

The Russian Perception of the NATO Aerospace Threat

Could It Lead to Preemption?

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A major shift occurred in the geopolitical/geostrategic landscape in Europe well before the United Kingdom's vote to leave the European Union. Russia's forcible annexation of the Crimean region of Ukraine and its recent assertive military moves, especially in the Baltic area, have led to the most serious crisis in Russian-American/Western relations since the end of the Cold War. So far, no one has suggested a plausible strategy for reversing the annexation of Crimea by Russian president Vladimir Putin or, for that matter, for preventing further Russian encroachments on Ukraine.¹ No one has proposed a forcible military counteraction (neither the United States nor the North Atlantic Treaty Organization [NATO] has a specific commitment to defend Ukraine in any case). In fact, so far neither the Obama administration nor the major European countries have been willing to provide serious military aid to Ukraine. There is absolutely no sign that President Putin considers the costs of economic and other sanctions imposed by the West on Russia as especially problematic.

The obvious question, especially for Eastern Europe, is whether Ukraine is the first step in a new Russian strategy that seeks, among other things, to absorb areas inhabited by ethnic Russians in neighboring states into the Russian Federation. It is all too plausible that President Putin, as a Russian nationalist, ultimately intends to rebuild the Russian Empire.² Furthermore, he appears to have devised a so-far-effective strategy and set of tactics for doing so—"ambiguous warfare" (waging war with deniable forces intended to keep the war below the threshold that might trigger outside intervention).³ Russia's foreign policy concept calls for protecting the rights and legitimate interests of Russian speakers living outside Russia. However blandly or legalistically phrased, such a policy—under current circumstances—must fill with apprehension Russia's western neighbors who have significant or large ethnic Russian populations.⁴ A further danger is that if the West cannot devise an effective policy, other potentially predatory powers will take note and act.⁵ This situation has the potential for becoming a 1931 Manchurian moment, during which the Japanese army invaded and occupied Manchuria, establishing the puppet state of Manchukuo.

The Western powers did nothing other than protest. This event established the precedent that predatory powers could redraw borders by force.

Clearly, the days when the United States and the West could tell themselves that Russia is not an adversary are over. Believing that the United States intends to destabilize Russia and dominate the world, President Putin undoubtedly reached that conclusion a long time ago and has evidently decided that it is more advantageous to be confrontational with the United States and Europe than cooperative.⁶ Russia has obviously adopted an assertive policy of saber rattling against its European neighbors, as shown by—among other things—its continuing military buildup, recently expanded air operations, and training exercises in the region.⁷ The Great Power peace that has more or less prevailed in Europe since the end of the Cold War may well be over. Now what?

The United States and the rest of NATO have started taking a higher military profile in Eastern Europe. Among other steps, the recent NATO summit in Warsaw has approved the forward deployment of four battalions under American, British, Canadian, and German command in Estonia, Latvia, Lithuania, and Poland.⁸ Given the dismal likelihood that these actions are becoming or will become a systemic confrontation, it is time to consider what else might serve to deter further Russian adventurism, especially military threats against NATO's eastern members.⁹ A review of Russian military writings identifies a threat that the Russians take very seriously: that of American and Western conventional airpower.

Modern Air and Space Warfare: The Russian View

Using terms that frequently parallel US Air Force thinking on the subject, since at least the turn of the twenty-first century, authoritative Russian military writings and spokesmen have repeatedly declared that the aerospace sphere, where air and space combine into a single region of armed conflict with no distinct border between the two, is emerging as one of the main—if not *the* main—centers of warfare, especially among developed states.¹⁰ These Russian experts believe that the side with aerospace superiority will have the initiative in any such wars and that ensuring superiority over the enemy in the aerospace field will be a necessary condition for achieving the objectives of the war.¹¹ They evaluate that the large-scale outfitting of air forces with high-precision weapons and the qualitative improvement in aircraft; air weapons; and command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) and electronic warfare systems in recent decades have had a profound impact on air warfare, with the following results:

- The air war may be fought over a larger geographic area than previously due to the longer range of weapons and the increased scope of missions performed by aviation.¹²
- Massed air-missile strikes (i.e., strikes by a combination of aircraft and missiles) now constitute the foundation of offensive air operations.¹³ A massed air-missile strike will now consist of simultaneous operations using a large number of smaller air elements—sometimes single aircraft—attacking numerous targets

rather than one massive air-missile strike against a single target.¹⁴ This dispersed threat will be more difficult to detect and to stop, especially in the case of Russia because of the country's geographical features such as long borders, remote areas, and the isolated exclave of Kaliningrad on the Baltic Sea.¹⁵

- The increased intensity of combat operations has drastically reduced the time needed to execute combat missions “from several hours to a few minutes.”¹⁶
- “Manifold” growth has occurred in the importance of intelligence, command and control (C2), and information operations.¹⁷ Such operations will involve an integrated, network-centric global C4ISR system with extensive use of space systems to provide intelligence, navigation, and communication support to air operations.¹⁸
- Growth in the combat potential of air groupings increases the opportunity for tactical surprise, especially in delivering the first air strikes. Specifically, combat operations can start using peacetime deployments without reinforcements, as happened during Operation Desert Fox against Iraq in 1998, and because high-precision weapons can be launched from outside zones monitored by the warning (“information”) assets of the defending side.¹⁹
- The use of unmanned weapons, especially cruise missiles, has increased.²⁰
- Air attacks can be increasingly flexible because of enhanced real-time modification of aircraft and cruise missile attacks en route to the target.²¹
- Electronic warfare will be closely integrated into air operations and will seek not only tactical advantage but also suppression of entire military and political C2 systems, as well as the disruption of economies and societies.²²

From the Russian perspective, these improvements mean a massive—and constantly increasing (but very exaggerated, this analysis argues)—conventional air threat to Russia. For instance, in 2012 the Russians estimated that in a large-scale war, the Moscow area Central Industrial Region alone would be attacked by 1,500 combat aircraft and 1,000 cruise missiles.²³ The West's huge force of air- and sea-launched cruise missiles (typical Russian figure from 2014—7,000 missiles) is expected to be the predominant weapon in any massed air-missile attack and is considered particularly threatening.²⁴ Sometimes these missiles have been estimated to pose an especially dangerous threat to Russian strategic nuclear forces—witness the Russians quoting supposed US projections that America can neutralize 80–90 percent of Russian strategic nuclear deterrence forces.²⁵

The Threat: The Western Air Campaign and Its Air Operations

In one of the most comprehensive discussions to date, the late General of the Army Anatoly Kornukov, then commander in chief of the Russian Air Forces (RuAF), declared in 2001 that *air campaigns* and *air operations* were and would continue to be the main forms of the employment of foreign air combat power in military conflicts.²⁶ Russian writings define these terms as follows:

- An *air campaign* is the sum of several interrelated air operations, united by a common concept of operations and directed at achieving important strategic goals.
- An *air operation* is the coordinated and concentrated combat operations of joint and combined formations and units, primarily air force and navy strike forces of cruise missiles and aircraft. In these the various types of aviation and air defense forces operate jointly and under single leadership to achieve specific goals.²⁷

Authoritative Russian military writings expect an air campaign, at its most ambitious, to be part of a larger effort that combines military and nonmilitary efforts (especially comprehensive subversion by information operations, special operations forces, and intelligence agencies) to destabilize a government and foment regime change, as those writings claim NATO did in Libya.²⁸ (In 2013 General of the Army Valery Gerasimov, chief of the Russian General Staff, claimed that the Arab Spring was actually “typical of 21st Century warfare” [i.e., it was neither internal nor spontaneous].)²⁹ Such an effort aimed at Russia will intend to attain decisive strategic or operational-strategic objectives, such as forcing Russia to accept the terms of a dictated peace, fomenting regime change in that country through a “color revolution” (a more-or-less peaceful uprising from below that overthrows a dictatorship in the name of democracy, such as happened in the “Orange Revolution” in Ukraine in 2004), or even dismembering the Russian Federation.³⁰ An air campaign may also be used in a more limited regional war, as was the case with Iraq in 1991.

The air campaign will be a joint operation with coordinated objectives conducted according to a single concept and plan. It will consist of air operations involving integrated actions by offensive, defensive, and support forces. The campaign may include a space operation to ensure control of that medium and unhindered use of space systems, as well as an electronic operation using electronic warfare and cyberwar to administer an “electronic knockdown.”³¹ It may be waged by large combined-arms strategic formations, with air forces predominant, or as an independent operation by air forces alone. These operations will conduct integrated and comprehensive precision strikes against military, political, and economic targets throughout the entire area of a theater of military operations, theater of war, or country.³² They will be conducted using specially organized reconnaissance and strike weapons systems, the foundation of which will be space-based surveillance, navigation, and targeting systems, together with air- and sea-based standoff precision weapons systems.³³ The campaign may involve clandestine raids by special operations forces seeking to identify targets before air or missile strikes by stealth aircraft, Tomahawk-carrying nuclear submarines, and other advanced weapon systems.³⁴ Instead of concentrating on one axis of attack (“strategic axis”), attacking weapons are expected to be spread over multiple axes.³⁵

Russian military experts believe that an air campaign targeting Russia will try to establish air supremacy by neutralizing its air and space capability, especially its airfields, aircraft, and aerospace defenses.³⁶ Another key objective, as previously noted, may be a disarming strike with conventional weapons against Russian strategic nuclear forces, a strike that may last only “dozens of minutes.”³⁷ Additional major objectives may include the following:

- disrupting state [national government] and military command and control;³⁸
- disrupting mobilization and operational and strategic transportation;³⁹ and
- inflicting strategic damage on key military and civilian production complexes—the most vulnerable and potentially the most critical targets.⁴⁰ Doing so will undermine the country's economy as a whole, as the Russians believe happened in the NATO air campaign against Yugoslavia.⁴¹

The enemy may even count on attaining his ultimate military objectives without major destruction of military personnel or the rout of Russia's main military forces—and without committing ground forces or seizing or holding large tracts of territory, as was the case in NATO's operation against Yugoslavia.⁴²

Russian military writings expect that in any NATO air campaign against Russia, a series of offensive air operations (“air offensives” such as the opening phases of the 1991 war against Iraq) will be central. These air offensives will pursue their objectives mainly by attacking targets on the ground and possibly at sea, combined with conducting active space warfare.

Extrapolating from past operations and assertions about unspecified NATO exercises, Russian writings estimate that NATO's primary air bases are within 400–600 kilometers of the Russian Federation's national border.⁴³ They expect that NATO will have full access to the Baltic states' supposedly extensive infrastructure for forward staging for the conduct of an air offensive and that NATO will have created adequate logistics support reserves to support aircraft operations. From these bases, they assess that NATO's tactical aviation is capable of attacking Russian and Russian-allied Belarusian armed forces throughout all of Belarus and western Russia.⁴⁴ These writings project two primary variants for the opening of the air campaign:

1. Staging through forward bases. The first massed attack (“air-missile strike”) will be conducted with the attacking aircraft taking off from their permanent bases well to the rear. After the initial air-missile strike, they will land to refuel and rearm at the airfields of the Eastern European countries and the Baltic States, conduct a second massed attack, and then return to their permanent bases to prepare for subsequent massed attacks.⁴⁵
2. Launching from forward bases. A significant portion of the aircrews, support personnel, and equipment used to conduct the first massed attack will deploy to airfields in the Baltic States and Eastern European countries before the war. They will then conduct their massed attack from the forward airfields.⁴⁶

The first operation of any NATO air campaign would establish air superiority, disrupt state and military C2, and fracture the deployment of armed forces. Its is expected to last five to seven days, depending on the targets, the distinctive nature of the strategic axis (in this case, the Western strategic axis), and the resulting situation.⁴⁷

Russian analysts project that on the first day, NATO would conduct two massed air-missile strikes. Most sorties (up to 70 percent) would be allocated to gaining air superiority, with the rest allocated for air support of ground troops.⁴⁸ On the second day of air operations, Russian writers expect one or two massed aircraft-missile strikes designed to gain air superiority (up to 50 percent of sorties), provide direct

air support (up to 30 percent), and isolate the combat operations area (up to 20 percent).⁴⁹ Projections for the third day are for one massed aircraft-missile strike that would isolate the combat area (up to 70 percent) and maintain air superiority (up to 30 percent) (see the table below).⁵⁰

Table. Projected apportionment of air-missile strikes during opening phases of first air operation

<i>Day</i>	<i>Number of massed strikes</i>	<i>Percent air superiority</i>	<i>Percent support ground troops</i>	<i>Percent isolate battlefield</i>
1	2	Up to 70	Up to 30	—
2	1–2	Up to 50	Up to 30	Up to 20
3	1	Up to 30	—	Up to 70

After the first offensive air operation, NATO air forces are projected to transition to what the Russians call “systematic combat operations,” which are intended to carry out “suddenly or sequentially emerging missions of varying scale.”⁵¹ One of these missions would continue attacks to disrupt C2 and demoralize personnel.⁵²

The conduct of subsequent air operations would be determined by the degree to which the goals of the first offensive air operation had been realized and would be coordinated with the operations of ground and naval forces. Second and subsequent air operations would have the following objectives: destroy troop concentrations in the theater of military operations, destroy communications centers and military-industrial facilities, and support ground troops.⁵³ The Russians project that the total air campaign against Russia would take 35–40 days.⁵⁴

Potential Russian Responses

If Russia is threatened with or subjected to major conventional aerospace attack, Moscow is likely to perceive that it has two main options for response. If it were certain that enemy forces were about to attack the homeland, it could launch a preemptive strike or even a preventive war.⁵⁵ Hopefully, it will be difficult to obtain political permission to do so, but as this article later discusses, that possibility cannot be ruled out. If Russia does not preempt, the alternative is to attempt to destroy enough attackers to neutralize the effects of the attack. This action would involve what Russia defines as a defensive strategic air operation—an “air defensive” operation—during which the main, and possibly the only, effort involves engaging and defeating an enemy in the course of his air strikes.⁵⁶ During such an operation, the primary missions of the RuAF include the following:⁵⁷

- Repelling the first surprise air-missile strike to permit the mobilization and strategic deployment of the Russian armed forces and the transition of the Russian government to a wartime footing.⁵⁸ Air defense of Russia and allied territory—especially Belarus—will be critical for absorbing and defeating the attack.⁵⁹ Forces available at the start of hostilities should conduct this defense.⁶⁰ Priority will be given to protecting nuclear retaliatory capability, the highest levels of government and military C2, economic installations, and state infrastructure.⁶¹

- Inflicting damage on the enemy's main body by coordinated operations of defensive forces against offensive aerospace weapons in flight (en route, on trajectories, in orbits) and against strike forces throughout the enemy's basing system, including aircraft carriers and enemy command centers inside as well as outside the area of direct conflict.⁶² The Russians call this action "offensive defense."⁶³
- Providing air cover and air support for defensive military operations to repel invasions by enemy land and naval forces.⁶⁴
- Supplying air cover and air support for ground units to support their seizure of the strategic initiative by conducting defensive and counteroffensive operations.⁶⁵

As a final deterrent, the Russians reserve the right to use nuclear weapons first if they judge that the existence of the Russian state is under threat from conventional attack.⁶⁶ Making this prospect even more ominous is that Russian military doctrine includes the concept that a limited nuclear strike can be used to force an enemy to "de-escalate" an attack.⁶⁷

The Present and Future of Russian Air and Space Defense

Despite Russians' claims of a massive and rapidly growing threat, their efforts to counter it have actually been fairly modest. Historically, Russia (and before 1991, the Soviet Union) has put one of its highest military priorities on active defense of the homeland; furthermore, development and maintenance of an efficient and effective air, missile, and space defense force have been a key Russian military requirement.⁶⁸ However, the military and economic aftermath of the collapse of the Soviet Union had a devastating impact on Russia's military capabilities, and the country phased out many of its air and air defense systems.⁶⁹ Only as Russia's economy began recovering during the last decade has the nation started to rebuild its military, including modernizing air defenses.

Russia's air defense system has many problem areas. (Press reports vary on Moscow's assessment of its present capability system to repel a large-scale aerospace attack, and although some reports are optimistic, most are not.)⁷⁰ However, one should not underestimate that system. Moscow still maintains the most comprehensive integrated air defense in the world, remaining a world leader in the development and production of air defense systems, including radars, missiles, guns, and control systems. Its individual systems, especially surface-to-air missiles (SAM), remain very formidable. Although the Russian strategic SAM force continues to be based primarily on updated Soviet legacy systems—mostly the SA-10 and -20—the military is steadily deploying new SAMs, especially the S-400/SA-21 Growler.⁷¹ Two new systems, the S-350 Vityaz and the S-500, are in development.⁷² The deployment of new or upgraded fighters and interceptors for Russia's air units has also gradually increased in recent years.⁷³ Although major procurement of the fifth-generation PAK-FA/T-50 has been delayed for several years, the RuAF continues to procure other modern aircraft, including an order for 50 more of the very formidable Su-35S, reported in early 2016.⁷⁴ We should expect that, over time, ongoing force modernization and realignments—such as Russia's reorganization of its air forces and the air

and space defense force into an entirely new structure in 2015, along with readiness improvements as demonstrated by its intervention in Syria—will correct many deficiencies and result in steadily more capable defenses.⁷⁵ Whether doing so will be enough to change Russians' view of the threat situation remains to be seen—after all, we are dealing with people who may well believe that NATO actually can attack the Moscow area with 1,500 combat aircraft and that the United States is expanding its network of military-biological laboratories in the countries around Russia.⁷⁶ In spite of these upgrades, if Moscow continues to perceive itself as unable to successfully combat a large-scale enemy aerospace attack, ultimately it will remain dependent on the threat of nuclear escalation to deter or repel such a strike.

Conclusions and Implications

The Russian threat model is clearly based on the Western air campaigns in Iraq and Yugoslavia—campaigns in which forward bases were available, air units could forward-deploy prior to the start of hostilities, and the air campaign was meticulously prepared in advance. This set of circumstances is unlikely to be repeated in any conflict with Russia. If anything, in any such conflict, the overwhelming likelihood will be that the United States and NATO will respond in desperate haste to a Russian initiative—that is, for us, it will be a come-as-you-are war.⁷⁷ Further, when we consider Russia's obvious overestimation of Western capabilities, reflected in its conception of an anti-Russia air campaign, it is clear that the massive aerial threat from the United States and NATO perceived by Russian writings is based far more on illusion than fact.⁷⁸ In actuality they face much less of an aerospace threat than they claim.

Certainly, the Russians have great, even exaggerated, respect for American and Western aerospace power, and they expect that power to increase as the United States and NATO deploy improved systems, such as the F-35; larger amounts of existing equipment, especially cruise missiles; and future weapons, such as ballistic missile defense and “prompt global strike systems.” (In 2012 Prime Minister Putin went so far as to claim that the United States was seeking a monopoly on survivability.)⁷⁹ Further exacerbating the Russians' concern is fear of Western technological superiority and the possibility that Western technological surprise may render their defenses obsolete.⁸⁰ This apprehensiveness is the product of a worst-case analysis, but what matters is that the Russians believe their perceptions and that these perceptions are likely to mean stability in some circumstances coupled with the potential for great danger in others. In circumstances that make Russian-American relations stable and reasonably businesslike, threat perceptions are largely irrelevant. Unfortunately, we may not encounter such circumstances for the foreseeable future. When tension builds, the perceived threat of Western conventional aerospace superiority might serve as a deterrent. In a crisis, however, if the Russians believe they are facing a use-it-or-lose-it situation—especially with their nuclear weapons—it might prompt them to move first, especially if perceived Western aerospace conventional superiority is coupled to what the Russians believe is an effective US ballistic missile defense system.⁸¹ Although the new Russian military doctrine

reportedly talks about nonnuclear deterrence, this fundamental situation is unlikely to change for many years.⁸² However, the likelihood of such a crisis is actually low. For a start, the potential for ambiguous warfare against the members of NATO adjacent to Russia is much less than in Ukraine. Since they are members, that organization's security guarantees apply.⁸³ Second, NATO will forward-deploy deterrent trip-wire forces there, thus decreasing the risk of both deliberate and opportunistic Russian intervention. Third, NATO members have coherent governments capable of resisting subversion (an Estonian general remarked that the way to deal with "little green men" [Russian soldiers whom Russia denies are there] is to "shoot the first one to appear."⁸⁴ Finally, if such a crisis occurs, it will undoubtedly be at Putin's initiative. Consequently, he can accept as much or as little risk as he wants, and, as has happened in Ukraine, he can dial tensions down as well as up. Unfortunately, since we are dealing with a Russian leader who sees intent, malice, and organization where he should see confusion and incoherence and who perceives threats where none exist, this situation retains the potential for dangerous miscalculation. ❁

Notes

1. See Hugo Spaulding, "Putin's Next Objectives in the Ukraine Crisis," backgrounder (Washington, DC: Institute for the Study of War, 3 February 2015), http://www.understandingwar.org/sites/default/files/Ukraine%20backgrounder_V6.pdf.

2. Anton Barbashin and Hannah Thoburn, "Putin's Brain," *Foreign Affairs*, 31 March 2014, http://www.foreignaffairs.com/articles/141080/anton-barbashin-and-hannah-thoburn/putins-brain?sp_mid=45536173&sp_rid=YXRtbWNjYWJlMUB2ZXJpem9uLm5ldAS2. In particular, the authors assess the influence of Alexander Dugin and his theories of Eurasianism on Putin's thinking.

3. The term *ambiguous warfare* is from Ronald O'Rourke, *A Shift in the International Security Environment: Potential Implications for Defense—Issues for Congress*, CRS Report R43838 (Washington, DC: Congressional Research Service, 8 June 2016), <https://www.fas.org/sgp/crs/natsec/R43838.pdf>. Putin is using a modification of what he considers the Western strategy of fomenting disorder by using subversion and special operations to produce regime change, as he believes the United States and its allies did in Libya and intended to do in Syria. For an excellent summary of Russian thinking on this subject, see Col S. G. Chekinov (Res) and Lt Gen S. A. Bogdanov, retired, "The Nature and Content of a New-Generation War," *Military Thought*, no. 4 (2013), http://www.eastviewpress.com/Files/MT_FROM%20THE%20CURRENT%20ISSUE_No.4_2013.pdf. The Russians assume that somewhere in the US government, there really is a big picture. Obviously, they are mirror-imaging.

4. See especially par. 39 (d) of "Concept of the Foreign Policy of the Russian Federation" (unofficial translation), Ministry of Foreign Affairs of the Russian Federation, 12 February 2013, http://www.mid.ru/brp_4.nsf/0/76389FEC168189ED44257B2E0039B16D. This policy is especially significant to Estonia (25.5 percent Russian-speaking) and Latvia (25.8 percent Russian-speaking). The Estonian population figure is from "Population by Nationality," Estonia.eu, <http://estonia.eu/about-estonia/country/population-by-nationality.html>. The Latvian figure is from "At the Beginning of 2015 Population of Latvia Decreased by 15.4 Thsd People," Baltic Course, 27 May 2015, [.](http://www.baltic-course.com/eng/analytics/?doc=)

5. Putin's view of a US destabilization of Russia is noted in "A Ukraine-Russia Peace Deal: Crimea Must Have a Cost," *In Moscow's Shadows*, 1 January 2015, <https://inmoscowsshadows.wordpress.com/2015/01/01/a-ukraine-russia-peace-deal-crimea-must-have-a-cost/>. Supposedly, this piece was written by Josh Rogin in *Bloomberg*.

6. For a good summary, see Pavel Felgenhauer, "Despite Bilateral Diplomatic Contacts, Russia Hardens Its View of US as the Enemy," *Eurasia Daily Monitor* [Jamestown Foundation] 13, issue 63 (31 March 2016), http://www.jamestown.org/single/?tx_ttnews%5Btt_news%5D=45257&no_cache=1#.V2g7DBJ8PMM. See also Anthony H. Cordesman, "The Background to Putin's Actions in Syria and the

UN: Russia's New View of the US and Western Strategy; the Color Revolution" (Washington, DC: Center for Strategic and International Studies, 2 October 2015), <https://www.csis.org/analysis/background-putin%E2%80%99s-actions-syria-and-un-russia%E2%80%99s-new-view-us-and-western-strategy-color>; and Chekinov and Bogdanov, "Nature and Content."

7. James T. Quinlivan, "Yes, Russia's Military Is Getting More Aggressive," *Foreign Policy*, 30 December 2014, http://foreignpolicy.com/2014/12/30/yes-russias-military-is-getting-more-aggressive/?utm_source=Sailthru&utm_medium=email&utm_term=Flashpoints&utm_campaign=2014_FlashPoints%20%5BManual%5DRS12%2F30. For information on the planned Russian buildup, see John Hall, "Russia Announces Plans to Deploy Military Divisions on Western Border and Form New Nuclear Regiments," *Independent* [UK], 12 January 2016, <http://www.independent.co.uk/news/world/europe/russia-announces-plans-to-deploy-military-divisions-on-western-border-and-form-new-nuclear-regiments-a6807906.html>. See also John R. Schindler, "Kremlin Provocations and War Games Risk Real War," *Observer* [UK], 2 May 2016, <http://observer.com/2016/05/kremlin-provocations-and-war-games-risk-real-war/>.

8. *Warsaw Summit Communiqué*, par. 40, North Atlantic Treaty Organization, 9 July 2016, http://www.nato.int/cps/en/natohq/official_texts_133169.htm.

9. The previously noted Russian theorist Alexander Dugin, whose thinking reportedly has major influence on Putin's, says that a nationalist Russia supporting a multipolar world is currently in an inevitable conflict of civilizations with the universalist West and a hegemonic United States, along with a heartland/rimland geopolitical conflict. See Alexander Dugin, "Alexander Dugin on Eurasianism, the Geopolitics of Land and Sea, and a Russian Theory of Multipolarity," *Theory Talks*, no. 66 (7 December 2014), <http://www.theory-talks.org/2014/12/theory-talk-66.html>.

10. Gen-Col Aleksandr Zelin, "The Air Force, Its Role and Place in Armed Conflicts," *Moscow IA Integrum-Tekhn*, 6 August 2008. Zelin was then commander in chief of the Russian Air Forces. See also Yu. V. Krinitsky, "Aerospace: The Main Theater of Operations," *Military Thought in English*, no. 3 (2013): 150–61. The information sphere may also be considered a center of warfare. General of the Army Nikolay Makarov, Chief of the Russian General Staff, "Reform Is Producing Necessary Results," *Moscow Nezavisimoye Voyennoye Obozreniye*, 17 February 2012.

11. General of the Army A. M. Kornukov, "Apropos of the Grown Role of Confrontation in the Aerospace Sphere and Air Force Tasks in 21st-Century Military Operations," *Military Thought*, 1 September 2001, <http://www.highbeam.com/doc/1G1-80321751.html>.

12. *Ibid.*; and Gen-Maj S. V. Kuralenko, "Changing Trends in Armed Struggle in the Early 21st Century," *Military Thought in English*, no. 4 (December 2012): 29.

13. "Yesterday Yugoslavia, but Who Tomorrow? An Analysis of U.S. and NATO Operational Training Measures in the European Theater of Military Operations in 1998–2002," *Vozdushno-Kosmicheskaya Oborona*, 5 June 2008.

14. Kornukov, "Apropos."

15. *Ibid.*

16. Kuralenko, "Changing Trends," 31.

17. Kornukov, "Apropos."

18. Oleg Falichev, "Secret Springs of the War in Iraq," *Krasnaya Zvezda*, 28 June 2003; and Gen-Col Boris Cheltsov, "Approaches to the Creation of the National Aerospace Defense System in the Conditions of Future Network-Centric Wars," *Military Thought*, no. 4 (2008): 1–11, <http://www.highbeam.com/doc/1G1-194154586.html>.

19. Kornukov, "Apropos."

20. *Ibid.*

21. Falichev, "Secret Springs"; and Kuralenko, "Changing Trends," 31.

22. I. N. Vorobyov, "Characteristics of Combat Actions (Operations) in Future Wars," *Military Thought*, 1 April 2005, <http://www.highbeam.com/doc/1G1-135818481.html>; and Kuralenko, "Changing Trends," 32. See Chekinov and Bogdanov, "Nature and Content."

23. Gen-Maj Andrey Demin, "Voyennyi Sovet (Military Council) Interview," *Moscow Ekho Moskvuy*, 30 June 2012.

24. "7,000 U.S. Cruise Missiles Pose 'Dominant Threat to the Modern World,'" *Moscow Times*, 8 December 2014, <http://www.themoscowtimes.com/news/article/7-000-u-s-cruise-missiles-pose-dominant-threat-to-the-modern-world/512752.html>; and Kuralenko, "Changing Trends," 30.

25. Dmitriy Rogozin, "Five War Scenarios: Dmitriy Rogozin: Russia Must Be Independent and Strong, or It Will Not Exist at All," *Moscow Rossiyskaya Gazeta*, 3 July 2013. Other Russian analysis is skeptical of this claim, as noted in Vladimir Dvorkin, "Risky Contradictions: Putin's Stance on Strategic Arms and Missile Defense," Carnegie Moscow Center, 10 February 2016, http://carnegie.ru/commentary/2016/02/10/risky-contradictions-putin-s-stance-on-strategic-arms-and-missile-defense/itq8?mkt_tok=3RkMMJWWf9wsRovv6zBZKXonjHpfsX56OvwXKKg38431UFwdcjKPMjr1YoDTcZ0aPyQAgobGp5I5FEIQ7XYTLB2t60MWA%3D%3D.

26. Kornukov, "Apropos."

27. "Yesterday Yugoslavia."

28. Kuralenko, "Changing Trends," 32. This might be done to justify US or NATO intervention under the cover of humanitarian intervention. See also Chekinov and Bogdanov, "Nature and Content."

29. General of the Army Valery Gerasimov, "The Value of Science Is in the Foresight: New Challenges Demand Rethinking the Forms and Methods of Carrying Out Combat Operations," *Voyenno-Promyshlennyy Kuryer*, 26 February 2013. That a population might revolt, demanding better government, is utterly alien to the Putin government's concept of the universe. Therefore, the color revolutions in Ukraine and Georgia, the Maiden Revolution in Ukraine, the Arab Spring, and the demonstrations against Putin's election were due to Western subversion. See also General of the Army Makmhut Gareyev, "Text of Speech to the Academy of Military Science General Meeting," *Voyenno-Promyshlennyy Kuryer*, 25 January 2012. Gareyev is president of the Russian Academy of Military Sciences.

30. In a 4 December 2014 address, President Putin charged that there had been "support for separatism in Russia from across the pond." See President Vladimir Putin, "Presidential Address to the Federal Assembly," 4 December 2014, President of Russia, <http://eng.kremlin.ru/news/23341>. See also Adrian Karatnycky, "Ukraine's Orange Revolution," *Foreign Affairs*, March/April 2005, <https://www.foreignaffairs.com/articles/russia-fsu/2005-03-01/ukraines-orange-revolution>.

31. Regarding a space operation, see Igor Morozov, Sergey Baushev, and Oleg Kaminsky, "Space and the Character of Modern Warfare," *Vozdushno-Kosmicheskaya Oborona*, no. 4 (2009). Regarding an electronic operation, see Chekinov and Bogdanov, "Nature and Content."

32. Kuralenko, "Changing Trends," 29.

33. G. P. Kupriyanov, "Principal Trends in the Evolution of Space Warfare," *Military Thought*, 1 January 2005, <http://www.highbeam.com/doc/1G1-136342873.html>.

34. I. N. Vorobyov and V. A. Kiselyov, "The Promise of Defense," *Military Thought*, 1 January 2007, <http://www.highbeam.com/doc/1G1-166433360.html>; and Kuralenko, "Changing Trends," 32.

35. Kornukov, "Apropos."

36. Kuralenko, "Changing Trends," 32.

37. Rogozin, "Five War Scenarios." Quotation from V. V. Barvinnko, "Aerospace Defense: Modern Aspects," *Military Thought*, 1 January 2007, <http://www.highbeam.com/doc/1G1-166433377.html>.

38. Kuralenko, "Changing Trends," 31.

39. Kornukov, "Apropos."

40. Oil and energy production may be a primary target. Some Russian analysts claim that American analysts assert that destroying as few as 12 such targets could paralyze Russia. Vyascheslav Tetekin and Aleksandr Brusnitsyn, "Source of the Main Threat: Today There Is Practically Nothing with Which to Repel the Probable Enemy's Strikes from the Aerospace Northern Strategic Axis," *Voyenno-Promyshlennyy Kuryer*, 26 June 2013.

41. Kupriyanov, "Principal Trends."

42. Kuralenko, "Changing Trends," 31; and Kupriyanov, "Principal Trends."

43. The author has not been able to identify the exercises on which these scenarios are supposedly based. The alleged exercises they refer to may never have happened.

44. "Yesterday Yugoslavia."

45. Ibid.

46. Ibid.

47. Ibid.

48. The scenario varied according to the strategic axis. One or two air offensives occurred on the northwest axis—on the southwest axis, no more than one. The article was unclear about whether each of these was a different air campaign or whether they were all included in one air campaign. See *ibid.*

49. Ibid.

50. Ibid.
51. Ibid.
52. Ibid.
53. Ibid.
54. Ibid.
55. As warned by General of the Army Yuriy Baluyevskiy, chief of the Russian General Staff, in 2008. See Aleksandr Aleksandrov, "National Security of Russia at the Contemporary Stage," *Krasnaya Zvezda*, 23 January 2008.
56. "Report on Scientific Conference Organized by Academy of Military Sciences, MoD," *Krasnaya Zvezda*, 23 January 2008; and Kornukov, "Apropos."
57. Kornukov, "Apropos."
58. Ibid.
59. Aleksandrov, "National Security of Russia."
60. The defenders may have only "minutes" to respond. Demin, "Voyennyy Sovet (Military Council) Interview."
61. Gen-Col Boris Cheltsov, "Cheltsov on Need to Alter Russian Military Doctrine," *Voyenno-Promyshlennyy Kuryer*, 25 April 2007.
62. Kornukov, "Apropos"; and President Vladimir Putin, "Priority Tasks of the Development of the Russian Federation Armed Forces, Defense Military of the Russian Federation," 3 October 2003, <http://red-stars.org/doctrine.pdf>.
63. Vorobyov and Kiselyov, "Promise of Defense."
64. Kornukov, "Apropos."
65. Ibid.
66. President Dmitry Medvedev, "Text of Newly-Approved Russian Military Doctrine," Carnegie Endowment for International Peace, 5 February 2010, <http://www.carnegieendowment.org/2010/02/05/text-of-newly-approved-russian-military-doctrine/18t>. Evidently the Russians have continued this right in the most recent edition of their military doctrine. See Vladimir Dvorkin, "Nuclear Weapons in Russia's Amended Military Doctrine," Carnegie Moscow Center, 22 January 2015, <http://carnegie.ru/eurasiaoutlook/?fa=58774>.
67. The threat of retaliatory escalation evidently does not enter the Russian picture. See Nikolai Sokov, "Why Russia Calls a Limited Nuclear Strike 'De-escalation,'" *Bulletin of the Atomic Scientists*, 13 March 2014, <http://thebulletin.org/why-russia-calls-limited-nuclear-strike-de-escalation>.
68. Throughout the Cold War, Soviet national air defense was a separate military service. See Harriet Fast Scott and William F. Scott, *The Armed Forces of the USSR* (Boulder, CO: Westview Press, 1979), 147–53.
69. Especially older systems, such as the SA-2/3/5 and the MiG-23 and Su-15 interceptors.
70. "Russia's Air Defense Capabilities Rule Out War According to 'Iraqi-Libyan Scenario,'" *Moscow Interfax*, 21 April 2011. For recent pessimistic reports, see Aleksandr Tarnayev, "Who Will Defend Our Sky? Only a New Aerospace Defense System Will Be Capable of Disrupting an Enemy Land-Air-Space Attack," *Voyenno-Promyshlennyy Kuryer*, 21 August 2013; and Oleg Falichev, "Aerospace Defense: Growing Pains Two Years after the Russian President's Edict on the Formation of the Aerospace Defense Troops, the System is in a State of Uncertainty," *Voyenno-Promyshlennyy Kuryer*, 9 October 2013.
71. "S-400 Triumph Missile Systems Put on Combat Duty in Siberia," *Tass*, 1 March 2016, <http://tass.ru/en/defense/859835>.
72. The S-350 is reportedly in testing, and the first S-500s are supposed to be delivered soon. See Dave Majumdar, "Russia's Deadly S-500 Air-Defense System: Ready for War at 660,000 Feet," *National Interest*, 3 May 2016, <http://nationalinterest.org/blog/russias-deadly-s-500-air-defense-system-ready-war-660000-16028>.
73. In 2014 the RuAF reported receiving 53 new Su-30 and Su-35 fighters, 16 new Su-34 fighter-bombers, 18 upgraded MiG-31BM interceptors, and 7 upgraded Tu-160 and Tu-95 strategic bombers. See Alexander Tikhonov, "Year of Achievement," *Red Star*, 19 December 2014, <http://redstar.ru/index.php/component/k2/item//20730-shapka>. I have not been able to find detailed figures for 2015 procurement. Aggregate projections released by the Russian Air Forces were for "nearly 150 new and modernized planes and helicopters" by the end of 2015, so deliveries were likely at least comparable. See "Nearly 150 New Aircraft to Join Russian Air Force in 2015," *Sputnik*, 14 August 2015, <http://sputniknews.com/military/20150814/1025749884/russian-air-forces-150-new-aircraft.html>.

74. Dmitry Gorenburg, "Russian Stealth Fighter Will Enhance Air Force Capabilities," *Russian Military Reform: Tracking Developments in the Russian Military* (blog), 5 November 2015, <https://russiamil.wordpress.com/>. The latest upgrade of the Su-27 Flanker design. Nikolai Novichkov, "Russia Orders 50 Su-35S Multirole Fighters," *IHS Jane's Defence Weekly*, 14 January 2016, <http://www.janes.com/article/57187/russia-orders-50-su-35s-multirole-fighters>.

75. Matthew Bodner, "Russia Merges AF with Missile Defense, Space Commands," *Defense News*, 8 August 2015, <http://www.defensenews.com/story/defense/air-space/air-force/2015/08/08/russia-merges-af-missile-defense-space-commands/31221349/>.

76. Vladimir Putin, *Edict of the Russian Federation President: On the Russian Federation's National Security Strategy*, December 2015, [5], <http://www.ieee.es/Galerias/fichero/OtrasPublicaciones/Internacional/2016/Russian-National-Security-Strategy-31Dec2015.pdf>.

77. For the difficulties of fighting such a war, see Lt Col Thomas McCabe, USAFR, Retired, "Air-power in the Next War: In the Shadow of Georgia," *Air and Space Power Journal* 23, no. 4 (January 2009): 58–67, <http://www.au.af.mil/au/afri/aspj/airchronicles/apj/apj09/win09/win09.pdf>.

78. Frankly, as a former Air Force officer, I would be ecstatic if the reality were anywhere close to their perceptions.

79. Prime Minister Vladimir Putin, "Prime Minister Vladimir Putin Meets with Experts in Sarov to Discuss Global Threats to National Security, Strengthening Russia's Defenses and Enhancing the Combat Readiness of Its Armed Forces," transcript, Archive of the Official Site of the 2008–2012 Prime Minister of the Russian Federation Vladimir Putin, 24 February 2012, <http://archive.premier.gov.ru/eng/events/news/18248/>.

80. In 2013 the Russians estimated that in critical basic technologies they were "dozens of years" behind the advanced nations. See Rogozin, "Five War Scenarios." The Russians expound at length on a wide variety of possible future weapons, including prompt global strike / conventional ballistic missiles, hypersonic weapons, space-based attack weapons, reusable aerospace aircraft, remotely piloted reconnaissance strike aircraft, and weapons based on new scientific principles, such as energy weapons. See Gen-Col A. I. Khyupenen and Col A. I. Krinitsky, "Deployment of Aerospace Defenses for Russia's Military Security," *Military Thought*, no. 3 (2012): 63. As a rule, these systems are either in or barely out of the PowerPoint stage.

81. Historically, the Russians, and before them the Soviets, have had greatly exaggerated respect for the potential of America's missile defense. What do they know that we don't?

82. Roger McDermott, "Putin Signs New Military Doctrine: Core Elements Unchanged," *Eurasia Daily Monitor* [Jamestown Foundation] 12, no. 2 (6 January 2015), http://www.jamestown.org/programs/edm/single/?tx_ttnews%5Btt_news%5D=43236&tx_ttnews%5BbackPid%5D=27&cHash=25357b7ab5d6d79e6372f1275db4120f#.VO9tpU18Nkc.

83. Lukas Milevski, "Little Green Men in the Baltic States Are an Article 5 Event," *FPRI* [Foreign Policy Research Institute] *Baltic Bulletin*, January 2016, <http://www.fpri.org/article/2016/01/little-green-men-in-the-baltic-states-are-an-article-5-event/>.

84. Dan Altman, "The Long History of 'Green Men' Tactics—and How They Were Defeated," *War on the Rocks*, 17 March 2016, <http://warontherocks.com/2016/03/the-long-history-of-green-men-tactics-and-how-they-were-defeated/>.



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