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THE CONTINUING CRISIS OF RUSSIAN AIR POWER

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Ever since the disintegration of the Soviet Union in 1991, military aviation in post-Soviet Russia has been in a state of steady decline. Thanks to the overnight losses the former Soviet Air Force (*Voennovo-zdushnye sily*, or VVS) experienced to the newly-independent states in the wake of the USSR's collapse, as well as to the further reduction in deployed VVS assets that has continued to take place throughout the ensuing years, Russia's air strength has now almost literally been decimated from some 13,000 aircraft in 1990 to no more than around 2000 today.²

As one might expect, this unhappy experience has reflected the broader decline of the Russian economy and sociopolitical system that has occurred since the demise of Soviet communism. Russia's gross domestic product (GDP) fell by an average of around 9 percent almost every year since 1990, to a point where it is now only slightly larger than that of Mexico.³ Its GDP finally rose again by 3.2 percent in real terms in 1999, thanks to the recovery of oil and other commodity prices as the 1998 ruble devaluation increased the competitiveness of Russian exports.⁴ Nevertheless, owing to chronic underfunding and the uncorrected aftereffects of 74 years of communist misrule, Russia entered the 21st century, in the words of one expert observer, with a military establishment that was "in extreme disrepair, ill-equipped, ill-trained, ill-disciplined, significantly corrupted, criminalized, and demoralized."⁵

This paper offers a status report on the overall condition and vector of Russian air power today. It begins with a review of the organizational changes that were occasioned

¹This paper was written for presentation at the Air Power Symposium 2001, sponsored by the chief of staff of the Royal Norwegian Air Force, Trondheim, Norway, February 6-8, 2001. I wish to thank Steve Dunn, Hq Air Combat Command, Brian Fishpugh, Hq United States Air Forces in Europe, Randy Mayer, Hq United States Air Force, and my RAND colleague Abraham Becker for their help with documentation and fact-checking.

²For a detailed account of this devolution, see Benjamin S. Lambeth, *Russia's Air Power in Crisis*, Washington, D.C., Smithsonian Institution Press, 1999.

³Charles J. Dick, "Russia's New Doctrine Takes Dark World View," *Jane's Intelligence Review*, January 2000, p. 19.

⁴*The Military Balance, 2000-2001*, London, International Institute for Strategic Studies, 2000, p. 115.

⁵Charles J. Dick, "Down, But Not Out," *Jane's Defense Week*, August 2, 2000, p. 19.

by the merger in 1998 of the former VVS and Russia's separate and independent Air Defense Forces (*Voiska protivovozdushnoi oborony*, or VPVO), to include a brief look at the composition and force structure of the newly-integrated VVS. It next examines trends in force development and modernization, followed by snapshot overviews of evolving doctrine and concepts of operations, day-to-day training at the unit level, and the highlights of air combat activity during Moscow's second war in Chechnya, which began in late 1999 and continues intermittently to this day. The paper concludes with some thoughts on why any serious consideration of possible NATO cooperative operational ventures with the VVS would be premature at this point, followed by a recapitulation of the current status and near-term direction of Russian air power.

DEVELOPMENTS IN AIR ORGANIZATION AND FORCE STRUCTURE

The long-awaited and long-discussed merger of Russia's VVS and VPVO finally came to pass starting in early 1998. The previous December, General Pyotr S. Deinekin, the commander in chief of the former VVS who took the helm after the abortive 1991 coup attempt and who shepherded Russia's air power through its first fitful years of post-Soviet retrenchment, was retired and replaced by a former VPVO officer, Colonel General Anatoly Kornukov, previously assigned as commander of the Moscow Air Defense District. One Russian commentator called the merger "the largest restructuring in the history of our military," adding that despite the objections of those in both former services who had resisted it, the unification made sense in that the nation's air "sword" and "shield" were now fully integrated, making it "easier to coordinate interaction between formations and units in their joint interests and to maintain combat readiness with stringent constraints on all types of resources."⁶

During the first year of its existence, the newly-merged VVS received less than 48 percent of its budget request, virtually all of which went to providing for personnel benefits and to supporting organizational changes associated with implementing the integration of the former VVS and VPVO.⁷ The merger was accompanied by an accelerated downsizing of the two former services. The newly-integrated service saw a

⁶Colonel (Ret.) Aleksandr Krasnov, "Not by Numbers but by Ability," *Armeiskii sbornik*, April 1999, p. 28.

⁷Interview with Major General Nikolai Anisimov, chief of the VVS Financial-Economic Directorate, by Colonel Aleksandr Dobryshevskii, "Combat Readiness Requires Expenses: Is This Always Considered in Reforming the Army and Navy?" *Krasnaia zvezda*, July 17, 1999.

decline in its combined personnel strength from 225,000 in 1998 to 185,000 in 2000, as well as a reduction in force structure from 100 to 70 aircraft regiments.

Toward the end of 2000, General Kornukov announced plans to make more robust at least some of his remaining units by merging several regiments, providing them with three rather than two squadrons, retaining only their most experienced pilots, and striving for an 85-90 percent aircraft in-commission rate.⁸ He added that these three-squadron regiments would each have 36-40 aircraft per regiment and a crew ratio (the number of assigned aircrews per aircraft) of 1.5 to 1.7.⁹ Earlier in 1999, six former VVS and VPVO training establishments were closed, 38 separate state repair enterprises were merged into a single repair network, and 14 maintenance depots were closed.

Some predictable and still-unresolved problems were created as a result of the merger. For example, former VVS aircrews were accomplished at deploying to alternate operating regions and were trained to operate out of any location, whereas those in the VPVO were accustomed to operating solely from a single base. The merger further spotlighted numerous interoperability problems occasioned by different types of equipment being brought together in a single command and by individuals raised in dissimilar operational cultures who have experienced persistent difficulty in relating to one another and working together efficiently.

Nevertheless, by mid-1999, the merger of the two services was called "practically complete."¹⁰ It brought to an end the long-familiar existence of separate VVS branches. The former Long-Range Aviation, (LRA), Frontal Aviation (FA), and Military Transport Aviation (*Voенно-transportnaia aviatsiia*, or VTA) commands that had dominated VVS flight operations throughout the cold war were disestablished. In their place, LRA's assets were assigned to a new 37th Air Army of the Supreme High Command in Moscow. The transport aircraft of the former VTA went to a newly-established 61st Air Army of the Supreme High Command. In addition, two independent VVS air corps were established, with headquarters in Samara and Yekaterinburg, respectively. Finally, Russia's fighters and ground attack aircraft of the former VVS's Frontal Aviation Command and its interceptors of the former VPVO were reconstituted as four air armies of the new VVS:

⁸"Air Force to Try New Regiment Organization Plan," Military News Agency (Moscow), December 26, 2000.

⁹"Air Force Development Plan Envisages Increase in Combat Potential," Military News Agency (Moscow), January 9, 2001.

¹⁰Interview with Anisimov, "Combat Readiness Requires Expenses."

- The 4th Air Army, headquartered in Rostov-on-Don
- The 6th Air Army, headquartered in St. Petersburg
- The 11th Air Army, headquartered in Khabarovsk
- The 23rd Air Army, headquartered in Chita

The original idea behind the reorganization plan was for all heavy bombers to be reassigned to a newly-created Joint Supreme Command of Strategic Deterrent Forces, leaving the VVS with only four medium bomber divisions, which would then be subordinated to the operational control of Russia's Military District commanders, all of whom wore army uniforms. In a clear win for the interests of Russian air power integration, that move was rescinded at the April 1999 session of the Russian Security Council.

As for force structure, the 37th Air Army, commanded by Lieutenant General Mikhail Oparin, maintains an inventory of 68 Tu-95 and 15 Tu-160 heavy bombers in two divisions at the Engels air base, as well as two regiments of Tu-95s in a heavy bomber division stationed at Ukrainka air base in the Far East and four additional divisions of Tu-22M3s, three in the Far East and the remaining one in European Russia. Each Tu-22 division maintains some 40-50 aircraft. In addition, a 5th Heavy Bomber Air Division is attached to the Russian Navy's northern Fleet, headquartered at Oleni. (The navy's other two bomber divisions were transferred to VVS control.)

The oldest Tu-95MS aircraft entered service only 15 years ago and can look forward to a service life out to at least 2020. The weakest components of the 37th Air Army are said to be its ten or fewer Tu-22MR reconnaissance bombers and its 20 Il-78 tankers, which are not nearly enough to meet Russia's inflight refueling needs. In late 1998, Russian bomber aviation was reporting only a 50 percent aircraft in-commission rate, with 75 percent of its Tu-95s in need of major servicing and only two of its six (at the time) Tu-160s in flyable condition.¹¹

For its part, the 61st Air Army, commanded by Lieutenant General Viktor Denisov, has 280 transports consisting mainly of Il-76Ms, supplemented by smaller numbers of An-12, An-22, and An-124 transport aircraft. Military transport aviation accepted its last new aircraft in 1991. In 1999, the VVS's transport component was reduced in equipment and personnel by 30 percent. It now operates two transport divisions of 4-5 regiments each, as well as an operational conversion center for new and requalifying aircrews. Its principal operational tasking at present is to provide logistic support to Moscow's second

¹¹Malcolm Davis, "Blackjack and Beyond," *Air International*, November 1998, p. 275.

war in Chechnya via the Makhachkala and Mozdok airfields in Transcaucasia (see below), as well as to support Russia's peacekeeping activities in Bosnia and Kosovo and in Abkhazia and Tadzhikistan on Russia's southern periphery. Some 80 percent of the 61st Air Army's missions currently being flown are in direct support of the General Staff and higher Russian security organs. Its most experienced and proficient pilots are concentrated in a separate detachment that provides paid transport service to the commercial sector for extrabudgetary funds.¹²

General Denisov recently commented that the downgrading of VTA to the status of a numbered air army in the wake of the merger had been a "sound and logical decision at that stage of the military's reform," since it had made possible the harmonizing of transport aviation's staff and structure with national needs. But now, he said, "the situation has changed," since upward of 90 percent of transport aviation's missions are in support of the Supreme High Command, with a steadily increasing mission load. It would make more sense in the current situation, he suggested, were transport aviation directly subordinated to the VVS commander in chief rather than to joint and higher national agencies in Moscow. Moreover, he added, there are no transport units fielded in the two largest military districts, the Siberian and Far East, which must be supported by airlift missions flown from Europe, a practice Denisov said was "irrational."¹³

Russia's fighter, ground attack, and interceptor aircraft now assigned to the four regional air armies include 260 MiG-29s, 340 Su-27s, 280 MiG-31s, some 300 Su-24s, 200 Su-25s, and 135 tactical reconnaissance aircraft (15 MiG-25Rs and 120 Su-24MRs). In addition, an advanced tactics development and application center at Lipetsk and another center for operational conversion and recurrency training together operate 65 tactical aircraft of all major types. Finally, five VVS flight schools for each aircraft category (fighter, ground attack, interceptor, bomber, and transport) operate a total of 1150 aircraft, including the L-29 and L-39 basic jet trainers, the Tu-134 transport used as a multiengine transition trainer, and dual-control MiG-23, MiG-29, Su-22, Su-25, and Su-27 advanced trainers.¹⁴ All told, the VVS maintains a formal inventory of around 1500 tactical aircraft, 220 bombers, and 290 transports and tankers, with another 1200 aircraft at training schools and test centers and an additional 200 transports which are used solely

¹²Interview with Major General Viktor F. Denisov, commander, 61st Air Army, by Ilya Kedrov, "The Main Thing Is to Retain People," *Nezavisimoye voennoye obozreniye*, January 28-February 3, 2000, p. 1.

¹³Interview with Lieutenant General Viktor F. Denisov, commander, 61st Air Army, by Sergei Babichev, "The VTA's Difficult Lot," *Krasnaya zvezda*, November 9, 2000.

¹⁴*The Military Balance, 2000-2001*, p. 124.

for revenue-generating airlift missions.¹⁵ For its part, Russia's naval aviation component maintains some 244 combat aircraft broken down into five regiments, including 45 Tu-22Ms, 52 Su-24s, 10 Su-25s, and 52 Su-27s, 24 navalized Su-33 variants of which are assigned to the air wing of the carrier *Admiral Kuznetsov*, which is home-ported at Severomorsk.

Near the end of 2000, newly-elected Russian President Vladimir Putin called for "smaller armed forces that are better equipped."¹⁶ His Security Council announced a long-delayed decision to eliminate an additional 600,000 positions from the defense payroll across the board, out of some 2.1 million servicemen and 966,000 civilians currently employed by the defense establishment, so as to clear the way for serious military reform. That announced cut included 470,000 military positions and 130,000 civilian jobs in 12 ministries and agencies which maintain and operate armed units. Planned cuts in the three main organizations of the Ministry of Defense included 180,000 personnel in the ground forces, 50,000 in the navy, and less than 40,000 in the VVS.¹⁷

As for other pending organizational moves, Russia's military space forces and the Moscow antiballistic missile (ABM) system, both now operated by the Strategic Rocket Forces (SRF), will be remanded to the direct operational control of the General Staff in 2001. Units operating military satellites will be transferred from the space forces to the VVS in 2002.¹⁸ Finally, the ICBMs of the SRF are slated eventually to be placed under VVS command, thus completing the long-promised transition from a five-service arrangement to only three services, as is the practice in most Western countries. (As one might expect, however, this last change is anything but assured and is being resisted mightily by the SRF and its principal backers in the Russian defense establishment.)

THE BLEAK OUTLOOK FOR FORCE MODERNIZATION

A hallmark of the post-Soviet Russian defense effort across the board has been a plummeting of available funds for force development and modernization. Translated into dollars, Russia's official defense budget for 2000 was only some \$5 billion, roughly the same as the annual defense spending of Singapore. To be sure, the International Institute

¹⁵Piotr Butowski, "Air Force Must Look Up as Training Hits a Low," *Jane's Defense Week*, August 2, 2000, p. 22.

¹⁶Alexei Komarov, "Russia to Undertake Deep Force Cuts," *Aviation Week and Space Technology*, November 20, 2000.

¹⁷Sergei Sokut, "The Air Force Is Carrying Out the Security Council's Decisions," *Nezavisimaya gazeta*, January 12, 2001.

¹⁸*The Military Balance, 2000-2001*, p. 110.

for Strategic Studies found that characterization misleading in terms of actual level of effort and assessed Russia's real military spending in all categories as having been as high as \$57 billion in 1999.¹⁹ Nevertheless, thanks to a chronic shortage of funds, procurement of new equipment fell steadily from 1991 to only symbolic levels in 1998, with steadily declining numbers of new and replacement aircraft having been acquired each successive year since the USSR's collapse. The VVS took delivery of 77 new aircraft in 1992, 66 in 1993, 29 in 1994, 31 in 1995, 19 in 1996, 6 in 1997, and none in 1998. The year 1999 saw the lowest amount of state funds in constant dollars allocated to the defense sector at any time during the 8-year incumbency of President Boris Yeltsin. In contrast, at the height of the Soviet era during the 1980s, the average annual number of new aircraft deliveries to the VVS and VPVO was over 400.

Even profits from foreign military sales failed to make a significant contribution toward picking up the slack. Russia earned around \$3.7 billion from arms exports in 2000, up 10 percent from 1999 and more than at any time since the USSR's dissolution. Yet that was a mere pittance compared to the \$26.2 billion reaped by the United States, which accounted for 49 percent of the overall international arms market. One major problem hindering Moscow's arms sales effort lay in the realm of product support, which proved highly unsatisfactory, especially with respect to parts deliveries to its best customer, India. Both the Rosvooruzheniye and Promexport arms sales agencies were slow to respond to requests for spare parts and repairs, sometimes taking months to process orders.²⁰ That poor performance led the deputy director of Russia's Center for Strategic and Technological Analysis, Konstantin Makienko, to predict that Russia "will ultimately be squeezed out of the arms market."²¹

As a result of a defense ministry authorization of military efforts to earn extrabudgetary income, the VVS in 1998 brought in 98.7 million rubles over and beyond its state budget allocation by hauling commercial passengers and cargo on VVS transport aircraft. Those earnings, however, went entirely toward financing badly undersupported housing programs, attending to people needs, and keeping airfields and equipment in minimally acceptable repair. The VVS continues to nurture a vain hope of earning additional extrabudgetary income by selling off unneeded equipment, but it has found it

¹⁹Ibid., p. 119.

²⁰Vivek Raghuvashi and Simon Saradzhyan, "Unreliable Deliveries Threaten Russian Sales to India," *Defense News*, October 23, 2000, p. 14.

²¹Guy Chazan, "Russia Earned at Least \$3.7 Billion on Deliveries of Arms Exports in 2000," *Wall Street Journal*, January 24, 2001.

to be no longer profitable to train foreign students at its military educational institutions, since the facility offerings of the latter are no longer even barely adequate, let alone competitive enough to warrant customer payment for such paltry service.

There also has been a dearth of state funding even for upgrades of existing equipment and the purchase of spare parts, quite apart from the acquisition of new aircraft. Only 1 percent of the VVS's current force structure is less than five years old, and more than 48 percent of its aircraft inventory is more than 15 years old. Colonel General Yuri Klishin, the VVS's deputy commander in chief for procurement, said that many of the VVS's aircraft now on the books will reach the end of their service lives by 2005.²² Moreover, of the roughly 2000 line aircraft in the overall VVS inventory, only around 46 percent are currently serviceable.²³ This situation has been moderated somewhat, at least at the margins, by the fact that those flyable aircraft are not now flying much and accordingly are being stressed at a less than normal rate.

In an attempt to begin correcting this grim situation, President Putin's Security Council announced his administration's intent in principle in 2000 for a significant increase in the federal defense budget of more than 30 percent over the revised budget for 1999. The Security Council further reported that it had elected to do away with the former practice of providing equal funding for all services and to replace that practice with a more rational approach whereby funding for each service would be determined by that service's assigned tasks and mission needs.²⁴ That was a rather cryptic pronouncement, however, considering that upward of 80 percent of post-Soviet Russia's annual procurement and R&D spending has been allocated to the SRF and other nuclear forces. In contrast, the VVS's reported share of the defense ministry's annual R&D appropriation to all services has been only around 10 percent.²⁵ Nevertheless, Russia's defense minister, Marshal Igor Sergeyev, the former commander in chief of the SRF, told reporters that Russia's conventional forces would benefit most from the planned hike in 2001.²⁶ The announced goal is to spend 30 percent on procurement and R&D. However, unmet personnel needs still compete aggressively, with priority funding required for

²²Butowski, "Air Force Must Look Up as Training Hits a Low."

²³Craig Covault, "Russian Air Force Faces Deepening Crisis," *Aviation Week and Space Technology*, March 5, 2001, p. 60.

²⁴*Ibid.*, p. 110.

²⁵Aleksandr Chernorechenskii and Sergei Sokut, "A Pull-Out from the Spin Is Being Delayed," *Nezavisimoye voennoye obozreniye*, January 21-27, 2000, p. 3.

²⁶That was an especially interesting comment, considering that Sergeyev, since replaced by a civilian appointee, had been in a continuing struggle with the chief of the General Staff, General Anatoly Kvashnin, over nuclear vs. conventional force priorities.

retirement packages for the 365,000 servicemen who will be released by all services over the next few years. Only after that slump is passed, perhaps in 2007, can the services afford to spend upward of half of their annual budget allocation on procurement and R&D.²⁷

For now, prospects for the modernization of Russia's bomber, fighter, transport, and trainer inventory appear uniformly bleak. Sukhoi's proposed T-60 replacement for the Su-24 and Tu-22M3 medium bombers is going nowhere, and production of the Tu-160 heavy bomber was cancelled in January 1992 after only 38 of a planned 100 had been built. Of that partial production run, many ended up as a windfall inheritance by Ukraine following the USSR's disintegration. In October 1999, after eight years of negotiations, Russia and Ukraine finally agreed to a transfer of 8 Tu-160s and three Tu-95MS bombers from the 184th Heavy Bomber Regiment at Priluki and the 182nd Heavy Bomber Regiment at Uzin-Chepelovka. Ukraine had initially demanded \$3 billion equivalent for all Soviet VVS aircraft and equipment that had ended up in Ukraine, but finally settled on \$285 million for 11 of the most serviceable aircraft, as well as 575 Kh-55 subsonic cruise missiles (roughly analogous to the U.S. Air Force's AGM-86C conventional air-launched cruise missile), to be deducted from Ukraine's \$1.5 billion debt to Russia for natural gas deliveries. That has now given the VVS 15 Tu-160s instead of six, enough to fully equip the 121st Heavy Bomber Regiment at Engels. Also, another Tu-160 now in slow-rate manufacture at the Tupolev factory in Kazan will be completed and delivered in the near future, thanks to a contract from the Ministry of Defense.²⁸ (This latter aircraft is most likely one of several in the factory that were already partially completed before President Yeltsin's cancellation of the Tu-160 program in 1992.)

As for fighters, the long-anticipated Russian answer to the USAF's F-22 is now completely dead in the water. RSK MiG's Article 1.44 fifth-generation air combat fighter prototype underwent high-speed taxi tests at Zhukovskii in early February 2000, even as the firm's director and general designer, Nikolai Nikitin, acknowledged that "everybody understands this aircraft will never enter series production."²⁹ Initially slated to make its maiden flight years earlier, the aircraft finally got airborne on February 29,

²⁷Simon Saradzhyan, "Russia Routes Defense Rubles Away from Procurement," *Defense News*, December 18, 2000, p. 42.

²⁸Piotr Butowski, "Russian Strategic Bomber Fleet Achieves New Heights," *Jane's Intelligence Review*, March 2000, p. 16.

²⁹Alexander Velovich, "MiG 1.44 Undergoes High-Speed Runs as MAPO Prepares for Maiden Flight," *Flight International*, February 29-March 6, 2000, p. 32.

2000 in an 18-minute flight with MiG's chief test pilot, Vladimir Gorbunov, at the controls.³⁰ It climbed to 3,300 ft and circled the airfield twice with its landing gear down at a maximum speed of 270-325 kt before landing. The aircraft has been flown only once again since.

Similarly, Sukhoi's proclaimed fifth-generation concept demonstrator, the forward-sweep S-37, also continues low-rate flight testing, although it is purely a design bureau initiative, as is MiG's Article 1.44. VVS test pilots have not flown either. The chief of the VVS's Scientific Engineering Committee, Major General Sergei Kolyadin, predicted last year that Russia will introduce a fifth-generation fighter in 2010 assuming at least a modicum of improvement in the funding outlook.³¹ Yet a civilian aviation authority observed more realistically that any development and procurement of a Russian fifth-generation fighter will only occur if Mikoyan, Sukhoi, and "to some degree" Yakovlev all pool their respective talents in a consolidated firm. He further suggested that the aviation industry will recover and become revitalized only if Russia succeeds in overcoming "the mentality of self-isolation and rejects the idea that we are surrounded by enemies and that we have no allies."³²

Meanwhile, the MiG-29SMT upgrade program, suspended in 1999, appeared to have been revived in early 2000 with a reported VVS order for 180 reworked aircraft featuring the Phazotron Zhuk-M multimode radar, along with a new cockpit and an enlarged conformal fuel tank over the upper spine, plus an inflight refueling capability. The SMT upgrade was initiated to give the aircraft an extended operating radius and a true multimission capability, as well as to enable it to employ electro-optical and laser-guided air-to-ground munitions.³³ (The basic MiG-29 is air-to-air capable only, except for the carriage of unguided bombs and rockets.) However, none yet have been delivered to VVS flying units, and the program appears to have broken down amid lawsuits over who owns the rights to the upgrade. Finally, the air defense component of Russia's fighter aviation acquired a handful of Su-30s during the mid-1990s, with a hope of more to come once the funding picture improves. The Su-30 was designed expressly for VPVO to offer a two-seat fighter controller capable of serving as a tactical airborne

³⁰"MiG Flies 1.44 Demonstrator," *Flight International*, March 7-13, 2000, p. 6.

³¹Alexander Velovich, "Russia Plans Fifth-Generation Fighter in 2010," *Flight International*, April 11-17, 2000, p. 16.

³²Interview with Yevgeny A. Fedosov, head of the Russian State Scientific Research Institute for Aircraft Systems, by Sergei Sokut, "Overcome the Mentality of Self-Isolation, Otherwise ... a Fifth-Generation Fighter Aircraft Will Not Be Built," *Nezavisimoye voennoye obozrenie*, December 8, 2000.

³³"Military Aircraft Directory, Part I," *Flight International*, May 23-29, 2000, p. 61.

warning and control system (AWACS) and handing off targets to Su-27 interceptors via datalink.

In the airlift domain, the VVS has placed its first tentative orders for the Il-112V intratheater transport to replace the aging An-26 inventory. As for replacement basic trainers, the outlook continues to be forbidding for at least the near term, with the VVS having recently declared that it will simply soldier on with its tired but still-serviceable Czech-made L-39s until it acquires enough discretionary funding to procure one of the two follow-on trainer options that has long been available and ready for production in principle. Such a plan may prove workable, since there is now only a miniscule number of cadets in the VVS pilot training pipeline, and the aircraft in the VVS's flying schools are not being used anywhere near as heavily as they were a decade ago. VVS officials have further indicated that they will only select a replacement trainer for production whose principal components are all manufactured in Russia. That gives the MiG-AT candidate a distinct advantage over the Yak-130, since the home-grown RD-1700 engine now being successfully tested can easily replace the MiG-AT's current French SNECMA Larzac engines. Both feature similar performance specifics.³⁴

DOCTRINE AND CONCEPTS OF OPERATIONS

As yet additional evidence that the VVS has been marking time in recent years, there has been no change of note in what we have known for most of the past decade with respect to its doctrinal orientation and roles and missions. The latest draft military doctrine submitted to the Security Council by the defense ministry in 1999 to supersede the previous 1993 doctrine remains "strictly defensive" in focus, even though it characterized global security trends as having been largely inimical to Russia's interests during the preceding six years. The latest doctrine further spoke of a sharply diminished threat of world war, an increased likelihood of regional conflicts and local wars, and a rise in the likely incidence of terrorism and the spread of weapons of mass destruction.

Clearly reflecting Russia's traditional xenophobia and its continued inability to accept the loss of its former superpower status with equanimity, the draft doctrine cited the continuing trend toward NATO's eastward expansion as a reason for special concern. It also cited what it portrayed as the relentless fielding of qualitatively new weapons by the principal Western defense establishments, shifting the global military balance

³⁴Simon Saradzhyan, "Russian Company Tests New Engine for MiG-AT Trainer," *Defense News*, October 9, 2000, p. 22.

increasingly to Russia's detriment and threatening to render Russia ever more a second-rate power. In the face of Russia's growing conventional-force inferiority, and consistent with the earlier Russian national security strategy published in 1997, the 1999 draft military doctrine reemphasized the High Command's determination to rely on nuclear rather than conventional forces for large-scale contingencies as a cheaper solution. It also declined to rule out nuclear first use, declaring instead that nuclear weapons may be employed in response to major conventional aggression against Russia.³⁵ All of this was codified in a new national security concept published on January 10, 2000 and in a new military doctrine issued on April 21, 2000, both of which recognized a decline in major threats of external aggression against Russia, offset by new threats of local conflict along Russia's troubled southern periphery.

Russian air experts have correctly understood the thrust of emerging air power thought in the West in spotlighting the new essence of strategic attack as being aimed at attempting to "destroy the air grouping of the opposing side and inflict severe losses at the very outset of the war by seizing the initiative."³⁶ However, as in Soviet times, such experts still tend to portray a notional air operation as being conducted only "briefly," over several days (two to ten on average). Yet at the same time, they warn of the dangers of ignoring the lessons not only of World War II, but also of the very different conflicts of the 1990s. They further stress that in any major conventional aggression against Russia, the VVS's first requirement will be to conduct a defensive air operation as a part of a larger aerospace offensive.³⁷ In that respect, the VVS's commander in chief, General Kornukov, noted that of all available military instruments, only the air weapon has enough reach and leverage to engage land and surface naval targets with precision strikes at medium and long ranges. He further noted that the battlespace beyond the army's reach of 50-70, or, at the absolute outside, 100 km from the line of contact represents the "undivided sway" of VVS theater and long-range aviation.³⁸

In an effort to apply in practice elements of this emerging concept of operations, military representatives of Russia and Belarus have discussed plans to establish a unified air defense system to be backstopped by the Baranovichi early warning radar site in Belarus, which was slated to achieve initial operational status at the end of 1999. The

³⁵Dick, "Russia's New Doctrine Takes Dark World View," pp. 14-19.

³⁶Krasnov, "Not by Numbers but by Ability."

³⁷Valentin Rog, "We Cannot Eliminate Air Operations," *Nezavisimoye voennoye obozreniye*, October 13, 2000.

³⁸Colonel General Anatoly Kornukov, "The Air Force as a Factor in National Security," *Krasnaia zvezda*, November 12, 1999.

two countries have also been holding joint exercises, exchanging information, and using each other's airfields on a limited basis since 1996. The commander of Belarus's air defense forces, General Valery Kostenko, called for an acceleration of that effort in response to NATO's continuing eastward expansion and, as he put it, growing ability to challenge Belarus and Russian airspace with provocative reconnaissance forays.³⁹

CONTINUATION TRAINING AT THE UNIT LEVEL

Aircrew training in the VVS, already curtailed severely by the collapse of funding for operations and maintenance, was further afflicted by the loss of resources diverted in 1998 and 1999 to underwrite the merger of the VVS and VPVO. The VVS's chief of combat training, Lieutenant General A. N. Barsukov, said that the declining skill levels of maintenance personnel as a result of this chronic underfunding was occasioning errors in aircraft servicing, a decline in flight safety, and reduced overall readiness. He saw no prospect for improvement in the near future.

The total number of hours flown by the VVS in 1998 was only 57 percent of what had been planned, and it amounted to less than a quarter of the bare minimum acceptable for maintaining the most rudimentary aircrew flight proficiency. The average planned flight time allotted per aircrew member for 1999 was 50 hours. As it turned out, bomber aircrews in the 37th Air Army averaged only 21 hours in 1998 and 20 in 1999. Tactical aviation was affected even worse yet, with fighter pilots getting only 14-16 hours a year, not even enough to maintain more than basic landing currency. Ground-attack pilots averaged 22-24 hours a year. Transport aircrews, because of the nature of their missions, averaged the most, at around 60 hours a year. Some pilots still on flight orders have not flown for four years or more because of the shortage of funds for fuel. Only Moscow's second war in Chechnya (see below), with from 25-50 to as many as 100 combat sorties a day, was giving VVS aircrews any reasonable level of actual mission employment training. As a measure of the sharp decline in VVS continuation training since the USSR's collapse, the actual hours flown VVS-wide in 1999 were only 200,000, compared to 2 million in 1990.⁴⁰

Relatedly, because of the lack of adequate maintenance support and a ready availability of spare parts, some 32 percent of the VVS aircraft inventory has been deemed permanently unserviceable. Cannibalization of aircraft to keep others flying has

³⁹"Belarus General Calls for Air Defense Pact," *Flight International*, February 15-21, 2000, p. 21.

⁴⁰"World Air Forces Directory," *Flight International*, November 28-December 4, 2000, p. 84.

now become routine, even though it is universally disparaged as a practice conducive to a higher mishap rate. The average in-commission rate of line aircraft in 1999 was 61 percent, with the figure varying from 55 to 81 percent for each aircraft, depending on aircraft type. By 2005, 75 percent of Russia's military airfields will be in need of major repair and refurbishment.⁴¹

All of this has had a predictable impact on the VVS's flight safety record. In 1999-2000, the VVS experienced 12 major accidents over a 12-month period, of which 11 were directly attributable to pilot error. That contrasted with only four major accidents the previous year. The pilot error rate has doubled lately in comparison to that of the preceding eight years.⁴² The MiG-31 long-range interceptor operated by former VPVO units has been particularly plagued in this respect. Since reaching initial operational capability in 1981, 36 have been lost in training accidents and 20 crewmembers have been killed, making for one of the worst aircraft safety records in the VVS.⁴³

To meet the manifold shortages that have been occasioned by the funding crisis, extraordinary measures are now being taken at the unit level, including aircrew specialization in specific mission events and munitions types, limiting overall training, and generally prohibiting any exercises above the regimental level. Unit commanders have been forced to suspend their usual mission readiness standards and to tailor their training programs to the actual availability of fuel and spare parts. General Kornukov recently extended to regiment commanders further latitude to adjust downwardly their already meager training programs as needed to comport with available resources. Actual flight exercises even at the regimental and squadron levels have largely been supplanted by command post exercises, in which large-force employment scenarios are played at only on paper. Moreover, the VVS is now retaining only its most experienced aircrews and is letting the less experienced ones go. That has raised the average serving fighter pilot's age to 36. As a result of the continuing crisis, test pilot Anatoly Kvochur recently admitted that there are "restrictions and limitations everywhere."⁴⁴ Even more than in recent years past, the most senior pilots are now using most of the available flying hours, so as to allow regimental commanders to maintain, at least on paper, enough first-class-rated pilots on hand to meet required alert responsibilities.

⁴¹Chemorechenskii and Sokut, "A Pull-Out from the Spin Is Being Delayed."

⁴² Military News Agency (Moscow), November 24, 2000.

⁴³Velovich, "Russia Plans Fifth-Generation Fighter in 2010."

⁴⁴Interview with test pilot Anatoly Kvochur by Aleksandr Andryushkov, "Put Your Heart into the Flight," *Krasnaia zvezda*, December 27, 2000.

The funding crisis has affected the VVS's already truncated undergraduate pilot training (UPT) program as well. The flying portion of the curriculum in the VVS's five UPT schools is now only 100 hours for the awarding of an aeronautical rating, down from their long-standing previous norm of 250 hours. That means, in effect, that line units are now gaining badly undertrained UPT graduates who are unprepared to move on to advanced training in their assigned operational aircraft types. Many newly-commissioned UPT graduates have not flown for years as a result of the shortage of funds for fuel.⁴⁵

General Kornukov described 2000 as a "year of stabilization" during which the average flight time per line pilot rose to 25-30 hours, even though fighter pilots remained badly shortchanged because they are at the bottom of the priority list. The VVS received funding that year for only 500,000 tons of jet fuel, when it had requested 2.5 million tons just to meet its minimum planned training requirements.⁴⁶ Nevertheless, the number of unit-level exercises rose from 300 to 400. As for larger and more involved unit training and operational test exercises, *Zapad* ("West") '99 conducted in June 1999 included two Tu-25MS heavy bombers of the 37th Air Army which flew 15 hours northward from Engels air base to the vicinity of Iceland, where they were intercepted on arrival by U.S. F-15s. In that same exercise, a pair of Tu-160s flew northward from Engels around the Kola peninsula and down the coast of Norway, where they were intercepted by Norwegian F-16s south of Andoya at approximately 0300 local time.⁴⁷ Upon their recovery to Russia, one aircraft from each pair fired an inert Kh-55 cruise missile into the Caspian lowland weapons range. *Zapad* '99 was portrayed as the largest combined-arms exercise held in Russia in the last 14 years. It exhausted virtually the entire fuel, training munitions, and other expendables allocations for the participating units and significantly affected those of nonparticipating units.

Later in September 1999, two pairs of Tu-95s from Anadyr and Tiksi air bases in Russia's Far East Military District approached the Canadian border, whereupon they were also intercepted by U.S. fighters.⁴⁸ In a similar spirit, the VVS has announced plans to fly heavy bomber missions to the former Soviet air base at Cam Ranh Bay in Vietnam, which has been available to Russia free of charge until 2004 under the terms of a lease

⁴⁵Interview with Anisimov, "Combat Readiness Requires Expenses."

⁴⁶Sokut, "The Air Force Is Carrying Out the Security Council's Decisions."

⁴⁷Conversation with Royal Norwegian Air Force F-16 pilots, 331 Squadron, Bodo Air Base, Norway, February 9, 2001.

⁴⁸See "F-15s Counter Bear H Flights," *Aviation Week and Space Technology*, December 11, 2000, p. 43.

agreement reached in 1979 and which was recently reactivated.⁴⁹ Defense minister Sergeyev declared that these recent bomber forays over the north Atlantic and out of Russia's Far East were intended to test and rehearse "one provision of Russian military doctrine—the use of nuclear forces when all measures of conventional defense against aggression have failed."⁵⁰ As one might have expected, all of these missions were flown by the VVS's most experienced and proficient bomber crews.

AIR OPERATIONS IN MOSCOW'S SECOND CHECHEN WAR

Stung severely by Russia's poor performance in the first war in Chechnya during 1994-1996, many in the military's upper ranks had long been itching for an opportunity to vindicate themselves by having another go at the Chechen rebels. Such an opportunity finally presented itself in August 1999 through a combination of happenstance and possible Kremlin contrivance when thousands of Islamic militants entered Dagestan under the leadership of the Chechen warlord, Shamil Basayev, allegedly to establish an Islamic state, at about the same time that a number of mysterious bombings of apartment buildings occurred in Moscow, Volgodonsk, and Buinakskand, causing extensive civilian fatalities which then-acting President Putin attributed to Chechen "terrorists." Although no one stepped forward to take responsibility for the bombings, unidentified "Chechens" were widely implicated, prompting a resurgence of popular support for Russian military intervention—and, perhaps not entirely by accident, helping to ensure Putin's subsequent election as Boris Yeltsin's successor.

In response to these putative trigger events, Russian troops poured into Dagestan and eventually expelled Basayev's forces. Moscow characterized that incursion as an "anti-terrorist operation," which enabled the federal government to use force without first securing State Duma approval. After several weeks of low-intensity operations in Dagestan, Russian forces began moving slowly and deliberately into Chechnya, in studied contrast to Russia's abortive assault on the capital city of Grozny in December 1994. This time, Moscow opted to lead with heavy air and artillery attacks from standoff ranges to preclude any early need for close ground combat with the Chechen rebels. Whenever resistance was encountered, Russian troops simply sealed off the affected town and bombarded it until it surrendered. They did not enter Grozny in strength until December.

⁴⁹Butowski, "Russia's Strategic Bomber Fleet Achieves New Heights," p. 19.

⁵⁰Quoted in *The Military Balance, 1999-2000*, London, International Institute for Strategic Studies, 1999, p. 105.

VVS air assets devoted to the operation were spearheaded by a regiment each of Su-24s and Su-25s based at the Mozdok air base some 60 miles northwest of Grozny. These units were drawn from the 4th Air Army headquartered in the nearby Don River basin area. They were supplemented by additional aircraft and personnel from the Moscow region air and air defense forces. Russian observers indicated that some 80 percent of the initial fire support was provided by air power, split roughly evenly between ground-attack jets of the VVS and attack helicopters organic to Russia's ground forces, with an additional 15-17 percent provided by artillery.

Air operations commenced with attacks on a radar unit at the Grozny airport and on what was left of Chechnya's "air force," a single propeller-driven An-2 biplane. After that, initial targets included bridges, major roads, buildings, oil production and storage facilities, ammunition dumps, communications links, and rebel strongpoints. Later, the target set was expanded to include rebel leadership and camps, which saw a distinct shift in munitions used from high-explosive bombs to antipersonnel submunitions.⁵¹ The avowed goal was to avoid close combat on the ground at every reasonable cost and to minimize friendly losses, albeit with scant concern for Chechen noncombatants. Defense minister Sergeyev stressed that the overriding intent was to achieve desired combat objectives with "minimal losses among the forces."⁵²

VVS aircrews flew 5000 combat sorties between August 1999 and early February 2000. On January 27, 2000, Russian forces reported 100 Su-24, Su-25, and Mi-24 helicopter sorties over Grozny and the southern mountains during a single 24-hour period. The more typical daily intensity of air operations was 25-60 sorties.⁵³ By November 2000, Kornukov reported 266 enemy armored vehicles and 13 antiaircraft artillery (AAA) positions destroyed. Many aircrews flew multiple sorties a day. All were rotated in and out of the area every 5-6 weeks, while their aircraft remained forward-deployed at Mozdok. New pilots arriving in theater with only minimal mission qualification would initially operate at medium altitudes, stepping down to lower altitudes to attempt better target identification and more accurate manual bombing only after their comfort level and proficiency had increased.

⁵¹David A. Fulghum, "Air War in Chechnya Reveals Mix of Tactics," *Aviation Week and Space Technology*, February 14, 2000, pp. 76-78.

⁵²Quoted in Olga Olikier, *Russia's Chechen Wars, 1994-2000: Lessons for Urban Combat*, Santa Monica, California, RAND MR-2364-1-A, 2001, forthcoming.

⁵³"Victory Looks Ever More Distinct," *Nezavisimaya gazeta*, January 28, 2000, and Sergei Babichev, "The Rebels Will Be Gotten to Even in Deep Holes," *Krasnaya zvezda*, January 12, 2000.

As in the earlier Chechen war of 1994-1996, the VVS used the A-50 airborne surveillance platform to monitor enemy airspace. It also reportedly maintained continuous Su-27 combat air patrols to ensure against any attempted helicopter resupply of rebel forces from outside Chechnya. An An-12 airborne command and control center (ABCCC) routinely provided flow control and aircraft deconfliction within the compact airspace over Chechnya, particularly during the campaign's early surge operations. Most VVS ground-attack missions, however, were conducted without any direct forward air control. Although the Tu-22M3 medium bomber flew 200 combat sorties in 1994-1996, it was not used in the second war.⁵⁴ In all, some 11,000 combat sorties had been flown as of January 2001.

Russian attack helicopter crews applied many of the same tactics that had been developed and tested earlier during the 1980s in Afghanistan. As in the first Chechen war, Mi-24 gunships and Mi-8 transport helicopters were the principal workhorses, supplemented as needed by Mi-26 heavy-lift helicopters. Attack helicopters worked either in pairs or as four-ships as organic assets of an Aviation Tactical Group (ATG) subordinate to ground commanders, with Mi-8s often orbiting nearby in standoff positions to provide targeting instructions.

Some combat applications featured simultaneous attacks from opposed directions out of a circling "wheel of death" formation operating just outside Chechen AAA range. As many as a third of the Mi-24 sorties flown were "free hunt" missions against rebel convoys and other targets of opportunity. Since few, if any, Russian attack helicopters carried global positioning system (GPS) equipment, their aircrews were forced to navigate by visual pilotage. Only five transport helicopters reportedly carried GPS receivers. The use of nonsecure radios further allowed the rebels to monitor Russian frequencies and to target ATG operations. Russian ground commanders were said to possess poor knowledge of helicopter attack tactics and would often keep their helicopter crews in high-threat areas for too long, needlessly increasing their exposure to enemy fire and endangering their survivability.⁵⁵ In addition, because of poor target identification and the unavailability of accurate navigation and geolocation equipment, one Su-25 mistakenly attacked the Georgian town of Zelo Omalo near the Chechen-Dagestan border.

⁵⁴"Ministry on Air Missions in First Chechen War," Interfax (Moscow), December 10, 1999.

⁵⁵Vladimir Georgiyev, "Using Attack Helicopters in Chechnya Has Showcased Their Effectiveness," *Nezavisimoye voennoye obozreniye*, February 4, 2000.

Russia's defense ministry evidently conducted only limited operational evaluations of new equipment during the second Chechen war. An all-weather variant of the Su-25, the Su-25TM, was battle-tested out of Mozdok for the first time, firing Kh-25ML missiles to take out satellite communications dishes and the sole surviving Chechen An-2.⁵⁶ The VVS also had success against point targets with the AS-10 and AS-14 electro-optical and laser-guided air-to-surface munitions. Finally, two Ka-50 Black Shark advanced attack helicopter prototypes were dispatched to Mozdok in November 1999 but were pulled out by March 2000, having evidently flown only a few local-area test flights. By all accounts, they were never committed to combat.

As for what worked, air-ground coordination appeared more effective this time than in 1994-1996. Fratricide did occur on several occasions early on against Russian internal ministry (MVD) troops because the latter had not trained with the VVS and could not communicate with VVS aircrews, a problem further compounded by the distrust, and even hatred, that existed between MVD and regular Russian ground troops.⁵⁷ Such friendly fire incidents largely ceased, however, once combat operations shifted to Ministry of Defense command and additional ground forward air controllers (FACs) with improved communications links with VVS pilots were provided. There was also greater reliance on electronic intelligence (ELINT), as well as an effective combat use of the upgraded Pchela-1T unmanned aerial vehicle (UAV), which provided Russian commanders with real-time video feed to locate mobile rebel groupings and to interdict supply routes coming into the war zone from outside Chechnya.⁵⁸

The most glaring problems and revealed deficiencies encountered had to do with the inadequacy of Russian precision munitions and night/adverse-weather attack capabilities. The VVS's lack of suitable night-fighting equipment (including night-vision goggles) meant that the majority of air operations had to take place during day clear-weather conditions, leaving Russian ground forces exposed and vulnerable at night. Precision weapons were also used only during daylight hours owing to the VVS's lack of night target designation capabilities. The few attack missions conducted at night served mainly as flying artillery to saturate wide-area kill boxes with nonprecision munitions, such as FAB-250 and FAB-500 cluster bombs and S-8 and S-13 rockets, as well as ODAB-500 fuel-air explosives on occasion, the latter of which caused extensive civilian casualties. The Su-24 was limited in its ability to employ electro-optical and laser-guided

⁵⁶Georg Mader, "Sukhoi Pushes Again for Reform," *Jane's Defense Week*, May 24, 2000, p. 18.

⁵⁷Michael Orr, "Second Time Lucky?" *Jane's Defense Week*, March 8, 2000, pp. 33-36.

⁵⁸*The Military Balance, 2000-2001*, pp. 112-114.

weapons against targets located in the more mountainous terrain of Chechnya. The Su-25, unequipped to deliver precision weapons, was used almost exclusively on day close air support (CAS) missions in VFR conditions. To help counter the infrared SAM threat, Su-25 pilots routinely made liberal use of self-protection flares during target egress.

Intelligence preparation of the battlefield also left much to be desired. Attacks by Su-24s and Su-25s against rebel supply routes were extensive, yet generally ineffective because of a shortage of available real-time information on the location of those routes and the small size of the rebel convoys. The VVS possessed nothing like the synthetic aperture radar (SAR) and moving target indicator (MTI) equipment carried by the U.S. E-8 Joint STARS battlefield surveillance platform, which was used to such telling effect against enemy ground forces during Operation Desert Storm. Much as NATO's air forces experienced over Kosovo in 1999, Russian reconnaissance was deficient at spotting Chechen troop buildups and providing reliable battle damage assessment of attacks against dispersed, concealed, and lightly-equipped enemy forces. FAC support was hampered by the fact that most Chechen rebels had served previously in the Soviet armed forces and, accordingly, knew and understood Russian tactics implicitly. They frequently would monitor Russian FAC radio transmissions and misdirect VVS CAS aircraft against Russian troops. They also would fire spoofing flares to confuse VVS pilots as to who and where the real friendly ground FACs were. Finally, they made special efforts to single out FACs for sniper attack. As a result of these often highly effective rebel countertactics, numerous inadvertent blue-on-blue engagements occurred during the earlier phase of Moscow's second Chechen war. As a result, later VVS air support missions were redirected against rear-area targets or against enemy troops not in close contact with Russian forces.⁵⁹

As for the air attrition experienced by the invading Russian forces, the VVS lost a Su-25 to enemy AAA fire on September 9, barely a month into the operation, with the pilot successfully ejecting and getting rescued soon thereafter. Another Su-25 went down on October 3, with its pilot, a regimental commander, also successfully ejecting. This time, a Su-24MR reconnaissance aircraft, launched to photograph the area for a combat search and rescue mission planned for the following day, was downed by an infrared SAM, with one crew member killed during the ejection sequence and the other ultimately rescued by an Mi-8. An Mi-24 gunship, in turn, was downed while supporting *that*

⁵⁹Jim Hedges, "Air War Over Chechnya," *World Air Power Journal*, Fall 2000, pp. 18-23.

rescue effort.⁶⁰ Another 24 aircraft sustained battle damage during the war's early months. By May 2000, the invading Russian forces had lost two Su-24s, two Su-25s, and 10 helicopters to enemy ground fire.⁶¹

On balance, Russia's second Chechen gambit was more successful than the first, even though more than 2000 Russian servicemen were killed and another 5800 wounded during the course of the operation. Russia's on-scene commanders managed to avoid a replay of the three failings that largely accounted for the first war's unsuccessful outcome, namely, poor coordination among the numerous friendly players operating in theater, not sealing off the capital city of Grozny before entering it in force, and badly mishandling Russian public opinion. Among other achievements accomplished at the operational and tactical levels, Russian forces successfully used counterbattery radars to locate the source of enemy artillery fire, as well as UAVs with electro-optical and IR equipment to locate enemy force positions and mensurate their coordinates. As the operation was ramping up, General Kornukov reported that during the first Chechen war, only 3 percent of the munitions delivered by VVS aircraft had been PGMs due to the recurrence of prohibitive weather, whereas during the second war, more accurate air attacks, in close coordination with artillery and armor, were conducted against enemy point targets that had already been successfully reconnoitered.⁶²

Even allowing Kornukov the benefit of the doubt on at least part of his claim to improved weapons accuracy, Russia's performance in the second Chechen war was marred by some significant failings. At the outset, Russian military spokesmen claimed that they were merely emulating NATO's earlier air campaign against Yugoslavia, and they made studied efforts to prepare Russia's rank and file for a drawn-out campaign. Kornukov even staged a NATO-style press briefing where he narrated VVS cockpit display videotapes and stressed the "precision" of Russian air attacks, much as NATO spokesmen did during Operation Allied Force.⁶³ He further spotlighted VVS attacks against Chechnya's limited cellular phone network, television station, and other communications means, characterizing these as "center of gravity" strikes against enemy

⁶⁰For details on the combat search and rescue mission that recovered him, see Timofei Borisov, "The Stork Is a Fighting Bird: It Brings Not Reinforcement but Tangible Losses to Terrorists," *Rossiiskaia gazeta*, January 2000.

⁶¹Alexei Komarov, "Chechen Conflict Drives Call for Air Force Modernization," *Aviation Week and Space Technology*, February 14, 2000, pp. 80-81.

⁶²Kornukov, "The Air Force as a Factor in National Security."

⁶³Michael Gordon, "Imitating NATO: A Script Is Adopted for Chechnya," *New York Times*, September 28, 1999.

“strategic” targets. Similarly, VVS attacks against Chechen oil refineries were rationalized on the ground that the rebels traded oil on the black market and that the strikes would deprive the latter of a vital revenue source. Kornukov pointedly claimed that there were “certain parallels” between the Chechen operation and NATO’s Operation Allied Force, and he clearly sought to emulate NATO’s approach by relying more heavily on the coercive use of Russian air power than had been attempted during the previous Chechen campaign.

Such pretensions notwithstanding, however, any comparison of Moscow’s second Chechen campaign with Operation Allied Force stopped abruptly with its initial public relations offensive. There was no serious effort made to minimize collateral damage to enemy civilian infrastructure and noncombatants. On the contrary, Russian ground forces fired SS-1C and SS-21 ballistic missiles fitted with submunitions designed expressly for killing and wounding personnel and taking out soft targets like vehicles and buildings. Many noncombatant casualties and extensive damage to civilian structures resulted from such indiscriminate weapons use. Even friendly fire incidents were kept in check only because Russian ground troops were generally positioned at a safe distance from targets that were being bombed in Grozny. Apart from that, Russian forces intentionally sought to inflict damage on civilian structures and to cause noncombatant fatalities, to a point where some VVS commanders were said to have refused to carry out attack orders because of the danger of harming innocent civilians.

Finally, Russia’s defense ministry was once again forced to rob Peter to pay Paul to conduct its second Chechen campaign. Many munitions expended by the VVS throughout the operation were stripped from the inventories of other units, reducing PGM stocks to critically low levels and forcing a predominant reliance on unguided bombs. VVS pilots often flew into combat with only half a weapons load because of munition shortages. In all, combat operations were said to have consumed upward of 60 percent of the VVS’s operating budget for 1999 and 2000.⁶⁴

RUSSIAN COOPERATION WITH NATO AIR FORCES?

Since the theme of the conference session for which this paper was commissioned concerns specializing vs. generalizing with respect to force development and mission emphasis, I would be remiss were I not to offer some observations on how this issue

⁶⁴Colonel Vladimir L. Komoltsev, “An Analysis of Combat in Chechnya,” *Nezavisimoye voennoye obozreniye*, February 25-March 1, 2000.

relates to the VVS as a close and still-looming, if also ailing, neighbor of the Royal Norwegian Air Force.

To cut straight to the point, let me suggest that any serious consideration of possible VVS role-sharing with NATO air forces in potential regional crises, at least for the near-term future, would be at best premature and at worst inappropriate for manifold reasons that would make any such interaction problematic at almost every level imaginable. At bottom, the issue of specialization vs. generalization was most forcefully dramatized by the allied interoperability problems that became apparent early on during NATO's air war for Kosovo in 1999. It is an issue of principal concern to air forces such as the Royal Norwegian Air Force whose leaders might expect to operate in an alliance or coalition context at some near-term future point. No such possibility applies to the VVS, however, at least for the first decade of the 21st century. Indeed, probably the *last* thing on the Russian military leadership's collective mind today is contemplating the desirability of, and likely requirements for, conducting air operations with NATO under U.S. or any other non-Russian command.

By the same token, it follows that the last thing that ought to be on the minds of NATO planners, at least for the first decade of the 21st century, is any serious weighing of possible ways of integrating the VVS into NATO's air operations repertoire, with all the many hurdles that would have to be crossed first even to engage Russia as a prospective security partner at the most basic political level. On this point, one need only consider the special complications which NATO had to endure in dealing with Russia's peacekeeping involvement in Kosovo after Operation Allied Force, most notably the Russian KFOR component's unseemly rush to capture and claim control of the Pristina airport, only to have to be fed and supplied afterwards by NATO because it lacked the funds to sustain itself.

Another reason why now is not a propitious moment for Norway or any other NATO member to be exploring interoperability issues with the VVS in any detail is that the latter, even more now than in recent years past, is comporting itself more as an adversary than as anything resembling a would-be security partner. True enough, the latter part of 1999 and 2000 saw some signs of a revitalization of Russian military cooperation with the West, both bilaterally and through NATO, following the earlier breakdown of such cooperation triggered by the onset of Operation Allied Force. That nascent revitalization was reflected, among other ways, in the revival of Russian-NATO Permanent Joint Council meetings and by improved Russian peacekeeping cooperation within KFOR. Nevertheless, the preponderance of evidence suggests that Russia remains

far from ready to consider more serious cooperative security ties with NATO, in the air realm or any other.

Part of the reason for this can be seen in the still-truculent tone of Russian pronouncements when it comes to the West in general and to NATO in particular. For example, in late 1999, the VVS commander in chief, General Kornukov, wrote that early hopes prompted by the ending of the cold war were not being borne out because the NATO "dinosaur" was still showing a "dangerous recurrence of militaristic instincts," as reflected in allegedly increased defense spending and continued plans for eastward expansion. As a result, said Kornukov, despite NATO's soothing words to the contrary, the alliance "presents a real threat to Russia's national security."⁶⁵ In keeping with that declaratory tone, notwithstanding Moscow's continued involvement in KFOR, Russian commentators have routinely portrayed NATO's air war for Kosovo in 1999 as an act of "air aggression."⁶⁶

A second reason has to do with recent Russian military conduct, most notably the strategically harmless but nonetheless remarkably sophomoric buzzing of the aircraft carrier USS *Kitty Hawk* in the Sea of Japan on November 9, 2000, by a VVS Su-24 and Su-27 two-ship element at low altitude and high speed, evidently to make someone's point that Russia remains a "force to be reckoned with" in world affairs. The carrier was undergoing underway replenishment at the time and had ample radar warning of the incoming Russian aircraft, even though its alert fighters were only on 30-min alert because of the low assessed threat and could not be launched in sufficient time to intercept the VVS jets before they passed over the carrier battle group. After the incident, *Izvestiia* boasted that "if it had been an attack, the aircraft carrier would have been sunk."⁶⁷ Kornukov likewise crowed over what Russian sources called a simulated "attack," boasting that "the arrival of our planes came as a complete surprise to the Americans. Photographs show there was panic on the aircraft carrier's deck."⁶⁸

⁶⁵Kornukov, "The Air Force as a Factor in National Security."

⁶⁶Interview with Major General Vasily P. Malashitskii, chief of combat training, 37th Air Army, by Anatoly Dokuchayev, "A New Attack Formula: Long-Range (Strategic) Aviation Crews Were Oriented Toward Advanced Weapons in the 2000 Training Year," *Krasnaia zvezda*, October 12, 2000.

⁶⁷Steve Liewer, "7th Fleet Says Russians Didn't Sneak Up on USS *Kitty Hawk*," *Pacific Stars and Stripes*, November 18, 2000.

⁶⁸"Russians Staged Mock Attack on U.S. Ship," *International Herald Tribune*, November 16, 2000.

Kornukov further announced fulsomely that the VVS aircrews who had carried out the stunt had been awarded military decorations for their performance.⁶⁹

Even were considerations such as these not a factor, a more compelling reason why any serious contemplation by NATO planners of potential interoperability with the VVS would make little sense today has to do with a multitude of all but preclusive operational barriers that currently separate the would-be partners. Simply as a practical matter, the VVS is all but wholly noninteroperable with its NATO counterparts, as best attested by the fact that the German Luftwaffe was able to make almost no use of most of the personnel and equipment it inherited from the former East German Air Force and was obliged to retrain completely the few former EGAF pilots it retained on flight status in the MiG-29 because of their completely dissimilar operational upbringing and tactical repertoire. On top of that, the VVS leadership has little incentive or inclination even to consider reconfiguring its equipment to become interoperable with NATO's air forces at a time when it has so many more prepossessing concerns, such as ridding itself of excess manpower and aging equipment, securing enough funding to retrain its pilots to the most minimal level of basic flying proficiency, and simply surviving as a self-respecting military institution, never mind the more ambitious and elusive goals of recapitalizing its badly eroded force structure and regaining anything approximating real mission readiness.

Finally, even with *these* considerations duly allowed for, any effort to seek VVS involvement in combined operations with any sister NATO air force today would still make for an operational nightmare at every level, thanks to equipment and procedures differences of the most basic sort. For example, Western air forces mainly use UHF radios; the Russians mainly use VHF radios. We use both preset and manually selectable frequencies; they use incompatible preset frequencies only. We routinely use TACAN (tactical air navigation), inertial navigation systems (INS), and GPS in peacetime operations; they use their own RSBN (*radiosistema blizhnei navigatsii*, or "short-range navigation system"), INS as the exception rather than the rule, and GPS almost not at all. On top of that, their identification friend or foe (IFF) equipment and procedures are completely different from ours. They also operate in a completely different airspace structure and rules and procedures environment than we do.

⁶⁹Robyn Dixon and Paul Richter, "Russians Cocky Over U.S. Encounter," *Los Angeles Times*, November 16, 2000. To which one might well have countered in a similar spirit that the good news was that those were the only two aircraft which Russia's Far East Military District could get airborne that day!

For all these reasons and more, Russian aircrews, given what we now know of the highly scripted manner in which they trained and operated throughout the cold war, could not begin to understand and identify with, let alone assimilate and effectively handle, the contrasting complexity of even the most routine Western peacetime training practices today. True enough, one might reasonably imagine NATO units working with VVS airlifters in providing disaster relief in a humanitarian aid mission, enlisting VVS cooperation in a difficult peacetime search and rescue mission, or similar benign ventures in which the aircraft and flight operations of the two sides were kept carefully deconflicted. Yet anything of a conjoint nature involving combat aircraft in a more dynamic tactical scenario would merely be asking for untold potential trouble. To cite but one example, at the recurrent Red Flag exercises regularly held at Nellis AFB, Nevada, in which U.S. and allied aircrews periodically train together in a realistic large-force setting, even the most accomplished Russian fighter pilot within his own system would be like Robert Heinlein's stranger in a strange land, totally out of his element and beyond his depth. Apart from the insurmountable language barrier he would encounter from the first moment onward, as an active participant he would contribute nothing but a safety-of-flight hazard of outsize proportions.

ON BALANCE

If the retirement of General Deinekin in December 1997 and the concurrent onset of moves to merge the former VVS with VPVO signaled the end of one era of post-Soviet Russian air power and the beginning of another, the newly-reconstituted VVS three years later has shown few signs of progress other than the completion of its long-planned merger. Indeed, beyond its expected further reduction in force structure and personnel, it has experienced continued, and even deepening, setbacks rather than any turnaround in the most important areas of force modernization and training.

Throughout the cold war, Western intelligence analysts typically tended to give the VVS, or at least the theater forces component of it, more credit for operational prowess than it deserved, as the later revelations of glasnost during the final years of the USSR made abundantly clear. But at least the VVS at the height of the Soviet era was not only liberally but lavishly funded, had little to complain about when it came to force modernization, and could be said to operate and train within a framework of consistent and universally recognizable tactical principles. Today's VVS, in contrast, is a serious air arm in name only. Its inadequate funding even to address its most basic personnel needs, let alone to provide for a bare modicum of attrition fillers, overdue equipment

upgrades, and mission support, remains acute. In melancholy contrast to the tiresome boasts one routinely heard throughout the Soviet era, Russian commentators now freely acknowledge that the NATO countries are "clearly ahead" of Russia in military aviation technology development.⁷⁰ No less than General Kornukov himself has warned that without a substantial improvement in the funding situation, Russia's air power "will simply cease to exist in 6-7 years."⁷¹

In the face of this seemingly systemic predicament, one might fairly ask who the role models are and whence the VVS's successor generation will come? As test pilot Anatoly Kvochur recently pointed out, the once-romantic image of military aviation in Russia has long since lost its former allure, leaving the VVS leadership with a burning need to "revive the motivation of the flying profession." Today, he said, the media refer to aviation "only when there is an accident or some kind of trouble."⁷²

Moreover, unlike General Deinekin, who had stoically accepted the USSR's demise from his first days as VVS commander in chief and who understood that Russia needed to tailor its air posture to a new situation and to reach out to the West along the way, Kornukov radiates every impression of being a throwback. Still aggressively unrepentant for his having issued the final order that led to VPVO's downing of Korean Air Lines Flight 007 over the Sea of Okhotsk in September 1983, he has repeatedly sounded far more Soviet-like than his predecessor since assuming command of the new VVS in January 1998.

To make matters worse, because of the all but total collapse of funding for operational support, whatever Russia's aircrews may have had in years past by way of a credible combat edge is now gone. As in 1994-1996, the defense ministry sent Russian airmen into harm's way in the second Chechen war who were barely proficient at the most basic instrument and night flying, let alone ready to employ weapons in the face of enemy fire with any significant degree of effectiveness. What little peacetime continuation training that still occurs at the unit level today is all but unrecognizable in comparison with normal Western practices. A typical VVS pilot might fly twice in a single day and then go months without flying, and operating practices are routinely condoned at the squadron and regiment level that would make any Western air commander, for good reason, turn ashen over legitimate concerns for flight safety. In all probability, the only VVS pilots today who have anything even remotely resembling real

⁷⁰Krasnov, "Not by Numbers but by Ability."

⁷¹Chernorechenskii and Sokut, "A Pull-Out from the Spin Is Being Delayed."

⁷²Interview with Kvochur, "Put Your Heart into the Flight."

operational and tactical proficiency are the few test and training professionals at the VVS's flight test center at Akhtubinsk and at its weapons training and tactics development centers at Lipetsk and Savasleika.

In all, the VVS leadership remains in the grips of a deeply-rooted identity crisis, still clinging with one hand to pretensions of regaining superpower status and, on the other, facing up only reluctantly to the discomfiting reality of Russia's diminished post-cold war security situation and meager economic prospects. As in the earlier instance of Operation Desert Storm a decade ago, VVS observers could only watch Operation Allied Force as outsiders with a combination of resentment and grudging respect, bereft of any ability to act on whatever they may have taken away from those experiences by way of useful lessons indicated for Russia. Apart from its nuclear capability, the VVS at the brink of the 21st century has devolved, to all intents and purposes, into little more than an inflated Third World air force when it comes to what remains of its former professionalism and fighting strength.