

Putin's Nuclear Superweapons

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U.S. vs. Russian Strategic Force Modernization

We say our nuclear deterrent is our highest priority; Russia says the same thing and really means it. Since the end of the Cold War, the Russian government has announced about 25 strategic nuclear modernization programs which are mainly new systems carrying new nuclear warheads. In January 2017, Russian Defense Minister General of the Army Sergei Shoigu stated that development of the strategic nuclear force was Russia's first priority, noting that Russia will "...continue a massive program of nuclear rearmament, deploying modern ICBMs on land and sea, [and] modernizing the strategic bomber force."^[1] Russia sees its great-power status based on its nuclear capability which probably exceeds that of the rest of the world combined. Putin's recent claim of 79% modernization of Russia's nuclear Triad seems exaggerated. However, Russia has modernized over two-thirds of its Triad since the process began in 1997^[2] and will modernize the rest before we modernize any of our strategic delivery vehicles in a significant way. Moreover, Russia is expanding its nuclear force. Serious U.S. modernization will not begin for almost another decade in the best case scenario.

The threat posed by Russian nuclear ambitions was recognized in the 2018 Nuclear Posture Review report which states, "While Russia initially followed America's lead and made similarly sharp reductions in its strategic nuclear forces, it retained large numbers of non-strategic nuclear weapons. Today, Russia is modernizing these weapons as well as its other strategic systems. Even more troubling has been Russia's adoption of military strategies and capabilities that rely on nuclear escalation for their success. These developments, coupled with Russia's seizure of Crimea and nuclear threats against our allies, mark Moscow's decided return to Great Power competition."^[3] It continued, "In addition to modernizing 'legacy' Soviet nuclear systems, Russia is developing and deploying new nuclear warheads and launchers. These efforts include multiple upgrades for every leg of the Russian nuclear triad of strategic bombers, sea-based missiles, and land-based missiles. Russia is also developing at least two new intercontinental range systems, a hypersonic glide vehicle, and a new intercontinental, nuclear-armed, nuclear-powered, undersea autonomous torpedo."^[4]

Putin's State of the Nation Speech and Russia's New Superweapons

On March 1, 2018, President Putin delivered in front of the Russia Duma his most rabid speech on nuclear weapons. The themes were familiar, but he has never before stated them in such an extreme form. Distinguished Russian journalist Alexander Golts said he and every expert he

talked to was “shocked” by the speech and, “This is the start of a new Cold War....This is an effort to scare the West.”[\[5\]](#)

Putin started by staking a claim to all the states of the former Soviet Union and bemoaning their loss. According to Putin, they belong to Russia because Russia “... was known as the Soviet Union or Soviet Russia abroad...”[\[6\]](#) Perhaps not the most salient legal argument we have heard from Russia. He alternated between portraying Russia as a victim (making ridiculous claims about U.S. missile defense and the failure of the West to “listen” to Russia) and making extreme forms of standard Russian nuclear threats – nuclear superweapons and of nuclear targeting. Putin depicted nuclear attacks on the United States so blatantly that even the State Department complained and accused him of violating arms control agreements. Putin bragged about five new Russian nuclear systems. Noted British Russia expert Roger McDermott observed, Putin “...offered a vision of the Russian Armed Forces more akin to a parody of Dr. Strangelove.”[\[7\]](#) Putin delivered a virtual ultimatum to the West saying, “Russia still has the greatest nuclear potential in the world, but nobody listened to us. Listen now.”[\[8\]](#) Well known Russian journalist Pavel Felgenhauer summed up his speech: “Putin called on the West to admit defeat, sit down and negotiate an end of sanctions and a new world order that will grant Russia an ‘equal status.’ Russia is not aggressive, according to Putin, but it demands what it believes it is due—otherwise, its doomsday nuclear superweapons are ready.”[\[9\]](#) A week later he wrote that Putin’s demand that “...the West ‘negotiate’ ...sounded more like a demand of strategic surrender.”[\[10\]](#)

Make no mistake about the intended target of this speech – it was the U.S. As Maxim Trudolyubov, a Senior Fellow with the Kennan Institute, observed, “...Interestingly, both state-run [Russian] news media and independent outlets agreed that the speech was mainly targeted at Washington.”[\[11\]](#) What Putin wants is Russian imperialism accepted at the point of his new nuclear weapons and the threat of genocidal nuclear warfare. Alexander Golts once compared Putin to a cross between Count Otto Von Bismarck and a St. Petersburg street thug. I believe this is accurate, but I would add that Bismarck if he were alive today, would not likely behave the same way he did during the 19th Century because the risk is too great. Putin’s superweapons include: [\[12\]](#)

- The new Sarmat heavy ICBM whose capabilities he said “are much higher” than the Cold War’s Soviet SS-18 because it will carry “a broad range of powerful nuclear warheads” and the Sarmat “has practically no range restrictions.”[\[13\]](#) It will be Russia’s main counterforce weapon. The Sarmat is reported in the Russian press as capable of carrying 10 warheads of 800-knots or 15 warheads of 350-knots.[\[14\]](#) In light of reported Russian development of variable yield missile warheads,[\[15\]](#) it is also likely to have a low-yield option.
- A nuclear-powered cruise missile carrying a nuclear warhead which Putin said had “almost an unlimited range...” This weapon is the most insane. Every time it is successfully tested it will result in a nuclear reactor meltdown radiation release. A failed launch could be much worse.
- An ultra-fast and deep diving nuclear-powered drone submarine which “would carry massive nuclear ordnance.” This weapon has similar safety problems as the nuclear-

powered cruise missile. Worse, it is a weapon of genocide. If it were used, there would be no way to limit its damage. It is reported in the Russian press to carry a 100-megaton weapon and possibly a cobalt bomb, a “doomsday” weapon never built during the Cold War.[\[16\]](#) A single Russian submarine armed with these weapons would release more radiation than the entire U.S. strategic force even if we used it in the most destructive manner.[\[17\]](#)

- A “high-precision hypersonic aircraft missile system” which is capable of “delivering nuclear and conventional warheads in a range of over 2,000-km,” which is now operational. The Chief of the Russian Aerospace Force called it an “aeroballistic missile.”[\[18\]](#)
- The Avangard hypersonic nuclear boost-glide vehicle which Putin characterizes as, “A real technological breakthrough” which “has been successfully tested.” TASS says it has a two-megaton warhead.[\[19\]](#)

These are real programs. This has been confirmed by the Pentagon and the Vice Chairman of the Joint Chiefs of Staff during the Obama administration, Admiral James A. Winnefeld Jr. Most of them had previously been announced or reported in the Russian press. Worse still, they represent only about 20% of the announced Russian nuclear modernization program.

Putin Attacks U.S. Missile Defense

Putin attacked U.S. missile defense efforts asserting, “If we do not do something, eventually this will result in the complete devaluation of Russia’s nuclear potential. Meaning that all of our missiles could simply be intercepted.”[\[20\]](#) This is absurd. The scope of U.S. missile defense is not of a size that could threaten today’s Russian forces or even Soviet legacy forces. Missile defense penetration against the U.S. is not a problem for Russia as nearly all Russian senior officials have said at one time or other.[\[21\]](#) The five systems that Putin talked about appear mainly designed for nuclear warfighting through short time of flight, evasion of early warning capabilities, much higher accuracy and a diverse nuclear warhead capability. Three of them are nuclear, and two of them are dual capable. These weapons are not mainly about missile defense penetration. Russia does not need them against largely non-existent Western strategic air defenses. The nuclear-capable Kinzhal air-launched hypersonic missile has less penetration capability against Aegis Ashore than existing Russian cruise missiles because Aegis Ashore is not designed against Russia and, hence, has no self-defense capability against air attack. State-run *Sputnik News* reported Kinzhal is “...able to destroy large, moving sea-based targets such as aircraft carriers, destroyers and cruisers, Russian Deputy Defense Minister Yuri Borisov has confirmed.”[\[22\]](#) This probably is its main function although it can also attack land targets very effectively.

Certainly, Putin is exaggerating to some degree and being deceptive. Deputy Prime Minister Dimitri Rogozin’s claim that the Sarmat ICBM will be deployed very soon is not true. They have just conducted the first test with first stage ignition.[\[23\]](#) When the Russians talk about “mass production,” what they generally mean is what we would call limited rate production. The bad news is that the comparable U.S. number is always zero rate production.

More New Russian Strategic Nuclear Weapons

In addition to the new nuclear systems that Putin talked about, the Russian Ministry of Defense (MoD), and in a few cases defense contractors, have announced:[\[24\]](#)

- Four strategic ballistic missile submarines. The Borey is operational and the Borey A, on sea trials, will become operational in 2019.[\[25\]](#) The Borey B and the Husky are under development. All these submarines are getting progressively quieter, making their detection more difficult.
- There are four or five new or improved SLBMs. The Bulava-30, the improved Sineva and the further improved Liner are now operational. An improved Bulava-30 is under development as is an unnamed new liquid-fueled SLBM for the Husky. All of these are heavily MIRVed.
- At least four new ICBMs. Already operational are the SS-27 Mod 1 and the SS-27 Mod 2/Yars, and the Yars-S. The Russians have not revealed the new capabilities of the Yars-S. A new version of the Yars, reportedly with maneuvering warheads, began testing in 2017.[\[26\]](#) The RS-26, an intermediate-range missile pretending to be an ICBM to evade the INF Treaty, and a rail-mobile ICBM, have been placed on hold pending a decision in 2027.[\[27\]](#)
- Four new or improved bombers. These include improved Tu-160M1 and Tu-95MS legacy bombers which are already operational. The further improved Tu-160M2 and the new Pak DA stealth bomber are under development.
- The nuclear-capable Kh-101 and Kh-102 nuclear-armed ultra-long-range stealth air-launched cruise missiles are operational and the high-supersonic reportedly nuclear capable Kh-32 air-launched long-range cruise missile is under testing.

In late 2010, Russia's Defense Minister Anatoliy Serdyukov announced Russia was going to increase its nuclear forces.[\[28\]](#) In December 2017, Bill Gertz reported, "Russia is aggressively building up its nuclear forces and is expected to deploy a total force of 8,000 warheads by 2026 along with modernizing deep underground bunkers, according to Pentagon officials. The 8,000 warheads will include both large strategic warheads and thousands of new low-yield and very low-yield warheads to circumvent arms treaty limits and support Moscow's new doctrine of using nuclear arms early in any conflict."[\[29\]](#) This is quite plausible.

Russian Non-Strategic (Tactical) Nuclear Weapons

Russia is violating the INF Treaty. There are two different missiles (the SC-8/9M729 and the ground-launched version of the Kalibr, the 3M14) described in U.S. government unclassified publications as having ranges that violate the INF Treaty and two or three other missiles, the Bastion and two versions of the R-500, are described in the Russia press, including the State media, as having ranges that violate the INF Treaty.[\[30\]](#)

Russia has thousands of tactical or non-strategic nuclear weapons. According to General Paul Selva, Vice Chairman of the Joint Chiefs of Staff, Russia is "...developing new nonstrategic nuclear weapons..."[\[31\]](#) Russian press reports indicate that Russia has retained virtually every

type of Cold War tactical nuclear weapon capability.[\[32\]](#) The NPR confirms this: “These [non-strategic nuclear weapons] include air-to-surface missiles, short-range ballistic missiles, gravity bombs, and depth charges for medium-range bombers, tactical bombers, and naval aviation, as well as anti-ship, anti-submarine, and anti-aircraft missiles and torpedoes for surface ships and submarines, a nuclear ground-launched cruise missile in violation of the 1987 INF Treaty, and Moscow’s antiballistic missile system.”[\[33\]](#) It also noted Russia has nuclear Close Range Ballistic Missiles. Russian press reports say Russia has retained nuclear artillery and atomic demolition munitions.[\[34\]](#)

During the Cold War, we had thousands of tactical nuclear weapons in Europe to deter an attack. They are now mainly gone and dismantled.[\[35\]](#) At long last, the 2018 NPR has begun to address the enormous deterrence asymmetry.

Russia has reportedly introduced low-yield, precision low-yield and low-collateral damage nuclear weapons in large numbers. A now declassified CIA report from 2000 states, “Moscow’s military doctrine on the use of nuclear weapons has been evolving and probably has served as the justification for the development of very low-yield, high-precision nuclear weapons.”[\[36\]](#) Russian press reports, including the state media, say that low-sub-kiloton warheads are now deployed on Russian SLBMs, and there are reports of dial-a-yield on the missile warheads on Russian ICBMs.[\[37\]](#) Dr. Phil Karber, President of the Potomac Foundation, says half of Russia’s 5,000 tactical nuclear weapons are new low-yield weapons.[\[38\]](#) Russia has been developing new types of low-yield/low collateral damage nuclear weapons to implement nuclear “de-escalation” of a conflict.

In addition to the strategic nuclear and non-strategic nuclear forces, Russian is building what it calls “aerospace defense.” Aerospace Defense involves defenses against missiles, air-breathing craft and satellites. This includes the S-500 which will be deployed in vast numbers and will be able to intercept ICBMs and SLBMs.[\[39\]](#) Now Russia is talking about a massive program involving blast shelter construction for the general population and, reportedly, a large program of command bunker construction is reportedly also underway.[\[40\]](#)

Russian Military Doctrine and the First Use of Nuclear Weapons

Putin developed Russia’s nuclear strategy which allows for the first use of nuclear weapons in conventional war when he was Secretary of the Russian National Security Council Staff.[\[41\]](#) In 2009, Secretary of the Russian National Security Council Nikolai Patrushev said that Russian nuclear doctrine allows for the first use of nuclear weapons in “regional or even a local” war and noted, “In situations critical to national security, options including a preventative nuclear strike on the aggressor are not excluded.”[\[42\]](#) Starting in 1999, Russia began “de-escalating” wars by the simulated first use of nuclear weapons in large theater war exercises which has continued to this day.[\[43\]](#) In April 2018, NATO Secretary General Jens Stoltenberg affirmed, “Russia... has invested heavily in new, military equipment, modernised their forces, which are exercising more including with nuclear forces, integrating exercises with nuclear capabilities with conventional capabilities...”[\[44\]](#)

According to Stoltenberg, Russia has been “blurring of the line” between nuclear and conventional warfare which “lowers the threshold for Russia’s use of nuclear weapons.”[\[45\]](#) The

Russian nuclear use threshold is apparently far lower than the public affairs version that links it to the threat to the very existence of the state. Russia announced that it classified its real nuclear doctrine in 2009.^[46] In September 2014, the Russian General who developed the current version of Russia's nuclear doctrine, General of the Army (Ret.) Yuri Baluyevskiy said the "...conditions for pre-emptive nuclear strikes...is contained in classified policy documents."^[47] In February 2015, Ilya Kramnik, the long-time military correspondent for an official Russian news agency, *RIA Novosti*, wrote that the 2010 revision of Russia's military doctrine, still in effect, "further lowered" the threshold of "combat use" of nuclear weapons.^[48] In June 2015, U.S. Deputy Secretary of Defense Robert Work and then-Vice Chairman of the Joint Chiefs of Staff Admiral James Winnefeld observed, "Russian military doctrine includes what some have called an 'escalate to de-escalate' strategy—a strategy that purportedly seeks to de-escalate a conventional conflict through coercive threats, including limited nuclear use," a policy they categorized as "playing with fire."^[49] In 2017, then-DIA Director Lt. General Vincent Stewart said Russia has built nuclear de-escalation "...into their operational concept, we've seen them exercise that idea..."^[50]

Since 2007, Russia has made numerous overt nuclear threats, including since 2014 nuclear threats relating to Ukraine and the Baltics.^[51] All of the Strategic Missile Force Commanders since 2007 have made the standard nuclear missile targeting threat.^[52] In 2008, General of the Army Yuri Baluyevsky, then-Chief of the General Staff, stated that "for the protection of Russia and its allies, if necessary, the Armed Forces will be used, including preventively and with the use of nuclear weapons."^[53] In March 2015, Russia's Ambassador to Denmark Mikhail Vanin declared, "I don't think that Danes fully understand the consequence if Denmark joins the American-led missile defence shield. If they do, then Danish warships will be targets for Russian nuclear missiles."^[54] In November 2016, President Vladimir Putin made a classic Russian nuclear missile targeting threat, his fifth^[55]: "We have to take countermeasures, targeting the facilities that we perceive as a threat with our missile systems."^[56] In March 2018, the Russian Foreign Ministry made an implied nuclear threat over a U.K. demarche involving the attempted murder of a UK spy using a prohibited nerve agent.^[57]

In March 2018, Chief of the General Staff General of the Army Valeriy Gerasimov threatened to attack U.S. forces in Syria: "If lives of the Russian officers are threatened, the Armed Forces of the Russian Federation will retaliate against missile and launch systems."^[58] This formulation is an adoption of a previously used pre-emptive nuclear strike threats. Soon after, Russia was threatening to attack U.S. forces attacking Syrian chemical weapons facilities.^[59] In March 2018, Alexander Velez-Green of the Harvard Belfer Center wrote, "Military Thought has published at least 18 articles in support of preemption from 2007 to 2017."^[60] *Military Thought* is the journal of the Russian General Staff. One would be hard-pressed to find a single significant Western publication, much less a Defense Ministry publication, that published advocacy of a pre-emptive NATO attack on Russia. Why does this happen in Russia? In 2015, Vladimir Putin told a meeting of Western economists that, "Fifty years ago, I learnt one rule in the streets of Leningrad: if the fight is inevitable, be the first to strike."^[61] No action officer put this into the speech. This is Russian policy.

Conclusion

Putin is preparing for a major war with the U.S. and NATO. He clearly hopes the West will capitulate without one. Unless he is deterred, he may start one. Minimum Deterrence will likely fail to deter Putin. In the weeks after Putin's Duma speech, there were repeated war threats from the Russian government. Fortunately, Putin back down -- this time.

The most likely route to a nuclear war is Putin's repeat of the tactics used against Ukraine applied to a NATO state, followed by the launch of a blitz invasion supposedly to protect ethnic Russians, threats by Putin of a nuclear response if NATO fights back, followed by a small nuclear "de-escalation" attack only if he has to do so in order to win. This is apparently what Russia practiced in the large theater exercise, Zapad 2017.^[62] If the inside the beltway arms control enthusiast establishment manages to kill the U.S. modernization programs, this may well happen.

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Notes:

- [1] Pavel Felgenhauer, "Kremlin Learning to Navigate Washington's New Unpredictability," *Eurasia Daily Monitor* Vol. 14. No. 3 (January 19, 2017), available at <https://jamestown.org/program/kremlin-learning-navigate-washingtons-new-unpredictability/>.
- [2] This estimate is based upon the number of new delivery vehicles deployed by Russia in 2017 compared to the percentage of modernization ("almost 60%") Russia claimed in December 2016.
- [3] Department of Defense, *Nuclear Posture Review*, (Washington D.C., US, Department of Defense, February 2018), pp. I, available at <https://media.defense.gov/2018/Feb/02/2001872886/-1/-1/1/2018-NUCLEAR-POSTURE-REVIEW-FINAL-REPORT.PDF>.
- [4] *Ibid.*, p. 9.
- [5] Anton Troianovski, "Tough talk from Russia," *The Washington Post*, March 2, 2018, available at <https://dialog.proquest.com/professional/docview/2009396382?accountid=155509>.
- [6] "Presidential Address to the Federal Assembly," The Kremlin, March 1, 2018, available at <http://en.kremlin.ru/events/president/news/56957>.
- [7] Roger McDermott, "Russia's Armed Forces Rehearse New 'Shock-Fire' Tactics," *Eurasia Daily Monitor* Volume: 15 Issue: 34, (March 6, 2018), available at <https://jamestown.org/program/russias-armed-forces-rehearse-new-shock-fire-tactics/>.
- [8] Nathan Hodge, Barbara Starr, Matthew Chance and Emma Burrows, "Putin claims new 'invincible' missile can pierce US defenses," *CNN*, March 1, 2018, available at <https://www.cnn.com/2018/03/01/europe/putin-russia-missile-intl/index.html>.
- [9] Pavel Felgenhauer, "Putin Unveils Array of Nuclear 'Super Weapons' Aimed at US," *Eurasia Daily Monitor* Volume: 15 Issue: 32, (March 1, 2018), available at <https://jamestown.org/program/putin-unveils-array-of-nuclear-super-weapons-aimed-at-us/>.

- [10] Pavel Felgenhauer, "Russia Seeks Total Military Domination Over West," *Eurasia Daily Monitor* Volume: 15 Issue: 36, (March 8, 2018), available at <https://jamestown.org/program/russia-seeks-total-military-domination-west/>.
- [11] Maxim Trudolyubov, "Putin Is Pushing a War Mentality on Unwilling Russians (Op-ed)," *The Moscow Times*, March 6, 2016, available at <https://themoscowtimes.com/articles/putin-is-pushing-a-war-mentality-on-unwilling-russians-op-ed-60714>.: "Putin boasts of nuclear arsenal," New Zealand *The Southland Times*, March 3, 2018, available at <https://dialog.proquest.com/professional/docview/2009639004?accountid=155509>.
- [12] "Presidential Address to the Federal Assembly," op. cit.
- [13] Ibid.
- [14] Nikolai Litovkin, "What major weapons Russian military will get in 2018," *Russia Beyond the Headlines*, January 19, 2018, available at <https://www.rbth.com/science-and-tech/327726-new-russian-weapons>.: "Sarmat ICBM: 8 Megatons at Hypersonic Speeds, Arriving 2 Years Ahead of Schedule," *Sputnik News*, January 19, 2018, available at <https://sputniknews.com/military/201609071045062797-sarmat-ahead-of-schedule-analysis/>.
- [15] Pavel Felgenhauer, "Bomb Makers Trade Union," *The Moscow Times*, March 14, 2002, available at <http://www.themoscowtimes.com/opinion/article/bomb-makers-trade-union/247805.html>.
- [16] Lynn Berry and Vladimir Isachenkov, "Kremlin-controlled TV airs 'secret' plans for nuclear weapon," *Associated Press*, November 12, 2015, available at <http://bigstory.ap.org/article/aaa75e4bb6e84d52948b9e6d8275c71d/kremlin-controlled-tv-airs-secret-plans-nuclear-weapon>.: "Status-6 and Nuclear Strategy Beyond the Tripod," *geopolicraticus.wordpress.com*, November 12, 2015, available at <http://geopolicraticus.wordpress.com/2015/11/12/status-6-and-nuclear-strategy-beyond-the-tripod/#comments>.; Patrick Know, "Russian NUCLEAR war plan leaked: News report fails to blur out top secret document," *London Daily Star*, November 11, 2015, available at <https://dialog.proquest.com/professional/docview/1732493225?accountid=155509>.; Lynn Berry, "Russian TV leaks file on top-secret new nuke," *Dublin Independent*, November 13, 2015, available at <http://dialog.proquest.com/professional/indexat>.
- [17] Dr. John Harvey, then-Principal Deputy Assistant Secretary of Defense for Nuclear, Chemical, and Biological Defense Program during the Obama administration's 2010 Nuclear Posture Review, said that the review concluded that the U.S. needed "about 1850 'real' deployed [strategic nuclear] warheads." [17] According to Ambassador Ron Lehman (former Assistant Secretary of Defense, Chief START Treaty negotiator and Director of the Arms Control and Disarmament Agency), the average yield of U.S. nuclear warheads in 1994 was .216 megaton. Since then, the average yield certainly has not increased since no new weapons have been added to the U.S. nuclear arsenal. A force of 1,850 deployed nuclear warheads with an average of .216 megaton yield would total slightly less than 400 megatons, which is about what one Russian submarine carrying Status-6 could deliver to the U.S. "Statement of Dr. John R. Harvey Principal Deputy Assistant Secretary of Defense for Nuclear, Chemical, and Biological Defense Programs Fiscal Year 2014 Budget Request for Atomic Energy Defense Activities and Nuclear Forces Programs Before the Strategic Forces Subcommittee Committee on Armed Services U.S. House of Representatives May 9, 2013," p.1, available at <http://docs.house.gov/meetings/AS/AS29/20130509/100558/HHRG-113-AS29-Wstate-HarveyJ-20130509.pdf>.: Dr. Ronald Lehman, *NUCLEAR WEAPON TRENDS: SOME PERSPECTIVES ON NUMBERS TOP TO BOTTOM*, LLNL, February 5, 2016, p. 6.

- [18] “Russian commander comment on Putin’s weapons announcement,” *BBC Monitoring of the Former Soviet Union*, May 5, 2018, available at <https://dialog.proquest.com/professional/docview/2010308306?accountid=155509>.
- [19] “Russia to use SS-19 ICBMs as carriers for Avangard hypersonic glide vehicles — source,” TASS, March 20, 2017, available at <http://tass.com/defense/995167>.
- [20] “Presidential Address to the Federal Assembly,” op. cit.
- [21] Mark B. Schneider, “**Russian Lies and Hypocrisy Concerning Missile Defense,**” **Information Series Number 429, (Fairfax Virginia, National Institute for Public Policy, 2018), available at <http://www.nipp.org/2018/04/17/schneider-mark-russian-lies-and-hypocrisy-concerning-missile-defense/>.**
- [22] “MoD: Russia’s Newest Hypersonic Missile Capable of Destroying Aircraft Carriers,” *Sputnik News*, March 12, 2018, available at <https://sputniknews.com/military/201803121062436333-kinzhal-missile-capabilities/>.
- [23] “Army; Next ICBM Sarmat trial to test launch, sustainer engine’s start - Russian Strategic Missile Forces commander,” *Interfax*, March 13, 2018, available at <https://dialog.proquest.com/professional/docview/2013637291?accountid=155509>.
- [24] For a list of these systems see Mark B. Schneider, “Russian Nuclear Weapons Policy,” *Real Clear Defense*, April 28, 2017, available at <http://www.realcleardefense.com/articles/2017/04/28/russiannuclearweaponspolicy111261.html>. The announced changes from the date of this publication are that Russia has put the rail-mobile ICBM program and the RS-26 on hold and Russia has announced a new strategic submarine, the Borey B. “Russian Navy to receive improved Borei-class strategic submarine in 2026 — source,” TASS, December 25, 2017, available at <http://tass.com/defense/982864>.
- [25] “Russian Navy to get improved Borei-class nuclear submarine in 2019,” *Sputnik News*, April 28, 2018, available at <http://tass.com/defense/1001781>.
- [26] Pavel Podvig, “[Test launch of Yars missile with ‘experimental warheads’](http://russianforces.org/blog/2017/09/test_launch_of_yars_missile),” *Russiaforces.org*, September 12, 2017, available at http://russianforces.org/blog/2017/09/test_launch_of_yars_missile wi.shtml.
- [27] “Avangard hypersonic missiles replace Rubezh ICBMs in Russia’s armament plan through 2027,” TASS, March 22, 2018, available at <http://tass.com/defense/995628>.
- [28] Keith Payne, “Postscript on New START—The Senate was misinformed about the nuclear treaty,” *National Review Online*, January 18, 2011, available at <http://www.nationalreview.com/articles/257329/postscript-new-start-keith-b-payne>.
- [29] Bill Gertz, “Russia Sharply Expanding Nuclear Arsenal, Upgrading Underground Facilities,” *Washington Free Beacon*, December 13, 2017, available at <http://freebeacon.com/national-security/russia-sharply-expanding-nuclear-arsenal-upgrading-underground-facilities/>.
- [30] Mark B. Schneider, “The Nuclear Posture Review and the Future of the INF Treaty,” *Real Clear Defense*, August 8, 2017, available at https://www.realcleardefense.com/articles/2017/08/08/the_nuclear_posture_review_and_the_future_of_the_inf_treaty_111994.html.
- [31] “STATEMENT OF GENERAL PAUL SELVA, USAF VICE CHAIRMAN OF THE JOINT CHIEFS OF STAFF BEFORE THE 115TH CONGRESS HOUSE ARMED SERVICES COMMITTEE MILITARY ASSESSMENT OF NUCLEAR WEAPONS REQUIREMENTS 8 MARCH 2017,” p. 4, available at <http://docs.house.gov/meetings/AS/AS00/20170308/105640/HHRG-115-AS00-Wstate-SelvaUSAFP-20170308.pdf>.

[32] Aleksey Arbatov, "Tactical Nuclear Weapons: Problems and Solutions: Strategic Offensive Weapon Reductions Could Extend to Nonstrategic Munitions," *Voyenno-Promyshlenny Nezavisimoye Online*, May 20, 2011. (Translated by World News Connection).: Aleksey Arbatov, "'Concepts': Nonstrategic Nuclear Weapons; Dilemmas and Approaches; The Path to a Nuclear-Free World Promises To Be Long," *Moscow Nezavisimoye Voyennoye Obozreniye Online*, May 20, 2011. (Translated by World News Connection.); "In a Broad Context," *Krasnaya Zvezda Online*, April 29, 2011. (Translated by World News Connection.)

[33] *Nuclear Posture Review*, op. cit., p. 53.

[34] Mark B. Schneider, "Russian Violations of Its Arms Control Obligations," *Comparative Strategy*, September 22, 2012, pp. 337-38, available at <http://www.tandfonline.com/doi/abs/10.1080/01495933.2012.711115?prevSearch=%255BAbsract%253A%2Bussia%2Bmilitary%255D&searchHistoryKey=:> Mark Schneider, *The Nuclear Forces and Doctrine of the Russian Federation*, (Fairfax Va.: National Institute Press, 2006), pp. 16-17, available at <http://www.nipp.org/wp-content/uploads/2014/12/Russian-nuclear-doctrine-NSF-for-print.pdf>.: Keith B. Payne and John S. Foster, et. al., *Russian Strategy: Expansion, Crisis and Conflict*(Fairfax, VA: National Institute Press, 2016), p. 91, available at <http://www.nipp.org/wp-content/uploads/2016/01/FINAL-FOR-WEB-1.12.16.pdf>.

[35] "Secretary of Defense Dick Cheney, General Colin Powell, Chairman JCS, Pete Wilson, ASD (Public Affairs) Saturday 28, 1991—10:00am," pp. 2-3.

[36] "Evidence of Russian Development of New Subkiloton Nuclear Warheads [Redacted]," Intelligence Memorandum, Central Intelligence Agency, August 30, 2000, approved for release October 2005, p. 6, available at http://www.foia.cia.gov/sites/default/files/document_conversions/89801/DOC_0001260463.pdf.: "MoD: Russia's Newest Hypersonic Missile Capable of Destroying Aircraft Carriers," *Sputnik News*, March 12, 2018, available at <https://sputniknews.com/military/201803121062436333-kinzhal-missile-capabilities/>.

[37] Mark B. Schneider, "Deterring Russian First Use of Low-Yield Nuclear Weapons," *Real Clear Defense*, March 12, 2018, available at <http://www.defenseone.com/ideas/2017/08/lower-yield-weapons-will-raise-not-lower-thresholdnuclear-use/140610/>.

[38] A video of Dr. Karber's presentation is available at <http://www.lse.ac.uk/ideas/podcasts/karber>.

[39] "Russia: Comments by Deputy Defense Minister Ostapenko on Aerospace Defense Troops Programs Commentary by Interfax-AVN, Moscow, 24 April: The New S-500 Air Defense Missile System Will Be Able To Effectively Combat Advanced Offensive Aerospace Weapons..." *Interfax-AVN Online*, April 26, 2013. (Translated by World News Connection).: "Corridors of Power; S-500 to be Russia's response to U.S. missile defense network - Defense Ministry," *Interfax*, November 29, 2013, available at <http://dialog.proquest.com/professional/docview/1467674722?accountid=155509>.

[40] "Putin Signs a National Security Strategy of Defiance and Pushback," *Eurasia Daily Monitor*, Vol.13 Issue 4, (January 7, 2016), available at http://www.jamestown.org/single/?txttnews%5Btt_news%5D=44953&nocache=1#.V7HuYaJOyUk.: Bill Gertz, "U.S. intelligence detects dozens of hardened bunkers for leaders," *The Washington Free Beacon*, August 15, 2016, available at <http://freebeacon.com/national-security/russia-building-new-underground-nuclear-command-posts/>.

- [41] “Russia to broaden nuclear strike options,” *Russia Today*, October 14, 2009, available at <http://rt.com/news/russia-broaden-nuclear-strike/>.
- [42] David Nowak, “Russia reserves right to conduct preemptive nuclear strike: Say US, NATO pose threat of aggression,” *Boston Globe*, October 15, 2009, available at <http://dialog.proquest.com/professional/docview/405210699?accountid=155509>.
- [43] Payne and Foster, et. al., *Russian Strategy: Expansion, Crisis and Conflict*, op. cit., pp. xi, 38-41, 46, 48-50, 52, 62, 69-71, 109, 111.
- [44] “Joint press conference with NATO Secretary General Jens Stoltenberg and the Prime Minister of Canada, Justin Trudeau,” NATO, April 4, 2008, available at <https://www.nato.int/cps/en/natohq/opinions153391.htm?selectedLocale=en>.
- [45] “Secretary General’s Annual Report: The Alliance is Stepping Up,” (Brussels: NATO, March 15, 2018), available at https://www.nato.int/cps/en/natohq/news_152805.htm?selectedLocale=en.
- [46] “Army; Closed part of new military doctrine to define legal aspects of forces’ employment, nuclear weapons - Gen. Staff,” *Interfax*, August 14, 2009. (Transcribed by World News Connection.)
- [47] “Russia classifies information on pre-emptive nuclear strikes – military,” *BBC Monitoring Former Soviet Union*, September 5, 2014, available at Interfax-AVN military news agency, Moscow, in Russian 0728, 0752, 0826 5 Sep 14/BBC.
- [48] Ilya Kramnik, “Cold-Calculation Apocalypse. NATO Has Taken Notice of the Russian Nuclear Threat,” *Lenta.ru*, February 3, 2015, available at <http://lenta.ru/articles/2015/02/03/apocalipsis/>. (In Russian).
- [49] Robert Work and James Winnefeld, Testimony before the Committee on Armed Services, U.S. House of Representatives, June 25, 2015, p. 4, available at <http://docs.house.gov/meetings/AS/AS00/20150625/103669/HHRG-114-AS00-Wstate-WorkR-20150625.pdf>.
- [50] “S ARMED SERVICES HEARING ON WORLDWIDE THREATS,” *Political Transcript Wire*, May 23, 2017, available at <http://dialog.proquest.com/professional/docview/1902238886?accountid=155509>.
- [51] Payne and Foster, *Russian Strategy: Expansion, Crisis and Conflict*, op. cit., pp. 47-49.
- [52] “United States Senate Appropriations Subcommittee on Energy and Water Development July 25, 2012 Testimony Prepared By: Dr. Keith B. Payne Professor and Head, Graduate Department of Defense and Strategic Studies Missouri State University Commissioner, Congressional Strategic Posture Commission,” available at <http://www.appropriations.senate.gov/ht-energy.cfm> method hearings...
- [53] Ibid.
- [54] Julian Isherwood, “Russia warns Denmark its warships could become nuclear targets,” London *Telegraph.com*, March 21, 2015, available at <http://www.telegraph.co.uk/news/worldnews/europe/denmark/11487509/Russia-warns-Denmark-its-warships->
- [55] “United States Senate Appropriations Subcommittee on Energy and Water Development July 25, 2012 Testimony Prepared By: Dr. Keith B. Payne Professor and Head, Graduate Department of Defense and Strategic Studies Missouri State University Commissioner, Congressional Strategic Posture Commission,” op. cit., pp. A-2-A3.
- [56] Vladimir Isachenkov, “Russia rejects Western criticism of Baltic missile buildup,” *AP English Language News*, November 22, 2016, available

at <http://abcnews.go.com/International/wireStory/nato-criticizes-russian-missiles-poland-lithuania-43714034>.

[57] [Andrew Griffin](#), “Kremlin threatens to expel all UK media if Britain shuts down Russian broadcaster,” *The Independent*, March 13, 2018, available at <http://www.independent.co.uk/news/world/europe/russia-skripal-uk-media-kremlin-reaction-putin-foreign-ministry-latest-britain-a8254246.html>.

[58] “Chief of Russian General Staff General of the Army Valery Gerasimov assesses situation in Syria,” Defense Ministry Russian Federation, March 13, 2103, available at http://eng.mil.ru/en/news_page/country/more.htm?id=12166194@egNews.

[59] [Pavel Felgenhauer](#), “Fears in Moscow About Possible Escalation of Syrian Conflict Into War With US,” *Eurasia Daily Monitor* Volume: 15 Issue: 56, (April 12, 2018), available at <https://jamestown.org/program/fears-in-moscow-about-possible-escalation-of-syrian-conflict-into-war-with-us/>.

[60] Alexander Velez-Green, “Russian Strategists Debate Preemption as Defense Against NATO Surprise Attack,” *Russia Matters.Org*, March 14, 2018, available at <https://www.russiamatters.org/analysis/russian-strategists-debate-preemption-defense-against-natosurprise-attack>.

[61] “Meeting of the Valdai International Discussion Club,” The Kremlin, October 23, 2015, available at <http://en.kremlin.ru/events/president/news/50548>.

[62] Mark B. Schneider, “Zapad-2017: A Major Russian War Against NATO, Again,” *Real Clear Defense*, October 6, 2017, available at https://www.realcleardefense.com/articles/2017/10/06/zapad-2017amajorrussianwaragainstnato_again_112441.html.