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The Demise of the Arms Control Era: Washington and Moscow-Beijing axis on a Collision Course

On 8th August, 2019 a mysterious blast rocked Nyonoksa, a small village located on the White Sea coast in the Arkhangelsk Oblast, Northern Russia. State Atomic Energy Corporation ROSATOM acknowledged that an accident at the military firing range in Severodvinsk claimed the lives of five workers whereas three others were seriously injured. [i] The incident happened during alleged tests of a liquid reactive propulsion system. The public has been galvanized by news reports published shortly after the explosion that initially claimed a spike in radiation levels. Shortly afterwards, on 13th August Russian news agency Tass confirmed that the Federal Service for Hydrometeorology and Environmental Monitoring (Rosgidromet)[ii] had registered gamma radiation levels from four to sixteen times higher than the normal rate in the nearby city of Severodvinsk.[iii] The Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO) reported that its infrasound array as well as three seismic stations had detected an anomaly coinciding with the blast in Northern Russia.[iv] According to Lassina Zerbo, the Executive Secretary of CTBTO, four radioactive-particle sensors located in Russia went offline following the explosion,[v] which triggered rumours that the Russian government had a hand in 'communication and network issues' reported by the organisation. Contradictory information regarding the radiation level released by the Russian administration as well as a statement issued by Deputy Foreign Minister Sergei Ryabkov seem to confirm the aforementioned suggestions. [vi]

> *Notwithstanding speculation about the current development stage of the scramjet engine, the Russian Federation has triggered the U.S. officials to boost development programs of hypersonic missiles but it does not change the fact that the United States will need several years to deploy this kind of weapons.*

Notwithstanding the consequences, the very fact that the accident has been shrouded in secrecy prompted speculation that the Russian Federation tested the 9M730 Burevestnik (NATO: SSC-X-9 Skyfall), a long-range nuclear-powered cruise missile.[vii] However, the theory supported by Jeffrey Lewis[viii] (CNS East Asia Nonproliferation Program) was criticised by Michael Kofman (CNA Corporation), who claimed that the entire story is based on mere assumptions.[ix] Furthermore, some experts even suggested that the whole thing could be a 'fake news' story created by the Kremlin.[x] According to CNBC, the latest report of the U.S. intelligence indicated that the incident happened during "a recovery mission to salvage a lost missile from a previous test.[xi]" Whether or not the accident in Severodvinsk involved the 9M730 Burevestnik, the Russian Federation is currently developing several new types of missiles and other lethal weapons, including those that would have violated the Intermediate-Range Nuclear Forces (INF) Treaty.[xii]

Clash over intermediate-range missiles

The confrontational approach of the Russian Federation triggered President Trump's administration to abandon the Intermediate-Range Nuclear Forces (INF) Treaty on 2nd August, 2019 after the six-month withdrawal period. The official reason for the U.S. withdrawal was Russia's development and deployment of the Novator 9M729 (NATO: SS-X-8), a ground-based cruise missile with a range of 2,500 kilometres.[xiii] The 1987 INF Treaty was of vital importance for European members of the North Atlantic Alliance given that the intermediate-range ballistic missiles were designed to destroy targets in the European theatre.[xiv] The current U.S. administration seems to neglect concerns of its European allies over a new arms race. Moreover, on 18th August the U.S. Department of Defense tested a land-based variant of the Tomahawk cruise missile at San Nicolas Island, California.[xv] The Secretary of Defense Mark Spencer said that the United States should deploy its ground-based cruise missiles as soon as possible.[xvi] However, the latest developments clearly indicate that Beijing has become primary concern of the U.S. administration despite that the official U.S. argumentation points out Russia's violation of the treaty as the main reason for Washington's withdrawal. The U.S. officials have no doubts that the land-based cruise missile systems ought to counter China's growing influence in Asia-Pacific. Given that majority of China's missile arsenal consists of weapons with a range of 500-5,500 km[xvii], the U.S. administration will not be very keen to

negotiate a new agreement with the Russian Federation if such a deal does not involve China and other countries with nuclear weapons capabilities. From the U.S. perspective, the approach of Trump's administration can be justified up to a certain point; the arms control system established by the INF and other bilateral agreements between the Soviet Union and the United States was based on a bipolar world order and thus did not reflect current security challenges. On the other hand, it seems highly unlikely that Trump's aggressive approach to China could lead to a compromise in the near future. It is worth noting that the latest statements of the U.S. senior officials regarding the deployment of the land-based cruise missiles in Asia-Pacific coincide with growing concerns over the impact of the trade war on the U.S. economy. Recently, Beijing has implemented additional retaliatory tariffs on $75bn worth of U.S. products.[xviii] The U.S.-based companies whose production depends on Chinese components also suffer from Trump's policies against Beijing.[xix] U.S. policy makers apparently underestimated China and it seems that Trump could make this same mistake again. After the withdrawal from the INF Treaty, President Trump said that *"China was very, very excited about talking about it* [new multilateral deal] *and so was Russia. So I think we'll have a deal at some point.*[xx]*"* Currently, Trump's statement can be considered wishful thinking. According to the Xinhua News Agency, which is controlled by the Chinese government, a spokesperson of China's Foreign Ministry stated that Beijing is not interested in *"making the INF Treaty multilateral"* and that China's intermediate-range missile systems are *"defensive in nature.*[xxi]*"*

Paradoxically, the latest developments indicate that the current U.S. foreign policy can strengthen cooperation between China and Russia and thus undermine the bargaining power of the United States. In July 2019, both countries conducted their first joint operation involving several strategic bombers and airborne early warning and control aircraft.[xxii] According to South Korean and Japanese authorities, both countries had to scramble fighters to intercept hostile aircraft violating their air space. China's economic clout and regional ambitions in Eurasia embodied in the Belt and Road initiative have not led to increased friction between the two states.[xxiii] Instead, Russia's and China's governments seek common ground as far as the economic and political cooperation is concerned. Even though Russia seems to be in a disadvantageous position compared to its East Asian partner, Moscow's military power can be important to secure China's

investment plans in Eurasia. On the other hand, Moscow has no alternative but to strengthen economic ties with Beijing given the economic stagnation due to Western sanctions and the necessity of developing infrastructure to stimulate Russia's GDP growth rate in the long run. In June 2019, the Kremlin approved the construction of the so-called Meridian highway which is a Russian section of the corridor connecting Western China and the European Union (Poland) through territories of Kazakhstan, Russia and Belarus. The highway is expected to link the existing road between Minsk, Belarus and Moscow and the Kazakh border. [xxiv] China has also approached Serbia, which is Russia's traditional ally in Southern Europe, to boost Beijing's economic expansion in the Balkans and to challenge the European Union as the main source of foreign direct investments in the region.[xxv] However, it would be wrong to assume that China is only interested in extending its economic clout by implementing debt-trap diplomacy. In September 2019, international news agencies reported that Serbia had purchased armed UAVs (unmanned aerial vehicles) from the People's Republic of China.[xxvi] Even though the Serbian deal is one of a very few examples of China's arms sales to Europe, there is no doubt that China is becoming more and more important weapon exporter in the world.[xxvii]

Winners and losers

From the U.S. perspective, the bilateral intermediate-range missile treaty with the Russian Federation was no longer beneficial. On the contrary, the INF only constrained American capabilities in East Asia and did not bring any advantage for the U.S. military in return. The impact of the U.S. withdrawal on the Russian military, however, is still a matter for debate. Some Western analysts, for example Chris Miller, have already called Russia "the biggest loser" of the U.S. withdrawal from the INF treaty and that Moscow is "not able to keep up" in "a future arms race.[xxviii]" Nevertheless, such a statement is questionable given that the Russian Federation did not comply with the treaty. Moscow could indeed pay the price only if the U.S. administration would decide to deploy its land-based medium-range and intermediate-range missiles in Europe. This scenario is very unlikely due to a political controversy surrounding the deployment of the U.S. air defence systems in Central and Eastern Europe in the past. The European Parliament accurately pointed out that the deployment of U.S. intermediate-range missiles in Europe would lead to increased friction between member states of the EU if only some of them agree to host

U.S. weapons in their territory.[xxix] According to the opinions expressed by several European capitals, such a decision would require a unanimous approval of all members of the North Atlantic Treaty Organization[xxx] which is very unlikely given the latest rapprochement between France and the Russian Federation.[xxxi] Consequently, even though Western and Central Europe seeks to maintain the status quo it does not change the fact that Russia's land-based 9M729 missiles have a capability to strike most European capitals. Furthermore, the collapse of the INF treaty means that Europe can no longer hide behind its largest ally across the Atlantic Ocean. It seems obvious that European members of NATO should not be under the delusion that their security is in the hands of the United States. Although some analysts[xxxii] indicate that Central and Eastern European countries, particularly Poland, could become a hub for U.S. medium range missiles, the whole idea seems completely hypothetical given that the current U.S. military presence in Poland can be seen as a symbolic gesture of support which enhances Poland's security and deterrence up to a certain point. Nevertheless, it does not mean that the U.S. administration would take a risk of moving its missiles to Poland and thus deteriorate its political relations with other NATO member states. Instead, the U.S. foreign policy has been re-oriented in the opposite direction to counter China's influence in East Asia.[xxxiii] However, even if Russia's intermediate-range missiles are currently not considered by Trump's administration as an important issue, the technological development of the Russian Strategic Rocket Forces is a completely different story.

Russia's "invincible" new-generation nuclear weapons

In early 2018, President Putin revealed that the Russian Federation had been developing several new types of missiles including the aforementioned nuclear-powered "Burevestnik".[xxxiv] The whole development program, however, has been wrapped in mystery just as the accident in Severodvinsk and therefore there is very little information available about the missile itself. Currently, most information about the program comes from alleged leaks from the U.S. intelligence[xxxv] or Russian sources reported by official state-run news agencies of the Russian Federation.[xxxvi] Some American sources claim that the Russians have conducted one "*partially successful*" test to date.[xxxvii] It is worth noting that the only clear pictures allegedly showing the missile were published by Russia's

Ministry of Defence.[xxxviii] The revealed materials suggest that the 9M730 could be a land-based cruise missile given its estimated weight and dimensions.[xxxix] According to Putin himself, "Burevestnik" has an "*unlimited range*" thanks to its nuclear propulsion system and there are no air defence systems that could intercept it.[xl] Nevertheless, Western analysts have raised doubts whether the missile actually exists given that a similar project was scrapped by the U.S. administration in the mid 1960s due to high costs and technical difficulties.[xli] Furthermore, there are certain indications that the 9M730 missile could be a hoax[xlii] spread by the Russian Ministry of Defense to deceive the public or cover up another project.

The second "invincible" nuclear weapon of the Russian Federation is an air-launched hypersonic ballistic missile Kh-47M2 "Kinzhal" with manoeuvring capabilities; this designation, however, has not been officially confirmed to date. Most sources, including Center for Strategic and International Studies (CSIS)[xliii] and Jane's 360[xliv], point out that the missile is not a new-generation weapon but a variant of the 9M723 missile previously integrated with Iskander-M launchers. The "Kinzhal" missile deployed on MiG-31K aircraft is said to have a range of 1,500-2,000 km although the weapon can be also integrated with the TU-22M3 strategic bomber[xlv] and possibly with the Su-57 multi-role fighter based on reports of the Russian news agency TASS.[xlvi] Russian sources claim that the missile has been operational since 2017 but no recording of the missile tests has been revealed so far.[xlvii] Nevertheless, given the proven design of the 9M723, the development of the "Kinzhal" missile could be very advanced. Even if Russia's propaganda machine exaggerates performance of the "Kinzhal", the integration of the missile with strategic bombers and fighter jets will indeed increase nuclear strike capabilities of the Russian Federation.

In late December 2018, President Putin announced that the Ministry of Defence had tested a hypersonic glide-boost vehicle "Avangard".[xlviii] The missile system is expected to enter service by the end of 2019[xlix] even though some Western analysts argued that the system will be operational in the early 2020s.[l] The "Avangard" system has been integrated and tested with an upgraded variant of UR-100NUTTH ICBM (Intercontinental Ballistic Missile) received from Ukraine in the early 2000s; this missile is also known as RS-18 (NATO: SS-19 Stiletto) and will be replaced in the future by the RS-28 "Sarmat" ICBM.[li] Initially, "Avangard" was supposed to be fitted on the new RS-26 "Rubezh" ICBM

(NATO: SS-X-31), the missile, however, will not be operational by 2027 due to financial constraints.[lii] The "Avangard" vehicle equipped with a 2MT nuclear warhead can reach a speed of Mach 20 which makes this weapon an extremely difficult target to detect and intercept.[liii] The technical details of the program remains classified.

In February 2019, the Russian Federation confirmed tests of another hypersonic missile with a range of 1,000 km which is currently under development.[liv] The 3M22 (NATO: SS-N-33) "Tsirkon" is a naval cruise missile, compatible with the "Kalibr" missile launchers, which is designed to attack hostile navy vessels as well as land-based targets at a speed of Mach 9.[lv] Based on the Russian sources, the "Tsirkon" missile will be fitted to and tested aboard the Project 22350 Admiral Gorshkov-class frigate by the end of 2019.[lvi] The next phase of trials involving the Project 885M Yasen-M-class submarine will be conducted in 2020.[lvii] According to TASS state news agency, the "Tsirkon" missile system will enter operational service by 2023.[lviii] If the trials succeed, the missile will be probably fitted to most modern vessels of the Russian Navy, including submarines,[lix] given its compatibility with the 3S-14 vertical launcher. Furthermore, there are also indications that Russia is developing a land-based intermediate-range variant of the missile.[lx]

The development program of the aforementioned RS-28 "Sarmat" heavy ICBM has also encountered certain difficulties and thus the missile is expected to enter service in Russia's Strategic Missile Forces following the final tests in 2020.[lxi] This information was confirmed by President Putin in May 2019.[lxii] The RS-28 was designed to replace a Soviet-era R-36M2 "Voevoda" ICBM (NATO: SS-18 "Satan") which should soon be phased out.[lxiii] According to the official specification revealed by the Russian sources, the missile will have a range of 18,000 km and will be able to carry up to ten multiple independently targetable re-entry vehicles (MIRVs) equipped with 800-kiloton nuclear warheads although other configuration with larger single warheads will be possible as well.[lxiv] However, it remains unclear whether Russian engineers have succeeded in overcoming technical problems faced throughout the entire missile development program. It is worth noting that previous tests of the missile were delayed significantly; therefore, there are serious doubts whether the project is actually nearing completion.

Most of the abovementioned programs involve weapons, equipped with either nuclear or conventional warheads, which are designed to overcome hostile air defence systems

thanks to hypersonic capabilities.[lxv] On the other hand, the "Poseidon" Autonomous Underwater Vehicle is said to be a typical second-strike, retaliatory weapon capable of carrying a nuclear warhead that could be used against U.S. coastal cities or carrier strike groups.[lxvi] In fact, the "Poseidon" system is a nuclear-powered torpedo able to cruise at a speed of 100 knots at a depth of one kilometre below sea level [lxvii] (approximately 185 km/h; however, other sources claim that the torpedo could reach a speed of over 200 km/h).[lxviii] Thanks to its nuclear propulsion system, the torpedo is expected to have a range of over 10,000 km. In his address to the Federal Assembly in February 2019, President Putin announced that "*as soon as this spring the first nuclear-powered submarine carrying this unmanned vehicle will be launched. The work is going as planned.*[lxix]" This statement, however, does not mean that "Poseidon" will enter operational service anytime soon. According to the U.S. sources familiar with the latest intelligence reports, the torpedo could be deployed around 2027.[lxx] Nevertheless, it is worth noting that a rumour has surfaced that the accident in Severodvinsk could have involved the nuclear-powered engine built for the "Poseidon" torpedo.[lxxi,lxxii] Furthermore, some experts suggest that the "Poseidon" system is designed to conduct undersea surveillance operations in the Arctic Region.[lxxiii] The last argument seems valid given the current size of the Russian nuclear arsenal as well as the fact that the Russian Federation is developing other very expensive programs intended to increase its nuclear capabilities in the near future.

It is quite likely that a considerable part of the latest statements revealed by the Russian officials can be perceived as deception conceived by Moscow's propaganda machine. The information indicating that the Russian Federation has developed a *wunderwaffe* (Ger. "miracle weapon") intended to defeat the United States raises doubts about the technology used by Russian engineers. Some analysts believe that neither "Tsirkon" nor "Kinzhal" are "*truly hypersonic weapons*" even though they could indeed reach targets at hypersonic speeds.[lxxiv] The greatest challenge faced by engineers is developing a scramjet engine that would allow to cruise at high (hypersonic) speeds. The other problem, however, is how to produce such a system effectively. The Soviet Union had been developing this technology from the 1970s until its dissolution in 1991. The Soviet and subsequently Russian engineers succeeded in conducting a test-launch of the Kholod vehicle, equipped with an axisymmetric high-speed hydrogen-fuelled ramjet, in 1991 as well as four other tests carried out from 1992 to 1998, which were supported by France

and the United States.[lxxv] The latter has also been developing such a propulsion system for decades. In the 2010s, the United States conducted four tests of the X-51A hypersonic vehicle but only two trials were fully successful.[lxxvi] Nevertheless, the latest developments could indicate that Russia is way ahead of the United States as far as new missile technologies are concerned.

Notwithstanding speculation about the current development stage of the scramjet engine, the Russian Federation has triggered the U.S. officials to boost development programs of hypersonic missiles[lxxvii] but it does not change the fact that the United States will need several years to deploy this kind of weapons.[lxxviii] Whether Trump's administration will be able to respond to the current state of affairs amid growing concerns over a potential nuclear arms race is open to question. It is worth noting that John Bolton, who was Trump's security adviser and one of the strongest advocates of confrontational foreign policy, was very recently forced to resign. Bolton has not only supported the U.S. withdrawal from the INF treaty but also opposed extending the NEW START treaty between the United States and the Russian Federation.[lxxix] Even though the bilateral treaties between the two states had some flaws, they had prevented a large-scale arms race from escalating. All in all, it will be a challenging task for the U.S. administration to balance its interest in East Asia and to avoid another expensive arms race with Russia.

Conclusions

1. The 1987 INF Treaty was of vital importance for European members of the North Atlantic Alliance given that the intermediate-range ballistic missiles were designed to destroy targets in the European theatre. The current U.S. administration, however, seems to neglect concerns of its European allies over a new arms race.

2. From the U.S. perspective, the approach of Trump's administration can be justified up to a certain point; the arms control system established by the INF and other bilateral agreements between Russia and the United States was based on a bipolar world order and thus did not reflect current security challenges. On the other hand, it seems highly

unlikely that Trump's aggressive approach to China could lead to a compromise in the near future.

3. From the U.S. perspective, the bilateral intermediate-range missile treaty with the Russian Federation was no longer beneficial. On the contrary, the INF only constrained American capabilities in East Asia and did not bring any advantage for the U.S. military in return. The impact of the U.S. withdrawal on the Russian military, however, is still a matter for debate. Some Western analysts, for example Chris Miller, have already called Russia "the biggest loser" of the U.S. withdrawal from the INF treaty and that Moscow is "not able to keep up" in "a future arms race. Nevertheless, such a statement is questionable given that the Russian Federation did not comply with the treaty. Moscow could indeed pay the price only if the U.S. administration would decide to deploy its land-based intermediate-range missiles in Europe.

4. The Russian Federation is currently developing several new types of missiles and other lethal weapons, including those that would have violated the Intermediate-Range Nuclear Forces (INF) Treaty. Most of Russia's missile development programs involve weapons equipped with either nuclear or conventional warheads which are designed to overcome hostile air defence systems thanks to hypersonic capabilities.

5. Notwithstanding speculation about the current development stage of the scramjet engine, the Russian Federation has triggered the U.S. officials to boost development programs of hypersonic missiles but it does not change the fact that the United States will need several years to deploy this kind of weapons. Whether Trump's administration will be able to respond to the current state of affairs amid growing concerns over a potential nuclear arms race is open to question.

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[i] "Experimental 'isotope & liquid-propellant' engine blast kills 5 Russian nuclear experts – Rosatom," Russia Today, accessed September 12, 2019, https://www.rt.com/russia/466194-rosatom-killed-arkhangelsk-blast/.
[ii] "Federal Service for Hydrometeorology and Environmental Monitoring," accessed September 12, 2019, http://government.ru/en/department/49/.
[iii] "Radiation in Severodvinsk after test site accident notably exceeded background rate," Russian News Agency TASS, accessed September 12, 2019, https://tass.com/emergencies/1073166.
[iv] Comprehensive Nuclear-Test-Ban Treaty Organization (@ctbto_alerts) "Status", Twitter, August 10, 2019, https://twitter.com/ctbto_alerts/status/1160130156922642433.
[v] "Global network's nuclear sensors in Russia went offline after mystery blast," Reuters, accessed September 12, 2019, https://www.reuters.com/article/us-russia-blast-ctbto/global-networks-nuclear-sensors-in-russia-went-offline-after-mystery-blast-idUSKCN1V9183.
[vi] "Russia to nuclear test ban monitor: Test accident not your business," Reuters, accessed September 12, 2019, https://www.reuters.com/article/us-russia-blast-ctbto/russia-to-nuclear-test-ban-monitor-test-accident-not-your-business-idUSKCN1VA0OL.
[vii] Jeffrey Lewis, "A Mysterious Explosion Took Place in Russia. What Really Happened?," Foreign Policy, accessed September 12, 2019, https://foreignpolicy.com/2019/08/12/russia-mysterious-explosion-arctic-putin-chernobyl/.
[viii] Ibidem.
[ix] Michael Kofman, "Mystery explosion at Nenoksa test site: it's probably not Burevestnik," Russian Military Analysis, accessed September 12, 2019, https://russianmilitaryanalysis.wordpress.com/2019/08/15/mystery-explosion-at-nenoksa-test-site-its-probably-not-burevestnik/.
[x] Amy Mackinnon and Lara Seligman, "Is Russia's Doomsday Missile Fake News?," Foreign Policy, accessed September 12, 2019, https://foreignpolicy.com/2019/08/22/is-russias-doomsday-missile-fake-news-putin-hypersonic-nuclear-cruise-moscow-kremlin/.
[xi] Amanda Macias, "US intel report says mysterious Russian explosion was triggered by recovery mission of nuclear-powered missile, not a test," CNBC, accessed September 12, 2019, https://www.cnbc.com/2019/08/29/intel-says-russian-explosion-was-not-from-nuclear-powered-missile-test.html.
[xii] TheINF Treaty was officially suspended by the United States on February 1, 2019.
[xiii] Christoper Tremoglie, "Understanding Our Withdrawal from the INF Treaty," National Review, accessed September 12, 2019, https://www.nationalreview.com/corner/understanding-our-withdrawal-from-the-inf-treaty/.
[xiv] "The end of the INF Treaty? A pillar of European security architecture at risk," European Parliament, accessed September 12, 2019, http://www.europarl.europa.eu/thinktank/en/document.html?reference=EPRS_BRI(2019)633175.
[xv] "DOD Conducts Ground Launch Cruise Missile Test," U.S. Department of Defense, accessed September 12, 2019, https://www.defense.gov/Newsroom/Releases/Release/Article/1937624/dod-conducts-ground-launch-cruise-missile-test/.
[xvi] Ankit Panda, "US Defense Secretary: 'We Would Like' New Post-INF Treaty Missile Capabilities in Asia," The Diplomat, accessed September 12, 2019, https://thediplomat.com/2019/08/us-defense-secretary-we-would-like-new-post-inf-treaty-missile-capabilities-in-asia/.
[xvii] „Chinese missiles would violate international nuclear arms treaty – Nato chief," Accessem September 24, 2014, https://www.scmp.com/news/china/military/article/2173008/chinese-missiles-would-violate-international-nuclear-arms-treaty.
[xviii] "China puts $75bn of retaliatory tariffs on US goods," The Guardian, accessed September 12, 2019, https://www.theguardian.com/world/2019/aug/23/china-puts-75bn-retaliatory-tariffs-us-goods-trade-war.
[xix] Noel Randewich, "Trump's aggressive, mixed signals on China whiplash Wall Street," Reuters, accessed September 12, 2019, https://www.reuters.com/article/us-usa-stocks-tariffs/trumps-aggressive-mixed-signals-on-china-whiplash-wall-street-idUSKCN1VG298.
[xx] "INF nuclear treaty: Trump says new pact should include China," BBC News, accessed September 12, 2019, https://www.bbc.com/news/world-us-canada-49213892.
[xxi] "China reiterates opposition to multilateralization of INF Treaty," Xinhuanet News, accessed September 12, 2019, http://www.xinhuanet.com/english/2019-07/30/c_138270534.htm.

[xxii] "Joint Russian and Chinese air patrol heightens tension in Korean peninsula," The Guardian, accessed September 12, 2019, https://www.theguardian.com/world/2019/jul/24/joint-russian-and-chinese-air-patrol-heightens-tension-in-korean-peninsula.
[xxiii] Nadège Rolland, "A China–Russia Condominium over Eurasia," International Institute for Strategic Studies, accessed September 12, 2019, https://www.iiss.org/publications/survival/2019/survival-global-politics-and-strategy-februarymarch-2019/611-02-rolland.
[xxiv] "Russia Approves 'Shortest' Europe-China Highway – Reports," The Moscow Times, accessed September 24, 2019, https://www.themoscowtimes.com/2019/07/08/russia-approves-shortest-europe-china-highway-reports-a66318.
[xxv] Valbona Zeneli, "China in the Balkans," The Globalist, accessed September 24, 2019, https://www.theglobalist.com/balkans-china-fdi-belt-and-road-eu/.
[xxvi] Sophia Yan, "China sells armed drones to Serbia amid concerns arms deal could destabilise region," the Telegraph, accessed September 24, 2019, https://www.telegraph.co.uk/news/2019/09/11/china-sells-armed-drones-serbia-amid-concerns-arms-deal-could/.
[xxvii] Kristin Huang, "China's arms sales rise as it vies with US for influence on the world stage," South China Morning Post, Accessem September 24, 2019, https://www.scmp.com/news/china/diplomacy-defence/article/2136877/chinas-arms-sales-rise-it-vies-us-influence-world-stage.
[xxviii] Chris Miller, "The INF Treaty Is Dead, and Russia Is the Biggest Loser," Foreign Policy, accessed September 12, 2019, https://foreignpolicy.com/2019/08/02/the-inf-treaty-is-dead-and-russia-is-the-biggest-loser/.
[xxix] "The end of the INF Treaty? A pillar of European security architecture at risk," European Parliament, accessed September 12, 2019, http://www.europarl.europa.eu/thinktank/en/document.html?reference=EPRS_BRI(2019)633175.
[xxx] Kingston Reif, "Treaty Withdrawal Accelerates Missile Debate," Arms Control, accessed September 12, 2019, https://www.armscontrol.org/print/10867.
[xxxi] "France calls for easing of tensions with Russia," Deutsche Welle, accessed 28 September, 2019, https://www.dw.com/en/france-calls-for-easing-of-tensions-with-russia/a-50355270.
[xxxii] Christoper Tremoglie, "The End of the INF Treaty Is Good for Europe," National Review, accessed September 12, 2019, https://www.nationalreview.com/corner/inf-treaty-end-benefits-europe/.
[xxxiii] Linde Desmaele and Luis Simon, "East Asia first, Europe second: picking regions in U.S. grand strategy," War on the rocks, accessed September 12, 2019, https://warontherocks.com/2019/08/east-asia-first-europe-second-picking-regions-in-u-s-grand-strategy/.
[xxxiv] Holly Ellyatt, "Putin reveals new Russian missile that can 'reach any point in the world'," CNBC News, accessed September 12, 2019, https://www.cnbc.com/2018/03/01/putin-new-russia-missile-nuclear.html.
[xxxv] "KRND Burevestnik [Petrel] SSC-X-9 SKYFALL," Global Security, accessed September 12, 2019, https://www.globalsecurity.org/wmd/world/russia/krnd.htm.
[xxxvi] "No limits for 'Russian Tomahawks'? What we know about Moscow's new nuclear cruise missile," Russia Today, accessed September 12, 2019, https://www.rt.com/russia/451659-burevestnik-missiles-reactor-tests/.
[xxxvii] Ankit Panda, "Russia Conducts Test of Nuclear-Powered Cruise Missile," The Diplomat, accessed September 12, 2019, https://thediplomat.com/2019/02/russia-conducts-test-of-nuclear-powered-cruise-missile/.
[xxxviii] "Крылатая ракета с ядерным двигателем «Буревестник»," YouTube, July 19, 2018, https://www.youtube.com/watch?v=okS76WHh6FI.
[xxxix] Julian Cooper, "Russia's 'Invincible' weapons: An Update," ResearchGate, accessed September 12, 2019, https://www.researchgate.net/publication/332073717_Russia's_'Invincible'_weapons_An_Update.
[xl] Holly Ellyatt, "Putin reveals new Russian missile that can 'reach any point in the world'," CNBC News, accessed September 12, 2019, https://www.cnbc.com/2018/03/01/putin-new-russia-missile-nuclear.html.
[xli] Sebastien Roblin, "Forget Russia: America Nearly Built Its Own 'Skyfall' Nuclear Powered Cruise Missile," The National Interest, accessed September 12, 2019, https://nationalinterest.org/blog/buzz/forget-russia-america-nearly-built-its-own-skyfall-nuclear-powered-cruise-missile-77226.
[xlii] "Deception Warning !! - KRND Burevestnik [Petrel] SSC-X-9 Skyfall," Global Security, accessed September 12, 2019, https://www.globalsecurity.org/wmd/world/russia/krnd-deception.htm.
[xliii] "Kinzhal," Center for Strategic and International Studies, accessed September 12, 2019, https://missilethreat.csis.org/missile/kinzhal/.
[xliv] "New Russian missile likely to be part of antisatellite system," Jane's by IHS Markit, accessed September 12, 2019, https://www.janes.com/images/assets/554/84554/New_Russian_missile_likely_to_be_part_of_anti-satellite_system.pdf.

[xlv] "Russian strategic bomber to extend Kinzhal hypersonic missile's range — source," Russian News Agency TASS, accessed September 12, 2019, https://tass.com/defense/1013794.
[xlvi] "Su-57 jets will be equipped with hypersonic missiles similar to Kinzhal — source," Russian News Agency TASS, accessed September 12, 2019, https://tass.com/defense/1034559.
[xlvii] "Kinzhal," Center for Strategic and International Studies, accessed September 12, 2019, https://missilethreat.csis.org/missile/kinzhal/.
[xlviii] "Russia tests Avangard hypersonic system on Putin's orders," Russian News Agency TASS, accessed September 12, 2019, https://tass.com/defense/1037974.
[xlix] Hans Kristensen and Matt Korda, "Russia Nuclear Forces 2019," *Bulletin of the Atomic Scientists*, 75:2, 73-84, DOI: 10.1080/00963402.2019.1580891, https://thebulletin.org/2019/03/russian-nuclear-forces-2019/.
[l] "Avangard," Center for Strategic and International Studies, accessed September 12, 2019, https://missilethreat.csis.org/missile/avangard/.
[li] Ibidem.
[lii] "Avangard hypersonic missiles replace Rubezh ICBMs in Russia's armament plan through 2027," Russian News Agency TASS, accessed September 12, 2019, https://tass.com/defense/995628.
[liii] "Avanguard / Vanguard," Global Security, accessed September 12, 2019, https://www.globalsecurity.org/wmd/world/russia/avanguard.htm.
[liv] Jeremy Chin, "Russia Confirms Development of Tsirkon Hypersonic Cruise Missile," Center for Strategic and International Studies, accessed September 12, 2019, https://missilethreat.csis.org/russia-confirms-development-of-tsirkon-hypersonic-cruise-missile/.
[lv] Ibidem.
[lvi] "Russian Navy to accept latest Tsirkon hypersonic missile for service in 2023 — source," Russian News Agency TASS, accessed September 12, 2019, https://tass.com/defense/1049572.
[lvii] Ibidem.
[lviii] Ibidem.
[lix] "Hypersonic Weapons: Background and Issues for Congress," Congressional Research Service, accessed September 12, 2019, https://fas.org/sgp/crs/weapons/R45811.pdf.
[lx] Hans Kristensen and Matt Korda, "Russia Nuclear Forces 2019," *Bulletin of the Atomic Scientists*, 75:2, 73-84, DOI: 10.1080/00963402.2019.1580891, https://thebulletin.org/2019/03/russian-nuclear-forces-2019/.
[lxi] "Work on heavy ICBM Sarmat proceeds as expected, Rogozin tells Putin," Russian News Agency TASS, accessed September 12, 2019, https://tass.com/defense/1043137.
[lxii] "Putin says Sarmat system to enter operational service in 2020," Russian News Agency TASS, accessed September 12, 2019, https://tass.com/defense/1005163.
[lxiii] "SS-X-30 "Satan II" (RS-28 Sarmat)," Center for Strategic and International Studies, accessed September 12, 2019, https://missilethreat.csis.org/missile/rs-28-sarmat/.
[lxiv] "Army 2019: Russian army discloses RS-28 Sarmat ICBM characteristics," Army Recognition, accessed September 12, 2019, https://www.armyrecognition.com/army-2019_news_russia_online_show_daily_media_partner/army_2019_russian_army_discloses_rs-28_sarmat_icbm_characteristics.html.
[lxv] "Russia's Nuclear Weapons: Doctrine, Forces, and Modernization," Congressional Research Service, accessed September 12, 2019, https://fas.org/sgp/crs/weapons/R45861.pdf.
[lxvi] Michael Peck, "Russia Has Begun Underwater Tests of Its Poseidon Thermonuclear Torpedo," The National Interest, accessed September 12, 2019, https://nationalinterest.org/blog/buzz/russia-has-begun-underwater-tests-its-poseidon-thermonuclear-torpedo-58402.
[lxvii] "Russia's Nuclear Weapons: Doctrine, Forces, and Modernization," Congressional Research Service, accessed September 12, 2019, https://fas.org/sgp/crs/weapons/R45861.pdf.
[lxviii] Hans Kristensen and Matt Korda, "Russia Nuclear Forces 2019," *Bulletin of the Atomic Scientists*, 75:2, 73-84, DOI: 10.1080/00963402.2019.1580891, https://thebulletin.org/2019/03/russian-nuclear-forces-2019/.
[lxix] "Presidential Address to Federal Assembly," Website of the President of Russia, accessed September 12, 2019, http://en.kremlin.ru/events/president/news/59863.
[lxx] Amanda Macias, "Russia's nuclear-armed underwater drone may be ready for war in eight years," CNBC News, accessed September 12, 2019, https://www.cnbc.com/2019/03/25/russias-nuclear-armed-underwater-drone-may-be-ready-for-war-in-2027.html.

[lxxi] H I Sutton, "Russia Testing Nuclear-Powered Mega-Torpedo Near Where Deadly Explosion Occurred," accessed September 12, 2019, https://www.forbes.com/sites/hisutton/2019/08/17/russia-testing-nuclear-powered-mega-torpedo-near-where-deadly-explosion-occurred/#4a28af432d7f.
[lxxii] Michael Kofman, "Mystery explosion at Nenoksa test site: it's probably not Burevestnik," Russian Military Analysis, accessed September 12, 2019, https://russianmilitaryanalysis.wordpress.com/2019/08/15/mystery-explosion-at-nenoksa-test-site-its-probably-not-burevestnik/.
[lxxiii] Hans Kristensen and Matt Korda, "Russia Nuclear Forces 2019," *Bulletin of the Atomic Scientists*, 75:2, 73-84, DOI: 10.1080/00963402.2019.1580891, https://thebulletin.org/2019/03/russian-nuclear-forces-2019/.
[lxxiv] Ibidem.
[lxxv] K.Y. Arefyev, N.V. Kukshinov, and A.N. Prokhorov, "Analysis of development trends of power-units for high-speed flying vehicles," J. Phys.: Conf. Ser. 1147 012055, accessed 28 September, 2019, https://iopscience.iop.org/article/10.1088/1742-6596/1147/1/012055.
[lxxvi] Iain Boyd, "US, Russia, China race to develop hypersonic weapons," Phys.org, accessed September 12, 2019, https://phys.org/news/2019-05-russia-china-hypersonic-weapons.html.
[lxxvii] Kris Osborn, "Report: New U.S. Hypersonic Weapons are Coming Soon," The National Interest, accessed September 12, 2019, https://nationalinterest.org/blog/buzz/report-new-us-hypersonic-weapons-are-coming-soon-76906.
[lxxviii] Ben Wolfgang, "How U.S. defense lost dominance to Russia and China in hypersonic weapons technology," The Washington Times, accessed September 12, 2019, https://www.washingtontimes.com/news/2019/aug/11/us-hypersonic-weapons-gap-seen-years-ago/.
[lxxix] Sebastien Norblin, "Why Trump and Bolton Were On a Collision Course," Forbes, accessed September 12, 2019, https://www.forbes.com/sites/sebastienroblin/2019/09/10/john-bolton-resigns-as-national-security-advisor-following-collapse-of-afghan-peace-deal/#7d124acb32ad.

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