

ENTANGLEMENT: STRATEGIC STABILITY AND AIR-SPACE WAR

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The possibility of armed conflict, and ensuing nuclear war has once again returned to US/ NATO-Russia strategic relations due to:

- The tense standoff between Russian and U.S./ NATO armed forces over Ukraine, and in the Baltic, Black Sea, and potentially Arctic regions;
- The development of new weaponry and C3I systems which erode traditional delineation between nuclear and conventional arms, between offensive and defensive systems, and between a local conflict and global war.

CONCEPTUAL INNOVATIONS

- U.S. and recently Russian concepts of “conventional” or “pre-nuclear” deterrence;
- Russian strategy of “air-space war”;
- Concepts of “anti-access/area-denial” attributed to Russia (as well as China);
- Concepts of “escalation for de-escalation” (Russia) and “escalation dominance” (U.S./NATO)
- Concepts of “selective/limited” strategic nuclear strikes and “tailored nuclear options”.

ENTANGLEMENT

Entanglement is the possibility of long-range precision-guided conventional attacks against nuclear weapons and associated C3I systems of the opponent. It creates the risk that a non-nuclear conflict—even a local one—between the great powers might escalate rapidly and unintentionally into a global nuclear war.

AIR-SPACE WARFARE

Russia's current Military Doctrine of 2014 defines the most important task of the Armed Forces: "Timely warning to the Commander in Chief of the Russian Armed Forces of an air-space attack," along with "guaranteeing the air-space defense of key sites in the Russian Federation and insuring the readiness to repel an air-space attack." ("Voennaya doktrina Rossiiskoi Federatsii" [Military Doctrine of the Russian Federation], *President of Russia*, 2014, <http://news.kremlin.ru/media/events/files/41.d527556bec8deb3530.pdf>.)

WHAT IS AIR-SPACE ATTACK?

“Air-space itself will become the main and, at times, the only sphere of armed conflict... The enemy will get the opportunity to inflict coordinated in time and space, high-precision strikes against virtually all targets on Russian territory, and indeed across the entire world.” (A.

Demin, I. Ashurbeili, O. Bogdanov, Yu. Tret'yakov, M. Gareev, O. Falichev, “Ser'eznoi ugroze adekvatnyi otvet. Osnovnoi sferoi vooruzhennoi bor'by stanet vozdushno-kosmicheskoe prostranstva” [An Appropriate Response to a Serious Threat. The Main Area of Armed Conflict Will Be the Air-Space Theater], *Vozdushno-Kosmicheskaya Oborona*, Aug. 13, 2012, <http://www.vko.ru/strategiya/sereznoy-ugroze-adekvatnyy-otvet.>)

AIR-SPACE ATTACK PURPOSE

President Vladimir Putin (Valdai Forum in 2015): “...A strategy already exists for a so-called first disarming strike, including with the use of long-range, high-precision nonnuclear weapons, the effect of which may be compared to that of nuclear arms.”

(“Meeting of the Valdai International Discussion Club,” *President of Russia*, Oct. 22, 2015, <http://en.kremlin.ru/events/president/news/50548>.)

TARGETS OF CONVENTIONAL DETERRENCE

- Hard strategic targets: super-hardened command centers, ICBM silos (?).
- Soft strategic targets: mobile ICBMs' light shelters, mobile ICBM launchers in the field, ballistic missile submarines at bases, heavy bombers at airfields, communication sites on land, early-warning radars, command-control sites of space missile early-warning system, storage depots for nuclear weapons.
- Conventional military targets.
- Civilian targets: power plants, oil refineries, transportation hubs, communication nodes (R.Einhorn, S. Pifer, et al: Meeting U.S. Deterrence Requirements. Foreign Policy at Brookings. 2017,p.20.)

MEANS OF AIR-SPACE ATTACK

- U.S. Navy: 6,000 BGM-109 Tomahawk Land-Attack Missiles (deployed on 4 Ohio-class submarines for a total of 616; 25 Virginia and Seawolf-class attack submarines for a total of 500 missiles; 22 Ticonderoga-class cruisers and 62 Burke-class destroyers, for a total of 4,560 missiles).
- U.S. Air Force: AGM-158B Joint Air-to-Surface Standoff Missile Extended Range (JASSM ER).
- Russian Navy: Kalibr 3M-54, 3M-14 (attack submarines, surface ships)
- Russian Air-Space Force: Kh-55SM, Kh-555, Kh-101/102 (Russian Defense Minister S. Shoigu: the number of cruise missiles will increase fivefold by 2016, and 30-fold by 2020)
- All of the above - dual-purpose systems

LONG-RANGE PRECISION-GUIDED CONVENTIONAL SYSTEMS

USA: Tomahawk SLCM

Russia: Kalibr SLCM



Russian Air-Space Force: Kh-55, Ry-55SM, Kh-555, Kh-101/102
U.S. Air Force: FGM-129, AGM-86,
AGM-158B Joint Air-to-Surface Standoff Missile Extended Range
(JASSM ER).

- nuclear-conventional
- global-regional



Cruise missiles' deficiencies

- Limited effectiveness of non-nuclear systems against hardened point sites (95% probability of hitting one silo with an accuracy of 5 meters would require 14 cruise missiles, and with an accuracy of 8 meters - 35 missiles).
- The possibility of jamming cruise missile guidance systems.
- Extreme difficulty of planning simultaneous strikes against several hundred targets located across Russia's vast territory (with cruise missiles' flight time of 2-2,5 hours).
- Requirement to assess the results of strikes, and repeat them if necessary.
- An operation is impossible to implement in one attack wave, or even in one day.
- A long time of preparing the operation by generating required forces, which would be impossible to conceal.

ADVANCED HYPERSONIC WEAPONS

**Hypersonic
systems:**

U.S. ALCM: X-51

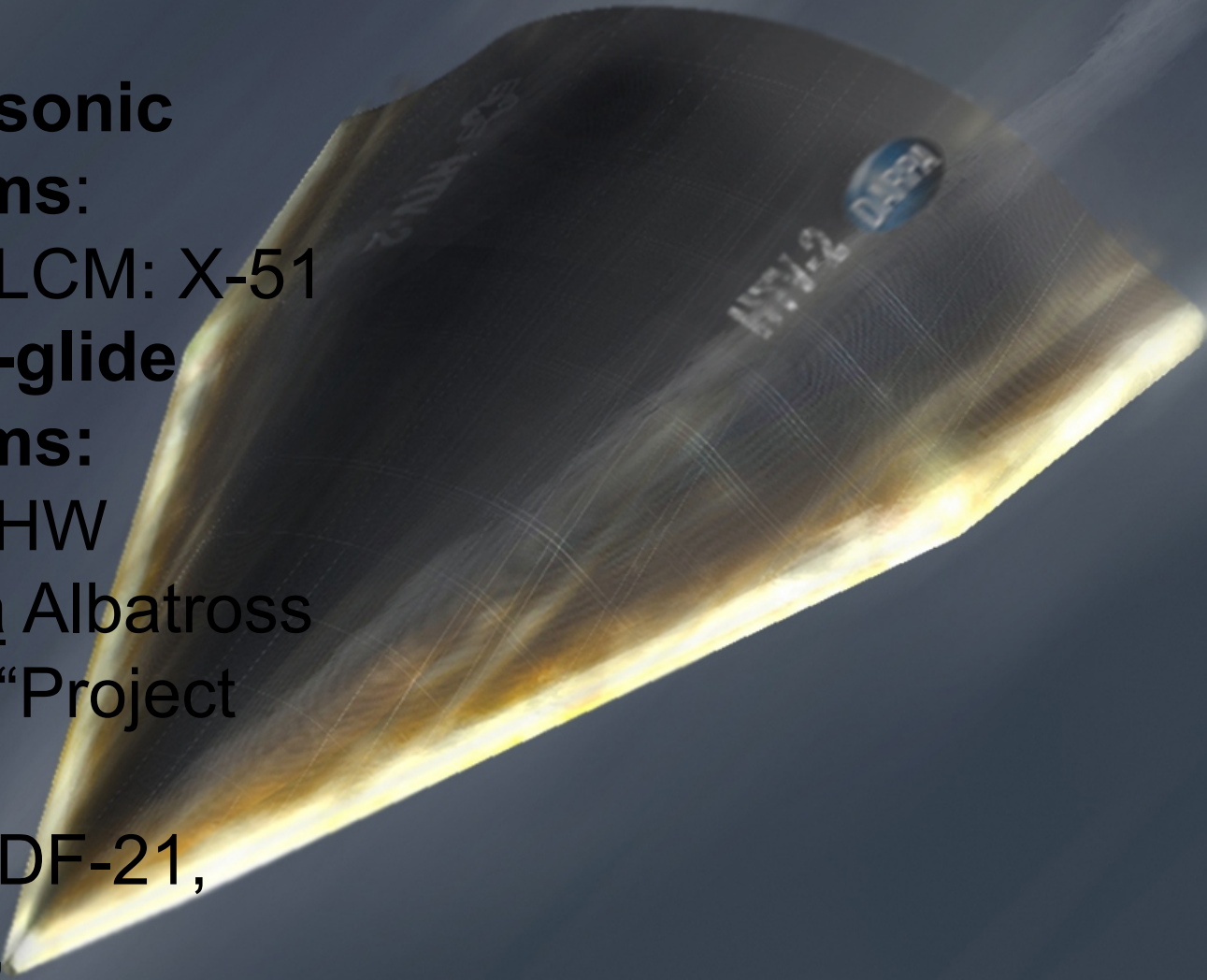
**Boost-glide
systems:**

U.S. AHW

Russia Albatross

Yu-71 “Project
4202”

China DF-21,
DF-17,
Wu-14



- Compared to present subsonic cruise missiles:
- Covert attack preparation
- Shorter flight time (60 min compared to 2-3 hours)
- Weaker potential opponent's countermeasures
- Bigger costs
- Compared to present nuclear ballistic missiles:
- longer flight time (60 min compared to 15-30 min)
- Stronger potential opponent's countermeasures at terminal stage of flight (with nonnuclear warhead)
- Trajectory unpredictability ("blind zone" between BMD and AAD)
- Problems for early-warning systems to insure launch-under-attack
- Anti-satellite systems – zero warning – preemptive strike
- Bigger costs

Anti-satellite warfare

Reconnaissance, communications, and navigation satellites would be considered legitimate targets for radio-electronic jamming or physical attacks in the early stages of a nonnuclear conflict—even a local or regional one. Entanglement is probable since some of these satellites simultaneously serve the United States' or Russia's strategic nuclear systems.

(Russia's GLONASS (Kosmos series) and the U.S. NAVSTAR; communications satellites U.S. MILSTAR and Russia's Molniya, Meridian, Strela, Raduga series.)

Early warning systems

Missile early-warning satellites are deployed at geostationary or highly elliptical orbits (Russian *Tundra* class, and future *Unified Space System*, the U.S. old *Defense Support Program* and the new *SBIRS* satellites). They may be attacked to hamper BMD operation or deny boost-glide launch detection in conventional strikes exchange scenarios.

Limited nuclear strikes

- Russia's Military Doctrine reserves the right to use nuclear weapons in response to "aggression against the Russian Federation with the use of nonnuclear weapons, when the state's existence is put under threat," but it does not specify the scale of such nuclear weapons use. ("Voennaya doktrina Rossiiskoi Federatsii.")
- "The limited nature of the initial nuclear impact... is designed not to embitter, but to sober the aggressor, making it stop the attack and get down to negotiations. The opponent's reaction is calculated ... as a limited nuclear strike.... After all it was the United States where the concept of a limited nuclear war was born." (Dmitry Akhmerov, Yevgeny Akhmerov, Marat Valeev, "Aerostat – drug 'Sarmata'" [Balloon – a Friend of "Sarmat"], *Voenna-Promyshlennyi Kur'er*, Oct. 12, 2016, <http://vpk-news.ru/articles/32887>.)
- The U.S. concept of "tailored nuclear options for limited use." (Daryl G. Kimball, "World War III? Into Uncharted Territory," *Global Research*, Feb. 4, 2017, <http://www.globalresearch.ca/world-war-iii-trumps-authority-to-use-nuclear-weapons-let-it-be-an-arms-race-we-will-outmatch-them-and-outlast-them-all/5572887>;))

Sarmat liquid-fueled silo-based heavy ICBM system



Long-Range Stand-OFF Weapon



Mead Course Ground Based
Interceptor (Alaska, California)



Standard-3 BMD Interceptor is launched from the U.S. Navy ship



RUSSIAN AIR-SPACE DEFENSE

- Moscow BMD (A-135)
- Air-defense
- ASAT

In 1989 the aggregate destructive power of U.S. and Soviet nuclear forces was equal to 3 700 000 Hiroshima bombs of August 6, 1945
In 2017 – “only” to 110 000



Transformation of deterrence

- In the past crossing “nuclear threshold” was planned only as a response to a massive conventional attack: tactical nuclear weapons- medium range systems- strategic nuclear arms.
- Presently a local conflict may lead to massive use of long-range conventional weapons (conventional deterrence, air-space warfare) against nuclear forces of the opponent and escalate to all out nuclear war.

PREVENTING A PLUNGE

- The above concepts and advanced technologies, if presented in a crisis to inexperienced and cocky political leadership, could prompt it to making an unstoppable plunge to universal catastrophe.
- The leaders in Washington and Moscow should be informed about the potentially destabilizing role of new weapons and operational concepts that create the threat of entanglement and uncontrolled escalation.

Expanding the principles of strategic stability

- First, the past definition of strategic stability should be expanded to read as “a state of strategic relations that is removing incentives for a nuclear first strike and a first use of nuclear weapons”.

Any use of nuclear weapons, however limited, is inherently escalatory and should be excluded from bilateral strategic relations.

THIS IS NOT ENOUGH -

IT SHOULD BE AGREED AND CLEARLY SPELLED OUT THAT:

- Second, nuclear posture of each side may increase the probability of war despite their mutual political desire to avoid it.
- Third, military programs of both powers affect each other and may incite arms race.
- Fourth, weapon systems threatening survivability of each other's strategic forces and C3I assets imply first strike strategy and provoke preemption.
- Fifth, while undertaking reduction of strategic forces both sides should give priority to downgrading prompt and slow counterforce capabilities against each other.

- Sixth, expanding defensive systems to reduce each side's vulnerability to third states and non-state opponents should be based on the agreement on a mutually acceptable relationship “between strategic offensive and defensive arms”.
- Seventh, systems and concepts blurring delineation between nuclear and conventional weapons and operations are destabilizing and should be subjected to limitations and (or) confidence-building measures.
- Eighth, space strike systems, and foremost anti-satellite arms, are highly destabilizing and should be banned or limited by verifiable agreements.

- Ninth, the same is true about cyber warfare technologies related to strategic C3I systems.
- Tenth, engaging third nuclear arms states should be based on the realistic estimates of their forces and specific definition of the sequence, principles, objects and verification methods of involving the new parties.

Is such updating of the principles of strategic stability possible, taking into account the current political environment, priorities and intellectual level of national leaders?

Until we try to inform and persuade them we will never know.

In view of the above realities such efforts are not desirable – they are absolutely vital for our survival in the years to come.

Thank you!