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What We Know About Russia's Oreshnik Missile Fired on Ukraine

By AFP

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Ukraine's SBU security service published pictures it said were of the Oreshnik's fragments. **Security Service of Ukraine**

An intermediate-range ballistic missile — dubbed "Oreshnik" — used by Russia in an overnight strike on Ukraine is, according to the Kremlin, a "state-of-the art" weapon that cannot be intercepted.

First fired on the Ukrainian city of Dnipro in 2024 and named after the Russian word for hazel tree, the nuclear-capable missile was launched at what Moscow said were "strategic targets" in Ukraine.

Russian military bloggers said it was used to hit a major gas depot in the Lviv region in western Ukraine.

Here is what we know about the weapon:

Range

Russia said the Oreshnik is an intermediate-range missile, meaning it can reach targets between 3,000 and 5,500 kilometers (1,860-3,400 miles) away.

Sergei Karakayev, the commander of Russia's Strategic Rocket Forces — which controls its nuclear arsenal and intercontinental ballistic missile program — has said that Oreshnik can hit targets "throughout Europe."

Belarusian President Alexander Lukashenko, a key Putin ally, said last month that Oreshnik had been deployed in his country, which borders NATO's eastern flank.

Moscow promptly announced that the missile system had "entered combat duty."

Ukraine says the missile was fired from the Kapustin Yar range near the southern Russian city of Volgograd.

Power

Oreshnik has "dozens of warheads, homing warheads," Russian President Vladimir Putin said in 2024.

The missile, he added, does not cause mass destruction because "there is no nuclear warhead, and that means there is no nuclear contamination after its use."

Military experts say Oreshnik could be equipped to carry nuclear warheads.

Putin said the missile's destructive elements can reach a temperature close to the surface of the Sun.

"Therefore everything in the epicenter of the explosion breaks up into fractions, into elementary particles, essentially into dust," he said in 2024.

He added that the missile can strike "even targets that are highly protected and located at a great depth."

At the site of the first Oreshnik strike on Dnipro in 2024, AFP saw limited damage — a building roof blown off and scorched trees. Ukrainian officials also reported only limited destruction, suggesting it had been equipped with dummy warheads.

Residents reported a "hellish noise" and bright bursts of light during the strike.

Speed

It is "impossible" for modern air defenses to intercept the Oreshnik, which attacks at a speed of Mach 10, or 2.5-3 kilometers per second, Putin has claimed.

Experts say the missile can travel at hypersonic speeds, but cannot be maneuvered in the same way typical hypersonic missiles can.

"As with other intermediate- and intercontinental-ballistic missiles, its warheads enter the

atmosphere and reach their targets at hypersonic speeds," Marcin Andrzej Piotrowski, an analyst at the Polish Institute of International Affairs (PISM), said in 2024.

"But unlike the hypersonic weapons, Oreshnik's warheads did not perform any maneuvers at hypersonic speeds, which would complicate the operation of anti-missile defenses," he added after the first attack.

Origins

Putin said in 2024 that Oreshnik was "not a modernization of an old, Soviet system" but a "modern, state-of-the-art" device.

The U.S. Defense Department described Oreshnik as an "experimental" missile based on Russia's RS-26 Rubezh ICBM.

Karakayev said the missile, a "ground-based medium-range system," had been constructed based on an order from Putin issued in July 2023.

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