THE SIMONS FORUM




REPAIRING THE U.S.-NATO-RUSSIA RELATIONSHIP AND REDUCING THE RISKS OF THE USE OF NUCLEAR WEAPONS

VANCOUVER, BRITISH COLUMBIA, CANADA

27-28 SEPTEMBER 2018

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Report of the Conference and Forum convened by The Simons Foundation on behalf of Simon Fraser University's Morris J. Wosk Centre for Dialogue under the auspices of the SFU Simons Visiting Fellow in International Law and Human Security.

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Reagan and Gorbachev signing the INF Treaty. Wikimedia Commons, the free media repository.
Obama and Medvedev sign the New START Treaty. Official White House photo by Chuck Kennedy

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PREFACE

Jennifer Allen Simons
President, The Simons Foundation and Senior Fellow, Simon Fraser University's Morris J. Wosk Centre for Dialogue

The predominant concern of The Simons Foundation is nuclear disarmament, although we also have programs in Arctic Security; Space and Cyber Security; Disarmament Education; and International Law and Human Security, particularly the prevention of genocide (See the report of The Simons Forum 2017 "The Responsibility to Protect: Re-energizing the Key Players").

In 2018 The Simons Forum focused on repairing the U.S.-NATO-Russia relationship and reducing the risks of the use of nuclear weapons. The Forum brought together former military personnel, arms control negotiators, scholars, non-governmental organizations and government officials seeking to evaluate and remedy the deteriorating relations between these key powers, which we fear could further a deadly arms

race and, either deliberately or inadvertently, lead to a nuclear confrontation. The Forum sought avenues to defuse tensions and repair relationships so that the U.S. and Russia can attain a measure of their earlier détente, not engage in nuclear war – and resume bilateral cuts to their nuclear weapons through the extension of the new START Treaty.

If only NATO, with its three core tasks – collective defense, crisis management, and cooperative security, had disbanded when the Warsaw Pact did, it might have empowered the Organization for Security and Co-operation in Europe (OSCE), which could have provided cooperative security and crisis management from Vancouver to Vladivostok and precluded many of the elements of the problems we are facing today.

The 2018 Simons Forum drew on the expertise of many of the leaders of Global Zero, and its Nuclear Crisis Group, particularly the insights and experiences of Dr. Bruce Blair, co-founder of Global Zero and Jon Wolfstahl, Director of the Nuclear Crisis Group. Together they wrote the Conference Framework Statement, identified potential invitees, chaired, led panels and crafted the closing consensus document, which Dr. Blair then took to Ottawa to brief the Canadian Government. For this and all of their other work to prevent nuclear war, I am profoundly grateful.

The following report captures the key themes discussed and identifies the actions that may lead us forward on these issues.

Jennifer Allen Simons
October 2018

THE SIMONS FORUM 2018 VANCOUVER STATEMENT

Acting in their personal capacity and not representing the positions of their organizations, participants at the 2018 Simons Forum agreed on the following consensus statement:

Political and military tensions among the countries of the Euro-Atlantic region are growing. Previous agreements that helped manage the nuclear and military competition among these states are fraying, and the states appear to no longer share a common definition about the necessary conditions for strategic and crisis stability. Military accidents and incidents could spark a conventional conflict. In the event of such a conflict, there is an unacceptably high risk of inadvertent or deliberate nuclear use.

This dramatic assessment – coming 25 years after the end of the Cold War – is discouraging. Since the end of the Cold War, leaders and officials in Russia, NATO and the U.S. invested considerable time, resources and effort to create stable and productive relations among the parties, and not without important and durable benefits. The current difficult state of affairs must not discourage us into inaction, but instead motivate all affected parties to pursue concrete steps to stabilize these complex relations and put in place agreements, norms and confidence-building measures that reduce the risk of conflict to the fullest extent possible. Such actions require both direct attention from national leaders and deliberate and sober work by top officials, experts and engaged citizens.

The causes for this current unstable state of affairs are many, and cannot be attributed to any one act or one state. Deliberate action, miscommunication, and conflicting priorities all have come into play.

One fundamental challenge is the lack of trust regarding the intentions and understanding about the desired end states of the major parties. The Russian Federation and its leadership appear fundamentally unsure about the intent of NATO, possible future enlargement as well as the intent of the U.S. regarding the future geo-political and strategic landscape in Europe. At the same time, the U.S. and many states in Europe are concerned that Russia no longer accepts the basic premises of the post WWII order, including respect for established borders,

the rule of law, and compliance with international agreements. European states are concerned both about Russian actions and intent, and about the commitment of the U.S. to European security and the NATO alliance.

The continued conflict in Ukraine and the failure of parties to fully implement the Minsk agreements is a continued challenge. That being said, the effort to avoid a return to "business as usual" must not prevent all parties from undertaking essential steps to avoid conflicts, especially those that could lead to direct military engagement. As is the case in Syria, it is possible for military to military links to be established even when other fundamental disagreements remain unresolved. There are elements of the bilateral and multilateral US-NATO-Russian relationships that are working, and these should be built upon and expanded. Building political space for engagement and cooperation is almost as important as the content of that cooperation. Insufficient use is being made of existing fora for security cooperation like the OSCE and the NATO-Russia Council. The need to create new instruments for multilateral security may arise if US-NATO-Russia engagement deepens.

All countries must reconfirm their intent to resolve any dispute purely through diplomatic and non-military means. The resort to military force, or support for military action through proxies, creates instability and uncertainty and spurs reflexive military steps that, even if defensive, can be seen as having offensive intent or capabilities. Provocative military actions that could be misinterpreted or lead to unintended conflicts should be avoided. All military exercises should be conducted in conformity with existing international agreements and under full transparency. In addition, military aircraft and ships should operate in ways that avoid, to the fullest extent possible, the risk for accidental encounters or provocation, and new agreements to cover potential incidents in the air and on land should be pursued. Reinforcing current and developing new specific steps to increase communication among military units and new norms of operation to avoid unplanned or potentially dangerous interactions among armed forces of different nations should be adopted.

Urgent action is required to avoid a dangerous and costly nuclear arms race between Russia and the U.S. As a priority, Russia and the U.S. should immediately and without preconditions extend the New START Treaty for a period of 5 years. This treaty is being faithfully implemented by all parties and remains a key pillar in avoiding conflict and enhancing trust and transparency. Failure to extend the agreement could lead to a further and unnecessary expansion of nuclear forces, and decreased transparency and predictability.

In addition, the Russian Federation and U.S. must both fully and faithfully implement the Intermediate Range Nuclear Forces (INF) Treaty and NATO members must make it clear that full implementation of the Treaty remains a bedrock of security. All parties must also take steps beyond the letter of the Treaty to ensure the durability of the agreement.

Russia should take all necessary steps to demonstrate to the U.S. and NATO that the 9M729 missile is fully compliant with the INF Treaty, or agree to take mutual steps to verify the number of systems produced and to come back into compliance with the INF Treaty. This may require producing versions of the missile for inspection and destructive analysis in the presence of American officials.

At the same time, the U.S. and its relevant NATO partners must demonstrate that the Aegis Ashore system is not capable of launching offensive missiles. This process could include transparency steps, with the agreement of all relevant parties, to verify the absence of Tomahawk missiles at Aegis Ashore sites, the existence of functionally related observable differences (FRODs) to the Mk-41 launcher that would render it physically incapable of launching Tomahawk missiles, or in the extreme case developing, building and installing a new single purpose launcher for the Aegis Ashore system incapable of launching Tomahawk missiles.

The U.S. and Russian Federation are currently in the longest period without sustained nuclear arms reduction or strategic stability talks since the Cuban Missile Crisis. The proposal to hold regular strategic stability talks was made in 2016, but only one such session has taken place. High level strategic stability talks should be convened on a regular basis and regular briefings to the parliaments of both countries should be conducted. Each should be free to raise issues of concern.

There also remains a need for the U.S. and Russia to better understand the impact of new technology and military programs on strategic relations and stability. The development of conventional, cyber, space-based, anti-satellite and other offensive technology could have significant implications for global security. A sustained discussion of these issues should seek to identify practical steps to reduce the risks that these developments pose.

The attendees also discussed the importance of all countries taking the necessary steps to ensure that Track 1.5 and Track 2 discussions can continue as a vital step in supplementing the lack of formal governmental engagement. Responding to the growing generation gap that exists in arms control expertise, special efforts should be made to include younger participants in these discussions. Ensuring the timely issuance of visas and permission to travel for such engagements is a critical requirement.

Simon Fraser University's Morris J. Wosk Centre for Dialogue, Asia Pacific Hall.
(SFU Image Library/Greg Ehlers)

INTRODUCTION

The 2018 Conference and Forum on Repairing the U.S.-NATO-Russia Relationship and Reducing the Risks of the Use of Nuclear Weapons, was convened by the Simons Foundation and Simon Fraser University's Morris J. Wosk Centre for Dialogue, under the auspices of The Simons Visiting Chair on International Law and Human Security. The Forum was held at Simon Fraser University (SFU) on September 27 and 28 and was preceded by a public dialogue on the evening of September 26, attended by over 150 people and facilitated by Shauna Sylvester, from the SFU Centre for Dialogue.

Dr. Bruce Blair, Research Scholar in Princeton University's Program on Science and Global Security and Co-Founder of Global Zero, chaired the Forum that brought together 28 former military, arms control negotiators, scholars, NGOs and government officials from Russia, the U.S., NATO and Canada.

The Conference Framework Statement identified the aim of the 2018 Simons Forum to evaluate the current situation and develop concrete steps to advance engagement and security among the key actors.

It examined:

- the deterioration of U.S.-Russia and NATO-Russia relations since the end of the Cold War;
- the risks and dangers of current tensions escalating to the level of nuclear confrontation;
- the role and impact of applicable treaties and agreements and impact on strategic and crisis stability;
- steps needed to restore trust, confidence and security cooperation, reduce the risks of escalation, and surmount the geopolitical and domestic political obstacles; and
- the roles of NATO countries in addition to the U.S., particularly Canada and civil society organizations and academics to help find common ground among the key actors.

The desire was to go beyond the current hand wringing that dominates the discourse, expand understanding of how the current situation developed and identify specific steps that could be taken to increase stability and engagement between the U.S., NATO and Russia.

The Forum was organized in a series of Panels with diverse leaders and discussants from Russia, the U.S. and NATO on each one. The Forum operated under The Chatham House Rule, so this report does not attribute statements to individuals unless they have explicitly given their permission to do so. Some contributed papers are incorporated into the text with the authors' permission. A list of participants is included in Appendix A with their permission.

Although this report is intended to provide readers with a summary of the discussions, it is also intended to serve an educational purpose for those who are less familiar with the subject of nuclear security – a briefing book of sorts, for officials, staff, students or journalists. Thus it includes an introduction to the historical context of current events on page 12 and treaties and a compendium of acronyms on page 68.

I am particularly grateful to Dr. Nancy Teeple for providing this contextual information. Those readers already familiar with the background are encouraged to go directly to the Overview of Strategic and Crisis Stability on page 20.

Dr. Nola Kate Seymoar,
Rapporteur

I. BACKGROUND: THE CONTEXT OF NUCLEAR SECURITY AND ARMS CONTROL (1962-2017)[1]

Nuclear arms control provides a framework for managing and reducing tensions in strategic relations among competing actors. Arms control treaties enhance stability by providing mutually agreed predictability and transparency achieved by each state's commitment to constraints on nuclear behaviour characterized by the size and character of nuclear deployments. From the Cold War to the current era the signing of arms control agreements and unilateral withdrawal from arms control created paradigm shifts in the trajectory of U.S.-Russia relations.[2]

Following the Cuban Missile Crisis of October 1962 a series of agreements including most importantly the 1968 Nuclear Non-Proliferation Treaty (NPT) were concluded.[3] This multilateral treaty was designed to prevent the spread of nuclear weapons, commit states with nuclear weapons to pursue disarmament and ensure global access to the peaceful uses of nuclear energy. It provided the framework for nuclear arms control and disarmament initiatives pursued bilaterally between the U.S. and Soviet Union. During the period of détente (beginning in 1969) Nixon and Brezhnev engaged in Strategic Arms Limitation Talks (SALT I), which placed an interim ceiling on the number of strategic offensive nuclear arms, and in negotiations to limit missile defenses codified in the Anti-Ballistic Missile (ABM) Treaty also signed in 1972.[4] SALT II talks proceeded, but the completed treaty was never entered into force after the Soviet Union invaded Afghanistan in December 1979.[5] Nevertheless, the U.S. adhered to the terms of the agreement that had been signed in December 1979 until November 1986.

The risk of nuclear confrontation re-emerged during the Reagan Administration with the U.S. deployment of the Pershing II missiles in Western Germany,[6] the Soviet deployment of SS-20 missiles targeted at NATO, the Able Archer incident in 1983,[7] and the Strategic Defense Initiative[8] that threatened the underlying basis of strategic stability: mutual vulnerability. Concerned about the risks of miscalculation and nuclear escalation, Reagan and Gorbachev negotiated and signed the Intermediate Nuclear Forces (INF) Treaty in

1987, which banned both sides from having ground based missiles with ranges between 500 and 5500 kilometers, eliminating an entire class of nuclear launchers.[9] This foundational treaty paved the way for further reductions in strategic forces following the end of the Cold War in 1991.

Interest in going beyond imposing caps on growth to actually reducing strategic nuclear forces started in the 1980s, but took shape during the 1990s with the Strategic Arms Reduction Treaties (START) I and II. The immediate post-Cold War context was ripe for reducing strategic forces in line with the end of the Soviet Union and East-West tensions. START I was signed between George H. W. Bush and Mikhail Gorbachev in 1991 and saw significant reductions in deployed warheads and delivery vehicles, and implemented verification measures. Concern for controlling the spread of nuclear weapons – their materials and delivery systems – became a significant concern for post-Soviet era security cooperation and arms control. In 1993 George H.W. Bush and Boris Yeltsin pursued further reductions under START II,[10] which was signed in January of 1993, but ratification was delayed due to protocols involving ABM Treaty amendments. START III negotiations began in 1997 between Bill Clinton and Yeltsin for further reductions, but the process ended when the U.S. unilaterally withdrew from the ABM Treaty in 2002.

George W. Bush's decision to withdraw from the ABM Treaty was couched in terms that the U.S. homeland would be secured from the threat of Weapons of Mass Destruction (WMD) through comprehensive national missile defenses and modernization of the U.S. nuclear arsenal. Russia and China saw it as a move by the U.S. to achieve strategic advantage at the expense of the security of other nuclear powers.

The Strategic Offensive Reductions Treaty (SORT), also known as the Moscow Treaty, was signed by George W. and Vladimir Putin in May 2002, with the purpose of significantly limiting their nuclear arsenals to 1700-2200 warheads. It was set to expire on December 31, 2012. The treaty did not limit missiles or bombers, as it did not dictate how nuclear forces would be fielded, nor did it have provisions for assessing compliance.[11]

President Obama worked to replace the expiring START I Treaty and reset relations with Russia in 2009, and couched US-Russian efforts in a broader context to address the growing concern about global proliferation and nuclear dangers. In his famous Prague speech in April 2009, he proposed a world without nuclear weapons, promoting global nuclear security and upholding commitment to the NPT:

President George Bush and General Secretary of the Communist Party of the Soviet Union, Mikhail Gorbachev sign the START I Agreement for the mutual elimination of the two countries' strategic nuclear weapons, 31 July 1991. (Wiki Commons)

> *So today, I state clearly and with conviction America's commitment to seek the peace and security of a world without nuclear weapons. I'm not naive. This goal will not be reached quickly – perhaps not in my lifetime. It will take patience and persistence. But now we, too, must ignore the voices who tell us that the world cannot change. We have to insist, 'Yes, we can.'*[12]

In April 2010, in cooperation with Russian President Dmitri Medvedev, the U.S. and Russia signed New START.[13] This new arms control agreement put significant caps on strategic nuclear forces (1550 deployed warheads) and their delivery systems (700 deployed / 800 deployed and non-deployed), imposed deadlines for meeting these benchmarks (7 years from entry into force), and included a revised verification and transparency regime.[14] The Moscow Treaty ended when New START entered into force in February 2011. The deadlines were successfully met in February of 2018. New START is set to expire in early 2021, but can be extended by mutual agreement for a period of up to five years.

With the reset in relations between the U.S. and Russia and a new optimism in achieving strategic stability moving toward a world without nuclear weapons, President Obama proposed in Berlin in June 2013 to reduce deployed strategic nuclear forces by one-third below New START limits:

> *... today, I'm announcing additional steps forward. After a comprehensive review, I've determined that we can ensure the security of America and our allies, and maintain a strong and credible strategic deterrent, while reducing our deployed strategic nuclear weapons by up to one-third. And I intend to seek negotiated cuts with Russia to move beyond Cold War nuclear postures.*[15]

Russia was less receptive to reducing nuclear forces again by one-third, and instead sought to include other associated issues including US missile defenses and the development of advanced precision conventional systems in any future negotiation. Both states have faithfully implemented the reductions required under New START during this hiatus from strategic talks.

Relations significantly worsened, however, with the 2014 Russian annexation of Crimea and military intervention in the Donbas region of Ukraine. Relations between Russia and the U.S./NATO continued to deteriorate as the world responded with condemnation of the violation of the sovereign borders of Ukraine.[15] NATO military responses to both Russian actions in Ukraine and elsewhere included deploying forces in neighbouring member states to deter attack and demonstrate resolve to defend states vulnerable to the same action. This took place against the backdrop where the U.S. accused

Russia of violating the INF Treaty and Russia, in turn, made similar accusations against the U.S.. In November 2018 President Trump announced that the U.S. would soon withdraw from the INF Treaty citing Russia's non-compliance and concerns that other states, such as China, were not bound by the agreement.

As of December 2018, the U.S. had announced its intention to withdraw from the INF Treaty but had not given its required 6-month formal notification, and also had not decided whether to accept Putin's offer to extend New START for up to five years after its 2021 expiration.

President George H. W. Bush and Russian President Boris Yeltsin sign the Start II Treaty at a Ceremony in Vladimir Hall, The Kremlin in Moscow, Russia, 3 January 1993. (Wiki Commons)

ENDNOTES.

I.BACKGROUND: THE CONTEXT OF NUCLEAR SECURITY AND ARMS CONTROL (1962-2017)

1 This section of the report was contributed by Dr. Nancy Teeple.

2 See Kimball and Reif, U.S.-Russian Nuclear Arms Control Agreements at a Glance, 2017.

3 The Treaty was opened in 1968, and entered into force in 1970. It was extended indefinitely in May 1995.

4 Treaty Between the U.S. and the Union of Soviet Socialist Republics on the Limitations of Anti-Ballistic Missile Systems: ABM Treaty signed 1972 The ABM Treaty was followed by an Interim Agreement that provided further restrictions on ICBM and SLBM capabilities.

5 The Carter Administration promoted a provocative military buildup and support of human rights that interfered with domestic Soviet politics. This context impacted détente and the progress of bilateral arms control negotiations, particularly SALT II.

6 The Soviets feared that the missiles threatened command and control in Moscow.

7 Able Archer – November 2, 1983 NATO training exercise that simulated the command, control, and communications procedures for authorizing the release and employing U.S. nuclear weapons. The Soviets feared that this simulation was a prelude to an actual nuclear attack.

8 The ambitious "Star Wars" program involving a complex space-based missile defence system.

9 Treaty Between the U.S. and the Union of Soviet Socialist Republics on the Elimination of Their Intermediate-Range and Shorter-Range Missiles (INF Treaty), signed1987. The INF Treaty eliminated ballistic missiles and ground-launched cruise missiles with a range of 500-5500 km. This provided stability in the European theatre of Cold War confrontation.

10 START II was ratified by the U.S. in 1996. Russia ratified it in 2000.

11 Daryl Kimball and Kingston Reif, The Strategic Offensive Reduction Treaty (SORT) at a Glance, Arms Control Association, September 2006.

12 President Barack Obama, Speech in Prague, Czech Republic, April 5, 2009.

13 Also known as the Treaty between the U.S. and the Russian Federation on Measures for the Further Reduction and Limitation of Strategic Offensive Arms.

14 Concessions on the part of the Obama Administration that facilitated negotiations with Russia on New START include abandoning the long-range missile defence systems planned for Czech Republic and Poland, shifting to defend against short- and medium-range ballistic missiles potentially deployed by Iran. The previous plans posed a threat to Russia's nuclear arsenal.

15 The White House, Office of the Press Secretary, Remarks by President Obama at the Brandenburg Gate – Berlin, Germany, June 19, 2013.

II. THE CURRENT STATE OF PLAY

1. STRATEGIC STABILITY

Although there was concern at the Simons Forum that a common definition of strategic stability is lacking, the following definition was offered as one that should generate broad support:

Strategic Stability is the state of relations between nuclear powers during which there is no motivation to use nuclear weapons; no risk of inadvertent use; and no first use of nuclear weapons.

This definition is based on the common understanding during the Cold War that stable mutual deterrence exists when both sides possess reliable and survivable forces capable of inflicting unacceptable damage in response to an aggressor's attack.

There are significant differences in the current thinking about strategic stability – some argued to expand the list of actors (there are now nine nuclear-weapon states, although Russia and the U.S. have by far the biggest arsenals of nuclear weapons), and others argued that it would be appropriate to broaden the definition to include new technologies and capabilities including: cyber; artificial intelligence; space; conventional high precision weapons; missile defense systems; hypersonic vehicles; and non-strategic nuclear forces.

In the end it was proposed to move beyond the definition and instead focus on what mutual goals can be agreed upon, namely: 1) to prevent the deliberate use of nuclear weapons and 2) to prevent the inadvertent use of nuclear weapons. Nuclear weapons must be our primary concern because their use would have catastrophic consequences. "The war that can't be won and that must never be fought."

The Forum discussed the factors that negatively affect relationships between Russia, the U.S. and NATO. There has been:

- no movement to extend the New START Treaty;
- no progress on resolving disputes over the INF Treaty;
- no strategic security dialogues that have led to a common agenda;
- lack of expertise and experience among recent officials on both sides;
- no progress on either side to fulfill their obligations under Article 6 of the NPT

- declining attention to arms control;
- Russian use of chemical poisons in the UK and defense of their use in Syria;
- Russian interference in US elections in 2016 and 2018;
- military exercises that are not conducted under accepted norms and are provocative;
- stationing of permanent US armed forces in Poland and Romania (perceived by Russia as US colonies in Europe);
- NATO expansion or enlargement;
- lack of military-to-military dialogues and mechanisms;
- increase in the number of "incidents" between Russian, NATO and US forces.

These are among many factors that have led to polarized and often vitriolic views of America by Russians and of Russia by Americans. Mutual demonization has become persistent in their relations. In the U.S. the relationship with Russia has become a domestic political issue that allows very little political space for bipartisan efforts to mend it. Likewise, Russia uses the U.S. as an external threat to deflect attention from domestic issues. Enormous amounts of money and resources are being invested in new nuclear arms, raising the specter of a new arms race.

Forum participants concluded that we are at the lowest point in US – Russian relations since the end of the Cold War, and that the relationship in some respects is worse today than it was during the Cold War.

2. ASSESSING THE RISKS OF ESCALATION

In assessing the risks that these tensions could escalate into a military conflict with a nuclear dimension, the Forum discussed data from Global Zero regarding military incidents among nuclear-armed countries and their allies in Eastern Europe (Global Zero Military Incidents Study).

TRACKING MILITARY INCIDENTS: US/NATO-RUSSIA

- Global Zero tracks thirteen types of incidents; the most common are air incidents and military exercises.
- 653 total incidents involving Russia and the U.S./NATO were identified and analyzed from March 2014.

1410 WORLDWIDE INCIDENTS, MARCH 2014 TO AUGUST 2018

BLUE – Sea Incident
YELLOW – Air Incident
GREEN – Test (launch, prep)
GREY – Defence News (i.e. deployments)

BROWN – Military Exercise
RED – Border Clash
PINK – Missile Drill
STAR denotes a high-risk incident
DIAMOND denotes a provocative incident

REGIONAL FOCUS: AIR INCIDENTS IN THE BALTIC

58% of all air incidents analyzed involving Russia and the U.S./NATO occurred in the Baltic region. 53% of all "provocative incidents" involved air intercepts over the Baltic.

- In 2013 (before Russian annexation of Crimea): NATO intercepted Russian aircraft 43 times (Sharkov 2017);
- In 2014 NATO intercepted Russian aircraft 140 times (Tomkins 2016);
- In 2015 NATO fighters intercepted Russian aircraft 160 times – a 14% increase over 2014 (Tomkins 2016);
- In 2016 NATO fighters intercepted Russian aircraft 110 times (Sharkov 2017);
- And in 2017 NATO fighters intercepted Russian aircraft 130 times (Baltic Times, January 6 2018).

INCIDENTS ANALYZED IN THE BALTIC REGION FROM MARCH 2014-APRIL 2018. INCIDENT LOCATIONS ARE APPROXIMATIONS.

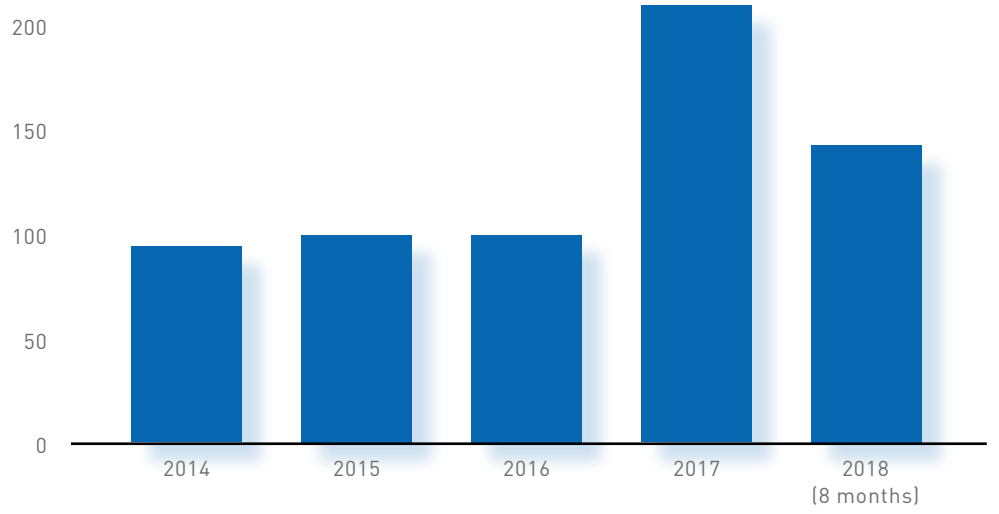
MILITARY INCIDENTS

- 2016-2017 shows a significant jump in the number of total incidents.
- 2018 incidents overall show an additional increase, with the majority of months tracked so far higher than both 2016 and 2017 levels.
- Two incidents were classified as "High-Risk" – these were incidents that greatly increased the possibility of an armed conflict, which could ultimately lead to a nuclear attack.

There was considerable discussion among participants over the definition of 'incidents' versus 'encounters' with some pleading for caution in the use of the term 'incidents'. The suggestion was made to confine 'incidents' to breaches of international law (air, territorial or sea) or rules (dangerous military activities agreement), collisions at sea between warship, use of laser and perhaps situations that are provocative in nature.

Regardless of the definition and its subjective nature, the overall trends were not questioned. The data revealed a disturbing picture of increasing numbers of low-level interactions between adversarial forces on land, sea and the air, and growing tolerance for risky behavior. Both

U.S./NATO AND RUSSIA: TOTAL MILITARY INCIDENTS PER YEAR
APRIL 2014 - AUGUST 2018



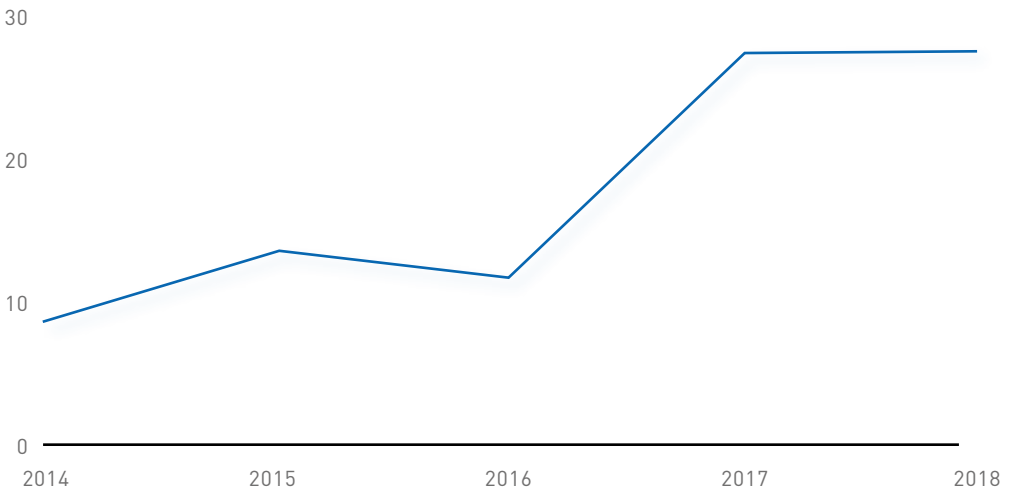
sides engaged in military activities that while regarded as "defensive" by one side could often be viewed as "offensive" and aggressive by the other.

Another disturbing trend stoking distrust and increasing the risk of sparking inadvertent military conflict involves the growing frequency and scale of military exercises close to the Russian borders.

TRENDS IN MILITARY EXERCISES TRENDS (THROUGH AUGUST 2018)

- Of the 91 exercises Global Zero tracked, 28 took place in the first 8 months of 2018, and another 28 took place in 2017.
- Russia's large annual exercises have grown in size beginning in 2015 - with all but the most recent, Zapad 2017, involving over a hundred thousand troops, according to NATO estimates.
- Russian officials have stated that this month's Vostok exercise would include up to 300,000 troops, though some analysts think 150,000 may be more accurate. And, for the first time, a few thousand Chinese troops would be part of the exercise.
- Exercises in Ukraine, Latvia, Estonia have reflected anxieties about the possibility of a Russian attack.

U.S./NATO AND RUSSIA: TOTAL MILITARY EXERCISES PER YEAR
APRIL 2014 - AUGUST 2018



- Black Sea incidents have also increased as Russia and the West keeps close watch on Ukraine.

Considerable attention was paid to the question of how to manage and decrease these risks. Suggestions included:

- making better use of existing fora for military-to-military dialogues (OSCE structured dialogues, NATO Russia Council);
- educating elites, Congress, the foreign policy community, media and the public about the risks posed by such exercises and their psychological impact;
- improving current rules on transparency and notification;
- creating a new joint agency for cooperative activities including exchanges of data;
- establishing a joint early warning center manned by U.S. and Russian military officers and tied to existing space infrared and ground radar sensors operated by both countries in order to provide near real-time information to reduce the risk of misinterpreting each side's missile launch activities;
- expanding this cooperation to clarify the actions and intentions of military warplanes.

2014 Baltic air intercept (NATO)

III. ISSUES AFFECTING STRATEGIC STABILITY

1. THE THREAT OF INADVERTENT USE OF NUCLEAR WEAPONS

Relations between U.S.-NATO-Russia (and China) on nuclear issues have created a cycle of action and reaction – a "security dilemma" – fueled by developments in weapons systems and doctrine that threaten, or are perceived to threaten, an opposing nation's nuclear forces, its nuclear Command, Control, Communications and Intelligence (C3I) systems, or both. First strike weapons are offensive weapons designed to launch a pre-emptive strike against another state's strategic and non-strategic nuclear forces and C3I systems to decimate the opponent's forces and decapitate its leadership. Such a warfighting strategy aims to deny the opponent the capability to launch a retaliatory strike. First strike weapons if effective would thus negate the logic of stability based on mutual deterrence. Their effectiveness could be boosted by weapons other than strategic offensive weapons – such as cyber weapons, accurate conventional forces and missile defenses capable of intercepting and destroying an opponent's few surviving second-strike weapons following a devastating first strike.

This security dilemma is thus a major source of instability, especially when tensions are running high and the threat of a nuclear first strike by the adversary is perceived to be real and imminent. Under such circumstances, a threatened state may be more inclined to launch a pre-emptive strike, or to respond hastily to indications that the adversary's missiles are already in flight. These conditions, in conjunction with nuclear missiles on hair-trigger alert and poised for immediate launch on warning of incoming warheads, shrink the amount of allowable decision time, quite possibly down to a few minutes, and can thus lead to nuclear miscalculation and inadvertent launch.

In the view of many Forum participants, the risk of deliberate cold-blooded nuclear strikes from either the U.S. or Russia is low, but the risk of inadvertent nuclear conflict, perhaps triggered by a false alarm, is unacceptably high.

Participants noted that these Cold War concerns continue to exist, and have grown worse in recent years. The early warning hubs in Colorado and Omaha are more active than ever. Over the past 10 years, due to missile proliferation around

the world and other new technologies such as hypersonic glide vehicles, these hubs have to assess potential attack indications several times each day. While false alarms of nuclear first strike during the Cold War never rose to the level of presidential notification, ambiguous nuclear ballistic missile threats have grown commonplace in recent years and resulted on numerous occasions in the notification of U.S. presidents in real time, and in the activation of the nuclear launch protocol involving the president and his key advisors. Russia has also experienced growing numbers of false alarms caused by the proliferation of nuclear-capable missiles around the world. In short, the current missile threat environment has produced a higher risk of inadvertent nuclear use today.

Several factors that increase the risk of triggering a nuclear engagement are worth elaborating:

- Reading the actions of the other side as a provocation. For example when the U.S. deployed Aegis destroyers to the Black Sea, intending to give reassurance to Romania, it brought the possibility of US cruise missiles reaching Moscow. Russia perceived this conventional capability as posing a decapitation threat to Russia's C3I network, and doubled the number of nuclear attack submarines in the area in order to put the U.S. destroyers at risk; the U.S. then increased its anti submarine air patrols. In the absence of regular channels to discuss issues, situations such as these can escalate quickly.

- Miscalculations based on inadequate or false data – early warning systems cannot always be trusted and the time to decide to launch in response is often too short to allow for reasonable and accurate assessments of the situation.

- Intent to destabilize. Interference – real or perceived – in the elections of other countries, or their leadership regime, has the effect of making nuclear threat a domestic political issue as well as a foreign policy issue. This leads to demonization and the creation of an "enemy" mentality which works to narrow or eliminate the ability of leaders to defuse the situation or negotiate agreements that bolster stability.

- Escalation from a conventional conflict to a nuclear war (see next section).

- Terrorist organizations gaining access to weapons of mass destruction.[1] The primary concern is about terrorists detonating an atomic bomb with an explosive yield of 15-20 kilotons – the power of the Hiroshima and Nagasaki bombs – a radiological device

(a "dirty bomb") in an urban setting. Such an event could alter the fabric of Western civilization and weaken democratic institutions and civil rights.

- Cyber terrorism and cyber attacks directed against the critical civilian infrastructure of a nation, which in the worst case could paralyze financial institutions, energy grids, communications and other vital functions of society. Such attacks could lead to nuclear responses against the aggressor. Cyber warfare could also severely degrade nuclear C3I and derange the nuclear decision-making process. The danger of miscalculation and launch on false warning could grow. Cyber attacks have the potential to trigger devastation on a scale equal to chemical and biological attacks – whether promoted by a state or terrorist entity.

- The "bubble" of self-contained and self-reinforcing worldviews within the U.S. and Russia that emerge in an environment devoid of dialogue and rife with threat and hatred.

All of the above factors heighten the risk of nuclear weapon use.

2. NEW TECHNOLOGIES, NUCLEAR MODERNIZATION, POLITICAL DEVELOPMENTS

Russia is in the midst of a vast modernization program to replace its aging strategic and non-strategic nuclear forces left over at the end of the Cold War. Russia's investment in its new arsenal over the past 10 years has equaled about $500 billion, which is roughly one-third of the nation's annual GDP. The U.S. nuclear arsenal composed of strategic bombers, land-based missiles and submarines has been steadily upgraded over this same period, but wholesale modernization of the arsenal is just beginning. These two overlapping modernization efforts have a life of their own but they also stimulate and compete with each other. The U.S. Nuclear Posture Reviews of the past three presidents have called for overhauling the U.S. strategic arsenal as well as a host of related programs such as conventional forces, new active and passive defences, command and control (C2), intelligence and planning and responsive infrastructure.[2]

Partly in response to U.S. nuclear programs as well as to U.S. conventional superiority, Russia and China have evolved military doctrines that pursue asymmetrical warfare methods such as designing attacks against both military and civilian C3I and critical infrastructure. Participants to the conference agree that these developments erode stability and portend escalation in a crisis or conflict.

Crisis stability is significantly influenced by perceptions – whether a state believes its nuclear forces are vulnerable. These fears, even if

misplaced, or outside of the Euro Atlantic region, could spark inadvertent escalation.

It was argued at the Forum that technological developments are increasing the likelihood of a conventional conflict inadvertently escalating into a nuclear war.[3] The most important of these developments concern five types of emerging, new or rapidly developing non-nuclear military technologies, which are increasing "entanglement" between the nuclear and nonnuclear domains:

- information-gathering technologies, including cyber espionage tools and remote sensing technologies (such as micro satellites), that could enhance a state's ability to track an opponent's mobile nuclear forces and the corresponding countermeasures being developed;
- information-processing systems, including artificial intelligence, which could be used to process the potentially vast quantities of data collected by new information-gathering technologies;
- nonnuclear offensive weapons, including high-precision conventional munitions, anti-satellite capabilities, and cyber weapons, that could be used to threaten an opponent's nuclear forces before launch or its command, control, communication, and intelligence (C3I) infrastructure;
- nonnuclear air and missile defenses that could intercept nuclear weapons after launch;
- dual-use delivery systems, which can accommodate nuclear or nonnuclear warheads, nuclear delivery systems that are superficially similar to nonnuclear systems, and dual-use C3I capabilities, all of which blur the distinction between nuclear and nonnuclear assets.

It was suggested that one risk associated with growing entanglement – escalation triggered by the vulnerability of nuclear forces to attack – has been partially exaggerated. By contrast, a second risk – escalation resulting from threats to nuclear C3I (command, control, communications and intelligence) capabilities – is much more serious than widely recognized. These risks include nonnuclear weapons that pose a threat to C3I assets,[4] space based C3I assets that are vulnerable to anti-satellite weapons, and high precision conventional weapons that pose risks to ground based systems such as radar and communications transmitters.

Panelists debated the effect of new technology on strategic stability. Participants noted that many systems actually deployed had negligible capabilities, but future deployments might be quite effective. The issue of missile defence featured prominently in discussion regarding its political significance and actual threat.

The deployment of a theatre missile defence system in Europe (Poland and Romania) – the Aegis Ashore system – continues to pose a problem for Russia-NATO relations. The maritime and land Aegis systems are supposedly intended to negate Iranian ballistic missiles in development; however, Russia views the system as targeted against it, which is not unfounded in that U.S. missile defenses in Europe can be readily directed against Russia's short- and intermediate-range missiles, though not Russia's intercontinental strategic missiles. Some panelists noted that BMD (Ballistic Missile Defence) does not actually pose a serious threat to Russian strategic forces. Russia also stated that BMD is not capable of nullifying Russia's strategic deterrent. The question is how problematic BMD really is, whether it is primarily a political issue, rather than a legitimate threat. As one delegate stated: "[Putin said] Russian strategic missiles are capable to penetrate any – even the most sophisticated missile defense." It doesn't mean that the question is off the table because our politicians and military constantly mention the threat posed by US missile defense. The uncertainties of future unconstrained missile defenses are genuinely problematic, however, and provide a rationale for striking first. It was suggested that we needed to diminish the significance of missile defence in strategic discussions.

Cruise missile technology and hypersonic glide vehicles can penetrate air and missile defenses – a concern for all. Glide vehicles can outperform cruise missiles in this task with bigger payloads at much faster speeds and reach higher ranges without requiring refueling. Long-range cruise missiles pose a real problem for NATO and Russia.

Proliferation of delivery technology, particularly ballistic missile capabilities by rogue states such as North Korea and Iran and intermediate range ballistic missile developments by China, is a growing challenge for all states, nuclear and non-nuclear alike.

Russia's employment of hybrid warfare was a subject of some discussion at the Forum. One group argued that Russia is "not sure what you mean" by the concept hybrid warfare. The concept itself is ambiguous and there is not yet an agreed definition of it, but it is commonly understood as the employment of multiple forms of warfare at the same time, including kinetic and non-kinetic capabilities that incorporate the cyber and information domain. It includes information warfare meant to influence public opinion, and may go so far as to directly interfere in the domestic politics of another nation. Hybrid tools used in so-called "grey zone" strategies have blurry boundaries that feature information operations, cyber, proxies, economic influence, clandestine measures and political interference targeting elections in Europe and the U.S. as well as

Aug. 29, 2017, Kauai, Hawaii. A medium-range ballistic missile target is launched from the Pacific Missile Range Facility (U.S. Navy photo/Latonja Martin).

targeting the Balkans, Central Europe and Baltic states, Ukraine and other areas.[5]

These asymmetric approaches pose an innovative threat for the 21st century, requiring U.S. and NATO responses to defend against the undermining of the Western liberal order. Russia denies using hybrid warfare, making dialogue on pursuing strategic stability difficult. As one participant noted "How can you stop what you are not doing?"

POLITICAL DEVELOPMENTS

American nuclear modernization programs, established under George W. Bush and continued under President Obama remain in place, although programs under Obama emphasized conventional alternatives in conjunction with reducing deployed nuclear warheads. The priority of nuclear programs has increased during the Trump Administration in conjunction with rhetoric of U.S. nuclear superiority and a Nuclear Posture Review in early 2018 that elevated the importance of nuclear weapons. It emphasized a need to modernize offensive U.S. nuclear forces and acquire new "low-yield" weapons, and included statements about pursuing military superiority in space.

From the Russian side, it was suggested that the political leadership is not engaged or interested in arms control. Russian leadership and the military at this time view arms control as a snare and illusion that Russians should avoid. This is problematic for the nuclear balance and any cooperation moving forward. There was agreement that there is a difference in values between the U.S. and Russia, but they must seek areas where they can work together. At the moment Russia does not trust U.S. leadership, particularly its principle arms control negotiator, National Security Advisor John Bolton, whom the Russians consider an unreliable partner with a long record of opposing or killing arms control agreements. Part of the issue is the interference of Russia in U.S. domestic politics, and Russia's concern of U.S. interference in its own, contributing to a dysfunctional working relationship between both states.

The souring of relations between Trump and Putin over the past year stems in part from the U.S. imposition of sanctions on Russia. Debate in the Forum about the effectiveness of sanctions to change Russia's behavior ensued. Some argued that sanctions are an effective and necessary economic tool of foreign policy; whereas others argue that such measures are both overused and misused. The latter arguments suggest that not only are sanctions ineffective, but will in the long-run weaken the U.S. They argue that imposing sanctions plays into Russia's hands and pushes it into a strategic alliance with China. In addition, it has been suggested that sanctions might negatively affect arms control

negotiations. Rather than using sanctions as the political "easy way out," sanctions should be used in moderation, as they are sometimes successful (as with shaping Iran's nuclear ambitions and constraining Saddam Hussein in Iraq) and sometimes unsuccessful. The U.S. Congress' habit of legislating Russia sanctions without coordinating with the executive branch was criticized for undermining their effectiveness.

Arguments for exploring other diplomatic incentives were put forward. Arguments against unilateral imposition of sanctions include suggestions for consulting with allies, because otherwise the profligate application of U.S. sanctions could see the end of EU support for these measures, isolate the U.S., and ultimately tear apart the Atlantic Alliance. Key issues include the purpose, effectiveness and benefit of sanctions.

NATO-RUSSIA RELATIONS AND STABILITY

Relations between the U.S.-NATO alliance and Russia deteriorated significantly since Crimea and Donbas 2014. Aggressive posturing has taken the form of enhanced military activity in the region around the Baltics, Poland, and Romania. Russia has expanded its Zapad (West), and recent Vostok (East) exercises that simulate multiple military scenarios, including employing nuclear weapons. NATO also conducts Trident Juncture exercises by sea, air, and land. The battle groups deployed to the Baltics and Poland intended to demonstrate resolve have provoked some Russian officials to reiterate its doctrine of "escalate to de-escalate," in which one or more theatre nuclear weapons – so-called "tactical" or non-strategic nuclear weapons – would be employed in an escalating conventional conflict in order to de-escalate the intensifying conditions. This doctrine lowers the threshold for nuclear use, and the ambiguity surrounding the doctrine makes the situation more uncertain and unstable.

One view expressed at the Forum is that Russia would not resort to the first use of nuclear weapons unless a conflict threatened the very survival of the Russian state. In Russian military doctrine, nuclear weapons are connected with existential threat. The question that was raised is what constitutes an existential threat to Russia?

This threshold may not be clear in the fog of conflict. In addition, Russia has also imposed its Anti-Access / Area-Denial (A2/AD) strategy centered around Kaliningrad, the Baltic States and Baltic Sea, in an attempt to deny NATO forces sea and air access. This may increase the risk of escalation to the use of nuclear weapons.

In addition, the Forum raised concerns about the influence of Russia on domestic politics in the Baltics. There is the political rhetoric and the reality – the latter that these states do not perceive any real threat from Russia, but that

officials stoke fear of Russia for domestic political reasons. They need a Russian threat to distract their constituents from internal problems. In this context, participants argued that Russian intervention in the Baltics cannot be excluded, however, and that nuclear weapons could come into play. Participants view the region as a potential conflict flashpoint, one fraught with risk of escalation and nuclear weapons use.

Regarding the prospects of reaching agreements meant to prevent or resolve military incidents and escalation through improved communications, rules of the road and transparency, the current political climate is less than conducive. At times the leadership of both countries believes that it can do without cooperation or discourse on security matters. Participants recommended seeking to strengthen confidence-building measures, but many were skeptical of the feasibility of this, especially in today's political environment. They agreed that unilateral action might break the stalemate and work to mitigate some of the risks. It was also agreed that the U.S. President has wide latitude to exert military and diplomatic leverage on the parties.

3. THE VALUE OF TRACK 1.5 AND TRACK 2 DIPLOMACY

The Forum heard a debriefing on the Track 2 Meeting on the Future of Strategic Stability and Arms Control held in Moscow July 24-25, 2018, organized in part by Global Zero's Nuclear Crisis Group. It included a bipartisan, gender-balanced group of 10 Americans, and a very senior Russian delegation with extensive military experience. The Russians had proposed that the delegations engage on three topics:

1. building on the 1972 SALT/ABM Treaty and the agreement on avoidance of incidents at sea;
2. New START; and
3. INF Treaty

Both sides perceived the event positively. Participants did not believe Putin was interested in new ABM discussions, but rather in new weapons to defeat missile defenses. Participants additionally found that the 1972 Avoidance of Incidents at Sea Agreement still has relevance, and that similar agreements to handle incidents on land and in the air would be very useful. Discussions of New START and the INF treaty and of economic sanctions were consistent with those of The Simons Forum and have been incorporated under these topics in the next section of this report. In general there was overall support for the value of Track 1.5 and 2 initiatives.

Several additional points were made, including the following:

- The difficulty of actually holding track 1.5 and track 2 meetings due to difficulties in

getting visas; a problem that prevented one of the Russian invitees from attending the Vancouver meeting.

- The lack of institutional memory due to the retirement of many key experts. The nuclear security field has atrophied since the end of the Cold War. This was evident not just in Russia and the U.S. but also in Germany.
- The need for an running record of Track 1.5 and 2 meetings and their outcomes.
- The value of Track 1.5 and 2 meetings to open up back channels that might be important in avoiding crises
- The need for Track 2.5 – an idea to include younger participants or students as observers in these meetings. Such mentoring would help replenish the cadre of experts in the field.

There was further discussion of the need and value of engaging youth through exchanges, pan-European youth leadership councils and other means.

4. WHAT IS WORKING WELL IN RUSSIA-NATO-U.S. RELATIONS?

Although the current state of relations between Russia, NATO and the U.S. is at a low ebb, there is still an active network of engagement among them that can be used to address a crisis and provide a starting point for reversing the downturn in ties. Participants at the Forum noted that the existing structures for dialogue are being underutilized. They include:

- The NATO Russia Council (NRC).[6] The next NRC meeting would be held October 31 in the wake of the stated intention of the U.S. to withdraw from the INF Treaty. Forum attendees thought that increased dialogues among officials through the NRC could be productive.
- The Organization for Security and Cooperation in Europe (OSCE).[7] Forum participants noted that insufficient use is being made of OSCE and suggested the value of using its structured dialogues, as well as its value in seeking solutions to the Ukraine conflict.
- Conventional Armed Forces in Europe Treaty (CFE)[8] might be resuscitated to alleviate Russia's fears related to NATO expansion and the threat NATO's superior conventional forces pose to Russia.

Russia and the U.S. are (or were) cooperating through various fora on:

- space (staffing and supplying the space station using Russian launch vehicles and facilities);
- Open Skies Treaty[9];
- counter terrorism (although it was noted that there has been difficulty getting police

forces to exchange more timely intelligence in some instances, such as during the Bostion Marathon bombing);

- eliminating chemical weapons stockpiles and their use in Syria (although the joint pressure was ultimately unsuccessful in preventing new production and use);
- achieving the JCPOA[10] with Iran (again, now at risk due to the U.S. withdrawal of support);
- New START implementation (both countries were in compliance in February 2018);
- prevention of incidents at sea agreement (shaky but contributes to risk avoidance and mitigation);
- track 1.5 and 2 dialogues convened by Global Zero, the James Martin Centre for Non-proliferation, the European Leadership Network[11] and others, play a positive role in promoting collaboration on data gathering, strategy and policy development;
- the Arctic Council[12] promotes cooperation on science, pollution prevention, and search and rescue functions in the Arctic region. The question whether this successful collaboration should add security issues to its agenda was discussed. Many participants including Canada opposed their inclusion.

ENDNOTES.
III. ISSUES AFFECTING STRATEGIC STABILITY

1 Chemical, biological, radiological, nuclear – CBRN – that constitute weapons of mass destruction (WMD).

2 Bruce G. Blair with Jessica Sleight and Emma Claire Foley, The End of Nuclear Warfighting: Moving to a Deterrence-Only Posture, Global Zero, September 2018; Hans Kristensen, Robert Norris, and Ivan Oelrich, From Counterforce to Minimal Deterrence: A New Nuclear Policy on the Path Toward Eliminating Nuclear Weapons, Federation of American Scientists and the Natural Resources Defense Council, April 2009, p. 17.

3 This discussion is drawn from a presentation by James M. Acton and used with his permission.

4 In the U.S. for example, early warning sensors and systems for transmitting execution orders over long distances to nuclear forces, lack redundancy as they rely on a remarkably small number of physical assets.

5 See Christopher S. Chivvis, "Understanding Russian "Hybrid Warfare" And What Can Be Done About It," testimony presented before the House Armed Services Committee on March 22, 2017, RAND Corporation, 2017.

6 The NRC was established in 2002 and although suspended in 2014, it continues to provide a high level arena for dialogue.

7 The OSCE is headquartered in Vienna, has a comprehensive approach to security that addresses a wide range of security related concerns, including arms control, confidence and security building measures, human rights, national minorities, democratization, policing strategies, counter terrorism and economic and environmental activities. All 57 participating states have equal status and positions are taken by consensus on a politically but not legally binding basis.

8 Signed in November 1990 by 22 NATO states and Warsaw Pact countries. The treaty limits equipment for conventional military forces, namely, artillery, tanks, armoured vehicles, combat aircraft, and attack helicopters. These limits extend geographically from the Ural Mountains of Russia

to the Atlantic Ocean. Colonel Jeffrey D. McCausland, NATO and Russian Approaches to Adapting the CFE Treaty, Arms Control Today, August 1, 1997.

9 Signed in March 1990 by 35 NATO states, Warsaw Pact members and other European and Central Asian States. The treaty, which entered into force in 2002 with 34 parties, established a regime of unarmed observation flights of State Party territories, specifying quotas, notification of points of entry, technical details and inspection for sensors. It was designed to build mutual confidence and understanding. In 2018 both the U.S. and Russia accused the other of non-compliance and there were no treaty flights conducted.

10 The Joint Comprehensive Plan of Action negotiated by the P5 and Iran placed verifiable limits on Iran's nuclear program to ensure every path to Iran developing a nuclear weapon is blocked. The agreement was finalized in July 2015 and came into effect that October. Iran has consistently been shown to be in compliance with the agreement.

11 ELN is a pan European independent organization that works to develop collaborative response to security challenges in Europe

12 The Arctic Council is a non-military forum for cooperation among the countries with territories above the Arctic Circle.

IV. CENTRAL ARMS CONTROL TREATIES UNDER THREAT[1]

1. INTRODUCTION

The last years of the Cold War produced U.S.-Soviet and multilateral treaties that contributed markedly to a more stable and secure Europe. This was particularly true in the nuclear area. The 1987 Intermediate-range Nuclear Forces (INF) Treaty banned all U.S. and Soviet intermediate-range, ground-launched missiles globally, but its primary security impact was felt in Europe. The 1991 Strategic Arms Reduction Treaty (START, later referred to as START I), which mandated major cuts in U.S. and Soviet strategic nuclear forces, was a global treaty that also helped ease military tensions in Europe.

2. THE INF TREATY

The Soviet deployment, beginning in the mid-1970s, of the SS-20 intermediate-range ballistic missile triggered major security concerns on the part of NATO. Allied officials feared that, in the context of an emerging U.S.-Soviet strategic arms limitation treaty that would enshrine equality at the strategic level and a large Soviet/Warsaw Pact numerical advantage in conventional forces, a large Soviet superiority in intermediate-range nuclear missiles could undercut the U.S. extended nuclear deterrent for NATO Europe.

In 1979, NATO adopted the dual-track decision, under which the U.S. would deploy intermediate-range Pershing II ballistic missiles and ground-launched cruise missiles in Europe while at the same time seeking to negotiate with the Soviet Union on limits on intermediate-range missile systems. After tense years in the early 1980s, serious negotiations began in 1985. In December 1987, President Ronald Reagan and General Secretary Mikhail Gorbachev signed the INF Treaty, banning all ground-launched ballistic and cruise missiles with ranges between 500 and 5,500 kilometers.

The INF Treaty resulted in the elimination of nearly 2,700 U.S. and Soviet missiles and their launchers by the summer of 1991 and until 2014[2], the treaty appeared to function smoothly.

In 2014, Washington publicly charged that Moscow had violated the INF Treaty by testing a ground-launched cruise missile to intermediate range. In 2017, U.S. officials said that the Russian military had begun to deploy the missile, which

was later identified by the Russian designator 9M729 said to be an extended range version of the permitted Iskandr-K cruise missile.

Russian officials denied the charges and claimed that the U.S. had violated the INF Treaty in three ways: (1) by using prohibited intermediate-range ballistic missiles as targets in missile defense tests; (2) by arming long-range unmanned aerial vehicles (UAVs); and (3) by deploying the Mk-41 launcher as part of the Aegis Ashore missile defense facility in Romania, since the Mk-41 could contain and launch not just SM-3 missile defense interceptors but other missile types, including offensive sea-launched Tomahawk cruise missiles that would be the equivalent of prohibited ground-launched cruise missiles.

Many analysts dismiss the first two charges.[3] The third Russian charge, however, appears to have some merit.

The Special Verification Committee, established by the Treaty has met twice in the past two years but has produced no discernible progress. As discussed in the Epilogue, in a move anticipated by The Simons Forum attendees, the Trump administration announced its withdrawal from the Treaty on October 16, 2018.

Meanwhile, non-governmental experts, including a Track 1.5 U.S.-Russia group co-directed by Global Zero's Nuclear Crisis Group, the Arms Control Association and the Russian U.S.A.-Canada Institute and the Track II trilateral U.S.-German-Russian Deep Cuts Commission, have suggested ways to find a resolution. One suggestion, would be for Russia to conduct an exhibition of the 9M729 missile and launchers for U.S. government experts and explain the technical reasons why the missile could not exceed 500 kilometers in range.

With regard to the Mk-41 launcher, non-governmental experts have suggested the possibility that observable differences, preferably functionally-related observable differences, (FRODs) might be used to distinguish Mk-41 launchers at the Aegis Ashore site from those on board U.S. Navy warships. The sides might allow Russian government experts to periodically visit the Aegis Ashore site and to choose perhaps two of the 24 launcher cells to be opened to confirm that they contained SM-3 missile interceptors and not some other kind of missile.

These developments come at a time when concern is growing about a possible lowering of the nuclear threshold. Much talk focuses on the large array of Russian non-strategic nuclear weapons and Russia's purported "escalate to deescalate" doctrine, under which Moscow would escalate to use non-strategic nuclear weapons in the event it began to lose a conventional conflict. (See earlier discussion.) While most Russians deny that "escalate to deescalate" is official policy,

military officials at the Pentagon and NATO headquarters believe that it is and are taking measures in response.

For example, as announced in the 2018 Nuclear Posture Review, in order to partially redress the imbalance in non-strategic nuclear forces, the U.S. intends to deploy a small number of Trident D5 missiles with low-yield nuclear warheads. The U.S. Congress has also budgeted funds to develop a new sea-launched cruise missile designed to carry low- or variable-yield nuclear warheads.

Russia's continuing maintenance of a large non-strategic nuclear arsenal, estimated at one to two thousand with 800 of them operationally deployed at 12 bases in European Russia, the planned U.S. response and doctrinal questions about nuclear use were viewed as ominous by the participants. These factors threaten to undermine European security and could create a situation in which nuclear weapons would be used earlier in a conflict than might otherwise be the case.

3. NEW START

The 1991 START I treaty was the first to mandate reductions in, as opposed to limits on, U.S. and Soviet (then Russian) strategic nuclear forces.

Presidents Barack Obama and Dmitry Medvedev signed the New START Treaty in 2010. It entered into force in February 2011, and its numerical limits took full effect in February 2018. New START limits the U.S. and Russian militaries each to no more than 1,550 deployed strategic warheads on no more than 700 deployed strategic delivery vehicles – intercontinental ballistic missiles (ICBMs), submarine-launched ballistic missiles (SLBMs) and nuclear-capable bombers. The treaty also constrains the sides each to no more than 800 deployed and non-deployed launchers for ICBMs and SLBMs and deployed and non-deployed nuclear-capable bombers.

For verification purposes, the treaty requires semi-annual data exchanges and notifications of certain changes in strategic forces, and allows each side to conduct up to 18 inspections per year of the strategic forces of the other side. These measures assist the sides in monitoring one another's compliance with the treaty limits.

New START is in much better shape than the INF Treaty. The U.S. and Russia each met New START's limits in February 2018, though Russian officials have questioned the adequacy of certain measures taken by the U.S. side to convert strategic systems so that they would no longer be accountable under New START's limits. The Bilateral Consultative Commission, the New START body that handles questions of compliance, is addressing these questions.

New START by its terms will expire in February 2021. It can, however, be extended by up to five years by agreement between the U.S. and Russian presidents. President Putin reportedly

raised the question of New START extension with President Trump in a January 2017 telephone call and again at their July 2018 summit meeting. Russian National Security and Defense Council Secretary Nikolai Patrushev raised extension with Mr. Bolton in their August 2018 meeting. It appears that Moscow is interested in extending the treaty.

U.S. officials say they are reviewing the question of New START extension. Asked about extension following his meeting with his Russian counterpart, Mr. Bolton said that one option was extension but that other possibilities were renegotiating New START or negotiating something along the lines of the 2002 Moscow Treaty, also referred to as the Strategic Offensive Reductions Treaty (SORT).

In the views of Simons Forum participants, both of the alternatives to extension appear problematic and would likely take years, and the prospects of a successful outcome would be uncertain at best, especially given Mr. Bolton's record of strong aversion to any treaties that constrain U.S. military programs.

As for the SORT model, Russia in 2002 accepted the agreement under pressure and today would not agree to constraining warheads only; but would want limits on strategic ballistic missiles and bombers as well. Moreover, SORT had no agreed definitions, counting rules or verification measures. If the U.S. and Russia want to negotiate a serious arms control treaty, it will require provisions to allow the sides to monitor compliance. However, a SORT-like agreement overlaid onto an comprehensive monitoring and verification protocol like the New START protocol could satisfy this critical need.

In the opinion of Forum participants, New START extension for five years seems the best option for both sides. A five-year extension would continue the treaty's limits and transparency provisions and have positive impact on an otherwise troubled U.S.-Russia agenda. It would give the sides time to decide on what might come next – a subject they could and should take up in sustained strategic stability talks[4] – and it could provide a foundation for negotiation of a follow-on treaty.

4. COLLAPSE OF THE NUCLEAR ARMS CONTROL REGIME?

On its current course, the INF Treaty appears headed for collapse. That would further complicate already strained U.S.-Russia and NATO-Russia relationships. Absent the treaty, Russia could freely deploy ground-launched cruise and ballistic missiles targeting Europe. The U.S. would be free to do so as well, though it is difficult to see NATO reaching consensus on deployment of U.S. missiles in Europe despite support from Poland and other Eastern European states for such a move.

If the INF Treaty breaks down and New START is not extended, 2021 would mark the first year in nearly five decades in which U.S. and Russian (earlier Soviet) strategic and nuclear forces were unconstrained by any legally binding agreement. The expiration of New START and failure to replace it would mean that the U.S. and Russia would lose the transparency into one another's strategic forces; replacing that information could require expensive investments in new national technical means (i.e., sensors for remote surveillance and intelligence), and the sides would likely have to begin making worst-case assumptions, which would invariably result in more expensive force posture decisions on both sides.

In the absence of New START, the two countries might not engage in significant build-ups but "drift" up above the previous limits. For example, New START's limits likely would result in the Russians deploying the new heavy Sarmat ICBM with fewer warheads than its capacity; absent New START, the Russian military might instead deploy maximum loads. Would the U.S. Navy continue to maintain an average of only four-to-five warheads on its Trident D5 SLBMs, each of which can carry eight warheads, if New START were no longer a consideration? The U.S. would also have the option to upload 800 additional warheads on its Minuteman silo-based missile force.

The end to New START would also eliminate an important mechanism – the treaty's article V, paragraph 2 – that U.S. officials could use to address the new kinds of strategic nuclear arms described by President Putin in his March 1, 2018 state-of-the-union speech. Those include the Poseidon nuclear-armed underwater drone and the Burevestnik nuclear-armed and nuclear-powered cruise missile, neither of which would be captured by New START's definitions of strategic offensive arms. New START might also not capture the Avangard hypersonic glide vehicle that Russia plans to mount on some ICBMs; during the Senate ratification debate on New START in 2010, Pentagon officials maintained that hypersonic glide vehicles would not be captured, as they did not fly a ballistic trajectory.

A world without any constraints on U.S. and Russian nuclear forces would almost certainly be less stable and less secure. That would provide an uneasy context for the relationship between NATO and Russia, particularly given questions about each side's nuclear doctrines and the possibility that one or both are taking steps that would result in a lowering of the nuclear threshold.

ENDNOTES.

IV. CENTRAL ARMS CONTROL TREATIES UNDER THREAT

1 The majority of the discussion in this section is based upon a paper "The U.S.-NATO-Russia Relationship and Nuclear Arms Control: History, Current State of Play and Possible Futures" prepared for the Simons Forum by Steven Pifer and is used with his permission. The paper has been edited in length and to incorporate other points from the panel discussions.

2 The treaty applied to Russia after the Soviet Union's collapse in 1991

3 The INF Treaty makes provision for use of missiles that might otherwise be banned by the treaty for other purposes. Armed UAVs differ significantly from cruise missiles and were not foreseen at the time the INF Treaty was negotiated.

4 Strategic stability talks should take a broad look and discuss not only strategic nuclear force issues but also how non-strategic nuclear forces, missile defenses, precision-guided conventional weapons, nuclear doctrine, third-country nuclear forces, and developments in the cyber and space domains impact on the stability of the strategic relationship between the U.S. and Russia.

Soviet inspectors and their American escorts stand among several dismantled Pershing II missiles as they view the destruction of other missile components. The missiles are being destroyed in accordance with the Intermediate-Range Nuclear Forces (INF) Treaty. (Wiki Commons)

V. CONCLUSIONS AND THE WAY FORWARD

Given the current state of relations between Russia, the U.S. and NATO, the Forum returned to the question of how the current nuclear arms control system can be salvaged in the short run, and enhanced in the future. Many suggestions were made about concrete steps that could be taken, and several promising ideas were put forward that merit further consideration.

1. TECHNOLOGIES

The forum participants agreed that, in order to reduce the risk of nuclear conflict, a number of technological problems need to be addressed. Getting past the political obstacles for dealing with them is necessary as the political climate is crucial for strategic stability related to problem technologies and nuclear postures. The question is how to encourage policymakers to refrain from exploiting nuclear threats in crises? How can states rebuild trust?

Concessions on both sides will be required to rebuild trust, but one actor will have to make the first move to see reciprocation from the other. It was suggested that unilateral action by the U.S. is required even at the lowest levels to get things started. It was agreed that the U.S. needs to take steps to not undermine Russia and China's second-strike deterrent capability.

Ideas on addressing the issue areas presented include:

- WMD terrorism and cyber terrorism – there are areas for NATO cooperation with Russia on best practices to counter threats, including information exchange.
- Recommendations for leaving the BMD issue behind or pursuing a memorandum of understanding to limit the threat that theatre and national missile defences pose to second-strike deterrent forces.
- In light of the INF violation issue, it was recommended that each state offer access to their missiles and launchers to demonstrate whether or not they violate the Treaty.
- Provide notification and transparency of deployed systems to avoid ambiguity surrounding treaty violations or unintentionally signaling aggressive intentions.

- In addressing the legality of using nuclear weapons under various conditions of conflict escalation the U.S. needs to institutionalize the consideration of risks of nuclear weapons use at multiple levels - arms control, war planning, etc. There could be a legal role for the undersecretary to oversee the Department of Defense bureaucracy to evaluate risk by advising senior decision makers in a crisis to avoid misinterpreting adversary's actions and vice versa.

- In order to avoid threatening one another's second strike capability, it was also suggested that states define which parts of command control system are off limits.

- Pledge not to conduct cyber warfare against nuclear C3I.

- Suggestions were proposed for de-alerting missiles on hair-trigger alert and committing not to initiate the use of nuclear weapons – No First Use.

2. NEW START

There was strong consensus that the most significant step would be for Presidents Trump and Putin to extend the New START Treaty for another 5 years. The extension does not require re-approval by the Congress nor the Duma. It would be strongly in both nations security interest. The two leaders appear to have a rapport, notwithstanding their countries' differences, and it seems possible that such a signing could have the additional benefits of being popular with domestic audiences and increasing their personal popularity. Such a "Singapore Moment," although seemingly unlikely, is not outside of the realm of possibility.

Extending the Treaty would not only enhance trust, predictability and transparency, it could also help both countries to avoid expensive expansions of their nuclear forces.[1] Again, it would be strongly in their national security interest.

3. INTERMEDIATE RANGE NUCLEAR FORCES (INF) TREATY

This treaty is a bedrock of security in the Euro-Atlantic region. Resolving the complex issues requires several practical concessions by all parties. New negotiations and dialogue should not be confused with conducting business as usual. Specific suggestions that would facilitate returning to compliance and building confidence between the parties have been proposed in the earlier section of this report. The U.S. declaration that it will opt out of the Treaty is further discussed in the Epilogue of this report.

4. RESUMPTION OF TALKS

The need for regular dialogues between all three parties has never been more urgent to help prevent the escalation of current tensions and future conflicts and prevent the inadvertent use of nuclear weapons. Suggestions for practical steps to encourage such talks including using existing mechanisms such as the OSCE, the NATO Russia Council, the Global Zero Nuclear Crisis Group and various Track 2 avenues have been presented earlier in this report.

It was also suggested that reframing the problems by enlarging them had possibilities. Some participants to the Forum likened the present situation to the Dark Ages, and suggested that participants be like the monks who became the guardians of collective wisdom and brought it forward again during the Renaissance.

Others thought that some kind of signal event might be needed to change the present discourse. Whether such an event might emerge over the next few weeks or months, with President Trump's anticipated withdrawal from the INF Treaty, the November mid-term elections, Russian interference in domestic elections, or other developments in the Mueller investigation remains to be seen.

5. CONCLUSION

It is possible that in 2021, there will be no legally binding treaty limits constraining U.S. and Russian nuclear forces. Participants thought that a renewed arms race could become extremely dangerous as without arms control both sides could quickly enlarge their current forces by two or three times while the lack of transparency surrounding such possibilities could accelerate the process as well as increase instability during a crisis.

Delegates warned that American, NATO and Russian officials should not welcome this prospect. Washington and Moscow should act to preserve the existing nuclear arms control regime by resolving the INF Treaty compliance issues, agreeing to extend New START and beginning a sustained dialogue on strategic stability.

ENDNOTES.
V. CONCLUSIONS AND THE WAY FORWARD

1 For further insight into the cost and benefit analysis of decreasing nuclear forces see "The End of Nuclear Warfighting: Moving to a Deterrence-Only Posture" at www.globalzero.org

EPILOGUE

On October 4, 2018, the SFU Morris J. Wosk Centre for Dialogue and Dr. Bruce G. Blair, Simons Visiting Fellow in International Law and Human Security, conducted a series of meetings in Ottawa with the Government of Canada. The visit successfully engaged various groups, including private meetings with a Senator, the Privy Council Office and Global Affairs Canada. The purpose of the visit was to provide an advance look at the findings from the 2018 Simons Conference on "Repairing the U.S.-NATO-Russia Relationship and Reducing the Use of Nuclear Weapons," as well as to discuss Dr. Blair's recent release of Alternative Nuclear Posture Review.

Since the Forum, US-NATO-Russian relations and nuclear predictability have continued to deteriorate. On October 20, 2018, President Trump, reportedly encouraged by his National Security Advisor and without the full knowledge of his cabinet, announced that he intended to withdraw from the 1987 INF Treaty because Russia was in violation of the pact and because China, which possesses an arsenal of INF-range missiles is not party to the agreement. Any party to INF has the right to withdraw with six months notice. Washington was poised to execute withdrawal on December 4th at the NATO Foreign Minister's meeting, but German Chancellor Angela Merkel reportedly convinced President Trump to delay any withdrawal for at least 2 more months.

Since Trump's announcement, Russia has reacted strongly, claiming the U.S. intends to deploy INF missiles in Europe and warning that such a move could greatly increase the risk of conflict and miscalculation. Privately, Russian experts have noted that if the INF Treaty were to disintegrate then Moscow could deploy a range of INF-constrained systems in Europe more rapidly than NATO or the U.S., and that a build up of short-flight time missiles in and around Europe would undermine what is left of crisis stability in Europe.

Moreover, there is growing concern that the U.S. decision to withdraw from the INF Agreement could have serious negative implications for the effort to preserve and extend the New START agreement. The lack of a coordinated policy process in the U.S., combined with the apparent determination of National Security Advisor John Bolton to undo agreements that he believes constrain American freedom of action has raised the concern that the U.S. may either let New START expire or that President Trump could be convinced to withdraw from the agreement.

Russia has reacted to the continued undermining of these nuclear agreements with consternation. Officially, Russian officials have criticized the planned withdrawal from the INF agreement by the U.S. and warned that the consequences could be serious for security and stability. However, the reality is that neither the U.S. nor Russia has been willing to undertake any serious efforts to save the treaty or the benefits it brings to Europe and to nuclear stability. Proposals to provide transparency to Russia over NATO missile defense deployments and to the U.S. over the 9M729 missile system have not been pursued. Secretary James Mattis returned from meeting with NATO defense ministers in late October after trying to gain allied support to pressure Russia to return to compliance with the INF Treaty but claimed he had not heard any constructive ideas for how to do so. On November 30, 2018 The Director of National Intelligence Dan Coats laid out more details than had previously been made public about the extent of Russia's violations, making clear that Russia has tested a ground-launched cruise missile with a range between 500 and 5500km.

Thus, the future of the INF and New START agreements remains uncertain at best. In this environment, it is also not clear that the two countries can create the trust and engagement necessary to reverse the decline in relations or forge new agreements to manage their growing nuclear competition.

America's NATO allies are now increasingly concerned about the demise of the INF Treaty, and uncertain about what the U.S. might ask of the alliance should the treaty die. There are no plans for the U.S. to develop and deploy INF-constrained systems in Europe, but such plans could emerge if and when Russia's own systems are deployed more widely. Proposals to counter Moscow's own systems could undermine alliance unity with NATO allies in close proximity to Russia seeking the protection they believe would come with the deployment of more advanced US nuclear systems and others in Europe who remember the political and security chaos from the mid-1980s INF deployments seeking to avoid any such action. The deployment of US ballistic and cruise missiles in Europe sparked widespread public protests in Western Europe and fueled the growing nuclear freeze movement.

The prospect of domestic political protests and controversy gives NATO allies an incentive to push for solutions to the INF impasse. It remains unclear if NATO allies are able or prepared to encourage a broader dialogue about how to more effectively counter Russia's reported violation and also to take steps to show it is willing to provide Russia with greater transparency regarding missile defense deployments in Europe in exchange for Russian actions to resolve the INF dispute. It appears such a trade is possible, but has yet to find broad support in either Russia or NATO capitols.

More recently, the simmering conflict between Russia and Ukraine flared up again in late November, this time in the Sea of Azov as Russia captured three Ukrainian naval ships after alleging that its own ships had been provoked. NATO officials including Secretary General Jens Stoltenberg, urged both sides to de-escalate the conflict, which include a move by Russia to block Ukraine's access to and from the Sea of Azov. This incident led President Trump to cancel a formal bilateral meeting with President Putin at the December G-20 meeting in Brazil, giving up yet another opportunity to directly address and seek to preserve the arms control agreements between the two countries.

The incident is a reminder of how quickly military incidents can unfold and how hard they are to define and understand in real time.

The Forum discussed the risks of incidents among nuclear powers and their allies, but also the risks of such incidents that include third parties. These risks will continue to exist unless and until all sides commit to addressing the underlying actions and motivations that can increase their frequency and severity.

The Forum made clear that the pace of military activities in and around Europe has the potential to create political incidents that can escalate. Europe remains a nuclear flashpoint in U.S.-Russian relations. The effort to create lines of communication at the highest levels of Government, and to create political space in both countries to reverse the negative trajectory of relations continues to be a pressing need that remains elusive.

APPENDIX A:
CONFERENCE PARTICIPANTS

DR. BRUCE G. BLAIR

Conference Chair / Research Scholar, Program on Science and Global Secuity, Princeton University; Co-Founder, Global Zero

Dr. Bruce G. Blair is a research scholar in the Program on Science and Global Security at Princeton University and is co-founder of the Global Zero movement for the elimination of nuclear weapons. From 2011 to 2017, he served as a member of the U.S. Secretary of State's International Security Advisory Board. For many years, Blair was a senior fellow in the Foreign Policy Studies Program at the Brookings Institution and served as a project director at the Congressional Office of Technology Assessment. He previously served in the U.S. Air Force as a Minuteman ICBM launch control officer and as a support officer for the Airborne Command Post of the Strategic Air Command. Blair holds a PhD in operations research from Yale University.

DR. JAMES ACTON

Jessica T. Mathews Chair and Co-director of Nuclear Policy Program Carnegie Endowment for International Peace

James Acton holds the Jessica T. Mathews Chair and is co-director of the Nuclear Policy Program at the Carnegie Endowment for International Peace. A physicist by training, Acton's current research focuses on the escalation risks of advanced conventional weapons. His work on this subject includes the Carnegie edited volume, Entanglement: Chinese and Russian Perspectives on Non-nuclear Weapons and Nuclear Risks, and a recent article in the journal International Security. He has testified on advanced nonnuclear weapons to the U.S. House of Representatives Armed Services Committee and the congressionally chartered U.S.-China Economic and Security Review Commission.

MR. WILLIAM ALBERQUE

Director, NATO WMD arms control, Disarmament, and Non-proliferation centre (ACDC)

Mr. Alberque has worked on arms control, non-proliferation, and safeguards issues since 1994. One of his earliest assignments was to improve the security of Russian nuclear weapons-related facilities as part of the Nunn-Lugar Program. He joined DTRA in 2000, focusing on arms control inspections, strategic planning, and Small Arms/Light Weapons, and then served as the DoD Treaty Manager for Arms Control, before moving to the State Department to support the 2010 NPT RevCon. He returned to the Pentagon in 2011 to direct European arms control policy, and worked on the BTWC, CTBT, and IAEA safeguards.

He began serving at NATO Headquarters in 2012, and currently serves as the Director of the Arms Control, Disarmament, and WMD Non-Proliferation Centre (ACDC). His recent publications include "The NPT and the Origins of NATO's Nuclear Sharing Arrangements," Proliferation Papers, No. 57, Ifri, February 2017, and "Substantial Combat Forces in the Context of NATO-Russia Relations," Research Paper, No. 131, NATO Defense College, June 2016.

AMBASSADOR RICHARD BURT

Managing Director, McLarty Associates; Co- Chair, Global Zero

Ambassador Burt is the managing director for Europe, Russia and Eurasia at McLarty Associates. McLarty Associates counsels corporations and financial institutions in the United States and abroad on strategic planning government issues, market access, mergers and acquisitions and political and economic risk issues. He also serves as U.S. Chair for Global Zero, an international campaign seeking for long-term elimination of nuclear weapons.

Ambassador Burt served in the Reagan administration as Assistant Secretary of State for European and Canadian Affairs and then as US Ambassador to Germany from 1985 to 1989. Under President George

H.W. Bush, he served as US Chief Negotiator in the Strategic Arms Reduction Talks with the former Soviet Union.

Ambassador Burt serves as chairman of the board of advisors of The National Interest, an important U.S. foreign policy journal. He is a senior adviser to the Center for Strategic and International Studies, a member of the Council on Foreign Relations and a member of the executive board of the Atlantic Council. He also serves on a number of prominent corporate boards.

MR. THOMAS COUNTRYMAN

Chairman of the Board, Arms Control Association

Thomas Countryman has been Chairman of the Arms Control Association since 2017. The ACA is a nonpartisan NGO which analyzes key national security issues and advises the executive branch, Congress and the public on choices that promote global security and reduce risk from weapons of mass destruction.

He retired from the Senior Foreign Service in January 2017 after 35 years of service. At that time, he served simultaneously as acting Undersecretary of State for Arms Control and International Security, and as Assistant Secretary for International Security and Nonproliferation, a position he held since September 2011. The ISN Bureau leads the U.S. effort to prevent the spread of nuclear, chemical and biological weapons, their related materials, and their delivery systems.

Previously he served as Principal Deputy Assistant Secretary for Political-Military Affairs (2009-10), and as Deputy Assistant Secretary for European Affairs (2010-11), with responsibility for the Balkans region. He served overseas at US Embassies in Belgrade, Tunis, Cairo, Rome and Athens; and served in the U.S. Mission to the United Nations, the White House and the Pentagon.

MS. CHERYL CRUZ

Deputy Director, Nuclear Non-Proliferation and Disarmament Division, Global Affairs Canada

Cheryl was appointed in September 2018 as the Deputy Director of Nuclear and NACD Policy at Global Affairs Canada, based at the department's headquarters in Ottawa. In August 2018, she completed a three-year post as the head of Political and Economic Affairs at the Canadian Embassy in Ankara, Turkey, with concurrent accreditation to Georgia, Azerbaijan and Turkmenistan. From 2006-2007, Cheryl served as a political officer in the Canadian Embassy in Beirut, Lebanon, providing field expertise to Canada's Stabilization and Reconstruction Task Force. Both a foreign service officer and lawyer by trade, she spent several years in legal practice with Global Affairs Canada's Legal Affairs Bureau, including three years as the Deputy Director of Economic Law advising the Government of Canada on its economic sanctions regime. Prior to joining Global Affairs Canada, Cheryl was a litigator with Justice Canada's Tax Litigation office in Ottawa. Cheryl is Barrister and Solicitor with the Law Society of Ontario, and holds a Master of Laws degree with a specialisation in public international law from the University of Cambridge (Pembroke College).

MAJOR GENERAL (RET.) VLADIMIR DVORKIN

Chief Researcher, Center for International Security
Institute of Economic and International Relations
Russian Academy of Sciences

General Dvorkin is a distinguished scholar of Russian science and technology, Dr.Sci.Tech., the professor. He is a full member of the Russian academy of rocket and artillery sciences, Academies of military sciences, the Russian engineering academy, the International engineering academy, and Academy of astronautics. He is now the chief researcher of the Center for International Security of the Institute of Economic and International Relations of the Russian Academy of Sciences.

AMBASSADOR JAMES GOODBY

Annenberg Distinguished Visiting Fellow, Hoover Institution

James Goodby served for 35 years as a US Foreign Service Officer, retiring in 1989 with the rank of Career Minister. He was appointed Ambassador to Finland by President Carter, held three other ambassadorial-rank positions under President Reagan in assignments involving nuclear weapons and European security issues, and was called back to active duty by President Clinton to work on nuclear security negotiations.

Following his government service, he pursued a teaching and writing vocation at Georgetown, Carnegie Mellon, and Stanford Universities. Since 2007, Ambassador Goodby has been working closely with former Secretary of State George Shultz at Hoover Institution on nuclear disarmament questions. He is the author and editor of several books and many articles. Ambassador Goodby holds the Commander's Cross of the German Order of Merit and was the first winner of the Heinz Award in Public Policy. He is a member of the American Academy of Diplomacy.

DR. NICOLE J. JACKSON

Associate Professor, School for International Studies
Simon Fraser University

Nicole J. Jackson (PhD, LSE 2001) is Associate Professor International Studies, specializing in Russian and Eurasian Politics and Security at the School for International Studies, Simon Fraser University, Vancouver, Canada. She has authored multiple refereed articles and chapters on Russian and Central Asian security and foreign policy, regional security governance, securitization and trafficking, and the spread of authoritarian ideas and practices. She is author of Russian Foreign Policy and the CIS; Theories, Debates and Actions, (London and New York: Routledge, 2003) and most recently an SSHRC funded report (2017) on "Russia and new patterns of conflict: Ramifications for NATO Policy and Action and Implications for

Canada"; "Canada, NATO and Global Russia", International Journal, 2018, and "Russia's Security Strategy and Outerspace", Simons Papers in Security and Development, August 2018. She is currently working on two projects. This first analyzes the role of Russia and global security governance, and the second examines NATO and Canadian approaches to hybrid warfare.

MR. LUKASZ KULESA

Research Director, European Leadership Network

Lukasz Kulesa is Research Director at the European Leadership Network (ELN), a non-partisan, non-profit organization which works to develop collaborative European capacity to address foreign and security policy challenges. His own research interests include: nuclear and conventional deterrence and arms control, NATO and Russian security policy, non-proliferation of weapons of mass destruction. Until 2014, Lukasz worked as the Head of the Non-proliferation and Arms Control Project at the Polish Institute of International Affairs (PISM). He is currently based in Warsaw.

DR. CHARLES A. KUPCHAN

Professor of International Affairs at Georgetown University and Senior Fellow at the Council on Foreign Relations

Charles A. Kupchan is Professor of International Affairs in the School of Foreign Service and Government Department at Georgetown University, and Senior Fellow at the Council on Foreign Relations. From 2014 to 2017, Kupchan served as Special Assistant to the President and Senior Director for European Affairs on the National Security Council in the Obama White House. He was also Director for European Affairs on the National Security Council during the first Clinton administration. His most recent books are No One's World: The West, the Rising Rest, and the Coming Global Turn (2012), and How Enemies Become Friends: The Sources of Stable Peace (2010).

DR. ROBERT LEGVOLD

Marshall D. Shulman Professor Emeritus, Columbia University

Robert Legvold is Marshall D. Shulman Professor Emeritus at Columbia University. Former director, the Harriman Institute, Columbia University; former director the Euro-Atlantic Security Initiative chaired by Sam Nunn, Wolfgang Ischinger, and Igor Ivanov. Currently co-director of the American Academy of Arts and Sciences' project, "Meeting the Challenge of the New Nuclear Age." Most recent book: Return to Cold War (2016); most recent essay, "The Challenges of a Multipolar Nuclear World in a Shifting International Context," American Academy Occasional Paper (forthcoming).

AMBASSADOR (RET.) PAUL MEYER

Senior Fellow, The Simons Foundation Canada; Adjunct Professor of International Studies, Simon Fraser University

Paul Meyer is Fellow in International Security and Adjunct Professor of International Studies at Simon Fraser University and a Senior Fellow with The Simons Foundation Canada. Previously, Mr. Meyer had a 35-year career with the Canadian Foreign Service, including serving as Canada's Ambassador to the United Nations and to the Conference on Disarmament in Geneva (2003-2007). He writes on issues of nuclear non-proliferation and disarmament, space security and international cyber security.

DR. VICTOR MIZIN

Leading Researcher, Institute for International Studies, Moscow State Institute of International Affairs

Dr. Victor Mizin is currently the Leading Researcher at the Institute for International Studies of the Moscow State Institute of International Affairs (University-MGIMO), as well as the Senior Research Fellow with the Center of International Security at the Russian Academy of Sciences'

Institute of World Economy and International Relations. He has made his career as an arms control, WMD nonproliferation, export control, Outer Space studies and global security expert.

MR. DAVID NELSON

Deputy Director, European Defence and Security Relations
Global Affairs Canada

David Nelson joined the department of Foreign Affairs and International Trade in 1999. He has been posted in Jakarta, Vienna and Copenhagen. In headquarters, he has worked mainly in the international security bureau on defence and security issues including the NATO desk from 2003-2006.

AMBASSADOR STEVEN PIFER

William J. Perry Fellow, Center for International Security and Cooperation,Stanford University

Steven Pifer is a William J. Perry Fellow at Stanford's Center for International Security and Cooperation and a nonresident senior fellow with the Brookings Institution. His work focuses on nuclear arms control, Ukraine and Russia. He is a retired U.S. Foreign Service officer, whose assignments included ambassador to Ukraine.

MR. ERNIE REGEHR

Senior Fellow in Arctic Security and Defence, The Simons Foundation Canada; Research Fellow, Centre For Peace Advancement, Conrad Grebel University College, University of Waterloo

Ernie Regehr is Senior Fellow in Arctic Security and Defence at The Simons Foundation Canada of Vancouver, and Research Fellow at the Centre for Peace Advancement, Conrad Grebel University College, at the University of Waterloo. He is co-founder and former Executive Director of Project

Ploughshares and his publications on peace and security issues include books, monographs, journal articles, policy papers and briefings, parliamentary briefs, and op-eds. His most recent book is Disarming Conflict: Why peace cannot be won on the battlefield (Between the Lines, Toronto, and Zed Books, London, 2015). He is an Officer of the Order of Canada.

DR. JENNIFER ALLEN SIMONS

Founder and President
The Simons Foundation Canada

Jennifer Allen Simons, C.M., Ph.D., LL.D. is Founder and President of The Simons Foundation Canada, a private charitable foundation located in Vancouver, Canada, with a mission to advance positive change through education in peace, disarmament, international law and human security. Dr. Simons is Adjunct Professor at Simon Fraser University's School for International Studies and Senior Visiting Fellow and Dialogue Associate at SFU's Centre for Dialogue, a Council Member of Pugwash Conferences on Science and World Affairs, Founding Partner of Global Zero and a Member of Global Zero's Nuclear Crisis Group, and serves as a board member or advisor on a number of national and international organizations. She was appointed to the Order of Canada in 2010.

MS. ELENA K. SOKOVA

Deputy Director, James Martin Center for Nonproliferation Studies
Middlebury Institute of International Studies at Monterey (MIIS)

Elena Sokova is a Deputy Director, James Martin Center for Nonproliferation Studies (CNS) at the Middlebury Institute of International Studies at Monterey. From 2011 to 2015 she was the Executive Director of the Vienna Center for Disarmament and Non-Proliferation. Her primary research areas are: nuclear security, fissile materials disposition and control, international nonproliferation regimes and nuclear disarmament.

Prior to her post in Vienna, Elena held a number of senior positions at CNS in Monterey. Before moving to the United States in 1992, she worked at the Soviet/Russian Ministry of Foreign Affairs. She authored dozens of articles, book chapters, reports, and other publications on nonproliferation and nuclear security. In 2014-2015 Elena Sokova was a member of the Global Agenda Council on Nuclear Security of the World Economic Forum.

MR. ALEXEY STEPANOV

Research Fellow, Institute for the U.S. and Canadian Studies
Russian Academy of Sciences

Born in 1989 in Moscow, Russia. Graduated from the School of World Politics at the Institute for the U.S. and Canadian Studies of the Russian Academy of Sciences. Interned at the Center for International and Security Studies at Maryland (CISSM) of the University of Maryland (USA). Completed a post-graduate program at the ISKRAN, specializing in political problems of international relations and global development. Since 2010 works in the Center for Military Policy Studies at the Institute for the U.S. and Canadian Studies of the Russian Academy of Sciences. Research interests include US policy in the Asia-Pacific region, US military policy towards China.

DR. PAUL STRONSKI

Senior Fellow, Russia and Eurasia Program
The Carnegie Endowment for International Peace

Paul Stronski is Senior Fellow in the Russia and Eurasia Program at the Carnegie Endowment for International Peace where his research focuses on Russian foreign policy, Central Asia and the Caucasus. He served as Director for Russia and Central Asia on the U.S. National Security Council from 2012-2014 and as Senior Research Analyst for Russia and Eurasia at the U.S. Department of State's Bureau of Intelligence and Research.

DR. JAMES P. TIMBIE

Annenberg Distinguished Visiting Fellow, Hoover Institution

As senior advisor at the State Department from 1983 to 2016, James Timbie played a central role in the negotiation of the INF and START nuclear arms reductions agreements. Now an Annenberg Distinguished Visiting Fellow at the Hoover Institution, Stanford University, his focus is on assessing the impact of changing demographics and advancing technology on democracy, on the workplace and the economy, and on national security.

MR. JON WOLFSTHAL

Director, Nuclear Crisis Group; Former Special Assistant on National Security Affairs to U.S. President Barack Obama; Former Senior Director for Arms Control and Nonproliferation, National Security Council, United States

Jon Wolfsthal is director of the Nuclear Crisis Group, an independent nonpartisan group of globally-recognized former military officials, diplomats, and security experts dedicated to preventing crises from escalating to the use of nuclear weapons. From 2014 to 2017, he served as special assistant to former U.S. President Barack Obama and as senior director for arms control and nonproliferation at the National Security Council. In that post, he was the most senior White House official, setting and implementing U.S. government policy on all aspects of arms control, nonproliferation and nuclear policy. Prior to that, he served as the deputy director of the James Martin Center for Nonproliferation Studies at the Monterey Institute for International Studies.

From 2009 to 2012, Wolfsthal served as the special adviser to U.S. Vice President Joe Biden for nuclear security and nonproliferation and as director for nonproliferation on the National Security Council. He supported the Obama administration's negotiation and ratification of the New START arms reduction agreement with the Russian Federation and helped support the development of nuclear policy, including the 2010 Nuclear Posture Review.

MAJOR GENERAL (RET.) PAVEL ZOLOTAREV

Leading Researcher, Institute for the U.S. and Canadian Studies
Russian Academy of Sciences

Gen. Pavel Zolotarev graduated from the Engineer Command High School. Before 1985, Service at the Strategic Missile Forces Headquarters. In 1979, he received the degree of candidate of Technical Sciences. After graduating from the Academy of the General Staff of the Armed Forces of the USSR-head of the information and analytical center of the Ministry of defense of the Russian Federation. Retired since 1998. Since 1996, Deputy chief of Staff of the defense Council of the Russian Federation. Since 2002, deputy director Institute USA and Canada studies of the Russian Science Academy. Since 2018, leading researcher at the Institute of the USA and Canada of the Russian Academy of Sciences.

SIMON FRASER UNIVERSITY TEAM MEMBERS

MR. ROBIN PREST

Acting Director, Morris J. Wosk Centre for Dialogue,
Simon Fraser University

Robin Prest is the Acting Executive Director at SFU's Morris J. Wosk Centre for Dialogue, where he strengthens the capacity of governments, stakeholders and citizens for dialogue-based engagement and collaborative decision-making. He regularly supports elected officials and senior decision-makers to improve the clarity and impact of public engagement initiatives, and to embed engagement within organizational cultures.

DR. NOLA-KATE SEYMOAR

Rapporteur; Associate, Morris J. Wosk Centre for Dialogue
Simon Fraser University

Dr. Nola-Kate Seymoar chairs the Vancouver City Planning Commission and is the former President and CEO of the International Centre for Sustainable Cities. A key organizer of the 2006 World Peace Forum, she has served on the boards of Peacefund Canada, the Canadian Landmines Foundation, The Centre for Days of Peace, and the advisory board to the Peace and Conflict Studies program at Royal Roads University. She received the Canadian United Nations Association's Global Citizen Award in 1995, the Queen's Golden Jubilee Medal in 2002 and the Queen's Diamond Jubilee Medal in 2012.

MS. GRACE LEE

Assistant to the Rapporteur

DR. NANCY TEEPLE

Assistant to the Rapporteur

APPENDIX B:
ACRONYMS

A2/AD	Anti-Access / Area-Denial
ABM	Anti-Ballistic Missile
BMD	Ballistic Missile Defence
C2	Command and Control
C3I	Command, Control, Communications, Intelligence
CBRN	Chemical, Biological, Radiological, Nuclear
CFE	Conventional Forces Europe
ELN	European Leadership Network
FRODs	Functionally Related Observable Differences
ICBM	Inter-Continental Ballistic Missile
INF	Intermediate Nuclear Forces
IRBM	Intermediate Range Ballistic Missile
JCPOA	Joint Comprehensive Plan of Action
NATO	North Atlantic Treaty Organization
New START	New Strategic Arms Reduction Treaty
NGO	Non-Governmental Organization
NPR	Nuclear Posture Review
NPT	Non-Proliferation Treaty
NRC	NATO-Russia Council
OSCE	Organization for Security and Cooperation in Europe
SALT	Strategic Arms Limitation Treaty
SLBM	Submarine-Launched Ballistic Missile
SM-3	Standard Missile – 3
SORT	Strategic Offensive Reduction Treaty
UAV	Unmanned Aerial Vehicle
WMD	Weapons of Mass Destruction

APPENDIX C:
LIST OF TREATIES

IN CHRONOLOGICAL ORDER

Partial Test Ban Treaty (Limited Test Ban Treaty) Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water	Signed in Moscow August 5, 1963; Ratified by U.S., UK, USSR; Ratified by U.S. Senate September 23, 1963; Entered into force October 10, 1963
Treaty on the Non-Proliferation of Nuclear Weapons (NPT)	Signed in Moscow, London, and Washington, DC, July 1, 1968; Entered into force March 5, 1970; Extended indefinitely May 11, 1995
Avoidance of Incidents at Sea Agreement (Incidents at Sea Agreement) Agreement Between the Government of The United States of America and the Government of The Union of Soviet Socialist Republics on the Prevention of Incidents On and Over the High Seas	Signed in Moscow, May 25, 1972; Entered into force May 25, 1972
Anti-Ballistic Missile Treaty (SALT I/ABM Treaty) Treaty between the United States of America and the Union of Soviet Socialist Republics on the Limitation of Anti-Ballistic Missile Systems	Signed in Moscow, May 26 1972; Ratified by U.S. Senate August 3, 1972; Entered into force October 3, 1972; (Followed by the July 3, 1974 ABM Treaty Protocol); U.S. withdrawal June 13, 2002

Strategic Arms Limitation Talks II (SALT II) Treaty	Signed in Vienna, June 17, 1979; Treaty never ratified
Intermediate Nuclear Forces (INF) Treaty Treaty Between The United States Of America And The Union Of Soviet Socialist Republics On The Elimination Of Their Intermediate-Range And Shorter-Range Missiles	Signed in Washington, DC, December 8, 1987; Ratified by U.S. Senate, May 27, 1988; Entered into force, June 1, 1988
Treaty on Conventional Armed Forces in Europe (CFE)	Signed in Paris by 22 countries (NATO and Warsaw Pact), November 19, 1990; Ratified by 30 countries in 1991; Ratified by U.S. Senate November 25, 1991; Entered into force July 17, 1992
Strategic Arms Reduction Treaty (START I) Treaty between the United States of America and the Union of Soviet Socialist Republics on Strategic Offensive Reductions	Signed in Moscow, July 31, 1991; Entered into force December 5, 1994; Expired December 5, 2009
Treaty on Open Skies (OST)	Signed March 24, 1992; Entered into force January 1, 2002
Strategic Arms Reduction Treaty II (START II) The Treaty Between the United States of America and the Russian Federation on Further Reduction and Limitation of Strategic Offensive Arms	Signed in Moscow, January 3, 1993; Ratified by U.S. Senate January 26, 1996; Ratified by Russian Duma April 14, 2000 (withdrew on June 14 2002); Never entered into force

Comprehensive Nuclear Test-Ban Treaty	Signed in New York City, September 19, 1996; Not ratified by U.S.; Never entered into force
Strategic Offensive Reduction Treaty (SORT) (Moscow Treaty) Treaty Between the United States of America and the Russian Federation on Strategic Offensive Reductions	Signed in Moscow, May 24, 2002; Entered into force June 1, 2003; Expired: February 5, 2011
New Strategic Arms Reduction Treaty (New START) Treaty between the United States of America and the Russian Federation on Measures for the Further Reduction and Limitation of Strategic Offensive Arms	Signed in Prague, April 8, 2010; Ratified by U.S. Senate, December 22, 2010; Entered into force February 5, 2011; Expiry: February 5, 2021

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