

## Offensive Weapons and the Future of Nuclear Arms Control

Nancy Teeple<sup>1</sup>

*North American and Arctic Defence and Security Network*

---

### Abstract

With a focus on the strategic competition between the United States and Russia, this paper explores the prospects for the future of arms control under an intensifying nuclear security dilemma. The end of stability-enhancing agreements such as the INF Treaty and the US withdrawal from the JCPOA and Open Skies has accelerated the arms race. The relationship between arms control and strategic stability is part of this evaluation, particularly with respect to how states view the concept framed within their national security interests. The provocative role that offensive – deterrence by denial – capabilities play in contributing to strategic instability is central to this study. This work looks particularly at new systems designed for asymmetric advantage, including those that can defeat strategic defences, such as longer-range cruise missiles and hypersonic vehicles. Given conditions of modernizations and upgrades to nuclear arsenals, including the entanglement of conventional and nuclear systems that can threaten a first strike, this work considers how a dialogue on limiting dangerous systems could be initiated between the US and Russia, and whether New START could be revised, or a new treaty established, to limit advances in cruise missile technology, hypersonic vehicles, missile defences, and tactical nuclear weapons.

---

---

<sup>1</sup> Nancy Teeple is a postdoctoral fellow at the North American and Arctic Defence and Security Network (NAADSN) and an adjunct assistant professor and research associate at the Department of Political Science and Economics at the Royal Military College of Canada.

## Introduction

In 1987, President Ronald Reagan and General Secretary Mikhail Gorbachev signed the Intermediate-Range Nuclear Forces (INF) Treaty. This marked a significant moment of arms control, eliminating an entire class of nuclear delivery systems, and enhanced strategic stability by reducing the mutual threat posed by intermediate range weapons in the European theatre.<sup>2</sup> In recent times, the strategic competition between the United States (US) and Russia is intensified by the deployment of nuclear and conventional means to threaten one another, including new advanced delivery systems launched by sea, air, and land, to offset capability gaps. These developments led to the demise of several arms control regimes that had defined East-West cooperation in reducing strategic weapons since the Cold War. The end of key bi- and multilateral arms control regimes, such as the INF Treaty, and the US withdrawal from the Joint Comprehensive Plan of Action (JCPOA) and Open Skies, places other arms control in peril, such as New START that was set to expire in February 2021. The conditions facilitating agreement on arms control cooperation have all but disappeared, save for Russia's appeal to the US to consider renewing or extending New START before its expiration plunges the two nations into greater instability and arms races.

The deployment of new offensive nuclear weapons intensifies an already problematic security dilemma that characterizes the strategic competition between the US and Russia. These systems deployed for strategic advantage through deterrence-by-denial have the effect of provoking a counter-response by a nuclear peer competitor to offset that advantage through asymmetric means, creating conditions of strategic instability. Strategic stability can be defined as conditions characterized by a balance of mutual vulnerability and mutual threat, ensured by credible second-strike systems, that reduce incentives to use nuclear weapons in a first strike. Simply stated, mutual deterrence is reinforced by mutually assured destruction or some other form of devastating punishment. However, this understanding is nuanced, based on what nuclear states perceive as stabilizing relative to their own security. Their actions to increase security through fielding offensive weapons could have the effect of creating instability that increases incentives to use nuclear or conventional disarming weapons. The concept of strategic stability is being redefined in the current strategic context as tensions increase between nuclear competitor states with the development of new destabilizing offensive weapons with a first-strike disarming capability.<sup>3</sup>

The thesis of this work rests on the assumption that the deployment offensive weapons and postures contributes to strategic instability, provokes states into arms races, and reduces incentives for cooperation on arms control. This paper argues that in a post-INF world, the deployment of next-generation offensive weapons creates unique challenges for current and future arms control. Viewing US-Russian strategic relations as constituting an intensifying security dilemma, based on the increasingly offensive orientation of their nuclear forces, this work employs a typology for assessing the orientation of nuclear postures and weapons systems that lends to forecasting competitive strategic behaviour. The analysis demonstrates that the situation has reached an unprecedented level of volatility in US-Russia relations with the breaking down of constraints on

---

<sup>2</sup> The INF Treaty prohibited the Soviet and US deployment of "all nuclear and conventional ground-launched ballistic and cruise missiles with ranges of 500 to 5500 kilometers" (Kimball and Reif 2019).

<sup>3</sup> James Acton states, "From almost as soon as the term 'strategic stability' first entered the nuclear lexicon, there have been calls to redefine it ... critics often advocated for a redefinition on the grounds that the quest for stability led to a nuclear policy that was at variance with effective deterrence" (2013, 117).

dangerous weapons systems, and equally provocative counter responses. These outcomes also have implications for Canada as a close US continental defence partner and NATO ally.

The structure of this discussion begins with outlining the security dilemma framework for understanding the strategic dynamics between the US and Russia, exploring the offensive orientation of nuclear systems and its impact on strategic stability. Following this is an assessment of the deterioration of US-Russia strategic relations and implications for Canada, the offence dominance of US and Russian nuclear postures with an investigation of the destabilizing weapons systems deployed by both states. The final sections consider what this means for arms control and provides recommendations for moving forward.

### **Current Conditions: Intense Security Dilemma**

The security dilemma is a concept that applies to conventional and non-conventional nuclear threats, with different outcomes. Herz's original concept applies to conditions under which one state exhibits an increase in military strength, intended to increase its defences and therefore security, which creates a perception of threat in another state that views it as a competitor or rival (Herz 1950; 1951; 1959). Whether intended to be provocative or not, the second state's response is to build up its military capabilities to enhance its security, which the first state then perceives as aggressive (Jervis 1976; 1978).

In its application to conventional forces, this security dilemma creates tensions and conditions that are likely to result in conflict. However, the nature of nuclear threats creates a different kind of outcome than conventional actions. Because of their destructive capacity and the taboo (and intense fear) that surrounds their use, a nuclear security dilemma does not result in conflict, but rather a destabilizing arms races fueled by mutual fear and uncertainty about intentions. This dilemma is brought about by conditions in which the actions of one state to increase its security through deploying nuclear forces creates a response by a peer competitor, perceiving the first state's behaviour as threatening, to deploy nuclear capabilities. This response causes the first state to perceive the second state as aggressive, motivating it to increase its nuclear capabilities, and the spiral of action-response ensues. Nuclear behaviour can intensify or mitigate the security dilemma based on the orientation of nuclear postures and the deployment of weapons systems towards either the offence or defence. Thus, the concept of a nuclear security dilemma offers an understanding the tension between the U.S and Russia, focusing on the offensive or defensive orientation of their nuclear postures and forces. The security dilemma frames the conditions that affect the future of bilateral and multilateral arms control as they pertain to the impact of nuclear weapon state members of the treaties. The security dilemma is influenced by states' perceptions of the offensive or defensive orientation of nuclear forces, which generate a competitive or benign response. These perceptions drive the intensity of the security dilemma that creates a sense of threat, vulnerability, fear, mistrust, and uncertainty, producing a symmetric and/or asymmetric response.

This nuclear security dilemma framework builds upon established security dilemma models refined for strategic relations dominated by nuclear behaviour (Van Evera 1998; 1999; Jervis 1978;

Adams 2003/04).<sup>4</sup> Its refinement provides a typology for offensive deterrence and defence deterrence (OD/DD) defined by nuclear strategies and systems oriented for denial or punishment.

Deterrence-by-denial (offensive deterrence) refers to capabilities designed to disarm an adversary's nuclear launch platforms, early warning systems, or command and control (C2) through a first-strike against these *counterforce* targets. Deterrence-by-denial is distinguished from deterrence-by-punishment (defensive deterrence). Due to their first-strike disarming effects, offensive weapons are destabilizing weapons. Deterrence-by-punishment is characterized by survivable systems and postures designed for second-strike / retaliation (i.e. traditional Mutually Assured Destruction (MAD) strategies) that target populations and economic centres (such as cities) and infrastructure not necessarily related to military developments.<sup>5</sup> These high-value *countervalue* targets constitute unacceptable damage that dis-incentivizes a state from striking in the first place. Defensive weapons are therefore second-strike, intended to deter through retaliation.

Current systems tend to reflect flexible nuclear strategies with capabilities spanning the three legs of the nuclear triad – sea, air, land launch platforms – providing a combination of denial and punishment approaches. For nuclear powers like the US, these arsenals are strongly oriented for first-strike advantage. In recent times, nuclear deterrence systems include the entangling of conventional capabilities – such as conventional warheads on missile platforms – that play a role in offensive deterrence-by-denial strategies targeting the rival state's nuclear assets. Conventional counterforce alternatives increase the uncertainty and complexity of perceptions of threat posed by offensive systems (Acton 2020). These conditions dis-incentivize competitor states from cooperating on constraining the expansion of nuclear arsenals that would otherwise involve the reduction of deployed warheads and launch platforms.

The current nuclear security dilemma creates conditions that 1) obstruct forward momentum on new nuclear arms control agreements, and 2) threaten the continuation of current arms control agreements. Evidence for this argument are the outcomes resulting from the US abrogation of the Anti-Ballistic Missile (ABM) Treaty in 2002, mutual accusations of violating the INF Treaty leading to the withdrawal from said Treaty in 2019, the US withdrawal from the Open Skies multilateral treaty in 2020, and anticipated expiration of New START in February 2021.

With a focus on offensive capabilities deployed for deterrence-by-denial, the following section presents a typology for evaluating nuclear postures and systems oriented for offensive deterrence. This typology provides a set of indicators demonstrating the threat posed to a competitor state by denial doctrine, strategies, and systems orientation. The perceived threat causes the competitor state to respond by attempting to close the gap through deploying its own denial capabilities and/or creating an asymmetric threat to target the superior state's vulnerability in order to re-establish a sense of parity.

---

<sup>4</sup> This revised framework was first proposed in the unpublished doctoral dissertation (Teeples 2017).

<sup>5</sup> 'Survivable' indicates systems that are hardened or difficult to locate, so that they cannot be eliminated in a first-strike. Hardened intercontinental ballistic missiles and hidden nuclear missile submarines (SSBNs) often comprise survivable second-strike assets.

## **Offensive Deterrence Orientation**

Offensive nuclear deterrence postures are the policies, doctrines, and strategies that guide nuclear force employment for deterrence-by-denial. Denial strategies to disarm the other state's nuclear arsenals may include targeting its command, control, and communications. First-strike capabilities create advantages, but also incentivizes the opposing state to strike pre-emptively if it believes the first state to be getting ready to disarm and decapitate it. Offensive strategies are rarely clear in nuclear postures, which often use ambiguous language to justify expanding nuclear arsenals and strike options. However, a spectrum of flexible responses often applies the language of warfighting, damage limitation, and escalation control to communicate intentions to act beyond retaliation in the interest of achieving advantage over the adversary. Extended deterrence – a pledge to use nuclear weapons to defend an ally from nuclear attack – can be interpreted as both a defensive and offensive approach, reinforcing ambiguity and uncertainty. Whether this pledge is credible is uncertain, given that it has never been tested.<sup>6</sup>

The typology for classifying nuclear postures includes the following indicators: deterrence-by-denial; counterforce, warfighting doctrine, damage limitation, escalation control, protection of the homeland, pre-emptive doctrine, indistinguishable offensive and defensive postures, ambiguous intentions, and extended deterrence.

Offensive nuclear deterrence systems are weapons designed with the capability to disarm the adversary's military and leadership. These weapons are distinguished from punishment nuclear weapons in lower yield, accuracy, precision, speed, and stealth, with the purpose of evading detection and interception by missile defences. Nuclear deterrence systems include multiple independently re-targetable vehicles – multiple warheads – on a missile to overwhelm missile defences and increase the likelihood of strike at multiple targets. Cruise missiles that travel at lower altitudes also provide advantages of evading early warning systems. Lower yield means they can be usable in the battlefield without the large-scale destructive effect against cities, but are alarming in the potential that their use could create an escalation to the use of larger, more strategic weapons. Systems on high alert can be launched almost immediately and provide a pre-emptive first strike advantage against an adversary. Unlimited and capable missile defences provide an advantage over states' first and second-strike forces, which reduces the stability of mutually assured destruction. Enhanced intelligence, surveillance, and reconnaissance (ISR) capabilities designed to gather information at all levels – signals, communications, imagery, seismic, human collection and other forms of espionage – provides an advantage to a state with superior capabilities to know where and what kinds of assets the adversary deploys.

The typology for offensive nuclear deterrence systems includes the following indicators: orientation for first-strike; systems on high alert; usability of weapons based on precision, accuracy, and low yield; comprehensive missile defence systems; multiple independently-retargetable vehicles (MIRVs); long-range standoff advanced cruise missiles; hypersonic vehicles with high speed and maneuverability; enhanced stealth; and enhanced ISR.

In the past decade, new developments in delivery platforms have been pursued by the US and Russia (and China) to enhance the denial capabilities of their nuclear systems. These attempts are

---

<sup>6</sup> Betts (1987) describes confrontations between the US and Soviet Union in the European theatre during the Cold War that brought both nations to the brink of conflict and nuclear threats.

intended to advantage one side over the other, and to offset advantages of the superior state by providing an asymmetric threat. These new developments increase the dominance of the offence. They include new intercontinental ballistic missiles (ICBMs), such as Russia's new Sarmat and the US Ground-Based Strategic Deterrent to replace the Minuteman III. New delivery platforms are also able to add hypersonic capabilities – either boost-glide systems on ballistic missiles, like Russia's Avangard, or US conventional global strike capabilities. Hypersonic vehicles, which are also in development for cruise missiles, threaten to evade missile defences and early detection by both speed and maneuverability. As discussed, the entanglement of conventional weapons with nuclear weapons as part of the strategic arsenal creates ambiguity because the other state is uncertain whether missiles are nuclear or conventionally armed. It creates complexity in a state's calculation in how to respond. Dual-use capabilities for space and cyber increase uncertainty, as they can be deployed as highly precise anti-satellite capabilities and offensive cyber weapons to target C2 and launch platforms in all domains. The deployment of these new capabilities risks escalation by incentivizing a nation to use its nuclear weapons before losing them.

### **Strategic (In)Stability and Arms Races**

The previous discussion demonstrated how offensive deterrence contributes to conditions that incentivize arms races over cooperation on arms control. Such behaviour is mutually provocative and reduces the perception of any benefit in maintaining arms control. These perceptions relate to what constitutes security. From the US perspective, invulnerability achieved through superiority or, according to some critics, primacy, provides security through impenetrable defences and unmatched forces to deny other nations' strike capabilities (Lieber and Press 2006a; 2006b). This is the reasoning behind upgrading missile defences, ballistic missiles and other missile systems, information advantages through enhanced ISR, and new strike systems provided by long-range standoff weapons and prompt global strike (CRS). From Russia's perspective, it is important to asymmetrically offset US superiority through systems that can penetrate defences and threaten the American homeland and its allies. These are pursued through the deployment of intermediate range forces in the European theatre (particularly in Kaliningrad and Crimea), in addition to weapons that provide enhanced stealth, precision, speed, and maneuverability (such as developments in new cruise missile technology). The pursuit of capabilities to offset US advantages also include conventional, nuclear, and the newly-emerging domains of cyber, information and space, providing opportunities to explore cross-domain coercion (Adamsky 2018).

Mutually-provocative developments by both the US and Russia negatively impact strategic stability, a concept directly tied to deterrence. Given the return to great power competition in the international system, strategic stability is being redefined based on the national security interests of states, which is becoming increasingly distanced from the traditional concept based on mutual deterrence/mutual vulnerability. This strategic concept is under debate in the strategic analysis community, particularly in how Russia and China are moving to reinstate strategic balance through pursuing asymmetric means to continue to be able to threaten the US, despite the superiority of America's diverse and quantitative nuclear arsenal and evolving missile defence architecture (Colby 2013).

Analysts define strategic stability, either narrowly or broadly, with regard to scope and content (Acton 2013). Former US Secretary of Defense Edward Warner provided three ways of

understanding strategic stability. Most narrowly, it is the absence of incentives to use nuclear weapons first (crisis stability) and the absence of incentives to build up a nuclear force (arms race stability). In the medium-range it is the absence of armed conflict between nuclear-armed states. And, broadly, it is a regional or global security environment in which states enjoy peaceful and harmonious relations (Acton 2013).

The main challenge is in achieving agreement between states on what strategic stability means. The US and Russia have different understandings (or preferences) of what constitutes strategic stability, which are based on how they understand deterrence (Pavlov and Malygina 2018). Deterrence itself is an evolving concept given the increasing emphasis on deterrence-by-denial as a strategy to enhance a state's national security against new systems against which no defence yet exists.

### **Deterioration of US-Russia Strategic Relations and Implications for Canada**

Deteriorating conditions between the US and Russia involve a number of interrelated issues in military and political realms, particularly with provocative nuclear and non-nuclear behaviour contributing to increasing tensions. Provocative non-nuclear behaviour involves conventional and unconventional activities intended to threaten or otherwise undermine Western military and political governance (i.e. Western liberal democracy). Such activities include hybrid or grey warfare which spans kinetic and non-kinetic activity across multiple domains, utilizing a combination of information operations, cyber-attacks, and other covert military and non-military methods, allowing for deniability and creating ambiguity in distinguishing actions that constitute conflict versus aggressive actions below the threshold of war.<sup>7</sup> These actions affect Western forces, economic systems, political systems, and the general public – the latter through manipulation of public opinion by sowing discontent and undermining confidence in governing institutions.

NATO deployments close to Russia's borders in response to ambiguous Russian threats against the Baltic states and Ukraine – including indirect support to Ukrainian forces – are perceived by Russia as provocative. In order to mitigate the perceived threat to Russia's sphere of influence, Russia has deployed denial of access and maneuverability systems to prevent or limit Western forces from operating in a given area by sea or air.<sup>8</sup>

Recent exercises that simulate confrontation with a state's adversary – such as Russia's Zapad, Vostok, Tsentr, or NATO's Trident Juncture – may be viewed as provocative, and in worst cases, mis-perceived as a prelude to actual confrontation. The Russia-Belarus Zapad-2017 exercise

simulated the use of tactical nuclear weapons in a conventional conflict with NATO.<sup>9</sup> In the fall of 2018, NATO Trident Juncture exercises in and around Norway simulating an Article V response

---

<sup>7</sup> Nicole Jackson (2018; 2019) explores hybrid capabilities in her evaluation of NATO-Russia relations.

<sup>8</sup> These attempts to deny Western activity in a given region (the Arctic, Eastern Europe, and Eastern Mediterranean) by sea and air is often termed anti-access and area-denial (A2/AD) – a controversial term in strategic circles because it is not explicitly stated in Russian doctrine.

<sup>9</sup> Zapad is a routine exercise held by Russia and Belarus every four years. Giles (2018) reports that “previous Russian exercises on the scale of Zapad left troops in position for undertaking military operations immediately afterward—against Georgia in 2008 and Ukraine in 2014.” However, Giles cautions against Western alarmist reporting about Russia's intentions, as these former developments occurred within a context preceded by a political crisis.

encountered negative reactions from Russia, who perceived the exercise as targeting them.<sup>10</sup> However, as per the Organization for Security and Cooperation in Europe (OSCE) Vienna Document on notification of military exercises to increase transparency and predictability, Russia was invited to observe Trident Juncture (NATO 2018). Russia's Zapad, however, fell short of the 9000-troop minimum requiring notification to OSCE states. Trident Juncture was followed by a US-led NATO exercise in Poland, Lithuania, Latvia, and Estonia (which likely also provoked Russia); while Russia ran its Vostok exercise just weeks before Trident Juncture with no advanced notification to the OSCE under the Vienna Document.<sup>11</sup> These exercises appear to simulate conflict with NATO, and signal capabilities and potential intentions.

Non-nuclear behaviour plays a role in the escalation of tensions between nuclear powers (including nuclear-conventional entanglement). The following table presents the actions and events since the 1990s that led to the demise of formerly positive US-Russia relations since the end of the Cold War.

**Table 1: Irritants in US-Russia Security Relations**

Time period/year	Actors	Actions
1990s	NATO	Enlargement in Central and Eastern Europe (Pifer 2014) <ul style="list-style-type: none"> <li>• The West had made an implied commitment to not expand NATO eastward beyond the united Germany (Hahn 2018).</li> <li>• NATO's enlargement impacted Russia's sense of security and regional stability (Martin 2017).</li> </ul>
1999	NATO	Operation Allied Force in Yugoslavia <ul style="list-style-type: none"> <li>• This operation started the decline of US-Russian relations (Snyder 2017) and negatively impacted NATO-Russia relations (Averre 2009).</li> </ul>
2002	US	Withdrawal from ABM Treaty; modernization of the nuclear triad <ul style="list-style-type: none"> <li>• The 1972 ABM Treaty established constraints on US and Russian missile defences, which dis-incentivized destabilizing arms race behaviour (NTI Overview 2011).</li> <li>• Following withdrawal from the ABM Treaty, the US embarked on the modernization of its nuclear arsenal, combining offensive nuclear weapons with missile defences and conventional strike capabilities that increased the threat to Russia (Federation of American Scientists 2002; Woolf 2002; Kristensen, Norris, and Oelrich 2009).</li> </ul>
2008	Russia	Military activity in South Ossetia and Abkhazia <ul style="list-style-type: none"> <li>• Russia aimed to create buffer zones in the form of 'frozen conflicts', providing leverage to prevent Western interests in these regions (i.e. Russia's "near abroad") – particularly blocking them from joining NATO and the EU (Matsaberidze 2015, 81).</li> </ul>
2011	NATO	NATO-led coalition intervention in Libya

<sup>10</sup> Exercises ran from October 25 to November 7, 2018 (Masters 2018).

<sup>11</sup> Vostok ran from September 11-15, 2018, and included participation of China's People's Liberation Army (Masters 2018; Boulègue 2018; Johnson 2018).



<b>Table 1 Cont'd</b>		
2014	Russia	Russian annexation of Crimea and support to separatists in the Donbas region of Ukraine <sup>12</sup>
2015	Russia	Russian support to the Assad regime in the Syrian Conflict
2016	NATO	Decision to deploy four battlegroups to the Baltics and Poland <ul style="list-style-type: none"> <li>• At the 2016 Warsaw Summit, NATO established a Forward Presence in Poland, Estonia, Latvia, and Lithuania, and a tailored forward presence in the Black Sea region, to strengthen its defence and deterrence posture in Eastern Europe.</li> </ul>
2016	Russia	Revelation that Russia was in violation of the INF Treaty by deploying the 9M729 (SSC-8) Novatar land-based cruise missile
2018	US	Withdrawal from JCPOA – the ‘Iran nuclear deal’ – in May
2019	US	Withdrawal from the INF Treaty in August <ul style="list-style-type: none"> <li>• Like the abrogation of the ABM Treaty, this action signaled a lack of confidence in arms control and cooperation. It removed constraints on expanding nuclear forces into more threatening deployments (Kimball and Reif 2019).</li> </ul>
2019	US	The Trump Administration’s intention to withdraw its signature of the CTBT in May on the belief that Russia is cheating (Persbo 2020)
2020	US	Withdrawal from the Open Skies Treaty <ul style="list-style-type: none"> <li>• Russia had been restricting overflights within Kaliningrad region, and the corridor between Russia and South Ossetia and Abkhazia (Reif 2019). The US responded by restricting overflights over Hawaii and Alaska.</li> </ul>

The current period has been described as an era of great power competition, in which Russia and China are increasingly posing a strategic challenge to the United States in specific geopolitical regions – such as Eastern Europe, the Arctic, and the Eastern Mediterranean (Russia), and the Asia Pacific (China) – and globally. The Arctic in particular has emerged as an area of strategic importance to the US, Russia, and Canada. This region is seeing Russia deploy new nuclear weapon systems with long-range capabilities that increase its ability to threaten targets in North America. These evolving threats affect Canada through its geographical proximity at the top of the continent with a long Arctic coastline, in addition to its defence partnerships with the US (particularly NORAD).<sup>13</sup>

The enhancement of strategic stability through nuclear arms control, non-proliferation, and disarmament has been a key long-term Canadian foreign policy interest since the Cold War. As a close defence partner with the US, a NORAD partner, NATO ally, and Five Eyes member, Canada has a vested interest in the outcomes of strategic behaviour that affect stability-enhancing agreements to limit offensive weapons and constrain the arms race. Geographically, Canada shares

<sup>12</sup> Note the language of “annexation” and “seizure” is a contested issue in Russia (O’Loughlin and Toal 2019; Ragozin 2019).

<sup>13</sup> Canada’s 2017 defence policy describes the military-strategic importance of the Arctic, modernization of NORAD, and enhancing Arctic capabilities (DND/CAF, 2017). Charron and Fergusson (2017; 2018) provide a detailed discussion on the evolution of North American defence.

in the security of the North American continent, which has become more vulnerable to destabilizing offensive weapons deployed by Russia, China, North Korea, and potentially Iran. These issues and outcomes affect Canada's relationship with the US, potential fallout in Canada-Russia relations, and its objectives to promote peace and security regionally and globally.

Through the evolution of North American defence and deterrence concepts, Canada may become increasingly integrated into the US strategic defence architecture in support of denial doctrine and capabilities. The new SHIELD concept for integrating sensors, defeat mechanisms, and joint all domain command and control (JADC2) explicitly declares a deterrence-by-denial doctrine through offensive capabilities (O'Shaughnessy and Fesler 2020). Although focused on conventional threats to the continent, many of China's and Russia's long-range delivery platforms are dual-use, capable of carrying nuclear or conventional payloads, suggesting entanglement with the mission of STRATCOM. The implications for Canada involve NORAD renewal with a potential offensive role, including options for a Canadian contribution to missile defence. This outcome would be a significant departure from its traditional policy of rejecting nuclear weapons in Canada, declining participation in US missile defence, and promoting nuclear arms control, non-proliferation, and disarmament.

As the threats to North American security evolve, Canada may align its foreign and defence policies closer to those of the US to enhance its own security in an increasingly uncertain and volatile strategic environment. This alignment, in conjunction with the end of stability-enhancing arms control agreements, may also see the Canadian government's retreat from its traditional active methods of promoting arms control, non-proliferation, and disarmament. This may also coincide with Canada's support of innovations in deterrence-by-denial concepts as part of the modernization and evolution of North American defence. As the expiration of New START looms, it remains to be seen whether Canada will remain quietly on the sidelines or resume its role as an arms control activist to encourage the US to negotiate with Russia to extend, revise, or renegotiate a new treaty.

Beyond North America, Canada's role in NATO includes contributing to the Enhanced Forward Presence leading a battlegroup in Latvia. Canada's commitment in Europe and support for the Aegis theatre missile defence system – by land and sea – may involve a future role for Canada in missile defence. The planned new Canadian Surface Combatant (Lockheed Martin BAE/Type 26 design) equipped with the AN/SPY-7(V)1 advanced radar system (designed for long-range discrimination) has been suggested as providing a back door to participation in ballistic missile defence (Canadian Naval Review 2020). This role would further integrate Canada into US/NATO-led deterrence doctrine in a way that is yet undetermined. It may involve contributing capabilities from sensors, to data analytics, to kinetic and/or non-kinetic denial roles.

### **US-Russia and Offensive Deterrence**

In applying the typology presented previously, the nuclear deterrence postures and systems of the US and Russia can be described in terms of the level of dominance of their offensive orientations.

The US nuclear posture demonstrates ambiguity. It intends to deter the use of nuclear weapons and other Weapons of Mass Destruction (WMD) through the threat of nuclear use, but recent

posture expands this role. Even prior to the 2018 Nuclear Posture Review (NPR 2018) and under the previous Administration, the US stated that it would use nuclear weapons in defence of its vital national interests and those of its allies (US White House 2013). The 2018 NPR states that the US nuclear triad “contributes uniquely to the deterrence of nuclear and non-nuclear aggression” (2018, 16). Nuclear forces also contribute to reassuring allies, as conventional forces “do not provide comparable deterrence effects” (2018, iv). Notably, the NPR states that nuclear weapons will achieve US objectives if deterrence fails and hedge against an uncertain future (2018, 23, 27). Analysts at the Federation of American Scientists (FAS) argue that the posture expands scenarios in which nuclear weapons might be used – such as against actors that assist terrorists in obtaining nuclear devices (FAS 2019).

The US arsenal comprises a number of first-strike systems, but questions remain about whether it has a ‘No First Use’ posture. Analysts argue that an explicit No First Use policy is rare among nuclear weapon states (although China has maintained a No First Use pledge since 1964). NATO rejects No First Use and the US “has considered but never declared a No First Use Policy” (Panda 2018). The 2010 NPR under the Obama Administration reduced the role of nuclear weapons, with the intention that the sole use of nuclear weapons would be to deter and retaliate against a nuclear attack. Prior to becoming President, Joe Biden reinforced this “sole use” with the potential to shift to a “no first use” objective (Kutchesfahani 2020). This approach would eliminate the ambiguity of using nuclear weapons first in response to a conventional attack. But ambiguity remained in the NPR to use nuclear weapons “only in extreme circumstances” (NPR 2018, 23). The Trump Administration’s 2018 NPR reflects continuity of the 2010 posture, but has expanded “extreme circumstances” to include non-nuclear attacks against the US and allies, in addition to supplementing the arsenal with lower-yield (i.e. usable for warfighting) nuclear weapons (Pifer 2020). This broadening of the role of nuclear weapons reinforces ambiguity. Although it seems logical that nuclear states would be explicit with their intentions about nuclear weapon use in various scenarios, it serves US interests to be ambiguous, as per the logic of “the threat that leaves something to chance” described by Thomas Schelling (1960, 188, 193). This approach allows the US to “manipulate risk” and keep its adversary uncertain enough not to test America’s willingness to cross the threshold if pushed (Schelling 1966, 93).

Russia’s nuclear weapons policy appears in its military doctrine, which explicitly states that Russia would employ nuclear weapons to respond to the use of nuclear weapons and other WMD, aggression against the Russian Federation, and conventional forces that threaten the existence of the Russian state (Embassy of the Russian Federation 2014). Russia maintained a pledge of No First Use from 1982 to 1993, then abandoned this policy in military doctrine (Panda 2018). There remains some debate about the role of nuclear weapons in Russia’s national security strategy today, particularly when it comes to regional security. Some analysts claim that this debate results from Western perspectives on how Russia would deploy its nuclear forces. Certain Western perspectives contrast with what is explicitly stated in Russian strategy. One issue of debate is whether Russia has an ‘escalate to de-escalate’ doctrine in which Russia would prevail in a conventional conflict against a superior military force (read: NATO) by detonating a tactical (low-yield) nuclear weapon in the battlefield, in order to force the US to move down the escalation ladder. However, non-Western analysts have argued Russia’s intention to lower the nuclear threshold in a conflict is “far

from convincing” (Oliker 2016, 2).<sup>14</sup> Nevertheless, Russia is concerned that US strategic superiority will threaten its strategic interests in its near abroad (Eastern Europe, Middle East, and the Arctic).

### **Destabilizing Weapons Systems**

In addition to NATO enlargement starting in the 1990s, it can be argued that the US abrogation of the ABM Treaty in 2002, and the US pursuit of the New Triad with a greater emphasis on offensive/denial capabilities, constitutes a significant turning point in the deterioration of US-Russia relations. Key capabilities that threaten strategic instability, and thus arms control, include expanded missile defences, longer-range cruise missiles, hypersonic vehicles, enhanced ISR, and tactical nuclear weapons. This section will address these key capabilities and explore them in greater depth.

Offensive denial systems pose significant challenges to strategic stability, resulting in innovative counter-measures against the others, namely: 1) standoff capabilities posed by long range cruise missiles (like America’s new long-range standoff weapon (LRSO) or Russia’s attempt to create a nuclear-powered hypersonic cruise missile) that provides a first strike advantage; 2) invulnerability by negating second-strike through expanded missile defences and enhanced ISR allowing for improved early warning detection and ability to intercept incoming nuclear weapons; 3) capabilities to defeat missile defences by evading detection and interception (such as the maneuverability of hypersonic vehicles); and 4) asymmetric advantage in knowledge of the other side’s capabilities on land, sea, and in the air (or airbases). Enhanced ISR provides information on platform location, warhead numbers, and possible vulnerabilities of weapon systems.

Missile Defences are tasked with the detection, classification, tracking, discrimination, fire control, diversion, interception, and kill assessment of incoming missiles (CSIS 2020). The US operates a series of systems in multiple geographic regions: defence of the homeland, and defence of deployed US forces and allies in the European, Asia-Pacific, and Middle East geopolitical regions. The current system is comprised of an integrated layered architecture to counter short, medium, intermediate, and long-range ballistic missiles, bombers, air-launched cruise missiles (ALCMs), and sea-launched cruise missiles (SLCMs). These are deployed in the US and abroad through the Homeland (National) Missile Defence system which is comprised of an advanced network of sensors, space-based, and infra-red systems – land and sea-based radars to support Ground-Based Midcourse Defence, with plans to add 20 next generation ground-based interceptors in Alaska for a total of 64 and to build a new missile field at Fort Greely, Alaska (Vergun 2019). New layered concepts being considered for homeland defence include the integration of the Terminal High Altitude Air Defence (THAAD), Patriot Advanced Capability-3 (PAC-3), and Aegis systems (midcourse). Additionally, theatre missile defences include the Phased Adaptive Approach in Europe with deployed Aegis systems at sea and on land (employing Standard Missile-3 (SM-3) interceptors in Poland and Romania). Plans for defending deployed forces include enhancing the Aegis ballistic missile defense system by procuring SM-3 Block IB and IIA missiles and integrating the AN/SPY-6 radar (Air and Missile Defence Radar). Plans also include procuring

---

<sup>14</sup> Oliker states that “the combination of what states write, what they say, what they exercise, and what they build should provide a good sense of their actual policy” (2016, 2).

additional Terminal High-Altitude Area Defense interceptors, Patriot interceptors, and the Army Indirect Fire Protection Capability C2 system. Similarly, in preparation for emerging threats, plans for upgrading missile defences include additional space-based sensors (Vergun 2019).

New concepts beyond Ballistic Missile Defence (BMD) are being developed and promoted by Strategic Command, Missile Defence Agency, Northern Command, and possibly part of NORAD renewal, to confront new capabilities such as advanced ballistic missiles, cruise missiles, and hypersonic vehicles. These new concepts involve what has been described as “a holistic continuum of offensive and defensive warfighting integration” involving kinetic and non-kinetic means of eliminating threats before they launch.<sup>15</sup> This system involves a global network of sensors, including space-based sensor architecture that can provide persistent tracking and discrimination, all-source intelligence, and integrated fires for both left and right of launch (Judson 2019).

There is a new emphasis on left of launch (attack operations) (2019 MDR), which can involve non-kinetic means of interrupting or sabotaging missile development programs or individual missile before launch. Options for achieving these goals through cyber or electronic attacks are being considered (Judson 2019).

New generation cruise missiles can maintain a cruise trajectory at low altitudes, which makes them difficult to detect by radars and early warning systems, and difficult to target. New advanced cruise missiles include standoff capabilities, namely longer ranges, that allow them to be launched from out of area. This allows the platform to be protected from air defences and bypass missile defence systems, creating an advantage for the state deploying the capability. Both Russia and the US are pursuing advanced cruise missile technologies with standoff capabilities, such as the US AGM-154 Standoff Weapon (Mizokami 2019).

Hypersonic weapons fly at speeds above Mach 5. There is debate among strategic and technical analysts whether hypersonic vehicles are game-changers in the strategic balance. The re-entry vehicles of ICBMs travel at hypersonic velocities to their targets, but hypersonic vehicles offer additional advantages. There are two types of hypersonic vehicles: hypersonic glide vehicles (HGVs), and hypersonic cruise missiles. Hypersonic cruise missiles provide high-speed, air-breathing engines (or scramjets), after target acquisition, and are most likely air-launched. Unlike ICBMs, hypersonic vehicles do not follow a ballistic trajectory, but maneuver *en route* to the target (Saylor 2019). Hypersonic vehicles’ advantage is in speed and maneuverability, which reduces a target state’s reaction time as the weapons “compress time/speed/distance relationships while also flying at high altitudes” (Cummings 2019). Hypersonic glide vehicles have just entered operational military forces in Russia, which fielded the Avangard HGV on the Stiletto ICBM, until the new Sarmat ICBM is ready to be fielded.

Asymmetric ISR can be destabilizing and can intensify the security dilemma, inciting adversaries to seek countermeasure to disable systems intended to track their nuclear forces and target C4I (command, control, communications, computers, intelligence). Information-gathering capabilities, including new technologies, could enhance a state’s ability to track an opponent’s mobile nuclear forces and the corresponding countermeasures being deployed (Long and Green 2015). New

---

<sup>15</sup> Statements made by US Strategic Command’s deputy commander, MGen Rick Evans, at the Space and Missile Defense Symposium on August 6, 2019 (Judson 2019).

capabilities include satellites, radars, advanced information processing systems, in which artificial intelligence may have a role (Acton 2020; Hersman, Stadler, and Arias 2019).

The development and deployment of offensive systems accelerates the arms race. Russia is attempting to close the gap and restore deterrence or parity through asymmetric means. This causes the US to pursue new deterrence concepts and capabilities in attempts to close the new gaps created by Russian developments. The situation is further complicated by the integration of new domains into systems, including the ‘entanglement’ of nuclear and conventional systems in the nuclear architecture, which creates uncertainty in distinguishing conventional from nuclear warheads. Entanglement includes the integration of C2 systems with nuclear architecture (as observed in China), in addition to unintended challenges posed by cyber and space domains and their vulnerability to countermeasures. Regarding the latter, the US is vulnerable in the space and cyber domains, on which it is reliant on space surveillance, communications, and precision navigation. Space assets are vulnerable to both anti-satellite weapons (ASATs) and potentially to cyber-hacking, which the US counters with hypersonic weapons providing a rapid strike capability to disable command uplinks to ASAT weapons before they achieve their effect (Cummings 2019). The spiraling of arms races in multiple domains, including conventional counterforce alternatives being entangled into the architecture, risk miscalculation and nuclear escalation.

A recent report by Russia’s National Research University indicates that Russian analysts view the current situation as posing a low risk of premeditated war, especially nuclear war between the nuclear powers (Karaganov and Suslov 2019).<sup>16</sup> However, it does pose a higher risk of *unintended military conflict* that could possibly escalate to nuclear war. Given the complexities of the current context, the state of strategic stability is more complex and less manageable than during the Cold War.

### **What Does This Mean for Arms Control?**

The future of arms control is challenged by the current conditions of an intensifying nuclear security dilemma between the US and Russia. The US-Russian relationship had already begun to unravel after the 1990s NATO expansion, intervention in Kosovo, and particularly the withdrawal from the ABM Treaty in 2002. Relations started to improve under the Obama Administration due to concessions made to Russia involving non-deployment of missile defence interceptors in Czech Republic and Romania. These positive relations involving a ‘reset’ with Russia led to negotiating New START in 2010. However, Russia’s activities in Crimea and Eastern Ukraine and the US/NATO’s response determined the decline of US-Russian relations, affecting the future of arms control. The INF Treaty ended because of mutual mistrust between US and Russia - both thought the other was fielding a system that violated the treaty and posed a regional threat. Russia deployed the 9M729 (SSC-8) intermediate-range ground-launched cruise missile and the US established Aegis Ashore and at sea to defend its allies and deployed forces in Europe. The US ended its cooperation in the Open Skies multilateral treaty due to concerns that Russia restricted overflights of Kaliningrad and parts of Georgia to conceal its military activities in those regions. The US leadership’s attitude indicates a failure of confidence in the benefits of arms control as

---

<sup>16</sup> This report explicitly mentions the support of the Russian Foreign Ministry, State Duma, and Council on Foreign and Defence Policy (Karaganov and Suslov 2019).

demonstrated by its withdrawal from the Joint Comprehensive Plan of Action Iran Nuclear Deal (P5+1). These behaviours set a negative precedent for the future of arms control and raise concerns about the future of New START beyond February 2021. Dialogue and transparency will be essential in communication between Washington and Moscow to address intentions and misperceptions that feed into the security dilemma.

### **Recommendations and Challenges**

This is the key time for taking pragmatic steps in the dialogue to re-negotiate New START and perhaps consider restoring the INF Treaty. Bilateral talks between US and Russian officials have been underway in recent years, such as Helsinki Sept 2017; the cancelled March 2018 meeting in Vienna, which restarted in June 2020, and more recent discussions in October 2020 to extend the treaty for one year. Progress remains to be seen.

There are options to be considered in maintaining current, and negotiating new, arms control to restore transparency and predictability that reinforces strategic stability. In exploring these options, the question of what a post-New START world would look like should be considered. Should it be allowed to expire and a new regime negotiated? Should it be renewed and with what kind of changes? Should there be a temporary expansion, from one to five years, to allow time to negotiate a more comprehensive treaty? Should New START be expanded to include third parties (such as China)?

Recently, analysts have explored ideas for incorporating emerging technologies that are perceived as problematic and destabilizing. However, strategic stability between the US and Russia will have to address the following: 1) Hypersonic and cruise missile technology: what measures could be explored to limit types of hypersonic and advanced cruise missiles that threaten missile defences? Limitations could include banning test flights of hypersonic vehicles. 2) Limitations on missile defences: to restore mutual deterrence both sides would need to allow some targets to be vulnerable. This requires considering what ranges of ballistic missiles should be included in limitations. Perhaps this option requires negotiating a new kind of missile defence treaty (a new ABM that extends to limit threatening passive defence concepts), or could be included in an established treaty like New START. 3) Limitations on enhanced ISR systems: this is a challenge because transparency relies on trust and other means of verifying capabilities, and competing states fear that one another will conceal cheating on arms control. Limiting asymmetric ISR capabilities that create advantages for one state but disadvantages the other state makes the case for restoring the Open Skies Treaty and other verification regimes to build trust. 4) Tactical nuclear weapons: tactical or theatre nuclear weapons are not addressed in New START, which creates a gap. The inclusion of tactical nuclear weapons in New START contributes to nuclear warhead reductions and may alleviate Western concerns about Russia's large stockpile of tactical nuclear warheads and its 'escalate to de-escalate' doctrine. 5) De-Alerting Nuclear Systems: this recommendation comes from a number of arms control analysts from organization such as Arms Control Association and Federation of American Scientists. They argue that the de-alerting of systems would reduce the risk of accident, miscalculation, and inadvertent launch otherwise posed by systems on 'hair-trigger alert' or 'launch on warning'.

The above options would encounter challenges in reception by American and Russian leadership. Considerations involve the role of politics in strategy and how to propose, negotiate, and implement any approach that might be perceived as making a concession, thus communicating weakness. The challenge is how to propose a concession without emboldening the other to aggressive action. The role of domestic variables also plays a significant role in the receptivity of including offensive nuclear deterrence systems in arms control. These variables include particular leadership styles that contribute to the failure of arms control cooperation and resurgence (such as Medvedev-Obama vs Putin-Trump), in addition to strategic advisors and commanders that oversee the nuclear arsenal and missile defences. Congressmen representing stakeholders in defence industries in their states may also have an impact on which capabilities are affected by new arms control agreements. Similar considerations must be part of the evaluation of Russian domestic politics. These considerations provide an avenue for further exploration of the issues, particularly in terms of the failure of leadership and forward-thinking when it comes to limiting and controlling the most dangerous weapons on the planet.

## **Conclusion**

This paper demonstrates how the provocative role of offensive systems, particularly the new-generation of faster and highly maneuverable vehicles oriented for deterrence-by-denial, negatively affects cooperation on arms control and creates conditions that lead to destabilizing arms races. The discussion outlines how nuclear and non-nuclear behaviour, including a chain of events and provocative behaviours, affect strategic relations between states. Particularly, this article is concerned with how Russia perceives US and NATO activity since the 1990s as obstructing its interests in restoring/expanding its sphere of influence in Eastern Europe (and more recently in the Arctic and Middle East). The strategic behaviour of the US contributed to deterioration of relations with Russia, particularly the modernization of the US nuclear arsenal for enhanced deterrence by denial systems involving the three legs, in addition to expanding Missile Defence and enhanced ISR. Russia's response to the vulnerabilities created by US offensive systems designed for denial has been to pursue asymmetric capabilities designed to defeat missile defences, targeting military assets, command, control, and communications (C3), critical infrastructure, and ISR. These behaviours intensify the nuclear security dilemma, which accelerates the arms race, resulting in the end of stability-enhancing arms control. The future of New START is in peril, although options for renewal may address multilateral partners, as well as new offensive technologies that are particularly destabilizing, such as hypersonic and cruise missiles, missile defences, and tactical nuclear weapons. These developments have implications for Canada, as an Arctic nation, close North American defence partner of the United States, and NATO ally. Will we see a change in Canada's defence and deterrence posture more in line with the US, possibly participating in missile defence? Will this result in Canada's shift away from actively promoting nuclear arms control, non-proliferation, and disarmament?



## REFERENCES

- Acton, James. 2020. *Is It a Nuke? Pre-Launch Ambiguity and Inadvertent Escalation*. Carnegie Endowment for International Peace. [https://carnegieendowment.org/files/Acton\\_NukeorNot\\_final.pdf](https://carnegieendowment.org/files/Acton_NukeorNot_final.pdf).
- \_\_\_\_\_. 2013. "Reclaiming Strategic Stability." In *Strategic Stability: Contending Interpretations*, edited by Elbridge Colby and Michael S. Gerson, 117-146. Carlisle, PA: US Army War College Press. [https://www.globalsecurity.org/military/library/report/2013/ssi\\_colby-gerson.htm](https://www.globalsecurity.org/military/library/report/2013/ssi_colby-gerson.htm).
- Adams, Karen Ruth. 2003/04. "Attack and Conquer: International Anarchy and the Offence-Defence-Deterrence Balance." *International Security* 28 (3): 45-83.
- Adamsky, Dmitry. 2018. "Strategic Stability and Cross-Domain Coercion: The Russia Approach to Information (Cyber) Warfare." In *The End of Strategic Stability? Nuclear Weapons and the Challenge of Regional Rivalries*, edited by Lawrence Rubin and Adam N. Stulberg, 149-173. Baltimore: ML: Project Muse.
- Averre, David. 2009. "From Pristina to Tskhinvali: The Legacy of Operation Allied Force in Russia's Relations with the West." *International Affairs* 85 (3): 575-591.
- Betts, Richard K. 1987. *Nuclear Blackmail and Nuclear Balance*. Washington, DC: Brookings Institution Press.
- Boese, Wade. 2002. "U.S. Withdraws from ABM Treaty; Global Response Muted." Arms Control Association, July/August 2002. <https://www.armscontrol.org/act/2002-07/news/us-withdraws-abm-treaty-global-response-muted>.
- Boulègue, Mathieu. 2018. "Russia's Vostok Exercises Were Both Serious Planning and a Show." Chatham House, 17 September 2018. <https://www.chathamhouse.org/expert/comment/russia-s-vostok-exercises-were-both-serious-planning-and-show>.
- Canadian Department of National Defence and the Canadian Armed Forces. 2017. *Strong Secure Engaged: Canada's Defence Policy*. Ottawa: Government of Canada.
- Canadian Naval Review. 2020. "The Canadian Surface Combatant: A Backdoor to Ballistic Missile Defence?" *Canadian Naval Review*, 17 May 2020. <https://www.navalreview.ca/2020/05/the-canadian-surface-combatant-a-backdoor-to-ballistic-missile-defence/>.
- Charron, Andrea, and James Fergusson 2018. "Beyond Modernization." In *North American Strategic Defence in the 21<sup>st</sup> Century: Security and Sovereignty in an Uncertain World*, edited by Christian Leuprecht, Joel J. Sokolsky, and Thomas Hughes, 141-148. Cham, Switzerland: Springer

- \_\_\_\_\_. 2017. "NORAD and the Evolution of North American Defence." Inside Policy – MacDonal-Laurier Institute, 14 May 2017. <https://www.macdonaldlaurier.ca/norad-and-the-evolution-of-north-american-defence-andrea-charron-and-james-fergusson-for-inside-policy/>.
- Colby, Elbridge. 2013. "Defining Strategic Stability: Reconciling Stability and Deterrence." In *Strategic Stability: Contending Interpretations*, edited by Elbridge Colby and Michael S. Gerson, 47-84. Carlisle, PA: US Army War College Press.
- Council on Foreign Relations. 2020. "Conflict in Ukraine." *Global Conflict Tracker*, 17 April 2020. <https://www.cfr.org/interactive/global-conflict-tracker/conflict/conflict-ukraine>.
- CRS for Congress. 2020. "Conventional Prompt Global Strike and Long Range Ballistic Missiles: Background and Issues." CRS, R41464, 14 February 2020. <https://crsreports.congress.gov/product/pdf/R/R41464>.
- CSIS. 2020. "Missile Defence 2020." Missile Threat, Center for Strategic and International Studies Missile Defence Project. <https://missilethreat.csis.org/evolution-homeland-missile-defense/>.
- Cummings, Alan. 2019. "Hypersonic Weapons: Tactical Uses and Strategic Goals." *War on the Rocks*, November 12, 2019. <https://warontherocks.com/2019/11/hypersonic-weapons-tactical-uses-and-strategic-goals/>.
- Department of National Defence and the Canadian Armed Forces. 2017. *Strong Secure Engaged: Canada's Defence Policy*. [dgpaapp.forces.gc.ca/en/canada-defence-policy/docs/canada-defence-policy-report.pdf](https://dgpaapp.forces.gc.ca/en/canada-defence-policy/docs/canada-defence-policy-report.pdf).
- Federation of American Scientists. 2018. 2018 Nuclear Posture Review Resources. <https://fas.org/issues/nuclear-weapons/nuclear-posture-review/#major-components-of-the-npr>.
- \_\_\_\_\_. 2002. "Excerpts of Classified Nuclear Posture Review." Nuclear Posture Review Report, 8 January 2002. <https://fas.org/wp-content/uploads/media/Excerpts-of-Classified-Nuclear-Posture-Review.pdf>.
- Giles, Keir. 2018. "Russia Hit Multiple Targets with Zapad 2017." Carnegie, 25 January 2018. <https://carnegieendowment.org/2018/01/25/russia-hit-multiple-targets-with-zapad-2017-pub-75278>.
- Gould, Joe, and Aaron Mehta. 2019. "US to Europe: Fix Open Skies Treaty or We Quit." *Defense News*, 21 November 2019. <https://www.defensenews.com/pentagon/2019/11/21/us-to-europe-fix-open-skies-treaty-or-we-quit/>.
- Hahn, Gordon M. 2018. "Broken Promise: NATO Expansion and the End of the Cold War." *Russian and Eurasian Politics*, 23 April 2018. <https://gordonhahn.com/2018/04/23/broken-promise-nato-expansion-and-the-end-of-the-cold-war-an-update/>.

- Hersman, Rebecca, Bernadette Stadler, and Lizamaria Arias. 2019. "When More is Actually Less? Situational Awareness, Emerging Technology, and Strategic Stability." *On the Radar*, 29 July 2019. <https://ontheradar.csis.org/analysis/overview/>.
- Herz, John H. 1964 (1951). *Political Realism and Political Idealism*. Chicago, IL: University of Chicago Press.
- \_\_\_\_\_. 1966 (1959). *International Politics in the Atomic Age*. New York: Columbia University Press.
- \_\_\_\_\_. 1950. "Idealist Internationalism and the Security Dilemma." *World Politics*, 2 (2): 157-180.
- Jackson, Nicole. 2018. "Canada, NATO, and Global Russia." *International Journal*, July: 317-325.
- \_\_\_\_\_. 2019. "Deterrence, Resilience, and Hybrid Wars." *Journal of Military and Strategic Studies* 19 (4): 104-125.
- Jervis, Robert. 1976. *Perception and Misperception in International Politics*. Princeton, NJ: Princeton University Press.
- \_\_\_\_\_. 1978. "Cooperation under the Security Dilemma." *World Politics* 30 (2): 167-214.
- Johnson, Dave. 2018. "VOSTOK 2018: Ten years of Russian strategic exercises and warfare preparation." NATO, 20 December 2018. <https://www.nato.int/docu/review/articles/2018/12/20/vostok-2018-ten-years-of-russian-strategic-exercises-and-warfare-preparation/index.html>.
- Judson, Jen. 2019. "Should the DoD Shift Focus Toward Passive Missile Defense?" *Defense News*, 6 August 2019. <https://www.defensenews.com/digital-show-dailies/smd/2019/08/06/should-the-dod-shift-focus-toward-passive-missile-defense/>.
- Karaganov, Sergei, and Dmitry Suslov. 2019. "The New Ways of Understanding and Ways to Strengthen Multilateral Strategic Stability." Russia's National Research University's Higher School of Economics, September 2019. [svop.ru/wp-content/uploads/2019/09/REPORT\\_Eng\\_1.pdf](http://svop.ru/wp-content/uploads/2019/09/REPORT_Eng_1.pdf).
- Kimball, Daryl. 2019. "The Open Skies Treaty at a Glance." *Arms Control Today*, October 2019. <https://www.armscontrol.org/factsheets/openskies>.
- Kimball, Daryl, and Kingston Reif. 2019. "The Intermediate-Range Nuclear Forces (INF) Treaty at a Glance." Arms Control Association, August 2019. <https://www.armscontrol.org/factsheets/INFtreaty>.
- King, Charles. 2008. "The Five-Day War: Managing Moscow After the Georgia Crisis." *Foreign Affairs*, November/December 2008. <https://www.foreignaffairs.com/articles/russia-fsu/2008-11-01/five-day-war>.

- Kristensen, Hans M. and Matt Korda. 2019. "Tactical Nuclear Weapons, 2019." *Bulletin of the Atomic Scientists* 75 (5): 252-261.
- Kristensen, Hans M., Robert S. Norris, and Ivan Oelrich. 2009. "From Counterforce to Minimal Deterrence: A New Nuclear Policy on the Path Toward Eliminating Nuclear Weapons." *Federation of American Scientists*, April 2009. [https://fas.org/nuke/norris/nuc\\_10042901a.pdf](https://fas.org/nuke/norris/nuc_10042901a.pdf).
- Kutchesfahani, Sara Z. 2020. "Here's What to Expect from Biden on Top Nuclear Weapons Issues." *Bulletin of the Atomic Scientists*, 9 November 2020. <https://thebulletin.org/2020/11/heres-what-to-expect-from-biden-on-top-nuclear-weapons-issues/>.
- Lieber, Kier A., and Daryl G. Press. 2006a. "The Rise of U.S. Nuclear Primacy." *Foreign Affairs*, Mar/Apr 2006. <http://www.foreignaffairs.com/articles/61508/keir-a-lieber-and-daryl-g-press/the-rise-of-us-nuclear-primacy>.
- \_\_\_\_\_. 2006b "The End of MAD? The Nuclear Dimension of U.S. Primacy." *International Security* 30 (4): 7-44.
- Long, Austin and Brendan Rittenhouse Green. 2015. "Stalking the Secure Second-Strike: Intelligence, Counterforce, and Nuclear Strategy." *Journal of Strategic Studies* 8 (1-2): 38-73.
- Marcus, Jonathan. 2020. "How Russia's Putin Became the Go-To Man in Syria." *BBC*, 5 March 2020. <https://www.bbc.com/news/world-europe-51733595>.
- Martin, Kimberly. 2017. "Reconsidering NATO Expansion: A Counterfactual Analysis of Russia and the West in the 1990s." *European Journal of International Security* 3 (2): 135-161.
- Masters, Jonathan. 2018. "NATO's Trident Juncture Exercises: What to Know." *Council on Foreign Relations*, 23 October 2018. <https://www.cfr.org/in-brief/natos-trident-juncture-exercises-what-know>.
- Matsaberidze, David. 2015. "Russia vs. EU/US through Georgia and Ukraine." *Connections* 14 (2): 78-86.
- McDonald, David. 2017. "The Syrian Crisis: A Geopolitical Analysis of Western Intervention in the Middle East." *Foreign Policy News*, 3 January 2017. <https://foreignpolicynews.org/2017/01/03/syrian-crisis-geopolitical-analysis-western-intervention-middle-east/>.
- Mizokami, Kyle. 2017. "America is Building a New, Stealthy Nuclear Cruise Missile." *Popular Mechanics*, 24 August, 2017. <https://www.popularmechanics.com/military/weapons/news/a27925/america-stealthy-nuclear-cruise-missile/>.

- National Security Archive. 2017. "NATO Expansion: What Gorbachev Heard." National Security Archive, George Washington University, 12 December 2017. <https://nsarchive.gwu.edu/briefing-book/russia-programs/2017-12-12/nato-expansion-what-gorbachev-heard-western-leaders-early>.
- NATO. 2020. "Relations with the Republic of North Macedonia." 30 March 2020. [https://www.nato.int/cps/en/natohq/topics\\_48830.htm](https://www.nato.int/cps/en/natohq/topics_48830.htm).
- \_\_\_\_\_. 2019. "Boosting NATO's Presence in the East and Southeast." 21 January 2019. [https://www.nato.int/cps/en/natohq/topics\\_136388.htm](https://www.nato.int/cps/en/natohq/topics_136388.htm).
- \_\_\_\_\_. 2018. "International observers visit exercise Trident Juncture 2018." 1 November 2018. [https://www.nato.int/cps/en/natohq/news\\_160033.htm](https://www.nato.int/cps/en/natohq/news_160033.htm).
- \_\_\_\_\_. 2016. "NATO Enlargement and Open Door." Fact Sheet, July 2016. [https://www.nato.int/nato\\_static\\_fl2014/assets/pdf/pdf\\_2016\\_07/20160627\\_1607-factsheet-enlargement-eng.pdf](https://www.nato.int/nato_static_fl2014/assets/pdf/pdf_2016_07/20160627_1607-factsheet-enlargement-eng.pdf).
- Nuclear Threat Initiative. 1972. *Treaty between the United States of America and the Union of Soviet Socialist Republics on the Limitation of Anti-Ballistic Missile Systems (ABM Treaty)*. Signed in Moscow 26 May 1972. [https://media.nti.org/documents/abm\\_treaty.pdf](https://media.nti.org/documents/abm_treaty.pdf).
- \_\_\_\_\_. 2011. *Treaty on the Limitation of Anti-Ballistic Missile Systems (ABM Treaty): Overview*. 26 October 2011. <https://www.nti.org/learn/treaties-and-regimes/treaty-limitation-anti-ballistic-missile-systems-abm-treaty/>.
- Oliker, Olga. 2016. "Russia's Nuclear Doctrine: What We Know, What We Don't, and What That Means." CSIS, May 2016. [https://csis-prod.s3.amazonaws.com/s3fs-public/publication/160504\\_Oliker\\_RussiasNuclearDoctrine\\_Web.pdf](https://csis-prod.s3.amazonaws.com/s3fs-public/publication/160504_Oliker_RussiasNuclearDoctrine_Web.pdf).
- O'Loughlin, John, and Gerard Toal. 2019. "The Crimea Conundrum: Legitimacy and Public Opinion After Annexation." *Eurasian Geography and Economics* 60 (1): 6-27.
- O'Shaughnessy, Terrence J., and Peter M. Fesler. 2020. "Hardening the Shield: A Credible Deterrent & Capable Defense for North America." Wilson Center, Canada Institute, September 2020. [https://www.wilsoncenter.org/sites/default/files/media/uploads/documents/Hardening%20the%20Shield\\_A%20Credible%20Deterrent%20%26%20Capable%20Defense%20for%20North%20America\\_EN.pdf](https://www.wilsoncenter.org/sites/default/files/media/uploads/documents/Hardening%20the%20Shield_A%20Credible%20Deterrent%20%26%20Capable%20Defense%20for%20North%20America_EN.pdf).
- Panda, Ankit. 2018. "No First Use and Nuclear Weapons." Council on Foreign Relations, 17 July 2018. <https://www.cfr.org/backgrounder/no-first-use-and-nuclear-weapons>.
- Pavlov, Andrey, and Anastasia Malygina. 2018. "The Russian Approach to Strategic Stability: Preserving a Classical Formula in a Turbulent World." In *The End of Strategic Stability? Nuclear Weapons and the Challenge of Regional Rivalries*, edited by Lawrence Rubin and Adam N. Stulberg, 41-65. Baltimore: ML: Project Muse.

- Persbo, Andreas. 2020. "Will the Trump Administration's Accusations Doom the Nuclear Test Ban Treaty?" *Bulletin of the Atomic Scientists*, 18 May 2020. <https://thebulletin.org/2020/05/will-the-trump-administrations-accusations-doom-the-nuclear-test-ban-treaty/>.
- Pifer, Steven. 2020. "Nuclear Weapons: It's Time for Sole Purpose." *National Interest*, 15 September 2020. <https://nationalinterest.org/feature/nuclear-weapons-it%E2%80%99s-time-sole-purpose-168968>.
- \_\_\_\_\_. 2014. "Did NATO Promise Not to Enlarge? Gorbachev Says 'No'." Brookings, 6 November 2014. <http://www.brookings.edu/blogs/up-front/posts/2014/11/06-nato-no-promise-enlarge-gorbachev-pifer>.
- Ragozin, Leonid. 2019. "Annexation of Crimea: A Masterclass in Political Manipulation." *Al Jazeera*, 16 March 2019. <https://www.aljazeera.com/indepth/opinion/annexation-crimea-masterclass-political-manipulation-190315174459207.html>.
- Reif, Kingston. 2019. "U.S. Reverses Course on Open Skies Treaty." *Arms Control Association*, October 2019. <https://www.armscontrol.org/act/2018-10/news/us-reverses-course-open-skies-treaty>.
- Reif, Kingston, and Shannon Bugos. 2019. "U.S. Considers Open Skies Treaty Withdrawal." *Arms Control Today*, November 2019. <https://www.armscontrol.org/act/2019-11/news/us-considers-open-skies-treaty-withdrawal>.
- Sayler, Kelley M. 2019. "Hypersonic Weapons: Background and Issues for Congress." CRS for Congress, R45811, 17 September 2019. <https://fas.org/sgp/crs/weapons/R45811.pdf>.
- Smith, Julianne. 2008. "The NATO-Russia Relationship: Defining Moment or Deja-Vu?" *Politique étrangère* 4, Winter. [https://www.cairn-int.info/article-E\\_PE\\_084\\_0759--the-nato-russia-relationship-defining.htm](https://www.cairn-int.info/article-E_PE_084_0759--the-nato-russia-relationship-defining.htm).
- Snyder, Christian. 2017. "Analysis: How a 1999 NATO Operation Turned Russia Against the West." *The Pitt News*, 7 September 2017. <https://pittnews.com/article/121917/opinions/analysis-1999-nato-operation-turned-russia-west/>.
- Spindel, Jennifer. 2019. "What Turkey's Purchase of a Russian Air Defense Means for the U.S. and NATO." *Washington Post*, 23 July 2019. <https://www.washingtonpost.com/politics/2019/07/23/what-turkeys-s-purchase-means-us-nato/>.
- Teeple, Nancy Jane. 2017. *Arms Control on the Eve of Destruction: The Prospects for an Arctic Nuclear Weapon-Free Zone in an Age of Counterforce Dominance*. PhD Dissertation. Political Science, Simon Fraser University.

- United States Department of Defense. 2018. "Nuclear Posture Review." February 2018. <https://media.defense.gov/2018/Feb/02/2001872886/-1/-1/1/2018-NUCLEAR-POSTURE-REVIEW-FINAL-REPORT.PDF>.
- US Department of State. 2017. *2017 Report on Adherence to and Compliance With Arms Control, Nonproliferation, and Disarmament Agreements and Commitments*. Bureau of Arms Control, Verification, and Compliance. <https://www.state.gov/2017-report-on-adherence-to-and-compliance-with-arms-control-nonproliferation-and-disarmament-agreements-and-commitments/#INF2>.
- US White House. 2013. "Nuclear Weapons Employment Strategy of the United States." Fact Sheet, 19 June 2013. <https://obamawhitehouse.archives.gov/the-press-office/2013/06/19/fact-sheet-nuclear-weapons-employment-strategy-united-states>.
- Vergun, David. 2019. "Defense of U.S. is Top Priority for Missile Defense, DoD Leader Says." US Department of State Defense, 3 April 2019. <https://www.defense.gov/Explore/News/Article/Article/1805051/defense-of-us-is-top-priority-for-missile-defense-dod-leader-says/>.
- Van Evera, Stephen. 1999. *Causes of War: Power and the Roots of Conflict*. Princeton, NJ: Princeton University Press.
- \_\_\_\_\_. 1998. "Offense, Defense, and the Causes of War." *International Security* 22 (4): 5-43.
- Welt, Cory. 2019. "Ukraine: Background, Conflict with Russia, and U.S. Policy." CRS for Congress, R45008, 19 September 2019. <https://fas.org/sgp/crs/row/R45008.pdf>.
- Woolf, Amy. 2002. "The Nuclear Posture Review: Overview and Emerging Issues." CRS for Congress, RS21133, 31 January 2002. <https://apps.dtic.mil/dtic/tr/fulltext/u2/a477933.pdf>.

Published by the Centre for European Studies at Carleton University, Ottawa, Canada

Available online at: <https://ojs.library.carleton.ca/index.php/CJERS/index>

The Canadian Journal of European and Russian Studies (CJERS – formerly Review of European and Russian Affairs) is an open-access electronic academic peer-reviewed journal: articles are subject to double-blind peer-review. Topics relate to the European Union, its Member States, the former Soviet Union, and Central and Eastern Europe. The journal is published by the Centre for European Studies, an associated unit of the Institute of European, Russian and Eurasian Studies at Carleton University.

CJERS aims to provide an accessible forum for the promotion and dissemination of high quality research and scholarship.

**Contact:**

Carleton University  
The Centre for European Studies  
1103 Dunton Tower  
1125 Colonel By Drive  
Ottawa, ON K1S 5B6  
Canada

Tel: +01 613 520-2600 ext. 3117; E-mail: [CJERS@carleton.ca](mailto:CJERS@carleton.ca)

**Creative Commons License**



<https://creativecommons.org/licenses/by-nc-nd/4.0/>

This Working Paper is licensed under a Creative Commons Attribution-Non-Commercial-No Derivs 4.0 Unported License (CC BY-NC-ND 4.0).

Articles appearing in this publication may be freely quoted and reproduced, provided the source is acknowledged. No use of this publication may be made for resale or other commercial purposes.

ISSN: 2562-8429

© 2019 The Author(s)