Hiding in Plain Sight?

Japan's Militarization of Space and Challenges to the Yoshida Doctrine

Japan's security trajectory and potential for attaining greater assertiveness, "normal" status, and remilitarization of defense policy, remain subject to intense debate.[1] Prime Minister Abe Shinzō's security policy, involving a new preparedness to face down China and taboo-busting reforms, such as in September 2015 passing extensive legislation to overturn the sixty-year-old ban on the exercise of the right of collective self-defense (CSD), have refocused domestic and international attention on this debate.[2] Such developments raise the question of whether fundamental change is finally manifest in Japanese security strategy. This paper argues that, through its militarization of outer

[1] Remilitarization in this paper is defined as increasing acceptance by Japan's policy-makers and its citizenry of the efficacy and centrality of military power for national security ends. Japan has thus moved from an early post-war demilitarized state, to now adopt an expanded military role in terms of function, geographical scope, and external partnerships, and a new preparedness to exercise armed force for security purposes not only individually but through (CSD). The militarization of space involves a similar process of eroding past constraints on this dimension of military power; the overt appropriation of space as a military domain and the procurement of military space capabilities by the Japan Ministry of Defense and (JSDF); the extension of military cooperation in space to encompass the external partnership of the U.S.-Japan alliance; and a set of domestic policy institutions and norms embedded within policy elites and the general public increasingly conducive to military space activities. The militarization of space does not as yet equate to the weaponization of space capabilities but rather their use to support military activities in the land, sea and air domains. Further elaboration of the benchmarking for judging the militarization of space is offered in subsequent sections of the paper.

[2] The Abe administration's reforms consist of Japan's first National Security Strategy (NSS) and National Security Council (NSC) in December 2013; revisions of the National Defense Program Guidelines (NDPG) and Mid-Term Defense Program (MTDP) in the same month; a State Secrecy Law, again in the same month; adoption of the Three Principles of Defense Equipment Transfers in April 2014; and a revised Official Development Assistance (ODA) Charter in February 2015 allowing for the transfer of aid to foreign militaries if for humanitarian and disaster relief purposes. In U.S.-Japan relations, the Abe administration in April 2015 effected the first revision of the Defense Guidelines since 1997, and most significantly passed a raft of security bills in the National Diet in September 2015: The Law on Response to Contingencies, enabling Japan's exercise of the right of CSD in scenarios where an attack on another state in a close relationship with Japan poses a clear danger to overturning the Japanese people's right to life, liberty and the pursuit of happiness, where there is no other appropriate means to repel the attack, and where the use of force is restricted to the minimum necessary to repel the attack; Law to Ensure Security in Contingencies Significantly Affecting Japan, replacing the 1999 Regional Contingencies Law and designed to boost Japanese non-combat logistical support for the U.S. and now other states regionally and even globally; International Peace Support Law, removing the need for Japan to enact separate laws for each JSDF dispatch to provide logistical support to multinational forces; and revisions to the International Peace Cooperation Law, enabling the JSDF during UN Peacekeeping Operations (PKO) to use force in pursuing certain duties rather than just defending JSDF personnel.

space activities, as a driver of broader military-strategic change, Japan is starting to fundamentally deviate from its post-war grand strategy of the "Yoshida Doctrine."

In the midst of a changing regional balance of power, with China's rise and Japan's search for a more proactive foreign and security policy, mainstream academic policy discourse in Japan and the U.S. has tended to stress fundamental continuity. Abe's and other administrations' security reforms are cast as moderate, positive for the alliance and international community, fully in line with previous national and bilateral strategic postures, and tempered by domestic political and international constraints.[3] Japan is presented as continuing to follow a pragmatic line in the face of domestic and international constraints, a focus on proactive diplomacy and economic engagement, and continued incremental and minimalist contributions to the bilateral alliance.[4] In short, Japan is seen to eventually rebound to the essential tenets of the Yoshida line, and even any "post-Yoshida consensus" is likely to be a modification of rather than fundamental breakout from the existing grand strategy.

[3] For views arguing for essential *status quo* and moderation in Japan's grand strategy, see Hosoya Yuichi, "Bringing 'Internationalism' Back," 23 June 2014, http://www.nippon.com/en/currents/d00122/; and Kitaoka Shinichi, "The Turnabout of Japan's Security Policy: Toward 'Proactive Pacifism,'" 2 April 2014, http://www.nippon.com/en/currents/d00108/; Gerald L. Curtis, "Japan's Cautious Hawks: Why Tokyo is Unlikely to Pursue an Aggressive Foreign Policy," *Foreign Affairs* Vol. 92, No. 2 (2013), pp. 78-86; Brad Glosserman, "Abe's Dilemmas," *PacNet*, No. 37, May 30, 2014, http://csis.org/publication/pacnet-37-abes-dilemmas; Michael Green, and Jeffrey Hornung, "Ten Myths About Japan's Collective Self-Defense Change: What the Critics Don't Understand About Japan's Constitutional Reinterpretation," *The Diplomat*, July 10, 2014, http://thediplomat.com/2014/07/ten-myths-about-japans-collective-self-defense-change/.

[4] Jeremy Moses and Tadashi Iwami, "From Pacifism to Militarisation: Liberal-Democratic Discourse and Japan's Global Role," *Global Change, Peace and Security* Vol. 21, No. 1 (2009), pp. 69-84;; Adam P. Liff, "Japan's Defense Policy: Abe the Evolutionary," *The Washington Quarterly* Vol. 38, No. 2 (2015), pp. 79-99; Eric Heginbotham and Richard J. Samuels, "Japan's Dual Hedge," *Foreign Affairs* Vol. 81, No. 5 (2002), pp. 110-121; and Richard J. Samuels, "Japan's Goldilocks Strategy," *The Washington Quarterly* Vol. 29, No. 4 (2006), pp. 111-127; John Nilsson-Wright and Kiichi Fujiwara, *Japan's Abe Administration: Steering a Course Between Pragmatism and Extremism*, Research Paper, Chatham House Asia Programme, September 2015, https://www.chathamhouse.org/sites/files/chathamhouse/field/field_document/20150914JapanAbeAdministrationNilssonWrightFujiwara.pdf.

This paper challenges the "Abe as aberration" view, arguing that Japan's militarization of space represents the vanguard of a longer-term maneuvering, started by Abe's predecessors and accelerating under his administration, toward a policy of increasingly open deterrence and containment of North Korea and China, and a commitment to game-changing U.S.-Japan military cooperation and strategy that move far beyond the traditional "Yoshida script".[5] Further, it is vital to correctly understand Japan's new security direction because it impacts so greatly on the stability of the Asia-Pacific region. Japan's choices matter: to the U.S.'s need for a more capable and forthcoming Japanese ally in effecting its "rebalance" strategy, and even more for East Asian neighbors that perceive Japan as a potential partner or adversary.[6]

To make these arguments, the paper proceeds in six sections. The first creates a framework of baselines for assessing potential continuity or change in Japan's grand strategy by identifying the core tenets of the Yoshida Doctrine—comprising the strategic outlook of policy-makers making for a minimalist orientation of national security policy and alliance commitments, constraints on military capabilities, and formal and informal domestic security institutions and prohibitions and norms limiting the usage of military power—that need to be overridden for any major shift in security trajectory. The second explains the central importance of the militarization of space for driving and illustrating broader changes across all dimensions of Japanese security policy and military power in the same way as it permeates the efforts of other advanced states involved in network-centric warfare and *Defense Transformation* and

[5] Samuels, "Japan's Goldilocks Strategy," p. 118.
[6] Secretary of Defense, James Mattis, visited Tokyo in February 2017 to offer assurances that the fundamental framework of the U.S.-Japan alliance remained unchanged despite statements by President Donald J. Trump during the 2016 presidential campaign suggesting a pull back from U.S. security commitments. Michael R. Gordon and Mokoto Rich, "Jim Mattis Says U.S. Is 'Shoulder to Shoulder' With Japan," *New York Times*, February 3, 2017, https://www.nytimes.com/2017/02/03/world/asia/us-japan-mattis-abe-defense.html?_r=0.

demonstrates the ways in which space programs contain the potential to challenge each of the Yoshida Doctrine's core tenets.[7] The third section investigates the extent that Japan's space programs have actually begun to challenge these key tenets, in regard to the transformation of Japan's strategic orientation and desire to boost ~~national~~ efforts to balance security threats internally through its own national capabilities and externally via the U.S.-Japan alliance, and through both balancing mechanisms significantly enhancing deterrence mainly by 'denial' but now increasingly also by 'punishment'. The fourth demonstrates the ways in which Japan's space programs have begun to bring about a qualitative step change away from past constraints through the procurement by all services of the JSDF of increasingly powerful military space technologies and of other military capabilities and doctrines in the maritime, air and land domains fundamentally reliant on space for their effective operation. It further explores how Japan has begun to place its space capabilities at the disposal of the U.S.-Japan alliance, with a new preparedness for the integration of bilateral strategic deterrence, and crucially precipitating the revision of constitutional interpretations on the exercise of CSD that impact on all dimensions of Japanese security. The fifth examines the role of space programs in leading the way for a significant strengthening of domestic policy-making institutions and public opinion to facilitate Japan's more robust military profile, including the breaching of a key anti-militaristic prohibition on the peaceful use of space. These sections drawing on new empirical information—including internal party political, government, and industrial documents and interviews with key policy-

[7] A military that can effectively occupy the "strategic high ground" of space has a tremendous advantage in terms of command, control, communications, intelligence, surveillance, and reconnaissance (C3ISR), maneuverability, and firepower. For the centrality of space to modern military doctrine, see Jan Vol Tol, Mark Gunzinger, Andrew Krepinevich and Jim Thomas, *Air Sea Battle: A Point-Of-Departure Operational Concept*, Center for Strategic and Budgetary Assessments, 2010, http://csbaonline.org/uploads/documents/2010.05.18-AirSea-Battle.pdf.

makers—demonstrate the significant upscaling of military space programs and Japan's resolve to pursue a more radical security policy. Overall, the conclusion argues that Japan's militarization of space has been accompanied by the jettisoning of the central tenets of the Yoshida Doctrine and that the ongoing transformation of its security trajectory is now revealed as "hiding in plain sight".

Gauging the durability of the Yoshida Doctrine

To gauge the role and impact of the militarization of space as a case study for understanding Japan's security trajectory, this paper offers a framework for assessing and making plain the extent of shifts in overall security strategy as judged against the benchmarks of continuity or change in the core tenets of the Yoshida Doctrine. If the militarization of space can be demonstrated to be effecting transformation in these core tenets, then, given the increasing influence of space across all dimensions of military planning and capabilities, and the centrality of the doctrine itself to Japan's security trajectory to date, this challenges not only assumptions of essential continuity in Japanese security policy but also indicates the potential for step change in grand strategy.

It is important to note that the Yoshida Doctrine as a grand strategy is not static and has evolved in the post-war period, moving from an original foreign policy line (*Yoshida rosen*) under Prime Minister Yoshida in the early 1950s, to a more systemized doctrine (*Yoshida dokutorin*) as Japan has incrementally expanded its national capabilities to engage in security responsibilities alongside the U.S. and its partners.[8] Phased incremental changes have included the JSDF assuming responsibility for sea lines of

[8] Soeya Yoshihide, "Yoshida Rosen to Yoshida Dokutorin—Jo ni Kaete," *Kokusai Seiji* No. 151 (2008), pp. 6-10.

communication in the late 1970s and 1980s in line with the 1978 U.S.-Japan Defense Guidelines, and the build-up under the Nakasone Yasuhiro administration of anti-submarine warfare (ASW) and air interceptor capabilities to provide a defensive shield to complement the spear of U.S. power projection; to the provision of rear area logistical support for regional contingencies in the late 1990s under the revised 1997 Defense Guidelines; and then to non-combat support for U.S. coalition operations in the Indian Ocean between 2001 and 2010 under the 2001 Anti-Terrorism Special Measures Law, and between 2004 and 2008 under the 2003 Iraq Reconstruction Law.

Nonetheless, the consensus is that the Yoshida Doctrine still provides the central framework for assessing shifts in Japanese security policy. This is due to the fact that all the main policy and academic analyses, of all ideological and paradigmatic stripes, concur that its core tenets, even if continually tested and stretched, have remained essentially intact into the contemporary period.

In establishing the core tenets of the Yoshida Doctrine and identifying the baselines for any potential shifts or continuity in Japanese security, most analysts judge the degree of its durability in terms of Japanese policy-makers' outlook on the international security environment and whether they still calculate an overall equilibrium in the regional balance of power, retain confidence in U.S. security guarantees, remain conscious of the risks of abandonment, but most especially entrapment in US military strategy, and thus maintain minimalist commitments to bilateral security cooperation.[9]

[9] Samuels, *Securing Japan*, pp. 40-41; Tsuchiyama Jitsuo, "Nichibei Dōmei no Kokusai Seiji Riron," *Kokusai Seiji* No. 115 (1997), pp. 169-170; Victor D. Cha, "Abandonment, Entrapment, and Neoclassical Realism in Asia: The United States, Japan, and Korea," *International Studies Quarterly* Vol. 44, No. 2 (2000), pp. 271-281.

Japan's maintenance of the core tenets is further demonstrated through: retaining a traditional low military posture and limitations on the build-up and exercise of national military power, including the maintenance of an "exclusively defense-oriented defense policy"; a preference for highly limited deterrence by denial and eschewing the acquisition by the JSDF of power projection or even offensive capabilities for deterrence by punishment; strict observance of a non-nuclear posture, and containing defense budgets within the framework of one percent of Gross National Product (GNP).[10] In addition, Japanese adherence to the Yoshida Doctrine is manifested in reluctance to engage in external balancing alongside the U.S. against potential adversaries, and concomitantly continued hedging behavior on military commitments under the alliance; attempts to circumscribe defensive responsibilities to Japan itself; non-integration of Japanese and U.S. military capabilities and technologies, and, most crucially, the non-exercise of the right of CSD.[11]

Furthermore, adherence to the Yoshida Doctrine is also typically characterized at the domestic level by embedded informal and formal institutions constraining military commitments, for example: the one percent of GNP defense expenditure; the 1967 and 1976 restrictions on the exports of arms and technology; the Three Non-Nuclear Principles of 1967; civilian control of the military establishment; the 1969 Peaceful Purposes Resolution (PPR) on the use of outer space; the contestation amongst formal institutions and pluralistic actors militating against overall political and strategic control

[10] Kōsaka Masataka, *Saishō Yoshida Shigeru* (Tokyo: Chūō Kōron Shinsha, 1968), pp. 47-59; Kenneth B. Pyle, "In Pursuit of a Grand Design: Nakasone Betwixt the Past and Future'", *The Journal of Japanese Studies* Vol. 13, No. 2 (1987), pp. 246-249; Green, *Japan's Reluctant Realism*, pp. 14-15; Samuels, *Securing Japan*, pp. 35, 43.
[11] Sakamoto Kazuya, *Nichibei Dōmei no Kizuna: Anpo Jōyaku to Sōgo no Mosaku* (Tokyo: Yūhikakusha, 2000), pp. 39-60; Kenneth B. Pyle, *Japan Rising*, pp. 253-256; Kenneth B. Pyle, "The Sea Change in Japanese Foreign Policy," *NBR Analysis Brie*, June 17, 2014, http://www.nbr.org/publications/analysis/pdf/Brief/061714_Pyle_JapanSeaChange.pdf, p. 1; Samuels, "Japan's Goldilocks Strategy," pp. 118, 121-123.

over security policy; and the persistence of anti-militaristic principles and norms.[12] All these core tenets are summarized in Table 1, and thus provide a framework against which the impact of the militarization of space can be calibrated in challenging the Yoshida Doctrine.

The militarization of space as central for gauging changes in Japanese security

Japan's space programs are in some ways the "hard test" and yet ideal case for assessing shifts in the framework outlined above of Japanese security policy. Japan's space programs are "hard" in the sense that for over forty years since 1969 and the National Diet PPR, space policy has been paraded as a paragon of self-imposed restraints on remilitarization. Analysts have interpreted Japanese space policy as either lacking a national security angle, or as reinforcing just how minimally its security strategy has changed. Japan, the consensus asserts, stands as a non-security-related and normative exception to regional and global trends for the militarization of space in seeking space technology for its own sake and civilian "soft power" ends.[13]

[12] Kent E. Calder, *Crisis and Compensation: Public Policy and Political Stability in Japan* (Princeton, NJ: Princeton University Press, 1988), pp. 414-439; Sun-Ki Chai, "Entrenching the Yoshida Doctrine: Three Techniques for Institutionalization," *International Organization* Vol. 51, No. 3 (Summer 1997), pp. 389-412; Thomas U. Berger, "Alliance Politics and Japan's Postwar Culture of Anti-Militarism," in Michael J. Green and Patrick M. Cronin, eds., *The U.S.-Japan Alliance: Past, Present and Future* (New York: Council on Foreign Relations, 1999), pp. 192-199; Andrew L. Oros and Yuki Tatsumi, *Global Security Watch: Japan* (Santa Barbara, CA: Praeger, 2010), pp. 27-46; Samuels, *Securing Japan*, pp. 49-56. Yoshihide Soeya, "Japan: Normative Constraints Versus Structural Imperatives," in Mutiah Alagappa, ed. *Asian Security Practice: Material and Ideational Influences* (Stanford, CA: Stanford University Press, 1998), pp. 228-229.

[13] See, for example, Oros, *Normalizing Japan*, pp. 122-148; Andrew L. Oros, "Explaining Japan's Tortured Course to Surveillance Satellites," *Review of Policy Research* Vol. 24, No.1 (2007), pp. 29-48, 35, 40; Columba Peoples, "A Normal Space Power? Understanding 'Security' in Japan's Space Policy Discourse," *Space Policy*. Vol. 29, No. 2 (2013), pp. 135-143; Joan Johnson-Freese and Lance Gatling, "Security Implications of Japan's Information Gathering Satellite (IGS) System," *Intelligence and National Security* Vol. 19, No. 3 (2004), pp. 538-552; Kazuto Suzuki, "Space: Japan's New Security Agenda," *RIPS Policy Perspectives* No.5 (October 2007); Setsuko Aoki, "Current Status and Recent Developments in Japan's National Space Law and its Relevance to Pacific Rim Space Law and Activities," *Journal of Space Law* Vol. 35, No. 1 (2009), pp. 363-438; James Clay Moltz, *Asia's Space Race: National Motivations, Regional Rivalries and International Risks* (New York: Columbia University Press, 2012), pp. 43, 63; Suzuki Kazuto, *Uchū Kaihatsu to Kokusai Seiji* (Tokyo: Iwanami Shoten, 2013), pp. 179, 182-183. For views of Japanese military intent, see Christopher W. Hughes, *Japan's Remilitarization* (London: Routledge, 2009), pp. 48-50; Saadia M. Pekkanen and Paul Kallender-Umezu, *In Defense of Japan: From the Market to the Military in Space Policy* (Stanford, California: Stanford University Press, 2010); Paul Kallender-Umezu "Enacting Japan's Basic Law for Space Activities: Revolution or Evolution?" *Space Policy* Vol. 29, No. 1 (February 2013), pp. 28-34; Christopher W.

However, this paper posits that Japan's space programs are in fact pivotal for assessing the framework of the durability of the Yoshida Doctrine and potential changes in Japan's security trajectory. First, Japan's space programs pose fundamental questions relating to the continuity of security policy given that over the last two decades, but especially over the last eight years culminating in the publication of the most recent space strategy, there has been a move toward increasingly overt militarization and challenge to their previously perceived position as reinforcing the security *status quo*.[14]

Second, examination of Japan's militarization of space is particularly analytically powerful because this dimension of the security of the "global commons" and the development of related space-based capabilities are increasingly the driving forces behind many states' broader military modernization of naval, air and land forces to leverage advanced Revolution in Military Affairs (RMA)/*Defense Transformation*-type technologies for qualitative advantage even within a constrained quantitative resource base.[15] Hence, Japan's ability to breakout from its previous security stance should be judged not merely in terms of the classic "comprehensive national power" indicators of the sheer size and numbers of military expenditure, armed forces, and key weapons platforms.[16] For while the Abe administration is indeed bolstering these traditional

Hughes, "Japan, Ballistic Missile Defence and Remilitarisation," *Space Policy* Vol. 29, No. 2 (May 2013), pp. 128-134; Satoru Ikeuchi, *Uchū Kaihatsu wa Heiwa no Tame: Uchū no Gunjika ni Noridashita Nihon* (Tokyo: Kamogawa Shuppan, 2015), pp. 79-134; Hoshiyama Takashi, *Nihon Gaikō Kara Mita Uchū* (Tokyo: Sakuhinsha, 2016), pp. 1-18, 139-162.

[14] Uchū Kaihatsu Senryaku Honbu, *Uchū Kihon Keikaku*, January 9, 2015, http://www8.cao.go.jp/space/plan/plan2/plan2.pdf.; Uchū Kaihatsu Senryaku Honbu, *Uchū Kihon Keikaku*, April 1, 2016 http://www8.cao.go.jp/space/plan/plan3/plan3.pdf.

[15] Barry R. Posen, "Command of the Commons: The Military Foundations of US Hegemony," *International Security* Vol. 28, No. 1 (2003), pp. 12-14.

[16] Robert Dujarric, "Shinzō Abe: Investing in the Past, Ignoring the Future", *The Diplomat*, 25 July 2014, http://thediplomat.com/2014/01/shinzo-abe-investing-in-the-past-ignoring-the-future/. For trends in Japan's defense expenditure and procurement, see Christopher W. Hughes, *Japan's Foreign and Security Policy Under the 'Abe Doctrine': New Dynamism or Dead End?* (New York: Palgrave Macmillan, 2015), pp. 36-37. JMOD for fiscal 2015-2016 requested a 2.2 percent increase in defense budget, returning to the levels of the late 1990s and marking the largest post-war defense budget. Bōeishō, "Waga Kuni no

systems in the most recent revised 2013 National Defense Program Guidelines (NDPG), as the document which lays out national defense doctrine alongside the necessary force posture, exclusive focus on this fails to fully consider how Japan may radically shift its security stance and leverage these systems by building a qualitative edge through space technologies.[17] Moreover, this technology-strategic approach, involving space and its latent qualitative importance as a force multiplier, is especially pertinent in Japan's case, given its well-known historical maxim of "rich nation, strong army," and recognition that military capabilities may be vested in highly transferable and potent dual-use civilian and "paramilitary" technologies and forces.[18]

To demonstrate this transformational potential of Japan's space programs and their impact ranged against the core tenets of the Yoshida Doctrine, it is important to establish baselines for measuring the significance of change in the programs themselves. Specifically, Japan, in terms of challenging the core tenet of Yoshida Doctrine revolving around strategic confidence in the international environment *status quo* and consequent

Bōei to Yosan: Heisei 28nendo Gaisan Yōkyū no Gaiyō", August 2015, http://www.mod.go.jp/j/yosan/2016/gaisan.pdf.

[17] The NDPG will increase the MSDF's destroyer fleet from forty-eight to fifty-four, including the addition of two further *Aegis* BMD-equipped destroyers to the existing four *Kongō*-class and two *Atago*-class vessels. The MSDF will continue to procure four new 25DD *Akizuki*-class multi-mission destroyers, and two 27,000 ton 22/24DDH *Izumo*-class helicopter carriers embarking up to 14 helicopters, providing a very strong ASW capability and versatile naval assets. MSDF submarine capabilities increase significantly, with the revised NDPG and MTDP continuing the 2010 NDPG's build-up of the MSDF fleet from sixteen to twenty-two boats, and the introduction of the *Sōryū*-class submarine platform providing leading-edge air-independent and fuel-cell propulsion. The MSDF's air fleet is strengthened through the procurement of the P-1 with an 8,000-kilometer range capable of patrolling and ASW operations deep into the South China Sea. The revised NDPG and MTDP maintain the ASDF's acquisition of forty-two F-35A fifth-generation fighters. The ASDF continues to procure the 6,500-kilometer range C-2 transport; BMD Patriot Advanced Capability (PAC)-3; and is set to procure unmanned aerial vehicles (UAV) to patrol Japan's extensive coastline and remote islands. The GSDF will create a 3,000 personnel unit akin to a marine corps for the retaking of remote islands, equipped with 52 amphibious armored personnel carriers and 17 MV-22 Osprey aircraft. Japan Ministry of Defense, *National Defense Program Guidelines for FY2014 and Beyond*, December 17, 2013, http://www.mod.go.jp/j/approach/agenda/guideline/2014/pdf/20131217_e2.pdf, 7.

[18] For the classic formulations of Japanese dual-use civilian-military technology, see Richard J. Samuels, *Rich Nation, Strong Army: National Security and the Technological Transformation of Japan* (Ithaca, New York: Cornell University Press, 1994); and Michael E. Chinworth, *Inside Japan's Defense: Technology, Economics and Strategy* (Washington, D.C.: Brassey's US, 1992). On Japan's use of "paramilitary" units to disguise Japan's armed force, see Richard J. Samuels, '"New Fighting Power!": Japan's Growing Maritime Capabilities and East Asian Security," *International Security* Vol. 32, No. 3 (2007/2008), pp. 84-112.

determination to maintain minimalist national and alliance commitments, should be expected to take a more radical line, and embed outer space in national security strategy and doctrines for internal balancing and within alliance relations for external balancing, and extending even to breaching the ban on CSD.

In turn, to function as a significant military player in space and other military dimensions, and thus to challenge the Yoshida Doctrine's focus on constraining the build-up and usage of military capabilities, Japan should be prepared to develop space capabilities that supersede previous limitations in projecting power and supporting alliance activities to enable greatly enhanced deterrence by denial and increasingly punishment. Japan's seriousness of intent in developing such capabilities is likely to be seen in the Japan Ministry of Defense (JMOD) and JSDF attempting to match the triad of space systems deployed by the existing major space powers of the U.S and China that serve respectively as Japan's ally and principal regional protagonist, and as outlined in Table 2.

The first component of such a triad is the development of independent space launch access, including liquid and solid-fueled rockets and missiles, and re-entry vehicles. The second involves communication and intelligence satellites, consisting of constellations of Intelligence, Surveillance and Reconnaissance (ISR), navigation and military-use global positioning systems (GPS), Maritime Domain Awareness (MDA) for tracking activities at sea, Space Situational Awareness (SSA) for tracking hazardous and hostile objects in space, space-based early-warning (EW), signals intelligence (SIGINT), and electronic intelligence (ELINT). The third is the development of defensive and (potentially) offensive counterspace capabilities for deterrence by denial and

punishment, including ballistic missile defenses (BMD), global strike for delivering precision-guided munitions from space, and anti-satellite (ASAT) systems through direct-ascent striking of satellites with missiles or co-orbital placing of objects in the path of satellites. Japan's moves to deploy this space triad should provide the JSDF with a force multiplier to enable its full participation in network-centric warfare, joint operations, and combined Air-Sea Battle missions alongside the U.S., and to counter China's rising military power.

In addition to this triad of capabilities, Japan's intent to overcome the core tenets of Yoshida Doctrine through the advancement of space programs can be gauged by its creation of institutions to centralize and enhance collaboration among the key political, bureaucratic and industrial actors involved in shaping security strategy. If Japan can be observed to overcome previous obstacles domestically to the militarization of space, then this points the way to the potential for significant departures from the Yoshida Doctrine more broadly across all dimensions of security.[19]

Japan's new realism in space policy: challenging the Yoshida Doctrine *status quo*

Non-militarized space policy from the Cold War to mid-1990s

During the Cold War, Japanese policy-makers, in line with the Yoshida Doctrine, perceived no existential threat sufficient to pursue internal or external balancing and remained largely confident in the U.S.'s superiority and ability to moderate security

[19] Department of Defense, *National Security Space Strategy: Unclassified Summary*, Washington D.C., Department of Defense, 2010, http://www.defense.gov/home/features/2011/0111_nsss/docs/NationalSecuritySpaceStrategyUnclassifiedSummary_Jan2011.pdfJanuary 2011, p. 9.

dilemmas in the conventional, nuclear and space domains.[20] But Japan did prize space technologies for the inherent dual-use civilian and military applications, and made rapid progress in key space platforms, especially launch vehicles. The National Aerospace Laboratory (NAL), Institute of Space and Astronautical Science (ISAS), and National Space Development Agency (NASDA) (merged since 2003 into the current Japan Aerospace Exploration Agency [JAXA]) developed by the 1990s the solid-propellant M-3SII, M-V and J-I, routinely appraised as ICBM-convertible.[21] Japan also developed the Advanced Land Observing Satellite (ALOS) with potential utility for military reconnaissance.[22]

The Nakasone administration decided in 1985 to allow the JSDF to use satellites for military communications and imagery, based on the interpretation that, since satellite information was already so commercially prevalent, the distinction between civilian and military usage was redundant.[23] Japan's main military contractors also expressed strong interest as early as 1986 in the proposed U.S. Strategic Defense Initiative (SDI), with significant Japanese participation in the 1989-1993 Western Pacific (WESTPAC) Missile Defense Architecture Study, laying the technological groundwork for Japanese participation in BMD a decade later.[24] Japan, though, still lacked sufficient international security concerns to switch its space strategy to a military track. National space strategy was expressed in a series of idealistic "Fundamental Plans" that sought to position space technologies, along with electronics and semiconductors, in a broader process of status-

[20] Selig S. Harrison, "Japan and Nuclear Weapons," in Selig S. Harrison, ed., *Japan's Nuclear Future*, (Washington D.C., Carnegie Endowment for International Peace, 1996), p. 23.
[21] Jeffrey W. Thompson and Benjamin L. Self, "Nuclear Energy, Space Launch Vehicles, and Advanced Technology: Japan's Prospects for Nuclear Breakout," in Benjamin L. Self and Jeffrey W. Thompson, eds., *Japan's Nuclear Option: Security, Politics and Policy in the 21st Century* (Washington D.C.: Henry L. Stimson Center, 2003), pp. 172-173.
[22] William W. Radcliffe, "Origins and Current State of Japan's Reconnaissance Satellite Program," *Studies In Intelligence* Vol. 54, No. 3 (2010), pp 11-12; Moltz, *Asia's Space Race*, p. 56.
[23] Suzuki, *Uchū Kaihatsu* 186-187.
[24] Pekkanen and Kallender-Umezu, *In Defense of Japan*, pp 189-194.

enhancing civilian industrial "catch-up" with the U.S. and USSR, bereft of any explicit military angle.[25]

New space threats and alliance demands

Japan in the 1990s became increasingly conscious of security threats related to space creating an environment for the militarization of dual-use space technologies. North Korea's test launch of a Taepodong-1 missile across the Japanese archipelago in August 1998, the "Taepodong shock," exposed Japan's vulnerability to ballistic missiles. Subsequent tests from the mid-2000s—including the Nodong-1 medium range ballistic missile (MRBM) capable of striking most of Japan, and the Musudan/Taepodong-X intermediate range ballistic missile (IRBM), Taepodong-2, and KN-14 with ranges potentially reaching U.S. bases in Guam and even perhaps the continental United States—have served only to reinforce concerns.

China's test of a direct ascent ASAT system in January 2007 equated to another "Taepodong shock" moment, demonstrating Japan's vulnerabilities to space-based capabilities and the broader challenge to the U.S.'s control of the global commons in space.[26] Japanese policy-makers not only fear China's growing capabilities via laser-blinding and co-orbital ASAT technologies as part of its burgeoning counterspace capabilities but also the increasing integration of People's Liberation Army (PLA) conventional and space capabilities to exercise military force and anti-access/anti-denial (A2/AD) across all four dimensions of warfare.[27]

[25] For the Fundamental Policy of Japan's Space Activities of 1978, 1984, 1989 and 1996, see JAXA, *Fundamental Policy of Japan's Activities*, January 24, 1996, http://www.jaxa.jp/library/space_law/chapter_4/4-1-1-4/index_e.html.
[26] Japan Ministry of Defense, *Defense of Japan 2008* (Tokyo: Urban Connections, 2008), p. 50.
[27] Bōeishōhen, *Bōei Hakusho 2014* (Tokyo: Zaimushō Insatsukyoku, 2015), pp. 40, 107-108.

In turn, Japan's growing anxieties have been compounded by concerns over U.S.-Japan alliance solidity. After the Cold War, Japan's concerns over entrapment have been increasingly overtaken by the opposite concerns of strategic and technological decoupling from the U.S. and the risk of abandonment—concerns witnessed in Japan's attempts to extract explicit guarantees from the U.S. that the scope of the security treaty extends to the Senkaku Islands, and recently heightened initially with the advent of the Donald J. Trump administration's "America First" policies, determination to press U.S. allies on upping their own defense budgets and burden-sharing, and discussion of scenarios of Japan and South Korea possibly possessing their own nuclear deterrents, that hints at a U.S. policy of offshore balancing and potential abandonment of Japan.[28]

Japan's national disadvantages in military space vis-à-vis the U.S. have been recognized since the 1990s, and particularly in access to space-based ISR—disadvantages that deprive policy-makers of tactical and strategic autonomy over JSDF deployments and commitments to support the U.S. in conflict situations.[29] Japanese leaders particularly

[28] For recent analyses of Japanese fears of abandonment as dominant, see Andrew L. Oros, *Japan's Security Renaissance: New Politics and Policies for the Twenty-First Century* (New York: Columbia University Press, 2017), p. 112; and Adam P. Liff, "Policy by Other Means: Collective Self-Defense and the Politics of Japan's Postwar Constitutional Reinterpretations", *Asia Policy*, No. 24 (2017), pp. 158-159. Japanese concerns over the possible U.S. abandonment of Japan have been growing especially since the mid-2000s, either because of the risks posed by the U.S. oscillating between resurgence and unilateralism or relative hegemonic decline and neo-isolationism that could lead to its bypassing or disentangling itself from alliance interests with Japan. For a sample of such views from official government policy papers, see: Taigai Kankei Tasuku Fōsu, *Nijū Isseiki Nihon Gaikō no Kihon Senryaku: Arata na Jidai, Arata na Bijon, Arata na Gaikō*, Tokyo. 28 November, 2002, http://www.kantei.go.jp/jp/kakugikettei/2002/1128tf.html, pp. 9-10; *Anzen Hoshō to Bōeiryoku ni kansuru Kondankai, Anzen Hoshō to Bōeiryoku ni kansuru Kondankai Hōkokusho*, Tokyo, August 2009, http://www.kantei.go.jp/jp/singi/ampobouei2/090928houkoku_j.pdf, p. 10-11; Arata na Jidai no Anzen Hoshō to Bōeiryoku ni Kansuru Kondankai, *Arata na Jidai ni okeru Nihon no Anzen Hoshō to Bōeiryoku no Shōrai Kōsō: Heiwa Sōzō no Kokka o Mezashite*, Tokyo, August 2010, http://www.kantei.go.jp/jp/singi/shin-ampobouei2010/houkokusyo.pdf, pp.v-vi. For Japanese concerns about the possible neo-isolationism of the Trump administration and need to head this off, see Yabunaka Mitoji, *Toranpu Jidai no Nichibei Shin Rūru* (Tokyo: PHP Shinsho, 2017), pp. 92-93; "Tainichi Hatsugen Shingi wa", *Asahi Shimbun*, February 6, 2017; and "Amid North Korea Threat, Tillerson Hints That 'Circumstances Could Evolve' for a Japanese Nuclear Arsenal," *Japan Times*, March 19, 2017, http://www.japantimes.co.jp/news/2017/03/19/national/amid-north-korea-threat-tillerson-hints-circumstances-evolve-japanese-nuclear-arsenal/#.WOjEGFfw-b8.

[29] Sugio Takahashi, "Japanese Perceptions of the Information Technology-Revolution in Military Affairs: Toward a Defensive Information-Based Transformation", in Emily O. Goldman and Thomas G Mahnken,

bemoaned—as in the aftermath of the 1990-1991 Gulf War and North Korean missile launches from the mid-1990s onwards—that the JMOD and JSDF are effectively strategically blind without dependence on satellite reconnaissance, early-warning intelligence, and GPS provided by the U.S., so spelling risks of entrapment.[30] However, Japan later took note of the 2010 NSSS and 2014 Quadrennial Review that asserted the U.S.'s need to maintain superiority in space through more resilient systems, including diversified ISR, SSA, MDA, and space-based precision strike; and that the U.S. can in part achieve this through partnering with "allies and other responsible nations," and the expansion of access to allied ISR systems and collaborative development of space capabilities.[31] The implication now was that Japan needed to build up its own space programs to stave off risks of abandonment. Japan's 2016 Basic Space Plan fully endorses this approach, devoting its crucial opening statements to how Japan must boost independent military space capabilities (*jiritsusei kakuho*) in order to fully support the U.S.[32]

Space positioned centrally in national security strategy

Japan's recognition of a changing external security environment has now initiated an effort for the significant militarization of its space programs, maneuvering space to the forefront of national security strategy and procuring key capabilities. Japan's initial reaction to the "Taepodong shock" was, within months of the incident, to initiate its IGS

eds., *The Information Revolution in Military Affairs in Asia* (New York: Palgrave Macmillan, 2004), pp. 90-92.

[30] Tsuyoshi Sunohara, *Tanjō Kokusan Supai Eisei: Dokuji Jōhōmo to Nichibei Dōmei* (Tokyo: Nihon Keizai Shimbunsha, 2005), pp. 15-46; Paul Kallender-Umezu, "Profile: Hiroshi Imazu, former Chairman, Space Policy Committee, Liberal Democratic Party of Japan," *Space News*, October 27, 2014: http://spacenews.com/42331profile-hiroshi-imazu-former-chairman-space-policy-committee-liberal/#sthash.gJUOnfH5.dpuf.

[31] Department of Defense, *National Security Space Strategy*, p. 9; Department of Defense, *Quadrennial Defense Review 2014*, Washington D.C., Department of Defense, 2014, http://www.defense.gov/pubs/2014_Quadrennial_Defense_Review.pdf, pp. 20, 33, 37.

[32] Uchū Kaihatsu Senryaku Honbu, *Uchū Kihon Keikaku*, January 9, 2015, http://www8.cao.go.jp/space/plan/plan2/plan2.pdf, pp. 4-5.

reconnaissance satellite constellation, dubbed as "multipurpose" and managed by the Prime Minister's Cabinet Office to provide a layer of deniability about the system's primary customers—the Japan Defense Agency (JDA) and JSDF. The "shock" allowed the repurposing of extant dual-use capabilities through a major new program of *kokusan*, or indigenous production. Next was the JSDF's adoption of BMD in 1998, leading to Japan's completed deployment by 2010 of the ASDF's *Patriot* Advanced Capability-3 (PAC-3) system, and the upgrading and testing with the U.S. from 2007 of the Maritime Self-Defense Force's (MSDF) *Aegis* destroyer Standard Missile-3 (SM-3) BLK-IIA system, and plans for the augmentation of the MSDF's *Aegis* destroyer fleet to eight in total.[33] The *Aegis* system draws on space-based sensors and communications and is becoming increasingly capable of missile intercepts in space.[34] Japan, in the wake of North Korea's multiple missile tests in 2017, including several that display ICBM capability, is considering further bolstering its BMD capabilities by procuring the *Aegis* Ashore system and the JMOD included funding for the system in its 2018 budget request.[35]

Japan in May 2008 passed a Basic Space Law that overturned the PPR by allowing the use of space for "defensive" rather than "non-military" functions.[36] The Basic Law also mandated the establishment of the Strategic Headquarters for Space Policy (SHSP), which subsequently produced the national Basic Space Plan of June 2009. This first

[33] Hideaki Kanda, Kazumasa Kobayashi, Hiroshi Tajima, and Hirofumi Tosaki, *Nihon no Misairu Bōei: Henyō Senryaku Kankyō Shita no Gaikō Anzen Hoshō Seisaku* (Tokyo: Nihon Kokusai Mondai Kenkyūjo, 2006), pp. 91-104.
[34] "Strategic Capabilities of SM-3 Block IIA Interceptors", Mostly Missile Defense, 30 June 2016, https://mostlymissiledefense.com/2016/06/30/strategic-capabilities-of-sm-3-block-iia-interceptors-june-30-2016/.
[35] "Japan favors Aegis Ashore over THAAD to bolster missile defenses: sources," *The Japan Times*, May 13, 2017, http://www.japantimes.co.jp/news/2017/05/13/national/japan-favors-aegis-ashore-thaad-bolster-missile-defenses-sources/#.WXl9I2VCL-Y; Bōeishō, "Waga Kuni no Bōei to Yosan: Heisei 30nendo Gaisan Yōkyū no Gaiyō", August 2017, http://www.mod.go.jp/j/yosan/2018/gaisan.pdf, p. 13.
[36] "Uchū Kihon Hōan," http://www.kantei.go.jp/jp/singi/utyuu/about2.html; Kazuto Suzuki, "A Brand New Space Policy or Just Papering Over a Political Glitch? Japan's New Space Law in the Making," *Space Policy* Vol. 24 (November 2008), pp. 171-174.

Basic Space Plan stated explicitly the need to utilize space for national security ends, to support the JSDF, to improve IGS, bolster secure satellite communications, develop an earth-monitoring MDA system for ISR and the Quasi-Zenith Satellite System (QZSS) regional (pan-Asian) positioning satellite system, and consider infrared EW satellites to reinforce the effectiveness of BMD through Shared Early Warning (SEW) with the U.S.[37] The second Basic Space Plan of January 2013 confirmed these Japanese military space ambitions, and added the requirement for SSA.[38]

The JMOD and JSDF have also now openly appropriated military-use space programs. The revised 2010 NDPG identified Japan's need to respond to new challenges for access to outer space as part of the maintenance of the global commons, and for the JSDF to develop its own space-based ISR capabilities.[39] The JMOD's first Basic Space Plan in 2009, citing the need to respond to China's ASAT and other emergent space technologies, came replete with a shopping list of future space capabilities, including: SIGINT; space-based EW for BMD; QZSS for positioning and targeting; satellite hardening against kinetic, laser and electromagnetic attacks; SSA; and launch systems for tactical satellites (TacSats).[40]

[37] Strategic Headquarters for Space Policy, *Basic Plan for Space Policy: Wisdom of Japan Moves Space*, 2 June 2009, http://www8.cao.go.jp/space/pdf/basic_plan.pdf, pp. 7, 26.
[38] Strategic Headquarters for Space Policy, *Basic Plan on Space Policy*, 25 January 2013, http://www8.cao.go.jp/space/plan/plan-eng.pdf, 8; Naikakufu Uchū Senryakushitsu, *Ūchū Kihon Keikaku* (Tokyo: Shōbi Insatsu Kabushikikaisha, 2015), pp. 49-50.
[39] Japan Ministry of Defense, *National Defense Program Guidelines for FY11 and Beyond*, December 17, 2010, http://www.mod.go.jp/e/d_act/d_policy/pdf/guidelinesFY2011.pdf, pp. 3, 4, 15.
[40] Bōeisho Uchū Kaihatsu Riyō Iinkai, *Uchū Kaihatsu Riyō ni Kansuru Kihon Hōshin ni Tsuite*, 15 January 2009, http://www.mod.go.jp/j/approach/agenda/meeting/board/uchukaihatsu/pdf/kihonhoushin.pdf. TacSats programs utilize microsatellites, and affordable and quick-response launch vehicles, to rapidly deploy capabilities for tactical imagery and data. For ORS, see: http://ors.csd.disa.mil/. Japan's dual-use space programs directly mirror these efforts, with the *Epsilon*, as one of the world's most advanced solid-fueled rockets, serving as a potential fast-access multipurpose launch vehicle for a range of military-use satellites.

The revised 2013 NDPG went further in promoting Japan's military use of space. The JMOD's July 2013 *Defense Posture Review Commission* report, in preparation for the revised NDPG, promoted space technologies as one of the key facets of defense policy, and particularly noted the need for SSA and ISR to cope with the growing tensions with the PLA Navy (PLAN) and paramilitary assets being used to assert the prosecution of China's strategic push toward realizing territorial claims.[41] The revised NDPG stressed the importance of securing outer space for the stability of the global commons, ISR, and the survivability of Japanese satellites through SSA.[42] Then, the JMOD in 2014 devoted an entire section in the *Defense of Japan* white paper to "Efforts for development and use of space."[43]

Furthermore, the Abe administration's *National Security Strategy* (NSS) of December 2013 prioritizes space as a strategic domain and commits Japan to directly folding space policy into a subset of national defense policy. The NSS calls for the integration of space and security policy, and for the JSDF to further strengthen space-based ISR, SSA and MDA programs.[44] The NSS provoked the JMOD in August 2014 to revise its own Basic Space Plan emphasizing the further integration of extant and future dual-use technologies, including all earth observation satellites, IGS, and MDA; the use of QZSS for military purposes; the development of a high bandwidth communications infrastructure that utilizes new dual-use technologies under JAXA, and creating a spaced based SEW system using JAXA reconnaissance satellites.[45]

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[41] Japan Ministry of Defense "Defense Posture Review Interim Report," July 26, 2013, http://www.mod.go.jp/j/approach/agenda/guideline/2013_chukan/gaiyou_e.pdf.
[42] Japan Ministry of Defense, *National Defense Program Guidelines for FY2014 and Beyond*, 20.
[43] Bōeishō, *Bōei Hakusho 2012* (Tokyo: Zaimushō Insatsukyoku, 2012), p. 156.
[44] National Security Strategy, December 17, 2013, http://www.cas.go.jp/jp/siryou/131217anzenhoshou/nss-e.pdf, p. 19.
[45] Bōeishō Uchū Kaihatsu Riyō Suishin Iinkai, *Uchū Kaihatsu Riyō ni Kansuru Kihon Hōshin ni Tsuite (Kaiseiban)*, August 28, 2014, http://www.mod.go.jp/j/approach/agenda/meeting/board/uchukaihatsu/pdf/kihonhoushin_201408.pdf.

Finally, the NSS provoked two revisions of Japan's national Basic Space Plan, resulting in the latest versions released in 2015 and 2016 that even further elevate the importance of military space programs, using the open language of a "changing power balance in outer space, and shifting multipolarization of the previous U.S.-USSR bipolar structures," and position national security above civilian purposes as first and indispensable in the list of rationales for Japan's space programs.[46]

Japan's national space capabilities: forging the triad and arming the alliance

Japanese breakout capabilities for internal balancing

Japan's evolution of a national military space strategy, emerging JSDF doctrines in relation to space-based threats and assets, and specific space capability procurement plans are suggestive of an emerging action-reaction dynamic, or even proto-space arms race, and apparent active power-balancing. Regarding internal power-balancing efforts, Japan has thus far demonstrated increasingly impressive follow through on its space capability build-up to a level that goes far beyond longstanding postwar constraints. This section and Table 2 below demonstrate that Japan has begun to procure a plethora of advanced military space capabilities matching, or in some cases even exceeding, those of China, and enabling far more robust deterrence by denial, as well as moves toward deterrence by punishment.

[46] Uchū Kaihatsu Senryaku Honbu, *Uchū Kihon Keikaku*, January 9, 2015, http://www8.cao.go.jp/space/plan/plan2/plan2.pdf, pp. 4-5.

To counter regional threats, Japan is building out its space triad. For intelligence, Japan is already doubling its IGS satellite fleet, consisting of electro-optical and synthetic aperture radar technology (SAR), and is building new fleets of dual-purpose advanced optical and radar observation satellites.[47] For communications and navigation, Japan has developed or is developing a satellite laser communications system based on the OICETS/*Kirari* test satellite and an advanced data relay satellite to deal with the burgeoning ISR data demands, and the full seven-satellite constellation QZSS system. Further, Japan is considering both space-based SIGINT and/or ELINT capabilities derived from the ETS-VIII program, despite already possessing an advanced land-based capability.[48]

Japan's MDA capabilities are currently vested respectively in the ALOS-2 and ALOS-3 programs, the latter with a military-effective 80cm resolution that will also host a BMD EW sensor for the JMOD, and, therefore, the MSDF and ASDF. Discussions are ongoing about launching an MDA constellation based on Japan's extant and emerging assets. ISR is being further augmented through JAXA's SLATS (Super Low Altitude Test Satellite) program that uses highly advanced ion-engine technologies to enable satellites to maneuver and "dip" into much lower orbits to increase their resolution capabilities.

[47] For program information, see Naikakufu Uchū Senryakushitsu, *Heisei 26 Nendo Hosei Yosan Oyobi 27 Nendo no Uchū Kankei Yosan An ni Tsuite (Sokuhōuchi)*, January 2015, http://www8.cao.go.jp/space/budget/h27/fy27yosan.pdf, pp. 2-3; Naikakufu Uchū Senryakushitsu, *Heisei 27 Nendo Gaisan Yōkyū ni okeru Uchū Kankei Yosan ni Tsuite (Sokuhōchi),* September 2014, http://www8.cao.go.jp/space/budget/h27/fy27gaisan.pdf, pp. 2-3; Yoshinori Komiya, Director-General, Office of National Space Policy, Cabinet Office, "New Basic Plan on Space Policy", 26 February 2015, http://www.jsforum.or.jp/debrisympo/2015/pdf/06%20150226_DG_Komiya.pdf.

[48] Naikakufu Uchū Senryakushitsu, *Nendo Gaisan Yōkyū ni okeru Uchū Kankei Yosan ni Tsuite (Sokuhōchi),* September 2014, http://www8.cao.go.jp/space/budget/h27/fy27gaisan.pdf, pp. 2-3; Naikakufu Uchū Senryakushitsu *Uchū Kihon Keikaku*, http://www8.cao.go.jp/space/plan/keikaku.html, pp. 16, 18-19.

All of these systems will significantly support the JSDF's ability to respond to conventional threats. The QZSS system, supporting the ASDF's use of Joint Direct Attack Munitions (JDAM) to strike with pinpoint accuracy against an adversary's missile bases, also opens up a range of means for Japan individually, but particularly in combination with the U.S., to look to negate many of China's deterrent capabilities.

For the counterspace component of the triad, in addition to the MSDF's already very extensive BMD procurements, hiding in plain sight, in the form of the ETS-VII satellite, Japan has developed remote and computer-controlled co-orbital ASAT technologies and possesses a range of technologies that can be quickly repurposed for fighting an orbital space battle through applying to a wide range of small and microsatellite platforms the ability to conduct approach and close proximity maneuvering and docking. Further, Japan's Responsive Small Satellites (RSS) series, resembling the U.S. Air Force's TacSat series, will be capable of providing quick-launch, tactical ISR and communications capabilities of particular use to GSDF commanders in the field. Japan has also experimented with technologies (although currently mothballed) such as the robot space plane Hypersonic Flight Experiment (HYFLEX), similar to the USAF's X-37B, and that might even function as a space bomber for global strike.[49]

Japan's already advanced status in launch vehicles as the other main component of the triad further augments its position as a recessed nuclear power, providing it with the ultimate potential for internal balancing. Japan's political willingness to breach the

[49] For ETS-VII, see JAXA, "Engineering Test Satellite VII "KIKU-7" (ETS-VII)" http://www.jaxa.jp/projects/sat/ets7/index_e.html; for Japan's hypersonic and robotic capabilities, see JAXA, 'Hypersonic Flight Experiment "HYFLEX"', http://www.jaxa.jp/projects/rockets/hyflex/index_e.html/. Regarding SmartSat, most of the digital data has disappeared, but see *In Defense of Japan* , pp.164-7. For U.S. global strike, see Bruce M. De Blois, Richard L. Garwin, R. Scott Kemp, and Jeremy C. Marwell, "Space Weapons: Crossing the Rubicon," *International Security* Vol. 29, No. 2 (2004), pp. 68-74.

Three Non-Nuclear Principles and to produce and possess nuclear weapons remains uncertain, but the technological barriers in regard to outer space certainly continue to lower. The U.S.'s *Rumsfeld Commission* had already concluded by 1998 that Japan's J-I and M-V programs were readily convertible to ballistic missiles, even comparing the M-V rocket to the U.S. MX Peacekeeper ICBM.[50] The *Epsilon*, as the M-V's successor and one of the world's most advanced solid fuel rockets, offers an even more directly convertible ICBM capable of mobile launch-on-demand, and potentially convertible to submarine launched ballistic missile (SLBM) status.[51]

Japan has conducted a series of dual-use technology tests that could serve for nuclear warhead reentry vehicles. One test used a Russian-built ICBM re-entry vehicle and service module derived from the OGCh Fractional Orbital Bombardment System and launched on the missile-convertible M-3SII. The credibility of any Japanese nuclear launch system would further be augmented by the centimeter-accuracy of the QZSS system, assuming its survivability to cyber or kinetic attack. Japan might then look to deploy these developing missile and warhead technologies as SLBMs on the MSDF's *Sōryū* submarines that appear adaptable for mounting sea-launched missiles. In totality, Japan's advancement in space technologies is enabling it to edge toward all the key components of a latent nuclear delivery system for a second-strike *force de frappe* or tactical nuclear force. Such a capability would serve as a useful deterrent against North Korean and Chinese assets and fit with recent Japanese debates on the need for an autonomous strike capability, whether conventional or nuclear, to augment deterrence

[50] *Commission to Assess the Ballistic Missile Threat to the United States*, July 15, 1998, http://fas.org/irp/threat/missile/rumsfeld/pt1_china.htm.
[51] For *Epsilon* see JAXA, "*Epsilon* Launch Vehicle," http://global.jaxa.jp/projects/rockets/epsilon/.

by denial and punishment and U.S.-Japan cooperation.[52] Indeed, in reaction to North Korea's successive missile tests, the governing Liberal Democratic Party (LDP) in 2017 initiated studies on not just the augmentation of BMD for deterrence by denial but now the procurement of cruise missiles—again in part reliant on network–centric warfare and space sensors for targeting —for striking missile bases and assist in the deterrence by punishment.[53] The chair of the LDP study, Onodera Itsunori, was subsequently reappointed Minister of Defense in July 2017. The JMOD seemed to then move a step closer to cruise missiles in inserting in its budget request for 2018 a program for research into missiles with stealth technology that resemble Boeing's AGM-86 air-launched cruise missiles.[54]

Japan's intent is demonstrated by its growing use of budgetary resources, made possible due to the dual-use justification of the space budget allowing for the leveraging and effective virement of funds into military-applicable technologies even if these expenditures are not officially counted as part of the defense budget. In fiscal 2015, Japan spent around ¥595 billion (roughly US$5.9 billion) on space-related programs, of which ¥245 billion has been devoted to BMD and ¥352 billion on the "official" space program. Within this ¥352 billion figure, at a conservative count, approximately forty percent is earmarked for dual-use space programs. Japan plans to raise its space budget from the ¥350 billion level to around ¥500 billion annually.[55] The increasingly military-

[52] Toshi Yoshihara and James R. Jones, "Thinking the Unthinkable," *Naval War College Review* Vol. 62, No. 3 (2009), pp. 69-74.
[53] "Kichi Kōgeki Nōryoku no Kentō, Teigen, Jimin, Taikitachōsen Minshin 'Jijitsujo no Kaiken'" **,** *Asahi Shimbun*, March 30, 2017.
[54] Bōeishō, "Waga Kuni no Bōei to Yosan: Heisei 30nendo Gaisan Yōkyū no Gaiyō", August 2017, http://www.mod.go.jp/j/yosan/2018/gaisan.pdf, p. 9.
[55] Naikakufu Uchū Senryakushitsu, Uchū Kankei Yosan ni Tsuite, *Heisei 26 Nendo Hosei Oyobi Heisei 27 Nendo Uchū Kankei Yosan An ni Tsuite,* January 2015, http://www8.cao.go.jp/space/budget/h27/fy27yosan.pdf; Senryakushitsu, Uchū Kankei Yosan ni Tsuite *Heisei 27 Nendo Gaisan Yōkyū ni Tsuite*, September 2014, http://www8.cao.go.jp/space/budget/h27/fy27gaisan.pdf; Japan Ministry of Defense, *Defense Programs and Budget of Japan Overview of FY2015 Budget*, 14: http://www.mod.go.jp/e/d_budget/pdf/270414.pdf.

oriented nature of the budget means that Japan could be in effect adding to its defense outlays, outside the formal JMOD expenditure and one percent of GNP framework, the equivalent of five to ten per cent of the current budget.

Space capabilities in service of the U.S.-Japan alliance

Japanese internal balancing in the domain of space is increasingly matched by similar external balancing via the U.S.-Japan alliance and designed to mitigate abandonment. These efforts in space supersede greatly Japan's prior minimalist alliance contribution; enhance its strategic cooperation with the U.S.; expand its commitment to defensive responsibilities alongside the U.S. outside its immediate territory; integrate its capabilities with those of the U.S.; and not only facilitate but indeed have been largely responsible for initiating the breach on the ban of the exercise of CSD.

The U.S.-Japan Security Consultative Committee (SCC), or the "two-plus-two", inserted in its June 2011 Joint Statement that the alliance, in addition to ongoing bilateral BMD projects, would strengthen cooperation on "other evolving threats, such as to outer space" and specifically in SSA, MDA, QZSS, and dual-use sensors.[56] The U.S.-Japan First Comprehensive Dialogue on Space of March 2013 agreed that QZSS would form the direct backup system for GPS in the event of a conflict, and solidified collaboration in SSA and MDA.[57] In the October 2013 SCC, the partners agreed to further strengthen

[56] Ministry of Foreign Affairs Japan, "Joint Statement of the Security Consultative Committee, Toward a Deeper and Broader US-Japan Alliance: Building on 50 Years of Partnership," June 21, 2011, http://www.mofa.go.jp/region/n-america/us/security/pdfs/joint1106_01.pdf, pp. 7, 9.

[57] Department of State, "Joint Statement from the Second Meeting of the Japan-US Comprehensive Dialogue on Space," March 11, 2014, Washington D.C., http://www.state.gov/r/pa/prs/ps/2013/03/205939.htm. The dialogue involves from Japan: Foreign Policy Bureau, Ministry of Foreign Affairs; Office of National Space Policy, Cabinet Office; MEXT; JMOD; Japan Coast Guard; JAXA, and Ministry of Environment. For earlier proposals for U.S.-Japan cooperation in GPS and QZSS, see Kurt M. Campbell, Christian Beckner and Yuki Tatsumi, "US-Japan Space Policy: A Framework for 21st Century Cooperation," Washington D.C., Center for Security and International Studies (July 2003), http://csis.org/files/media/csis/pubs/taskforcereport.pdf, pp. 15-18.

BMD cooperation and deploy SM-3 Block IIA, a second AN/TPY-2 radar and establish a bilateral Defense ISR Working Group for the U.S. to support space-based military ISR.[58] In the Second Comprehensive Dialogue on Space of May 2014, Japan's space assets were declared "indispensable" for U.S.-Japan security and that JAXA would provide SSA data to U.S. Strategic Command; and the Third and Fourth Comprehensive Dialogues of September 2015 and May 2017 stressed SSA and MDA bilateral cooperation and information-sharing.[59]

In it explicit support of the U.S. "rebalance" through the revision of the U.S.-Japan Guidelines for Defense Cooperation, the Abe administration has further promoted bilateral military space projects. The SCC Joint Statement of April 2015 reiterated the importance of BMD, JAXA's provision of SSA, and developing new and resilient space capabilities.[60] The revised Defense Guidelines for the first time devote an entire section to bilateral cooperation in outer space. Japan and the U.S. are committed to cooperation in SSA and MDA, share information about emerging threats to space systems, and develop concomitant resiliency of their systems, including "hosted payloads" (civilian satellites carrying military payloads). The JSDF and U.S. are mandated to:

> continue to cooperate and to contribute to whole-of-government efforts in utilizing space in such areas as: early warning; ISR; positioning,

[58] Ministry of Foreign Affairs Japan, "Joint Statement of the Security Consultative Committee, Toward a More Robust Alliance and Greater Shared Responsibilities," October 3, 2013, http://www.mofa.go.jp/mofaj/files/000016028.pdf, pp. 3-4, 20-21.
[59] Department of State, "Joint Statement from the Second Meeting of the Japan-U.S. Comprehensive Dialogue on Space," May 12, 2014, Washington D.C., http://www.state.gov/r/pa/prs/ps/2014/05/225990.htm; Department of State, "Joint Statement: The Fourth Meeting of the U.S.-Japan Comprehensive Dialogue on Space," May 17, 2017, Washington D.C., https://www.state.gov/r/pa/prs/ps/2017/05/270946.htm.
[60] Ministry of Foreign Affairs Japan, "Joint Statement of the Security Consultative Committee, A Stronger Alliance for a More Dynamic Security Environment: The New Guidelines for Japan-US Defense Cooperation," April 27, 2015, http://www.mofa.go.jp/files/000078186.pdf, p. 4.

> navigation, and timing; SSA; meteorological observation; command, control, and communications; and ensuring the resiliency of the relevant space systems that are critical for mission assurance. In cases where their space systems are threatened, the Self-Defense Forces and the United States Armed Forces will cooperate, as appropriate, in mitigating risk and preventing damage. If damage occurs, they will cooperate, as appropriate, in reconstituting relevant capabilities.[61]

Japan's determination to expand cooperation with the U.S. into the militarization of outer space has in turn functioned as a persistent and principal driver for the eventual breach on the ban on the exercise of CSD with deep ramifications for the alliance and Japanese security policy overall. For effective real-time operation of space-related BMD systems, Japan and the U.S. require the increasing integration of bilateral information-sharing and command and control. Japan's *Aegis* system is highly interoperable, utilizing the same capabilities in maritime and space-based sensor technologies, data linking, and the co-developed SM-3 BLK-IIA missile. The MSDF's *Aegis* system is inherently mobile and deployable alongside U.S. Navy assets whether in and around Japan or in other waters, thus raising the expectation that the U.S. will request Japanese BMD support in a variety of contingencies outside the traditional scope of the security treaty. Japanese defense planners denied initially that BMD carried implications for CSD, but their U.S. counterparts consistently and publicly stressed that for the system's optimal deployment in support of the alliance it was necessary for Japan to lift the ban on the exercise the right.[62]

[61] Ministry of Foreign Affairs Japan, "The Guidelines for Japan-US Defense Cooperation," April 27, 2015, http://www.mofa.go.jp/mofaj/files/000078188.pdf, p. 21.
[62] In announcing the decision to introduce BMD in December 2003, Chief Cabinet Secretary Fukuda Yasuo asserted that the system would not impinge on CSD: "It will be operated on Japan's independent

Consequently, Japan's increasing acceptance of this technological and strategic logic meant that the BMD system and contingency scenarios for its usage were presented by the Abe administration in 2014-15 as some of the most prominent and compelling justifications for lifting the ban on the exercise of CSD.[63] Japan's lifting of the ban in part necessitated by BMD clearly frees up other areas of U.S.-Japan CSD activities in outer space as identified above, as well as potentially opening up the full gamut of U.S.-Japan alliance cooperation to CSD under the "three new conditions", so demonstrating that space is a decisive driver of broader change across Japanese security policy. Indeed, Minister of Defense Onodera commented in August 2017 that, in response to North Korea's claim it might target the U.S. territory of Guam to demonstrate its missile capabilities, Japan could consider BMD intercepts in line with CSD.[64]

The militarization of space programs under the framework of the alliance and CSD represents, therefore, a fundamental shift in Japan's regional military role. Japan's acquisition of ISR systems and QZSS, increasingly linked together and with U.S. systems via data fusion, now provide a "triple play" of advanced space technologies that greatly multiply Japanese deterrent power, and more significantly the U.S.-Japan

judgement, and will not be used for the purpose of defending third countries. Therefore, it does not raise any problems with regard to the issue of the right of collective self-defense. The BMD system requires interception of missiles by Japan's own independent judgement based on the information on the target acquired by Japan's own sensors." Ministry of Defense, *Defense of Japan 2007* (Tokyo: Intergroup, 2007), p. 500. During the George W. Bush administration, U.S. policymakers began to call openly for Japan to mobilize its BMD capabilities not just for the defense of U.S. forces around Japan but also for the defense of the U.S. homeland. U.S. Ambassador Thomas Schieffer in October 2006, Deputy Under-Secretary of Defense for Asia-Pacific Affairs Richard Lawless in December 2006, and Secretary of Defense Robert Gates in May 2007 made it progressively clearer that Washington expected Japan to use its BMD assets to help intercept missiles targeted at the United States. For details, see Christopher W. Hughes, "Japan's Strategic Trajectory and Collective Self-Defense: Essential Continuity or Radical Shift?" *Journal of Japanese Studies*, Vol. 43, No. 1 (2017), pp. 105, 108, 119, 121.

[63] Anzen Hoshō no Hō-teki Kiban no Saikōchiku ni Kansuru Kondankai, *Anzen Hoshō no Hō-teki Kiban no Saikōchiku ni Kansuru Kondankai Hōkokusho*, May 15, 2014, http://www.kantei.go.jp/jp/singi/anzenhosyou2/dai7/houkoku.pdf, pp. 13–22; "Shushō, Takokuryō de no Kōgeki Hitei," *Asahi Shimbun*, August 25, 2015, p. 4.

[64] "Shinsanjōken Gacchi Nara Geigeki Kanō: Bōeishō Tōben Guamu Muke Hassha no Bai", *Asahi Shimbun Yūkan*, August 10, 2017, p. 1.

alliance's deterrent power, through both denial and punishment, vis-à-vis China's capabilities.

First, Japan's new capabilities will provide a persistent and pervasive ISR capability to track an adversary's military deployments and exchange real-time data with the U.S., meaning that the PLA cannot easily hide from Japanese or U.S.-Japan alliance capabilities. Second, Japan's acquisition of precision navigation and timing (PNT) strike capability through GPS and/or QZSS-guided ASDF JDAMs, means that the PLA, once exposed to space-based tracking, can also no longer evade being a target of Japanese and U.S. capabilities. Third, in addition to land and maritime ISR and even space-based SIGINT and ELINT, Japan's move to acquire space-based EW through its own infrared satellites and by linking with the U.S. Space Based Infrared System (SBIRS) and Defense Support Program (DSP) assets will mean that any adversary such as the PLA will find it hard not only to hide or evade but also to be able to strike back whether first or early against Japanese and U.S.-Japan capabilities.

All this can be imagined to have major implications for the prosecution and outcome of specific conflict situations involving China. Japan has committed to the protection of U.S. maritime assets under the 2015 revised Defense Guidelines and CSD legislation.[65] For example, should a U.S. aircraft carrier strike group come under attack from the PLAN's anti-ship cruise missiles (ACSM) either from *Shang*-class nuclear-powered submarines (SSN) or *Kilo*-class diesel-powered submarines, or even frigates, Japan's

[65] Ministry of Foreign Affairs of Japan, "The Guidelines for Japan-US Defense Cooperation," p. 16. Scenarios for the protection of U.S. warships, even when Japan was not itself under attack, formed much of National Diet deliberations throughout 2015 on the justifications and operationalization of CSD legislation. For such debates, see *Shūgin Kaigiroku Dai189kai Kokkai Waga Kuni oyobi Kokusai Shakai no Heiwa Anzen Hōsei ni Kansuru Tokubetsu Iinkai Dai17gō*, July 3, 2015.

space assets would be pivotal in the bilateral defense effort. Japanese space-based ISG, ISR and MDA, in conjunction with other airborne and ground-based ISR systems such as the ASDF's E-2C, E-767 Airborne Warning and Control System (AWACS) and UAVs, could track PLAN vessels and missile launches and exchange this data in real-time with the U.S. Navy. The MSDF with this space-based ISR and MDA information could mobilize its fleet of P3-C and P-1 patrol aircraft to launch *Harpoon* missile strikes, or mobilize SH-60J/Ks from *Izumo* and *Hyūga*-class helicopter carriers for Mk46 and Type-97 torpedo attacks, against Chinese submarines. MSDF *Sōryū* attack submarines would also join the hunt.

Against ground-launched DF-21D "carrier killer" anti-ship ballistic missiles (ASBM), Japanese space-based EW, in combination with the MSDF's *Aegis* radar system, and linkages with U.S. sensor systems facilitated via Naval Integrated Fire Control-Counter Air (NIFC-CA), would enable tracking of these from storage to launch sites, and then interception by the MSDF and U.S. BMD SM-3 Block IIA. To counter continued ground-based ASBM launches, or PLA Air Force use of maritime and long-range strike fighters such as the Su-30 or J-20 to launch ASCMs, Japan could mobilize its ASDF F-2 or F-35A fighters for precision strikes at Chinese missile shore batteries and airfields utilizing JDAMs.

Japan's advanced space technologies looking to work in "seamless" cooperation with those of the U.S., a *leitmotif* of the revised Defense Guidelines, mark a significant new stage in the development and leveraging of JSDF capabilities and U.S.-Japan alliance cooperation. It may have a potentially key impact on the U.S.-Japan-China strategic balance. Such complementary and accretive space-based capabilities, exchange of ISR

data, and preparedness to buttress U.S. space infrastructure, clearly strengthen U.S.-Japan alliance interoperability and its deterrence posture. Through the QZSS system and its role as a substitute for U.S. GPS, Japan places itself on the very front line as a primary target in a conflict with any adversary, but especially China. While obviating the risks of U.S. abandonment, Japan is actually undertaking renewed risks of entrapment, and so sacrificing the tenets of the Yoshida Doctrine as the cost of strategic commitment to the U.S. in space and maintenance of this aspect of the global commons.

In turn, it can be envisaged that China might perceive these developments as even aggressive in orientation. Full spectrum dominance threatens to deprive China of the ability to hide, evade or strike back and to thus negate its own normal deterrence capabilities. The temptation, then might be for China to launch, in line with its doctrine of asymmetric warfare, preemptive or blanket kinetic, directed-energy or cyber strikes to degrade Japanese ISR assets and restore strategic parity in an impending conflict. In this sense, then, Japanese militarization of space activities could prove highly escalatory for U.S.-Japan-China security tensions.

Domestic policy-making institutions and space militarization

Japan's militarization of space to pursue behaviors approximating to internal and external power balancing demonstrates the start of clear departures from the Yoshida Doctrine. These changes are also matched by shifts in the disposition of domestic agents and norms.

Aligning policy structures for a military-strategic space orientation

Japan's immobilism in space policy until the late 1990s displayed classic bureaucratic inter-jurisdictional and budgetary rivalries, combined with weak political oversight and coordination. NASDA, controlled by the Science and Technology Agency (STA), focused on the industrialization of space for the benefit of the Japanese economy and society. ISAS, controlled by the Ministry of Education (MOE), focused more on foundational space science. The MOE's transformation into the Ministry of Education, Culture, Sports and Technology (MEXT) in 2001, and its absorption of STA and taking control of JAXA in 2003, created a bureaucratic powerhouse intent on safeguarding its budgets versus other agencies. Day-to-day development of Japan's civilian and military space programs was largely split between MOE/MEXT and the rival Ministry of International Trade and Industry (MITI, later to become the Ministry of Economy, Trade and Industry [METI]) also mainly interested in space for industrial policy. MEXT and METI contentions over jurisdictions and budgets compounded deficiencies in space policy, in part demonstrated by the expensive failure of an H-IIA launch and loss of two IGSs in November 2003.

Japanese industrial manufacturing interests—primarily Mitsubishi Electric (Melco), NEC Corporation and Toshiba Corporation (until NEC and Toshiba's forced merger in 2000) as the major satellite makers, Mitsubishi Heavy Industries (MHI) and Ishikawajima-Harima Corporation, and the Keidanren's (Japan Business Federation) Space Activities Promotion Council—during this period were fixed primarily on the civilian commercial rather than military possibilities of space, with other sectors of the Japanese economy such as finance similarly disinterested in defense procurement for perception of the limited commercial benefits and potential negative reputational

reasons of involvement in arms production.[66] Following rising bilateral trade frictions and the 1990 "satellite agreement," Japan became obliged by the U.S. to open up its commercial space procurement. Melco, NEC and Toshiba, facing new competition for their increasingly capable but expensive systems, began to pressurize the Japanese government to develop a dual-use space market that would broaden military procurement opportunities and protect this domestic market from U.S. competition.[67]

Rigid divides between civilian and national security policy-making structures also promoted policy continuity. The Prime Minister's Office housed and exercised direct control over the Space Activities Commission (SAC) that had the overall purview of space policy, and strictly separated the SAC from any relationship with the JDA also under the control of the Prime Minister's Office. The Cabinet Office lacked any mandate or structures to exert top-down political control over space programs. Japan's political leadership was also for most of this period concerned primarily with civilian space usage. The defense-oriented elements of the long-governing LDP did increasingly emphasize the importance of military space technology, but it was still the LDP mainstream that originally sponsored and maintained the PPR as a means to reassure domestic and international opinion that Japan was not fundamentally diverging from its anti-militaristic principles (although, as with the Three Non-Nuclear Principles of 1967, the LDP was careful to enunciate in the National Diet a resolution rather than binding national law that might close off options for military space activities). Japan's main opposition parties, the Japan Socialist Party, Japan Communist Party, Democratic Socialist Party, and the Kōmeitō (Clean Government Party), were

[66] Nippon Keidanren, "Kokumin Seikatsu no Shitsu Kōjō ni Shi Suru Uchū Kaihatsu no Suishin o Yōbō," 21 June 1995 http://www.keidanren.or.jp/japanese/journal/CLIP/clip0012/cli008.html.; Ikeuchi, *Uchū Kaihatsu*, pp. 112-113.
[67] Ikeuchi, *Uchū Kaihatsu*, pp. 121-122.

strongly opposed to the militarization of space for anxiety of entrapment in U.S.-led Cold War conflicts.[68]

Japan's political and bureaucratic leadership, however, has been provoked since the late 1990s into asserting greater strategic control over space policy by evident problems of devolving responsibility to MEXT, JAXA and METI. Japanese political leaders' increased assertiveness over military space strategy reflected general trends for the strengthening of the core executive over security policy.[69] Following the "Taepodong shock", the Cabinet Office's Council for Science and Technology Policy (CSTP) from 2000 onwards formulated, under the chairmanship of Prime Minister Koizumi Junichirō, a series of basic space strategies released in 2001, 2002 and 2004 that represented initial attempts to assert central control over space policy and fold it into a dual-use national security architecture, placing security and crisis management as first in the list of Japanese priorities, emphasizing the development of the IGS constellation, maintenance of solid-propellant rocket technology, and establishment of QZSS.[70]

The next stage was the intervention of Kawamura Takeo, later Chief Cabinet Secretary during the administration of Prime Minister Asō Tarō from 2008-2009. The "Kawamura Initiative", via the LDP's internal National Space Strategy Planning Group (NSSPG), created momentum for the passage of the 2008 Basic Space Law that placed the Cabinet Office through the SHSP in overall control of space policy, overturned the

[68] Suzuki, *Uchū Kaihatsu*, p182.
[69] Shinoda Tomohito, *Kantei Gaikō: Seiji Rīdāshippu no Yukie* (Tokyo: Asahi Shimbunsha, 2004); Robert Pekkanen and Ellis S. Krauss, "Japan's 'Coalition of the Willing' on Security Policies," *Orbis* Vol. 49, No. 3 (2005), pp. 429-444.
[70] Sōgō Kagaku Gijutsu Kaigi, *Kongo no Uchū Kaihatsu, Riyō ni Kansuru Torikumi no Kihon ni Tsuite*, 19 June 2002, http://www8.cao.go.jp/cstp/output/iken020619_5.pdf, pp. 5, 7.

PPR, and recognized the need for augmented military space capabilities.[71] The SHSP, with Kawamura as Deputy Director General, produced a report in April 2009 recommending extensive Cabinet Office control over space policy and budgeting.

The DPJ government in 2009 brought plans for a new Space Agency (*Uchūchō*) that would swallow the SHSP and space functions of other ministries and generated near implacable opposition from MEXT.[72] The DPJ eventually relented and returned to building up the influence of the SHSP, establishing in June 2012 the Office of National Space Policy (ONSP), with a Space Policy Commission (SPC), chaired by the prime minister, to coordinate national security priorities. This system of dual control under the SHSP via the ONSP and NSPC lacked, however, a clear legal statement of which actor controlled budgetary issues, and temporarily created room for inter-ministerial haggling. For example, the Cabinet Satellite Intelligence Center, JMOD and Ministry of Finance in December 2013 all rejected attempts by METI to inject itself as a primary space player when senior official Nishimoto Junya, a former director of METI's Space Industry Office, sought for the ONSP to select METI-budgeted satellites over MEXT's as Japan's MDA system.

This failure—following the Abe administration's establishment of the NSS the same month, and Japanese promises to the U.S. in the October SCC over space cooperation—produced decisive intervention when Hiroshi Imazu, Chair of the LDP's Space Policy Subcommittee of the Special Committee for Space and Ocean Development, former Vice-Minister for Defense, and an advocate of a highly militarized space policy,

[71] Jiyū Minshutō Seimu Chōsakai Uchū Kaihatsu Tokubetsu Iinkai, *Arata na Uchū Kaihatsu Riyō Seido no Kōchiku ni Mukete: Heiwa Kokka Nihon Toshite no Uchū Seisaku*, April 2006, http://www.tspark.net/katsudo/11.pdf.
[72] Moltz, *Asia's Space Race*, p. 60.

engineered an LDP report in June 2014 recommending a Japanese version (*Nihon-ban*) of the U.S. NSSS.[73] This report pushed the ONSP to produce its own "Mid-Term Strategy" in August 2014, even more aggressive in outlook than the January 2013 Basic Plan.[74] Imazu's intervention, along with that of Abe himself and the LDP, essentially returned control of space policy to the ONSP and the Cabinet Office, and thus bolstered political leadership.

The ONSP consolidated its grip by removing JAXA from under MEXT's direction and relocating it under the ONSP itself. Then, the JMOD's influence in space policy has grown as it increasingly becomes the prime customer for and beneficiary of Japan's militarizing space capabilities.[75] JMOD staff populate the ONSP and blocked METI's attempts to budget its MDA constellation.[76] JAXA, often seen as preserving the civilian

[73] The Space Strategy Subcommittee of the LDP's Special Committee for Space and Ocean Development on June 5, 2014 published a "National Security Space Strategy", calling for Japan to employ space technologies for defense and fulfill commitments to the U.S. for deploying SSA and MDA satellite constellations within three years; establish a Space Agency with budgetary control over all concerned ministries; and create a Japanese version of the U.S.'s NSSS in coordination with the NSC and NSS. Japan should work for the early establishment of an MDA constellation using the optimal combination of satellites (ranging from 2-ton to 500-kilogram and 100-kilogram microsatellites), UAVs, stratospheric aerial platforms and remotely controlled vessels; establish an Integrated SSA Monitoring and Analysis Center (*Sōgō Kanshi Sentā*) working in cooperation with U.S. SSA assets; bolster Japan's fleet of four IGS satellites with constellations of 100-kilogram to 500-kilogram microsatellites dedicated to specific areas of concern and connect the constellation with a data relay satellite; start research on direct JMOD-image intelligence, SIGINT and BMD EW satellites, specifically integrated to work real-time with U.S. military space assets; develop launch vehicles for military use, redevelop launch facilities with "multiple capabilities" and "hardened with strong survivability" and so the para-militarization of the space center at Tanegashima; urgently upgrade *Epsilon* rockets for rapid deployment of small low-earth-orbit space assets; and convert JAXA to a U.S. Defense Advanced Research Projects-type role for its highest priority R&D functions to work seamlessly with the JMOD to execute the new National Space Security Strategy. Policy Research Council Liberal Democratic Party, *Recommendation for a Comprehensive Space Strategy to Implement Japan's National Strategy*, August 26, 2014, http://hiroshi-i.net/10/wp-content/uploads/b785de34e6cd85a6423eb90542522d2d.pdf.

[74] Uchū Seisaku Iinkai, *Kihon Keikaku Chūkan Matome (An)*, August 20, 2014, http://www8.cao.go.jp/space/comittee/dai26/gijisidai.html.

[75] Author interviews and correspondence with protagonists in Tokyo, including: Space Policy Commissioners, interview June 16, 2014, correspondence June 23, email interview June 27, interview September 17, 2014; Tsuzukibashi Satoru, Director of the Defense Production Committee, Keidanren, June 12 and 23, November 18, 2014; Uji Masaru, General Manager at the Society of Japanese Aerospace Companies, April 23, July 23, September 9, 2014; Matsui Takafumi, Professor Emeritus, University of Tokyo, and Deputy Chairman of the Space Policy Commission, September 5, 2014; Imazu Hiroshi, then Chairman of LDP Special Committee on Space and Maritime Development, August 28, 2014, October 9, 2014, and January 27, 2015.

[76] Author interviews in Tokyo with seconded METI official and then-ONSP director, Kunitomo Hirotoshi, March 12 and 26, 2013, and April 2, 2013. In addition to Nishimoto, in spring 2013 METI seconded six and JMOD four staff, respectively, to the twenty-three member ONSP, with MEXT only now providing four staffers, with one or two staff from other ministries making up the rest.

rationale, has readily dropped its previously "principled" stance on non-military use and is now actively promoting military-use programs in order to preserve its budgets.

The LDP has, therefore, moved firmly toward the more overt military use of space since the "Taepodong-shock." Successive LDP administrations and party grandees have led the charge for space militarization, promoting and passing the Basic Law and Basic Space Plans. Abe has positioned space at the forefront of national security strategy. LDP leaders have yet more ambitious plans. Similarly, the DPJ strongly converged with the LDP on the need for the military use of space as early as the mid-2000s when it supported the Basic Space Law. Maehara Seiji, a DPJ defense hawk, as State Minister for Space Development from 2009 to 2010, even attempted to wrest space policy from MEXT in order to push through a global ISR constellation to bolster IGS and a full QZSS constellation.[77] DPJ Prime Minister Noda Yoshihiko, a former JSDF member, committed Japan to the "industrialization" of space, a euphemism for militarization, given that his government was establishing Cabinet Office control over the QZSS system which, although dual-use in nature, is a central military navigation platform.[78] Even the dovish New Kōmeitō has supported such policies in coalition with the LDP.[79]

Japanese industrial manufacturing interests, long attuned to the potential of military market from the 1990s onwards as an untapped source of procurement budgets to preserve the national defense industrial base, have strongly supported space

[77] Paul Kallender-Umezu, "Profile, Seiji Maehara, Foreign Minister, Japan: Building on Success," *Space News*, 19 October 2010, p. 22.
[78] Democratic Party of Japan, *Making Decisions to Get Things Moving. The Democratic Party of Japan's Manifesto. Our Responsibilities for Now and the Future*, Tokyo 2012, http://www.dpj.or.jp/english/manifesto/manifesto2012.pdf, pp. 28, 31.
[79] The LDP and New Kōmeitō formed a project team, consulting more than thirty times, for formulation of the 2008 Basic Space Law; see Aoki, "Current Status," p. 365.

militarization. The Space Activities Promotion Council of the Keidanren, Japan's most prominent and influential business association, has consistently lobbied for the promotion of military activities since 2004, initially asking for the government to revise the PPR, and now focusing on national security as the prime rationale and market for space programs.[80]

Eroding normative prohibitions on space militarization

Japan's increasing alignment of party political, bureaucratic and industrial interests has also been accompanied by apparent normative change. The 1969 PPR originally committed Japan to the development of space capabilities "limited to peaceful purposes" (*heiwa no mokuteki ni kagiri*) and thus an anti-militaristic principle and norm generally accepted by Japanese political elites and broader society, and that went beyond the UN's 1967 Outer Space Treaty (OST) allowing only for the non-aggressive military use of space.[81]

The erosion of the PPR began with the "Taepodong shock" that created an environment conducive for the IGS program. This initial shift to the defensive use of space was presented as fitting within PPR apparent parameters: IGS satellites were classified as information-gathering (*jōhō shūshū*) and "multi-purpose" (*tamoku-teki*) despite their essentially primary military rationale.[82] But thereafter the "exclusively peaceful" use

[80] Nippon Keidanren, *Uchū Kaihatsu Riyō no Sōki Chakujitsu na Suishin o Nozomu*, June 22, 2004, https://www.keidanren.or.jp/japanese/policy/2004/055.html; *Waga Kuni Uchū Kaihatsu Riyō Suishin Muketa Teigen*, June 20, 2006 https://www.keidanren.or.jp/japanese/policy/2006/046/honbun.html; *Kokka Senryaku toshite no Uchū Kaihatsu Riyō no Suishin ni Muketa Teigen*, April 12, 2010, https://www.keidanren.or.jp/japanese/policy/2010/029honbun.pdf, pp. 1-2; *Uchū Kihonhō ni Motozuku Uchū Kaihatsu Riyō no Suishin ni Muketa Teigen*, May 17, 2011, https://www.keidanren.or.jp/policy/2011/049honbun.pdf, p. 2; *Uchū Kihon Keikaku ni Muketa Teigen*, November 18, 2014, https://www.keidanren.or.jp/policy/2014/098_honbun.pdf, p. 2.
[81] Oros, *Normalizing* Japan, p. 129. For the PPR see: *Waga Kuni ni Okeru Uchū no Kaihatsu Oyobi Riyō no Kihon ni Kansuru Ketsugi*, May 9, 1969, http://www.jaxa.jp/library/space_law/chapter_1/1-1-1-4_j.htmland; and Setsuko Aoki, *Nihon no Uchū Senryaku* (Tokyo: Keio Gijiku Daigaku Shuppankai, 2006), pp. 174-177.
[82] Oros, *Normalizing Japan*, pp. 140-141.

of space norm has been abandoned. The Basic Space Law jettisoned the PPR, passing the National Diet with 221 in favor, and only fourteen against, with cross-party support from the LDP, DPJ, and New Kōmeitō.[83]

Crucially, Japanese public opinion, often thought as the final "immovable object" of anti-militarist principles, has shown itself to be flexible about the military use of space.[84] The IGS and introduction of BMD aroused little public opposition.[85] Cabinet Office opinion polls demonstrate rising support for the JSDF to undertake BMD since 2006, with increases from sixteen to twenty-seven percent between 2006 and 2015 for those seeing BMD as one of the key rationales for the JSDF's existence, and from thirteen to twenty-one percent across the same years for those seeing BMD as a key role of the JSDF.[86] The Cabinet Office has since 2015 posed survey questions regarding the JSDF's future role in contributing to the "stable use" of outer space, another euphemism for military use, and attracted an early favorable response.[87]

Conclusion: Japan's militarization of security and erosion of the Yoshida Doctrine. No longer hiding in plain sight?

Japan's military space programs have only even really been hiding in plain sight given their dual-use camouflage, but the framework of analysis presented in this paper now

[83] New Kōmeitō reported itself satisfied in applying brakes (*hadome*) on the militarization of space, insisting on a commitment in the law for the use of space in accordance with the constitution's pacifism; New Kōmeitō, "Party Pushes for Peaceful Use of Outer Space", May 22, 2008, https://www.komei.or.jp/en/news/2008/0522.html.
[84] Richard Friman, Peter J. Katzenstein, David Leheny, and Nobuo Okawara, "Immovable Object? Japan's Security Policy in East Asia," in Peter J. Katzenstein and Takashi Shiraishi, eds., *Beyond Japan: The Dynamics of East Asian Regionalism* (Itahca, New York: Cornell University Press, 2006), pp. 85-107.
[85] Midford, *Rethinking Japanese* Security, p. 186.
[86] Asagumo Shimbunsha, *Bōei Handobukku 2007* (Tokyo: Asagumo Shimbunsha, 2007), pp. 814-815; Asagumo Shimbunsha, *Bōei Handobukku 2015* (Tokyo: Asagumo Shimbunsha, 2015), pp. 840-841; Naikakufu Daijin Kanbō Seifu Kōhōshitsu, *Jieitai Bōei Mondai ni Kansuru Yoron Chōsa*, January 2015, http://survey.gov-online.go.jp/h26/h26-bouei/2-4.html.
[87] Naikakufu Daijin Kanbō Seifu Kōhōshitsu, *Jieitai Bōei Mondai ni Kansuru Yoron Chōsa*, January 2015, http://survey.gov-online.go.jp/h26/h26-bouei/zh/z11.html.

openly demonstrates that Japan is emerging as a major military space power. Just as importantly, Japan's militarization of space demonstrates fundamental challenges to the continuity of the Yoshida Doctrine and heralds radical shifts in its overall security stance.

This paper's analysis has demonstrated systematic and deep challenges to the Yoshida Doctrine's central tenets in four ways, as summarized again in Table 1. First, it has shown that Japan's former strategic calculus over security policy is fundamentally shifting, becoming increasingly dominated by international systemic pressures, concerns over abandonment rather than entrapment, the need to more actively maintain alliance ties, and to a build-up of capabilities for internal and external balancing—all indicating a shift to a more proactive military stance.

Second, Japan has embedded space at the forefront of national and U.S.-Japan alliance security strategy and deploys a triad of national space capabilities in launch vehicles, satellites, and counterspace that competes with, or even gains superiority over, if seen in the context of ever-closer interoperability with U.S. space resources, those of its main security adversary China. Japan's space technologies even now hint at offensive power projection and augmenting a recessed nuclear option for deterrence by punishment. Thus, Japan is becoming a far more capable and complete military actor overall, especially when combined with the build-up of network-centric-type technologies yielding significant leveraging of JSDF military capabilities to participate in full-spectrum dominance in a range of contingencies, even if the quantitative

resource base has not greatly increased.[88] These capabilities mark a step change beyond the constrained stance of the Yoshida Doctrine.

Moreover, Japan's military space policy broadly reflects, and indeed in many ways leads and actively facilitates trends in the build-up of capabilities in other linked military dimensions. As noted earlier, the 2013 NDPG and MTDP seek to create a DJDF, and expanded the variety of advanced weapons platforms, including: MSDF *Aegis* destroyers, multi-mission destroyers, *Sōryū* attack submarines, *Izumo* and *Hyūga*-class light helicopter carriers, P-1 long-range patrol aircraft, ASDF F-35A fifth-generation fighters and UAVs; and GSDF vertical and/or short take-off and landing troop transports, amphibious armored personnel carriers, and a proto-marine corps force. This represents a substantial expansion of Japanese military power overall, and the NDPG makes clear that central to this effort is superiority in ISR, improved command and control, and integration of JSDF operations across all three services and dimensions of activities—again all functions provided indispensably by space technologies.[89] Japan's militarization of space policy is not, therefore, a marginal or niche activity that cannot be used to gauge broader security change. In fact, space is now central in terms of concerted national defense planning efforts to upgrade and integrate significantly the JSDF's qualitative capabilities.

Third, the paper demonstrates that Japan's policy structures, agents, and norms are not immutable. Japan has developed coordinating policy-making institutions that now supersede the structures associated with the reinforcement in the past of the Yoshida Doctrine and instead facilitate the rapid militarization of space and other aspects of

[88] Japan Ministry of Defense, *National Defense Program Guidelines for FY2014 and Beyond*, pp. 7-8.
[89] Japan Ministry of Defense, *National Defense Program Guidelines for FY2014 and Beyond*, pp. 7-8.

security policy. Japan's transforming security policy is underpinned by growing centralized political control and consensus as seen in the elevated role of the JMOD, Cabinet Office and NSC, and convergence between LDP and opposition policies on many security policy fundamentals.[90] This process of the centralization and moves toward greater political and strategic orientation of policy-making supports and matches the changes observed across all aspects of security policy in recent years, including most importantly the establishment of Japan's first NSC in December 2013.[91] Hence, whilst all domestic obstacles to overcoming the Yoshida Doctrine have not been swept aside entirely in Japan's security policy, and as with all states security it remains a site of domestic political contestation, the clear trajectory in space and the other interlinked dimensions is toward a far more muscular military posture.

Similarly, the militarization of space is illustrative of and strongly influences changes in normative attitudes and the erosion of anti-militaristic principles across Japan's security policy, including intermittent breaches of the one per cent of GNP defense expenditure principle and now its explicit disownment in 2017 by the Abe administration; known breaches of the third of the Three Non-Nuclear Principles by allowing U.S. warships to enter Japan carrying tactical nuclear weapons; more recent restructuring of civilian control; the abandonment of the ban on exports of military technology to adopt instead the Three Principles on Transfer of Defense Equipment

[90] Jeffrey Hornung, "With a Left Like This, Who Needs the Right?", *Japan Chair Platform*, February 11, 2011, http://csis.org/files/publication/110211_Hornung.pdf.
[91] For studies of Japan's changing institutions and the increasing flexibility to devise security policy over the last decade and half, see Shinoda Tomohito, *Kantei Gaikō: Seiji Rīdāshippu no Yukie* (Tokyo: Asahi Shimbunsha, 2004); Adam P. Liff and Andrew S. Erickson, "From Management Crisis to Crisis Management: Japan's Post-2012 Institutional Reforms and Sino-Japanese (In)stability", *Journal of Strategic Studies*, Vol. 40, No. 5 (2017), pp. 604-638; Sunohara Tsuyoshi, *Nihon-ban NSC to wa Nanika?* (Tokyo: Shinchōsha, 2014).

and Technology; and, of course, the abandonment of PRR, and now the breach on the ban of the exercise of CSD.[92]

Fourth, the militarization of space programs indicates that Japan now has a new determination to use this power in the active service of national security and to depart on a new chapter in grand strategy: a boldness to establish new capabilities and to push the integration of its capabilities with those of the U.S. in order to greatly strengthen the alliance and to operationalize the types of bilateral military cooperation in regional contingencies envisaged by the revised Defense Guidelines and CSD legislation. Japan's lack of reticence to form part of the frontline of deterrence, and to move toward abandoning hedging and to accept the risks of entrapment and make full operational commitments to U.S. regional strategy, as seen in the case of space, are hardly redolent of the Yoshida Doctrine.

In conclusion, therefore, the paper asserts that Japanese space activities indicate a trajectory heading away from the Yoshida Doctrine toward Japan as a more capable military power and more fully committed U.S. ally. Abe's security orientation is not a transitory phenomenon, but rather the shape of things to come in Japanese security policy. The militarization of space policy stands as a harbinger of broader military transformation. Japan's space capabilities are now hiding less in plain sight and the implications for regional security come into sharper question. Japan will provide a strong and proactive contribution to the U.S. "rebalance" to East Asia and future

[92] For Abe's admission of the abandonment in effect of the one percent of GNP limit on defense expenditures, see "Boeihi '1% ni Osaeru Kangaekata nai'", *Asahi Shimbun*, March 3, 2017. For breaches of the Three Non-Nuclear Principles, see Ministry of Foreign Affairs Japan, "Iwayuru "Mitsuyaku" Mondai ni Kansuru Chōsa Kekka," March 2010, http://www.mofa.go.jp/mofaj/gaiko/mitsuyaku/kekka.html.

military strategies. In fact, the increasing integration of Japan's space and other military capabilities with those of the U.S. may even prove provocative to potential adversaries such as China. North Korea has clearly stated that it perceives Japan's satellite and QZSS program as military in nature, and China continues to accuse Japan of procuring destabilizing military capabilities. All this may reinforce the emergent security dilemmas in the region.[93]

[93] "North Korea Accuses Japan's Satellite Launch as an Attempt to 'Spy on Pyongyang", *South China Morning Post*, June 2, 2017, http://www.scmp.com/news/asia/southeast-asia/article/2096726/north-korea-accuses-japans-satellite-launch-attempt-spy; "China Military Firmly Opposes Japan's Defense White Paper Hyping up 'China Threat'", Ministry of National Defense of People's Republic of China, August 9, 2017, http://eng.mod.gov.cn/news/2017-08/09/content_4788352.htm.

Table 1: Central tenets and baselines of change for the Yoshida Doctrine and the impact of Japan's space militarization

YOSHIDA DOCTRINE'S CENTRAL TENETS	JAPAN'S MILITARIZATION OF SPACE AND IMPACT ON CENTRAL TENETS OF THE YOSHIDA DOCTRINE
Assessment of international security environment	
• USSR capabilities and intent primary security concern; China's capabilities secondary concerns	• China's space capabilities and intent primary concern ("ASAT shock", A2/AD in space), North Korea's ballistic missile capability ("Taepodong-shock") and intentions secondary
• Regional security dilemmas stable	• Japan-China upward security dilemma/arms race in outer space
• Confidence in non-abandonment by U.S.	• Concerns of abandonment by U.S. due to alliance capability asymmetries in outer space
• Concerns primarily over entrapment by U.S.	• Reduced concerns over entrapment by U.S.
• Japanese minimalist military commitment to U.S. feasible	• Japanese strong military commitment to U.S. essential in space
Japan's national military capabilities	
• Exclusively defense-oriented defense	• Proactive defense posture in space (Basic Space Law 2008, Basic Space Plans 2009, 2013, 2015, 2016; JMOD Basic Space Plans 2009, 2014; NSS 2013; NDPG 2010 & 2013)
• Limited capabilities for deterrence by denial; no power projection/offensive capabilities for deterrence by punishment	• Power projection/offensive capabilities acquired in space (GPS/QZSS; JDAM targeting; ASAT counterspace; global strike)
• Highly limited militarization of outer space	• Comprehensive militarization and triad of space capabilities (space-based ISR, MDA SIGINT, ELINT, GPS, SSA, ASAT, BMD)
• Non-nuclear defense posture	• Space solid-fuel delivery, re-entry vehicles and targeting systems enhance recessed nuclear option
• Defense budget limited to 1% GNP	• Defense budget increased outside one percent GNP by expanding dual-use space budget
Degree of Japan's security commitments to U.S.	
• Restricted bilateral strategic cooperation with U.S.; avoidance of entanglement	• Enhanced bilateral cooperation and conjoining of strategy in space (U.S.-Japan Comprehensive Space Dialogue, revised U.S.-Japan Defense Guidelines 2015)
• Defensive responsibilities restricted to Japan	• U.S.-Japan space cooperation enhances bilateral alliance deterrence perimeter in East China Sea and South China Sea
• Non-integration of JSDF and U.S. military capabilities	• "Seamless" integration of U.S.-Japan capabilities in space (BMD, QZSS, MDA, SSA)
• No transfer/sharing of military technologies	• Transfer and sharing of space technologies (BMD)

• Non-exercise of collective self defense • Obfuscation of military commitments and hedging tactics	• Exercise of collective self-defense facilitated and obliged by bilateral space capabilities and cooperation, especially precipitated by BMD • Space capabilities and alliance commitments on frontline of deterrence against China and cessation of hedging
Degree of alignment of policy-makers in security policy	
• Fragmentation of central control over security policy • Party political contestation over security policy, especially LDP versus opposition parties • Political-bureaucratic contestation over security policy • Civilian control dominates over defense bureaucracy and strong bureaucratic inter-jurisdictional rivalries • Defense-industrial interests restricted influence on security policy	• Centralization of security policy-making for space under Cabinet Office, SHSP, ONSP, SPC, NSC. JAXA moved from MEXT to ONSP control • Party policy convergence over security policy and space; LDP-DPJ consensus on militarization of space • Political influence increases vis-à-vis bureaucratic interests in security policy-making for space. LDP exerts dominance over bureaucrats • Civilian control reduced over defense bureaucracy and weaker inter-ministerial rivalries. MEXT-METI-JMOD enhanced cooperation under Cabinet Office direction • Defense-industrial interests converge to influence security policy-making for space. Keidanren prioritizes militarization of space; MHI, Melco, KHI strong proponents of military space policy
Degree of durability of security policy norms	
• Anti-militaristic principles • Restrictions on the export of arms and military technology (1967 and 1976) • Three Non-Nuclear Principles (1967) • PPR space (1969) • Civilian control • Ban on the exercise of collective self-defense • 1% GNP defense expenditure	• PRR abandoned as anti-militaristic principle/norm. National Diet consensus on Basic Space Law 2008 • PPR abandoned as anti-militaristic principle/norm • Public support of JSDF military activities in space, including BMD and other activities

Table 2: Japan's triad of military/dual-use space capabilities compared to U.S. and China

	UNITED STATES	CHINA	JAPAN
COMMUNICATIONS AND INTELLIGENCE			
Surveillance satellites	**D**	**D**	**D**
Electro-optical	5 x KH-11 *Kennan* (~15 cm) 2 x KH-12 (Misty) 1 x Enhanced Imaging Satellite (EIS) (*Misty* 2) (~10 cm)	14 x *Yaogan* (~60-80 cm)	4 x IGS Optical (~30-100 cm; to be doubled to an 8-satellite constellation by 2025)
			ASNARO (~50 cm) ALOS-2, 3 (~80 cm) SLATS RSS series
SAR	3 x *Lacrosse*/*Onyx* (~30 cm) c. 3-5 x *Topaz* (~10 cm)	7 x *Yaogan*	3 x IGS Radar (~100 cm)
			ASNARO (~100 cm) RSS series
MDA	Wide range of space-based resources	4-7 x *Haiyang* 3 x *Yaogan*-IX Naval Ocean Surveillance System (NOSS) constellation, up to 21 counter-naval satellites	ALOS-3 ASNARO series SLATS RSS series
SSA	**D**	**U**	**D**
	c. 30 radars/telescopes, 2 x Geosynchronous SSA (GSSA), S-Band Space Fence, Space Surveillance Network (SSN), BMD radars		7 x FPS-5 J/FPS-XX Bisei Spaceguard Center (1 m telescope)
BMD EW	**D**	**R**	**R**
	Defense Support Program DSP/Space Based Infrared System (SBIRS)	*Shijian* 7 (SJ-7) & SJ-11-07 experimental satellites	ALOS-3 Geostationary Earth Orbit (GEO) capability under research
Tactical	TacSat 1-4	**U**	RSS series
Space-based SIGINT	**D**	**U**	**R**
	c. 5 x *Mentor*		ETS-VIII derivative
Space-based ELINT	**D**	**D**	**R**
	c. 3x *Trumpet*	15 x *Yaogan*	ETS-VIII derivative
Military-use navigation/GPS	**D**	**D**	**D**
	24 x GPS Precise Positioning Service (~3 m)	35 x *BeiDou*-2 satellites by 2020 (~10 cm)	7 x QZSS by 2024 (~15 cm)
COUNTERSPACE OFFENSIVE/DEFENSIVE			
ASAT	**D**	**D**	**D/L**
Direct ascent	**D/L**	**D/L**	**D/L**
	Aegis SM-3 SM-3 Block 2A THAAD	*Long March*-6 KT-1/ SC-19 KT (or DN)-2 KT (or DN)-2A	*Aegis* SM-3 SM-3 Block 2A
Air-Launch	**D**	**D**	**D**
	ASM-135 ALASA	*Shenlong*	ASLET
Laser blinding	**D**	**D/R**	**N/F**
	MIRCL (to LEO)	50-100 KW (600 km)	Research on adaptive optics

Co-Orbital	**D/R**	**D/R**	**R/L**
	NFIRE, 2 x XSS-11, 2 x MITx, *Phoenix*, ANGELS, TAOS	*Tsinghua*-1, BX-1, SJ-12, CX-3, SJ-7, SY-7, *Shijian*-15	ETS-VII, SmartSat-2 HiMEOS HTV, debris removal satellite
Global Strike	**D**	**D**	**D**
	2 x X-37B (& prior programs)	WU-14 hypersonic Glide Vehicle	HYFLEX/HOPE-X
BMD	**D**	**U**	**D**
Sea-based	33 *Aegis* (5 cruisers [CGs] and 28 destroyers [DDGs]): 16 in the Pacific 17 in the Atlantic Fleet.		*Aegis* (6 ships) Increasing to 8
Land-based	30 x GMD interceptors 1,100+ x PAC-3 batteries 5 x THAAD 8-missile batteries	SC-19 DN-2	PAC-3
Networked	**D**	**U**	**D**
	Aegis Baseline 9, Naval Integrated Fire Control-Counter Air (NIFC-CA)		*Aegis* Baseline 9, NIFC-CA
LAUNCH/REENTRY VEHICLES			
Solid-fuel IRBM/ICBM	**D**	**D**	**L**
	Minuteman III W78/MK12A, Minuteman III W87/MK21	DF-4, DF-5A, DF-21A, DF-21C, DF-31, DF-31A, DF-31B, DF-41 (R&D)	M-3SII J-I M-V *Epsilon*
Warhead reentry	**D**	**D**	**L**
	MK12-A, W87/MK21, W76-0/MK4, D-5 W88/Mk5	MIRV capable DF-41, DF-5, DF-31A, DF31-B	OREX EXPRESS, USERS-SEM *Hayabusa*
SLBM	**D**	**D**	**L**
	UGM-133 Trident SSBMs, Minuteman III W78/Mk12A, Minuteman III W87/Mk21	JL-1, JL-2, Type 092 SSBN, SSBN, Type 096 SSBN (R&D)	*Epsilon* derivative on *Sōyrū* submarine platform: 1-3, 20-250 kt range MIRV potential.

D = In use, developed, or under development
R = Under research
U = Unknown
S = Suspended
L = Latent/ technically feasible
H/L = Halted, latent, technically feasible
N = No evidence
X = Inapplicable

Source for Chinese capabilities: US-China Economic and Security Review Commission, *2014 Report to Congress of the US-China Economic and Security Review Commission*, Washington D.C., November 2014, http://origin.www.uscc.gov/sites/default/files/annual_reports/Complete%20Report.PDF, 318-328.