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Putin's Invincible Nuclear Weapons



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Background

Russia has developed a new array of nuclear weapons that are, according to President Vladimir Putin, 'invincible'.

Giving his annual state of the nation speech on March 01, 2018, the 14th one, President Putin showcased Russia's very latest strategic weapons. He projected images of nuclear cruise missiles, Intercontinental Ballistic Missiles (ICBMs), underwater drones, hypersonic glide vehicle, air-launched hypersonic cruise missile and laser cannons. The images were on a giant screen behind him at a conference hall in Central Moscow where he was addressing Russia's political elite.

Mr. Putin made the claims as he laid out his key policies for a fourth presidential term, ahead of an election he was expected to win and did win 17 days later, on March 18, 2018.

Key Points

- Giving his annual state of the nation speech on March 01, 2018, the 14th one, President Putin showcased Russia's very latest strategic weapons, namely, nuclear cruise missiles, Intercontinental Ballistic Missiles, underwater drones, hypersonic glide vehicle, air-launched hypersonic cruise missile and laser cannons.
- Mr. Putin said the weapons were a response to US development of its missile defense system; the strategic imbalance created by United States walking out on Anti-Ballistic Missile Treaty in 2002 and offensive deployment of missile defense assets close to its borders and therefore, the need to restore nuclear parity and re-establish strategic balance and stability.
- Nuclear - powered cruise missile with an unlimited range and capable of beating surface- and space-based early warning systems and missile defense interceptors is undoubtedly the most eye-catching and game-changing development unveiled by President Putin.
- Strategic weapons have clearly focused on a vulnerability of American - designed missile defenses—based on the assumption that enemy nuclear missiles fly high and can be destroyed well before they reach their target, and conventional cruise missiles rarely travel more than 600 miles (965km).
- Mr. Putin's announcement, in his annual state of the nation address, at a moment when he was heading into a re-election campaign mostly meant as a signal to Putin's domestic audience and foes abroad that Russia is strong—and cannot be ignored in the Putin era.
- There is a need to find a way to get United States and Russia into a serious conversation on controlling nuclear weapons. With every passing day, it is going to be a lot harder to design effective agreements to control this new arms race.

The Centre for Land Warfare Studies (CLAWS), New Delhi, is an autonomous think-tank dealing with national security and conceptual aspects of land warfare, including conventional and sub-conventional conflict and terrorism. CLAWS conducts research that is futuristic in outlook and policy-oriented in approach.

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Putin's Invincible ...

Putin's Stand

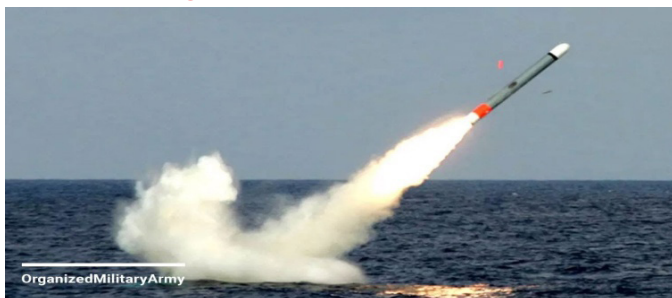
Using a video presentation to showcase the revolutionary developments in its weapon system, Mr. Putin said the weapons were a response to the United States developing its own missile defence system; the strategic imbalance created by the United States walking out on the Anti-Ballistic Missile (ABM) Treaty in 2002 and the offensive deployment of missile defence assets close to its borders and therefore, the need to restore nuclear parity and re-establish strategic balance and stability.

"They have not succeeded in holding Russia back... Now they need to take account of a new reality and understand that everything I have said today is not a bluff," said Putin.

Putin also voiced concerns about the new US nuclear doctrine, referring to Trump's Nuclear Posture Review presented on February 02, 2018, which is largely directed at Russia and also highlights exercising flexible response options. Putin claimed that Russia's own doctrine was defensive and only envisaged the use of nuclear weapons in response to an attack. He reiterated that Russia did not plan to attack anyone; however, Russia's growing military might be a guarantee of world peace, designed to preserve the strategic balance of power on the planet.

Weapons Unveiled

Burevestnik: A Nuclear-Powered Cruise Missile with Unlimited Range



The most eye-catching of the announcements was clearly the nuclear-powered cruise missile. The basic concept is hardly new, but depending on how functional and reliable the final design might be, it could be a potentially game-changing development¹.

We don't know how the Russians plan to configure this missile, but way back in the 1960s, the US Air Force

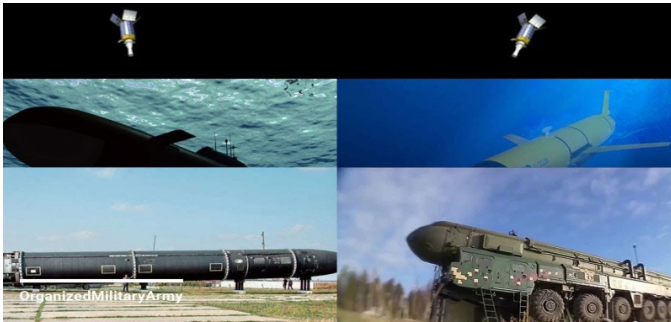
had explored a similar idea with the Supersonic Low Altitude Missile (SLAM) under Project Pluto. This weapon employed a nuclear-powered ramjet along with conventional rocket boosters to kick-start the system. Once at the appropriate speed, the engine would blow air over the reactor, and then force it out of an exhaust nozzle to produce thrust. In theory, this system allows for almost unlimited range and the engine can operate for weeks or months on end.

A computer-generated graphic accompanying Putin's announcement showed the missile plotting a course from Russia into the Atlantic, flying around South America's Cape Horn, and then continuing on to strike what appeared to be a target in Hawaii.

Cruising at a high speed on a circuitous route at an extremely low altitude, the missile could potentially avoid surface- and space-based early warning systems and missile defence interceptors. With a two-way data link, operators could potentially modify its course in-flight to further confuse an opponent or actively counter any attempts to shoot the weapon down. The American SLAM concept also involved a design carrying multiple nuclear warheads that it could drop on different targets along the way, but it is not clear whether the Russian system includes any features that allow it to strike at more than one location².

The main problem with nuclear propulsion systems is safety and environmental hazards. To be small enough to reasonably fit inside a missile, the nuclear ramjet which the United States developed for SLAM and other projects had no shielding to contain dangerous radiation. The exhaust plume also contained unspent fissile material that would have contaminated any area, enemy controlled or not, that it passed over on its way to the target³. Therefore, due to alternatives available in the forms of ICBMs and Submarine-Launched Ballistic Missiles (SLBMs), and environmental risks involved with nuclear-powered cruise missile, all efforts to build a nuclear airplane engine and missiles ceased with the stroke of President Kennedy's pen shortly after he took office. Most people agreed that the risks of flying radiation-powered vehicles inside Earth's atmosphere were too high even to consider testing them.

Poseidon: Nuclear-Powered and Nuclear-Armed Underwater Drone



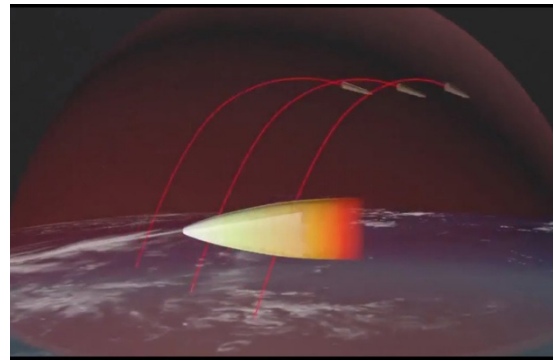
Poseidon, previously known as Status-6 (Russian code name) and Canyon (American code name) is a nuclear-powered and nuclear-armed unmanned underwater vehicle that can deliver conventional and nuclear payloads. It may be able to deliver a thermonuclear cobalt bomb of up to 100 mega tonnes against enemy's naval ports and coastal cities. The US Nuclear Posture Review 2018, had already stated that Russia was developing a 'new intercontinental, nuclear-armed, nuclear-powered, undersea autonomous torpedo'.

Poseidon appears to be a torpedo-shaped robotic mini-submarine which can travel at speeds of 185km/h (100kn). Though, more recent information suggests a top speed of 100km/h (54kn), with a range of 10,000km (5400nmi; 6200mi) and a depth maximum of 1000m (3300ft). This underwater drone is cloaked by stealth technology to elude acoustic tracking devices. Its size appears to be 1.6 m in diameter and 24 m long.

The Poseidon weapon is designed to create a tsunami wave up to 500 m (1600ft) tall, which would contaminate a wide area on an enemy's coast with radioactive isotopes, as well as being immune to anti-missile defence systems such as ABMs, laser weapons and rail guns that might disable an ICBM or an SLBM.

An aircraft carrier battle group would have reduced chances of defending itself against it. The drone could detonate its very large warhead at standoff range and anti-submarine warfare units would have very little time to react because of the speed at which it travels.

Avangard: Nuclear-Armed Hypersonic Boost Glide Vehicles



Next in the list of weapons unveiled by the Russian president was a nuclear hypersonic boost glide vehicle called Avangard, which he said would go on the future RS-26 Rubezh ICBM. The weapon follows a very different flight trajectory within the atmosphere, can make rapid course changes, dodging surface and space-based sensors and missile interceptors to reach its target unscathed. They have different signatures compared to traditional ICBMs, which could make it harder for sensors and defence systems to spot and engage.

Their speed, faster than Mach 6, implying an enemy would have significantly less time to react than with a conventional inter-atmospheric craft, that is, even if they do detect the incoming weapon at all. Putin said that Avangard can reach speeds of up to 20 times the speed of sound, hitting its targets "like a meteorite, like a fireball."⁴

In September 2017, the Russians had claimed to have tested an RS-12M Topol missile (ICBM) with an 'advanced combat payload', which could have been an Avangard prototype.

RS-28 Sarmat: A more Capable Heavy ICBM



RS-28 Sarmat ICBM has been publicly in development since 2014 and the Russians expect it to enter service

by 2021. This system, which the North Atlantic Treaty Organization (NATO) also calls the SS-X-30 Satan 2, will replace the older R-36M or SS-18 Satan as Russia's primary silo-based ICBM.

The RS-28 is reportedly much faster than the older R-36M and will carry multiple warheads, each capable of independent movement. Beyond the possible use of hypersonic boost glide vehicle warheads, other reports have suggested it might have a fractional orbital bombardment capability, in which the re-entry vehicles enter low earth orbit briefly and 'go cold', making it hard to track their onward progress before they come hurtling down on a target. As a demonstration of its capabilities by Mr. Putin, the computer-generated depiction of Sarmat showed a number of independent warheads falling onto Florida.



Kinzhal: Hypersonic Cruise Missiles

Kinzhal is an air-launched hypersonic cruise missile, which the video showed a MiG-31 Foxhound interceptor carrying aloft and releasing. It is not clear whether or not that MiG-31 Foxhound is the primary launch platform or if this system is nuclear capable. It reportedly has a range of approximately 1250 mi and a top speed of more than 10 times the speed of sound. According to the Russian president, units in the country's Southern Military District, which borders Ukraine and the Black Sea, have deployed the missiles operationally⁵.

Russia had previously claimed it was working on a hypersonic anti-ship missile called Zircon and computer-generated graphics during Putin's speech showed Kinzhal attacking surface warships, it also reportedly has a land-attack capability. Apparently, Kinzhal could simply be an air-launched derivative of the sea-launched Zircon.

With its characteristic capabilities of making rapid course corrections and not flying along a predictable definite path, the weapon's speed could make it very difficult for most existing surface- and airborne radars to track in order to guide or direct an interceptor or other close-in defence system.

Lasers Cannon



Putin also displayed the truck-mounted laser cannon, now been named, Peresvet. As a point defence system, this directed energy weapon could be helpful for defeating

various existing and emerging threats, particularly small drones.

Truth Behind the Claims Made by Putin

There are a lot of speculations regarding the claims made by President Putin. His remarks were greeted with scepticism in Washington, where officials cast doubt on whether Russia has added any new capabilities to its nuclear arsenal beyond those already known to the US Military and intelligence agencies⁶.

American officials said that the nuclear cruise missile is not yet operational, despite Mr. Putin's claims, and that it had crashed during testing in the Arctic, although there have been no corresponding reports of radioactive pollution by European monitors. If a test indeed took place, it could have been a static ground test of the missile's engine.

A Russian news outlet *Vedomosti* quoted a source in Russia's military industry as saying that tests, thus far, have used 'an electrical layout' to test the missile's engine and not an actual nuclear reactor. Russia does not appear to have been working hard on miniaturising nuclear reactors.

Douglas Barrie, a senior fellow for military aerospace at the International Institute for Strategic Studies in London commented, "It was talked about in the '60s, but it ran into a lot of obstacles. To the extent that the Russians are seriously revisiting this, is pretty interesting." He further questioned whether Russia was even close to deploying it.

However, technically or feasibility wise, if the Russian designers of the engine for the nuclear-powered cruise missile did not have any concerns about radiation shielding for anything other than the avionics, a small nuclear reactor could be incorporated into a cruise missile design. The missile could be launched with a booster and wait until it is at speed to take its reactor critical, as was planned with the SLAM. And as the missile could be launched days or weeks before an intended attack, it would spend that time spewing fallout wherever it flew, regardless of whether it ever executed its mission. Thus, if deployed, it is better suited for a first strike than deterrence.

Critics doubt that Russia will ever have the means to deliver so much, given its stumbling economy and relatively depressed oil prices. But apart from genuine concern about American missile defences, Russian economy may precisely be another factor driving Russia's new developments—the Russian military-industry complex, which is perpetually in search of new projects. There was a need for keeping capacity alive, not letting top talent die out. That means feeding the defence industry as well as science and technology, even if you don't really have missions. In the absence of defence contracts, many enterprises would have to be shut down. Thus, defence contracts are also a means to keep plants open. In the case of these weapons, the Russian defence and nuclear energy industries apparently have played a large role in convincing the Kremlin to proceed. And, by some estimates, Russian industry might have had an dominant role in the development of these weapon systems.

Comments/Reaction by the United States and Its Allies

There was an outright condemnation of Mr. Putin's claim by the United States, more so, for the video animations that depicted nuclear attack on the United States, targeting US State of Florida and Hawaii.

The Trump administration accused Moscow anew of violating Intermediate Range Nuclear Forces (INF) Treaty, a Cold War-era treaty (1987) which banned nuclear and conventional ground-launched ballistic and cruise missiles with a range of 500–5500 km (300–3400 mi)⁷, both short-range and intermediate-range missiles and their launchers. On the contrary, Kremlin blames the US Military for violating the treaty by deploying its land-based missile launchers in Poland and Romania.

Behind all the speculations surrounding Putin's claims, Thomas Karako, director of the Missile Defense Project at Center for Strategic and International Studies (CSIS), told *Defense News* that Putin's speech underlines why the United States needs to make significant changes to its current sensor architecture⁸. "We cannot continue to rely on terrestrial radar. We must move to elevated and overhead radar that provides consistent birth-to-death coverage of ballistic missiles, hypersonic boost glide vehicles and cruise missiles," Karako said.

"We're not surprised by the statement, and the American people should rest assured that we are fully prepared," Dana White, Pentagon spokeswoman⁹. The spokesperson however, did not specify on the modalities of its preparedness and the measures the United States has in place to beat Russia's newly unveiled weapon systems.

"For Putin, it's all domestic...the regime needs to constantly maintain its fear-mongering that the United States and NATO are out to get Russia, and that Putin personally can protect the Russian people," said Alina Polyakova, a Russia expert at the Brookings Institution, Washington DC.

Inference

The presentation by Mr. Putin, which included animation videos depicting multiple warheads aimed at Florida or targeting an objective in Hawaii has sharply escalated the military invective in the already strained relationship between the United States and Russia¹⁰. This has led to predictions of escalating a costly new nuclear arms race between the two erstwhile superpowers.

The United States has long asserted that the US missile defences have never been about Russia or China, as they are not capable of halting a large-scale attack by a major nuclear power, owing to the limited number of US missile interceptors. Instead, the technology is aimed at what the United States views as 'rogue' states, such as Iran or North Korea¹¹. However, technological development in the nuclear weapons and delivery systems, large budget allocation, Trump's Nuclear Posture Review 2018 and deployments of missile defence closer to Russian borders do not reinforce this justification, and send contradictory message, apparently disturbing the nuclear balance in its favour.

Nuclear Weapons ...

While Mr. Putin may have been bluffing about these weapons, as some experts suggested, he cleverly focused on a vulnerability of American-designed defences: they are based on the assumption that enemy nuclear missiles fly high and can be destroyed well before they reach their targets¹². And conventional cruise missiles rarely travel more than 600 mi (965km). However, the new ICBM presented by Putin “with a practically unlimited range” will be able to attack via the North and South Poles and bypass any missile defence systems; the cruise missile moves so quickly and flies so low to the ground that it could evade the US and European missile defence systems and hit intended targets with a nuclear weapon, rendering American missile defence ‘useless’.

Mr. Putin’s announcement, in his annual state of the nation address, seemed intended chiefly to stir the patriotic passions of Russians at a moment when he was heading into a re-election campaign, even though his victory was assured¹³.

He also used the speech to reassure Russians that the military buildup was taking place even as the government was spending big sums to improve the quality of their lives¹⁴. And, also wanted to send them the message that Putin was the only alternative they have to get Russia its place of pride in the world order.

Hence, while the new weapons are scary, they are mostly meant as a signal to Putin’s domestic audience and foes abroad that Russia is strong—and cannot be ignored in the Putin era¹⁵.

Conclusion

There is, as always, an important question about whether or not Russia and its fluctuating economy can sustain the development of these various advanced weapon systems. Sanctions and a continued slump in the global price of oil already forced the country to make significant cuts to defence spending in 2017,

including cancelling plans to reboot its train-mounted ICBM programme.

The world will be closely watching the developments on the claims made by Putin, and how far Russia proceeds with the various projects, especially the nuclear-powered cruise missile. It is reasonable to be sceptical, but even if only one or two of these systems come to fruition, they could be immensely destabilising. But is Russia entirely to be blamed for this escalation? Is not United States responsible for leading Russia into the current state where the latter was left with limited options. The US withdrawal from the ABM Treaty, offensive deployment of missile defence system closer to Russian borders and huge impetus on nuclear technology developments by the United States apparently affected the strategic balance. The INF Treaty signed in 1987 could collapse over the next year due to growing mistrust as both sides feel that the other party is not adhering to the treaty norms.

The announcements are surely another worrying indicator of Russia’s increasingly assertive foreign policy and growing tensions between the Kremlin and the US Government. Moreover is it a mere indicator of changing world order, moving from unipolar to bipolar or multipolar order.

However, I will sum up on an optimistic note quoting Putin on the very subject, “There is no need to create more threats to the world. Instead, let us sit down at the negotiating table and devise together a new and relevant system of international security and sustainable development for human civilisation. We have been saying this all along.” So, there is a need to find a way to get the United States and Russia into a serious conversation on controlling nuclear weapons. The longer it waits, the more difficult it will be, not only because both sides will have better weapons but also with these new technologies of the sort that Putin talked about, it is going to be a lot harder to design effective agreements to control this new arms race¹⁶.

Notes

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