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The Consistent Character of Russian Air Power:

Understanding the Context of the Russian Air Campaign in Ukraine From 24 February to 25 March 2022

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Exercise Solo Flight

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**The Consistent Character of Russian Air Power:
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**THE CONSISTENT CHARACTER OF RUSSIAN AIR POWER:
UNDERSTANDING THE CONTEXT OF THE RUSSIAN AIR CAMPAIGN IN
UKRAINE 24 FEBRUARY, TO 25 MARCH 2022**

Introduction

The Russian invasion of Ukraine beginning on February 24th, 2022, marked a distinct turning point in 21st century political and military affairs. This has rightly been described as a watershed event due to a scale of violence on the European continent that has not been seen in nearly eighty years and which many had thought had become extinct in the modern world. In addition to the palpable emotional shock caused by the commencement of such action, there has also been intellectual surprise as to how events began to unfold compared to previously held expectations of both the Ukrainian and Russian militaries. One such line of questioning revolves around the employment, or purported absence thereof, of the Russian Aerospace Force, *Vozduzhno-kosmicheskiesily*, (VKS) from the first phase of the conflict and the battle for Kiev. Indeed, the question has been asked, “Where is the Russian Air Force?”¹

The answer to this question is likely not straightforward. To answer it, a framework must be established to determine whether the VKS has factually operated differently in this current conflict than it did compared to historical cases. It is beneficial then that the Russian Aerospace Force has left in its wake a substantial forensic trail from the past four decades of operations which forms a useful body of evidence from which to better understand its current behaviour in Ukraine. This study will use the Russian conflicts in Afghanistan (1979-1989), Chechnya (1994-1995), Georgia (2008), and Syria (2015-) as case studies to establish patterns of operation for the

¹ Justin Bronk, “The Mysterious Case of the Missing Russian Air Force,” *Royal United Services Institute*, 28 February 2022, <https://rusi.org/explore-our-research/publications/commentary/mysterious-case-missing-russian-air-force/>.

Soviet/Russian Air/Aerospace Force. This will be compared to what is suspected about VKS air operations during the first month, or initial phase of war (IPW) of the Russian-Ukrainian conflict (24 February 2022 – 25 March 2022). From this analysis it will be possible to determine if the Russian Aerospace force has indeed taken a surprising course of action in Ukraine or if it is Western assumptions regarding the VKS that are in fact the element that does not align with evidence.²

It is this paper's position that the current Russian-Ukrainian conflict does *not* represent a discontinuity in the conduct of the Russian Aerospace Force, that its current behaviour is consistent with historical trends, and that it is currently present in the war with Ukraine in a manner, both in character and capacity, that should not be unexpected by observers.

CASE STUDIES AND ANALYTICAL FRAMEWORK

It is useful at this point to define a key concept to aid in understanding the case studies known as the initial phase of war (IPW). This is significant both because of its primacy in Russian doctrine, and because it very accurately encompasses the period in question, 24 February to 25 March 2022, in the Ukrainian campaign.

Kofman et al. describe the Russian understanding of the IPW as:

...an especially intense phase of the conflict, when states conduct combat operations with deployed forces, launch initial strategic operations and seek to attain early war aims. [It is] a period that may prove to be decisive for the outcome of the war, when opponents are likely to leverage the bulk of their military power in order to achieve maximum results or outcomes.³

² Mason Clark, *The Russian Military's Lessons Learned in Syria*, ISW Military Learning and the Future of War Series (Washington: Institute for the Study of War, January 2021), 8, 26, <https://www.understandingwar.org/report/russian-military%E2%80%99s-lessons-learned-syria#:~:text=The%20Russian%20military's%20main%20lesson,within%20a%20Russian%20decision%20framework>.

³ Michael Kofman, *et al.*, *Russian Military Strategy: Core Tenets and Operational Concepts* (Washington: Center for Naval Analysis, August 2021), 9, <https://www.cna.org/reports/2021/10/russian-military-strategy-core-tenets-and-concepts>. The IPW is a timescale of weeks rather than months.

This understanding of the IPW suggests that Russian leadership would consider this period to be sufficiently vital to commit all necessary air power in the achievement of the aim. That is, the concept of the IPW refutes the argument that VKS operations in the IPW in Ukraine were deliberately limited. Where applicable, the conditions of the IPW in each case study will be noted to provide a valid reference against the subject conflict.

The four historical case studies will explore Russian Air/Aerospace Force operations in roughly the following dimensions: situation, doctrine/organization, threat environment, weaponeering, target selection, and unique or distinctive features.

AFGHANISTAN (1979-1989)⁴

The experience of the Soviet Air Force, *Voенно-vozdushniye sily* (VVS), as it was then, in Afghanistan holds several illustrative points for the current Russian experience in Ukraine despite being conducted over thirty years ago with a different air force and a different doctrine.

Here, the IPW consisted of a largely unsuccessful combined arms conflict in which air power was specifically a subordinate force to classical land power and employed it in a similar fashion to armour or artillery. This would change by 1981 when the “Soviets embarked upon a strategy centering on the use of air power as a, if not the, primary instrument with which to eradicate the growing Muslim insurgency and cow the indigenous population through a lethal campaign of aerial bombardment.”⁵ This is significant because it marked a departure from pre-

⁴ The Afghanistan war demonstrated the political consistency of Russian methods that would persist in dealing with local ‘internal’ revolt. The Russian invasion of Afghanistan in this case was modelled from the 1968 Russian invasion of Czechoslovakia. In the minds of Russian planners, all these cases represent the same problem, to be solved with the same tool: an uprising of popular dissent against Soviet/Russian control to be put down by force with a pattern of military invasion, occupation, and reorganization.

⁵ Edward B. Westermann, “The Limits of Soviet Airpower: The Failure of Military Coercion in Afghanistan, 1979-89.” *Journal of Conflict Studies* 19, no. 2 (1999): No pagination.
<https://journals.lib.unb.ca/index.php/JCS/article/view/4356>.

1979 doctrine, differentiating itself from the character of both earlier and later conflicts.

Influenced by the Air-Mobile concept employed by the US Army in Vietnam, in Afghanistan air power was ascendant in the Soviet military.⁶

This capability was provided by the venerable Mi-24 ‘Hind’ attack/transport helicopter.⁷ This aircraft was ideally designed to operate in the rugged terrain of Afghanistan, was well protected against small/medium arms fire, and could deliver devastating firepower on military and civilian targets. The Mi-24 provided duty as both a gunship and troop transport, and excelled at escorting very effective heli-borne, *desant*, troop insertions.

A defining characteristic of the Afghan war was the overt, and overwhelming, use of air power against civilian population as a “punitive instrument with which to bludgeon the insurgents as well as the Afghan populace.”⁸ In this regard the use of unguided munitions was compared to iron bomb attacks of the Second World War.⁹ However, despite inflicting over an estimated one million civilian casualties, Soviet forces were unable to break the Afghan determination to fight, and in fact only solidified resistance in the population. “[Their] willingness to endure an enormous degree of punishment illustrates not only the limits of airpower, but the limits of military power as well.”¹⁰

Air superiority, against an opponent with no air force, provided an initially permissive environment and allowed for unfettered attacks by Mi-24 Hind against *Mujahideen* and civilian targets for nearly four years. This period of unchallenged air power came to a sharp and

⁶ This radical doctrinal shift may have continued, and even been accelerated by the future Gulf War, had it not been for the dissolution of the USSR by 1991. As it was, even only four years later by 1995 this trend had been reversed and once again hard lessons of air power would need to be relearned.

⁷ Edward B. Westermann, “The Limits of Soviet Airpower: The Failure of Military Coercion in Afghanistan, 1979-89.” *Journal of Conflict Studies* 19, no. 2 (1999): No pagination. At the outset of the conflict the Russian VVS committed 300 combat fixed wing aircraft and 600 helicopters.

⁸ *Ibid.*

⁹ *Ibid.*

¹⁰ *Ibid.*

effective end with the introduction of US government provided Stinger, surface-to-air missiles (SAMS).¹¹ These man-portable air-defense-systems (MANPADs) represented a paradigm shift in the conflict and established that the Afghani airspace was now a denied, or at minimum contested, environment, after which the operations of the VVS declined into ineffectiveness. This would become the first in a series of cases in which the problem of air defence could not be solved by Russian forces.

The conflict represented a rising modernity in both doctrinal thought and platform capability for the VVS. This only existed, however, in the initially uncontested airspace of 1981 through 1986. As noted by Westerman, “[It] was the mujahideen’s acquisition of reliable and effective man-portable surface to air missiles that administered the coup de grace to Soviet military strategy in Afghanistan.”¹² This made “the war once and for all unwinnable, contributing to their decision to withdraw.”¹³

CHECHNYA (1994-1995)¹⁴

In Chechnya the now reformed Russian Air Force, (VVS) went into combat for the first time in its new form, but in many ways, it was also going into battle fighting itself.¹⁵ Following nearly five years of financial privation, the VVS had struggled to provide more than 10% of the flying time for aircrews as compared to their western counterparts.¹⁶ It was also fighting the

¹¹ And to a lesser extent, the UK government provided Blowpipe SAM.

¹² *Ibid.*

¹³ *Ibid.*

¹⁴ Much as Afghanistan was a continuation of the localized republic wars that had come before the fall of the Iron Curtain, the conflict in Chechnya was in many ways the prototype of the regional conflicts that would come to define the decades after the collapse of the Soviet Union.

¹⁵ Timothy L. Thomas, “Air Operations in Low Intensity Conflict: The Case of Chechnya,” *Airpower Journal* (Winter 1997): 53. <https://apps.dtic.mil/sti/citations/ADA515085>. At the outset of the conflict the Russian VVS committed 140 combat fixed wing aircraft and 55 helicopters.

¹⁶ Benjamin S. Lambeth, “Russia’s Air War in Chechnya,” *Studies in Conflict & Terrorism* 19, no. 4 (January 1996): 380. <https://doi.org/10.1080/10576109608436016>.

legacy of the Gulf War, unrealistic comparisons against the USAF, and the expectations of what air power should be expected to achieve on its own.

The initial period of war in Chechnya followed the pattern established in Afghanistan, in that armor was sent into an environment where it was wholly unsuited. In this case, it was city of Grozny, where tanks and APCs without the support of infantry were decimated by anti-tank guided missiles (ATGMs) and rocket propelled grenades (RPGs.)¹⁷ So similar was this event to its predecessor, that it was said that “all the mistakes Soviet troops made in Afghanistan have been repeated in Chechnya.”¹⁸

The Chechen threat environment in many ways mirrored that of Afghanistan. General air superiority was enjoyed at medium and high altitudes as the Chechen air force was largely destroyed on the ground over the course of three days early in the conflict.¹⁹ In the low-level environment, the rebel forces maintained the threat of mobile, short range air defence, which forced the VVS into the medium altitude environment. Once again, air defence proved to be a problem that the Russian Air Force could not solve thus confining operations to permissive blocks of airspace. This denial was made all the worse due to terrible winter weather which saw persistent cloud and icing make low-level flight even more untenable.

Chechnya saw two evolutions beyond the operations in Afghanistan, although their effect would be minimal. The first differentiating factor between the two conflicts would be the new prominence of fixed-wing attack aircraft over rotary wing close air support (which was more vulnerable to ground fire), specifically the Su-25 ‘Frogfoot’ close air support (CAS) jet. The Su-

¹⁷ *Ibid.*, 370.

¹⁸ *Ibid.*, 380. Lambeth goes on to quote Michael Specter, “No one planned the operation. It was started ‘Russian Style’ on the off chance it would work.”

¹⁹ *Ibid.*, 370.

25 provided speed and a resulting element of surprise in a strike role. The second difference was the introduction and limited use of precision guided munitions (PGMs) such as laser guided and electro-optical (TV) guided weapons. Being forced into the medium altitudes, however, combined with cloud persistent cloud cover saw Russian warplanes unable to employ PGMs and forced the VVS to conduct unguided munitions releases above the clouds with a resultant degradation of accuracy. Continuing the precedent established in Afghanistan, when it came to weapons delivery, “quantity prevailed over quality in VVS operations in Chechnya.”²⁰

The Russian Air Force aspired to apply the effects envisioned in their evolving doctrine, (and similar to that achieved by coalition forces in the Gulf War) and some limited numbers of high value targets were indeed attacked during this conflict, such as the destruction of the Chechen Air Force and the attack rebel leader Dzhorkhar Dudayev’s headquarters.²¹ However, the VVS’s willingness to employ air power to conduct attacks on the civilian population remained. The destruction of the city of Grozny would be far more representative of the conflict, which the Russian Force would reduce to rubble, “visually turning the city into another Stalingrad.”²²

The story of Chechnya could be the story of Ukraine, so similar are the descriptions of the strategic decision making. It illustrated that air power cannot (for any nation) make up for incoherent strategic planning. Further, despite an evolution in knowledge regarding the prominence of air power following the Gulf War, and an evolving Russian air power doctrine, the Russian Air Force was in practice returned to being subjugated by the Russian ground

²⁰ *Ibid.*, 383.

²¹ Timothy L. Thomas, “Air Operations in Low Intensity Conflict: The Case of Chechnya,” *Airpower Journal* (Winter 1997): 52. <https://apps.dtic.mil/sti/citations/ADA515085>. Dzhorkhar Dudayev was a former general in the Soviet Air Force. Well versed in Russian tactics, he leveraged the advantages of guerrilla warfare against the limitations of the VVS and maximized the deterrent effect of even obsolete air defence artillery.

²² *Ibid.*, 53.

forces.²³ It continued the lessons of the Soviet Air Force in Afghanistan that a highly motivated opponent with little or no air force can still deny control of the air and limit the effectiveness of air power. The Chechen conflict demonstrated the ongoing preference for unguided weapons and a relative lack of inhibition against civilian casualties. All of these defining characteristics are consistent with observations in the current war in Ukraine.

GEORGIA (2008)²⁴

The August, 2008, five-day conflict in the Republic of Georgia was a conflict that had stark contradictions: it was a 21st Century war, fought with mid-20th Century methods of armour and manoeuvre.²⁵ Similarly, it also continued a contradictory (or aspirational) pattern of the Russian military to recognize modern trends in warfare while yet being unable to escape historical trends and merely continuing many of the defining characteristics of the Russian Air Force's experience in previous conflicts.²⁶ These included: the inability to operate in airspace contested by enemy air defense; a reliance on unguided weaponry over precision guided munitions; and a failure to operate jointly with other Russian services. In such a brief conflict, the entirety of the event constitutes the initial period of war for the Russian Armed Forces, but brevity of the conflict should not however detract from the importance it played in motivating attempts at future reforms for the Russian Military.

The VVS enjoyed essentially uncontested airspace against airborne threats, but the presence of a more effective than anticipated Georgian ground-based air defence denied the

²³ Benjamin S. Lambeth, "Russia's Air War in Chechnya," *Studies in Conflict & Terrorism* 19, no. 4 (January 1996): 383. <https://doi.org/10.1080/10576109608436016>.

²⁴ Lionel Beehner, *et al*, *Analyzing the Russian Way of War: Evidence from the 2008 Conflict with Georgia*. A Contemporary Battlefield Assessment by the Modern War Institute. (West Point: Modern War Institute, 2018), 37, <https://mwi.usma.edu/wp-content/uploads/2018/03/Analyzing-the-Russian-Way-of-War.pdf>. In the conflict, the VKS deployed approximately 200 aircraft against 24 deployed by Georgia. They conducted up to 400 total sorties of all types, achieving a maximum rate of 100 per day on the second day of the conflict.

²⁵ *Ibid.*, 50.

²⁶ *Ibid.*, 51.

Russian forces freedom of action.²⁷ Once again, a failure to be able to enact effective Suppression of Enemy Air Defence (SEAD)²⁸ represented *the* critical failing of the VVS, as even this moderate threat continued to deny Russia the ability to apply effective air power.²⁹ It is interesting to note that despite finally possessing anti-radiation missiles (ARMs) that they were not employed in the SEAD missions, and that the conflict was half over before any attempts were made to directly attack air defence threats.³⁰

This was not the only shortcoming in munitions or technology. Unavailability of GLONASS satellite positioning from which to operate PGM targeting and munitions which could alternately rely on laser or television designation were lacking in the PGM inventory.³¹ A secondary effect of this weaponry deficit, and the resulting reliance once again on unguided munitions, was a relatively large (for the length of conflict) number of civilian casualties despite a lack of evidence of deliberate targeting of civilian population centers.³² Nonetheless, the VVS accepted this higher collateral damage in its operations.³³ Finally, the lack of a communication

²⁷ The Georgian forces were publicly known to possess SA-11 SAM systems as well as Rafael Spyder SAM systems. A further factor that limited Russian operations was the lack of night vision capability, thus limiting all sorties to daylight.

²⁸ Also, Destruction of Enemy Air Defence (DEAD).

²⁹ Ariel Cohen and Robert E. Hamilton, *The Russian Military and the Georgia War: Lessons and Implications*. (Carlisle, PA: Strategic Studies Institute, U.S. Army War College, 2011), 37, 51, <https://press.armywarcollege.edu/monographs/576/>

³⁰ *Ibid.*, 40. "...Russia may have had little confidence in the capabilities of its anti-radiation missiles to destroy Georgian radars after the failure of the Kh-58 in 2007."

³¹ Michael Kofman, "Russian Performance in the Russo-Georgian War Revisited," *War on the Rocks*, 4 September 2018, <https://warontherocks.com/2018/09/russian-performance-in-the-russo-georgian-war-revisited/>; Ariel Cohen and Robert E. Hamilton, *The Russian Military and the Georgia War: Lessons and Implications*. (Carlisle, PA: Strategic Studies Institute, U.S. Army War College, 2011), 34, <https://press.armywarcollege.edu/monographs/576/>

³² Lionel Beehner, *et al*, *Analyzing the Russian Way of War: Evidence from the 2008 Conflict with Georgia*. A Contemporary Battlefield Assessment by the Modern War Institute. (West Point: Modern War Institute, 2018), 51, <https://mwi.usma.edu/wp-content/uploads/2018/03/Analyzing-the-Russian-Way-of-War.pdf>

³³ Ariel Cohen and Robert E. Hamilton, *The Russian Military and the Georgia War: Lessons and Implications*. (Carlisle, PA: Strategic Studies Institute, U.S. Army War College, 2011), 38, <https://press.armywarcollege.edu/monographs/576/>; Lionel Beehner, *et al*, *Analyzing the Russian Way of War: Evidence from the 2008 Conflict with Georgia*. A Contemporary Battlefield Assessment by the Modern War Institute. (West Point: Modern War Institute, 2018), 81, <https://mwi.usma.edu/wp-content/uploads/2018/03/Analyzing-the-Russian-Way-of-War.pdf>

link to ground forces (in addition to the SAM threat) ensured that the VVS would not be able to provide any meaningful close air support for Russian troops in contact with the enemy and essentially fought disconnected campaigns.³⁴

Cohen and Hamilton reference an observation stating that the Russian Air Force demonstrated a “remarkably limited capacity to wage air combat for a nation aspiring to be a great military power.”³⁵ The 2008 Georgian conflict was described as being, once again, the last war fought in the Soviet style by the Russian Air Force, just as was said of the wars in Chechnya and Afghanistan.³⁶ Following the conflict a set of sweeping reforms, known as the “New Look”, was instituted to renew the Russian military. This included the appointment of a Combined Army officer as head of the VVS for the first time in 2017 (a trend which continues to the present day) and which was supposed to represent a turning point in joint interoperability.³⁷

SYRIA (2015-)

The conflict in Syria (beginning in 2015 and essentially continuing in the present) is the first conflict (since Afghanistan) where Russian leadership officially acknowledged the re-emergence of air power as the *primus inter pares* amongst the services.³⁸ Thus, from the first

³⁴ Michael Kofman, “Russian Performance in the Russo-Georgian War Revisited,” *War on the Rocks*, 4 September 2018, <https://warontherocks.com/2018/09/russian-performance-in-the-russo-georgian-war-revisited/>; Ariel Cohen and Robert E. Hamilton, *The Russian Military and the Georgia War: Lessons and Implications*. (Carlisle, PA: Strategic Studies Institute, U.S. Army War College, 2011), 50, <https://press.armywarcollege.edu/monographs/576/>

³⁵ Ariel Cohen and Robert E. Hamilton, *The Russian Military and the Georgia War: Lessons and Implications*. (Carlisle, PA: Strategic Studies Institute, U.S. Army War College, 2011), 37, <https://press.armywarcollege.edu/monographs/576/>

³⁶ *Ibid.*, 67.

³⁷ Michael Kofman, “Russian Performance in the Russo-Georgian War Revisited,” *War on the Rocks*, 4 September 2018, <https://warontherocks.com/2018/09/russian-performance-in-the-russo-georgian-war-revisited/>.

³⁸ Mason Clark, *The Russian Military’s Lessons Learned in Syria*, ISW Military Learning and the Future of War Series (Washington: Institute for the Study of War, January 2021), 24, <https://www.understandingwar.org/report/russian-military%E2%80%99s-lessons-learned-syria#:~:text=The%20Russian%20military's%20main%20lesson,within%20a%20Russian%20decision%20framework>. Former Commander of the Russian Air Force, Peter Deinekin, stated in 2019 that “air supremacy is the most important manifestation of the military power of any state.”

emergence of air power as the dominant force in Afghanistan, nearly thirty years later it was returning to a position of status. Syria was to fulfil many parallel objectives for the Russian leadership: first, to serve as an expedient training ground for Russian military leadership; and second, the field testing and confirmation of the ‘New Look’ reforms instituted after 2008 experience in Georgia, including the newly reformed Aerospace Force, or *Vozduzhno-kosmicheskiesily* (VKS).³⁹ As a part of this modernization Russia had significantly rationalized and modernized its aircraft fleet, taking on 350 aircraft and 1000 helicopters in the preceding seven years following the Georgian war.⁴⁰

The value of the learning experience during Russia’s high volume of air operations in Syria may be far more limited than Russia has implied.⁴¹ Consistent with now well-established norms, “Russia did not face either modern air-defense systems, hostile aircraft, or even MANPADS operated by an experienced force.”⁴² The residual ground based threat of obsolescent systems, however, still remained enough for the VKS to restrict operations for its aircraft to 4,000m above ground.

³⁹ Nicholas Myers, “The Russian Aerospace Force.” *Security Forum*, no. No 1 (2018): 91. https://doi.org/10.26410/SF_1/18/8.

⁴⁰ Anton Lavrov, *The Russian Air Campaign in Syria: A Preliminary Analysis*, CNA Occasional Papers Series (Washington: Center for Naval Analysis, June 2018), 1, <https://www.cna.org/reports/2018/06/russian-air-campaign-in-syria>

⁴¹ *Ibid.*, 4. Russian VKS forces completed approximately 44,000 sorties over the course of five, years from 2015 to 2020. As a reference against the doctrinally critical initial period of war in in Syria (Approximately 30 September 2015 to 22 November 2015), 32 combat aircraft conducted 1,292 combat missions. Following the terrorist downing of Metrojet Flight 9268, the combat rate briefly surged to 100 missions per day, completing 522 missions. Between 24 December 2015 to 22 February 2016, the VKS conducted 6,500 sorties at an average rate of 107 missions per day.

⁴² Mason Clark, *The Russian Military’s Lessons Learned in Syria*, ISW Military Learning and the Future of War Series (Washington: Institute for the Study of War, January 2021), 25, <https://www.understandingwar.org/report/russian-military%E2%80%99s-lessons-learned-syria#:~:text=The%20Russian%20military's%20main%20lesson,within%20a%20Russian%20decision%20framework>; Anton Lavrov, *The Russian Air Campaign in Syria: A Preliminary Analysis*, CNA Occasional Papers Series (Washington: Center for Naval Analysis, June 2018), 4, <https://www.cna.org/reports/2018/06/russian-air-campaign-in-syria>

Weaponeering practices in Syria also remained consistent with historical norms in practice, but continued to diverge from increasingly aspirational messaging and doctrine. Chief of the General Staff, Valery Gerasimov addressed the importance of precision guided munitions during the conflict, recognizing that “future conflicts will increasingly necessitate the widespread use of precision weapons for victory.”⁴³ To this end Russian forces did finally introduce the use of land attack cruise missiles for precision strikes, and Syria would see the first use of *Kalibr* cruise missiles which would later see service in Ukraine.⁴⁴ Despite this new (but numerically overall very limited) capability in stand-off weaponry, the VKS continued its predominant use of unguided munitions delivered by crewed aircraft.⁴⁵ This resulted in low-accuracy air strikes, all the more so because VKS aircraft were prohibited from operating below the 12,000ft AGL restriction. The use of these high altitude, unguided munitions, on urban areas had a direct correlation to collateral damage, and proportionally to civilian casualties. Further, it was specifically recognized that unguided weapons were primarily used on civilian targets.⁴⁶

The significance of the VKS campaign in Syria to understanding the current conflict in Ukraine is due to the importance the Russian military itself has placed on that specific event it as the recognized learning experience for its operators and leaders.⁴⁷ The Syrian experience has been described as foundational to the development of the Russian Armed Forces, and Gerasimov “identified Syria as a prototype war of the new generation.”⁴⁸ The VKS is reported to have had

⁴³ Mason Clark, *The Russian Military’s Lessons Learned in Syria*, ISW Military Learning and the Future of War Series (Washington: Institute for the Study of War, January 2021), 26, <https://www.understandingwar.org/report/russian-military%E2%80%99s-lessons-learned-syria#:~:text=The%20Russian%20military's%20main%20lesson,within%20a%20Russian%20decision%20framework>

⁴⁴ *Ibid.*, 30.

⁴⁵ *Ibid.*, 26-27.

⁴⁶ *Ibid.*, 27.

⁴⁷ *Ibid.*, 10.

⁴⁸ *Ibid.*, 11.

the greatest rotation of operational personnel through the Syrian theatre, with up to 90% of both rotary and fixed wing tactical aviation participating. As a result, it is not surprising to see consistency in the conduct of VKS operations between Syria and Ukraine.⁴⁹

UKRAINE (24 February 2022 to 25 March 2022)⁵⁰

The doctrinal importance of the IPW to the Russian military implies a high level of commitment to participation in the war effort and should provide an accurate reflection of the current state of affairs in the VKS.⁵¹ It has been estimated that the aircraft fleets placed in proximity to Ukraine in the north (Belarus), east (Russia proper), and south (Crimea) comprised approximately 300 combat aircraft. This is a significant commitment, and nearly 10 times the size of initial deployments to other theatres such as Syria. Although difficult to verify, relatively high sortie rates, up to 2-300 sorties per day, have been observed which substantially exceeds previous operations.⁵² Thus while the VKS may be unable to increase complexity of operations, they are able to multiply the rate of simple operations.⁵³ This has been seen in past conflicts where the VVS made use of two crews per aircraft to increase operational tempo.

The IPW for the 2022 Russian invasion of Ukraine provides sufficient evidence for characteristics consistent with the past forty years of Soviet and Russian Air Force combat operations and supports the hypothesis that the VKS is as present in the current conflict as it was

⁴⁹ *Ibid.*, 33.

⁵⁰ The initial phase of war for the current conflict in Ukraine will be analyzed from the first day of the invasion until the 25 March 2022, selected due to a Russian press conference announcing that the first phase of the Russian conflict plan was complete and was moving on to secondary objectives.

⁵¹ “Russia’s Air War in Ukraine,” *The Warcast – War on the Rocks*, 24 March 2022. Which debunks criticisms that the Russian Aerospace Force is not fighting Ukraine in the same manor or level of effort that they would fight NATO. <https://warontherocks.com/episode/warcast/26656/russias-air-war-in-ukraine/>.

⁵² “The Air War Over Ukraine,” *Chain Reaction - Foreign Policy Research Institute*, 25 March 2022, <https://www.fpri.org/multimedia/2022/03/the-air-war-over-ukraine/>. For open-source observers, the air war of the Russo-Ukrainian conflict has proved to be the most difficult component about which to assemble accurate and complete information.

⁵³ “Russia’s Air War in Ukraine,” *The Warcast – War on the Rocks*, 24 March 2022. <https://warontherocks.com/episode/warcast/26656/russias-air-war-in-ukraine/>.

in the historical case studies.⁵⁴ There are three consistencies that most closely align the current operation with those of Afghanistan, Chechnya, Georgia, and Syria: inability to operate in contested airspace; reliance on unguided munitions; and, targeting of civilian population.

Similar to previous engagements, the VKS has demonstrated an unwillingness and to operate in contested airspace over Ukraine. Despite employing precision, stand-off weaponry (SOW) such as cruise missiles and anti-radiation missiles against Ukrainian S-300 SAM systems on the opening night of the conflict, it appears that the VKS remained unable to counter Ukrainian medium-and short-range mobile air defense systems (SA-8, SA-11, BUK) during the IPW.⁵⁵ This demonstrates an ongoing difficulty in undertaking SEAD/DEAD missions; whether the root cause of that difficulty be doctrinal, training, or technological in nature is not known.⁵⁶ As a result, medium- and high-level Ukrainian airspace remains contested and essentially inaccessible to the VKS at their accepted level of risk.⁵⁷ This stratification of airspace necessitates the use of low-level altitudes by the VKS to avoid radar detection and provide for accurate delivery of unguided munitions. This also, however, dramatically increases the threat of ubiquitous, Western provided, MANPAD systems such as Stinger and more recently, the ultra-high velocity, UK developed Thales Starstreak missile system.⁵⁸

The Russian preference for unguided munitions remains consistent and comprise the majority of strike missions conducted by fixed-wing attack aircraft such as the Su-34 and Su-25

⁵⁴ To differentiate it from the 2014 invasion of Ukrainian Crimea and Donbas regions.

⁵⁵ *Ibid.* This represents the most significant evolution of Russian capability beyond that demonstrated in the Georgian or Syrian conflicts.

⁵⁶ “The Air War Over Ukraine,” *Chain Reaction - Foreign Policy Research Institute*, 25 March 2022, <https://www.fpri.org/multimedia/2022/03/the-air-war-over-ukraine/>.

⁵⁷ This is a good indication of the prioritization of force protection by the VKS over competing demands such as close air support and tactical air strikes in support of ground operations.

⁵⁸ “Russia’s Air War in Ukraine,” *The Warcast – War on the Rocks*, 24 March 2022. <https://warontherocks.com/episode/warcast/26656/russias-air-war-in-ukraine/>. Initial use of low-level operations yielded extremely high attrition on the VKS. In the two days of 4-5 March, 11 aircraft were lost to ground fire; an unsustainable rate of loss.

in Ukraine. Even though these aircraft are capable of delivering PGMs, it appears that low inventories following the Syrian conflict have left the VKS in a precision munitions deficit that has not been replenished due to Western imposed sanctions. Beyond the limited number of available PGMs, there also remain limitations on pilot competencies and equipment capabilities that reduce the VKS use of precision air strikes.⁵⁹ The majority of Russian unguided munition attacks do not, however, require precision. The preferred mission set for these ‘dumb-bomb’ attacks continue to be the deliberate targeting of civilian population and infrastructure to instil terror. Specifically, targets near Russian territory such as Kharkiv, Cherniv, Kherson, Melitopol, and Mariupol (where it is possible for Russian aircraft to minimize time over contested airspace and quickly return to protected bases) have been the hardest hit.⁶⁰ Numerous specific examples of deliberate targeting of civilians by the VKS have been documented, including the March 25th bombing of a theatre in Mariupol, killing up to 600 people who were sheltering there.

CONCLUSION

The initial phase of war for the 2022 Russian invasion of Ukraine did not align with many of the expectations held amongst Western military professionals and practitioners. One of the key discrepancies was the perceived absence of the Russian Aerospace Force, the VKS, during this time. This, however, is most likely a transposition of Western expectations of air power onto the Russian operations, and the tendency to believe in the transformational power of doctrinal change and technological development over historical evidence. In fact, even

⁵⁹ As the Syrian conflict was considered the definitive training experience for the VKS, and as the overwhelming majority of air strikes in that conflict were completed with unguided munitions it is not surprising that it remains the skill set that Russian aircrew retain. In regard to equipment, Russian aircraft continue to not employ western-style targeting pods which would enable far greater accuracy and effectiveness of the PGMs the VKS does possess.

⁶⁰ Justin Bronk. “Russia Likely has Local Air Superiority in Donbas, but it May Not Matter.” *Royal United Services Institute*, 19 April 2022, <https://rusi.org/explore-our-research/publications/commentary/russia-likely-has-local-air-superiority-donbas-it-may-not-matter>. This technique of force protection has also been used for delivery of Russia’s limited number of precision air-launched cruise missile attacks.

allowing for a moderate evolution of capabilities as demonstrated in Ukraine by new Russian SOWs, the performance of the VKS in the Ukraine theatre has been shown to be wholly consistent with its past operations in Afghanistan, Chechnya, Georgia, and Syria. The Russian Aerospace Force remains under-achieving in its capacity deliver air power effects due to: its inability to operate in airspace contested by air defence; its reliance on unguided munitions; and an idiosyncratic predilection for attacks on civilian population. Thus, despite ongoing evolution of doctrine and platform capability, outside observers should use this conflict to re-align expectations.⁶¹ The nature of Russian Aerospace Force operations in the Ukraine conflict suggests that the VKS has, as in previous cases, prioritized the preservation of its organization over the strategic mission achievement. Going forward, observers should not expect the fundamental character of Russian Aerospace Force operations to radically change regardless of technological or doctrinal evolution.⁶²

⁶¹ Mason Clark, *The Russian Military's Lessons Learned in Syria*, ISW Military Learning and the Future of War Series (Washington: Institute for the Study of War, January 2021), 26, <https://www.understandingwar.org/report/russian-military%E2%80%99s-lessons-learned-syria#:~:text=The%20Russian%20military's%20main%20lesson,within%20a%20Russian%20decision%20framework>.

⁶² The experience of the Russian Air/Aerospace Forces over the previous five conflicts indicate the inherent power of air defence to influence the nature of operations, and the course of conflicts. This dictates three tactical realities that must be addressed for Canada and its allies to effectively operate and project air power and military influence. First, NATO allied operations must retain and expand SEAD/DEAD capabilities. Second, Canada must possess a combat aircraft capable of penetrating air defence contested airspace (and through anti-access/area-denial, A2/AD, defences) to deliver effects. Third, the CAF must possess organic air defence capability both at sea and on ground to provide force protection against airborne threats. Currently the CAF does not possess these capabilities. The RCAF at present operates the CF-18 as a Generation 4+ aircraft, but it does not have the low-radar observable characteristics that would allow protection from enemy air defence. The Canadian Army disbanded the Air Defence Artillery and its Air Defence Anti-Tank System (ADATS) in 2012 and does not currently employ a MANPAD surface to air weapon system. The Canadian Navy retired the last "Tribal" Class Air Defence Destroyer with its complement of Standard SM-2MR Block III SAM missiles in 2017.

As demonstrated by the conflict in Ukraine even a limited, but layered, air defence capability can be the determining factor in denial of enemy air threats. Without these capabilities, Canadian assets are an unprotected liability that would either require other nations to provide force protection to enable CAF participation, or altogether preclude CAF participation in contested operations. The RCAF remains in the acquisition phase of the Future Fighter Project which may lead to the purchase of a Fifth-Generation fighter aircraft capable of penetrating enemy air defence. Air Defence is prioritized in Strong Secure Engaged (SSE) points 34 (Ground based air defence for the Canadian Army), and 29 (Canadian Surface Combatant), and has been specifically identified by CDS General Eyre as a top priority for acquisition. In a word, the future of air power (and aerospace power) is *contested*. The RCAF, CAF, and its NATO allies must not assume to operate in a permissive environment.

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