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RUSSIA'S STRATEGIC EXERCISES: MESSAGES AND IMPLICATIONS

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EXECUTIVE SUMMARY

In this report, several of Russia's strategic military exercises come under the spotlight to explore the messages and implications of these activities.

A nation's military exercises, especially strategic, are a form of important communication to a wide array of audiences including adversaries, allies, partners and the nation's own population. This type of communication provides a better understanding of the scope and scale of a country's military capabilities and readiness. It also provides valuable insights into a nation's interests, operational art and strategic thinking. Military exercises support political, military and geopolitical intents as well as demonstrating capabilities and challenging our ways of thinking beyond the current framework of traditional military 'modus operandi'.

By looking at the Russian strategic military exercises *Vostok 2018* and *Tsentr 2019*, as well as separately at the strategic nuclear-forces exercise *Grom 2019*, this study will address the following:

- how Russia uses these exercises in order to achieve information dominance and realise its geopolitical, military and political objectives,
- what the key messages are that Russia is trying to convey to different audiences,
- what the impact of these messages is on European security and the European information environment.



Case studies included in this report analyse Russia's *Vostok 2018* and *Tsentr 2019* strategic military exercises and its *Grom 2019* strategic-deterrent exercise. In each of the three cases, we analyse implications and key messages.

In the case of *Vostok 2018* we conclude that in its communication activities designed to showcase Russia's military prowess, Russia emphasised improved command and control, the complexity of the exercise and the ability to respond to a technologically advanced potential adversary, including through what was portrayed as a comprehensive, ready strategic military partnership with China. *Vostok 2018* was billed as the largest exercise of armed forces readiness in the entire history of modern Russia.

Vostok 2018 aimed to demonstrate the enhanced 'operational art', performance and capabilities of the Russian military as one of the segments of power that supports Russia's geopolitical, military and political objectives

Russia's narratives during the exercise stressed that Russia is not isolated militarily or diplomatically during this period of ongoing confrontation, sanctions and tensions with the West and that all three powers taking part in the exercise enhances stability and security in the Asia-Pacific region

Russia emphasised its ability to respond to regional security threats in cooperation with China and Mongolia and presented the image of a strong military force able to

project power into Russia's Far East.

In messages to the local population, Russia used the integrated approach of appealing to emotions and patriotism while demonstrating mobility, mobilisation, strategic deployment and troop readiness to fight against any adversary, as well as the moral and psychological resilience of military personnel to respond to threats from the West

Vostok 2018 was actively communicated by all levels of Russian political and military officials and the expert community, who delivered selected messages to various audiences both internally and externally. A number of strategic messages were specifically designed and delivered in various forms to target audiences before, during and after the exercise. This proves that communication activities were carefully planned and implemented both in and around the exercise in order to achieve certain goals. Communication activities supported Russia's goal to demonstrate its military capabilities and to communicate that its military reforms are having the expected effect - Russia remains a formidable military superpower.

The message of international partnerships not only with China but also other regional powers - as well as Belarus - was reinforced during *Tsentr 2019*. Research also suggests that pursuant to the Russian military's tradition of *maskirovka* - camouflage or, more broadly, concealment or even disinformation -



the exercise functioned as a cover for Russia's exercising of network-centric warfare.

Tsentr 2019 repeated the same messages as those in the previous year's exercise, *Vostok 2018*, with emphasis on impressive troop numbers, including participants from other Russian agencies; increased professionalism of the armed forces and federal bodies; the scale and size of the activities; and, as noted above, the internationalisation of the exercise. However, there were differences in the new narratives associated with *Tsentr 2019*, which could be an attempt by Russia to find new roles for its exercises as part of Russia's messaging operations.

With this rhetoric directed at its adversaries and partners, Russia pleaded non-aggression, while demonstrating its ability to build warfare capacity and to strengthen its combat potential with its allies and partners. Russia also illustrated its capacity to incorporate lessons learnt from the tactics of the Islamic State group (IS) in Syria and Iraq and the Taliban's tactics in Afghanistan into an educational strategic military exercise to train its commanders and staff officers for mobilisation and operations in a contested security environment.

Another important message to international audiences from *Tsentr 2019* is Russia's power projection abilities, which allow it to operate on two fronts, simultaneously coordinate two operations and extend operational mobility in two strategic theatre operations.

In its military messages addressed to adversaries and international audiences, Russia also emphasised an improved use of communication systems and focus on information security during joint operations with its allies.

The Russian Ministry of Defence continually delivered complicated and misleading messages regarding *Tsentr 2019*'s goals. During *Tsentr 2019*, a number of broadcast messages aimed to prove the Russian troops' ability to move quickly, efficiently and over long distances. Oddly, the messaging was in places transparent, yet elsewhere information lacked entirely. An incident during which two airborne fighting vehicles smashed into each other during a parachuting exercise was announced, but virtually nothing was said about the National Guard, FSB security service or federal agencies participating in the exercise.

By contrast, *Grom 2019* was a demonstration of Russia's sovereign nuclear might - a show of force designed to reconfirm Russia's status as a nuclear superpower, to deter, to coerce - and to confuse. This research suggests that the exercise offered evidence of doctrinal inconsistency. Furthermore, the report explores Russia's new nuclear capabilities, which, coupled with opaque doctrine and the options demonstrated during *Grom 2019*, raises concerns over Russia's operational nuclear plans.



The consensus in the analytical community is that *Grom 2019* was Russia's largest ever officially known, full-spectrum, nuclear strike exercise. Official and state media communications emphasised the defensive and deterrent focus of the exercise. The reaction of other Russian state-controlled media was, as is customary, enthusiastically and unquestioningly supportive of the official narrative. Video footage of missile launches was widely shown across the channels. Whether deliberately or otherwise, however, state media communications were at least occasionally imprecise or inaccurate.

Despite the outwardly extensive detail released through official communications, significant uncertainty remains about exactly which systems were tested during *Grom-2019*. Significant confusion was generated by imprecise or erroneous media reports about the exercise. In addition, overall uncertainty about the exact scenario of *Grom 2019* resulted in considerable differences in the assessment of its escalation elements. *Grom 2019* aimed to convey a range of messages and pursue a range of goals, chief among them a combination of nuclear deterrence - and nuclear intimidation.

In other targeted communications, *Grom 2019* aimed to convey the message of Russia's strategic supremacy, including in the context of eroding international nuclear arms control. It can be assumed that given the nature of the assets tested during *Grom*

2019, the message targeted the whole of NATO, with both the United States and Europe as target audiences.

Assessments suggest that Russia is planning to blend its conventional forces with nuclear forces in future conflicts. In the years ahead, Russia may be able to deploy a mix of high-yield, medium-yield and low-yield warheads integrated with cyber, space and non-nuclear forces. Development of Russia's non-strategic nuclear weapons is of concern for Europe. Capabilities that could be put to use in this way were tested during *Grom 2019*.

All of the above demonstrates that the combination of Russia's doctrinal opacity, forceful nuclear posture and extensive nuclear capability, compounded by nuclear rhetoric, is of utmost concern for NATO.



INTRODUCTION

EXERCISES AS A FORM OF COMMUNICATION

A nation's military exercises, especially strategic, are a form of important communication to a wide array of audiences including adversaries, allies, partners and the nation's own population. This type of communication provides a better understanding of the scope and scale of a country's military capabilities and readiness. It also provides valuable insights into a nation's interests, operational art and strategic thinking. Military exercises support political, military and geopolitical intents as well as demonstrating capabilities and challenging our ways of thinking beyond the current framework of traditional military 'modus operandi'.

Messages communicated through Russian annual strategic military exercises, such as *Vostok*, *Zapad*, *Tsentr* and *Kavkaz*,¹ support the broader national strategy and

demonstrate how Russia is using this element of its national power to achieve military and geopolitical objectives and to shape a security environment that impacts NATO allies and partners. The same considerations also apply to other strategic Russian manoeuvres, such as in the specific example of Russia's *Grom 2019*² nuclear-forces exercise. Russian influence operations in the form of communication activities become a decisive tool both in its military operations and public affairs campaigns. A timely and deliberate weaponisation of communications and messages before, during and after military exercises is one of the means to influence both domestic and international audiences and to attain strategic non-military objectives.

Russia places a lot of emphasis on information campaigns as well as is about to update its National Security Strategy and military doctrine, thus more attention should be paid to the information spectrum and



” In a contested information environment, an effective and efficient use of communication and messaging to different targeted audiences can bring multiple desired effects and create favourable conditions and a permissive environment for future military actions

the non-military means it is using to achieve favourable conditions for its political and strategic objectives.

In a recent Russian publication, Russia’s Chief of the General Staff (CGS), General Valeriy Gerasimov, stressed an increased role of the domain of information in addition to the traditional air, sea and land operational domains. Gen Gerasimov states that ‘the information domain, not having a clearly defined international border, provides the possibility for long-range, hidden action upon not only critically important information infrastructure, but also upon the population of a country, directly influencing the condition of national security of a state. For this very reason, work on the question of preparation of information and conduct of actions of information character is the most important task of military science’.³

As seen from Russian sources, non-military actions, such as information campaigns, can play an important role if used efficiently and combined effectively with military forces. In a contested information environment, an

effective and efficient use of communication and messaging to different targeted audiences can bring multiple desired effects and create favourable conditions and a permissive environment for future military actions. For example, Russia’s information activities in Ukraine illustrate how information warfare and influence on target audiences can create conditions and a grounding for further non-military activities ‘supplemented by military means of a concealed character’.⁴

By looking at the Russian strategic military exercises *Vostok 2018* and *Tsentr 2019*, as well as separately at the strategic nuclear-forces exercise *Grom 2019*, this study will address the following:

- how Russia uses these exercises in order to achieve information dominance and realise its geopolitical, military and political objectives,
- what the key messages are that Russia is trying to convey to different audiences,



- what the impact of these messages is on European security and the European information environment.

With an abundance of publicly available information and intense conflict between various actors in the European information space, European capitals and international organisations have focused on public awareness campaigns and information literacy in areas where it is necessary due to misinformation from Russia.

The Russian strategic military exercises *Vostok 2018* and *Tsentr 2019* delivered key strategic messages and perspectives to Russia's adversaries, allies and partners about the future of Russia's relations with them.⁵ In order to fully assess the strategic effect of these exercises on the European security and information space, this analysis will present the primary military, political and geopolitical messages targeting domestic and international audiences, as well as analyse facts and figures. Similarly, a separate part will look at the strategic nuclear-forces exercise *Grom 2019* from the same perspective.

MESSAGE DELIVERY MECHANISMS AND TARGET AUDIENCES

According to the Russian military practices, strategic exercises are conducted regularly. The main military tasks Russia seeks to accomplish are to prepare forces and test their combat status and readiness, to train various level commands to perform effective

command and control (C2), to test new concepts, tactical elements, weaponry and systems and, in some cases, to check pre-planned scenarios. But exercise scenarios, their scale and participants, the way they are run and 'advertised', and even their geographical location are also used to tailor messages to various internal and external audiences. Thus, exercises contribute to or even become a major part of Russia's communication activities.

Such exercises as a means of strategic messaging to outside audiences aim to showcase Russia as a state that possesses a credible military. They support the Russian point of view on its national security and international relations issues. They help Russia to be recognised as a 'global power' by a wide range of actors. In the process, they create favourable conditions for the pursuit of its expansionist policies beyond its borders. On the other hand, Russia has a track record of using its military exercises to conceal preparation for actual, planned operations (as in 2008 - Georgia).

The holding of Russia's major strategic military exercises also serves as a method to reach out to its population, Russian minorities, international supporters and other entities in order to attain an 'end state' and to achieve the desired effect of strengthening Russia's state apparatus and support for the current regime.

In Russia, the most important and strategic messages aimed at various target audiences



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are usually delivered through official statements by the highest-level officials (the President of the Russian federation, Minister of Defence, etc.) and widely broadcast in national and international forums. To support such strategic messaging, elements of military exercises are presented during specially arranged demonstrations or displays.

For mass audiences, these communications seem to be designed to show that Russia is, for example, a target of international terrorism and other challengers and is simply responding to potential threats, particularly to ‘aggressive’ Western and/or NATO actions. Such messaging is meant to convey to Russian citizens that the preparations which the government is implementing are a matter of national survival and are unavoidable, rational and do not represent militarisation. Such messages are also meant to convince ordinary Russians that the armed forces are able to defend the country and that military reform and defence spending produce visible results. To strengthen the effect of communication activities at the national

level, these messages are continuously repeated and explained by lower level officials, experts and the media.

Messages aimed at expert audiences usually contain more specifics about the exercises and allow a clearer understanding of what is happening and why. Such messages are primarily designed to provide information to government and loyalist experts as well as to the military community about the successes and failures of the exercises and to feed them details intended to support or to deny earlier declarations. These messages are delivered by active or retired military service personnel, defence experts, commentators or officials in a specialised manner (reports, articles, interviews etc.) and are not aggressively advertised.



CASE STUDY 1

THE MAJOR ANNUAL STRATEGIC EXERCISE *VOSTOK 2018*

OVERVIEW OF THE EXERCISE

Vostok 2018 was the main annual strategic exercise of 2018. It demonstrated coordinated efforts by the Russian armed forces from the national to the brigade level to test their readiness, command and control (C2), and preparedness for a potential large-scale state-on-state conflict with a technologically advanced peer adversary. This multi-domain exercise simulated a multi-directional theatre level conflict and combined the armed forces of Russia with elements from China and Mongolia, two Russian naval fleets (Pacific and Northern), the air force and army aviation. It was conducted in the Central and Eastern Military Districts from early July to September with approximately 300,000 troops participating.⁶ The preparatory phase of the exercise spanned July and August, while its active phase took place on 11-17 September 2018.

The scale and scope of the exercise were widely covered in the Russian media. The Minister of Defence, Sergey Shoygu, spoke to the media about the exercise and CGS Gen Gerasimov described the exercise in his briefing to foreign military attachés in

early September 2018.⁷ The Minister of Defence pointed out that *Vostok 2018* was a unique exercise and had become the largest exercise of armed forces readiness in the entire history of modern Russia.⁸ During his visit to the Tsugol training area in the Trans-Baikal territory, President Vladimir Putin of the Russian Federation commented on the exercise, stating that 'Russia is a peace-loving state. We do not and cannot have any aggressive plans. Russia's foreign policy is aimed at constructive cooperation with all interested countries'.⁹

According to the Ministry of Defence website,¹⁰ the exercise combined armed forces from Russia, China and Mongolia and included 1,000 fixed-wing aircraft and helicopters, 80 ships and 36,000 tanks, armoured and other vehicles.¹¹ The Russian Ministry of Defence website showed a number of conventional and nuclear-capable weapons systems, such as the Iskander ground-mobile missile system, Moskit naval cruise missiles, and Tu-95MS and Tu-22M3 strategic bombers taking part in the exercise.¹² The increased scale of training and number of troops, military equipment, aircraft and ships employed in the exercise in comparison with previous





Figure 1. Increased number of operational training events

	Кавказ-2012	Запад-2013	Восток-2014	Центр-2015	Кавказ-2016	Запад-2017	Восток-2018
Личный состав	8 000	12 900	12 500	12 700	12 500	12 700	300 тыс.
Вооружение и военная техника	320	350	350	380	400	680	до 36 000
Летательные аппараты	80	60	60	70	60	40	более 1 000
Корабли и суда	10	10	15	10	15	10	до 80

Figure 2. Numbers of troops, military equipment, aircraft and ships in Russia's annual strategic exercises (official statistics - see below)

major annual strategic exercises (see Figure 1, Figure 2) was explained by emphasising the need for clearer communication channels between these forces.¹³

(The usual caveat must apply to the numbers notably for each of the years between 2013 and 2017 in the table above: In order to avoid foreign verification on the ground, each was officially declared to be a fraction below the 13,000-personnel threshold established by the Vienna Document of 2011 (VD 2011)

for mandatory OSCE observation of the exercise. Attempts to dispute the numbers would be met with counterclaims such as that the numbers declared were true for the zone of VD 2011 application. The monitoring of media reports directed to internal Russian audiences could help approximate real numbers, although even those reports would be unlikely to reveal the whole picture. In a typical example, tank numbers are usually conflated with armoured personnel carrier (APC) and infantry fighting

vehicle (IFV) numbers, or generalised as the number of the “items of equipment” or “pieces of weaponry” involved, usually including artillery. By contrast, research suggests that:

- For *Vostok 2014*, the true numbers were approximately 100,000 troops, 6,500 items of equipment, 120 aircraft and 70 ships,¹⁴
- For *Tsentr 2015*, the numbers were approximately 95,000 troops, 7,000 items of equipment, 170 aircraft and 20 ships,¹⁵
- For *Kavkaz 2016*, the numbers were approximately 120,000 troops, plus equipment and 15 ships.¹⁶

Once again, this raises questions about Russia’s transparency and the ambiguity of its communications and messages)

Vostok 2018 aimed to test combined arms warfare, tactical interoperability and mobilisation of forces. The objectives of the exercise also included strategic redeployment, enhancement of land, naval and air force readiness, and operational level training in Russia’s Far East.^{17,18} Furthermore, a new system of integrated movement control over troops was tested, along with readiness inspections during combat.¹⁹ The scenarios were generic in nature: combined multinational elements joined forces against international terrorism and the spread of radical Islam.²⁰ It was also stated that

multiple participants were trained with different objectives within the same exercise; units from the Central Military District and Northern Fleet forces fought against units from the Eastern Military District and Pacific Fleet forces.²¹

DETAILS COMPARED

Both *Vostok 2018* and the previous exercise in the *Vostok* series, *Vostok 2014*, tested strategic deployment in continental and Arctic conditions. Such deployments were executed during separate²² (but interrelated) exercises before²³ and during the official exercise, in various locations.^{24,25} Moving units back to their stationing locations after the exercises was also part of the training, and the 2018 redeployment was massive. Whereas in 2014 tactical units were relocated within the boundaries of one Joint Strategic Command (over a distance of up to 1,000-2,000 kilometres), during *Vostok 2018* the redeployment became a strategic one. Units were moved over distances of 5,000-7,000 kilometres.²⁶ Aircraft relocated to distant airfields,²⁷ and hundreds of military trains (around 250 trains per day) carried entire tactical units across the country.²⁸

Operational command HQs relocated from one Joint Strategic Command to another. Whereas *Vostok 2014* involved only land and air elements (airfields) in the Arctic, *Vostok 2018* had Arctic land and air components reinforced with a naval component and used the Northern Sea Route to transport the units. The Northern Fleet shipped and landed



Arctic infantry units on Chukotka's shores.²⁹ Immediately after 'hitting the ground,' soldiers performed several hundred kilometre long combat raids through severe terrain,³⁰ while the ships joined the Pacific Fleet in sea battle exercises and other activities in the Sea of Okhotsk.

Before official exercises, the highest-ranking military officials (CGS Gerasimov,³¹ deputy ministers³²), under the cover of inspections,³³ observed various activities that, despite having been announced as being part of *Vostok 2018*, were not demonstrated to wider audiences. Moreover, the number of troops exercising before the exercise (during snap inspections) was almost as large as the number of participants in the exercise.^{34,35}

Vostok 2018 officially took place on 11-17 September 2018, but before it started officially, on 20 August, snap inspections were conducted in the 'Centre' and 'East' Joint Strategic Commands, the Airborne Troops and the Strategic and Transport Aviation Commands.³⁶ The inspections lasted until 25 August and were followed later by a number of other military activities before the exercise. During these events, a wide range of military activities were exercised and checked.

A 'two-sided' training approach (unit against unit) was widely used at all levels during the exercises in 2014 and 2018, and these 'two-sided' battles grew in scale. In the 2014 exercise, only four operational commands from the 'East' Joint Strategic Command

confronted each other, while in 2018, the two-sided exercise became country-wide, with eight Operational Command Posts from the 'East', 'Centre' and 'North' Joint Strategic Command Posts involved, while strategic aviation, airborne and naval infantry, and transport aviation formed two separate military groupings with air, land and naval elements.³⁷

These two military formations, almost as large as the entire German or Polish armed forces, engaged in two-sided manoeuvres across huge territories.³⁸ Numerous military units, from land,³⁹ air,^{40,41} airborne⁴² and naval infantry,⁴³ navy,⁴⁴ air defence⁴⁵ and specialised forces (UAV,⁴⁶ engineers,⁴⁷ Nuclear Biological and Chemical (NBC) Defence Troops,⁴⁸ Military Police,⁴⁹ Special Operations Forces (SOF))⁵⁰, engaged in a wide variety of two-sided and separate activities including land,⁵¹ air,⁵² and navy exercises and tactical episodes,⁵³ live shooting (missiles,⁵⁴ tanks,⁵⁵ artillery,⁵⁶ multiple rocket launcher (MRL)⁵⁷ systems and grenade launchers),⁵⁸ river crossing,⁵⁹ etc.

Mobilisation was another task to be tested and checked during *Vostok 2018*. It was not reflected very prominently in the information environment, with only a few messages conveyed. In reality, it was a very important capability to be checked. To evaluate particular exercise focus areas, the General Staff formed three groups of controllers: two focused on command, control and communications (C3), and the third focused on mobilisation.⁶⁰ *Vostok 2018* tested



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elements of the Russian Federation’s new mobilisation (reserve) system. Along with local reserves and civilian infrastructure, *Vostok 2018* incorporated territorial defence units,⁶¹ federal agencies and civilian industry acting as a unified reserve. This exercise took place in different locations (Kamchatka,⁶² Belogoryevsk,⁶³ Khabarovsk,⁶⁴ etc.). In total, 21 territorial defence units of several thousand reservists⁶⁵ from 10 federal territories located in the Western and Southern Joint Strategic Commands⁶⁶ were formed. The lack of information in the media about this operation suggests that not all planned mobilisation tasks were achieved.

A large-scale military logistics system was activated⁶⁷ during *Vostok 2018*, when more than 80 different temporary storage facilities (set up for the duration of the exercise only) were established.⁶⁸ Railway, air and seaport activities and a new wartime financial system⁶⁹ were also tested. Teams from the defence industry repaired equipment ‘damaged in battle’ alongside military logisticians in the field during the exercise.⁷⁰

A number of new or experimental elements and concepts, at the operational and tactical levels, were tested and exercised in both of these *Vostok* exercises. They included the execution of an electronic warfare (EW) strike,⁷¹ operations to control and blockade designated areas using new EW systems,⁷² a unified automated C2 system at the tactical level, a massive air strike, new air-mobile assault tactics⁷³ and formations,⁷⁴ the unification of logistics support, tactics to repel massive UAV attacks with EW systems,⁷⁵ standard weapons, camouflage techniques (aerosol fumes)⁷⁶ and equipment (inflatable imitators),⁷⁷ new combat vehicles (e.g. ‘Terminator’ tank support vehicle),⁷⁸ etc.

PRIMARY MESSAGING

As seen above, *Vostok 2018* aimed to demonstrate the enhanced ‘operational art’, performance and capabilities of the Russian military as one of the segments of power that supports Russia’s geopolitical, military and political objectives. Looking at the military and political objectives depicted in narratives and messages from Russian sources on *Vostok 2018*, this exercise tested



combat capability, combat readiness and fighting power of the armed forces when responding to a high-technology adversary during a potential future large-scale conflict. Looking at the geopolitical objectives depicted in the messaging of this exercise, *Vostok 2018* had to prove that Moscow could consolidate military cooperation with China and Mongolia and develop a comprehensive strategic military partnership with them. All these communications are of strategic importance to Moscow's revisionist aims against the West and the post-Cold War liberal order.

Analysing the military and political objectives of Russia's messages through Russian media sources, it is clear that Russia put deliberate emphasis on the improved warfare capabilities of strategic-level operations and security capacity building.

In all strategic messages, Russia emphasised improved command and control, as well as the complexity of exercises, the ability of military forces to handle multiple simultaneous operations and the capacity to quickly respond to potential technologically advanced adversary actions during a multi-directional theatre-level conflict. Such messaging had to achieve a strategic effect amongst domestic and foreign audiences and was designed to show that Russia is a military power capable of carrying out assigned missions successfully in a complex security environment during a transition from peace to war. Through

showing improved coordinated efforts, successful exercising of C2 systems and the strategic readiness of forces, it is certain that Russia achieved the desired effect on its target audiences, demonstrating that Russia's military capabilities are evolving in both scope and scale, Russia is prepared for a war with any adversary and Russia's military-industrial complex is ready to operate in wartime mode.⁷⁹

Geopolitical messaging aimed at international audiences and at Russia's allies demonstrated the deepening of a strategic partnership, trust and military dialogue between Russia, Mongolia and China.⁸⁰ Its narratives during the exercise stressed that Russia is not isolated militarily or diplomatically during this period of on-going confrontation, sanctions and tensions with the West and that all three powers taking part in the exercise enhances stability and security in the Asia-Pacific region.⁸¹

Russia emphasised its ability to respond to regional security threats in cooperation with China and Mongolia and presented the image of a strong military force able to project power into Russia's Far East.⁸² The messages were defensive in nature, highlighting that the combined Sino-Russian military potential is larger than that of the United States and its allies and that Russia and China together will be able to oppose the hegemony of the USA.⁸³ Moreover, Russia stressed the instabilities and shifts in the international order and the advantages of deepening military partnerships between itself and rising powers



like China, which is a strategic competitor to the USA and NATO.⁸⁴ Such geopolitical messages were aimed at achieving different strategic effects amongst target audiences and were designed to demonstrate Russia's ability to maintain and deepen relations with Russia's like-minded counterparts, while securing its geostrategic interests and areas of priority in its respective geopolitical backyards.

In messages to the local population, Russia used the integrated approach of appealing to emotions and patriotism while demonstrating mobility, mobilisation, strategic deployment and troop readiness to fight against any adversary, as well as the moral and psychological resilience of military personnel to respond to threats from the West.⁸⁵

Many reports from *Vostok 2018* emphasised the figure of approximately 300,000 troops involved in the exercise. Such a show of force was combined with images of military capabilities and a demonstration of military unity between Russian, Chinese and Mongolian forces.⁸⁶ These messages were designed to appeal to public sentiment and to the cognitive side of target audiences.⁸⁷

All of these messages are of value to the West and contain security implications for the European information environment and NATO.

ANALYSIS OF MESSAGING IN DETAIL

When we compare recent *Vostok* exercises and *Vostok 2010*, the earlier exercise had a concrete scenario that carried a strong message to China. In 2009, while describing the opponent in *Vostok 2010*, Lt-Gen Sergey Skokov, chief of the Russian Ground Forces Staff at the time, stated: 'If we talk about the east, then it could be a multi-million-man army with a traditional approach to conducting combat operations: straightforward, with large concentrations of personnel and firepower along individual operational directions.'⁸⁸ Only units subordinate to the Ministry of Defence took part in that exercise: approximately 20,000 military personnel, 5,000 pieces of various weapon systems, 75 aircraft and 40 ships. *Vostok 2010* included a defensive scenario with conventional forces and crucial roles devoted to a nuclear element. It had almost no offensive elements by design, as the traditionally 'offensively orientated' Airborne Troops did not participate. It seems that the message was well understood and, immediately following the exercise, on 9 November 2010, 'an agreement on developing military cooperation between China and the Russian Federation' was signed.

The scenario for *Vostok 2018* (and *Vostok 2014* before it) was generic in nature and, from a communications and messaging point of view, targeted mostly Western audiences. The exercises were designed to test overall combat readiness of forces and the ability of



various levels of command (HQs) to establish effective command and control (C2) over subordinate units. This type of scenario (the opponent being fictional 'terrorists') allowed Russia to test the progress of its military reform and achievements in establishing

effective C2, and exercise new functional elements and concepts applicable in all theatres. Testing was done in the form of strategic manoeuvres at military district (*Vostok 2014*) and nationwide (*Vostok 2018*) levels.

Strategic messaging can be seen in the following officially broadcast messages about *Vostok 2018*:

1

Increased quantity of troops. The number of participants grew from approximately 155,000 soldiers, 8,000 pieces of weaponry, 632 aircraft and 84 ships in 2014 to approximately 297,000 soldiers, 36,000 pieces of weaponry, 1,000 aircraft and 80 ships in 2018.

2

Increased quality of the Russian military. Officials asserted that all high-level commanders and HQs, including those participating in the exercise, now possessed real combat experience which they had gained in Syria.⁸⁹

3

The scope of the exercise. Along with Ministry of Defence forces, units from other Russian 'force' agencies (Interior Ministry, Emergencies Ministry, newly created National Guard, Federal Security Service (FSB) and other) were also involved.

4

Vostok 2018 as an international exercise, with Mongolian and Chinese troops also participating. China's participation was comparatively sizable and consisted of air (6 aircraft and 24 helicopters) and land (around 3,000 troops) contingents. To emphasise the message of closer ties between Russia and China, a parade of troops attended by high level Russian and Chinese officials was organised after the exercise.



Such messages were announced at high-level engagements by both the national and Ministry of Defence leadership in many various forums and specially arranged events like briefings for foreign Defence Attachés, observation visits and distinguished visitor days. Afterwards, major national broadcast and other media institutions repeated these messages. During *Vostok 2018*, among the announcements mentioned above, statements that the exercise was the 'largest since the time of the Soviet Union'⁹⁰ were promoted particularly actively.⁹¹

To support the message that it was the largest exercise since the Soviet era and to

strengthen its effect, as a final event of the exercise, a large show of force involving some 28,500 troops, 7,600 tanks, APCs, IFVs and artillery pieces, and 300 aircraft including helicopters was organised at the Tsugol training site. Battlefield scenes including a massive ground, artillery and air barrage, a rapid ground-forces assault with an impressive airborne assault landing⁹² as well as other for-show elements⁹³ were designed to have an emotional impact on invited guests, Defence Attachés and journalists. To ensure the maximum emotional impact, drills and preparations for the show began well before it took place.⁹⁴

Strategic messaging for the external (mostly Western) and internal audiences carried similar sentiment, namely:

- Russia's military is successful, as the country possesses the necessary capabilities⁹⁵ and is able to run nationwide military activities.
- Russia is not aggressive.⁹⁶ A generic scenario to train the armed forces was used for these strategic exercises.⁹⁷
- Russia is becoming an important international player and has been able to call China a military ally.
- Russia is increasing its military ability to respond to the USA.⁹⁸

Vostok 2018 analysis shows that Russia also communicated its messages through less visible or less promoted events. In such cases, messages that were less visible to the general population came primarily from lower-level officials, serving and retired military professionals or experts



among the national and regional media. These messages contained specific information leading analysts to conclude that:

Russia is in the process of building a new, network-centric C2 system. While Vostok 2014 tested a new three-stage military C2 system consisting of Joint Strategic Commands (JSC), Operational Commands (OC) and tactical units, Vostok 2018 expanded it to C3 at state level by adding the National Defence Management Centre (NDMC)⁹⁹ and other state agencies.¹⁰⁰ Military signal¹⁰¹ and C2 units (brigades)¹⁰² established a unified communication network covering more than 9.8 million square kilometres¹⁰³ and consisting of more than 150 operational¹⁰⁴ and tactical level mobile command posts located in different regions and equipped with automated data and command systems.¹⁰⁵ This C2 system was monitored by three independent control groups created by the General Staff for the exercise, two of which were devoted to evaluating the efficiency of this system in real time.¹⁰⁶

CONCLUSION

Vostok 2018 was actively communicated by all levels of Russian political and military officials and the expert community, who delivered selected messages to various audiences both internally and externally. A number of strategic messages were specifically designed and delivered in various forms to target audiences before, during and after the exercise. This proves that communication activities were carefully

planned and implemented both in and around the exercise in order to achieve certain goals. Under the umbrella of high-level 'loud and proud' announcements targeting mass audiences outside and inside the Russian Federation, there were also a number of other, lower-profile messages delivered by various means and aimed at various target groups in order to shape their understanding of Russian military capabilities and the intentions to use them. Communication activities supported Russia's goal to demonstrate its military capabilities and to communicate that its military reforms are having the expected effect - Russia remains a formidable military superpower.



CASE STUDY 2

THE MAJOR ANNUAL STRATEGIC EXERCISE *TSENTR 2019*

OVERVIEW OF THE EXERCISE

Tsentr 2019 was a strategic annual multi-domain exercise simulating high-intensity and multi-directional theatre-level conflict with a technologically capable adversary. The exercise represented all-domain warfare and aimed to test the readiness of Russian forces and strengthen their combat potential, mobility and psychological agility. Furthermore, the exercise aimed to improve the interoperability of the Russian military's command and control (C2) units and those of its allied nations, test command, control and communications (C3), and check mobility and efficiency of troop movement across long distances.

It was carried out in the Central Military District and in the Arctic in mid-September 2019. The main actions of the command and staff exercise took place at six combined training grounds located in the Orenburg, Chelyabinsk, Kurgan, Astrakhan and Kemerovo Regions, Dagestan and Altai Territory, as well as in the Caspian Sea and the Arctic islands along the Northern Sea Route (Figure 3).¹⁰⁷ This capstone event in the Russian annual training cycle continued

its focus on operational control, combat readiness, strategic deployment, civil defence and national mobilisation.¹⁰⁸

Tsentr 2019 consisted of two phases: the preparatory phase began at the end of June, intended to check the combat readiness of forces in the Central Military District, and the main phase took place on 16-21 September.

The key objectives of *Tsentr 2019* as declared by the Russian Ministry of Defence were to practice counter-terrorism operations in Central Asia, to enhance combat readiness of units and formations of the Russian forces, and as noted above to improve the interoperability of the military C2 units of the Russian armed forces and its allied States.¹⁰⁹ The scenario, as declared by the Russian Ministry of Defence, spoke of the fight against international terrorism and extremism to prevent potential aggression and terrorist threats in Central Asia.¹¹⁰ This scenario included antiterrorism training, joint military operations and strengthening combat effectiveness of forces of the allied states against terrorism.¹¹¹ The manoeuvres consisted of land-based operations as well as integrated sea-land operations.





Figure 3. Theatre of operations; Tsentr 2019¹¹²

The following States participated in the exercises: Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan, India, China and Pakistan.^{113 114} Of these, China provided the largest number of troops (1,600), followed by India and other Russian counterparts.

Tsentr 2019 involved some 128,000 servicemen, more than 20,000 pieces of equipment and weapons, some 600 aircraft, 250 tanks, 450 APCs and IFVs, up to 200 artillery and MRL systems, 15 ships and auxiliary vessels, and various other auxiliary equipment.¹¹⁵ A number of conventional and nuclear or nuclear-capable weapons systems, such as Iskander-M, S-400 air defence systems and the Udaloy-class destroyer *Vitse-Admiral Kulakov*, took part in the exercise.^{116 117}

A parallel exercise to *Tsentr 2019* - *Shchit Soyuz* (Union Shield) - was conducted in the Western Military District on 13-19 September and combined the forces of Belarus and Russia to - as declared by the Russian Ministry of Defence - exercise combat preparedness against illegal armed groups, rapid redeployment and the ability of C2 agencies to ensure military security and defend the Union State.¹¹⁸ The *Tsentr 2019* and *Shchit Soyuz 2019* exercises also practised communication and intelligence activities and demonstrated successful use of unmanned aerial vehicles in both exercises.¹¹⁹ *Shchit Soyuz 2019* assembled over 12,000 servicemen and 950 pieces of military equipment.¹²⁰

TSENTR 2019 VS OSCE

The *Tsentr 2019* exercise was announced to be bigger in the number of participants than the previous, *Tsentr 2015* exercise, but smaller than the previous year's *Vostok 2018*. As in the previous *Tsentr* exercise, Russia announced that part of *Tsentr 2019* would take place in the European area of Russia (Totskiy or Totskoye training ground), with 12,950 troops participating there.¹²¹

The number declared by Russia, 12,950, was just 50 soldiers below the threshold established by the Vienna Document of 2011 for the mandatory arrangement of observation by OSCE states to be made by the country running the exercise.¹²² The concurrent holding of the large Russian-Belarusian *Shchit Soyuza 2019* exercise, with, once again, the number of soldiers just 50 below the benchmark required for mandatory observation, was another difference from the *Tsentr 2015* exercise. Thus, for the first time, Russia has declared two large-scale exercises both of which almost touched the ceiling of the Vienna Document for mandatory observation and ran simultaneously, yet avoided foreign verification on the ground. Such tweaking of the participant numbers and manipulation of the Vienna Document was a way for Russia demonstratively and officially to claim transparency, but in reality to deny other states the opportunity to verify its statements and activities.

At the beginning, it was announced that *Tsentr 2019* would be geographically larger

than *Tsentr 2015*. It was also announced by the media that for the first time, activities would take place in the Arctic as part of *Tsentr 2019*. During *Tsentr 2015*, for example, the Northern Fleet practised missile launches and sea navigation in the Arctic, but it was not officially mentioned as being part of the exercise.

This changed in 2019. In March 2019, Russia announced its decision to take control of the Northern Sea Route and tasked its Ministry of Defence to develop rules for other countries to navigate the Route.¹²³ This was exactly the opposite of the position taken by the US and other nations, which suggested applying international sea navigation rules to the Route. To challenge this, Russia applied a range of communication activities. Far in advance of *Tsentr 2019*, the Russian newspaper 'Izvestia' advertised plans for the Russian Special Operations Forces and paratroopers to perform an airborne landing¹²⁴ and for Arctic infantry¹²⁵ (two Arctic brigades)¹²⁶ to land in the islands located along the Northern Sea Route as part of *Tsentr 2019*. The task was for the troops to train and reinforce the Russian border guard and air defence posts located in the islands scattered between Novaya Zemlya and the Novosibirsk Islands.

Interestingly, no information about paratroopers or Arctic brigade personnel landing in the Arctic during *Tsentr 2019* was released. Even more interesting is that although some activities involving Northern Fleet exercises at sea and naval infantry landing





Naval infantry landing on Bolshevik island - information from Russian military TV 'Zvezda' ('Sluzhu Rossii' ('I Serve Russia') programme)

on Bolshevik Island in Severnaya Zemlya took place, it was announced that none of these activities were related to *Tsentr 2019*.¹²⁷ It remains unclear whether the 'Izvestia' article was trumpeting false capabilities or landing indeed took place but, for unknown reasons, was not advertised. While the Arctic portion of *Tsentr 2019* still has to be confirmed, the expansion of the exercise outside Russian borders was obvious.

Most of the Commonwealth Security Treaty Organisation (CSTO) states (Kazakhstan, Kirgizstan, Tajikistan and Uzbekistan) were invited and joined the exercise, offering the use of their national training grounds for training purposes. This was also the first time that, while running their own strategic exercise, Russian troops were also participating in manoeuvres in foreign territories.¹²⁸ This could be understood as a new Russian message to foreign audiences designed to present the CSTO as a growing and strengthening military alliance able to withstand NATO. Such messaging also served to reinforce the claim that *Tsentr 2019* was an international event.

During *Vostok 2018*, Russia strived to convince onlookers that the exercise was truly international, although in reality the exercise had independent participation only by Mongolian and Chinese units at the Tsugol training ground and in the final parade. It was different during *Tsentr 2019*, in which most CSTO states and units from India, Pakistan and China were included and trained alongside Russian units. To emphasise this, for the first time, an official emblem for the *Tsentr 2019* exercise was designed with the flags of the participating countries, similar to common NATO exercise emblems.

Indeed, the emphasis on the internationality of the exercise was striking. Broadcasts about bilateral Russian-Tajik or Russian-Kazakh troops fighting shoulder to shoulder against terrorists at local training grounds, an Iskander-M missile system performing an 1,800 km march to Kazakhstan's Shari-Shagan testing range and striking the enemy from there, Chinese and Russian aircraft flying in joint formation from the same airfields, mine sweepers from Kazakhstan exercising in cooperation with Russia's

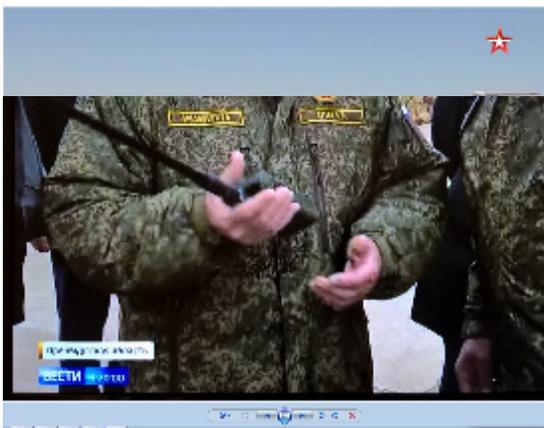


Official Vostok 2018 collage, Tsentr 2019 emblem



Official emblems of NATO-partner exercises

Caspian Flotilla¹²⁹ in the Caspian and even the demonstration to Putin of tactical radios that were issued to all participating foreign troops to aid tactical interoperability - all these messages emphasised one narrative - that Russia has trusting allies who are willing and able to work together.



Putin holds an 'Azart' tactical radio in Donguz¹³¹

Though Belarus, one of the most reliable and trusted Russian military allies, was not invited to participate in *Tsentr 2019*, Russia, as noted above, instead declared officially that *Shchit Soyuz 2019* would take place simultaneously in the Western Military District as a separate bilateral exercise. Moreover, based on messages provided by

the media combined with later disclosures, it can be stated with confidence that *Shchit Soyuz 2019* and *Tsentr 2019* were linked or even formed part of the same framework of exercise activities.

PRIMARY MESSAGING

Tsentr 2019 repeated the same messages as those in the previous year's exercise, *Vostok 2018*, with emphasis on impressive troop numbers, including participants from other Russian agencies; increased professionalism of the armed forces and federal bodies; the scale and size of the activities; and, as noted above, the internationalisation of the exercise. However, there were differences in the new narratives associated with *Tsentr 2019*, which could be an attempt by Russia to find new roles for its exercises as part of Russia's messaging operations.

Tsentr 2019 presupposed defence against the West but pictured a unified fight by the Russian forces and its allies against international terrorism and the spread of radical Islam, as well as the prevention of aggression by these forces in Central Asia.¹³² *Tsentr 2019* used a hybrid warfare scenario



in which irregular formations of a pseudo-Islamist state to the southwest of Russia launched an incursion against Russia that transformed into 'a classic military invasion with the use of armoured vehicles, aviation, cruise and ballistic missiles' and other military equipment including UAVs.¹³³

By using such a scenario in its annual strategic military exercise, Russia was pursuing some of its strategic and operational objectives and building a common operational picture among exercise participants. The scenario tested the abilities of Russia's and the other participants' national forces by practising efficient and effective counter-terrorism operations and defensive actions in combined arms warfare. While practising an ability to respond to irregular formations and tactics, Russia declared that this scenario was 'not directed against other countries and "the warring party" refers to conditional states that contribute to the spread of terrorism'.¹³⁴

With this rhetoric directed at its adversaries and partners, Russia pleaded non-aggression, while demonstrating its ability to build warfare capacity and to strengthen its combat potential with its allies and partners. Russia also illustrated its capacity to incorporate lessons learnt from the tactics of the Islamic State group (IS) in Syria and Iraq and the Taliban's tactics in Afghanistan into an educational strategic military exercise to train its commanders and staff officers for mobilisation and operations in a contested security environment.¹³⁵

Another important message to international audiences from *Tsentr 2019* is Russia's power projection abilities, which allow it to operate on two fronts, simultaneously coordinate two operations and extend operational mobility in two strategic theatre operations - the Central Military District during *Tsentr 2019* and the Western Military District during *Shchit Soyuza 2019* - which also serves to demonstrate Russia's on-going military modernisation.

In its military messages addressed to adversaries and international audiences, Russia also emphasised an improved use of communication systems and focus on information security during joint operations with its allies.¹³⁶ As stated by the Russian Ministry of Defence, a 'layered intelligence system was created as part of the exercise ... which allows continuous aerial reconnaissance to identify and guarantee the destruction of forces and assets of a conditional enemy'.¹³⁷ The sophisticated modernisation of command, control, communications and intelligence systems for conducting theatre-level operations reflects Russia's preparedness to employ high-spectrum military means against an opponent in a conflict. It also makes clear that Russia is testing its command, control and communications capabilities and information confrontation tactics, along with the use of electronic warfare components. Therefore, the West should turn its attention to this segment.



” *Tsentr 2019* presupposed defence against the West but pictured a unified fight by the Russian forces and its allies against international terrorism and the spread of radical Islam, as well as the prevention of aggression by these forces in Central Asia

HIDDEN AGENDA

The Russian Ministry of Defence continually delivered complicated and misleading messages regarding *Tsentr 2019*'s goals. On 12 September, Deputy Defence Minister Colonel General Aleksandr Fomin hosted foreign Defence Attachés for a briefing and announced that the purpose of the exercise was to ‘demonstrate readiness of the armed forces of the Russian Federation and other countries from the Central Asian region to defend national interests and enhance the level of cooperation, while performing joint actions in defending national interests and providing peace and security to the region’.¹³⁸ On 16 September, an official Ministry of Defence statement named the main purposes of the exercise as: ‘to check the level of readiness of the Central Military District’s organs to perform command and control at different levels, check the ability of commanders to command and control unified military groupings and train commanders and HQs to command and control troops’.¹³⁹ On the same day (16 September) Interfax-AVN news agency quoted the Minister of Defence as saying that ‘troops and command and control organs from the Central Military

District and parts of the Southern and Eastern Military Districts plus transport and strategic aviation and airborne commands’ C2 organs and troops will be involved as well’.¹⁴⁰

Such selective and confusing messages provided by different officials to different audiences might suggest that Deputy Minister Fomin’s announcement of ‘international efforts and joint activities for troops at a CSTO training ground’ was nothing more than a ploy to draw the focus away from other training exercises taking place simultaneously.

At the same time, *Tsentr 2019* presented something absolutely - and literally - fresh. While *Vostok 2018* had a final parade attended by state leaders, the crowning glory of *Tsentr 2019* was an unexpected pivot by Russian Defence Minister Gen Shoygu. Instead of participating in the parade, he treated Putin, Kirgiz President Sooronbay Zheenbekov and other distinguished visitors to a surprise of freshly baked soldier’s bread and presented a mobile military bakery with a team of military cooks and a group of youngsters from the paramilitary youth



organisation 'Youth Army'. The cooks and youngsters - and most probably ordinary Russians - were highly likely to enjoy and take pride in the common touch on display by the President and the Minister of Defence of the Russian Federation.



Putin visiting a field kitchen and meeting Youth Army members in Donguz¹⁴¹

Deputy Defence Minister Gen Fomin's description of the opponent in *Tsentr 2019* to the Defence Attachés may have been another strategic message. All previous strategic exercises claimed that Russian troops were fighting small, illegal and later sizable, non-state terrorist formations. In Gen Fomin's briefing, he named the opponent as a terrorist state located to the southwest of Russia and possessing a sizable modern military.¹⁴² The message was clear - Russia 'would fight' with a state. To amplify this message, foreign observers were invited to the Donguz training

ground, where a 'sand box' briefing aired a scenario in which Russia and its allies had to use all their power to repel an invasion by terrorist state forces. The briefing was followed by a massive air and land assault demonstration, complete with an artillery barrage and air strikes.



Massive flame-thrower barrage in Donguz¹⁴³



Defence Attachés at 'sand box' briefing, Donguz¹⁴⁴

A more in-depth look at the messages broadcast by the media reinforces the suspicion that the official coverage of *Tsentr 2019* was designed to hide something more important.

The massive artillery and air bombardment followed by airborne landings and a ground attack witnessed by journalists and Defence



Attachés was likely meant to provoke an emotional impact. Indeed, to land an entire paratrooper regiment with combat vehicles, fill the sky with helicopters, have numerous artillery, flame throwers and MRL batteries fire simultaneously, and follow this up with a land attack including tanks, infantry fighting vehicles and close air support is very impressive and would likely have just such an effect, with resultant promotion of the message by the individuals suitably impressed. The same strategy of inviting foreign military Attachés to exercises and impressing them with hundreds of aircraft and thousands of paratroopers was used by Stalin before the Second World War and remains part of Russia's demonstrations today.

During *Tsentr 2019*, a number of broadcast messages aimed to prove the Russian troops' ability to move quickly, efficiently and over long distances, as noted above. Official military media told the stories of dozens of aircraft relocating to 'operative airfields' within hours, battalion combat teams belonging to remote military units moving to Tajikistan,¹⁴⁵ Kazakhstan¹⁴⁶ or Kirgizstan,¹⁴⁷ Iskander-M missile systems covering distances of more than 1,000 kilometres to perform missile launches,¹⁴⁸ ¹⁴⁹ and large calibre artillery,¹⁵⁰ engineers and other units performing combined railway and lone marches. Of course, all of these stories were closely observed and examined by military experts - one of the primary target audiences - in Russia and abroad.



Artillery barrage and air assault in Donguz on Russian TV

Air and missile defence training and other numerous military activities performed by Special Operations Forces (SOF), infantry, tanks, engineers and logisticians in various locales officially named and not named as *Tsentr 2019* training grounds carried messages and were a warning to adversaries. Russian air defence units armed with S-300, S-400, Pantsir-S and other systems were able to engage 30-



80 targets simultaneously and successfully repel a massive enemy cruise missile and air attack at the Ashuluk air defence training ground. Infantry practised joint offensive and defensive operations with electronic warfare, NBC defence, UAV and other combat support elements, while mobile command posts (CPs) commanded and controlled all activities.



RIA Novosti tweeted video from Ashuluk¹⁵¹



Lenta.ru: Anti-air defence in Ashuluk¹⁵²

At the same time, more 'traditional' military forces and activities were also involved in *Tsentr 2019*. They were part of the exercise but not as widely advertised as the rest of the activities. For example, a mobilisation and reserve system was checked.

Exercises in Novosibirsk included a medical transport company (23 buses) formed by the mobilised municipal public transport company¹⁵³ and a subunit of reservists at a training ground near Chelyabinsk practising guarding and defending military sites.¹⁵⁴ A large-scale field bank system was also activated in the regions of Smolensk, Sverdlovsk, Penza, Samara, Novosibirsk and Orenburg.¹⁵⁵ Given the low profile accorded to these activities, however, the mobilisation and reserve system presumably did not perform as expected.

Undoubtedly, all the activities in the field were controlled by higher echelon command posts and observed in the federal National Defence Management Centre (NDMC) and regionally. To make this happen, just before *Tsentr 2019*, the Ministry of Defence tested its military internet and established a mobile network able to exchange information between various CPs at a speed of 300 Mbit/second.¹⁵⁶

The Ministry of Defence public information department was the primary source used to spread messages about these activities. These messages were then usually immediately repeated by national and local sources.¹⁵⁷

Despite the abundance of facts and messages, *Tsentr 2019* left a number of questions unanswered. It can be argued that this exercise was different compared to previous examples. Even without a detailed analysis, a quick scan of the communications about the exercise

” Oddly, the messaging was in places transparent, yet elsewhere information lacked entirely.

indicates that the scale of the activities as presented in the media could not justify the participation of 130,000 personnel as advertised. This brings the question: where were the other troops?

Oddly, the messaging was in places transparent, yet elsewhere information lacked entirely. An incident during which two airborne fighting vehicles smashed into each other during a parachuting exercise was announced, but virtually nothing was said about the National Guard, FSB security service or federal agencies participating in the exercise. During *Tsentr 2019*, a number of simultaneous military activities were reported but were not attributed to the exercise. Military units in the Western and Southern Military Districts also conducted very intensive training in the period during *Tsentr 2019*. One question is whether the snap checks and special preparation exercises completed before the exercise were repeated during the exercise. It is also rumoured in the expert and diplomatic communities that Russia denied participation in observation flights under the Open Skies treaty to OSCE states during the exercise and that the

inspections under the Vienna Document were carried out - quote/unquote - not according to the letter and spirit of the Document.

All of the above reinforces the suspicion that *Tsentr 2019* was deliberately promoted with the intention of concealing other activities.

Analysis of what was happening in Russia and its military just before and during the exercise (including snap checks, special exercises and other, so-called 'regular planned activities' in the troops, which were not officially related to the exercise itself, as well as equipment deliveries and so on) might also reveal another example of Russian practices.

One of the most important guarantees of the effectiveness of a military force is a functional command and control (C2) mechanism. Russia is establishing its network-centric C2 system and transforming it into a system of command, control, communications, computers plus information and reconnaissance (C4IR). This system has been repeatedly tested during strategic and other exercises in recent years.



Before *Tsentr 2019*, it was announced that one of the main purposes of the exercise would be to test the system and to train the commanders and HQs in its use.

So, what did the C4IR network look like in the field? To understand this, it is essential to know how Russia understands a well-functioning C4IR. According to the Russian military, good C4IR depends on the synchronised and effective performance of three main elements: tools, operators and troops.

The 'tools' means the availability of a complex of communication (radio, wire, etc.) and decision-making means (automated data and automated command systems [ADS and ACS respectively]), the 'operators' are properly trained personnel and functional headquarters, and the 'troops' are units that carry out the orders or standard operating procedures (SOPs).

During the *Zapad 2017* exercise, the C4IR and SOPs were tested in HQs at the tactical level¹⁵⁸ in the field with the use of new radios ('Azart', etc.) and automated data and command systems (Andromeda-D¹⁵⁹ etc.). Since then, equipment deliveries at the operational level in all Joint Strategic Commands¹⁶⁰ have intensified.¹⁶¹ The 'Akatsiya-M' ACS¹⁶² for use by Operational Commands,¹⁶³ other ACS equipment for use by navy,¹⁶⁴ land¹⁶⁵ and air¹⁶⁶ elements,¹⁶⁷ means of secure military internet communication" (MKS-P and MK ZVKS radio; R-438-N and R-441-OV satellite), C2 equipment, and fixed and mobile command

post modules (APE-3, APE-5) have been delivered and continue to be delivered on a large scale. Given that the proportion of new communication equipment in the signal units at the tactical and operational levels is close to 70-80 per cent and the delivery of large quantities of mobile command post modules has already taken place (more than 100), Russia may already have enough equipment to allow for 20 formations to operate as brigade and regiment combat teams (with only 5-6 required per brigade combat team or BCT).

Under the cover of 'field specialist camps' and other exercises, military signal units established functional communication nets in advance of *Tsentr 2019*. This took place at the 'Centre', 'West' including Kaliningrad, 'South' and 'East' joint strategic command posts. All information from these posts was being forwarded to the NDMC in real time. The 'tools' were ready.

'The operators' were also ready. Headquarters and command posts from the lowest levels to the NDMC, regional subsidiaries at the strategic level and personnel (commanders and officers) were all present and correct. The best way to check the readiness of commanders and headquarters to command and control their units and of troops to be commanded and controlled is through the use of two-sided or bilateral exercises in the field. Such exercises were launched. Before, during and after *Tsentr 2019*, bilateral exercises at army, brigade and regiment levels took place in: Joint Strategic Command 'South': 49th



” Tsentr 2019 was deliberately promoted with the intention of concealing other activities.

and 58th Armies, Joint Strategic Command ‘West’: 1st Tank Army, 76th Airborne Division,¹⁶⁸ 20th Army¹⁶⁹ and units in Voronezh, Bryansk and Belgorod¹⁷⁰ plus the 11th Army Corp in Kaliningrad,¹⁷¹ as well as the Caucasus¹⁷² and south Russia¹⁷³ (six regions).¹⁷⁴

Meanwhile, during the Russian-Belarusian *Shchit Soyuz* 2019 exercise, the Russian troops were connected to the Russian C4IR network. The Belarusians were likely to have also been connected to this network, although no official information about this was published in the media. This is supported by the fact that immediately before *Shchit Soyuz* 2019, a delegation from the main communications directorate of the Russian General Staff met colleagues from the Belarusian General Staff to discuss how to improve Russian-Belarusian joint warfare capabilities.¹⁷⁵ In further indications, the 86th Belarusian Signal Brigade¹⁷⁶ participated in the exercise and, also immediately before the exercise, Belarusian officers (operators) were introduced to Russian standing operating procedures in Russia.¹⁷⁷ These indications support the conclusion that Belarusian armed forces were fully integrated into Russia’s C4IR.

There is another indication that Russia’s apparent transparency in communications about the exercise was intentionally misleading. What is referred to by the Russian military as the Reconnaissance-Strike Frame (RSF) is a new warfare concept that has emerged from the ‘Syrian experience’. The essence of the RSF concept is that an identified target is engaged by any available means using information (coordinates) received from any available sensor/asset. To implement the RSF concept, C4IR needs to function in real time and all weapons and sensors need to be connected. Most of the units participating in the exercise employed the RSF concept in their training.^{178,179,180,181,182} With an enabled C4IR network, the Russian forces could practise synchronised RSF use with ease in cooperation with other participants. If no outside observer is present during the exercise, it does not look like a coordinated venture as the focus is shifted elsewhere, where it may be more useful to the organisers. The possibility of observation (Open Skies flights and Vienna Document inspections) to find out whether this is so has been denied, however, as observation activity was allowed only during *Tsentr 2019*.



CONCLUSION

In the summer of 2019, Europe saw especially intensive training by Russian troops throughout Russia. Before and during the *Tsentr 2019* exercise, military units in the field practised real actions: offence, defence, manoeuvre, etc., all while being directed by staffs and commanders working from mobile command posts. Information was received and exchanged via UAV, radar, individual reconnaissance devices ('Strelets'), Special Operations Forces (SOF) groups and other reconnaissance sources. Tanks and artillery were engaging targets in RSF mode over shooting ranges of tens and hundreds of kilometres away. The troops participating in *Tsentr 2019* were most probably also integrated in the C4IR network. For this reason, it can be concluded that real network-centric battle exercises were taking place simultaneously in various locations with operational command posts and the NDMC receiving all information in real time. *Tsentr 2019* was used as a cover story to distract attention from (or at least to obfuscate) the real nature of the action that took place.



RUSSIA'S GROM NUCLEAR EXERCISE: COMMUNICATIONS, CAPABILITIES AND IMPLICATIONS

In October 2019, Russia conducted a sequence of nuclear drills codenamed *Grom* (Thunder). This was Russia's largest ever officially known full-spectrum nuclear strike exercise. As such, it conveyed a powerful message of nuclear deterrence - coupled with deliberate ambiguity.

Russia's unprecedented openness about this nuclear exercise, a topic that is normally kept in deep secrecy, is in itself significant from the perspective of communication activities. It speaks volumes about the importance attached by Russia to nuclear weapons.

Moreover, official information about the exercise appeared to provide evidence of a disparity between Russia's formal nuclear doctrine, as publicised, and provisions that govern actual nuclear use - in effect a lower threshold than stated officially.

Furthermore, on a practical level, both the exercise itself and, more broadly, Russia's nuclear capabilities, both existing and new,¹⁸³ raise concerns about Russia's apparently greater acceptance of nuclear warfare and its operational use.

This report sets out to explore these and other relevant questions.¹⁸⁴

This report concludes that along with the general messages of nuclear deterrence and

nuclear intimidation which *Grom 2019* aimed to convey as an unprecedented, massive show of force, Russia likely used it to signal a range of specific nuclear messages, such as:

- that it is prepared to wage nuclear warfare in an escalatory pattern, up to and including all-out nuclear war,
- that, to that end, it has made preparations to integrate its strategic nuclear and non-strategic nuclear-capable weapons in operational planning, including through the development of new dual-capable designs which have been tested during *Grom 2019*,
- and that, through nuclear modernisation, it has gained the upper hand in the nuclear arena and is undaunted by the prospect of the collapse of international nuclear arms control.

Some of these messages may be bravado, yet others merit attention.



” The consensus in the analytical community is that *Grom 2019* was Russia’s largest ever officially known, full-spectrum, nuclear strike exercise.

While some of the nuclear arms put through their paces during *Grom 2019* have intercontinental reach, others, nuclear only or nuclear-capable, are shorter-range or intermediate-range. Thus, the message which this demonstration of combined strategic and sub-strategic nuclear potential aims to communicate is that if Russia chose to do so, it could hold both other continents and regions much closer to it, be it west, east, north or south, at risk. This combines the element of nuclear deterrence with that of in effect nuclear intimidation, especially since no NATO member nation other than the United States (at present in a far more limited way) has any equivalent to Russia’s shorter-range nuclear-capable systems. At the same time, the ambiguity of Russia’s official communications and exercise activities leaves room for the exercising of dual-capable systems to be interpreted as an element of conventional strategic deterrence, although scepticism prevails about Russia’s emphasis on conventional rather than nuclear arms.

Russia’s real intentions are unknown, but its combination of nuclear doctrine, posture and

capabilities dictates the need for enhanced strategic and sub-strategic deterrence to be explored by NATO’s members and partners.

FACTS, FIGURES & KEY COMMUNICATIONS

Russia holds annual “live-fire” strategic nuclear manoeuvres, including firings of strategic missiles. This usually takes place in October, in effect as the culmination of each year’s military training campaign. In the five years to 2019, with one exception (May 2014),¹⁸⁵ this was the case in 2015,¹⁸⁶ 2016,¹⁸⁷ 2017,¹⁸⁸ and 2018.¹⁸⁹ Normally, these nuclear drills followed that year’s major strategic exercises in Russia’s annual *Zapad/Vostok/Tsentr/Kavkaz* series but remained unnamed.

In 2019, apparently for the first time, these nuclear drills have been given an official name: *Grom*. They took place on 15–17 October.

Uncharacteristically, the level of official openness on a topic that is normally kept in deep secrecy was on this occasion unprecedented.





Russian military spokesman Gen Yevgeniy Ilyin at 14 October briefing for Defence Attachés (MoD)

To explore this, first, this section charts the Russian military's official communications about *Grom 2019*, including about the assets involved, the activities planned or carried out, and the scenario elements. It goes on to provide further analysis based on what is known about the capabilities involved. It also provides a wider context within which *Grom 2019* should be viewed - as part of other exercises with a strategic element.

Deployed assets

The consensus in the analytical community is that *Grom 2019* was Russia's largest ever

officially known, full-spectrum, nuclear strike exercise.

At a dedicated Ministry of Defence (MoD) briefing for Defence Attachés - in itself a mark of unprecedented publicity and apparent openness - in Moscow on 14 October, Major-General Yevgeniy Ilyin, acting head of the Main Directorate for International Military Cooperation at the MoD, detailed *Grom 2019*'s assets and activities plan:¹⁹⁰

- The launches of two 'RSM-50' missiles (a submarine-launched ballistic missile (SLBM) also known as the SS-N-18



Stingray) from the Sea of Okhotsk (in Russia's Far East) to the Chizha proving ground (Arkhangelsk, northwest Russia),

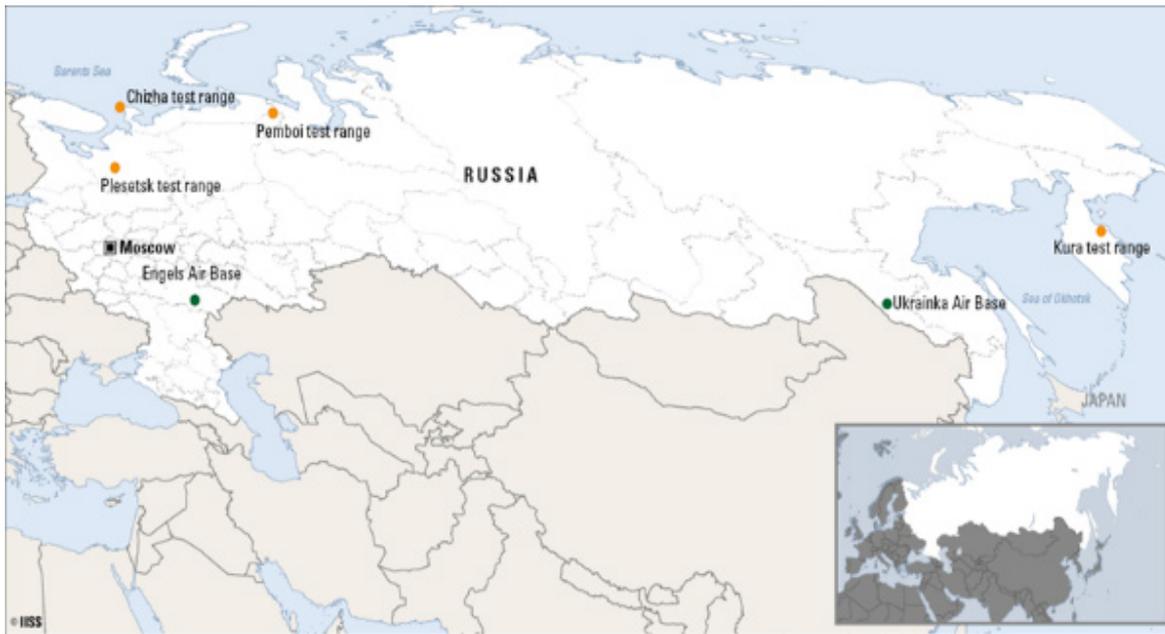
- The launch of a 'Sineva' SLBM (also known as the SS-N-23 Skiff) from the Barents Sea (northwest Russia) to the Kura proving ground (Kamchatka, Russia's Far East),
- The launch of an RS-24 'Yars' ICBM (ground-launched; also known as SS-27 Mod 2) from the Plesetsk launch site (Arkhangelsk) to Kura,
- The launches of air-launched cruise missiles and guided aircraft missiles at four proving grounds in the Western, Southern and Central Military Districts and the Northern Fleet,
- The launches of sea-launched cruise missiles at sea ranges in the Barents, Baltic, Black and Caspian Seas and the Sea of Okhotsk,
- In total, the launch of 16 cruise and ballistic missiles,
- The involvement of 213 Strategic Missile Forces ground launchers, five strategic bombers among the up to 105 aircraft at 10 airfields, five missile-armed nuclear-powered submarines and 15 surface ships; with 12,000 service personnel involved,

- More generally, the involvement of military units from the Strategic Missile Forces, long-range and military transport aviation commands, military units in the Western, Southern, Central and Eastern Military Districts, and Northern Fleet. "Operational groups will be formed in the central military command bodies to participate in the exercise," Ilyin said.

In a report on 17 October, the Russian MoD supplied further operational details about the activities that had taken place (as opposed to those planned - previewed on 14 October), as follows:¹⁹¹

- It noted that in addition to the SLBM launches, the Yars ICBM launched from Plesetsk was a ground-mobile unit. It could not escape the notice of a keen observer that in contrast with the 14 October briefing, which specifically spoke of two RSM-50 SLBM launches and a Sineva SLBM launch, the number of SLBM launches remained unspecified on this occasion: one RSM-50 misfired (dealt with separately in this report), hence this wording - to gloss over an operational embarrassment,
- What was specifically described as 'Iskander' cruise missiles were launched from the proving grounds in the Southern and Eastern Military Districts,¹⁹²
- Surface ships from the Northern Fleet and the Caspian Flotilla launched 'Kalibr' "high-precision" cruise missiles from





The relative positions of the main missile test sites including Chizha, Kura and Plesetsk (Map: IISS). The distance between Kura and Chizha is approximately 5,900 km.

the Barents and Caspian Seas against targets ashore,

- Tu-95MS strategic bombers fired air-launched cruise missiles at ground targets at the Pemboi proving ground in the Komi region (northern European Russia) as well as Kura,
- The National Defence Control Centre (NDCC) exercised command and control,
- Russian President Vladimir Putin was in charge at the NDCC as Supreme Commander-in-Chief on 17 October, the day on which the launches took place.

The headline of the 17 October report, posted on the Russian MoD's official website, was:

“Strategic deterrence forces drill as part of the *Grom 2019* strategic command-post exercise.”

In a clear case of strategic deterrence, both the 14 October briefing and the 17 October announcement emphasised the sheer scale and scope of *Grom 2019* as a show of force - a display of in particular nuclear power to showcase Russia's strategic-deterrent accomplishments and capabilities which its probable adversaries should sit up and take notice of.

Furthermore, the involvement of non-strategic nuclear-capable assets in a strategic deterrence exercise along with strategic nuclear forces was emphasised both in the briefing and in the announcement. Coupled



with the scale of the exercise and the level of publicity it was accorded, the implication is that *Grom 2019* could be read as an escalation of Russia's reliance on strategic - specifically nuclear - deterrence.

A comparison of the 14 October briefing and the 17 October announcement shows the measured release - not to say the withholding - of information about *Grom 2019*. It was not until 17 October, for example, that both the Iskander and the Kalibr were identified among the missiles launched during the exercise. At the same time, however, neither statement, which noted the use of dual-capable weapons such as the Iskander and the Kalibr, specifically singled them out as nuclear-capable. This could be the result of the Russian tradition of '*maskirovka*' or even be construed as the desire to keep the opponent off balance - a means to maintain uncertainty as an element of nuclear deterrence.

Nevertheless, the argument has also been made that this could imply greater emphasis on conventional deterrence, with reliance on such reportedly highly accurate weapons as the Iskander and the Kalibr, though scepticism prevails.

One example, which predates *Grom 2019*, talks about the "future division of labour between Russia's conventional and nuclear weapons" and thereby challenges the "Western assumption that Russian nuclear weapons continue to have an elevated role in Russian strategy".¹⁹³ Yet in the same example,

the conclusion is drawn that it is "not so much that nuclear weapons' role is diminishing, but rather that Russia's options are increasing". *Grom 2019* could be seen through the same prism.

Several factors militate against this assumption, from Russia's nuclear rhetoric and the Russian media's emphasis on *Grom 2019* as a nuclear drill, to practical matters such as numbers and costs. As one study about Russia's conventionally armed high-precision weapons puts it, these arms systems are likely to remain especially costly to produce, and Russia's production capacity is not unlimited.¹⁹⁴ To be truly effective, conventional strategic deterrence must rely on possession of a massive arsenal of conventional weapons that can fill these roles. Russia is unlikely to be in possession of this now and is unlikely to possess this soon.¹⁹⁵

In other words, where dual, conventional and nuclear capability is present, it is prudent to assume that the latter could and would be put to use.¹⁹⁶

In details supplied by the Russian media, the various naval assets involved were identified as:

- The Project 667BDR (Delta III) Pacific Fleet ballistic missile submarine K-44 Ryazan,
- The Project 667BDRM (Delta IV) Northern Fleet ballistic missile



submarine K-18 Karelia,

- The Project 885 (Yasen-class) Northern Fleet cruise missile submarine Severodvinsk,
- The Project 22350 large frigate Admiral Gorshkov in the Barents Sea,
- The Buyan-M missile corvette Grad Sviyazhsk in the Caspian,
- And the Gepard-class missile frigate Dagestan.

As can thus be seen from the communications above, certain details, in a manner characteristic of all Russian military communications, are never released officially in full, despite the Russian military's own claim of voluntary openness at the briefing.

Key communications - scenario elements

The Russian military's official communications contained several key elements in relation to the exercise scenario. In particular, these official communications emphasised what they described as the defensive nature of the exercise. This message was rigorously reinforced in Russian state-controlled or state-affiliated media, with emphasis on others' 'aggression'.

The Russian MoD said that the aim was to "test the deployment and use of strategic forces against a threat of aggression".¹⁹⁷ "The intent of the exercise does not provide

for countering a specific state or group of countries. The scenario of the exercise is that along the perimeter of the Russian Federation's borders, potential for conflict persists; the situation escalates; this results in a threat to the sovereignty and territorial integrity of the state," Ilyin told the briefing.

Coupled with the range of weapons employed during *Grom 2019*, up to and including strategic arms, Gen Ilyin's statement is clear evidence of an escalatory nature of Russia's planning.

In another key point, Defence Minister General of the Army Sergey Shoygu noted that the exercise involved "high-precision¹⁹⁸ nuclear weapons".¹⁹⁹ The aim of the exercise was to "assess the ability of the Russian Federation Armed Forces to accomplish missions in an armed conflict and nuclear war with the execution of all-sided use of high-precision nuclear weapons and weapons based on new physical principles,"²⁰⁰ Shoygu, seen in a TV report seated by Putin's side at the NDCC, said.

Of the several points of interest from the statements above explored in this report, Shoygu's line, which emphasised the forces' ability to engage in "nuclear war", moreover one with "all-sided" nuclear use, reconfirms the message that if necessary, Russia is ready to engage in all-out nuclear warfare.

Official and state media communications emphasised the defensive and deterrent focus of the exercise. The aim was "implementation of measures to deter a potential adversary"



” Certain details, in a manner characteristic of all Russian military communications, are never released officially in full, despite the Russian military’s own claim of voluntary openness at the briefing.

and to “prevent aggression,” according to Gen Ilyin. “*Grom 2019* exercise is purely defensive in nature,” he said. During *Grom 2019*, “missile trajectories were different, but the goal was the same - strategic containment,” the Russian Defence Ministry’s Zvezda TV said. “The reaction to possible aggression, and Russia’s military doctrine is precisely that - defensive - was worked out down to the smallest detail,” Zvezda added.²⁰¹

As was the case on Zvezda TV, the reaction of other Russian state-controlled media was, as is customary, enthusiastically and unquestioningly supportive of the official narrative. Video footage of missile launches was widely shown across the channels. Whether deliberately or otherwise, however, state media communications were at least occasionally imprecise or inaccurate. For example, several reports in the state media said that along with the Sineva SLBM, *Grom 2019* would feature the launch of a new Bulava SLBM.²⁰² None took place. In another example, a report by Russia’s main state-owned television channel Rossiya 1 contained several inaccuracies.²⁰³ For example, it talked of a Sineva SLBM launch from the nuclear

submarine Severodvinsk, which has no ballistic missile launch capability. In another example, it also spoke of a Sineva SLBM launch from the ballistic missile submarine Ryazan, not known to carry the Sineva. In another traditional trend, reports of problems were denied or downplayed by the military and affiliated sources.

The reaction of defence and security commentators in independent media was occasionally at the other end of the spectrum - hyperbolically critical of *Grom 2019*. Nevertheless, important points were raised, with reservations about both the scale of the drills and their doctrinal implications. “Rehearsal for catastrophe” was the headline of noted journalist Aleksandr Golts’s article, for example. “The scale of the exercise as declared (unprecedented in the entire existence of the armed forces in modern Russia) leaves no room for ‘misinterpretation’. We’re talking about rehearsing ways to conduct all-out nuclear war. Such a war will start with the use of non-strategic forces (cruise missiles) and end with a mass nuclear strike, which will mean the death of everything living on Planet Earth.”²⁰⁴



Details beyond the headlines

In the naval component of *Grom 2019*, at least four units fired the Kalibr cruise missile. They were the Project 885 nuclear submarine Severodvinsk (submerged),²⁰⁵ the Project 22350 frigate Admiral Gorshkov, the Buyan-M missile corvette Grad Sviyazhsk and the Gepard-class missile frigate Dagestan. The Novator 3M14 Kalibr (SS-N-30) is a dual-capable land-attack cruise missile (LACM). Conventionally armed variants of the 3M14 have been launched by surface ships and submarines during Russia's operations in Syria.

One RSM-50 SLBM launch from the ballistic missile submarine Ryazan was a misfire,²⁰⁶ though this was downplayed by the MoD as "not an emergency".²⁰⁷ The launch, one of the two planned, had to be aborted. Kalibr launch problems were also reported but were denied or dismissed by the MoD.²⁰⁸

Two 9K720 Iskander-M-equipped missile brigades, one from the Southern and one from the Eastern Military District, carried out firings. The 9K720 can include the 9M723 (SS-26 Stone) short-range ballistic missile and the 9M728 (SSC-7 Southpaw) short-range cruise missile. The far longer-range 9M729 cruise missile (SSC-8 Screwdriver) is carried in a wheeled vehicle similar to the 9M728. All are nuclear-capable. Deployment of the Screwdriver brought about the collapse of the Intermediate-range Nuclear Forces (INF) Treaty, although Russia disputes NATO's data about its range.²⁰⁹ The exact type of Iskander cruise missile launched is unknown, although a

video released by the Russian MoD reportedly showed the launching of the 9M729/SSC-8.²¹⁰

The air-launched nuclear component of the exercise involved Tu-95MS Bear-H turboprop strategic bombers, which launched the Kh-102 (AS-23B Kodiak) nuclear-armed long-range LACM. The Bear-H can carry up to eight of these new LACMs on four twin racks under the wing, as the missile is too long to fit inside the veteran Bear's internal bomb bay.²¹¹

In summary, several factors mark out *Grom 2019* as hitherto unprecedented in scale and scope:

- Based on the Russian military's official statements, it is assessed that at least 250 ICBMs, SLBMs and heavy bombers were involved in *Grom 2019*. This number represents approximately half of their total number in Russia's triad. Russia's September 2019 New START data indicates that Russia has 513 deployed ICBMs, SLBMs and heavy bombers.²¹²
- The Strategic Missile Forces component of the exercise as announced - 213 launchers (both ground-mobile and silo) - represented more than two-thirds of the estimate for Russia's deployed ICBMs. It is estimated that Russia has up to 320 deployed ICBMs as of 2020.²¹³ In a simulation during the exercise, virtually all of the Strategic Missile Forces ICBMs involved in *Grom 2019* reportedly went through their launch sequences.²¹⁴ This



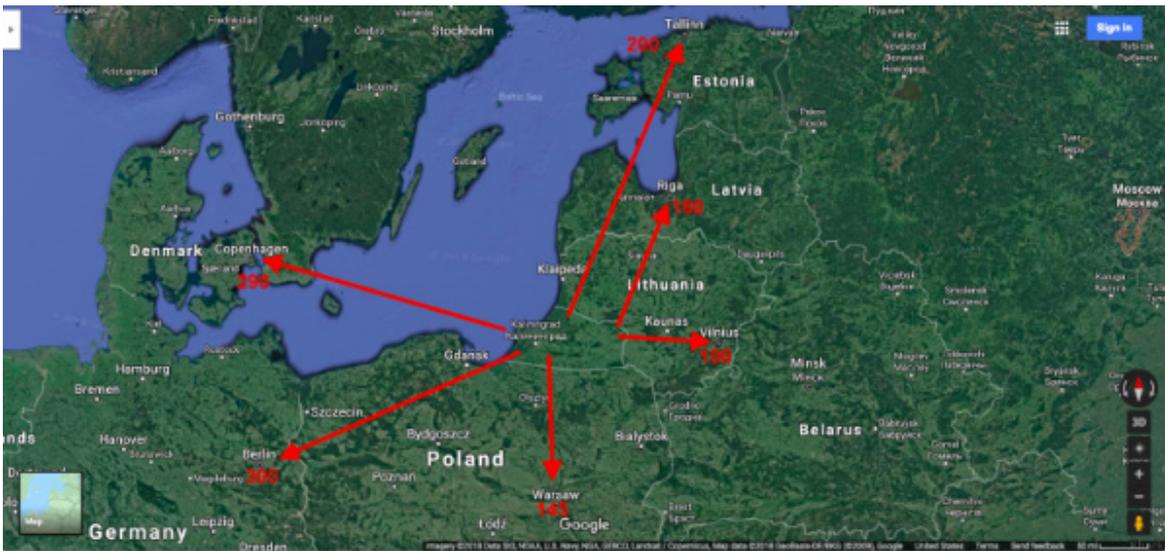
is consistent with reports that other Russian strategic nuclear exercises also ended with a massive Russian nuclear strike. Similar exercises took place both in the 1990s, during a thaw in relations with the West,²¹⁵ and more recently.²¹⁶

- Given the mix of assets involved in *Grom 2019*, this was probably the first large publicly avowed nuclear exercise which practised the integrated use of Russia's strategic nuclear arms and its non-strategic nuclear-capable weapons. The implication is that even if the nuclear capability of these essentially non-strategic arms is not utilised, they could fulfil a strategic role. In addition to the Kalibr intermediate-range cruise missiles launched at sea and the Iskander short-range ground-launched missiles fired on land, Russia's 9M729/SSC-8 intermediate-range ground-launched nuclear-capable cruise missile, which violated the INF Treaty, may have been launched. The involvement of nuclear-capable non-strategic strike aircraft in *Grom 2019* is not clear. Gen Ilyin stated that 105 aircraft were involved (100 of them other than strategic bombers but not otherwise identified) but provided no other details. The exact naval component is equally uncertain.
- The ICBM and SLBM launches, real and simulated, clearly suggest intercontinental reach, as graphically demonstrated during *Grom 2019*

given that both types traversed the entire breadth of Russia, as they typically do. The signal this sends is that no location, however distant, is invulnerable. The same applies to the Tu-95 bombers and the weapons they launched, whether it was the new Kh-102 or legacy Kh-55 nuclear-capable or nuclear-only LACMs (both have been reported). Both are long-range strategic weapons. Their launch position, in the Arctic, signifies that all NATO locations are at risk.

- Based on the locations of the fleets involved (Russia's Northern Fleet in particular) and the range of their units' main armament, Kalibr nuclear-capable naval cruise missiles potentially place virtually the whole of Russia's European neighbourhood at risk. The launches of Iskander nuclear-capable ground-launched missiles were confined to the Southern and Eastern Military Districts, presumably for reasons of proving ground availability. However, their short (or as is suspected longer) range eliminates any doubt that their use in the exercise also sends a message to NATO'S European capitals. The map below illustrates the Iskander's reach from Kaliningrad. The intermediate-range Kalibr's reach from the Baltic Sea can also be similarly inferred. Moreover, the threat applies whichever capability of these dual-capable systems is put to use - nuclear or conventional.





Approximate ranges in miles between Kaliningrad and select NATO capitals (Google Maps)

WIDER CONTEXT OF THE EXERCISE

The data above illustrates the hitherto unprecedented scale and scope of *Grom 2019*. The capabilities and preparedness of most categories of nuclear strike capable assets were apparently tested: most of the land-based ICBMs, along with the naval and air components of the strategic nuclear triad; plus the latest nuclear-capable missile systems, along with possibly other, legacy or new, non-strategic nuclear-capable weapons. The message these factors send to Russia's potential adversaries is that not only is Russia's strategic nuclear deterrent fully operational and more potent than ever before, following its modernisation (and the mobilisation of a significant proportion of it for *Grom 2019*). It has also been added to with Russia's new range of dual-capable weapons. With both of these elements integrated and tested during *Grom 2019*, no-one is invulnerable.

Technically, *Grom 2019* repeated the pattern of previous years as it followed the year 2019's *Tsentr 2019* strategic exercise, a large-scale combined-arms showpiece. In reality, however, *Grom 2019*'s formal separation from conventional exercises was likely to conceal the integration of conventional and nuclear operational planning by Russia.

On 15 October 2019, the date of *Grom 2019*'s launch, Russia's Missile and Artillery Troops held a simultaneous live-fire exercise at 30 training ranges in southern Russia (and Crimea).²¹⁷ Iskander, Bal and Bastion missile systems were fired, as were various other artillery and rocket systems. As we have seen, the Iskander, operated by the Missile and Artillery Troops, was also fired during *Grom 2019*. As such, these drills were also



likely to be part of either *Grom 2019* or a larger scenario. Nor can it be entirely ruled out that since the Missile and Artillery Troops have broader capabilities including non-strategic nuclear weapons (NSNW) such as other missiles and even potentially nuclear artillery, a broader NSNW capability may have been exercised.

Several strategic exercise elements preceded or followed *Grom 2019*, including:

- On land, five ICBMs were launched by the Strategic Missile Forces throughout 2019.
- Russian strategic bombers flew repeatedly and provocatively in 2019 (and 2020), for example close to UK airspace,²¹⁸ with a total of 48 strategic bomber sorties in 2019.²¹⁹ In just one, albeit egregious example, Russian Tu-22M3 strategic bombers simulated a strategic missile strike against the Ukrainian Black Sea city of Odessa in July 2019, according to Ukrainian Naval Commander Admiral Ihor Voronchenko.²²⁰ Clearly provocative, it is also a classic example of the thin line that separates nuclear deterrence and nuclear intimidation.
- On 24 August 2019, a Sineva and a Bulava SLBM were test-fired - the former from a "polar sector" of the Arctic Ocean west, and the latter from the Barents Sea east from, respectively, the Delta IV ballistic missile submarine Tula and the

Borey-class ballistic missile submarine Yuriy Dolgorukiy.²²¹ The dummy warheads "successfully" struck practice targets at Chizha and Kura.

- On NATO's part, the US Strategic Command (USSTRATCOM) launched *Global Thunder 2019*, an annual nuclear command and control exercise, on 29 October. A "globally integrated" large-scale exercise, it also involved allied personnel from a variety of nations, including permanently assigned foreign liaison officers to USSTRATCOM from Australia, Canada, Denmark, the Republic of Korea and the United Kingdom.²²² On the same day, 29 October 2019 - unlikely coincidental - the new Borey-A ballistic missile submarine Knyaz (Prince) Vladimir successfully test-fired a Bulava SLBM from the White Sea to Kura.²²³ Nor are the near-identical names of the two sides' exercises, *Global Thunder vs Thunder*, likely to be a coincidence on Russia's part. Certainly aware of its US counterpart - and presumably never to be outdone - the thought must have crossed the Russian planners' minds that to name their own strategic forces nuclear exercise almost the same would send a message of its own to - or in other words troll - the United States.
- During the same period of time - also unlikely to be a coincidence - 10 submarines were reportedly deployed into the North Atlantic by Russia's Northern Fleet,²²⁴ unacknowledged by



the Russian Navy. Eight nuclear-powered submarines, reportedly including the Severodvinsk, and two diesel-electric submarines, in effect the Northern Fleet's entire non-strategic submarine force, were involved. Like *Grom 2019*, this submarine exercise is thought to have been Russia's largest post-Cold-War.²²⁵ As such, it drew comparisons with the Soviet Navy's operations known as *Aport* and *Atrina*, in 1985 and 1987 respectively.²²⁶ As was the case with *Atrina* in particular, when several Soviet submarines reportedly deployed stealthily off the US coast, the aim patently was a show of force to test Russia's ability to breach the Greenland-Ireland-UK (GIUK) gap and threaten the US.

No official link between these exercise elements has been made. It is prudent to assume, however, that none of them should be viewed in isolation from each other.

MESSAGES AND IMPLICATIONS

Grom 2019 had many of the usual features associated with Russia's major strategic nuclear drills, including Russian President Vladimir Putin's personal involvement on launch day to authorise simulated nuclear strikes, with a number of "live-fire" nuclear missile launches. As noted above, it featured an escalation scenario and an ending in the form of a massive Russian nuclear strike.

In addition to elements well-publicised in the military's statements, including an emphasis on the improvement of command and control procedures, subsequent disclosures suggested that, for example, missile attack warning practice also took place.²²⁷

Yet despite the outwardly extensive detail released through official communications, significant uncertainty remains about exactly which systems were tested during *Grom-2019*. Significant confusion was generated by imprecise or erroneous media reports about the exercise. In addition, overall uncertainty about the exact scenario of *Grom 2019* resulted in considerable differences in the assessment of its escalation elements.

To explore this and other relevant aspects of *Grom 2019*, this section first highlights the various strands of Russia's overall nuclear messaging. It goes on to consider *Grom 2019*'s messages of nuclear deterrence and intimidation - coupled with deliberate ambiguity. It also highlights an apparent discrepancy between Russian declaratory nuclear doctrine and the scenario of *Grom 2019* as detailed in the Russian military's official communications. This suggests a lower threshold than stated officially. It goes on to consider *Grom 2019*'s implications for international nuclear arms control. Following the collapse of the INF Treaty precipitated by Russia, the future of other nuclear treaties could be in doubt.



General nuclear messaging in Russia

Military thought recognises several nuclear deterrence elements, such as:

- Nuclear doctrine - the theory - open, declaratory documents, albeit with sections that remain classified. This includes doctrinal texts which discuss nuclear policy, nuclear arms and nuclear use (in Russia's case its national security doctrine, military doctrine and even naval policy, as well as others).
- Nuclear posture - the practice - including a nation's nuclear force structure and nuclear options as well as its demonstrative military activities (or those secret in detail but known to exist), such as primarily nuclear-forces exercises but also including nuclear bomber patrol sorties, nuclear submarine patrol deployments or nuclear rhetoric.
- Nuclear capability - the actual destructive power of a nation's nuclear arsenal.

Russia makes extensive use of each of these elements to deliver nuclear narratives in state - and state-backed - messaging. In particular, messages delivered through domestic media often appear to be presented with a global audience in mind. Russia's notionally domestic nuclear narrative - statements by Putin, actions

by the military and discourse in national media - receives generous coverage in foreign media, and consequently impacts both domestic and foreign audiences. Russia appears fully aware of foreign coverage of its nuclear rhetoric and can be assumed to exploit this.

In contrast with the West, nuclear messaging is not limited to the top rung of defence or foreign policy officials. Figures from nearly every tier of Russia's politico-military establishment have at one time or another been the source of nuclear-weapons or policy statements - or nuclear threats:

- Putin himself, on numerous occasions and arguably more than almost any other world leader (possibly with the exception of Kim Jong-un);
- Senior government and security ministers and officials - such as Shoygu, Foreign Minister Sergey Lavrov and Security Council Secretary Nikolay Patrushev;
- A large number of other officials and politicians, including military leaders, both current and past; members of parliament; Russian ambassadors abroad; and other public figures.

Messages are typically initiated by Russian officials, from Putin down, and then amplified and distributed by an array of agencies - and agents - including:



- Russia's international media, most visibly RT and Sputnik;
- Intellectual influencers and political mindsets abroad;
- And online and social media signal boosters.

Over and above the purposes of deterrence, the drivers of Russian nuclear messaging (and policy) include factors as diverse as the pursuit of great-power politics as an element of foreign policy, regime legitimisation as an element of domestic policy, the influence of Russia's military and defence-industry lobby, or the leadership's or even society's militarism.

There is, for example, practical evidence that Russia's gung-ho nuclear and military rhetoric has gained traction among some sections of society - those that can be described as 'patriotically minded'. This is borne out by the apparent popularity of the motto "*We can repeat that!*" (*Mozhem povtorit!*). A reference to the Red Army's march on to Berlin during the Second World War, this has featured as stickers or inscriptions on cars. The post-Crimea T-shirts "*Sanctions? Don't make my Iskanders laugh*" (*Ne smeshite moi "Iskandery"*) or "*The Topol is not afraid of sanctions*" ("*Topol" sanktsiy ne boitsya*) are another similar example.

At the height of the Russia-West tensions over Ukraine in 2014-15, the 'patriotic' (pro-Kremlin) sections of Russian media

frequently featured a narrative along the lines that a nuclear exchange was almost nothing to be afraid of.²²⁸ This was described as almost "commonplace" at the time. The terms in which the narrative was couched were that Russia faced an existential threat, which would warrant a first strike. Since then, the intensity of the narrative may have subsided, but it has not gone away completely.

More generally, the cultivation of societal militarism, which has become the hallmark of Putin's presidency, extends to phenomena such as 9 May - "Victory Day" - displays in Moscow's Red Square, complete with Topol or Yars ICBMs on parade.

In summary, Russia's official nuclear narrative and the message it seeks to convey to its own public could almost be boiled down to the maxim "No nuclear weapons - no Russia". "Put another way, Russia without nuclear weapons would be reduced to a dwarf on the global scene."²²⁹

Sections of Russian society seem to subscribe to this view - and are willing to lend their support to the Russian leadership's nuclear sabre-rattling.

Messages and implications

Grom 2019 aimed to convey a range of messages and pursue a range of goals, chief among them a combination of nuclear deterrence - and nuclear intimidation - coupled with deliberate ambiguity; a long-established behaviour.





Examples of the “The Topol is not afraid of sanctions”, left, and “Sanctions? Don’t make my Iskanders laugh”, right, T-shirts

For Russia’s domestic consumption, *Grom 2019* was designed to show off Russia’s military might as a global nuclear superpower and feed a sense of national pride. More narrowly, to Russia’s elites, it demonstrated that the regime is secure.

To Russia, deterrence goes hand in hand with intimidation: the concept of deterrence spans both what Russia refers to as сдерживание (*sderzhivaniye*, constraint or containment) and устрашение (*ustrasheniye*, intimidation or inducing fear). This is demonstrated by Russia’s discourse on the subject of nuclear weapons - designed both to deter and to intimidate.

As it extols Russia’s nuclear arsenal, current or prospective, Russia’s nuclear narrative, from Putin or other officials and media or other propaganda channels alike, is an example of deterrence. But specific nuclear

threats - such as, for instance, threats to resort to the use of nuclear weapons which were made during the standoff over Russia’s actions in Ukraine in 2014 - also aim to coerce and intimidate. Deliberately reckless rhetoric, bomber overflights and submarine probes are all relevant.²³⁰

Able aided by the publicity that surrounded it, *Grom 2019* was impressive enough successfully to convey the messages of deterrence and intimidation, reinforced by the sheer scale and scope of the exercise. The level of attention which *Grom 2019* drew in the international analytical community is, indirectly, proof that the message has reached its intended recipient. The nature of the reaction to *Grom 2019*, which could be summed up as shock at the scale and scope of the exercise evident in most of the papers quoted in this report, is further proof that the message was effective.

” Nuclear exercises such as *Grom 2019*, designed to function as a show of force and serve the purpose of deterrence, are not solely a military but also a political event

As one prominent reaction piece from a noted Russian source put it in the context of *Grom 2019*, “nuclear deterrence requires a level of openness, public promotion and often strategic bluff”. The argument was that, “A policy based on threats alone cannot work if the opposition does not fully comprehend the threat.”²³¹ While this is what *Grom 2019* aimed to achieve with its official communications, its basic message of deterrence and intimidation was commingled with the cultivation of deliberate ambiguity. In both official communications and exercise activities, both practical and doctrinal ambiguity was manifest. Neither the exact scenario of the exercise nor the precise nature of Russia’s de-facto nuclear doctrine could or can be ascertained. Contemporary reports indicate, for example, that Russia classified its real nuclear first use doctrine in 2009. As stated by the Russian Ministry of Defence at the time, Russia’s policy on “the use of nuclear weapons as an instrument of strategic deterrence” would be put into the “closed part” of its military doctrine. Subsequently, in 2014, General of the Army (ret.) Yuriy Baluyevskiy, former head of the Russian Federation Armed Forces, stated

that the “conditions for preemptive nuclear strikes” were “contained in classified policy documents”.²³² In other words, a measure of ambiguity or bluff “does not devalue Russia’s or anyone else’s nuclear deterrent”.²³³

Sometimes, the effect produced by shows of force such as *Grom 2019* can be the opposite of Russia’s intent. Calls for the US to pursue nuclear counter-deterrence with vigour equal to the pace of Russia’s re-nuclearisation are one example.²³⁴

Nuclear exercises such as *Grom 2019*, designed to function as a show of force and serve the purpose of deterrence, are not solely a military but also a political event. This is corroborated by Putin’s much-publicised presence as the commander-in-chief. Yet it has also been suggested that *Grom 2019* has once again demonstrated what is apparently Russia’s determination to view nuclear use in practical terms, as opposed to their role as the ultimate deterrent. While elsewhere nuclear weapons are regarded as a political weapon, Russia discerns the utility of nuclear weapons - and is, it seems, planning accordingly.



Coupled with the exercise activities, the exercise scenario, which singles out escalation, suggests that, apparently, the Russian leadership not only accepts the possibility of but also seeks escalation dominance in a large-scale nuclear war with multiple exchanges of various strikes, up to all-out nuclear war.²³⁵

In particular, the exercise scenario suggests that potential NSNW use, in the form of dual-capable systems, is part of the Russian operational military planning. “Emphasis on the interchangeability of conventional precision weapons and non-strategic nuclear weapons is habitual” in Russian military thinking.²³⁶ Furthermore, planning for integrated strategic and nonstrategic nuclear use is complemented by planning for the integration of conventional and nuclear options. Studies suggest that all conventional plans and exercises have an associated nuclear component.²³⁷

As arguments go on about whether an “escalate-to-deescalate” philosophy is central to - or part of - Russian operational planning, it is important to consider a postulate attributed to a Soviet nuclear weapons designer. This holds that the “weapon defines the doctrine that exists in reality” as opposed to any declaratory doctrine.²³⁸ This could predetermine nuclear use in practice. Clearly, however, the plan as practised, with apparent provision for launching simultaneous combined nuclear strikes in different theatres, is potentially far broader than the “escalate-to-deescalate”

scenario imputed to Russia, which envisages single or very limited nuclear use.²³⁹ *Grom 2019* indicates that Russia’s approach to the use of nuclear weapons is not confined to an “escalate-to-deescalate” doctrine, but suggests the possibility of nuclear use at any or every stage of the conflict. This contention is supported by ample NSNW capabilities, current and prospective, and compounded by opaque or secret doctrine.

Not everyone is convinced, however, that Russia’s nuclear doctrine, nuclear posture and nuclear capability are tantamount to “escalate-to-deescalate”. One notable paper (written a full three years before *Grom 2019*) argues that the evidence that Russia’s nuclear strategy is one of “de-escalation” or that it has lowered its threshold for nuclear use is circumstantial. Rather, Russia’s statements and behaviour indicate “more a desire to leverage its status as a nuclear power - less a lowering of the threshold than a reminder that escalation is possible”. “Moreover, and perhaps more importantly, this is driven by Russian concern that its conventional capacity is not sufficient.”²⁴⁰

Evidence of doctrinal deviation

The official *Grom 2019* communications suggested a disparity between Russia’s formal nuclear doctrine, as publicised, and provisions that govern actual nuclear use - if “strategic deterrence” is taken to mean “nuclear”.

At first glance, the military’s statements echoed the Russian military doctrine, in an



unclassified document which contains a provision on nuclear use. This states that nuclear weapons could be used in response to a nuclear attack or an aggression involving conventional weapons in a way that threatens “the very existence of the state”:

“The Russian Federation shall reserve the right to use nuclear weapons in response to the use of nuclear and other types of weapons of mass destruction against it and/or its allies, as well as in the event of aggression against the Russian Federation with the use of conventional weapons when the very existence of the state is in jeopardy.”²⁴¹

Yet the wording of the Russian MoD's statement suggested a deviation from that line. *Grom 2019*, it said, was designed to test the “deployment and use of strategic forces against a threat of aggression.”²⁴² That is to say, the threshold of “event of aggression” has been lowered to “threat”.

This not only suggests that in its escalation scenario, *Grom 2019* featured Russian nuclear first use. Crucially, it also signals a significant mismatch between Russian nuclear theory and practice. As one notable account sees it, the literal meaning of the statement “deployment and use of strategic forces against a threat of aggression” is nuclear preemption: nuclear weapons' first use against such a “threat of aggression” is not deterrence or retaliation - it is preemptive first use.²⁴³

As a consequence, not for the first time, suspicion has arisen that Russia's real nuclear first use doctrine is different to what is contained in its official declaratory policy - and is perhaps closer to *Grom 2019*'s postulation of a “threat” of aggression, rather than an act of war.

Presumably as a result of uncertainty about the exact scenario of *Grom 2019*, however, other assessments suggested that in the scenario, Russia's nuclear use was in response to the adversary's first use. According to one prominent assessment, for example, the “adversary's supposed escalation and resulting use of nuclear weapons required a nuclear response from Russia's strategic and possibly theatre-level forces”.²⁴⁴ Yet based on information publicly released by the Russian military, it is not at all certain that this retaliatory scenario, as opposed to Russia's first use, was really the case. Moreover, neither the US nor any NATO state has counterparts to the potential NSNW component of *Grom 2019*, so it is unlikely that in its scenario, they would have been used in response to US or NATO first use. It has been further argued that: “Even if we had comparable weapons, the probability we would use them in a conventional war would be close to zero.”²⁴⁵

In Russia's case, the “Fundamentals of the Russian Federation's Nuclear Deterrence Policy”, never officially released by the Kremlin, are a 2010 document thought to contain the specifics of Russia's classified nuclear doctrine. It has been suggested that



in that classified document, Russia reserved the right to undertake a nuclear response to conventional attacks on Russian nuclear forces or a ground invasion of Russian territory.²⁴⁶

As publicised, Russian military doctrine allows for nuclear first use in a conventional war “when the very existence of the state is in jeopardy”. Even if this is taken at face value, however, this wording is ambiguous. For example, any foreign military action in a border war, even one started by Russia, could potentially be declared by Russia a threat to the existence of the Russian state - and therefore entail nuclear use.

In short, doctrinal uncertainty is feeding international concern over Russia’s intent. This uncertainty starts with basics such as the relationship between nuclear and non-nuclear deterrence as seen by Russia under the umbrella term of “strategic deterrence” - exercised during *Grom 2019*. But it also extends to the lack of clarity in Russia’s communications and messages, whether deliberate or, equally possibly, as a result of the Russian military’s own confusion about this relationship.

Connotations for future arms control

Grom 2019’s apparent ambition and potential for integrated strategic nuclear and NSNW use has ramifications that transcend *Grom 2019*, including those of concern in the context of eroding international nuclear arms control.

As a means of targeted communications, *Grom 2019* can be seen as a message to two primary target audiences: the United States and NATO’s European capitals.

The collapse of the INF Treaty illustrates Russia’s predisposition towards treaty manipulation. While Russia maintained the appearance of compliance, it was also able to manipulate nuclear threats through its new capabilities. As that became impossible once the US terminated the treaty, Russia blamed the United States. This has in particular sought to invoke Europe’s disapproval of the Donald Trump administration’s policies. In another prong of this effort, the Russian narrative has aimed to prove that Russia has gained the upper hand in the post-INF environment - as well as possibly even post-New START.

Grom 2019 must be viewed as being part of this effort - the demonstration of Russia’s nuclear superiority, in the European theatre and overall. Indeed, *Grom 2019*’s message must be read as that of in effect nuclear intimidation - that with its apparently operational new dual capabilities, Russia can hold NATO’s European capitals at risk post-INF. It intimidates, rather than deters, because as has been noted, no European NATO member state has equivalent shorter-range nuclear-capable systems (other than the US B61 bombs in Europe).

Meanwhile, the United States is another target audience - this time for a message of coercive nuclear diplomacy - as uncertainty



continues to surround the extension of the New START Treaty. Unless extended, the current iteration of the treaty will expire in February 2021. The message of Russia's overall nuclear potency, which could be read into *Grom 2019* given its scale and scope, would have been calculated to nudge the United States towards an extension.

The integration of strategic and non-strategic capabilities implies complex nuclear exchanges with the use of weapons such as the sea-launched 3M14 Kalibr and the ground-launched 9K720 Iskander. One potential practical constraint on the fitting of nuclear warheads to these weapons, however, is the package of the Presidential Nuclear Initiatives (PNI), initiated by the then Soviet/Russian leader, Mikhail Gorbachev, in 1991 and reconfirmed by Russian President Boris Yeltsin. Under the terms of this initiative, which reciprocated then-US President George H. W. Bush's proposal, all non-strategic nuclear warheads are kept in centralised storage.²⁴⁷

The exercising of dual-capable weapons raises questions about Russia's current PNI compliance. "Ample" evidence suggests that Russia did not fully implement the PNI commitments.²⁴⁸ One possible conclusion is that Russia considers itself no longer bound by these political commitments. Otherwise, Russia would need to abrogate, if not continue to flout, the PNI in order for its NSNW capabilities to be deployed and further interoperability between strategic and NSNW capabilities to be achieved. As warheads are

brought closer to NSNW delivery systems, this would allow Russia for example to store nuclear munitions (including Iskander) in such strategically important sectors as Kaliningrad and Crimea. This could be one of Russia's responses to the expected expiry of the New START in early 2021 if it is not extended. This has already been described as the "logical next step in the active wielding of nuclear instruments".²⁴⁹ Meanwhile, such a threat could also be used by Russia to convince the US to extend the treaty.

And as Russia re-nuclearises its forces, it is possible that neither computer simulations nor subcritical experiments could ensure the reliability of nuclear warheads.²⁵⁰ This could open up the prospect of Russia's withdrawal from the Comprehensive Nuclear Test Ban Treaty (CTBT) to enable it to resume testing in the Arctic archipelago of Novaya Zemlya.

In other words, it is reasonable to assume that while *Grom 2019* may not have been purposely designed to convey these implicit threats as a means of targeted communication, Russia may well resort to their use as part of its coercive diplomacy toolkit.

NUCLEAR DETERRENT

Throughout the post-Soviet period, for reasons that encompass nuclear deterrence and great-power politics, Russia has prioritised the development and acquisition of nuclear weapons. For at least the past decade, this has been underpinned by major



investment in military re-nuclearisation. *Grom 2019* aimed to deliver evidence of Russia's military nuclear accomplishments, but it has arguably also revealed shortcomings in the development of Russia's nuclear deterrent.²⁵¹

Nevertheless, nuclear weapons development evidently continues apace in Russia, with the prospect of new and apparently unmatched capabilities.

To explore this, this section highlights some of Russia's prospective nuclear capabilities, which assessments indicate include a range of low-yield and tailored-effects charges. It goes on to highlight Russia's non-strategic nuclear weapons - of especial relevance to the European theatre.

New Russian nuclear capabilities

According to Defence Minister Sergey Shoygu's statement noted above, for example, *Grom 2019's* scenario provided for the use of "high-precision nuclear weapons". It is reasonable to assume that if true, these are low-yield since few targets require high-precision AND high-yield nuclear weapons.

These for now still putative capabilities and the messages that communicate them matter, both in the specific example of *Grom 2019* and more broadly. They could be a boast without any basis in reality - another way to troll Russia's opponents. Statements such as these would almost certainly be calculated to unsettle Russia's opponents

in the knowledge that their every element would be pored over, and concern triggered in Western capitals. But if they really featured as part of *Grom 2019's* ambiguous scenario, it adds to concerns, compounded by Russia's opaque doctrine but pronounced capabilities, over Russia's potential operational nuclear planning.

Historically, Russia can lay claim to the development of both the world's largest and the world's smallest nuclear charges. They were, respectively, the Tsar Bomb, a 50-megaton hydrogen bomb (potentially up to 100-megaton) tested in 1961, and the 152-millimetre nuclear artillery shell, in the kiloton class, which was in Soviet military service.²⁵²

Western assessments suggest that development continues specifically on lower-yield devices. These include what has been described as low-yield, "clean" nuclear weapons and "tailored-effects" weapons. The latter have been reported to include for example both discrete and wide-area electromagnetic-pulse (EMP) weapons; and neutron weapons, thought to be "significantly more effective" than US counterparts.²⁵³

In 2017, the Pentagon assessed that within the next decade, Russia was likely to be able to add "thousands" of "new low-yield and very low yield" warheads to its arsenal. In particular, it is assessed that work is in progress to develop "new and innovative nuclear arms", including very low yield nuclear weapons of less than 1 kiloton (equivalent to



1,000 tons of TNT - but some just 10 tons of TNT), to be fitted to precision-guided missiles.²⁵⁴ These smaller nuclear warheads would be ideally suited to Russia's new short-range and medium-range missiles, including the SSC-7/8 GLCM and the SS-N-27/30 Kalibr anti-ship and land-attack cruise missiles - capabilities demonstrated during *Grom 2019*.

With its "aggressive" nuclear build-up its, Russia is expected to deploy a total force of 8,000 nuclear warheads by 2026, both strategic and non-strategic, according to the assessment.

In summary, a range of new options could become available to Russia, including accurate, low yield, "clean" weapons to kill hard targets; neutron weapons to kill military personnel/leadership; EMP weapons, both discrete and wide-area, to disable electronic systems; X-ray, gamma-ray or other tailored-effects weapons, including anti-satellite; or battle lasers to target re-entry vehicles - such as the Peresvet nuclear-powered, mobile laser which Russia claims has already been deployed and will revolutionise ballistic missile defence.²⁵⁵

Some elements listed above are presumably speculative.²⁵⁶ But even if just some of these developments exist, they would compound the already substantial threat posed by Russia's nuclear arsenal.

Russia's non-strategic nuclear weapons

Russia's non-strategic nuclear weapons (NSNW) are a particular concern.

With integrated strategic and potential NSNW use publicly demonstrated during *Grom 2019*, this conveyed a clear message that Russia sees benefits in the use of this combination and will in the future continue to exploit the potential which these capabilities provide.

Uncertainty persists as to whether Russia's intention is to combine nuclear and non-nuclear strategic deterrence. The role of the latter has been debated by Russian military thinkers.²⁵⁷ In the West, meanwhile, opinion is divided both on the value attached by Russia to any potential for non-nuclear strategic deterrence, and on Russia's non-nuclear deterrence capabilities.

It is therefore highly likely that the newest such potential capabilities including the Iskander and the Kalibr, both of which were tested during *Grom 2019*, will be prioritised precisely for their dual, nuclear use. If so, they will add to Russia's already extensive NSNW nomenclature.

At present, the size of Russia's NSNW stockpile, which is not subject to treaty regulation and thus verification, is virtually impossible to ascertain. Assessments range from 1,000 NSNW warheads (classed as "operationally assigned and deliverable" - a 2012 estimate)²⁵⁸ to between 3,300 and 5,700 weapons (as



the overall stockpile including reserve), with estimates as high as 10,000. By contrast, according to the US Congressional Research Service, the US non-strategic nuclear stockpile includes around 760 weapons, including around 200 bombs in Europe.

Russia's NSNW are extensive and include weapons for use by the army, the navy and the air force.²⁵⁹ The recent proliferation of new Russian nuclear systems, from new warheads and missiles to bombers and submarines, has been remarkable.²⁶⁰

Moreover, it is assessed that Russia's NSNW numbers continue to grow.²⁶¹ A mid-2016 estimate was that there were 156–200 operationally assigned warheads for sea-launched cruise missiles - an increase of 50 per cent since 2012 attributed to the Kalibr. The number of operationally assigned warheads for Tochka-U and Iskander-M ground-launched missiles has almost doubled to 248–372 warheads. Up to half of the operationally assigned warheads are located in the Western Military District. The arsenal of the Southern Military District has more than trebled since 2012, up from 87–103 to 287–369 operationally assigned warheads - more than the Eastern Military District. With the rate of increase in offensive non-strategic nuclear forces - including Kalibr, Iskander and fighter-bomber warheads - at least 50 per cent faster in the western parts of Russia, the implication could be that Russia is rapidly improving its ability to wage offensive nuclear war in the European theatre.²⁶²

CONCLUSION

It is assessed that *Grom 2019* was Russia's largest ever known full-spectrum nuclear strike exercise. Uncharacteristically, the level of apparent openness on a topic that is normally kept in deep secrecy was on this occasion unprecedented. As such, *Grom 2019* aimed to convey a range of messages, chief among them a combination of nuclear deterrence and intimidation, though coupled with deliberate ambiguity.

In other targeted communications, *Grom 2019* aimed to convey the message of Russia's strategic supremacy, including in the context of eroding international nuclear arms control. It can be assumed that given the nature of the assets tested during *Grom 2019*, the message targeted the whole of NATO, with both the United States and Europe as target audiences.

The testing of nuclear-capable systems during *Grom 2019* and Russia's reported development of new nuclear capabilities potentially has implications for international nuclear arms control. Following the collapse of the INF Treaty precipitated by Russia, this raises concern about the future of other nuclear treaties.

The official *Grom 2019* communications suggest a disparity between Russia's formal nuclear doctrine, as publicised, and provisions that govern actual nuclear use - in effect tantamount to a lower threshold than stated officially.



Grom 2019 could be interpreted as a sign of greater emphasis on non-nuclear strategic deterrence enabled by precision-guided missile systems such as the Kalibr and the Iskander but given a range of factors including the dual capability they offer it is prudent to consider their nuclear potential. A lack of clarity in Russia's communications and messages compounds this uncertainty. Unless this is deliberate, these communications and the logic that underpins them can be described as confused. "Russia's deterrent language may thus become incomprehensible to potential adversaries - and misunderstanding, with dire consequences, may be the result".²⁶³

Assessments suggest that Russia is planning to blend its conventional forces with nuclear forces in future conflicts. In the years ahead, Russia may be able to deploy a mix of high-yield, medium-yield and low-yield warheads integrated with cyber, space and non-nuclear forces.²⁶⁴ Development of Russia's non-strategic nuclear weapons is of concern for Europe. Capabilities that could be put to use in this way were tested during *Grom 2019*.

All of the above demonstrates that the combination of Russia's doctrinal opacity, forceful nuclear posture and extensive nuclear capability, compounded by nuclear rhetoric, is of utmost concern for NATO.





Endnotes

- 1 Translated, these are respectively “East”, “West”, “Centre” and “Caucasus”, after the broad geographical parts of Russia in which they take place.
- 2 “Grom” in Russian means “thunder”. Is it merely a coincidence that the annual nuclear-readiness command and control exercise held by U.S. Strategic Command (USSTRATCOM) is also designated *Global Thunder*? It is unlikely, as explored in the *Grom* study. In another parallel, historical studies also suggest that either *Groza* or *Grom*, the Russian synonyms for “thunder”, was the name of a putative Soviet offensive against Nazi Germany which would have pre-empted the German invasion of the Soviet Union in 1941.
- 3 V. Gerasimov, *Vektory Razvitiya Voennykh Strategii*, Krasnaya Zvezda, March 2019.
- 4 V. Gerasimov, *Tsennost nauki v predvidenii*, *Voyenno-Promyshlennyy Kurier* [VPK] 8 (476), 27 February 2013.
- 5 The study was conducted by analysing open source information available in Russian language. Open source information includes media outlets, Ministry of Defence websites, statements made by the Russian political elite and other sources.
- 6 Russian Ministry of Defence, *Russia will employ around 300,000 servicemen in ‘Vostok 2018’ exercise*, 28 September 2018.
- 7 Russian Ministry of Defence website, *Тезисы выступления начальника Генерального штаба Вооруженных Сил Российской Федерации на брифинге, посвященном подготовке маневров войск (сил) «Восток-2018»*, undated.
- 8 TV Zvezda, *Шойгу заявил об уникальности учений «Восток-2018»*, September 2018.
- 9 Interfax, *Путин поблагодарил участников маневров «Восток-2018»*, 13 September 2018.
- 10 Interfax, *Путин поблагодарил участников маневров «Восток-2018»*, 13 September 2018; Kremlin.ru, *Military exercises 2018*, September 2018.
- 11 Russian Ministry of Defence, *Ракетчики ЦВО проведут стрельбы из комплексов «Искандер-М» на маневрах «Восток-2018»*, 12 September 2018.
- 12 Russian Ministry of Defence, *Ракетчики ЦВО проведут стрельбы из комплексов «Искандер-М» на маневрах «Восток-2018»*, 12 September 2018.
- 13 TV Zvezda, *Шойгу заявил об уникальности учений «Восток-2018»*, 18 December 2018.
- 14 Voennij Portal, *В Вооруженных Силах РФ началось стратегическое командно-штабное учение «Восток-2014»*, 19 September 2014; and *Krasnaja Zvezda*.
- 15 Ria Novosti, *Военные летчики закончили переброску войск для учения “Центр-2015”*, 15 September 2015; and Ria Novosti, *Новые образцы техники связи были задействованы в учениях “Центр-2015”*, 23 September 2019.
- 16 *Armeiskiy Sbornik*, July 2018; TASS, *Шойгу: почти 100 тыс. гражданских приняли участие в учениях “Кавказ-2016”*, 19 September 2016; Ria Novosti, *В Астраханской и Волгоградской областях начались учения авиации и ПВО*, 6 September 2016; and Russian Ministry of Defence, *Зенитчики Западного военного округа выполнили электронные пуски ракет на полигоне Капустин Яр*, 7 September 2016.
- 17 Kremlin.ru, *Maneuvers Vostok-2018*, undated.
- 18 Kremlin.ru, *Maneuvers Vostok-2018*, undated.
- 19 Russian Ministry of Defence, *При передислокации войск ВВО по завершении маневров «Восток-2018» применена новая система комплексного контроля*, 19 September 2018.
- 20 TV Zvezda, *What are the objectives of Vostok 2018*, August 2018.
- 21 TV Zvezda, *Маневры эпического масштаба: как прошли учения «Восток-2018»*, 17 September 2018.
- 22 Юрий Смитюк, *Внезапная проверка боеготовности началась в ЦВО и ВВО по решению Путина*, TASS, 20 August 2018.
- 23 INTERFAX-AVN, *Российские военные готовятся к стратегическому учению ‘Восток-2018’*, 16 August 2018.
- 24 Владимир Мухин, *Маневры ‘Восток-2018’ стартовали у границ США*, *Nezavisimaya Gazeta*, 16 August 2018.
- 25 INTERFAX-AVN, *Российские военные рассказали о подготовке к стратегическому учению ‘Восток’*, 27 July 2018.
- 26 Марина Щербакова, *Столь масштабных манёвров ещё не было*, *Krasnaya Zvezda*. 7 September 2018.
- 27 INTERFAX-AVN, *Авиация ЦВО перебросена на восток России для участия в учениях*, 23 August 2018.
- 28 Ria Novosti, *Шойгу рассказал коллеге из Китая о новейшей системе управления войсками*, 2 September 2018.
- 29 Ria Novosti, *Корабли Севфлота прибыли на «Восток-2018» по арктическим морям*, 11 September 2018.
- 30 Ria Novosti, *Мотострелки на «Востоке-2018» совершили марш от Ледовитого океана до Тихого*, 14 September 2018.
- 31 Михаил Климентьев, *Глава Генштаба ВС РФ проводит инспекцию Восточного военного округа*, TASS, 23 August 2018.
- 32 Анастасия Свиридова, *Войска за тыл спокойны*, *Krasnaya Zvezda*, 27 August 2018.



- 33 RIA Novosti, [Замминистра обороны проверил готовность МТО в Забайкалье](#), 25 August 2018.
- 34 Сергей Пивоваров, [В проверке боеготовности войск ЦВО и ВВО участвуют более 262 тысяч военных](#), RIA Novosti, 24 August 2018.
- 35 RIA Novosti, [Замминистра обороны проверил готовность МТО в Забайкалье](#), 25 August 2018.
- 36 Юрий Смитюк, [Внезапная проверка боеготовности началась в ЦВО и ВВО по решению Путина](#), TASS, 20 August 2018.
- 37 Izvestia, [Завершена масштабная перегруппировка войск в рамках учений «Восток-2018»](#), 11 August 2018.
- 38 Роман Азанов, [Центр против востока России. Какими станут самые масштабные маневры «Восток-2018»](#), TASS, 11 September 2018.
- 39 RIA Novosti, [На Урале подняли по тревоге ракетную бригаду, вооруженную ОТРК «Искандер-М»](#), 21 August 2018.
- 40 Виталий Аньков, [Летчики ВВО отработали передислокацию в ходе проверки боеготовности](#), RIA Novosti, 21 August 2018.
- 41 Izvestia, [Бомбардировщики Ту-95МС отстрелялись крылатыми ракетами на маневрах «Восток-2018»](#), 12 August 2018.
- 42 Виталий Аньков, [Группировку немедленного применения ВДВ подняли по тревоге](#), RIA Novosti, 21 August 2018; Виталий Аньков, [Десантники в Приморье приступили к учениям в рамках внезапной проверки](#), RIA Novosti, 23 August 2018.
- 43 INTERFAX-AVN, [Высадку десанта с БТРами и «Градами» отработывают в Японском море морпехи ТОФ](#), 11 September 2018.
- 44 INTERFAX-AVN, [Корабли Северного флота прибыли в Чукотское море для участия в манёврах «Восток-2018»](#), 11 September 2018. www.militarynews.ru; RIA Novosti, [Корабли ТОФ поразили цели крылатыми ракетами на учениях «Восток-2018»](#), 12 September 2018.
- 45 TASS, [Комплексы С-300, С-400 и «Панцирь-С1» проведут стрельбы на полигоне в Бурятии»](#). 4 September 2018; Марина Щербакова, [Первый удар наносят с «Триумфом»](#), Krasnaya Zvezda, 5 September 2018.
- 46 Military TV "Zvezda", [Расчеты БЛА в Сибири выполнили разведку местности в условиях сильного ветра](#), 2 September 2018.
- 47 Саид Царнаев, [В ВВО начались специальные учения инженерных войск](#), RIA Novosti, 28 August 2018.
- 48 Military TV "Zvezda", [Около 2 тыс. специалистов Войск РХБ ВВО поднято по тревоге в рамках специального учения](#), 3 September 2018.
- 49 Рамиль Ситдииков, [В пяти регионах Сибири и Дальнего Востока начались учения военной полиции](#), RIA Novosti, 20 August 2018.
- 50 Military TV "Zvezda", [С разведчиками ВВО проведены спецучения по работе в тылу условного противника](#), 3 September 2018.
- 51 Military TV "Zvezda", [Маскировка оборудования и поражение «противника»: артиллеристы провели учения в Хабаровском крае](#), 2 September 2018; "Zvezda", [Танковые подразделения ВВО на полигоне в Забайкалье учились уничтожать противника в наступательном бою](#), 2 September 2018.
- 52 Денисов Антон, [«Летающий радар» А-50У помог отразить авиаудар на маневрах «Восток-2018»](#), RIA Novosti, 14 September 2018; Григорий Сысоев, [ВКС в ходе маневров «Восток-2018» перехватили звено самолетов «противника»](#), RIA Novosti, 15 September 2018.
- 53 TASS, [Атаку дронов отразили в ходе проверки боеготовности в Приамурье](#), 23 August 2018; TASS, [Поднятые по тревоге хабаровские мотострелки вышли в заданные районы. Военнослужащие отработали задачи по различным видам маскировки боевой техники, инженерному оборудованию районов сосредоточения, развертыванию командного пункта соединения и полевых лагерей](#), 21 August 2018; Сергей Пивоваров, [Лошади привезли боеприпасы на горные учения мотострелков в Туве](#), RIA Novosti, 23 August 2018; Пресс-служба Восточного военного округа, [Забайкальском крае военнослужащие подразделения войск РХБ защиты приступили к проведению химической разведки местности в рамках проверки боевой готовности](#), 22 August 2018; Георгий Зимарев, [Военно-транспортный самолет впервые приземлился на шоссе в России](#), RIA Novosti, 23 August 2018.
- 54 TASS, [В ходе маневров «Восток-2018» пройдут боевые стрельбы из комплексов «Искандер-М»](#), 12 September 2018.
- 55 Евгений Биятов, [В Минобороны анонсировали отработку «танковой карусели» на Урале](#), RIA Novosti, 21 August 2018.
- 56 Виталий Аньков, [Под Оренбургом артиллеристы провели стрельбы из «Ураганов»](#), RIA Novosti, 23 August 2018; TASS, [Новейшие САУ «Нона-СВК» провели стрельбы в Туве в рамках проверки боеготовности Восток-2018](#), 24 August 2018.
- 57 Игорь Руссак, [Мотострелки ВВО провели учебные стрельбы системами «Град»](#), RIA Novosti, 25 August 2018.
- 58 RIA Novosti, [Гранатометчики ЦВО «уничтожили» автомобили противника на учениях](#), 3 September 2018.
- 59 RIA Novosti, [На «Востоке-2018» свыше 200 единиц боевой техники переправят через реки](#), 12 September 2018.
- 60 RIA Novosti, [На проверке боеготовности действия войск оценят по трем направлениям](#), 20 August 2018.
- 61 Илья Питалев, [Для учений «Восток-2018» призвали граждан из запаса](#), Izvestia, 6 September 2018.
- 62 Марина Щербакова, [Нас обкатывали танками](#), Krasnaya



- Zvezda, 12 September 2018.
- 63 Марина Щербакова, [Резервисты стали в строй](#), Krasnaya Zvezda - Суворовский натиск. 12 September 2018.
- 64 Марина Щербакова, [От станка - на манёвры](#), Krasnaya Zvezda - Суворовский натиск. 14 September 2018.
- 65 Izvestia, [Для учений «Восток-2018» призвали граждан из запаса](#), 6 September 2018.
- 66 Министерство обороны Российской Федерации, [В Национальном центре управления обороной прошел брифинг, посвященный подготовке и проведению манёвров войск \(сил\) «Восток-2018»](#), 6 September 2018.
- 67 Марина Щербакова, [Столь масштабных манёвров ещё не было](#), Krasnaya Zvezda, 7 September 2018.
- 68 Министерство обороны Российской Федерации, [Более 80 складов с горючим и боеприпасами, а также 100 продовольственных пунктов развёрнуто для обеспечения манёвров «Восток-2018»](#), 6 September 2018.
- 69 Екатерина Томиленко, [Рубль военный, рубль казённый](#), Krasnaya Zvezda, 22 October 2018.
- 70 Виталий Тимкив, [На Дальнем Востоке в учебной тревоге задействованы около 36 тысяч тыловиков](#), Ria Novosti, 20 September 2018.
- 71 Алексей Козаченко, Алексей Рамм, [Глушить и слепить](#), Izvestia, 30 AUG 2018. Алексей Рамм, Алексей Козаченко, Богдан Степовой, [Глушительный успех: комплекс РЭБ накроет Европу из-под Калининграда](#). Izvestia. 26 APR 2019.
- 72 Павел Лисицын, [На Урале военные впервые применили мобильный комплекс «Спектр»](#). RIA NOVOSTI. 28 AUG.2018.
- 73 TASS. [Подразделения ВДВ отработают способы десантирования на маневрах «Восток-2018»](#). 12 SEP 2018. Алексей Никольский, [Десантники отработали аэромобильные действия на учениях 'Восток-2018'](#). RIA NOVOSTI. 13 SEP 2018.
- 74 RIA NOVOSTI. [На учениях 'Восток-2018' впервые используют соединения ВДВ нового типа](#). 11 SEP 2018.
- 75 Military TV Zvezda. [В Алтайском крае подразделения РЭБ предотвратили нападение БЛА условного противника на склад с боеприпасами](#). 2 SEP 2018; TASS. [Новые комплексы радиоэлектронной борьбы с БПЛА впервые применят на учениях «Восток-2018»](#). 12 SEP 2018.
- 76 Вадим Жернов. [Специалисты РХБЗ отработали маскировку аэродромов на маневрах «Восток-2018»](#). RIA NOVOSTI. 12 SEP 2018.
- 77 INTERFAX-AVN. [Надувные «Искандеры» и системы С-300 применят на учениях «Восток-2018», чтобы запутать условного противника](#). 11 SEP 2018.
- 78 Алексей Куденко, [Рота боевых машин «Терминатор» примет участие в маневрах «Восток-2018»](#). RIA NOVOSTI. 13 SEP.2018.
- 79 Rossiyskaya Gazeta, [Rossiyu proverili na gotovnost k voyne](#), 16 September 2018.
- 80 Eurasia expert, [Vostok 2018: krupnyeyshiy voyennyye ucheniya Rossii glazami kitayskikh SMI](#), October 2018.
- 81 Fakty, [Vostok-2018. Kogda i pri kakikh usloviyakh nachnetsa vojna Rossii i Kitaya protiv SShA](#), 11 September 2018.
- 82 Krym.ru, [Vostok-2018: zchem Rossii masshtabnye voyennyye ucheniya?](#) 11 September 2018.
- 83 Fakty, [Vostok-2018. Kogda i pri kakikh usloviyakh nachnetsa vojna Rossii i Kitaya protiv SShA](#), 11 September 2018; Tzargrad, [V chem glavnaya izyuminka voyennykh ucheniy «Vostok 2018»](#), 11 September 2018; Nezavisimaya Gazeta, [Sergei Shoygu uhel v glukhuuyu oboronu](#), 24 October 2018.
- 84 Nezavisimoye Voennoye Obozreniye, [Ucheniya «Vostok 2018» doveli Zapad do isteriki](#)”, 12 September 2018.
- 85 Nezavisimaya Gazeta, [Vместo ofitserov “komissarami” stanut serzhanty](#), 4 September 2018; Fakty, Vostok-2018. [Kogda i pri kakikh usloviyakh nachnetsa vojna Rossii i Kitaya protiv SShA](#), 11 September 2018.
- 86 Tzargrad, [V chem glavnaya izyuminka voyennykh ucheniy «Vostok 2018»](#), 11 September 2018.
- 87 Russian Ministry of Defence, [Manevres Vostok](#), September 2018, September 2018.
- 88 Simon Saradzhyan, [The Role of China in Russia's Military Thinking](#), Belfer Center, 4 May 2010.
- 89 Олег Москвин, Михаил Мошкин, [Крупнейшие маневры на Дальнем Востоке напрямую связаны с Сирией](#), Vzglyad, 11 September 2018.
- 90 Вадим Савицкий, [Шойгу рассказал о масштабах учений Восток-2018](#), Izvestia, 28 August 2018.
- 91 Ильдус Гилязутдинов, [Идем на 'Восток'. Россия начала крупнейшие со времен СССР военные учения](#), RIA NOVOSTI, 11 September 2018.
- 92 Алексей Козаченко, [Наш долг - быть готовыми отстоять суверенитет](#), Izvestia, 13 September 2018.
- 93 Марина Щербакова, [Цугол: мощь и точность совместных ударов](#), Krasnaya Zvezda, 14 September 2018.
- 94 Анастасия Свиридова, [Боги войны не знают промаха](#). Krasnaya Zvezda. 24 August 2018.
- 95 INTERFAX-AVN. [Массированные авиаудары и борьбу с крылатыми ракетами отработают в ходе учений «Восток-2018» - Генштаб](#). 6 September 2018.
- 96 INTERFAX-AVN. [Боевые действия в районе Курил в ходе маневров 'Восток-2018' разыгрываться не будут - Генштаб РФ](#), 6 September 2018.
- 97 INTERFAX-AVN. [Учения «Восток-2018» не направлены против других стран и соответствуют оборонительному характеру военной доктрины РФ - Генштаб](#), 6 September 2018.
- 98 Владимир Мухин, [Маневры «Восток-2018» стартовали у границ США](#), Nezavisimaya Gazeta, 16 August 2018.
- 99 RIA NOVOSTI, [Шойгу рассказал коллеге из Китая о](#)



- на новейшей системе управления войсками, 2 September 2018; Марина Щербакова, В Восточном военном округе перед предстоящими этой осенью манёврами «Восток-2018» будет открыт Восточный региональный центр управления обороной Российской Федерации, *Krasnaya Zvezda*, 25 May 2018.
- 100 Вадим Савицкий, [Власти 20 регионов России привлекались к маневрам «Восток-2018»](#), RIA NOVOSTI, 10 October 2018.
- 101 Пресс-служба Восточного военного округа, [В Забайкальском крае военные связисты ВВО приступили к организации полевых пунктов управления](#), 22 August 2018.
- 102 Павел Лисицын, [Бригаду управления ЦВО перебросили в Забайкалье на учениях «Восток-2018»](#), RIA NOVOSTI, 11 September 2018.
- 103 INTERFAX-AVN, [Для учений «Восток-2018» развернута система связи, покрывающая половину территории России](#), 11 September 2018.
- 104 Илья Питалев, [В ходе учений «Восток-2018» создана единая система управления силами ПВО](#), RIA NOVOSTI, 12 September 2018.
- 105 Марина Щербакова, [Войска и силы вышли на исходную](#), *Krasnaya Zvezda*, 12 September 2018.
- 106 RIA NOVOSTI, [На проверке боеготовности действия войск оценят по трем направлениям](#), 20 August 2019.
- 107 Russian Ministry of Defence, [Russian Defence Minister General of the Army Sergei Shoigu holds teleconference with leadership of Armed Forces](#), September 2019.
- 108 Russian Ministry of Defence, [Communication specialists equip hidden command posts at Tsentr 2019 maneuvers](#), September 2019.
- 109 Russian Ministry of Defence, [Russian Deputy Defence Minister Colonel General Alexander Fomin held a briefing on the preparation and carrying of the command and post exercise 'Centre 2019'](#), September 2019.
- 110 Russian Ministry of Defence, [Russian Defence Minister General of the Army Sergei Shoigu holds teleconference with leadership of Armed Forces](#), September 2019.
- 111 VPK News, [Test na loyalmosti](#), October 2019.
- 112 Russian Ministry of Defence, [Tsentr-2019 manoeuvres](#).
- 113 Russian Ministry of Defence, [Russian Defence Minister General of the Army Sergei Shoigu holds teleconference with leadership of Armed Forces](#), September 2019.
- 114 Kremlin.ru, President of the Russian Federation, [Military exercises Tsentr 2019](#), and [Kremlin.ru](#), President of the Russian Federation
- 115 Russian Ministry of Defence, [Russian Defence Minister General of the Army Sergei Shoigu holds teleconference with leadership of Armed Forces](#), September 2019.
- 116 Ilya Polonsky, [Rossiyskiye voeynnye ucheniya Tsentr 2019 zastavyat Zapad zadumatsya](#), *Voyennoye Obozreniye*, 22 August 2019.
- 117 Russian Ministry of Defence, [Servicemen of Iskander-M missile complexes prepare main and reserve launching positions](#), September 2019.
- 118 Russian Ministry of Defence, [Union Shield 2019 Russian-Belarusian exercise kicks off in Nizhny Novgorod region](#), September 2019.
- 119 Russian Ministry of Defence, [Communication specialists equip hidden command posts at Tsentr 2019 manoeuvres](#), September 2019.
- 120 Ibid.
- 121 Департамент информации и массовых коммуникаций Министерства обороны Российской Федерации. [В Вооруженных Силах Российской Федерации началось стратегическое командно-штабное учение 'Центр-2019'](#), 16 September 2019.
- 122 Vienna Document 2011 established 13,000 troops as a benchmark not to have mandatory observations arranged.
- 123 Алексей Козаченко, Богдан Степовой, Эльнар Байназаров, [Холодная волна: иностранцам создали правила прохода Севморпути](#), *Izvestia*, 6 March 2019.
- 124 Алексей Рамм, Богдан Степовой, [Мы пойдем Севморпутем: спецназ отрабатывает парашютирование на острова Поддержка с неба может потребоваться базам, погранзаставам и отдаленным постам ВМФ и ПВО на Крайнем Севере](#), *Izvestia*, 8 August 2019.
- 125 Роман Крецул, Алексей Козаченко, [Задание вслепую: ВДВ готовят самую масштабную высадку за 38 лет](#), *Izvestia*, 30 July 2019.
- 126 Александр Круглов, Алексей Рамм, [В Арктике будет жарко: войска испытают Крайним Севером](#), *Izvestia*, 18 December 2018.
- 127 [Military TV Zvezda programme "Sluzhu Rossii"](#) from 22 September 2019.
- 128 ИНТЕРФАКС, [Стратегические учения «Центр» впервые пройдут на полигонах стран ОДКБ](#), 16 May 2019.
- 129 Константин Исаев, [Морской бой на Каспии: яркие кадры учений «Центр-2019»](#), *Military TV Zvezda*, 19 September 2019.
- 130 [Military TV Zvezda programme "Sluzhu Rossii"](#) from 22 September 2019.
- 131 Picture from RTR Planeta TV, "Vesti" news at 20:00, 22 September 2019
- 132 Argumenty, [Ucheniya Tsentr-2019 - vostochnaya koalitsiya pod nosom NATO](#), September 2019.
- 133 VPK, [Test na loyalmosti](#), October 2019.
- 134 Russian Ministry of Defence, [Russian Defence Minister General of the Army Sergei Shoigu holds teleconference with leadership of Armed Forces](#), September 2019.
- 135 VPK, Ucheniya Tsentr-2019: [BPLA Grusha, komplekсы Ironiya](#)



- [VDV i kitayskiye istrebiteli](#), September 2019.
- 136 RT, [Military readiness at the Central military district](#), June 2019.
- 137 Russian Ministry of Defence, [Na SKShU Tsentr 2019 sozdana mnogourovnevaya sistema razvedki](#), September 2019.
- 138 Департамент информации и массовых коммуникаций Министерства обороны Российской Федерации. [Замминистра обороны РФ генерал-полковник Александр Фомин провел брифинг о подготовке и проведении СКШУ «Центр-2019»](#). 12 September 2019.
- 139 Департамент информации и массовых коммуникаций Министерства обороны Российской Федерации, [В Вооруженных Силах Российской Федерации началось стратегическое командно-штабное учение «Центр-2019»](#), 16 September 2019.
- 140 ИНТЕРФАКС. [В России стартует стратегическое учение «Центр-2019»](#), 16 September 2019.
- 141 Pictures from RTR Planeta, "Vesti" TV news at 20:00. 23 September 2019.
- 142 ИНТЕРФАКС, [В России стартует стратегическое учение «Центр-2019»](#), 16 September 2019.
- 143 TV "NTV Mir" News "Segodnia", at 19:00. 23 SEP 2019.
- 144 TV "RTR Planeta" programme "Moscow, Kremlin, Putin". 23 September 2019, at 22:00,
- 145 Министерство обороны Российской Федерации, [Российские и таджикские военнослужащие совершили 100-километровый марш к месту проведения СКШУ «Центр-2019» в Таджикистане](#), 17 September 2019.
- 146 Министерство обороны Российской Федерации, [Горные стрелки ВС РФ и горные егеря Казахстана в рамках СКШУ «Центр-2019» провели первые совместные тренировки](#), 17 September 2019.
- 147 Наталья Вальханская, [«Центр-2019»: горные стрелки ЦВО отразили нападение «боевиков» в горах Тянь-Шань](#), Military TV Zvezda, 18 September 2019.
- 148 Анастасия Свиридова, [Близится время решающей «битвы»](#), Krasnaya Zvezda, 18 September 2019.
- 149 Наталья Вальханская, [«Центр-2019»: расчеты «Искандеров» перебрасывают в Казахстан](#), Military TV Zvezda, 16 September 2019.
- 150 Наталья Вальханская, [«Тюльпаны» спешат на «Центр»: артиллеристы совершают 500-километровый марш](#), Military TV Zvezda, 16 September 2019.
- 151 [RIA.ru tweet](#)
- 152 Lenta.ru, [Раскрыт сценарий учений «Центр-2019»](#), 17 September 2019.
- 153 Роман Крецул, Алексей Рамм, [По маршрутам военного времени: рейсовые автобусы призовут в армию](#), Izvestia, 8 October 2019.
- 154 Анастасия Свиридова, [Близится время решающей «битвы»](#), Krasnaya Zvezda, 18 September 2019.
- 155 Алексей Козаченко, Роман Крецул, [Денежное удовольствие: Минобороны развернуло сеть полевых банков](#), Izvestia, 20 September 2019.
- 156 Алексей Козаченко, Алексей Рамм, [Гиги по небу: Минобороны тестирует дальнбойный «военный интернет»](#), Izvestia, 1 August 2019.
- 157 Последние Астраханские новости сегодня, [Подразделения противовоздушной обороны ЦВО в рамках СКШУ «Центр-2019» заступят на дежурство в новых позиционных районах](#), 16 September 2019.
- 158 Daivis Petraitis, [«The Anatomy of Zapad-2017: Certain Features of Russian Military Planning»](#). Lithuanian Annual Strategic Review. 2017-2018 Volume 16. ISSN 2335-870X.
- 159 Роман Крецул, Алексей Рам, [«Андромеда» без туманностей: десантные танки перешли в онлайн](#), Izvestia, 1 April 2019.
- 160 Александр Круглов, Алексей Рамм, [Холодный интеллект: военные накроют Арктику сплошным полем наблюдения. На Северном морском пути протестируют автоматизированную систему управления](#), Izvestia, 21 December 2018.
- 161 Алексей Рамм, Богдан Степовой, Евгений Дмитриев, [Тихоокеанский флот получил корабль «звездных войн»](#), Izvestia. 21 September 2018.
- 162 Пресс-служба Западного военного округа, [Расчеты комплексов с БЛА «Орлан-10» провели разведку маршрута движения подразделений, поднятых по учебной тревоге в Воронежской области](#), 20 February 2019.
- 163 Пресс-служба Западного флота, [Подразделения общевойсковой армии ЗВО почти полностью оснастили новейшими образцами техники связи](#), 25 October 2018.
- 164 Алексей Рамм, Богдан Степовой, [Разведка с моря: корабельные ракеты направит искусственный интеллект](#), Izvestia, 15 July 2019.
- 165 Алексей Козаченко, [Десант на автомате: в Крыму испытали умную систему управления огнем](#), Izvestia, 18 July 2019.
- 166 Алексей Рамм, Алексей Козаченко, [Взгляд сверху: истребитель МиГ-31БМ превратят в штаб атаки](#), Izvestia, 4 May 2019.
- 167 Анастасия Свиридова, «У нашей связи - космический, воздушный и наземный эшелоны». Krasnaya Zvezda. 19 October 2018.
- 168 Департамент информации и массовых коммуникаций Министерства обороны Российской Федерации, [Десантно-штурмовой и артиллерийский полки гвардейского соединения ВДВ задействованы в тактическом учении в Псковской области](#), 24 September 2019.
- 169 ИНТЕРФАКС, [Западный военный округ провел учение с 2,5 тыс. Военнослужащими](#), 2 September 2019.
- 170 ИНТЕРФАКС, [Более 3 тыс. военнослужащих задействованы в учениях на юго-западе России](#), 10



- September 2019.
- 171 Пресс-служба Западного военного округа, [Мотострелковые подразделения армейского корпуса Балтийского флота на полигоне Правдинский отрабатывают действия в обороне](#), 3 September 2019.
- 172 Military TV Zvezda, [В ЮВО стартовало масштабное двустороннее учение с соединениями и воинскими частями двух общевойсковых армий](#), 23 July 2019.
- 173 TASS, [Танкисты и мотострелки уничтожили «противника» в ходе учений на Северном Кавказе](#), 27 August 2019.
- 174 Izvestia, [Масштабные учения начались в шести регионах ЮВО](#), 26 August 2019.
- 175 Belarusian MOD, [Визит российской делегации в Республику Беларусь](#), 4 September 2019.
- 176 Belarusian MOD, [Военные связисты отправились на учение 'Щит Союза - 2019'](#), 23 August 2019.
- 177 Министерство Обороны Республики, [В обучаемых - офицеры-операторы](#), 29 May 2019.
- 178 Пресс-служба Западного военного округа, [Артиллеристы танковой армии Западного военного округа отрабатывают методику скрытого выдвижения на огневые позиции](#), 27 August 2019.
- 179 Military TV Zvezda, ['Карусель' огня: танкисты ЗВО отработали новые методы стрельбы в Воронежской области](#), 28 August 2019.
- 180 Пресс-служба Западного военного округа, [В Ленинградской области с мотострелковым соединением ЗВО проведено тактическое учение с боевой стрельбой](#), 28 August 2019.
- 181 Пресс-служба Западного военного округа, [Более 1,5 тыс. военнослужащих общевойсковой армии ЗВО подняты по учебной тревоге в рамках учения в Ленинградской области](#), 24 September 2019.
- 182 Пресс-служба Южного военного округа, [Артиллерия большой мощности ЮВО уничтожила объекты условного противника в ходе учений на Северном Кавказе](#), 28 August 2019.
- 183 Over the years, Russia has been consistently modernising the nuclear arsenal which it inherited from the Soviet Union, though much of it continues in service. The names of the newest Russian nuclear systems, promoted personally by Russian President Vladimir Putin, are now well-known: 'Kinzhal', a nuclear-capable aero-ballistic missile launched from a high-altitude supersonic aircraft; 'Avangard', a nuclear hypersonic glide vehicle (HGV); 'Sarmat', a multiple-warhead ICBM; 'Burevestnik', a nuclear-powered nuclear-armed 'unlimited' range cruise missile; 'Poseidon', a nuclear-powered nuclear-armed autonomous underwater vehicle; and 'Peresvet', a ground-based, reportedly nuclear-powered, laser weapon able to destroy or disable drones, aircraft and, possibly, satellites. Additions to Russia's non-strategic nuclear weapons (NSNW) are explored separately in this report.
- 184 To examine the details, implications and messaging aspects of Grom 2019, this report will:
- analyse the capabilities involved in *Grom 2019*,
 - survey the Russian military's and other official *Grom* communications,
 - match these announcements and activities to practice and doctrine in the search for discrepancies,
 - outline the latest Russian nuclear-weapons developments in order to assess the capabilities they confer on the Russian Federation Armed Forces, notably in the European theatre, and extrapolate the messages and implications of both *Grom 2019* and broader nuclear questions.
- 185 [Russian strategic nuclear forces website](#), 8 May 2014.
- 186 [Russian strategic nuclear forces website](#), 30 October 2015.
- 187 [Russian strategic nuclear forces website](#), 12 October 2016.
- 188 [Russian Defence Ministry official website](#), 26 October 2017.
- 189 [Russian strategic nuclear forces website](#), 11 October 2018.
- 190 [Russian Defence Ministry official website](#), 14 October 2019.
- 191 [Russian Defence Ministry official website](#), 17 October 2019.
- 192 Potentially of relevance in the context of the IMF Treaty controversy. Explored separately in this report.
- 193 Kristin Ven Bruusgaard, "[Russian Strategic Deterrence](#)", *Survival*, 58:4, 7-26, 2016.
- 194 Roger N. McDermott & Tor Bukkvoll, "[Russia in the Precision-Strike regime - military theory, procurement and operational impact](#)", Norwegian Defence Research Establishment (FFI), 1 August 2017.
- 195 See for example V.I. Slipchenko, "Sixth-Generation Wars" (*Войны шестого поколения*), *Yezhednevnyaya gazeta Leningradskogo voyennogo okruga*, 7 May 1997. Slipchenko's calculations are that 9,000 precision missiles are needed to destroy 300 critical hypothetical strategic objects of the country under attack, or a rate of 30 missiles per object. Detailed by Jānis Bērziņš, "Not 'Hybrid' but New Generation Warfare", in Glen E. Howard and Matthew Czekaj, *Editors*, "Russia's Military Strategy and Doctrine", The Jamestown Foundation, February 2019.
- 196 As a recent study notes, "In Russian military writings, the role of nonstrategic nuclear weapons is not only enduring, but remains prominent in regional contingencies." For this investigation of the relationship between regional nuclear deterrence and nonnuclear deterrence in Russian military thinking, see Anya Fink and Michael Kofman, "[Russian Strategy for Escalation Management: Key Debates and Players in Military Thought](#)", CNA, April 2020.
- 197 This wording is explored separately in this report. The phrase is used in the [Russian MoD's account of Gen Ilyin's 14 October briefing](#).
- 198 This wording is explored separately in this report.
- 199 [Video report from Russian official state Rossiya 1 TV](#), 18



- October 2019.
- 200 It is not known from open sources precisely what these weapons based on “new physical principles” are. One suggestion, for example, is that this applies to such weapons as “beam, geophysical, genetic, psychophysical and other technology” (Stephen Blank, “Putin’s ‘Asymmetric Strategy’: Nuclear and New-Type Weapons in Russian Defence Policy,” in Glen E. Howard and Matthew Czekaj, Editors, “[Russia’s Military Strategy And Doctrine](#),” The Jamestown Foundation, February 2019). Another is that this was a reference to hypersonic weapons. However, doubt has been cast on this suggestion. Russia did not have any operational NAVAL hypersonic weapons at the time of the exercise. The Kinzhal is the AIR FORCE’s only hypersonic missile known to be operational, but the first launch of a Kinzhal, from the Arctic, did not take place until approximately six weeks after Grom 2019. As for the Avangard hypersonic glide vehicle (HGV), its first deployments were announced in December 2019. It could have been deployed earlier, early enough to be involved in Grom 2019. No Avangard HGV use during Grom 2019 was announced, however. Moreover, any such use would have been notifiable internationally in view of its use of an ICBM as its delivery vehicle (Russia’s UR-100NUTTH/SS-19 Stiletto ICBM). Furthermore, weapons based on “other physical principles” are a term used in the former Anti-Ballistic Missile (ABM) Treaty to describe directed-energy weapons. And in November 2019, President Putin characterised “weapons based on new principles of physics” as different to either hypersonic missiles or laser weapons. Nor should the possibility be discounted that that communication simply aimed to mislead - “troll” - the recipient.
- 201 [Website of Russian Defence Ministry-controlled Zvezda TV](#), 20 October 2019.
- 202 “Grom 2019 exercise: 16 cruise and ballistic missiles to be launched” ([На учениях «Гром-2019» совершат 16 пусков крылатых и баллистических ракет](#)), Russian state news agency RIA Novosti, 14 October 2019.
- 203 [Video report from Russian official state Rossiya 1 TV](#), 18 October 2019.
- 204 Aleksandr Golts, “Rehearsal for catastrophe” ([Репетиция катастрофы](#)), Yezhednevny Zhurnal, 17 October 2019.
- 205 Aleksandr Peshkov, “Launch of Sineva missile from under water: footage from Grom 2019 exercise” ([Пуск ракеты «Синева» из-под воды: кадры с учений «Гром-2019»](#)), website of Russian Defence Ministry-controlled Zvezda TV, 17 October 2019.
- 206 One of the two RSM-50 (R-29R) ballistic missiles, a 40-year-old design, “failed to emerge from” and remained in the launch tube (Ivan Safronov, “Submariners’ firings incomplete” ([Подводники отстрелялись по неполной программе](#)), Russian Vedomosti newspaper website, 20 October 2019.
- 207 “Defence Ministry denies reports of emergency at Grom 2019 exercise” ([В Минобороны опровергли данные о ЧП на учениях «Гром-2019»](#)), Russian Izvestiya newspaper website, 21 October 2019.
- 208 Inna Sidorkova, Petr Kanayev, “Kalibr missiles fail to launch at first attempt during Grom 2019 exercise” ([На учениях «Гром-2019» ракеты «Калибр» запустили не с первой попытки](#)), Russian RBC.ru newspaper website, 21 October 2019.
- 209 “[Russia’s Grom-2019 strategic nuclear exercise](#)”, IISS, December 2019.
- 210 Mark B. Schneider, “[Putin Nukes Trump - Again](#)”, RealClearDefense.com, 3 December 2019.
- 211 “[Russia’s Grom-2019 strategic nuclear exercise](#)”, IISS, December 2019.
- 212 U.S. Department of State, “[New START Treaty Aggregate Numbers of Strategic Offensive Arms](#),” Fact Sheet (Washington D.C.: U.S. Department of State), 1 September 2019..
- 213 [Russian strategic nuclear forces website](#), 4 January 2020..
- 214 Pavel Felgenhauer, “[Russia Escalates Its Reliance on Nuclear Deterrence](#)”, Eurasia Daily Monitor Volume: 16 Issue: 156, The Jamestown Foundation, 7 November 2019.
- 215 Ibid.
- 216 Mark B. Schneider, “[Putin Nukes Trump - Again](#)”, RealClearDefense.com, 3 December 2019.
- 217 “[Over 8,000 missile and artillery troops hold live-fire exercise in Russia’s south](#)”, Russian state TASS news agency website, 15 October 2019.
- 218 “[RAF Lossiemouth jets scrambled to Russian planes twice in five days](#)”, BBC, 3 April 2019. Or for the latest in a recent series of such flights, this one over the Baltic and near the UK, see Bob Virtue, “[Russia goads Britain and NATO by sharing video of military flight which sparked huge alert](#)”, Express, 30 April 2020.
- 219 [Russian Defence Ministry official website](#), 24 December 2019.
- 220 “[Ukrainian naval commander: Russia rehearsed missile strike against Odessa](#)”, UAWire.org, 15 November 2019.
- 221 Aleksandr Peshkov, “Launch of Sineva missile from under water: footage from Grom 2019 exercise” ([Пуск ракеты «Синева» из-под воды: кадры с учений «Гром-2019»](#)), website of Russian Defence Ministry-controlled Zvezda TV, 17 October 2019.
- 222 “[U.S. Strategic Command Conducts Exercise Global Thunder](#)”, U.S. Strategic Command, 29 October 2019.
- 223 [Russian strategic nuclear forces website](#), 29 October 2019.
- 224 Thomas Nilsen, “[Russian subs honing stealth skills in major North Atlantic drill, says Norwegian intel](#)”, The Barents Observer, 29 October 2019.
- 225 Tyler Rogoway, “[Russia Sends Ten Subs Into North Atlantic In Drill Unprecedented In Size Since Cold War](#)”, The Drive, 29 October 2019.



- 226 Dmitriy Boltenkov, "Breakthrough to the West: What Russian submariners did in the Atlantic" ([Прорыв на Запад: что делали российские подводники в Атлантике](#)), Russian Izvestiya newspaper website, 3 November 2019.
- 227 "Conference with the leadership of the Ministry of Defence and defence industry enterprises" ([Совещание с руководством Минобороны и предприятий ОПК](#)), official Russian presidential website, 4 December 2019.
- 228 Stephen Ennis, "[Russian media learn to love the bomb](#)," BBC Monitoring, 23 February 2015.
- 229 Stefan Forss, "Russian Nuclear Policy, Doctrine and Strategy," in Glen E. Howard and Matthew Czekaj, Editors, "[Russia's Military Strategy And Doctrine](#)," The Jamestown Foundation, February 2019.
- 230 Stephen Blank, "Putin's 'Asymmetric Strategy': Nuclear and New-Type Weapons in Russian Defence Policy," in Glen E. Howard and Matthew Czekaj, Editors, "[Russia's Military Strategy And Doctrine](#)," The Jamestown Foundation, February 2019.
- 231 Pavel Felgenhauer, "[Russia Escalates Its Reliance on Nuclear Deterrence](#)," Eurasia Daily Monitor Volume: 16 Issue: 156, The Jamestown Foundation, 7 November 2019.
- 232 Mark B. Schneider, "[Putin Nukes Trump - Again](#)," RealClearDefense.com, 3 December 2019.
- 233 Pavel Felgenhauer, "[Russia Escalates Its Reliance on Nuclear Deterrence](#)," Eurasia Daily Monitor Volume: 16 Issue: 156, The Jamestown Foundation, 7 November 2019.
- 234 Mark B. Schneider, "[Putin Nukes Trump - Again](#)," RealClearDefense.com, 3 December 2019.
- 235 Pavel K. Baev, "[The Grom-2019 Exercise Illuminated the Risks of Nuclear Renaissance in Russian Strategic Culture](#)," Security Insights, No.43, George C. Marshall European Center for Security Studies, January 2020.
- 236 Kristin Ven Bruusgaard, "[Russian Strategic Deterrence](#)," Survival, 58:4, 7-26, 2016.
- 237 Stephen Blank, "Putin's 'Asymmetric Strategy': Nuclear and New-Type Weapons in Russian Defence Policy," in Glen E. Howard and Matthew Czekaj, Editors, "[Russia's Military Strategy And Doctrine](#)," The Jamestown Foundation, February 2019.
- 238 Andrey Kokoshin, "[Ensuring Strategic Stability in the Past and Present: Theoretical and Applied Questions](#)," Harvard Kennedy School, Belfer Center, June 2011, p.4.
- 239 Explored in detail in Stefan Forss, "Russian Nuclear Policy, Doctrine and Strategy," in Glen E. Howard and Matthew Czekaj, Editors, "[Russia's Military Strategy And Doctrine](#)," The Jamestown Foundation, February 2019.
- 240 Olga Olikier, "[Russia's Nuclear Doctrine: What We Know, What We Don't, and What That Means](#)," Center for Strategic and International Studies, May 2016.
- 241 "Military Doctrine of the Russian Federation" ([Военная доктрина Российской Федерации](#)), website of official Russian government newspaper Rossiyskaya Gazeta, 30 December 2014.
- 242 [Russian Defence Ministry official website](#), 14 October 2019.
- 243 Mark B. Schneider, "[Putin Nukes Trump - Again](#)," RealClearDefense.com, 3 December 2019.
- 244 "[Russia's Grom-2019 strategic nuclear exercise](#)," IISS, December 2019. Similarly, another study also says that, "the scenario envisages a first strike by the enemy's strategic nuclear forces against Russia" - see Maxim Starchak, "[Key Features of Russia's Grom 2019 Nuclear Exercise](#)," Eurasia Daily Monitor, Volume: 16 Issue: 150, The Jamestown Foundation, 29 October 2019.
- 245 Mark B. Schneider, "[Putin Nukes Trump - Again](#)," RealClearDefense.com, 3 December 2019.
- 246 Ibid.
- 247 Under the PNI terms, Russia undertook to eliminate all nuclear artillery munitions, nuclear warheads for tactical missiles and nuclear mines; remove all tactical nuclear weapons from surface ships and multipurpose submarines into central storage along with all nuclear arms assigned to land-based naval aircraft; and separate nuclear warheads from air defence missiles, with a "portion" to be destroyed and others to be put into central storage.
- 248 Stefan Forss, "Russian Nuclear Policy, Doctrine and Strategy," in Glen E. Howard and Matthew Czekaj, Editors, "[Russia's Military Strategy And Doctrine](#)," The Jamestown Foundation, February 2019.
- 249 Pavel K. Baev, "[The Grom-2019 Exercise Illuminated the Risks of Nuclear Renaissance in Russian Strategic Culture](#)," Security Insights, No.43, George C. Marshall European Center for Security Studies, January 2020.
- 250 Mark B. Schneider, "[Yes, the Russian Are Testing Nuclear Weapons, and It Is Very Important](#)," RealClearDefense, 8 August 8 2019.
- 251 The broader question of potential problems in Russia's nuclear deterrent complex ranges from those revealed by *Grom 2019* (SLBM and Kalibr launch problems), to questions over the reliability of the Bulava SLBM (multiple launch failures), to delays with the development and completion of nuclear projects (e.g. Sarmat ICBM and the Borey class of new ballistic missile nuclear submarines), to a string of nuclear accidents in the Russian military in 2019 (e.g. a Burevestnik nuclear cruise missile loss and a fatal fire on board the Losharik nuclear-powered deep-diving mini submarine). Despite these problems, Russia is determined to pursue these programmes and willing to accept nuclear risks - arguably as yet another element of nuclear brinkmanship.
- 252 Interview, "Academician Yevgeniy Nikolayevich Avrorin: 'Science is what can be done, and technical science is what needs to be done'" (Академик Евгений Николаевич Аврорин:



- «Наука — это то, что можно сделать, а техническая наука — это то, что нужно сделать», Atomnaya Energiya website, 10 April 2013..
- 253 Stephen Blank, "Putin's 'Asymmetric Strategy': Nuclear and New-Type Weapons in Russian Defence Policy," in Glen E. Howard and Matthew Czekaj, Editors, "[Russia's Military Strategy And Doctrine](#)," The Jamestown Foundation, February 2019.
- 254 The assessment, which fed into the work on the US Nuclear Posture Review, categorised these advanced nuclear arms as:
- Precision-strike nuclear weapons,
 - "clean" weapons, which produce little radiation fallout,
 - pure fusion weapons, which do not require a nuclear blast to trigger them,
 - tailored effects weapons, such as neutron bombs, which kill with radiation instead of a large blast; EMP weapons; and X-ray and gamma-ray weapons.
- These can be expected to range in blast size from yields of just 10 tons of TNT to 1 kiloton. Bill Gertz, "[Russia Sharply Expanding Nuclear Arsenal, Upgrading Underground Facilities](#)," The Washington Free Beacon, 13 December 2017.
- 255 Pavel Felgenhauer, "[Russia Escalates Its Reliance on Nuclear Deterrence](#)," Eurasia Daily Monitor Volume: 16 Issue: 156, The Jamestown Foundation, 7 November 2019.
- 256 Such as a pure fusion charge - a concept yet to be proven in practice.
- 257 Anya Fink and Michael Kofman, "[Russian Strategy for Escalation Management: Key Debates and Players in Military Thought](#)," CNA, April 2020.
- 258 Igor Sutyagin, "[Atomic Accounting: A New Estimate of Russia's Non-Strategic Nuclear Forces](#)", RUSI Occasional Paper, November 2012..
- 259 This includes weapons as diverse as:
- the army's nuclear-capable Tochka and Iskander missiles (and possibly nuclear artillery),
 - the navy's submarine-launched and shipborne cruise missiles (including the Kalibr but also several other designs) and nuclear depth charges,
 - the air force's various air-launched weapons (including temperature-resistant nuclear bombs delivered by the MiG-25 Foxbat),
 - and missile defence and air defence missiles (including potentially the S-300 and S-400 SAM systems) (Igor Sutyagin, "[Atomic Accounting: A New Estimate of Russia's Non-Strategic Nuclear Forces](#)", RUSI Occasional Paper, November 2012..
- 260 An expert assessment from 2016 counted 10 new or upgraded nuclear warheads for 17 new or upgraded nuclear systems (potentially 12 and 20 respectively). In addition to the Iskander, Kalibr and Kh-102 missiles mentioned above, they include such nuclear-capable missile systems as the air-launched Kh-31, Kh-32 and Kh-58/Kh-58UNShK, the anti-ship Yakhont and Bastion, the hypersonic 3M22 Tsirkon and, at the lowest end of the spectrum, even a new nuclear artillery shell (Igor Sutyagin, "[Layner and Sineva](#)," Radio Svoboda, 5 April 2016.
- 261 Johan Norberg and Fredrik Westerlund, "[Russia's Armed Forces in 2016](#)," in Russian Military Capability in a Ten-Year Perspective – 2016 (Gudrun Persson, ed.), The Swedish Defence Research Establishment (FOI), December 2016, pp.53-54.
- 262 Since the demise of the INF Treaty, precipitated by the development of the longer-range 9M729/SSC-8 cruise missile in breach of the INF, the Kremlin has ordered the development of a ground-launched version of the sea-launched Kalibr with an intermediate-range cruise missile; and a ground-launched missile system with a hypersonic missile of similar range (Matthew Bodner, "[Russia bids farewell to INF Treaty with fresh nuclear development plans](#)," Defensenews.com, 6 February 2019). An important caveat is that well-informed researcher Mikhail Barabanov, from the Center for Analysis of Strategies and Technologies (CAST), describes the 9M729 missile itself as apparently the same as the Kalibr land-attack naval cruise missile (Stefan Forss, "Russian Nuclear Policy, Doctrine and Strategy," in Glen E. Howard and Matthew Czekaj, Editors, "[Russia's Military Strategy And Doctrine](#)," The Jamestown Foundation, February 2019.
- In addition to the intermediate-range Russian developments noted above, the reported retention of the Soviet-era Skorost IRBM was, if true, an INF violation since it should have been declared and eliminated under the treaty. The RS-26 Rubezh, a hybrid design (whose status is at present uncertain), is another example: an "ICBM" but in reality with intermediate-range capability. There are also indications that the Topol-M ICBM could, if necessary, be converted to an intermediate-range missile to target Europe. Furthermore, it is assessed that Russia's S-300, S-400 and future S-500 air defence missiles can function as dual-use, conventional or nuclear medium-range or shorter-range ballistic missiles. (Stephen Blank, "Putin's 'Asymmetric Strategy': Nuclear and New-Type Weapons in Russian Defence Policy," in Glen E. Howard and Matthew Czekaj, Editors, "[Russia's Military Strategy And Doctrine](#)," The Jamestown Foundation, February 2019.
- 263 Kristin Ven Bruusgaard, "[Russian Strategic Deterrence](#)," Survival, 58:4, 7-26, 2016.
- 264 Bill Gertz, "[Russia Sharply Expanding Nuclear Arsenal, Upgrading Underground Facilities](#)," The Washington Free Beacon, 13 December 2017.



