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**Long-range Russian missiles in the war in Ukraine***Long-range Russian missiles in the war in Ukraine**Abstract:*

*After the crisis of the 1990s, Russian leaders spent fifteen years restoring their military capacities to restore power and influence. The beginning of these plans was driven by three fundamental factors. First, the perception that Russia was being excluded from global decision-making forums (February 2007). Second, the realisation of the mediocre performance of its military forces in the war in Georgia (summer 2008). And third, the growing availability of financial resources. The activation of two successive rearmament programs gave priority to the modernization of strategic nuclear forces, combat aviation, the Navy, and long-range missiles and guided munitions, while other components of its armed forces were sidelined. The results have been revealed in the war in Ukraine, with its weaknesses and strengths, as well as the massive use of all types of missiles adapted to the mission.*

*Keywords:*

*Russia, rearmament programs, long-range missiles, guided munitions, war in Ukraine.*

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## Introduction

Maintaining the non-proliferation regime is primarily the responsibility of the major powers, not out of an altruistic desire to prevent the spread of nuclear weapons that make the world more insecure, but because their mere possession gives them a destructive power unparalleled in history and they therefore seek at all costs to maintain their monopoly on this force. This is the origin of the first agreements and treaties signed by the United States and the Soviet Union during the Cold War, which were later joined by the other nuclear powers within the P5, i.e. the permanent members of the UN Security Council, which constitutes the global directorate.

This led to the multilateral Nuclear Non-Proliferation Treaty (NPT) in July 1968, which established a truly global non-proliferation regime and remains in force to this day. Then there was the bilateral Anti-Ballistic Missile Treaty (ABM Treaty) in May 1972, which in turn laid the foundations of the strategic stability regime between the two superpowers. This was followed by the Strategic Arms Limitation Treaties (SALT and START in their different versions), the ban on intermediate-range missiles (INF treaty) and the nuclear test ban agreements. Three decades after the end of the Cold War, this entire international legal-political framework is on the verge of being annulled.

However, it should be made clear beforehand that the dismantling of the non-proliferation and disarmament regimes that guarantee global security is not the result of recent events, not even the war in Ukraine, but of a series of events that have been brewing for two decades and whose starting pistol was fired by the US administration of George Bush Jr. when he took the decision to abandon the ABM Treaty<sup>1</sup>.

Its consequences have been far-reaching and, from today's perspective, this decision seems completely wrong for the maintenance of world peace and security. It should be borne in mind that this treaty was part of the 1972 Moscow Agreements, which transformed the bipolar system from an implicit, unstructured, and unstable regime into an explicit, orderly, and stable one, where norms, rules and decision-making procedures became clear to both sides.

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<sup>1</sup> CERVELL HORTAL, M. J. "La denuncia del Tratado ABM (diciembre de 2001) por Estados Unidos", *Revista Española de Derecho Internacional* 1, 2002, pp. 509-514.

From that moment on, the United States and the Soviet Union were able to make decisions and take action to assert their interests without fear of the risk of direct confrontation between them, as the risk of escalation to nuclear war was significantly reduced<sup>2</sup>. These agreements thus facilitated the détente period of the 1970s, the adoption of the Helsinki Act of August 1975, and made possible the strategic changes that Mikhail Gorbachev set in motion from May 1985 in search of a new era of cooperation and peace<sup>3</sup>.

This new scenario allowed the two superpowers (later Russia as the international legal successor to the Soviet Union) to adopt a set of treaties known as the "Disarmament Agreements"<sup>4</sup>. Their implementation facilitated a series of events unthinkable a decade earlier: first, they minimised the risk of nuclear war; second, they put an end to the bipolar confrontation following the self-destruction of the Soviet regime; and, third, they ushered in globalisation. This opened a new stage in the international system that brought higher levels of development, connectivity, and wealth generation than in any previous period of humanity<sup>5</sup>. These assertions are a far cry from Fukuyama's end of history thesis<sup>6</sup>, which has been proven to have failed.

However, this period also saw the emergence of new great powers, such as mainland China, with its determination to overcome the so-called "century of humiliation" it suffered at the hands of Western powers. The recovery of Putin's Russia, with a gigantic nuclear arsenal and the aspiration to re-establish its power in its traditional sphere of influence. But also, powers such as India, Brazil, and South Africa, each in its own sphere and with its own capabilities<sup>7</sup>.

This international dynamic seems to affirm the existence of a tendency to resist hegemony. This would be the result of the very structure of the international system made up of sovereign states that are legally free and equal, but very different in terms of power

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<sup>2</sup> FREEDMAN, L. *The evolution of nuclear strategy*. Oxford. International Institute for Strategic Studies, 1983.

<sup>3</sup> This period of change can be followed in CIMORRA, B. *La caída del Imperio Soviético*. Madrid, Editorial Actas, 2021.

<sup>4</sup> FRÍAS SÁNCHEZ, C. "El futuro de la disuasión nuclear: análisis de las estrategias de las grandes potencias", *Panorama nuclear global* (Pérez Gil coord.) Cuadernos de estrategia IEEE 229. Madrid: Ministerio de Defensa, 2025, pp. 35-69. Available at: <https://www.defensa.gob.es/ceseden/-/cuaderno-de-estrategia-229>

Note: All hyperlinks in this article are active as of 20 June 2025.

<sup>5</sup> This has been pointed out, among others, by GARAY VERA, C. *En nombre de la Humanidad. Entre la globalización europea y la estadounidense*. Santiago de Chile, Biblioteca Militar, 2023.

<sup>6</sup> FUKUYAMA, F. *The end of history and the last man*. New York. Free Press, 1992).

<sup>7</sup> We spoke on this issue in a specific symposium at the 58th International Congress of Americanists, held in Novi Sad from 30 June to 4 July 2025.

and influence, and which therefore tends inexorably towards equilibrium. From this approach derives the success of Kissingerian realism in explaining crises and conflicts in the international system<sup>8</sup>.

Thus, the period of imperfect hegemony would have lasted barely one or two decades after the fall of the Soviet Union (December 1991), depending on the scholar consulted, until entering a period of transition triggered by the growing demands of the emerging powers for a new distribution of world power<sup>9</sup>. Inevitably, the international legal order underpinning the power of the United States, and thus of the West, was in crisis. Not to see it is to close one's eyes to reality because the certainties of what was going to happen were on the table<sup>10</sup>, but were not heeded. Consequently, the conflict in Ukraine has its root causes in this confrontation for hegemony and will almost certainly not be the last<sup>11</sup>.

### **Russian leaders change course for European security**

On 10 February 2007, during the Munich Security Conference, Russian President Vladimir Putin issued a series of warnings against NATO expansion, explicitly outlining the European and global security scenarios desired from the Russian perspective<sup>12</sup>. However, this approach was not only not listened to with interest, but was rejected and even vilified, precisely by those who bear the main responsibility for maintaining them, namely the United States, and its consequences are now being felt<sup>13</sup>. It also confirms the rule that one should always have a plan, because others who are more willing or more aggressive are likely to have a plan, and when conflict arises, they will have the advantage of planning and preparation. Again, the war in Ukraine provides lessons in this regard that are of paramount importance at both political-strategic and operational levels.

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<sup>8</sup> KISSINGER, H. *Diplomacy*. New York. Simon and Schuster, 1994.

<sup>9</sup> PÉREZ GIL, L. *The transition from an imperfect hegemony to a stable multipolar system*. Cuaderno de Trabajo ANEPE 1, 2024. Available at: <https://unofar.cl/wp-content/uploads/2024/03/Cuaderno-de-trabajo-N%C2%B01-2024-ANEPE.pdf>

<sup>10</sup> This is what BADOS NIETO, V. *El reinicio de la historia. The first man returns. The era of deconstruction and traps*. IEEE 40/2025 Analysis Paper. Available at:

[https://www.defensa.gob.es/documents/2073105/2564257/el\\_reinicio\\_de\\_la\\_historia\\_2025\\_dieeee40.pdf](https://www.defensa.gob.es/documents/2073105/2564257/el_reinicio_de_la_historia_2025_dieeee40.pdf)

<sup>11</sup> See BAQUÉS, J. "Geopolitical considerations arising from the war in Ukraine", *Global Strategy*. 25 October 2022. Available at: <https://global-strategy.org/geopolitica-guerra-ucrania/>

<sup>12</sup> Available at: <http://www.kremlin.ru/events/president/news/37166>

<sup>13</sup> Russian academic Alexei Arbatov recently spoke about the importance of Disarmament Agreements for the maintenance of strategic stability and the negative consequences of abandoning them. Interview in *Kommersant*, 17 April 2025. Available at: <https://kommersant.ru/doc/7657482>

The rejection of Western political interference near its borders was compounded by US decisions to abandon disarmament agreements one after another. It seems almost inevitable, therefore, that Russian leaders began to take unilateral decisions to restore deterrence and, if deterrence failed, to be prepared for war.

But these plans took years to be implemented. The internal stability achieved after Putin's recentralisation of power and a significant increase in hydrocarbon revenues enabled the activation of two arms plans: the first from 2011-2018, and the second from 2018-2027, which, considering the war in Ukraine, have borne fruit. In these plans, Russian leaders prioritised the modernisation of the strategic nuclear triad<sup>14</sup>, the Navy, the Air Force, long-range precision strike capabilities and guided munitions. Other capabilities were postponed and their negative effects have also been seen in the war in Ukraine, where they have had to learn the hard way, because war is a great tell-tale<sup>15</sup>.

Thus, on 1 March 2018, President Putin announced, during his annual address to the Federal Assembly, a set of advanced nuclear-capable weapons programmes aimed at putting Russia at the forefront of strategic deterrence<sup>16</sup>. He outlined five systems that had been under development for decades, but were already in the experimental phase or close to entry into service thanks to new technological achievements and the availability of financial resources. These were the intercontinental ballistic missile (ICBM)<sup>17</sup> Sarmat, the hypersonic glider vehicle (HGV) Avangard, the nuclear-powered strategic torpedo Poseidon, the nuclear-powered cruise missile (LCM) Burevestnik and the hypersonic air-launched ballistic missile (ALBM) Kinzhal. Some are still being tested, others are already in service and some have been used in the war in Ukraine.

To these should be added the hypersonic Zircon LCM, the new capabilities demonstrated by the Iskander-M short-range land-based missile (SRBM) and the Kalibr submarine-launched cruise missile (SLCM), all three with dual (conventional and nuclear) capabilities, which have been massively employed in this conflict.

Russian officials and leading Russian analysts have repeatedly stated that these programmes were a response to the commissioning of US ballistic missile defence

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<sup>14</sup> PÉREZ GIL, L. "Poderío nuclear de Rusia: nuevos planteamientos sobre capacidades y doctrina de empleo", *Panorama nuclear global* (Pérez Gil coord.) Cuadernos de Estrategia n.º 229. Madrid, Ministerio de Defensa, 2025, pp. 71-106. Available at: <https://www.defensa.gob.es/ceseden/-/cuaderno-de-estrategia-229>

<sup>15</sup> TODD, E. *La Défaite de l'Occident*. Paris. Éditions Gallimard, 2024.

<sup>16</sup> Available at: <http://www.kremlin.ru/events/president/news/56957>

<sup>17</sup> Acronyms are used in this communication according to Western standards, unless otherwise indicated.

systems (BMD systems) activated after the abandonment of the ABM Treaty in 2002. In other words, they sought to restore one of the foundations of the Cold War regime of strategic stability.

At this point it is worth recalling that only the Strategic Arms Limitation Treaty (New START) signed in Prague in April 2010 remains in force, although with part of its effects suspended as a result of the war in Ukraine and whose validity expires on 5 February 2026, with no explicit possibility of extension. The consequences of its expiry or non-renewal are potentially adverse, because they would definitively put an end to the explicit regime of strategic stability between the two nuclear superpowers, which possess 90% of the world's nuclear weapons.<sup>18</sup>

### **Russia's security doctrinal framework**

Russian defence policies, military doctrine and nuclear weapons employment doctrine are set out in a series of documents that have been updated over the past decade to adapt to changes in the global security regime. Russian leaders have sought to compensate for their inferiority in conventional means with both the United States and China by modernising and enhancing nuclear deterrence forces. They have also been introducing doctrinal changes that have been embodied in official documents intended both for consumption by their elites and externally, also as part of their communication strategy aimed at generating deterrence vis-à-vis other powers. More recently, the war in Ukraine has led to an update of these documents, precisely to reinforce this message in the face of what they see as NATO's attempts to interfere in their traditional sphere of influence.

The Russian Military Doctrine of 19 December 2014 states that the Armed Forces are the guarantee of the country's long-term security and development<sup>19</sup>. This document kept in force a reserved annex, which stated that nuclear weapons fulfil both a deterrent and a military function. On 2 June 2020 President Putin first made these employment assumptions public under the title "Fundamentals of State Policy on Nuclear

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<sup>18</sup> See KRISTENSEN, H. et al. *Nuclear Notebook*, 2025. Available at: <https://thebulletin.org/nuclear-notebook/>

<sup>19</sup> Document in English. Available at: [https://rusmilsec.blog/wp-content/uploads/2021/08/mildoc\\_rf\\_2014\\_eng.pdf](https://rusmilsec.blog/wp-content/uploads/2021/08/mildoc_rf_2014_eng.pdf)

Deterrence"<sup>20</sup>, a document that has recently been updated (19 November 2024) to try to respond to the challenges posed by the war in Ukraine in terms of nuclear deterrence.

The National Security Strategy of 2 July 2021 is an extensive document that sets out the challenges and threats facing the country during the current decade<sup>21</sup>. It repeats the familiar positions of rejection of NATO's activities, the build-up of its military infrastructure in Eastern Europe and the expansion of exercises close to Russia's borders, according to its potentially dangerous approach to its security. There is also talk of increased military threats, grey zone operations and lowering the threshold for the use of nuclear weapons in the event of conflict. Significantly, all these scenarios are being put on the table in the context of the war in Ukraine<sup>22</sup>.

On 19 November 2024 the Russian president signed an updated policy on the use of nuclear weapons<sup>23</sup>. Like the previous document, this new version declares that nuclear weapons are the ultimate guarantee of Russia's existence. Accordingly, states that, in the face of massive aggression, the Kremlin will be able to respond with a nuclear counterattack as an application of the strategy of deterrence by punishment. Moreover, it should be noted that there is no NFU (No First Use) declaration and that the possibility of a limited nuclear war is explicitly rejected.

In order to fulfil these forecasts, it is necessary to maintain the force potential at a sufficient level to guarantee deterrence and ensure the defence of the country in the event of aggression, including the possession of a huge counter-strike force, so far in line with the agreements in force. This is because, despite the suspension of Russian participation in the New START announced on 21 September 2023, both the United States and Russia continue to comply with the quantitative limits they impose on their strategic nuclear systems. But, as noted above, it will expire in February 2026, unless they agree *in extremis* to renew it or agree to respect those limits through unilateral, legally binding declarations.

The State Armaments Programme currently in force (SAP-27) was approved on 31 December 2018. The priorities are the production and entry into service of new long-

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<sup>20</sup> Available at: <http://www.kremlin.ru/acts/news/63447>

<sup>21</sup> Available at: <http://static.kremlin.ru/media/events/files/ru/QZw6hSk5z9gWg0plD1ZzmR5cER0g5tZC.pdf>

<sup>22</sup> On 25 April 2025, the Secretary of the Russian Security Council, General Sergey Shoigu, announced that proposals to amend the National Security Strategy are being prepared.

<sup>23</sup> Available at: <http://www.kremlin.ru/acts/news/75598>

range nuclear weapon delivery systems (delivery vehicles), precision-guided munitions, space surveillance and communications capabilities, battlefield robotics, and the development and application of artificial intelligence (AI) in all areas of defence as a capability enhancer. For now, the funding of a protracted war in Ukraine has not affected these priorities, which continue to enjoy the greatest advantages in the allocation of resources<sup>24</sup>. This is not surprising, however, because Russian leaders understand that, regardless of the current crises, the technology race defines the future.

### **Russia's advanced strategic weapons**

The term "new advanced weapons" refers to the set of strategic systems detailed by President Putin in his 1 March 2018 speech, as well as other long-range systems that have been decades in development and that have been able to progress thanks to the application of new technologies, financial availability, and also the concurrence of an education system that adequately trains the engineers and technicians that have made it possible.

Such systems are designed to overcome the threat posed by BMD systems, which contradict the fundamentals of a strategy based on mutual assured destruction (MAD). They are characterised by the application of new material technologies, hypervelocity, the use of radioisotope thermoelectric generators (RTGs or nuclear batteries), long range (over a thousand kilometres) and both conventional and nuclear warhead capabilities. Its political-strategic purpose is to strengthen deterrence and preserve immunity against a massive attack by any power.

The first priority of the SAP-27 is the modernisation of the nuclear deterrent. In its land-based component, the Strategic Missile Forces (RVSN in Russian) plan to replace the R-36M2 Voevoda heavy ICBM (SS-18 Satan)<sup>25</sup> in service since the 1980s with a new one that will remain operational for the next four decades. To this end, the RS-28 Sarmat (SS-X-30 Snowflake) ICBM is under development.

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<sup>24</sup> PÉREZ GIL, L. *Russian military capabilities and war economy in the conflict in Ukraine*. IEEE Analysis Paper 48/2024. Available at:

[https://www.ieee.es/Galerias/fichero/docs\\_analisis/2024/DIEEEA48\\_2024\\_LUIPER\\_Ucrania.pdf](https://www.ieee.es/Galerias/fichero/docs_analisis/2024/DIEEEA48_2024_LUIPER_Ucrania.pdf)

<sup>25</sup> Their nomenclature according to NATO standard is also indicated in brackets.

This is an impressive liquid-fuelled ballistic missile weighing 208 tonnes, with a range of more than 10,000 kilometres. Its warhead has independent multiple re-entry vehicles (MIRVs) that can carry up to 10 nuclear warheads with a yield of five to eight megatons or also three HGV Avangard (system described below), as well as penetration aids, i.e. decoys designed to deceive detection systems on the impact trajectory.

Sarmat's primary mission is nuclear strike against high political value targets such as government decision centres or cities (the great hostages of nuclear age), as well as precision bombing when using Avangard hypersonic vehicles. It was due to enter service in 2018, but there have been successive postponements due to delays in the flight schedule, which did not begin until April 2022. In addition, there have been several failures (February and October 2023) and a catastrophic explosion inside a test silo in Plesetsk (September 2024).<sup>26</sup>.

In any case, the Russian force goal is to have some 300 ICBMs: 250 RS-24 Yars, located in silos and in mobile systems, which continue to enter service at a steady rate, as well as 50 new Sarmat, armed with different types of warheads adapted to different missions.

Second, the Avangard is a combat warhead-carrying vehicle with hypersonic capabilities, designed for ICBMs, which would apparently have dual combat capability. Its development timeline and capabilities show that it was developed in response to the US *Prompt Global Strike* programme for a long-range hypersonic strike system capable of accurately striking targets with a powerful conventional payload.<sup>27</sup> However, Russian and Chinese developments are believed to have emphasised its nuclear capability.<sup>28</sup>

Due to delays in the Sarmat programme, the Russian military command took the decision to equip a handful of UR-100NUTTk ICBMs (SS-19 Mod. 4 Stilleto) with extended operational life armed with Avangard warheads. The first two missiles entered service on 27 December 2019 and currently two regiments of the 13th Dombarovskiy Missile Division in the Orenburg region have twelve operational missiles.<sup>29</sup>

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<sup>26</sup> PODVIG, P. "A failed test of Sarmat destroyed the test silo", *Russian Strategic Nuclear Forces*, 2024. Available at: [https://russianforces.org/blog/2024/09/a\\_failed\\_test\\_of\\_sarmat\\_destro.shtml](https://russianforces.org/blog/2024/09/a_failed_test_of_sarmat_destro.shtml)

<sup>27</sup> PÉREZ GIL, L. "Armas hipersónicas", *Revista General de Marina*. July 2016, pp. 105-113. Available at: <https://armada.defensa.gob.es/archivo/rgm/2016/07/cap10.pdf>

<sup>28</sup> There have also been exotic proposals of this kind from Iran and North Korea, but they respond more to the propaganda needs of these regimes than to the acquisition of real military capabilities.

<sup>29</sup> PODVIG, P. "New Avangard positions at Dombarovskiy ", *Russian Forces*. 28 May 2025. Available at: [https://russianforces.org/blog/2025/05/new\\_avangard\\_positions\\_at\\_domb.shtml](https://russianforces.org/blog/2025/05/new_avangard_positions_at_domb.shtml)

Third, the 9M730 Burevestnik cruise missile (SSC-X-9 Skyfall) is one of the most complex and controversial programmes in the Russian arsenal due to difficulties in classifying it as a strategic weapon and thus falling within the scope of the New START. Its key feature is that it is powered by an RTG-type nuclear battery, which allows it to maintain unlimited flight at subsonic speed. The mission of this type of weapon is surprise attack against targets deep in enemy territory.

Despite statements by some Russian officials, it is a system that has not matured sufficiently to estimate an entry-into-service date, due to the need to resolve complex technical issues associated with its unique propulsion characteristics. In fact, on 8 August 2019, an accident with radiological consequences occurred at the Nenoksa naval weapons range in the White Sea, killing five Rosatom specialists<sup>30</sup>. Nevertheless, testing has continued, as evidenced by the changes observed on the ground at Nenoksa, at the Pankov nuclear test range in New Zembla, as well as at the Vologda-20 site in the Vologda region, associated with the operational deployment of this system.

Fourth, the hypersonic Kh-47M2 Kinzhal (AS-24 Killjoy) ALBM was developed from the 9M723 Iskander-M (SS-26 Stone) SRBM with a conventional or nuclear warhead. It is a missile launched from Mikoyan MiG-31K Foxhound-D fighter-bombers and Sukhoi Su-34 Fullback and Tupolev Tu-22M3 Backfire-C bombers. It reaches speeds of Mach 8 to 10, has a range of more than 1,000 kilometres and its warhead has up to six decoys that it deploys during re-entry and approach manoeuvres. Its mission is to attack high-value targets such as troop concentrations, ships, amphibious groupings in near-shore areas and port facilities, but also air bases and targets protected by a strong anti-aircraft defence due to its ability to overcome these systems.

It entered service in December 2018 in a squadron activated at the Akhtubinsk airbase in the Southern Military District, but today these capabilities are assigned to Long-Range Aviation (Strategic Aviation), which is the air component of the strategic nuclear triad. It has been used extensively in the war in Ukraine.

Fifth, the 2M39 Poseidon (Kanyon) is a gigantic autonomous strategic torpedo, although it has also been regarded as an autonomous underwater vehicle (UUV), which has a

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<sup>30</sup> KRZYZANIAK, J. "The Nenoksa accident: A timeline of confusing and conflicting reports", *Bulletin of the Atomic Scientists*. 23 August 2019. Available at: <https://thebulletin.org/2019/08/the-nenoksa-accident-a-timeline-of-confusing-and-conflicting-reports/>

nuclear propulsion system like the GLCM Burevestnik. It is 24 metres long and 1.6 metres in diameter, has a range of more than 10,000 kilometres and a nuclear warhead with a warhead of 100 to 300 kilotons (kt). The destructive potential assigned to it in general, but also in some specialised circles, is exaggerated by the warheads currently in service<sup>31</sup>. New nuclear submarines have been built for its use: the first of the Belgorod class, which entered service in 2022, and the Khabarovsk class with two ships under construction, although this programme is progressing under the greatest secrecy<sup>32</sup>.

The primary mission is to attack coastal targets for catastrophic damage. Although there are reports of test launches from both fixed platforms and special submarines, it seems unlikely to have entered service.

In addition to newly developed or recently commissioned advanced weapons systems, the Russian Armed Forces have a panoply of dual-capable long-range missiles, which they employed first in the war in Syria (2015-2025) and then massively against Ukraine (2022-2025).

It is difficult to single out the most important missile in the Russian arsenal because each has been designed and produced for a specific weapon system and is used according to its own role or mission.

The Ground Forces have fourteen tactical missile brigades that are assigned to combined arms armies or armoured armies. They have three types of missiles: the ballistic 9M723 Iskander-M, from which the ALBM Kinzhal is derived, as well as two cruise missiles of different ranges, the 9M728 (SS-C-7 Southpaw) of only 500 kilometres and the 9M729 (SS-C-8 Screwdriver) of 1,500 to 2,000 kilometres; both cruise missiles are land-based versions of the ubiquitous naval Kalibr.

Indeed, the Russian Navy makes extensive use of missiles from the Kalibr family, both the anti-ship 3M54 (SS-N-27 Sizzler) and the long-range land-attack 3M14 (SS-N-30A Sagaris). These missiles are embarked on surface ships from corvette to cruiser equipped with Kalibr-NK vertical launchers (VLS), as well as on nuclear-powered (with Kalibr-PL VLS) and conventional submarines, from torpedo tubes. The cruise missile is subsonic,

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<sup>31</sup> KAUR, S. "One nuclear-armed Poseidon torpedo could decimate a coastal city. Russia wants 30 of them", *The Bulletin of the Atomic Scientists*. 14 June 2023. Available at: <https://thebulletin.org/2023/06/one-nuclear-armed-poseidon-torpedo-could-decimate-a-coastal-city-russia-wants-30-of-them/>

<sup>32</sup> PÉREZ GIL, L. "La Fuerza Submarina de la Flota rusa del Pacífico", *Revista General de Marina*. May 2023, pp. 695-716. Available at: <https://armada.defensa.gob.es/archivo/rgm/2023/05/RGMMayo2023Parte07.pdf>

has a range estimated at 2,500 kilometres and its guidance system allows it to hit targets with high accuracy. It has been used extensively in the conflict in Ukraine.

In addition, the most modern Gorshkov-class frigates as well as the Yasen-class multi-mission nuclear-powered submarines began to embark the new 3M22 Tsirkon (SS-N-33 Zircon) hypersonic cruise missile in 2022. The first clear images of this missile appeared on 3 December 2024 during a Russian Navy exercise southeast of Cyprus. In addition, there is an air-launched version (ASCM), which has also been used against Ukraine, and a land-based version has been developed, which has probably also been used in wartime conditions.

The Strategic Aviation's large bombers -Tupolev Tu-95MS Bear-H and Tu-160 Blackjack- operate as launch platforms for the most modern cruise missiles, such as the ALCM Kh-101 (AS-23 Kodiak) with a range of 2,500 kilometres. The conventional version carries a payload of 450 kilos of explosive and the nuclear version (Kh-102) up to 300 kt. This weaponry has been used persistently against Ukraine.

### **Use of long-range missiles against Ukraine**

The Russian Armed Forces are massively employing the most advanced dual-capable long-range missiles against Ukraine, applying their doctrine of Strategic Operations to Destroy Critically Important Targets (SODCIT) (SOKVO o SOPVOP, in Russian)<sup>33</sup>.

First, ballistic and hypersonic missiles have shown great combat effectiveness. In the initial phase of the war, they were used indiscriminately, especially Iskander-M SRBMs, because they were intended for a short-lived conflict. However, due to their high cost and low numbers, they came to be used selectively against high-value targets (anti-aircraft missile systems, radars, command posts, ammunition depots, troop concentrations) with apparently devastating results. They have been used both in coordinated bombardment with other munitions and in targeted attacks. Because their main characteristic is their hypervelocity, anti-aircraft systems have great difficulty in detecting them and lack the

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<sup>33</sup> In REACH, C., BLANC, A. and GEIST, E. *Russian military Strategy. Organizing operations for the initial period of war*. Santa Monica, Rand, 2022. Available at:  
[https://www.rand.org/content/dam/rand/pubs/research\\_reports/RRA1200/RRA1233-1/RAND\\_RRA1233-1.pdf](https://www.rand.org/content/dam/rand/pubs/research_reports/RRA1200/RRA1233-1/RAND_RRA1233-1.pdf)

ability to shoot them down. In addition, the use of decoys in the final impact trajectory makes interception extremely difficult.

Second, cruise missiles (land, naval and air), for their part, are vulnerable to fire from anti-aircraft defences, especially when employed alone or flying known or predictable routes. However, when they are part of coordinated bombing actions involving the simultaneous and massive use of missiles of different types, unmanned aerial vehicles and decoys that saturate defences, they are very effective, as was the case on 11 February 2025, when a barrage of twenty Kalibr naval missiles fired from ships in the Black Sea destroyed two large gas depots at Poltava and Chernobyl<sup>34</sup>. Similar actions were executed on 24 April, 25 May and 6, 15 and 17 June 2025, also indicating an improvement in the dynamic targeting process<sup>35</sup>. In addition, new capabilities have been added, such as the launch of defensive flares in the final approach phase to the target -to disrupt infrared-guided anti-aircraft missiles- or the use of cluster submunitions to engage Ukrainian anti-aircraft systems.

Third, on 21 November 2024, Russian forces used for the first time an intermediate-range ballistic missile (IRBM) called Oreshnik against Yuzhmash Missile Plant in Dnepropetrovsk, which was hit by a handful of warheads with conventional explosive. In a public speech that day, the Russian president spoke of hypersonic warheads, i.e. explosive charges that fly at extremely high speeds and render any kind of anti-aircraft system ineffective in service<sup>36</sup>.

However, the use of this system was not strictly military in purpose, but was part of the Kremlin's strategic leverage campaign in the Ukrainian conflict. First, vis-à-vis Western countries it sought to signal its willingness to use any type of weaponry in the event of direct NATO involvement in the conflict. Second, it tried to convey to third parties that the political and strategic mistakes made by the United States are paid for by others, recalling that this type of missile was banned under the Short- and Medium-Range Missile Treaty (INF Treaty), which was denounced in 2019. Third, he pointed out to the Ukrainian leadership that, despite all the military assistance from the West, Ukraine is defenceless against the supremacy of Russian strategic weapons.

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<sup>34</sup> PÉREZ GIL, L. Black Sea Fleet ships bombard Ukraine. *Revista General de Marina*, April 2025, p. 675. Available at: <https://armada.defensa.gob.es/archivo/rgm/2025/04/RGMAbril2025.pdf>

<sup>35</sup> The repetition of such attacks seems to signal a consolidation of Russia's strategic bombing campaign.

<sup>36</sup> Text of the hearing is available at: <http://www.kremlin.ru/events/president/news/75614>

In a potential escalation scenario, as seen recently with FPV drone strikes against Russian Strategic Aviation air bases and the destruction of a dozen heavy bombers<sup>37</sup>, it cannot be ruled out that at some point they will resort to more powerful means, such as conventionally loaded ICBMs (e.g. with up to 10 tons of explosive) or conventionally loaded Avangards, against significant targets, again as part of the Kremlin's strategic message of using force and the determination to use it.

## Conclusions

In a complex and unstable international system, Russian leaders emphasise advanced weapons systems to compensate for the gap in conventional capabilities vis-à-vis other major powers, help maintain the nuclear deterrence strategy and serve to safeguard its great power status.

In the context of high-intensity conventional conflicts, they allow them to exercise a high degree of strategic control over adversary decision-making. In addition, they can use this power to progressively degrade the resilience of a non-nuclear adversary through strategic bombing.

In the Ukrainian war, the possession of these weapons has served both as a deterrent to a more active NATO role, to try at all costs to block NATO's direct involvement in the conflict, and to undertake the progressive destruction of Ukrainian infrastructure.

In a multipolar system this approach carries within itself the danger of proliferation of long-range missiles, guided and hypersonic munitions, but also of nuclear weapons, as the signs in the latter area are alarming. This exponentially complicates the decision-making process for all actors in the event of an escalation of a conflict.

In such scenarios, both secondary powers and countries that have no influence beyond their own surrounding space are helpless in the face of the overwhelming power of the great powers and their strategic weapons.

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<sup>37</sup> DE TROULLIQUOD DE LANVERSIN, J. "Ukrainian attack on Russian bombers shows how cheap drones could upset global security", *Bulletin of the Atomic Scientists*. 5 June 2025. Available at: <https://thebulletin.org/2025/06/ukrainian-attack-on-russian-bombers-shows-how-cheap-drones-could-upset-global-security/>

Finally, it can be argued that while these weapons have proven effective in both deterrence and combat, the war in Ukraine has also shown that soldiers on the ground are still needed to achieve victory.

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