain, and what they may mean for Japan’s international standing. The basis for its space diplomacy is undoubtedly the country’s dual-use technological capabilities. This is what draws aspiring countries to Japan and makes it invaluable as a space and counterspace collaborator. Japan is one of the world’s pre-eminent space powers, with full-spectrum and independent capabilities in rockets, satellites and a wide range of spacecraft with potential counterspace capabilities. Today there is not much doubt that Japan has officially embraced a national security space paradigm and an expanding military space infrastructure, one that is

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22 Vogel 2022, 102-106, 111-112; Noble 2022, 360-362.
25 Shinoda 2022.
26 Takada 2019, 3; Pekkanen 2022, 776.
27 Pekkanen 2015a; Kallender 2016.
supported by a legal and policy framework that took decades to put in place and continues to evolve. How and whether all this will lead to more offensive postures in the space domain will continue to be debated in the broader context of changes in Japan’s security discourse.

This institutional context is purposeful about safeguarding the country’s space technology base and enables Japan’s space diplomacy. Japan is engaged in proactively positioning across the deeply intertwined trends of science, economics and military space diplomacy, and it interweaves processes of communication, persuasion and bargaining in the broader tapestry of its foreign and security relations. I examine the principal diplomatic efforts at the global level (a big part of which involves the multilateral spotlight of the United Nations and principled signalling by the upper echelons of decision-makers), the regional level (mainly the rubric of regional networks and organisations connected by APRSAF) and the bilateral level (the primacy of a formal military pact but also transactional agreements and dialogues with other countries).

3.1 Global Context
Japan has a long history of technology collaboration with international partners, as evidenced most prominently through its participation in the International Space Station (ISS) programme. This project emerged from international governmental agreements signed in 1998 involving Canada, Japan, Russia, the participating countries of the European Space Agency (ESA), and with the National Aeronautics and Space Administration (NASA) of the United States in the lead role. By contributing the experimental module Kibo — Japan’s first crewed space facility — as well as the HTV cargo supplies, Japan proved itself to be a highly respected and reliable member of the ISS team. JAXA was humble about what it gained through this project and how it affected Japan’s cumulative technical knowledge: ‘we have learned a lot from NASA and other foreign space agencies who had already obtained manned space technology, Japan has absorbed this knowledge, sublimated it, and materialised it as the Kibo’.

Japan has come a long way from playing catch-up, however. Today JAXA appears to be leveraging its knowledge and infrastructure for advancing its own brand of space development diplomacy around the world. Its KiboCUBE

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30 Oros 2017; Smith 2019.
32 JAXA n.d.
project, run jointly with the UN Office for Outer Space Affairs (UNOOSA),\textsuperscript{33} seeks to draw in developing and emerging countries through competitive rounds and to help them build and then launch small satellites from Kibo. Beginning in 2015, its awardees have come from Kenya, Guatemala, Mauritius, Indonesia and most recently Moldova. JAXA representatives, beaming technical goodwill, won diplomatic points on the successful deployment of the very first satellite for Moldova by saying that ‘we are honored to play a role for Moldova joining the space-faring community’\textsuperscript{34}

Despite the continuous development of space technologies in post-war Japan, and the quiet science diplomacy of JAXA, the Japanese foreign policy establishment has only recently begun to draw attention to Japanese space activities in the international system. In other words, Japanese foreign and legal diplomacy is catching up not just to the foundational excellence of Japanese space technologies, but also to how they are lodged in all aspects of modern life at present and why they might matter in advancing low Earth orbit utilisation in the future.

In 2012, the Ministry of Foreign Affairs (MOFA) in Japan took steps to institutionalise its in-house competence in space diplomacy and began to communicate the importance of the topic to audiences worldwide. MOFA created a Space Policy Division, under the Foreign Policy bureau, whose functional focus is on the co-ordination of topics and policy formulation bearing on international security, including with the United Nations (UN).\textsuperscript{35} MOFA framed its desire to play a more active diplomatic role right at the intersection of space policy with national security policy. In the background were the rising number of states in space, keen to empower their civil and military capabilities through space assets. Importantly, this was at a time of rising threats to the safety of space assets — from sheer congestion, orbital debris and deliberate anti-satellite (ASAT) targeting.

MOFA identified three broad rubrics for a more proactive promotion of space diplomacy: making international rules related to both civilian and military utilisation of space, promoting economic and political co-operation among space stakeholders, and ensuring space security.\textsuperscript{36} In MOFA’s vision Japan would contribute to rule-centred approaches through a variety of fora that could lead to codes of conduct, guidelines, best practices and so on. Japan would also engage in geo-economic diplomacy, including co-operation through official

\textsuperscript{33} UNOOSA 2022.
\textsuperscript{34} JAXA 2022b.
\textsuperscript{35} MOFA 2012a.
\textsuperscript{36} MOFA n.d.
development assistance, and so potentially make way for Japanese space industries and technologies to gain markets in emerging countries. Japan would promote networks using space assets for concrete problems such as disaster risk management and climate change. It would work to enhance comprehensive dialogues directly with some countries as well as through intergovernmental institutions. It would strive to ensure space security, positioning specific Japanese technologies in national security space architectures, and raise specific co-operation related to space situational awareness (SSA) as well as space-based maritime domain awareness. As of 2020 MOFA’s original division was merged into the Space and Maritime Security Policy Division, reflecting the importance of two critical strategic domains for Japan’s international portfolio.37

The strands of the original Japanese diplomatic vision — international rule-making, international co-operation and security concerns38 — remain in play in many ways, blending the aspects of science, economic, and military space diplomacy noted in the framing section. At the global multilateral level, Japan’s diplomacy has long revolved around the legal and formal organisational set-up of the UN, which was central to Japan’s broader strategy of contributing to peace and security in the post-war international system. Japan joined the UN in December 1956, and it remains an important venue for Japan’s space diplomacy.39

Under the auspices of the UN, Japan’s diplomatic position is consistently committed to international co-operation for the lawful and peaceful uses of outer space. Japan is an active player in COPUOS and remains attentive to showcasing its space technologies in science and the exploration of outer space, and in stressing the importance of law and policy frameworks at both the global and regional levels.40 One of its leading space lawyers has also chaired COPUOS’s Legal Subcommittee, and Japan contributed new funds to UNOOSA for its ‘space law for new space actors project’, which works to persuade a widening global community of the importance of safety and sustainability in space.41 Japan has been a staunch supporter and co-sponsor of the UK-led effort on responsible behaviour in outer space, which led to the historic resolution adopted by the UN General Assembly in December 2020.42 In addition to rules and norms, MOFA’s focus on showcasing and positioning Japanese

37 MOFA 2020a.
38 MOFA 2022b.
40 GOJ 2022a.
41 GOJ 2021.
42 MOFA 2020b.
technologies and personnel continues apace in all possible venues in the UN that reach a global community. There, Japan’s express purpose continues to be to ‘demonstrate [its] commitment though [its] contributions to multilateral fora and by utilising [its] experience and technology for the benefit of all’.43

Outside the multilateral fora, a high-profile effort led by the Cabinet Office since 2016, principally in the form of an international symposium, has steadily sought to place Japan at the forefront of global efforts to advance space governance and international rule-making.44 Called the ‘National Space Policy Secretariat Symposium on Ensuring the Safe and Sustainable Use of Outer Space’, the thematic focus is on the intersection of safety, prosperity and sustainability for current as well as future generations of stakeholders in space. Speaking in 2022 at the Seventh Symposium, Vice Minister for Space Policy Keitaro Ohno deemed all this a ‘most critical mission’.45 The views expressed at this symposium generally pointed to a whole-of-government approach, with Japanese officials representing perspectives on science, technology, economics, the environment and defence in the context of shaping foreign and legal affairs pertinent to space. There is a significant emphasis on developing the rules of the road, which draw in the timely topics of SSA and space traffic management (STM).

There is also an emphasis on linking to international co-operation and collaboration. Importantly, these efforts do not displace but seek to support initiatives such as the multilateral ones under the auspices of the UN; they also allow Japan to exercise influence over the international rule-making agenda and contents in line with its own interests. At its statement at the 61st session of COPUOS’s Legal Subcommittee in 2022, Japan elevated the importance of STM in the Seventh Symposium to the global multilateral level, signalling its interest in advancing guidelines on on-orbit servicing and transparency to avoid harmful collisions in space.46

JAXA remains the critical technology powerhouse in space debris and SSA, emphasising its contributions to diplomatic efforts through technical means. In the symposium in 2019 the president of JAXA, Hiroshi Yamakawa, highlighted the agency’s role on multiple fronts, such as contributing to SSA in co-ordination with other ministries and national institutions, carrying out research and development (R&D) to counter space debris threats and risks,
and supporting the government more generally in devising international standards and regulation. JAXA is also the lead for the Japan Delegation to the Inter-Agency Space Debris Coordination Committee (IADC), which was set up to co-ordinate space debris issues among space agencies. On this issue the JAXA president pointed also to the importance of JAXA R&D and technical trends as a way of contributing to international policy efforts by IADC, along with other international organisations such as COPUOS.

3.2 Regional Context
Since the early 1990s, Japan has been attempting to lead and shape regional space trajectories, which involve dual-use technology with economic–security linkages. This is remarkable set against the broader tapestry of Japanese positions more generally on anything related to security multilateralism in the region. Up to the early 1990s, Japan publicly and officially disavowed the importance of forming any kind of security-related multilateralism since its ally, the United States, was lukewarm towards such ventures. In 1991, however, a combination of factors led Japanese diplomats to pronounce that the time had come to move forward in that direction, with or without the United States. The doctrine developed under the Nakayama proposal helped Japan move down the path to regional multilateralism, with the countries of the Association of Southeast Asian Nations (ASEAN) as an anchor. The idea was to expand ‘dialogue and co-operation on various political and economic questions in the region, making full use of existing fora.’ This potentially left the door open also to creating new types of fora, all with the objective of achieving long-term stability in a region in which Japan still had to play the reassurance game for neighbours concerned about its militarist past.

In my judgement, this was the context that birthed Japan’s regional space diplomacy and that possibly affected its form, substance and modes of engagement. Japan established the regionally focused APRSAF in 1993, a soft-rules and, at most, quasi-formal forum for channelling its diplomatic interactions related to the space domain. APRSAF’s stated mission is to ‘enhance space activities in the Asia-Pacific region’. Between 2012 and 2013, it elaborated on this aim as seeking to ‘promote and expand peaceful uses of space activities and their applications for socio-economic development in Asia and the Pacific’.

47 Yamakawa 2019, slides 3, 6-8.
48 Midford 2018; Midford 2020, 47-103.
49 Midford 2018, 449.
50 Moltz 2016; Jakhu and Pelton 2017b; Pekkanen 2020a.
51 APRSAF n.d.
52 APRSAF 2012.
The newly restructured five space working groups are Satellite Applications for Societal Benefit, Enhancement of Space Capability, Space Education for All, Space Frontier, and Space Policy and Law. Nowhere is there any hint of anything to do with military space security.

Instead, as with much of Japan’s own narrative of space for peaceful purposes in the post-war period, APRSAF has scrupulously avoided any hint of activities related to national security space. It retains a decidedly 'science-focused' character.\footnote{Moltz 2016, 130.} This means the focus is on technological collaboration for development and risk responsiveness across topics of intense concerns to practitioners and peoples in the international relations of Asia, for example, such as disaster management, environmental risks and climate change. These foci also help to subtly showcase the extent and breadth of Japan's interests in positioning not just with respect to technologies (satellite applications, technology and data services, for example) but also on principled behaviour based on space law and policy. With respect to the latter, one important initiative launched in 2019, which may prove influential in communicating with, persuading and learning from the growing cadre of space law and policy experts in the Asia-Pacific region, is the National Space Legislation Initiative.\footnote{Kuriyama et al. 2020.} The interactive thinking and consensus-building exercises of this networked community of Asia-Pacific experts are already being relayed in collaboration with UN venues to the international space community — giving Japanese diplomacy considerable soft power and much allied goodwill in helping to include the (often unheard) regional voices in the global agenda.\footnote{UNGA 2021.}

APRSAF’s work continues to be done in an open and flexible framework for co-operation, on a voluntary basis, and with deliverables of concrete capacity-building projects of demonstrable common interest in the Asia-Pacific region. But it is unquestionably a Japan-led venture, with the Ministry of Education, Culture, Sports, Science and Technology and JAXA playing a leading role in the signature annual meetings. This Japanese leadership speaks softly and always alongside the other implementing space agencies and organisations of host countries for the conference. The Executive Committee, formed in December 2012 — which speaks to some efforts towards a formal organisational set-up and makes the organisation quasi-formal — also incentivises countries to co-organise and host the conference by making it a condition for membership.

Since its first annual meeting in September 1993 in Tokyo, APRSAF has also been hosted across the Asia-Pacific region in Mongolia, Malaysia, Korea,
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Thailand, Australia, Indonesia, India, Vietnam, Singapore and the Philippines. Despite its regional focus, APRSAF attracts global participation from countries also in Latin America, the Middle East, Europe and North America. Although it is often thought of as a rival organisation to China’s APSCO, it is important to highlight interactions, no matter how small, that may prove constructive in the long run.\(^5\) The United States, China, Russia and India have participated in APRSAF, along with the United Kingdom, France, Kenya, Pakistan, Iran, Turkey, Argentina and Chile, among others. As of November 2019, APRSAF states it had accumulated participation from 844 organisations hailing from 52 countries as well as 32 international organisations. APRSAF also networks with numerous listed international organisations, such as the Asia-Pacific Economic Cooperation Climate Center, the OECD and, notably, the China-led APSCO.

3.3 The Bilateral Level

Although Japan’s space diplomacy has a deep regional flavour, there are also important bilateral relationships outside its neighbourhood that merit attention as they clue us more closely into the substantive, and very often overlapping, issues of economic and security interest to the Japanese state at this historical stage. What follows is a brief overview of Japan’s space diplomacy bilaterally with Europe, Australia and of course the United States in the West, along with India, the United Arab Emirates (UAE) and South Korea in the broader Indo-Pacific region. It is evident that Japan’s space diplomacy is increasingly marked by the larger geopolitical context, and that the diplomatic way ahead, especially with countries in the Asia-Pacific, remains uneven in some cases and uncertain in others. That said, Japan still values processes of dialogue that allow stakeholders to communicate and persuade as they interact with their counterparts; furthermore, quietly and deftly, Japan positions specific strands of industrial and economic collaboration involving Japanese space technologies, all of which can be interpreted as advantageous bargains for their makers.

In the West, it is helpful to remember that the United States is certainly the most prominent but not the only object of Japan’s space diplomacy. Europe has also been a part of Japan’s international co-operative efforts dating back to a December 1972 agreement with the predecessor to the ESA.\(^5\) An ad hoc working group was set up between ESA and Japan during one of their annual meetings in the mid-1990s, with the goal of identifying fruitful areas of collaboration that ranged from specific technologies such as data relay satellites

\(^{56}\) Pekkanen 2020a, 58-60.

\(^{57}\) EUI 1979-2004.
and automated transfer vehicles to space station utilisation, planetary exploration, PNT (Position, Navigation, and Timing), and disaster management.\textsuperscript{58} The rubric of JAXA's international co-operation with its European counterpart agencies, particularly France and Germany, in state-of-the-art science and technology ventures is worthy of note.\textsuperscript{59} A Strategic Committee between JAXA and the French space agency (CNES) is deliberating on future avenues for collaboration,\textsuperscript{60} and JAXA and the German space agency (DLR) have inked a strategic partnership arrangement.\textsuperscript{61} There is also a Japan–EU Space Dialogue, focused on information exchange, norm building, industrial co-operation, global navigation satellite systems, Earth observations and so on.\textsuperscript{62} In 2022, Prime Minister Fumio Kishida became the first Japanese leader to attend a NATO summit, a move which deepens prospects for cross-regional military space collaboration as a likely 'issue of mutual interest' with other key US allies around the world.\textsuperscript{63}

Australia, conceptually considered part of the Western world, is another player that has long been involved with the Japanese space programme. Most notably, Australia collaborated in Japan’s first Hayabusa sample-return mission in which the probe capsule finally landed in the Australian desert in 2010 after a harrowing seven-year journey.\textsuperscript{64} The re-entry capsule for the second Hayabusa mission, launched in 2014, was recovered in the Woomera Prohibited Area in South Australia in 2020.\textsuperscript{65} The Australian space agency, established in 2018, has signed a memorandum with JAXA to continue space co-operation for peaceful purposes.\textsuperscript{66}

Given its geography, Australia is pivotal in the regional security context. As with other countries and regions, Japan’s space diplomacy towards Australia is also embedded in its broader security relationship. In 2007, the two countries signed a Joint Declaration on Security Cooperation, committing also to respond to new security challenges as they arise.\textsuperscript{67} They have engaged in cyber policy dialogues, for example. On the matter more specifically of space security, they both emphasise the importance of international

\textsuperscript{58} ESA 1996.
\textsuperscript{59} CNES 2021.
\textsuperscript{60} JAXA 2022a.
\textsuperscript{61} JAXA 2016a.
\textsuperscript{62} MOFA 2019.
\textsuperscript{63} Kyodo 2022b; Suzuki 2022; Pollman 2022.
\textsuperscript{64} SpaceNews Staff 2010.
\textsuperscript{65} Jones 2020.
\textsuperscript{66} DISR 2020.
\textsuperscript{67} MOFA 2007.
norms and confidence-building measures dating back to 2012. For Japan, communicating the importance of ‘responsible behaviour’ in space is worth pursuing through as many varied and inclusive settings as possible. The reason is aptly summarised regarding the utility of such things as a Track 1.5 dialogue initiated and sponsored by the Japanese Embassy with the Australian Strategic Policy Institute (ASPI): ‘they can move the debate along outside of the UN process and in doing so, provide input into that process that could potentially lead to faster diplomatic, legal, and regulatory outcomes than would be the case if dialogue only occurred within the UN system’.

Japan’s military space diplomacy and alliance architecture meshes well with trajectories in Australia — a country that is firmly on board with the US space security agenda aimed at countering potential rivals such as China. In raising their 2+2 Foreign and Defense Ministerial Consultations to a ‘new level’ in 2021, Japan and Australia together signalled the importance of space domain awareness (SDA) in a regional environment marred by ‘the threat or use of force or coercion’; they have also called on their ‘common ally’ to help stabilise the Indo-Pacific. This stance also weaves in the evolving context of the Australia–Japan–United States Trilateral Strategic Dialogue, inaugurated in 2006. The latest trilateral statement points to their interest in peace and stability in the international relations of Asia, including the Pacific Islands, and singles out China’s military activities as ‘raising tension and destabilizing the region’.

It is the United States that continues to loom large in Japan’s foreign relations portfolio. The US–Japan Security Treaty, revised in 1960, unquestionably colours their space relationship in both economic and military ways. The United States has marked space as a ‘distinct warfighting domain’, identified a range of kinetic and non-kinetic counterspace threats on Earth and in orbits, and pinpointed China, Russia, North Korea and Iran as menacing safe and peaceful space operations. These threats are also echoed in Japan, combining concerns about orbital debris and space weapons. Space assets fuel and empower civilian, commercial and military realities today for the United

68 MOFA 2012c.
69 Davis, Nkwanyana and Ho 2021, 2.
70 Schaefer 2018, 37.
71 MOFA 2021.
72 MOFA 2006.
73 MFA 2022.
74 Pekkanen 2015b.
75 USDOD 2020, 1, 3-4.
76 MOD 2020, 11.
States. As of 2022, the United States accounts for well over 60 per cent of the total number of operating satellites.\textsuperscript{77} Dependence on space assets is America’s Achilles heel, a point of interest not just to rivals but also to formal allies such as Japan interested in the continuation of the US security guarantee.\textsuperscript{78} This is a major impetus for Japan’s science, economic and military space diplomacy writ large, and it deserves close attention in the context of its relationship with its foremost ally.

There have been frictions between the two countries on matters related to space technologies in the post-war period, such as US concerns about market opening in Japan.\textsuperscript{79} But security concerns have gradually replaced trade disputes.\textsuperscript{80} Dating back to 2011, their Security Consultative Committee (or ‘2+2’ meeting with ministers in foreign affairs and defence) has voiced concerns about ‘evolving threats’ to outer space, raising the importance of space access and protection of related critical infrastructure.\textsuperscript{81} In 2012, the same year that MOFA kicked off its space diplomacy, President Barack Obama and Prime Minister Yoshihiko Noda endorsed the idea of space co-operation, building on 40-plus years of joint space activities.\textsuperscript{82} The two leaders foreshadowed core aspects of Japan’s diplomatic agenda for strengthening space security through confidence-building measures, international rule-making and frameworks for sharing SSA information and services. Consistent also with Japan’s diplomatic objectives of positioning its dual-use technologies, they underscored civil co-operation on remote sensing and PNT technologies from both countries, particularly interoperability and improved regional navigation between GPS and the Japanese Quasi-Zenith Satellite System (QZSS). In 2020, in an unprecedented first, the US military agreed to launch payloads on Japan’s QZSS.\textsuperscript{83} These thematic foci are channelled through a bilateral forum, the Comprehensive Dialogue on Space, which takes a whole-of-government approach to building the envisioned planks of co-operation. Since 2013, Japan has been carrying out this Dialogue on space with the United States consistent with the parameters of its own space diplomacy.\textsuperscript{84} From the first meeting, the emphasis has been on both technology-centred and rule-making co-operation that

\begin{thebibliography}{99}
\bibitem{77} UCS 2022 [2005].
\bibitem{78} Griggs 2018.
\bibitem{79} Reuters 1990.
\bibitem{80} Krauss 2022, 826-827.
\bibitem{81} MOFA 2011.
\bibitem{82} MOFA 2012b.
\bibitem{83} Hitchens 2020; Erwin 2021.
\bibitem{84} MOFA 2013.
\end{thebibliography}
would benefit both sides equally, specifically related to resource and disaster management, environmental monitoring, technology development, scientific discovery, economic growth, and national and international security. The Dialogue has undoubtedly been important in shaping concrete aspects of their envisioned co-operation. Near the end of 2020, Japan signed the US-led Artemis Accords, followed by the Civil Lunar Gateway agreement in 2021. In the context of these broader agreements, Japan has bargained hard to position not just its space technologies, such as landers and rovers, in the lunar exploration projects but also the human side of the equation. Its astronauts have already participated in Crew Dragon missions to the ISS on private SpaceX rockets, and Japan aims to become the second country in the world to put an astronaut on the lunar surface in the latter half of the 2020s.

Japan’s defence establishment has also moved to deepen space co-operation with the United States, and SSA chimes well with Japan’s broader emphasis on rules in the international space order. Since April 2015, the defence establishments in the two countries have held seven meetings specifically on space security issues under the umbrella of the US–Japan Space Cooperation Working Group. In April 2021, Japan’s Air Self-Defense Force Chief Shunji Izutsu visited the United States to learn more about ‘further partnering’ with the United States on space security. A Japanese Air Self-Defense Force officer is also assigned to the US Space Command Multinational Space Collaboration Office. From a Japanese perspective, such bilateral interactions will likely continue to be fruitful not only in positioning Japanese space technologies and human capital, but also in strengthening strategic collaboration between the new services dedicated to safeguarding space assets from a range of threats — Japan’s Space Operations Squadron and the US Space Force. Under the auspices of the UN, Japan has also made its alignments clear on the US commitment to advance new national security norms for responsible behaviour in space, specifically by not conducting destructive, direct-ascent ASAT missile testing.

Aside from the United States, Japan’s vision of a Free and Open Indo-Pacific is, in my judgement, highly relevant to the country’s space diplomacy. Japan identified the geographic scope of this concept as encompassing the

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85 Foust 2020b; Foust 2021.
86 JAXA 2021; Nikkei Asia 2022.
87 Kyodo 2021.
88 Kyodo 2022a.
89 MOD 2022, 291.
90 Allison 2021.
91 The White House 2022; GOJ 2022c.
92 Michishita 2022, 493-494.
Asia-Pacific region, the Indian Ocean, the Middle East and East Africa. The framework, which originated with former Prime Minister Shinzo Abe’s vision to counter China across Asia through ‘increased diplomacy, military capacity building, and infrastructure financing’, was also subsequently borrowed by the United States and even European countries.93

India, which clearly falls under this rubric, has made significant strides in space.94 It has indigenous launch capabilities (its PSLV rocket is famous for having launched over a hundred satellites in a single launch in 2017),95 as well as civilian and commercial capabilities ranging from satellites to far-flung robotic missions to the Moon and Mars. In 2019 India demonstrated its space weaponry through Mission Shakti, an ASAT test that took out one of its own satellites with a hit-to-kill missile defence interceptor, and China — not the United States or Japan — was most likely the intended audience for this show of deterrence.96 India certainly has been attuned to the shifting balance-of-power dynamics enabled by dual-use space assets and what it may mean for its own security.97 But as its stake in outer space activities has grown and shifted, India’s interest in legal and policy diplomacy in a variety of governance contexts has also increased accordingly.

These changes present an opening for Japan to engage with India, where it can build on the momentum of their broader bilateral relationship in response to the ‘nature of threats in the Indo-Pacific, including the strategic consequences of China’s rise’.98 These consequences relate also to orbits and celestial surfaces. The two countries have initiated a bilateral space dialogue that opens a communication channel between them.99 On the technology side, among their potential areas of collaboration is one involving the Lunar Polar Mission, with a decided focus on water resources that will be critical for sustaining and expanding activities on the surface of the Moon in the future.100 Japan is also able to engage with India in the context of the Quad (Quadrilateral Security Dialogue), with a viable thematic focus on SSA.101 On the international rule-making front, India’s support for building behavioural mechanisms in space is murky at this point. In 2020, it notably abstained from voting on the

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93 Green 2022, 4.
94 Moltz 2012, 110-135; Tellis 2019; Rajagopalan and Ganguly 2020; Goswami 2020.
95 Foust 2017.
96 Grego 2019; Tellis 2019.
97 Rajagopalan 2017, 373-374; 380-381.
98 Rajagopalan 2022.
99 MEA 2021.
100 JAXA 2019.
101 Rajagopalan 2021; Panda and Silverstein 2021.
UN General Assembly resolution on ‘Reducing Space Threats Through Norms, Rules and Responsible Behaviour in Space’, which garnered 164 votes out of a total voting membership of 193 states. As Japan has expressed its practical interest in establishing ‘a common understanding on patterns of behaviours’, this normative front in space governance may be important in shaping their diplomatic interactions.

Other countries, while perhaps less visible, are also important in expanding the reach of Japan’s space diplomacy. A notable and determined emerging player is the UAE, which formed its space agency in 2014, established the Arab world’s first national space policy in 2016, and set up the Space Sector Law in 2019. Although its capabilities are at an early stage, it has strong economic and military incentives and a long-term vision for growing its human engineering capital and indigenising a range of technologies from satellites to robotic probes. Japan appears to have a template for its space diplomacy in such cases. While proactively positioning its own industrial interests, Japan seems to attract actors to its side on the promise of development and the clear-headed basis of mutual benefits. The diplomacy is also stretched out over time, and it is not always clear what may work and what direction things may take. Long before their space agencies signed a Cooperation Agreement in 2016, and well before the UAE even had a space agency, JAXA was involved in lodging its technologies aboard the UAE’s DubaiSat-2 satellite, launched in 2013.

Their co-operative theme at present remains focused on utilising (Japanese) technologies and developing human resources for space exploration. The UAE turned to Japan’s Mitsubishi Heavy Industry for launch services, and it was the Japanese H-IIA that successfully launched the UAE’s Mars probe from Japan in 2020. The UAE is also a participant in the wide-ranging activities of APRSAF, and it has become an official member of its Kibo-ABC initiative, which speaks to Emirati goals of nurturing its indigenous human capabilities. Like Japan, the UAE was one of the original signatories in the US-led Artemis Accords, opening another context for them to interact and strengthen their partnership.

Space diplomacy offers the potential for co-operative pathways with countries that present a thorny challenge for Japan’s foreign relations, such as South
Korea, which is another common ally with the United States.\textsuperscript{109} While we can only speculate at this early stage, comments by the South Korean Foreign Minister have lent weight to the idea that ‘the more intense the space race becomes, the more significant the role for diplomacy will be.’\textsuperscript{110} This promising pathway also aligns with US political and industrial interests in bringing together its allies in East Asia, South Korea and Japan, in the space domain.\textsuperscript{111} The building blocks for this are being put into place. South Korea is seeking closer space alignments with the United States and also embarking on its own space diplomacy. South Korea has signed on to the US-led Artemis Accords. The Accords’ interpretive declarations on certain principles in international space law will likely open the door to long-term industrial collaboration projects that will necessarily involve working closely with multiple partners, including Japan.\textsuperscript{112} The South Korean Air Force is engaged in joint drills with the US Space Force and is focused on jointly enhancing SSA capabilities including building its own infrastructure, as well as engaging in a wide array of space policy consultations.\textsuperscript{113} The US Space Force is also setting up a regional command at US Forces Korea Headquarters, which will serve as an information-sharing hub between the United States, South Korea and Japan.\textsuperscript{114} These multifaceted settings potentially give the two countries opportunities to engage, as does Japan’s high-profile engagement with NATO, under whose auspices Japan is able to engage with both the United States and South Korea in out-of-region settings.\textsuperscript{115} South Korea also has a number of government organisations and research institutes engaged with the Japan-led APRSAF.

4 Conclusions

Using the lens of states and space diplomacy more broadly helps us to build a balanced picture of Japanese science, economic and military space relations across fora, regions and countries. Over the past 30-odd years, Japan has kept a watchful eye on uncertainties related to both space technologies and the ever-shifting landscape of allies and rivals in the space domain. These uncertainties are compounded in an era of great power competition. But as it has

\textsuperscript{109} Sakaki 2022.
\textsuperscript{110} Si-soo 2021b.
\textsuperscript{111} Si-soo 2022b.
\textsuperscript{112} Si-soo 2021a.
\textsuperscript{113} Si-soo 2022c, 2021d, 2022a.
\textsuperscript{114} Roh 2022.
\textsuperscript{115} The White House 2022b.
done for much of the post-war period, Japan is steadily, patiently and quietly continuing to channel its space diplomacy through a variety of settings to serve its manifold national purposes.

At the global level, the Japanese state has patiently crafted and communicated its diplomatic positions in the UN-centred space regime in the post-war period, centred on peaceful prospects and, recently, responsible conduct. Japan is also layering in consistent annual messaging from its home front that showcases, transparently, how Japan’s dual-use space technologies will contribute to safety and sustainability in space. At the regional level, Japan’s space diplomacy shows deep regional roots through the long-standing activities of APRSAF, long seen as a rival to China’s APSO. APRSAF has left the door open to the persuasive sway of Japanese geo-economic influence and manoeuvrings across Southeast Asia and the Asia-Pacific region, as well as basic collaboration with the United States, China and Russia. At the bilateral level, the United States stands out in Japan’s space portfolio. The Japanese state has assiduously bargained to position its industrial interests and its human capital in the commercial, civilian and military space strands of its formal ally. Under the whole-of-government rubric of the US–Japan alliance, its stakeholders have been economically and politically advantaged not only in some of the most cutting-edge technology advances led by US players, but also in those innovated by its own space businesses. Beyond the United States, the Japanese government is also vigilant about economic and political opportunities in the broader international relations of space, stretching from Europe to Australia in the West and on to India, the UAE and possibly South Korea in the Asia-Pacific.

The evidence suggests that Japan, today, has become more forthright about communicating its positions, persuading others of the merits of civilian and commercial co-operation, and articulating the importance of security interests in space. It has positioned its space technologies and services from Southeast Asia to South Asia and on to the Middle East. It has ensured that it remains abreast of the next generation of commercial ventures on or off the planet by enmeshing its industrial and human resources in the so-called newspace ventures in the United States. It has also thrown its weight behind making rules and advancing networks dedicated to the preservation of safety and sustainability in space. Further, it has built a home-grown force dedicated to safeguarding space assets against accidental or deliberate threats and built out collaboration with its military ally.

Japan’s proactive positioning of a dual-use technology heightens the prospects for military space diplomacy, as well as integrated deterrence, especially in any kind of great power competition. So far, Japanese leadership has not received any serious blowback from regional or domestic actors despite its
controversial past in the region. This is a tribute perhaps to the skilfulness with which Japanese diplomacy has cultivated the image of Japan as a pacifist and responsible actor, one which can balance its relatively new military space diplomacy with its long-standing engagements on science and geo-economic fronts in the space domain. This may well be reassuring to players in the region, as Japanese diplomacy also emphasises civilian and commercial gains for all in line with existing interpretations of peaceful purposes in outer space. This strategy is especially important at a time when Japan harbours uncertainties about the foreign policy trajectories of its ally, a deeply polarised United States, whose leadership in the recent past raised doubts about the viability of alliances.

Japan has built a long-term diplomatic enterprise that illuminates its civilian, commercial and military space objectives; it is well aware that to achieve them it will need partnerships in and out of the region. The diplomacy it has put in motion allows the Japanese state to gather and shape geo-economic possibilities, position its networks and industrial interests, stake out political and economic alignments, and shape normative thinking. Much of this diplomacy is predicated on the excellence of its advanced space technologies. By layering, diversifying and channelling its space diplomacy through a variety of governing contexts, Japan will likely continue to advantage its manifold interests as it works to shape peaceful prospects in the years ahead.

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