

# The Success of Russian DEAD Operations in Ukraine

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## INTRODUCTION

On April 6, 2024, President Zelensky, in an address to the citizens of Ukraine, said that Ukraine needed 25 Patriot Air Defence (AD) systems with 6-8 batteries each to cover the entire Ukraine.<sup>1</sup> While the figure of 25 may seem huge and rather unlikely, on July 1, 2024, the Ukrainian president, in his video address, declared that by August, Ukraine would have better AD capabilities.<sup>2</sup> This second statement drew strength from the assurances given by the West in response to Ukraine's demand for seven Patriot batteries, and also from the recently announced \$2.3 billion in military aid<sup>3</sup> by the USA. If one were to look back, one would realise that President Zelensky has been consistently demanding that the West supply him with more and more advanced AD systems. Given the ongoing war, while the demand may be legitimate,

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1. K Hodunova, "Zelensky: Ukraine Needs 25 Patriot AD Systems to Cover the Country", *Kyiv Independent*, April 6, 2024.
2. Abbey Fenbert, "Ukraine Expects Strengthened Air Defenses in July, Zelensky says", *Kyiv Independent*, July 2, 2024.
3. Haley Britzky, "US to Announce New \$2.3 Billion Military Aid Package for Ukraine", CNN, July 2, 2024.

what did not emerge is that if the Russian air campaign has failed (as claimed by the West),<sup>4</sup> and since the Ukrainians have been claiming the shooting down of virtually all the ingressing Russian drones, cruise, ballistic and even hypersonic missiles, then why does Ukraine need more AD systems and why not missiles alone? The other question that then emerges is: how has Russia managed to destroy 90 percent of the electricity production infrastructure of Ukraine?<sup>5</sup>

### GROUND SITUATION

A closer examination of the recent deliveries of AD systems or commitments made by the West, and the unfolding events tell a different story. Out of the seven Patriot batteries the West promised to deliver (not delivered), four, that is, one each will be provided by the USA, Germany, Italy and Romania, with no clarity on who will deliver the balance<sup>6</sup> three. What is also emerging is that the USA is currently negotiating with Israel to send eight older Patriot batteries to Ukraine, after refurbishment in the USA.<sup>7</sup> When we consider that as part of the military aid package, the US has been supplying Ukraine with the Hawk AD system of 1960s vintage, it is evident that even the West is now scraping the bottom of its *Wunderwaffen* barrel. This is also illustrated by the latest emerging news of the West scrounging for a Patriot battery with the radar and three launchers being provided by the Netherlands, the missiles from four countries, including Germany, and with no

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4. Kamilla Gunzinger, "The Significance of Air Superiority: The Ukraine-Russia War", The Mitchell Institute of Aerospace Studies, July 2, 2024.

5. G Gavin and N Camut, "The Race Against Time to Save Ukraine's Energy Grid, *Politico*, June 5, 2024.

6. Lara Jakes, "Europe Seeks to Solve the 'Patriot Puzzle' in Ukraine", *New York Times*, July 4, 2024.

7. Kylie Atwoods and Oren Libermann, "US Discussing Possibility of Transferring Israeli Patriot Missile Defense Systems to Ukraine", CNN, June 27, 2024.

emerging clarity on who will provide the mobile command post.<sup>8</sup> As far as the battlefield is concerned, it is fast emerging that the Russians are no longer losing aircraft as frequently as they did earlier. On the contrary, the Russians have now started using the massive FAB-3000 glide bomb against the Ukrainians with relative impunity, despite the presence of long-range AD systems like the Patriots and the S-300.

### **DESTRUCTION OF ENEMY AIR DEFENCES/ SUPPRESSION OF ENEMY AIR DEFENCES (DEAD/SEAD) CAMPAIGN**

These events and reports from the battlefield pose a bigger question regarding how the Ukrainian AD system situation has deteriorated so rapidly and what the Russians have done to perpetuate the same. One possible explanation is that behind the scenes, the Russians, to minimise losses and yet retain freedom of manoeuvre, have pursued a smart, flexible and relatively in-expensive SEAD/DEAD campaign. If one were to analyse the entire two-year war from the Russian SEAD/DEAD campaign point of view, then the war can be broadly divided into three distinct phases, with each phase having its strategies, outcomes and lessons learnt.

**Phase One—Despair:** This phase commenced with the preparation for the war in 2021 and ended in September 2022. During this phase, the Russians planned and executed a lightning campaign with minimal troops, which resulted in the Russians reaching the outskirts of Kyiv. However, while this phase did result in the VKS (Russian Aerospace Forces) quickly establishing air superiority, the VKS failed to convert this superiority into victory. One of the major reasons for this debacle can be attributed to the planning itself, which catered for a quick war, followed by the capitulation of the Ukrainians. However, things changed rapidly after the failure of the Istanbul talks. As the Russians began to withdraw, they started to suffer losses in men, equipment

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8. Jakes, n. 6.

and captured territory on the ground and attrition in the air. The events and the lessons learnt by the Russians with regard to SEAD/DEAD during this phase were:

- From the very beginning of the conflict, the VKS enjoyed an overwhelming superiority in terms of platforms. However, despite the numbers, the VKS was unable to exploit this superiority in numbers to achieve air superiority as its SEAD/DEAD failed to deliver.
- Ukraine is a vast country, with adequate depth to disperse and conceal its AD assets. This advantage was leveraged by the Ukrainians to not only conceal and preserve their AD assets but also allowed them to exploit the Russians' lack of air superiority and full-spectrum surveillance to create and exploit windows of opportunity to strike at the Russians.
- The collective West demonstrated that it was fully committed to this proxy war and was going to use Ukraine as a battering ram to bleed the Russians in a battle of attrition. The same is evident from the billions of dollars of military aid funnelled by the West into Ukraine as exemplified by Senator Lindsey Graham's statement that it is "the best money we've ever spent".<sup>9</sup>
- The West was supplying Ukraine with a whole range of short to long-range advanced AD systems, which were wreaking havoc amongst the VKS, as evident from the loss of 82 combat aircraft (mainly Su-25 and Su-34) and 87 helicopters, mostly Kamov Ka-52 (according to Oryx).<sup>10</sup> This necessitated a renewed focus on SEAD/DEAD if freedom of action was to be retained.
- The VKS felt a need to preserve its platforms if it was to deter the West from expanding the theatre or the scope of the conflict

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9. "Dismissing Russian Criticism, U.S. Senator Graham Praises Ukrainian Resistance", Reuters, May 29, 2023.

10. Cédric Pietralunga, "Can the Russian Air Force Still Change the Course of the War in Ukraine?", *Le Monde*, May 20, 2023.

through the supply of aircraft, or worse, by participating itself through steps such as the imposition of no-fly zones, etc. This resulted in certain restrictions being imposed on the employment of the VKS, with the VKS now being withdrawn behind the forward line of troops.

**Phase Two—The Meat Grinder:** This phase commenced in September 2022 with the Russian withdrawal from Kherson in the south, and Sumy, Izyum and Kharkiv sectors in the north, and ended with the failure of the Ukrainian counter-offensive in October 2023. This phase saw the Russians not only stabilise the situation on the ground and in the air, but create conditions that eventually led to the Ukrainians suffering a tremendous amount of attrition. The lessons learnt and actions that shaped the Russian SEAD/DEAD campaign during this phase were:

- Given the size of Ukraine, the availability of Western AD assets, and how well the Ukrainians had been trained and equipped by the West, the Russians quickly realised that the war was going to be long and attritional, with victory being achieved by the side that had the most resources. Hence, the key to winning this war lay in not only inflicting attrition on the Ukrainian AD systems, but the level of attrition exceeding the ability of the collective West to rearm the Ukrainians.
- The Russians reduced their frontage by taking drastic steps such as complete withdrawal from Kherson, Sumy and Izyum, and adopting a more compact positional defence. This helped the VKS in clearly identifying its forward line of troops, thereby assisting it in staying away from Ukrainian short and medium-range AD systems.
- The Russian withdrawal acted like an invitation to the Ukrainians to attack, perceiving the Russians to be weak and, in the process, they chose to commit a large chunk of their combat power, including AD assets, for an offensive in the

south to cut off the Russian land corridor to Crimea. This, however, enabled the Russians to use their surveillance means (which by now had been considerably enhanced) to seek, identify and destroy these Ukrainian assets on the battlefield.

- In other sectors, such as Bakhmut, the Russians resorted to a more classical attritional battle. Here, the Ukrainians to preserve territory rather than combat power, committed a disproportionate number of ground forces to defence, which assisted the Russians in destroying them through massed artillery fires. Due to the ferocity of combat and attrition, these sectors were often referred to as the meat grinders.
- It was in these meat grinders that the Russians realised the effectiveness of the TOS flame thrower system, which although effective, had a limitation in range. So the VKS quickly adapted and started to employ the old Soviet-era dumb bombs, the FAB-250, 500, 1000 and 1500 as glide bombs by strapping on a UMPK (Unified Planning and Correction Module) and releasing them from an aircraft (the Su-34 in most cases) from a relatively safe distance of 40-70 km. Since their introduction, these bombs have wreaked havoc amongst the Ukrainians as they hit targets such as buildings, fortified bunkers and enemy AD with reasonable accuracy and inflicted tremendous destruction.
- For counter-air and counter-surface-force operations, the Russians quickly substituted aircraft with long-range cruise and ballistic missiles, thereby helping them preserve platforms while simultaneously executing their stated missions with great accuracy. During this phase, the Russians started to use Ukraine's geography against it by increasing the variety (to include critical infrastructure) and depth of the targets, thus, making the Ukrainians disperse their AD assets over a wider area, and preventing their application in mass. This also allowed the Russians to identify and cherry-pick AD systems for destruction.

- As part of their battle of attrition the Russians began employing the multifaceted and yet extremely cost-effective platform of the Geran drone to saturate and exhaust the Ukrainian AD grid. Given the payload these drones carry, they not only compel the Ukrainians to disclose the position of their AD assets, thus, aiding future DEAD missions, but they also absorb the ferocity of the Western AD systems, thereby creating adequate opportunity and space for the cruise missiles to strike their targets. Other advantages accrued from these drones are that they helped identify gaps in the Ukrainian AD cover and made the Ukrainians expend valuable AD missiles at a rate much higher than what the West could replace.
- The Russians actively began to use their Orlan-10 class of drones for identifying Ukrainian targets such as tanks, artillery guns, AD systems and parked aircraft, which were then accurately destroyed by the Lancet loitering ammunition. These drones were instrumental in ensuring the systematic destruction of all kinds of Ukrainian AD systems, with the internet full of videos of their successful strikes, including strikes on fully operational AD batteries.
- For targeting high-value AD systems such as the Patriots, the Russians began extensive use of their Kinzhal and Avangard hypersonic missiles. For example, on May 16, 2023, the Ukrainian Patriot battery in Kyiv, which was engaging the Russian Geran drones and cruise missiles, was quickly identified and immediately engaged and destroyed by a Kinzhal.<sup>11</sup>

**Phase Three—The Effects of DEAD:** This phase, which has seen the Russians seize the initiative, commenced with the incremental Russian advance in October 2023 and is still unfolding. The highlights of this phase are:

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11. Vijander K Thakur, "Russia Rubs it in With Fierce Kinzhal Attack on Patriot Battery In Kyiv; Aerospace War Heats Up In Ukraine", *Eurasian Times*, May 16, 2023

- Encouraged by some spectacular results like the destruction of 4/5 VKS aircraft on May 13, 2023,<sup>12</sup> and a Russian A-50 over the Sea of Azov on February 23, 2024,<sup>13</sup> the Ukrainians, to counter the Russian glide bomb menace, started to stage forward their long-range AD systems, like the Patriot. However, with the Russians having effectively removed the AD cover provided by the medium and short-range AD system, the long-range systems of Ukrainians, such as the IRIS-T and S-300 themselves, became targets for the extremely low-flying Russian Lancet drones and Iskander-M ballistic missiles. This also highlights the need for a larger ecosystem of low and medium-range AD cover for long-range AD to be effective.
- Russia has been systematically targeting the Ukrainian energy infrastructure all over Ukraine. The Ukrainians are now faced with a choice: either preserve the critical infrastructure for the winters or support the frontline troops, thus, dissipating the remaining AD assets further. So ferocious has been the Russian DEAD campaign that the foreign minister of Ukraine, in desperation, stated “give us the damn Patriots”.<sup>14</sup>
- In an effort to further dissipate Ukrainian resources, the Russians launched a limited ground offensive in the Kharkiv region in May 2024, which resulted in the diversion of a lot of Ukrainian resources. This has been verified by the Ukrainian Chief of Intelligence, General Bandnov, who says that all Ukrainian assets are in Kharkiv or in Chasiv Yar.<sup>15</sup>

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12. David Axe, “A Ukrainian Patriot Missile Crew Shot Down Five Russian Aircraft in Two Minutes—And Possibly Forced the Kremlin to Rethink Its Tactics”, *Forbes*, July 3, 2023.

13. “Ukraine Military Destroys Russian Surveillance Plane”, Reuters, February 24, 2024.

14. Jamie Dettmer, “‘Give us the Damn Patriots’ — Ukraine Needs AD Now, Minister Says”, *Politico*, March 25, 2024.

15. C Méheut, M Varenikova and M Schwartz, “Facing Russian Advance, a Top Ukrainian General Paints a Bleak Picture”, *The New York Times*, May 14, 2024.

- At no stage has the VKS lost sight of the fact that this is a battle of attrition and has to be won on the ground. As a consequence, despite the withdrawal of the Ukrainian AD assets from the frontline sectors, the VKS continues with its strategy of using the glide bombs released from Su-34s to hit frontline Ukrainian targets. Since March 2024, the Russians have further adapted the UMPK to the UMPB-D-30SN which now allows the Russians to hit targets at even longer ranges, thus, supporting the Russian advance without coming too close to the Ukrainians.
- The Russians have begun extensively using their Iskander-M ballistic missiles with cluster munition for targeting Ukrainian AD systems and aircraft parked at various airfields, with the latest strike destroying over five Su-27s in the Poltava region<sup>16</sup> and two Patriot systems on July 7, 2024.<sup>17</sup> What is unique is that all these strikes were captured on camera by an overflying drone, which, in addition to identification, also carried out post-strike damage assessment. So precise have been these Russian strikes and the lack of AD that some Western analysts have questioned the survivability of the next new *Wunderwaffen*, namely, the F-16s that are being delivered to Ukraine.<sup>18</sup> All these events clearly show that the Russian DEAD campaign is a round-the-clock one, has dedicated resources, and is relentless.
- A battle of attrition does not mean the destruction of equipment alone. As more and more Ukrainian AD systems fall prey to the Russian DEAD campaign, Ukraine also loses well-trained

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16 "Russia Says it Destroys Five Ukrainian Su-27 Jet Fighters at Airfield", Reuters, July 2, 2024.

17. "Russia Claims Strikes on Two Ukrainian Patriot Systems that Kyiv Says were Decoys'", Reuters, July 7, 2024.

18. David Axe, "Ukraine's F-16 Fighter Jets will be Destroyed as Soon as They Arrive", *The Telegraph*, July 4, 2024.

crews, who are equally difficult to replace given the complexity involved in maintaining and operating modern AD systems.

- In December 2023, Japan decided to supply Patriot missiles to Ukraine.<sup>19</sup> By engaging with countries such as North Korea, the Russians have been able to impose caution on the Japanese and South Koreans.

## CONCLUSION

The conflict in Ukraine has made the sky over Ukraine a dangerous place, with both sides continuously adapting and changing their strategies. As the war approaches its third year, it is fast emerging that the Russians have not only withstood the onslaught of the Western AD systems but have since either destroyed, or have made the Ukrainians expend, a significant portion of the AD systems delivered by the West. Since most of these losses or expenditures cannot be replenished immediately, the West is currently exploring all available sources to provide Ukraine with some additional answers. Some Western analysts now state that the crux is that the industrial base of the West simply cannot churn out expensive AD systems and their missiles in the quantities required, while the Russians, in contrast, are continuously outproducing the West in drones, missiles and glide bombs.<sup>20</sup> With the Russians enjoying a quantitative advantage and the Ukrainians being reduced from a situation of plenty to a situation of scarcity, it is clear that the battle of attrition is tilting significantly in the Russians' favour, making it increasingly difficult for the Ukrainians to deal with the emerging asymmetry.

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19. Mariko Oi, "Japan to Send Patriot Missiles to US Which May Aid Ukraine", BBC, December 22, 2023.

20. Geoff LaMear, "Ukraine's Air Defense Woes Can't be Fixed by American Aid", *Defence News*, May 25, 2024.