

## CHAPTER 6:

### MISSILE WARS: WHAT AWAITS

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**N**ow that the United States and Russia have agreed to extend New START for five more years, the question arises, what comes next. The Russians have evinced a desire to revive the Open Skies agreement and to agree to a moratorium on the deployment of intermediate range nuclear weapons. They also wish to revive the 2015 Iran nuclear deal and have long been pushing for an international agreement on certain norms for space-related activities.<sup>473</sup>

Realizing these Russian diplomatic possibilities, however, are unlikely to be as important as what, if anything, Washington and Moscow might do either to counter or to limit China's growing strategic military capabilities. State Department officials are hopeful that agreement with Russia on New START will ease the way to getting Beijing to agree to limit its strategic weaponry. But assuming this is possible, what would any arms limitation deal look like and when might it be reached?

The specifics are unclear. What would drive such talks are not. They will reflect a long-term missile-driven military competition that has already begun. At the high end, this long-term military rivalry involves not just the United States, but America's East Asian and European allies, and, to a lesser extent, Russia. It will create ample

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473. See, Ben Aris in Berlin, "The Kremlin launches drive to revive Cold War missile treaties nixed by US," *Intellinews*, January 28, 2021, available at <http://www.intellinews.com/the-kremlin-launches-drive-to-revive-cold-war-missile-treaties-nixed-by-us-201519/> .

opportunities for diplomacy as well as for increased military competitions and possible miscalculations. At the mid and low-end, there also will be military and diplomatic contests driven by the spread of accurate missiles, drones, and related technologies to smaller states and non-state actors. The top missile rivalry, however, will be with the Chinese. This missile-driven competition between the United States and its allies with China will take decades to unfold, and will come in stages, most likely along the following lines:

### *2021-2026*

During the early years of the missile-driven rivalry with China (approximately 2021 through 2025), the United States will be able to strike China's homeland with many more long-range missiles than China will be able to fire against the continental United States. Initially, all of these intercontinental-range missiles, on both sides, will be nuclear-armed. From now through the mid-2020s, though, China will have far more nonnuclear short, medium, and intermediate range missiles and drones in East Asia than the United States or its allies will. American and Chinese active and passive missile defenses during this phase will continue to be less than perfect but effective enough to force both sides to increase the size of their offensive missile forces to be able to destroy any given target. China, as a result, will oppose all forms of US and allied active missile defense.

Meanwhile, the United States and its allies will continue to rely heavily on space-based systems to meet their military command, communication, control, intelligence, and surveillance requirements. America's space-based military systems will be essential to its conduct of defensive and offensive missile operations. China and Russia will rely far less on their space-based systems to achieve their military goals. Instead, they will focus their military space efforts on neutralizing US and allied military space assets.

For most of this period, US and allied space-based systems will be vulnerable to Russian and Chinese ground-based lasers. These systems can dazzle and damage allied satellite optical sensors and by the mid to late 2020s will be able to disable the satellites themselves,

destroying their metal skins. During this same period, rendezvous satellites, designed to refuel, repair, and reposition spacecraft into their desired orbits, could also be used as anti-satellite weapons to de-fuel, damage, and disable them by pulling them out of position. Neither of these anti-satellite systems nor high-power electronic anti-satellite warfare systems would necessarily produce any space debris.

### *2026-2031*

By the end of the decade, China will begin to develop and deploy long-range, accurate, nonnuclear missiles that could target the continental United States with maneuverable re-entry vehicles and hypersonic technologies. China would continue to use intermediate, medium, and shorter-range versions of such missiles to threaten America's regional friends and allies. By 2026, the United States and its East Asian allies are likely to begin closing this missile gap with some number of short, medium, and intermediate range non-nuclear missile systems based in South Korea, Japan, US territories, and perhaps Taiwan, Vietnam, Australia, and the Philippines. Also, by the mid to late -2020s, both China and the United States will begin to deploy advanced bombers capable of delivering large numbers ("swarms") of nonnuclear missiles and drones.

All of these offensive developments, in turn, will increase US and allied interest in developing enhanced passive and active missile defenses, including ultra-performance concrete protected structures, high mobility offensive and defensive missile launchers, and advanced decoys and camouflage. In general, a premium would be placed on developing a variety of high-fire rate, low-cost-per-shot active defenses, and using passive defenses to increase the number of missiles that the Chinese would have to fire to destroy any given US or allied target.<sup>474</sup> Missile defense cooperation among

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474. See Bryan Clark and Henry Sokolski, "Thinking Hard about Missile Defense," *Real Clear Defense*, August 5, 2020, available at [https://www.realcleardefense.com/articles/2020/08/05/thinking\\_hard\\_about\\_missile](https://www.realcleardefense.com/articles/2020/08/05/thinking_hard_about_missile)

states friendly with the United States and NATO Nations is likely to increase. Missile defense coalitions might also see advantage in coordinating their missile defense and missile offensive technology exports and exchanging intelligence on the missile programs of common adversaries.

The United States and its allies could further seek to put China on the defensive by targeting assets essential to the Chinese Communist Party's (CCP's) rule over provinces that might otherwise go their own way. The aim would be to deter Chinese adventurism and to encourage the CCP to invest much more in active and passive defenses on the mainland. These Chinese defenses would protect domestic targets that might otherwise go undefended and come at the cost of China investing more in offensive strike systems.

Against such US and allied efforts, Beijing might hedge its strategic bets. It might develop a large "peaceful" nuclear fissile material production base, one Beijing could ramp-up relatively quickly to produce large numbers of nuclear weapons, if it chose, by 2030, by exploiting its civilian nuclear reprocessing and fast reactor plants as well as its massive uranium enrichment capacity.<sup>475</sup>

China might also redouble its anti-satellite programs as well as its efforts to explore and command deep space regions near and beyond the moon. Beijing might also increase strategic uncertainties by continuing to collaborate with (a declining) Russia on a variety of strategic weapons programs and joint training operations. These Chinese hedges would likely increase American interest in developing low-vulnerability space-based command, control, communication, and surveillance systems as well as missile defense, anti-satellite lasers, bodyguard satellites, and other active and passive satellite defense systems.

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[defense\\_115519-full.html](#).

475. See Henry Sokolski, editor, *China's civil nuclear sector: swords from Plowshares?* Arlington, VA: The Nonproliferation Policy Education Center, Occasional Paper 2021 03, March 2021).

*2031-2040*

Once both the United States and China have larger numbers of long and shorter range precise strike systems and much more robust active and passive missile and air defenses, the possibility of major missile exchanges would be far less attractive to both sides than today. China, during this period, would likely have achieved nuclear parity with the United States and Russia. This would likely make the early use of nuclear weapons more remote.<sup>476</sup>

With considerable effort, the United States could have much more resilient and survivable space-based systems to support its military. The precise targeting of stationary military targets, and mobile ones, to some extent, would be likely, as would the targeting of political locations and facilities that China views as necessary to maintain political control. This may also be true of Chinese targeting of Taiwan and Japan, and to a lesser extent, of the United States.

In this regard, America might enjoy some advantage: Unlike China, the United States government should enjoy more popular domestic support than the Chinese Communist Party. America should, therefore, be politically more resilient against attacks against its political nodes of power. Also, China has some of the world's largest concentrations of population in some of the world's largest cities. This could make it more difficult for China to target a "significant" number of commercial-political nodes in the United States without risking more costly counter strikes from the United States.

*Plus Other Not-So-Great-Power Missile Competitions*

In addition to contemplating future missile competitions with Moscow or Beijing, the United States and its friends will also have to contend with the spread of advanced, accurate missile systems and

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476. See Henry Sokolski, "Hiroshima at 75: A Peek into Our Nuclear Future," *The American Interest*, August 6, 2020, available at <https://www.the-american-interest.com/2020/08/05/a-peek-into-our-nuclear-future/> .

drones to medium powers, weak states, to sub-nationals. These actors' acquisition and possible use of these weapons could be used to catalyze wars.

Hezbollah's, Houthi, Iranian, Saudi, Turkish, UAE Israeli, Pakistani, Indian, South and North Korean and Taiwanese military forces all are developing and deploying such precision missiles. Any one of them may try to deter or to escalate conflicts by threatening value targets (not just population centers, but sympathetic systems including reactors, petrochemical plants, natural gas depots, dams, desalination units, electrical, water distribution systems, and communication nodes) with accurate missiles or drones. Such strikes, in turn, could escalate into much larger conflicts, which could conceivably engage nuclear-armed states, including China, Russia, Pakistan, India, Israel, the United States or NATO.

Three recent developments are suggestive:

September 14, 2019 a missile attack against the oil facilities at Abqaiq in Saudi Arabia<sup>477</sup> penetrated three missile defense systems. The attacking missiles hit their targets with pinpoint accuracies. This was arguably the first time highly accurate missiles were aimed at point targets protected by several layers of air and missile defenses (none of which were engaged).

August 4, 2020, an ammonium nitrate explosion 0.5 to 1.1 kiloton in yield was set off in Beirut.<sup>478</sup> Unlike other previous, massive, chemical explosions, this one was televised internationally. As such, it established a new normal for high-end urban eruptive disruptions.

July 15, 2020, an Azerbaijani defense ministry spokesman threatened Armenia with accurate missiles strike against its Metsamor nuclear power plant.<sup>479</sup> This was the first time a government publicly

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477. *Wikipedia*, "2019 Abqaiq–Khurais Attack," November 30, 2020, Available at [https://en.m.wikipedia.org/wiki/2019\\_Abqaiq%E2%80%93Khurais\\_attack](https://en.m.wikipedia.org/wiki/2019_Abqaiq%E2%80%93Khurais_attack).

478. *Wikipedia*, "2020 Beirut Explosion," December 4, 2020, available at [https://en.m.wikipedia.org/wiki/2020\\_Beirut\\_explosion](https://en.m.wikipedia.org/wiki/2020_Beirut_explosion).

479. Vladimir Vardanyan, "Azerbaijan Threats to attack the Armenian Nuclear Power Plant in Violation of the International Law," *Armenpress*, July 15, 2020,

threatened to attack a civilian reactor with accurate missiles. Shortly thereafter, Russian President Putin called Turkish President Erdogan to join him in “stabilizing” the crisis.<sup>480</sup>

Previously, Armenian and Azeri officials threatened to attack other value targets with missiles including petrochemical plants, dams, and cities.<sup>481</sup> In 2020, both Armenia and Azerbaijan used drones and missiles against civilians. They used these same systems for pinpoint strikes against military assets.

These events should be viewed in the context of the dramatic spread of increasingly accurate, ever longer range cruise and ballistic missiles and drones to weak states and state-sponsored proxies, such as the Houthis<sup>482</sup> and Hezbollah.<sup>483</sup>

Meanwhile, the commercial use and availability of high performance and heavy lift drones is increasing. Drones already are being tested using artificial intelligence to help guide them without GPS signals.<sup>484</sup> Drones also have been mated with facial recognition,

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available at <https://armenpress.am/eng/news/1022038.html>.

480. Reuters, “Russia’s Putin, Turkey’s Erdogan Discuss Conflict Between Armenia and Azerbaijan,” *US News and World Report*, July, 27, 2020, available at <https://www.usnews.com/news/world/articles/2020-07-27/russias-putin-turkeys-erdogan-discuss-conflict-between-armenia-and-azerbaijan>.

481. Paul Goble, “Armenian Nuclear Power Plant Able to Withstand Attack, Russian Security Expert Claims,” *Jamestown Monitor*, July 21, 2020, available at <https://jamestown.org/program/armenian-nuclear-power-plant-able-to-withstand-attack-russian-security-expert-claims/> and Trend, “Azerbaijan sends letter to UN Secretary General regarding Armenia’s ongoing aggression,” *AZERNEWS*, August 7, 2020, available at <https://www.azernews.az/karabakh/167792.html>.

482. Ian Williams and Shaan Shaikh, “Report: The Missile War in Yemen,” Missile Threat, Center for Strategic and International Studies, June 9, 2020, last modified July 8, 2020, <https://missilethreat.csis.org/report-the-missile-war-in-yemen/>.

483. Shaan Shaikh, “Missiles and Rockets of Hezbollah,” *Missile Threat*, Center for Strategic and International Studies, June 26, 2018, last modified September 27, 2019, <https://missilethreat.csis.org/country/hezbollahs-rocket-arsenal/>.

484. “Israel carries out first-ever worldwide drone test without GPS, succeeds,” *The Jerusalem Post*, February 14, 2020, available at <https://www.jpost.com/>

presaging nightmare “slaughterbot” scenarios of massive, selective assassinations.<sup>485</sup> On the flip side, microwave defense systems are proving effective against drones and may well afford some protection against faster flying precision missiles.<sup>486</sup>

### *Diplomatic Implications and Opportunities*

Regarding the spread of accurate missiles and drones to relatively weak states and non-state actors, the major missile-supplying states will first try to develop their own active and passive defenses. States friendly with one another bilaterally and multilaterally (e.g., NATO, ANZUS, ASEAN, the Quad, Abraham Accord states, etc.), however, will also likely cooperate on such defenses, sharing threat assessments, defense systems, and training.

This cooperation, in turn, could be exploited to encourage the adoption of shared diplomatic missile control narratives. This could include agreed positions on amending the Missile Technology Control Regime to cover new, critical missile technologies that apply to systems beneath the regime’s current nuclear-capable range-payload criteria. It also could include coordination of missile technology export controls and intelligence sharing among friendly states and collections of states (e.g., again, NATO, ANZUS, ASEAN, the Quad, Abraham Accord states, etc.).

These shared diplomatic missile control narratives could also factor in missile diplomacy with the world’s major missile rivals — Russia, China, and the United States. Initially, diplomatic missile overtures might be modest. Certainly, with China’s regional missile

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[jpost-tech/israel-carries-out-first-ever-worldwide-drone-test-without-gps-succeeds-658886](https://www.jpost-tech/israel-carries-out-first-ever-worldwide-drone-test-without-gps-succeeds-658886).

485. See StratoEnergics, “Slaughterbots,” video 2017, available at <https://www.youtube.com/watch?v=9CO6M2HsoIA&feature=youtu.be> .

486. Joseph Trevithick, “Air Force Set To Deploy Its Counter-Drone “Phaser” Microwave Weapon Overseas,” *The Drive*, September 24, 2019, available at <https://www.thedrive.com/the-war-zone/29992/air-force-set-to-field-test-its-counter-drone-phaser-microwave-weapon-overseas-in-2020>.

advantage and America's intercontinental nuclear superiority for the next five to 10 years, Washington and its East Asian allies would have difficulty persuading China to make arms control deals of the counting-numbers sort previously reached with the Russians. With this in mind, diplomatic proposals might do well initially to focus on new ideas and rules that would be awkward for China to reject and would not turn on relative numbers per se.

It might be possible and useful, for example, to consider negotiations to establish a prohibition against using nuclear weapons against cities. This could make sense militarily and politically even if China did not agree.

First, China has more value and population concentrated in cities than the United States and so is arguably more vulnerable to attack than the United States. At the same time, China is more likely than the United States to threaten to target cities. Also, it would be useful diplomatically for the US to seek an agreement with China not to target cities in Japan and South Korea (two countries that are even more urbanized and vulnerable than China). Finally, pushing such an understanding would alert China's most urbanized irredentist provinces that in any war, the United States seeks to spare them. To the extent that the Chinese Communist Party leadership would be reluctant to risk losing these provinces in war, this message would indirectly strengthen America's hand in deterring the Chinese generally.

A second diplomatic initiative that might help Washington maintain alliance cohesion with Tokyo and Seoul and reduce the prospect of a massive Chinese nuclear ramp-up would be to have the United States, Japan, and South Korea approach Beijing about taking a time out on expanding "peaceful" uranium enrichment capacities and commercial spent fuel recycling plants. The logic of such an understanding (which could be the basis of a political deal) would be to trade Japanese, US, and South Korean nuclear fissile production restraint for similar Chinese caution.

This proposition should appeal to China, since Beijing is on record criticizing Japan for Tokyo's reprocessing plans (which include

opening a massive plant at Rokkasho in 2022 capable of making 1,500 bombs' worth of nuclear explosive plutonium a year). Beijing would also prefer that South Korea, which has expressed an interest in building and operating large reprocessing and enrichment plants of its own, not to do so. Keeping both Japan and South Korea from developing such options is also in America's interest, as it would encourage both Asian allies to work more closely with Washington than they might otherwise.

Third, the United States and its Asian and European allies could start now to promote rules of the road for rendezvous satellite operations, ground-based lasers, and other anti-satellite jammers. These rules should be designed to reduce the potential use of these systems to launch surprise attacks against US and allied space-based assets critical to conducting nuclear and conventional military operations. These new rules also should clarify when, why, and how the right to self-defense might be exercised. The United States and its key NATO and East Asian allies would all have an interest in backing such rules to help clarify what actions might constitute acts of war in space. Commercial space firms (and commercial space insurance companies) internationally will also have an interest in adopting rules that would reduce unwanted space conjunctions, space debris, and uncertainties on the location of space objects generally.

As China becomes more dependent on space-based command, control, communication, surveillance and targeting systems, clarifying these matters should be of greater interest to Beijing as well. China wants to offer civil and commercial space services for export. Therefore, rejecting such rules might be awkward, as the rules would be useful not just to maintain safe military satellite operations, but to assure that commercial operations meet accepted international safety and insurance standards.

Finally, it might make sense to propose limiting the numbers of long-range hypersonic missiles on both sides. Since neither side is likely to deploy many of these weapons by 2030, China might have difficulty pushing aside such limitations. They also would allow the United States more time to develop (but not deploy) such weapons. After 2030, when the gap between China and the United States

in deployed hypersonics is closed, Washington could safely agree on additional missile limits on shorter range hypersonics as well. By then, one would hope that the United States would have built a larger and more advanced missile production base than China's, one that could give America a margin of safety to build up if it had to.