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Nuclear Notebook: Russian nuclear forces, 2009

Russia continues to reduce the number of nuclear warheads it deploys on ICBMs, yet it is deploying and developing advanced missiles. It has also increased patrols by nuclear-armed submarines.

BY ROBERT S. NORRIS & HANS M. KRISTENSEN

RUSSIA CONTINUES REDUCING ITS DEPLOYMENT OF NUCLEAR-armed missiles to meet the Moscow Treaty's 2,200-warhead limit by 2012 but is also developing new land- and sea-based forces.¹ Russian political and military posturing reached new highs in 2008, as a consequence of the Russian invasion of Georgia and threats to counter the U.S. agreement to deploy anti-ballistic missile interceptors in Poland. Relations with NATO fell to a post-Cold War low, too, as Russian long-range bomber flights and exercises continued in the Atlantic, Pacific, and Arctic oceans, with some even venturing into the Indian Ocean.

The Russian invasion of Georgia in early August 2008 triggered a series of tit-for-tat responses between Russia and NATO countries. The United States and Britain withdrew from a joint exercise with Russia, and Belgium canceled a port visit to Saint Petersburg. In response, Russia canceled its participation in the September Open Spirit 2008 mine-sweeping exercise in the Baltic Sea and refused to allow a U.S. warship access to one of its ports in the Far East. Russia also deployed two nuclear-capable bombers to Venezuela, followed by a small surface task force led by a nuclear-powered cruiser.

As relations deteriorated, in August, the Russian Deputy Chief of Staff, Gen. Anatoly Nogovitsin threatened Poland for its willingness to accept the deployment of anti-ballistic missiles on its territory. He said that Russia's doctrine "clearly states that we can use nuclear weapons against the countries possessing nuclear weapons, against allies of such countries, if they somehow support them, and against those countries, which deploy other countries' nuclear weapons on their territories. Poland is aware of it."²

We estimate that as of early 2009, Russia has approximately 4,830

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nuclear warheads in its operational arsenal. This includes about 2,790 strategic warheads, a slight decrease from last year's level due to the retirement of older SS-18, SS-19, and SS-25 intercontinental ballistic missiles (ICBMs), and roughly 2,050 nonstrategic warheads. An additional 8,150 warheads are estimated to be in reserve or awaiting dismantlement, for a total inventory of approximately 13,000 nuclear warheads.

ICBMs. Russia deploys more than 1,350 nuclear warheads on 383 ICBMs of five types, down from 453 missiles a year ago. In early 2009, the head of the Russian ICBM force, Col. Gen. Nikolai Solovtsov, said, "At least 96 percent of all missile systems are ready for deployment within several dozen seconds" and that this is "the highest readiness level" within Russia's nuclear triad.³ Assessments by outside experts suggest that no more than 75–80 percent of these missile systems are at this readiness level.⁴

Russia completed the deployment of the silo-based Topol-M (SS-27) in late 2008 with 50 operational missiles now organized into five regiments. Sluggish deployment of the mobile Topol-M missiles continued at the 54th missile regiment in Teykovo northeast of Moscow. Thirteen single-warhead missiles are now operational, and the Russian government plans to have an operational force of 34 mobile Topol-Ms by 2015.⁵ Development of the RS-24, a modified Topol-M with multiple warheads, is nearing completion and initial deployment is expected at Teykovo in December 2009 after the Strategic Arms Reduction Treaty (START) expires. Russia successfully tested the modified missile on November 26, 2008.

Concurrent with new missile developments, Russia retired a number of older ICBMs in 2008. Russia withdrew about 21 SS-25 missiles from service in 2008, leaving approximately 180 SS-25s deployed. If it sustains this retirement rate, Russia will have retired all SS-25s by 2010, though some may be retained until 2015. On August 28, 2008, Russia flight-tested a SS-25, which delivered "an experimental warhead" 3,700 miles (6,000 kilometers) from the Plestsk missile launch site to the Kamchatka Peninsula. The objective of the flight "was to test the missile's ability to avoid ground-based detection systems," according to the Russian military.⁶

Russia continued reducing the SS-19 force in 2008, withdrawing 21 missiles and leaving 72. We anticipate that all but the 20 newest SS-19s will be withdrawn by 2012; the remaining missiles will be in service until about 2015. The most recent SS-19 test-launch was conducted in late 2007. After a brief pause, retirement of older SS-18s resumed, leaving 68 missiles in the force. We estimate that all but the 30 newest SS-18s (R-36M2) will be retired during the next few years to meet the Moscow Treaty limit by 2012. The last SS-18 is scheduled to be retired around 2015.⁷

RUSSIAN NUCLEAR FORCES, 2009

TYPE	NAME	LAUNCHERS	YEAR DEPLOYED	WARHEADS X YIELD (KILOTONS)	TOTAL WARHEADS
STRATEGIC OFFENSIVE WEAPONS					
ICBMs					
SS-18	Satan	68	1979	10 x 550/750	680
SS-19	Stiletto	72	1980	6 x 550/750	432
SS-25	Sickle	180	1985	1 x 550	180
SS-27 (silo)	(Topol-M)	50	1997	1 x 550	50
SS-27 (mobile)	(Topol-M1)	13	2006	1 x ~550	13
SS-27 (mod.)	(RS-24)	0	~2009	3-4 x ~550 (MIRV)	0
SUBTOTAL		383			1,355
SLBMs					
SS-N-18 M1	Stingray	4/64	1978	3 x 200 (MIRV)	192
SS-N-23	Skiff	3/48	1986	4 x 100 (MIRV)	192
SS-N-23 M1	Sineva	3/48	2007	4 x 100 (MIRV) ¹	192
SS-N-30	Bulava	(1/16)	~2010	6 x 100 (MIRV)	0
SUBTOTAL		10/160			576
Bombers/weapons					
Tu-95 MS6	Bear-H6	32	1984	6 x AS-15A ALCMs, bombs	192
Tu-95 MS16	Bear-H16	31	1984	16 x AS-15A ALCMs, bombs	496
Tu-160	Blackjack	14	1987	12 x AS-15B ALCMs or AS-16 SRAMs, bombs	168
SUBTOTAL		77			856
SUBTOTAL STRATEGIC OFFENSIVE FORCES					2,787
NONSTRATEGIC AND DEFENSIVE WEAPONS					
ABM/Air defense					
51T6/53T6	Gorgon/Gazelle	0/68	1989/1986	1 x 1,000/10	68 ²
SA-10	Grumble	1,900	1980	1 x low	630
Land-based air					
Bombers/fighters		~524		ASM, bombs	650
Naval					
Submarines/surface ships/air				SLCM, ASW, SAM, ASM, DB, torpedoes	700
SUBTOTAL NONSTRATEGIC AND DEFENSIVE FORCES					~2,050³
TOTAL					~4,830⁴

1. As a modification of the SS-N-23, the Sineva probably carries four MIRVed warheads. U.S. intelligence in 2006 estimated that the missile carries "up to 10" warheads per missile.

2. All Gorgon missiles reportedly have been removed from the ABM system.

3. We estimate that an additional 3,250 nonstrategic warheads are in reserve or awaiting dismantlement, leaving a total inventory of approximately 5,380 nonstrategic warheads.

4. We estimate that an additional 8,150 intact warheads are in reserve or awaiting dismantlement for a total inventory of approximately 13,000 warheads.

ABM: Antibalistic missile

ALCM: Air-launched cruise missile

ASM: Air-to-surface missile

ASW: Antisubmarine weapon

DB: Depth bomb

ICBM: Intercontinental ballistic missile

MIRV: Multiple independently targetable reentry vehicle

SAM: Surface-to-air missile

SLBM: Submarine-launched ballistic missile

SLCM: Sea-launched cruise missile

SRAM: Short-range attack missile

General Solovtsov said that Russia would conduct 13 missile launches in 2009; five would support the development of new missiles, three would confirm the life-extension of existing missiles, and five would launch satellites into orbit using SS-18s.⁸ Development of a new ICBM appears to be underway. U.S. intelligence reported in March 2006 that a new ICBM, which could be deployed in both land- and sea-based versions, may be under development but had not yet been test-launched.⁹ In December 2007, a spokesman for the Strategic Missile Force stated, “In the next 5–10 years, Russia’s [missile force] may adopt a new, more advanced ballistic missile system [than the Topol-M]” for possible deployment starting in 2017.¹⁰

Nuclear-powered ballistic missile submarines (SSBNs).

Russia’s 10 SSBNs—six Delta IVs and four Delta IIIs—are equipped with 160 submarine-launched ballistic missiles (SLBMs) and carry an estimated 576 warheads. All six Delta IVs are part of the Northern Fleet based at Yagelnaya Bay on the Kola Peninsula; one Delta III, which may be retired soon, is also based there. The other three Delta IIIs are based at Rybachiy on the Kamchatka Peninsula and are part of the Pacific Fleet.

The Russian Navy is modernizing the Delta IVs and equipping them to carry the Sineva SLBM (RSM-54), an improved version of the SS-N-23 missile which was first deployed in 1986. Two submarines (the *Bryansk* and the *Tula*) have completed their upgrades, a third (the *Karelia*) is nearing completion, and a fourth boat (the *Novomoskovsk*) will begin its modernization in 2009. Another Delta IV, the *Yekaterinburg*, has conducted several Sineva test-launches since 2003, but it is unclear whether the boat is operational with the improved missile. The Sineva became operational aboard the *Tula* in July 2007, and the sub conducted an extended-range test-launch of the missile on October 11, 2008 from a position in the Barents Sea to an impact area in the “equatorial part of the Pacific.”¹¹ Russian President Dmitry Medvedev observed the exercise and stated that the missile flew 11,547 kilometers.¹² The *Bryansk* is expected to soon become operational with the Sineva.

The Delta III submarine *Ryazan* test-launched a ballistic missile on August 1, 2008, from a position in the Barents Sea. The missile, which impacted at the Kura range on the Kamchatka Peninsula, was probably an SS-N-18, the oldest SLBM in the Russian arsenal and the type typically carried on Delta IIIs. About a month after this launch, *Ryazan* transferred from the Northern Fleet to the Pacific Fleet in a 30-day submerged voyage.¹³

For more than a decade, the Russian Navy has been developing the first of its new Borey-class submarines, the *Yuri Dolgoruki*, and a new Bulava SLBM (RSM-56, or SS-N-30). After a successful test-

Russian strategic bombers have stepped up operations outside and inside Russian airspace during the past year and have held long-range exercises in the North Atlantic and North Pacific.

launch of the Bulava in September 2008, the Russian Navy declared “with certainty that both the Bulava missile and the *Yuri Dolgoruki* submarine will be put into service in 2009.”¹⁴ But a failed test-launch on December 23 put the already-delayed program further behind schedule. The navy acknowledged that further tests, per-

haps five instead of two or three, would be needed in 2009 before the weapon could enter service. The nuclear reactor aboard the *Yuri Dolgoruki* went critical on November 21, 2008. Each Borey-class SSBN will be equipped with 16 Bulava SLBMs, which have a range of 8,000–9,000 kilometers and can carry up to six warheads.

The second Borey-class SSBN, the *Alexander Nevsky*, which was laid down at the Severodvinsk shipyard in March 2004, was scheduled for delivery in 2008 but will be delayed until 2010, at the earliest. Construction of a third boat, tentatively named *Vladimir Monomakh*, began in March 2006 and is scheduled to be completed in 2012. “Starting with the fourth submarine, we will begin modernizing this class,” navy officials told a Reuters reporter in July 2008. “The modernized Borey will be the core of Russian naval nuclear forces until 2040.”¹⁵ The Russian Navy would like to acquire a total of eight Borey SSBNs, an ambitious goal given the performance of the shipyards and Russia’s financial situation. Three Typhoon-class SSBNs are still technically part of the Russian fleet but do not have operational missiles. One of them, the *Dmitri Donskoi*, is used to test-launch the new Bulava SLBM.

Russian ballistic missile submarine patrols increased from 3 in 2007 to 10 in 2008. Although less frequent than the dozens of patrols conducted in the 1980s, the increase indicates that Russia is attempting to advance the operational readiness of its SSBN force. The duration, timing, and distance each sub traveled from its homeport are unknown, but the 10 patrols are probably enough for Russia to keep at least one SSBN continuously at sea—the first time it has had this capability since 1998. Attack submarine patrols did not increase in 2008 but remained at seven, the total for 2007.

Strategic bombers. Since 2008, Russia has withdrawn one Tu-160 Blackjack and one Tu-95 MS16 Bear, possibly for upgrading. Russia currently has 77 strategic bombers: 14 Tu-160 Blackjacks; 32 Tu-95 MS6 Bear H6s; and 31 Tu-95 MS16 Bear H16s. Not all of them are fully operational at any given time. Russian military officials announced in 2008 that the Tu-160 and Tu-95 aircraft will undergo major modernizations in 2009, including being fitted with new tar-

getting and navigation systems.¹⁶ The upgrades may be aimed, in part, at adding conventional capabilities to expand their military utility.

Unconfirmed reports suggest that Russia is planning to increase its fleet of Tu-160s to 30 by 2030.¹⁷ If so, the additional aircraft would replace older Tu-95s. A new bomber to replace the aging Tu-95 Bears may be in the early stages of design development, as air force officials have reportedly established specifications for an aircraft capable of taking off from short unpaved runways.¹⁸

All Russian strategic bombers are equipped to carry the nuclear AS-15A (Kh-55) air-launched cruise missile, as well as an assortment of nuclear bombs. An advanced nuclear cruise missile known as the Kh-102 has been under development for more than a decade and is still not deployed. Russia is converting some nuclear AS-15As to conventional missiles, similar to the U.S. conversion of nuclear air-launched cruise missiles to conventional cruise missiles. The Russian conventional missile is designated Kh-555.

Russian strategic bombers have stepped up operations outside and inside Russian airspace during the past year and have held long-range exercises in the North Atlantic and North Pacific. As part of exercises conducted within Russia in October 2008, Tu-160 and Tu-95 aircraft carried and launched maximum combat payloads of cruise missiles for the first time since 1984, according to air force officials.¹⁹

Nonstrategic weapons. The Russian government provides little information about its inventory of nonstrategic nuclear warheads. This secrecy only encourages rumors and distrust. President Boris Yeltsin pledged in 1992 that production of warheads for ground-launched tactical missiles, artillery shells, and mines had stopped and that all of those warheads would be eliminated. In addition, he pledged that Russia would dispose of half of all tactical airborne and surface-to-air warheads, as well as one-third of all tactical naval warheads. The Russian Foreign Ministry declared in 2004 that “more than 50 percent” of these tactical warheads had been “liquidated,” and in 2007, a Russian Defense Ministry spokesman provided a further update.²⁰ The spokesman said that since 1992 Russia had reduced its ground-forces tactical nuclear warheads by 100 percent; its missile- and air-defense tactical warheads by 60 percent (10 percent more than Yeltsin pledged); its air force tactical warheads by 50 percent; and its naval tactical warheads by 30 percent. Assuming that this information is accurate, then Russia has exceeded the goals of the 1992 initiative.²¹

Accordingly, we estimate that Russia retains no ground-forces tactical warheads; 1,120 missile- and air-defense tactical warheads; 2,000 air force tactical warheads; and 2,270 naval tactical warheads, for a total of 5,390 tactical warheads. We estimate that roughly one-

third of these warheads are operational for delivery by anti-ballistic missiles, air-defense missiles, tactical aircraft, naval cruise missiles, anti-submarine rockets, and torpedoes, with the remaining two-thirds in reserve or awaiting dismantlement.²² In late 2008, Gen. Nikolai Makarov, the Russian chairman of the general staff, asserted

that Russia planned to “keep nonstrategic nuclear forces as long as Europe is instable and packed with armaments. That is a guarantee of our security.”²³ For its part, the U.S. intelligence community estimates that Russia “will continue to maintain a relatively large stockpile of nonstrategic nuclear warheads.”²⁴

Unlike other nuclear weapon states, Russia retains a relatively large inventory of nonstrategic nuclear weapons for delivery by naval vessels and land-based maritime aircraft. We estimate that nearly 700 of the more than 2,000 remaining naval warheads

are operational for delivery by approximately 280 submarines, surface ships, and naval aircraft. The warheads arm cruise missiles, anti-submarine rockets, anti-air missiles, and torpedoes. The number of nuclear-capable ships and submarines has declined from approximately 400 in the 1990s to about 100 today. We estimate that surface ships are no longer assigned nuclear torpedoes and that all tactical naval nuclear weapons are stored on land.

We estimate that nearly 650 of the 2,000 nonstrategic warheads available for delivery by aircraft are operational. This includes AS-4 air-to-surface missiles and a variety of bombs. Tu-22M Backfire bombers are capable of delivering both the AS-4 and bombs, while the Su-24 Fencer fighter-bombers, which are being replaced by the Su-34 Fullback fighter-bombers, are capable of delivering only bombs. Other tactical aircraft could also be assigned nonstrategic nuclear missions.

The 60 percent reduction in nonstrategic warheads assigned to missile- and air-defenses is 10 percent greater than former President Yeltsin announced in 1992. We estimate that approximately 1,120 warheads remain for use as part of the A-350 anti-ballistic missile system that surrounds Moscow and the SA-10 Grumble (S-300) air-defense system, but that only 600–700 of these warheads are operational. The SA-10 system is being replaced by the SA-12 Growler (S-400) system which reportedly has some capability against ballistic missiles. One SA-12 regiment, which includes about eight launchers and thirty-two missiles, is deployed around Moscow, and a second was expected to become operational in 2008. At least 18 systems reportedly are planned to be deployed by 2015 and will form the core

PROJECTED STRATEGIC WARHEADS, 2008–2020

WEAPON	2009	2012	2020
ICBMs	1,355	545	306
SLBMs	576	720	896
Bombers	856	878	752
TOTAL	2,787	2,143	1,954

of Russia's air- and missile-defenses through at least 2020.²⁵ There is no evidence that the long-range Gorgon anti-ballistic missile interceptors are active, but the short-range Gazelle interceptors are probably still operational. Test-launches of Gazelle interceptors were conducted in 2006 and 2007.

Russia's future nuclear force. In an April 1, 2009 joint declaration with the United States, Russia said it would seek to reduce its strategic nuclear forces below the Moscow Treaty limit of 2,200 warheads through an extension of START and subsequent initiatives. Unofficial sources suggested that warhead limits could initially go down to 1,500 deployed warheads and later perhaps down to 1,000.

Even without a START follow-on agreement, we estimate Russia's strategic nuclear forces will continue to shrink during the next decade. The overall warhead level will decrease about 30 percent, including a 77 percent reduction in warheads on the ICBM force (depending on future warhead loadings and the possible introduction of a new missile in 2017), a 12 percent decrease in warheads on the bomber force, and a 56 percent increase in the number of warheads on the SSBN force. Russia could achieve a new treaty limit of 1,000–1,500 deployed strategic warheads by not equipping ICBMs with multiple independently targetable vehicles, reducing the number of warheads carried on the Bulava, and sharply curtailing the bomber weapons inventory. ■

Nuclear Notebook is prepared by Robert S. Norris of the Natural Resources Defense Council and Hans M. Kristensen of the Federation of American Scientists. Direct inquiries to NRDC, 1200 New York Avenue, N.W., Suite 400, Washington, D.C., 20005 (or 202-289-6868). Visit www.thebulletin.org for more nuclear weapons data.

NOTES

1. Essential references for following Russian strategic nuclear forces include the START memorandum of understanding released by the U.S. and Russian governments twice a year; the Open Source Center; Pavel Podvig's website www.russianforces.org; and the database "Russia: General Nuclear Weapons Developments," maintained by the Monterey Institute's Center for Nonproliferation Studies (www.nti.org/db/nisprofs/russia/weapons/gendevs.htm).

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4. Bruce Blair, "A Rebuttal of the U.S. Statement on the Alert Status of U.S. Nuclear Forces," endnote 5, Center for Defense Information, November 6, 2007, <http://www.cdi.org/program/document.cfm?documentid=4135>.

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