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# **NATO Nuclear Operations Management, Escalation, Balance of Power**

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Presentation to

Course on Nuclear Weapons Policy and Arms Control

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## Outline



- NATO internal nuclear management
- Escalation and nuclear use procedures
- NATO-Russia nuclear balance, structure and operations

## NATO Nuclear Structure

“NATO is a nuclear alliance...”

Correction: NATO as an institution does not own any nuclear weapons. It is an alliance of mostly non-nuclear weapon states as well as three nuclear-weapon states that under certain circumstances will use their own nuclear weapons to defend member countries against attack.

A predominantly non-nuclear alliance:

- Non-nuclear (NPT) members: 25 (89%)
- Nuclear weapon members: 3
- Nuclear Sharing members: 5
- SNOWCAT members: 7

Nearly half (13) do not have a nuclear-related role (other than participating in NPG)

Country	Nuclear State	Nuclear Sharing	SNOW CAT*	NPG	Nuclear Policy
Albania				x	x
Belgium		x		x	x
Bulgaria				x	x
Canada				x	x
Croatia				x	x
Czech Rep.			x	x	x
Denmark			x	x	x
Estonia				x	x
France	x				x
Germany		x		x	x
Greece			x	x	x
Hungary			x	x	x
Iceland				x	x
Italy		x		x	x
Latvia				x	x
Lithuania				x	x
Luxembourg				x	x
Netherlands		x		x	x
Norway			x	x	x
Poland			x	x	x
Portugal				x	x
Romania			x	x	x
Slovakia				x	x
Slovenia				x	x
Spain				x	x
Turkey		x		x	x
United Kingdom	x			x	x
United States	x			x	x
Total	3	5	7	27	28

\* SNOWCAT: Support of Nuclear Operations With Conventional Air Tactics (previously Support of Nuclear Operations With Conventional Attacks)

## NATO Nuclear Structure

97 percent reduction of US nuclear weapons in Europe since peak of 7,300 in 1971

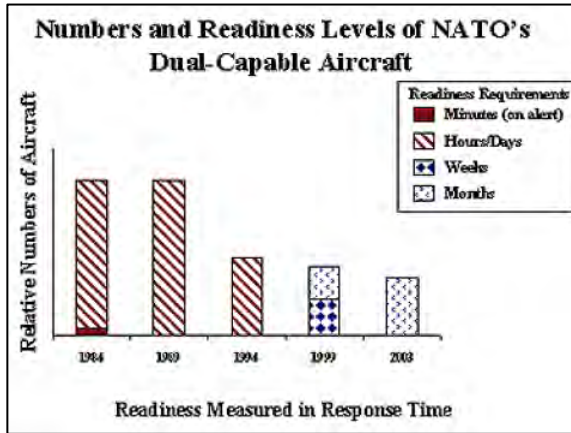
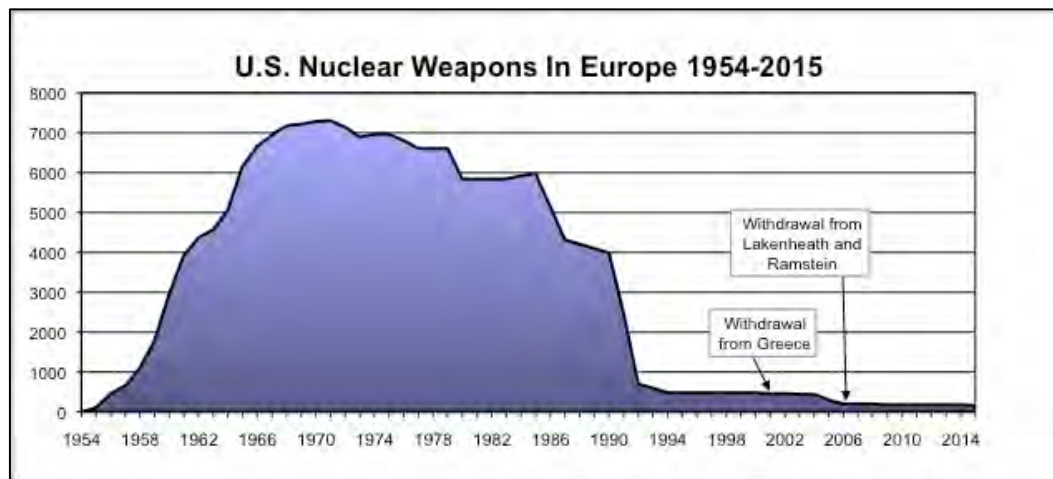
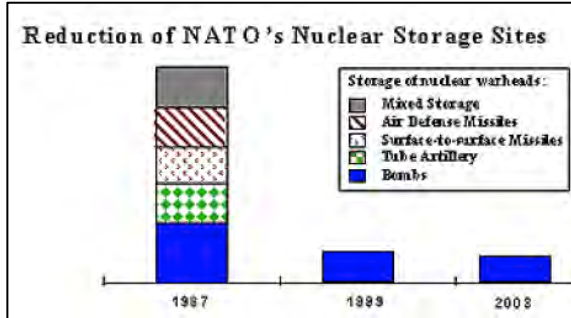
Withdrawal of 12 of 13 weapon systems since 1971 (bombs remain)

All army, marine corps, navy weapons scrapped

Storage sites reduced to six bases in five countries

Readiness of remaining aircraft reduced from minutes to months

	1971	1981	1987	1991	1999	2008
• Mines	x	x				
• Nike Hercules SAM	x	x	x			
• Honest John SSM	x	x				
• Lance SSM	x	x	x	x		
• Sergeant SSM	x					
• Pershing IA	x	x	x			
• Pershing II				x		
• GLCM			x			
• 155mm Howitzer	x	x	x	x		
• 8-in. ch. Howitzer	x	x	x	x		
• Walleye ASM	x					
• ASW Depth Bombs	x	x	x	x		
• B.C.A. Bombs	x	x	x	x	x	x
<b>Total Systems</b>	<b>11</b>	<b>9</b>	<b>9</b>	<b>5</b>	<b>1</b>	<b>1</b>



## NATO Nuclear Structure

NATO countries with nuclear weapons forces and/or roles\*

NATO Member	Nuclear Role	Nuclear Posture
United States	Primary guarantor of ultimate security guarantee. Heads SACEUR. Has traditionally lead/dominated NATO nuclear mission/discussion. Also has nuclear support role in Pacific.	Stockpile of 4,700 nuclear warheads for delivery by Quadrad of long-range bombers, ICBMs, SLBMs, and dual-capable fighter-bombers. About 180 gravity bombs deployed in Europe at six bases in five countries. Provides nuclear bombs to nuclear sharing members. Supports UK posture (missiles, technology, know-how) and to lesser extent France.
United Kingdom	Has “independent” nuclear force that backs up US role. Previously identified “sub-strategic” support of NATO.	Stockpile of 215 nuclear warheads for delivery by SLBMs.
France	No official role. Nuclear forces not integrated into NATO command structure. Does not participate in NPG.	Stockpile of 300 nuclear warheads for delivery by SLBMs and fighter-bombers.
Belgium	Nuclear strike role as part of nuclear sharing arrangement.	Stockpile of 20 US bombs for delivery by Belgian F-16s.
Germany	Nuclear strike role as part of nuclear sharing arrangement.	Stockpile of 20 US bombs for delivery by German Tornados.
Italy	Nuclear strike role as part of nuclear sharing arrangement.	Stockpile of 20 US bombs for delivery by Italian Tornados.
Netherlands	Nuclear strike role as part of nuclear sharing arrangement.	Stockpile of 20 US bombs for delivery by Dutch F-16s.
Turkey	Possibly still part of nuclear sharing arrangement.	Previous stockpile of 40 US bombs for Turkish aircraft withdrawn.

\* Another seven countries participate in SNOWCAT (Czech Republic, Denmark, Greece, Hungary, Norway, Poland, Romania)

## NATO Nuclear Policy

Important nuclear language changes in NATO policy documents 1999-2012:

Strategic Concept 1999	Strategic Concept 2010	DDPR 2012
<p>“The supreme guarantee of the security of the Allies is provided by the <b>strategic</b> nuclear forces of the Alliance, particularly those of the United States; the independent nuclear forces of the United Kingdom and France, which have a deterrent role of their own, contribute to the overall deterrence and security of the Allies.”</p>	<p>“The supreme guarantee of the security of the Allies is provided by the <b>strategic</b> nuclear forces of the Alliance, particularly those of the United States; the independent strategic nuclear forces of the United Kingdom and France, which have a deterrent role of their own, contribute to the overall deterrence and security of the Allies.”</p>	<p>“The supreme guarantee of the security of the Allies is provided by the <b>strategic</b> nuclear forces of the Alliance, particularly those of the United States; the independent strategic nuclear forces of the United Kingdom and France, which have a deterrent role of their own, contribute to the overall deterrence and security of the Allies.”</p>
<p>“NATO will maintain, at the minimum level consistent with the prevailing security environment, adequate <b>sub-strategic</b> forces based in Europe which will provide an essential link with strategic nuclear forces, reinforcing the transatlantic link. These will consist of <b>dual capable aircraft and a small number of United Kingdom Trident warheads.</b>”</p>		<p>“NAC will task the appropriate committees to develop concepts for how to ensure the broadest possible participation of Allies concerned in their nuclear sharing arrangements, <b>including in case NATO were to decide to reduce its reliance on non-strategic nuclear weapons based in Europe.</b>”</p>
<p>“require widespread participation by European Allies involved in collective defense planning in nuclear roles, in peacetime basing of nuclear forces on their territory and in command, control and consultation arrangements.”</p>	<p>“ensure the broadest possible participation of Allies in collective defense planning on nuclear roles, in peacetime basing of nuclear forces, and in command, control and consultation arrangements;”</p>	<p>“the Alliance’s nuclear force posture currently meets the criteria for an effective deterrence and defense posture.”</p>

2014 NATO Wales Summit identified Russia as a military adversary; review of nuclear policy is underway for 2016 Warsaw Summit.

## NATO Nuclear Management

**North Atlantic Council:** Ultimate NATO authority.

**Nuclear Planning Group (NPG):** Acts as the senior body on nuclear matters within NATO. Meets once a year. Chaired by Secretary Defense of NATO. Provides a forum in which defense ministers of nuclear and non-nuclear members participate in the development of the NATO nuclear policy and in decisions on NATO's nuclear posture (except France).

**High Level Group (HLG):** The senior advisory body to the NPG on nuclear policy and planning issues. Meets several times a year. Chaired by the United States and is composed of national policy makers (at policy director level) and experts from Allied capitals. Also oversees nuclear weapons safety, security and survivability matters.

**Military Committee (MC):** The primary source of military advice to the NPG. Meets weekly. Makes recommendations on the use of military force and implementation of contingency plans. Plays a key role in the development of NATO military policy and doctrine, assists in developing overall Alliance strategic concepts, and prepares an annual long term assessment of the strength and capabilities of countries and areas posing a risk to NATO's interests.

**International Military Staff (IMS):** Executive body of the MC providing providing strategic military advise and staff support to the committee. Its Plans and Policy Division supports and gives military advice to the director general of the IMS (DGIMS) on nuclear deterrence and nuclear defense policy.



North Atlantic Council meeting



Military Committee meeting



## NATO Nuclear Escalation

NATO itself has no nuclear weapons use decision authority (it does not own nuclear weapons).

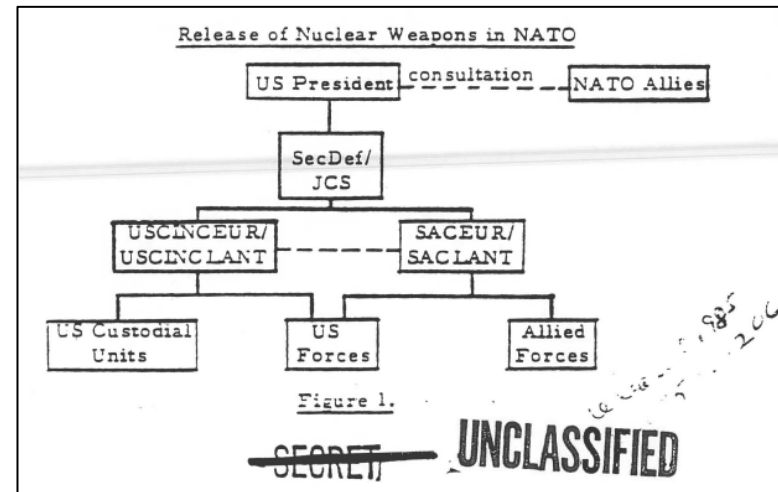
Decision (authorization) to use (employ) nuclear weapons in support of NATO can only be made in Washington, London, and Paris by the state leaders of those nuclear-weapon states.

NATO would be consulted and possibly consent (by consensus) to use but it cannot block use.

The NATO consultation process is aimed at making a formal request or recommendation from the Alliance’s political and military leadership. This is supported by a deliberative process that includes all of the member nations.

Consultation process formally relates only to weapons in NATO’s nuclear sharing arrangement.

Release process would go through US chain of command to US and then allied forces (see chart).



“Once the US President had released nuclear weapons for use by SACEUR, the release authorization would be transmitted through USCINCEUR to US delivery units and US custodial units supporting Allied forces. The United States would simultaneously notify the other NATO governments of its decision. At the same time, the President would authorize a major NATO commander, e.g., SACEUR (same individual as USCINCEUR, but with an Allied staff and command post facilities separate from those of USCINCEUR), to use the weapons, who would in turn signal authorization to the executing commanders via NATO command channels.”

James R. Schlesinger, SECDEF, *The Theater Nuclear Force Posture in Europe: A Report to the United States Congress*, 1975, p. 11. National Security Archive via FOIA.



## NATO Nuclear Escalation

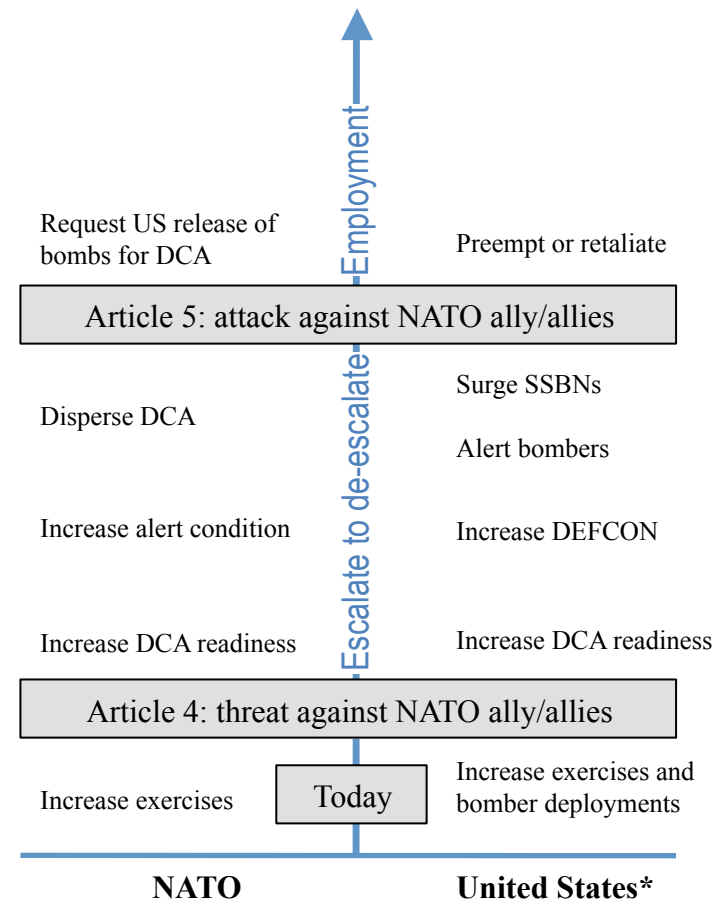
Escalation in support of NATO is a two-part problem:

- Escalation of DCA (nuclear sharing) forces in Europe
- Escalation of strategic forces by United States, United Kingdom, France

**2010 Strategic Concept and 2012 DDPR:** “The supreme guarantee of the security of the Allies is provided by the **strategic** nuclear forces of the Alliance, particularly those of the United States; the independent strategic nuclear forces of the United Kingdom and France, which have a deterrent role of their own, contribute to the overall deterrence and security of the Allies.”

One could imagine: formal deliberative process on DCA stymied by division and indecision in NATO but parallel decisions in Washington, London, and/or Paris about the use of weapons in support of NATO commitments.

Note: Escalation would also involve non-nuclear forces as well as depend on how an adversary used nuclear weapons against NATO



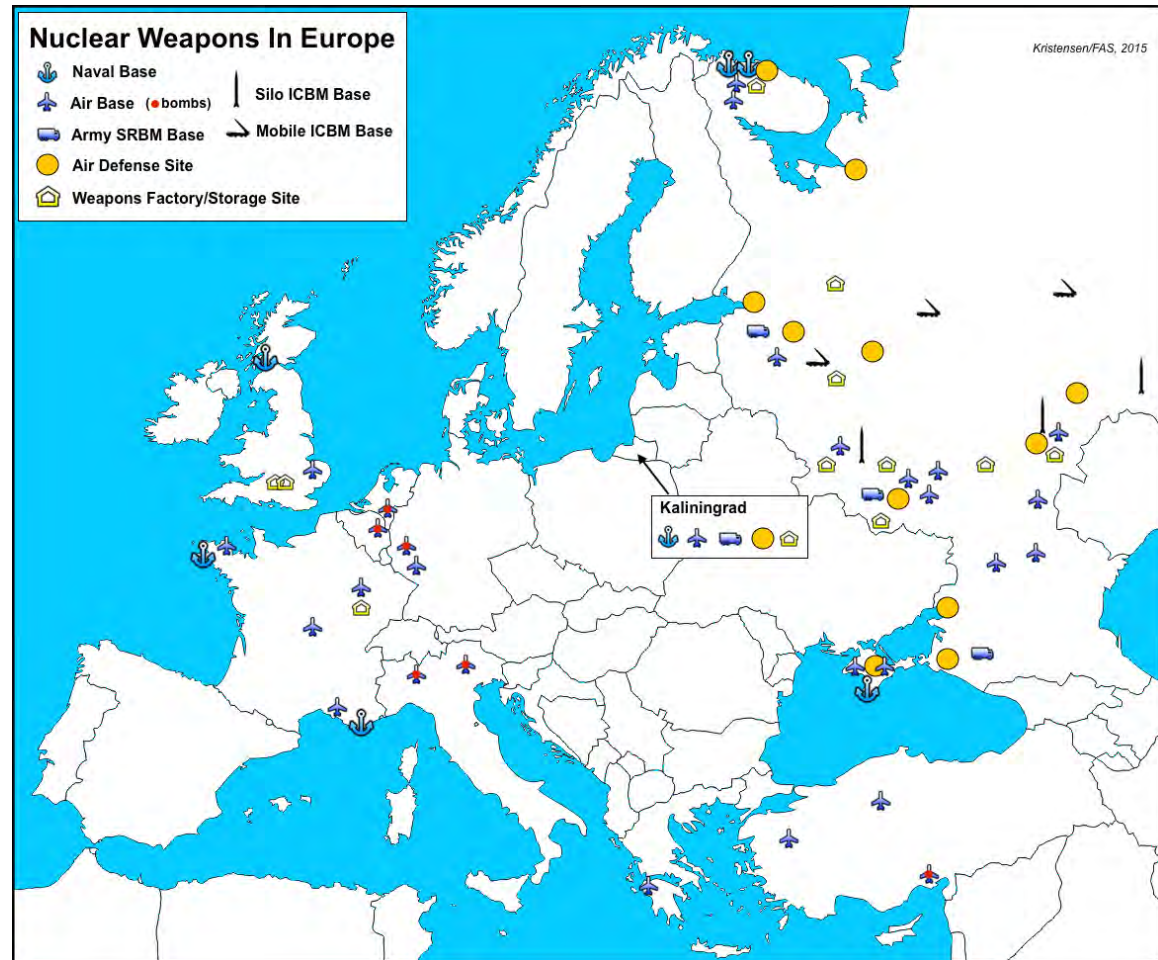
\* UK forces would likely escalate in coordination with US forces

## NATO-Russia Nuclear Balance

Significant reductions since Cold War  
and most forces pulled back

Yet significant forces remain:

- 3 European nuclear weapon states
- US forward deployment continues
- 5 non-nuclear weapons states have semi-nuclear status
- Russia has ~2,000 non-strategic nuclear warheads for air-, naval-, army-, and defense-forces
- NATO non-strategic weapons include ~180 US bombs in Europe (more in US) and 54 French air-launched cruise missiles (considered strategic by France)



Note: Locations of US nuclear forces in the continental United States or Russian forces east of Ural mountains are not shown

## Russia: Non-Strategic Weapons

Weapons System	Remarks
<b>Air Force</b>	
AS-4 ALCM	1967: 48 years old. For Tu-22M3
Bombs	For Tu-22M3, Su-24M, <b>Su-34</b>
<b>Navy</b>	
SS-N-9 (Malakhit)	1969: 45 years old. For ships.
SS-N-12 (Bazalt)	1976: 38 years old. For subs.
SS-N-15 (Vyuga)	1969: 47 years old. For subs/ships.
SS-N-16 (Vodopad)	1981: 33 years old. For subs.
SS-N-19 (Granit)	1980: 34 years old. For ships.
SS-N-21 (Granat)	1987: 27 years old. For subs.
SS-N-22 (Moskit)	1981: 22 years old. For ships.
<b>SS-N-30X (Kalibr)</b>	(2015). For subs. Replacing SS-N-21?
Torpedoes (550/650 mm)	For subs.
Depth Bombs	For ASW aircraft and helicopters.
<b>Army</b>	
SS-21 (Tochka)	1981: 33 years old.
<b>SS-26 (Iskander-M)</b>	2005: Replacing SS-21.
<b>Defense</b>	
S-300/A-135/coastal	Nuclear status of newer systems uncertain.

Large leftover warhead inventory of almost entirely Soviet-era weapons

Reduced by at least 75% since 1991 but not since 2004

Most estimates vary from 1,800 to 2,000 warheads.

DOD mentions unofficial estimates of 2,000-4,000

All warheads in central storage; not with/on launchers

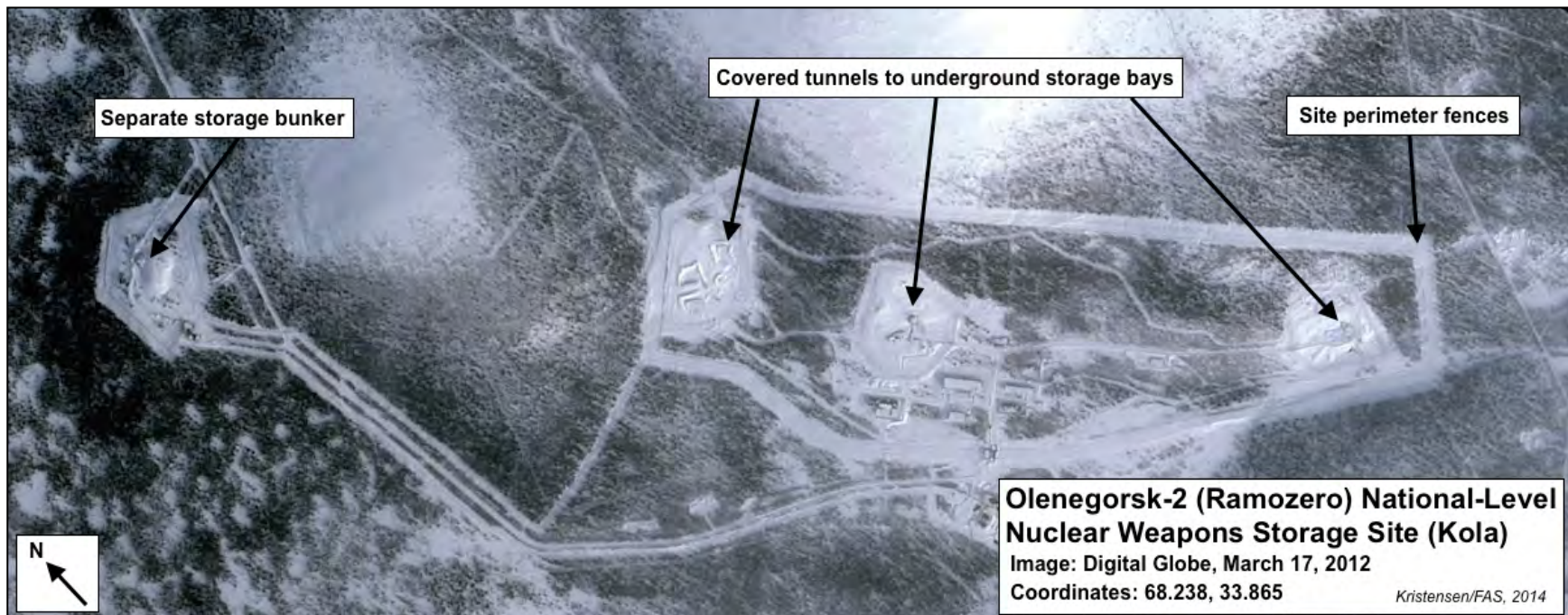
Some upgrades but only three new versions (red in left table) fielding. Future plans are unknown

Anti-ship SLCMs probably to be replaced by conventional missiles

“The general purpose forces – to include dual-use nonstrategic nuclear forces – will continue to acquire new equipment for the near-term, but deliveries will be small and largely consist of modernized Soviet-era weapons.”

*US Defense Intelligence Agency, 2013*

## Russia: Storage Sites



National-level storage site on Kola Peninsula includes three tunnels to underground warhead storage bays inside multi-layered fence perimeter. A separate storage bunker is located about 1 km from main site. Entire complex spans 3.1 km.



## Russia: Storage Sites

- Navy and Air Force nuclear storage sites are smaller and closer to bases, or on bases
- The navy storage site at Shchukozero near Severodvinsk on the Kola Peninsula is only 0.5 km long with one igloo (right)
- The air force site at Shatalovo (far right) near Belarus is 1.3 km long with two igloos (far right)
- These smaller sites are probably separate from the “central” storage sites managed by the 12<sup>th</sup> Main Directorate where Russia says all its tactical nuclear warheads are stored



## Russia: Storage Sites

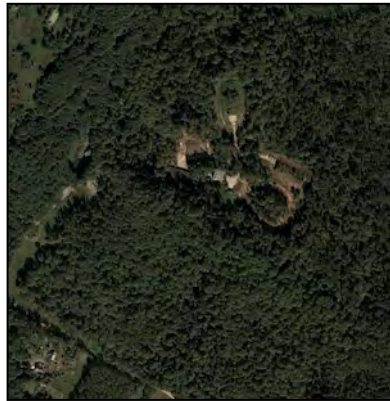


Image: September 22, 2002

Upgrade of apparent nuclear weapons storage site in Kaliningrad (near Chkalovsk). Clearing and improvement of perimeter, weapons igloos



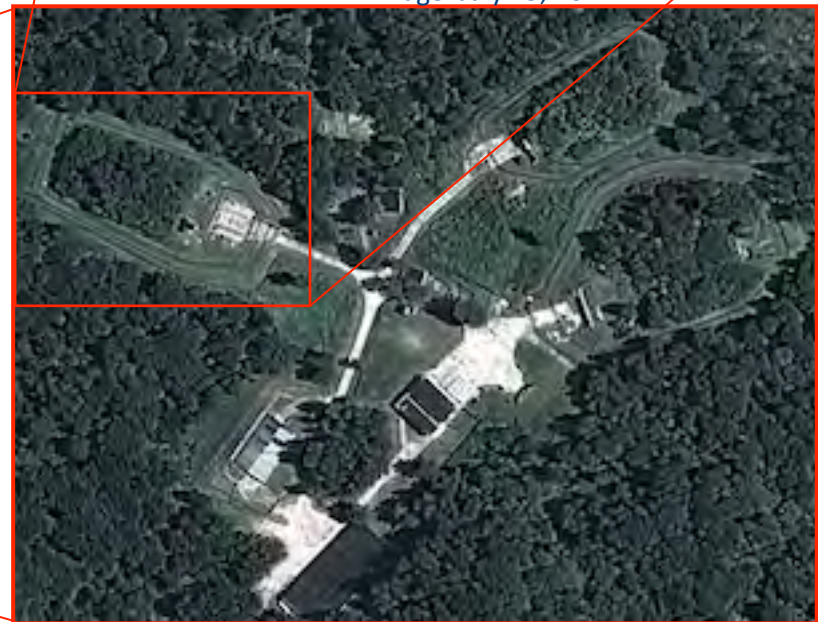
Image: June 26, 2010

One of three igloos has quadruple fence typical of nuclear weapons storage storage facilities

But does it contain nuclear weapons?  
Use visit to clarify nuclear status?



Image: July 25, 2012





### Russia: Storage Sites

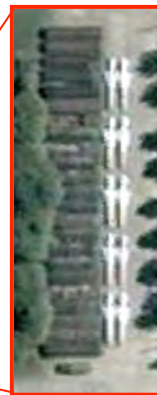


May 2007

July 2007



October 2009



- Some air bases have nuclear remote weapon storage site. Example: Shaykovka Air Base near Belarus (left)
- Tu-22M3 Backfired bombers with AS-4 Kitchen air-launched cruise missiles
- Between 2007 and 2009, the base's nuclear weapon storage site was upgraded with new perimeter and buildings
- 2012: AS-4 long-range strike exercise
- 2014: training flight over Baltic Sea





## Russia: Crimea



Source: <http://www.youtube.com/watch?v=WJeJCOeyW-c>

- BBC (Nov. 11, 2014): “U.S. Gen. Philip Breedlove said Tuesday that Russian forces "capable of being nuclear" are being moved to the Crimean Peninsula, but NATO doesn't know if nuclear weapons are actually in place.”
- Rumors abound: Putin has approved deployment of Iskander, Backfires
- Youtube video from May 2, 2014 (left), claims to show “Iskander Missiles” rolling through Sevastopol in May 2014
- Although similar, the two trucks do not match images of Iskander launchers: rear-end extends too far beyond fourth axle
- Rumor about 12<sup>th</sup> Main Directorate unit being readied for Crimea (but not deployed)

## Russia: Crimea



SS-N-12 SLCM loading on Slava cruiser (above) and SS-N-22 SLCM loading on Dergach corvette (below)



- Images of Gvardiesky Air Base (above) show potentially nuclear-capable S-300 air-defense units moving in shortly after “referendum” in March 2014
- Nuclear-capable forces have been at the Russian Black Sea Fleet in Crimea for decades: submarines, ships, naval aircraft (left)

## NATO Modernization

- Modification of B61 bomb from “dumb” bomb to guided, standoff B61-12 with guided tail kit assembly that increases targeting accuracy and efficiency: one type can cover all bomb missions (tactical as well as strategic)\*

Integration on F-15E in 2013-2018

Integration on F-16 in 2015-2018

Integration on Tornado in 2015-2017

- B61-12 First Production Unit in 2020; stockpiling from 2024
- F-35A fighter-bomber will also carry B61-12

Integration of B61-12 in 2015-2021

To be used by US Air Force, Italy, Netherlands, and Turkey

- B61-12 also integrated onto strategic bombers (B-2A and new LRS-B)
- B61-12 cost: more than a decade worth of European Reassurance Initiatives

\* Note: Only new digital aircraft (F-35A, B-2A, LRS-B) will be able to use tail kit for guided employment; older analog aircraft (Tornado, F-15E, F-16) will use ballistic employment.





## NATO Modernization

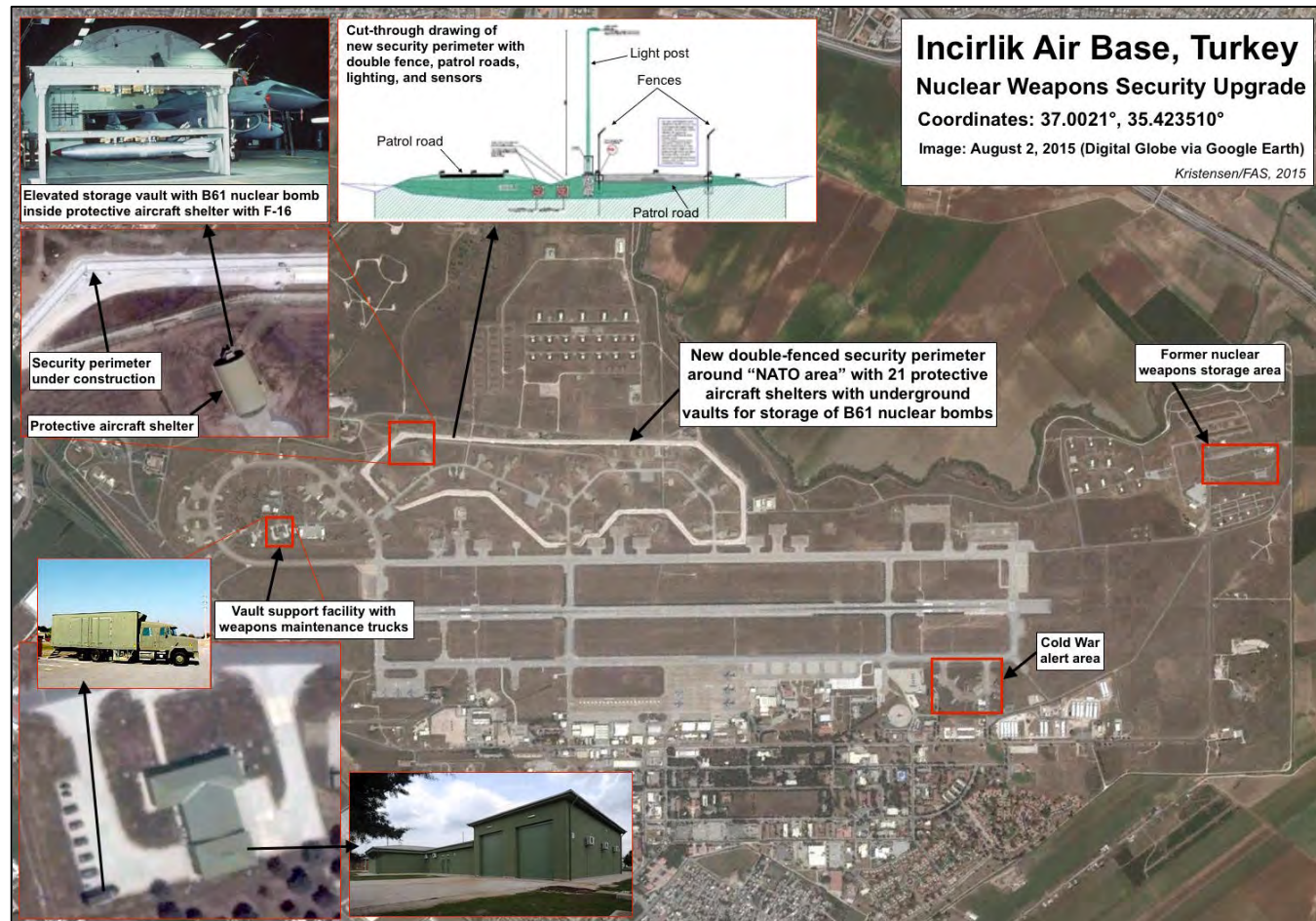
Upgrade underway of WS3 system at seven (six active) bases in Europe

Security and infrastructure upgrades underway at USAF base at Incirlik, Turkey (50 bombs stored)

Only 110 km (68 miles) from border with war-torn Syria; Inside Turkey with an armed civil war

Similar security upgrade at USAF base at Aviano, Italy

No similar security upgrades seen yet at national bases in Belgium, Germany, Italy, Netherlands



## Operations

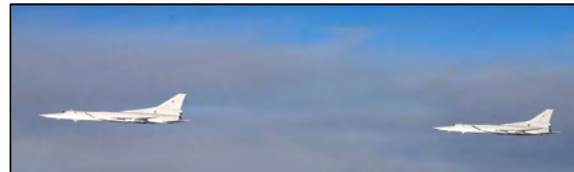
**Both Russia and US/NATO are increasing/modifying operations of nuclear-capable forces**

May not be explicit nuclear signal, but is being seen as also a nuclear signal

Russia: Long-range bomber flights increasing closer to NATO countries; “snap” exercises increasing in frequency, size, visibility; explicit nuclear threats issued by officials



Baltic Sea: Su-24 fighter-bomber intercept



Baltic Sea: Tu-22M bombers



Televised ICBM/SLBM launch



North Sea: Tu-95 bomber intercept



Baltic Sea: SS-N-22 SLCM loading



Luga: SS-26 return from Kaliningrad deployment



## Operations

**Both Russia and US/NATO are increasing/modifying operations of nuclear-capable forces**

US/NATO: Long-range bombers integrated closer into EUCOM strike plans; exercises in Eastern Europe increasing in frequency, size, visibility; fighter-bomber rotational deployments and exercises in Baltic States, Poland, Sweden; first SSBN port visit to Europe in 25 years



F-16 deployments to Estonia, Poland, Sweden



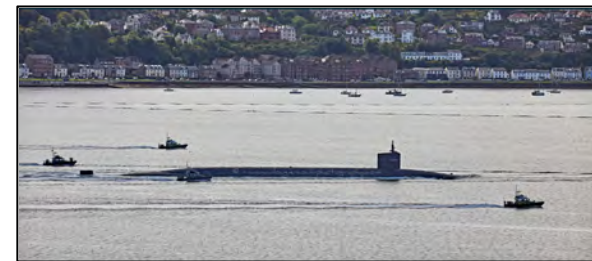
B-52, B-2 deployment to United Kingdom



B-52s over BALTOPS exercise



B-52 over Latvia



SSBN visit to Scotland

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**QUESTIONS?**