

# NUCLEAR ARMS CONTROL: THE END OF HISTORY?

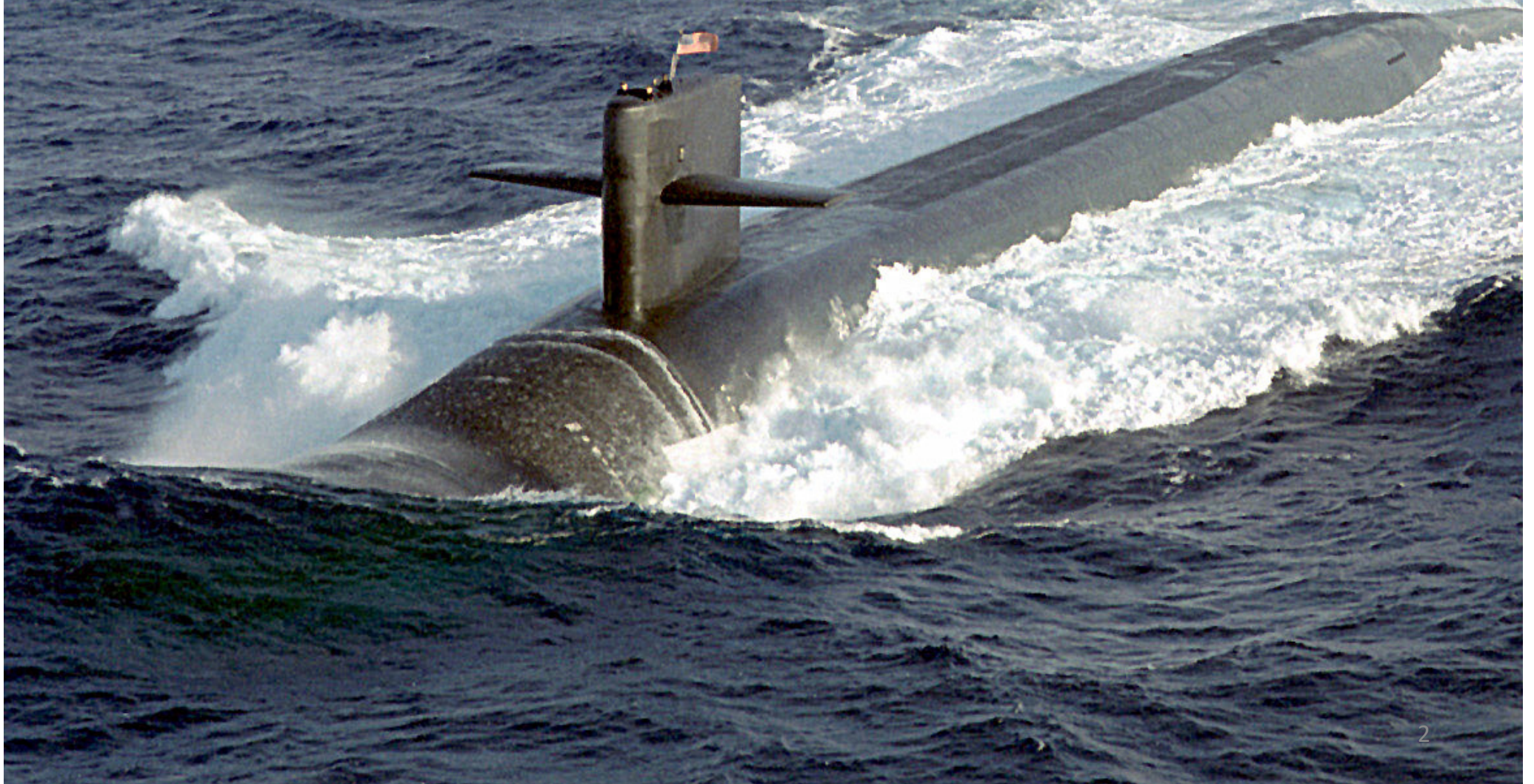
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# ARMS CONTROL SYSTEM IN A STATE OF DISINTEGRATION

Worst crisis in 50 years



# THE SYMPTOMS

- New START (BMD, CPGS)
- INF
- CTBT
- NPT Review Conference 2015
- Iranian deal – precedent? North Korea.
- FMCT
- Non-weaponization of Space
- Nunn-Lugar (CTR) terminated in 2013
- Nuclear safety terminated in 2014
- Nuclear Summit 2016
- P5 nuclear discussions
- 4 Nuclear arms outsiders

# THE REASONS

- New world order
- New technologies
- New economics

# COLD WAR WORLD ORDER

- Centers of power:
  1. The United States (NATO, Pacific allies)
  2. The Soviet Union (Warsaw Pact, Asian allies)
- The threats: Global nuclear war
- The roots of war:
  1. Surprise attack
  2. Escalation of local or regional crisis (1950, 1957, 1961, 1962, 1967, 1973, 1983)
  3. Nuclear proliferation

# TOOLS OF SECURITY

- Hot-line
- Nuclear arms limitation and reduction (PTBT, ABM Treaty/SALT-I, SALT-II)
- Peaceful crisis settlement (Korea, Vietnam, India-Pakistan, Middle East)
- Nuclear arms non-proliferation (NPT Treaty)

# POST-COLD WAR WORLD ORDER



# POST-COLD WAR WORLD ORDER

Power centers: USA, China, Russia, European Union, India, Japan, Brazil, Iran, Turkey ...Nuclear arms control for them...

Threats: international terrorism, local/trans-border conflicts, migration, religious/ethnic extremism, trans-border crime...

Nuclear proliferation



# TOOLS OF SECURITY

- Joint fight against terrorism
- Peace-keeping, peace-enforcement, humanitarian interventions
- Non-proliferation, counter-proliferation (Iraq, Ukraine, Kazakhstan, Belorussia, South Africa, Brazil, Argentina, Iran, North Korea, Syria), NPT 1995, NPT AP 1997
- Nuclear arms reduction and limitation (INF, START-I, START-II, START-III, SORT, New START)
- Moving to the periphery...

# RUSSIA AND NUCLEAR ARMS CONTROL

**1991-2010: Liberal leadership, integrating with the West, sorting out the Soviet nuclear legacy**

## Yeltsin:

- START I (1991-1994), Nunn-Lugar program, HEU-LEU, START II (1993), START III (1997), BMD delineation (1997)

## Putin:

- Ratification of START II (2000), CTBT (2000), and Adaptation CFE (2004); SORT (2002), 9/11, Afghanistan

## Medvedev:

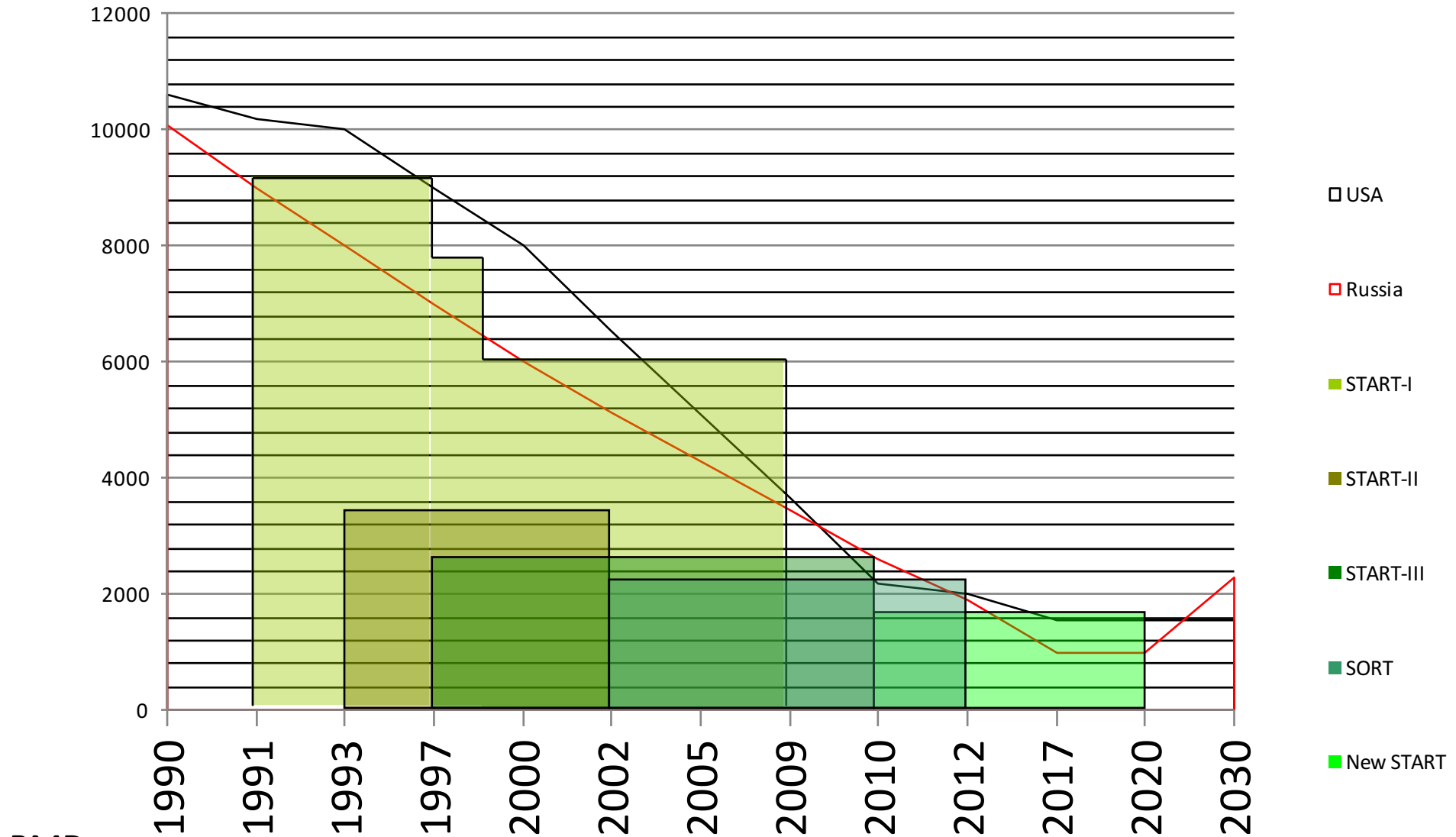
- New START (2010)

## The US/West:

- Yugoslavia/Kosovo (1999), Two steps of NATO extension (10 states), Iraq (2003), Libya (2011)
- Withdrawal from the ABM Treaty (2002)
- Failure to ratify CTBT
- BMD deployment, CPGS development

**2012-2016: Conservatives leadership, confronting the West, challenging US domination. Nuclear modernization, conventional build-up, arms control linkage**

# TECHNOLOGICAL DEVELOPMENTS



BMD

PGM/CPGS

Sub-strategic nuclear arms

Other nuclear arms states

# BALLISTIC MISSILE DEVELOPMENT AND PROLIFERATION

## BMD programs:

- USA
- Russia
- NATO
- Israel
- China
- India
- Japan
- South Korea
- Taiwan
- Australia

A Standard Missile – 3 (SM-3) Block 1B  
interceptor is launched from the USS LAKE  
ERIE (CG 70), May 16, 2013



# RUSSIAN AIR-SPACE DEFENSE

- Moscow BMD (A-135)
- Air-defense (S-400, S-500)
- ASAT



# LONG-RANGE PRECISION-GUIDED CONVENTIONAL SYSTEMS

USA: Tomahawk SLCM

Boost-glide AHW

Russia: Kalibr

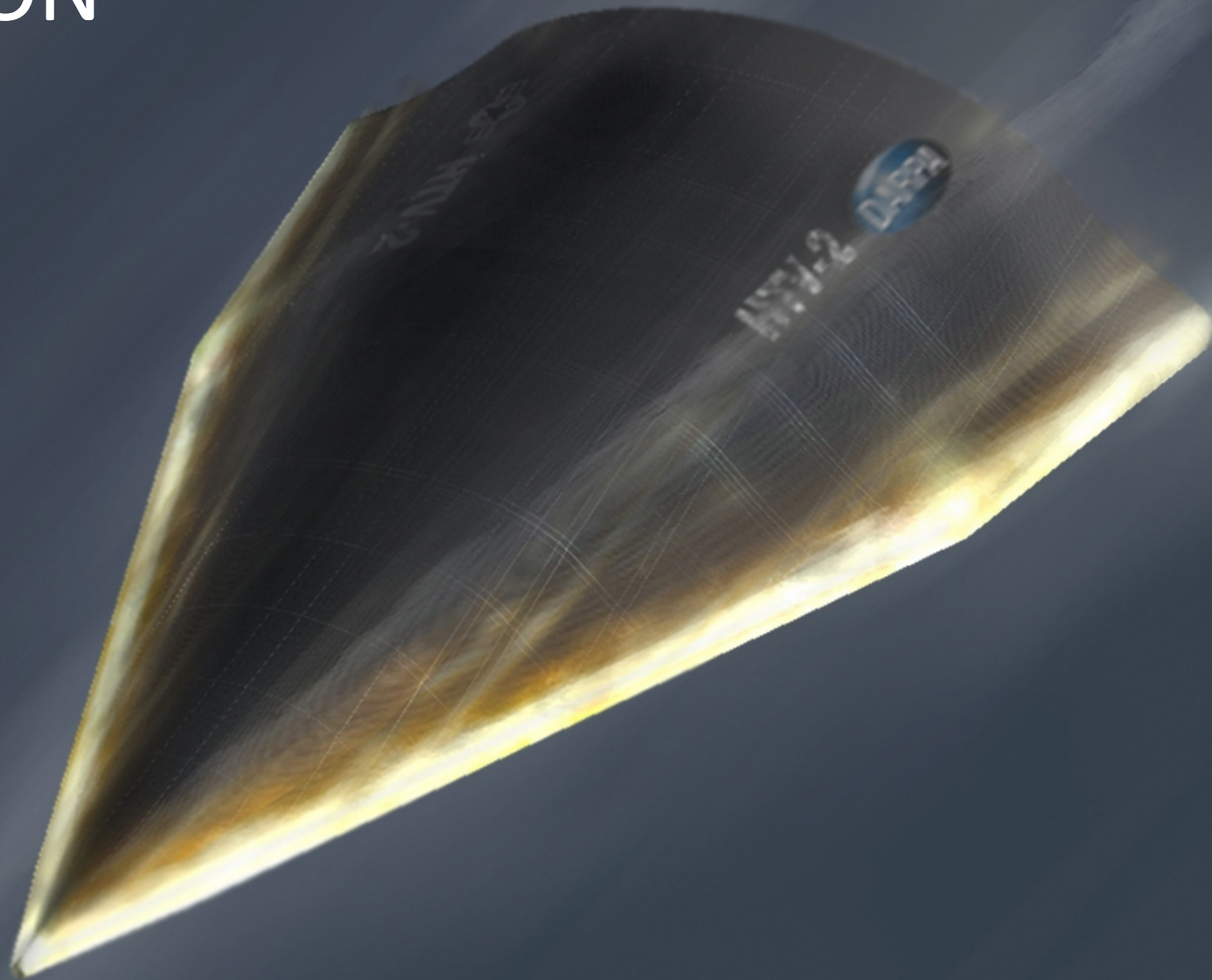
Boost-diving Yu-71  
("Project 4202")

China: DF-21,

Wu-14 boost-glide



# BOOST-GLIDE ADVANCED HYPERSONIC WEAPON





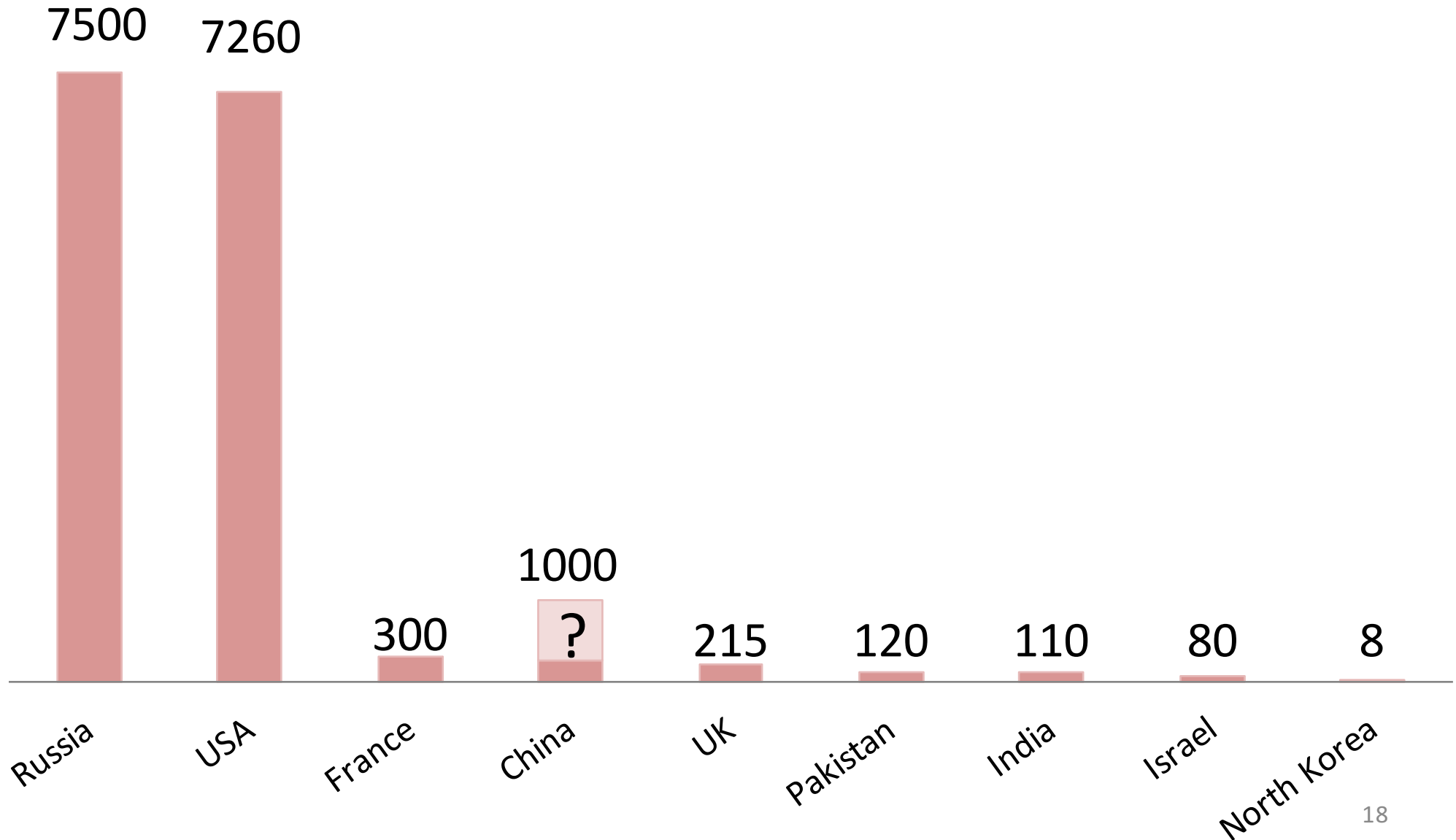
# STRATEGIC BALANCE IN FLUX



- nuclear-conventional
- offensive-defensive
- bilateral-multilateral
- global-regional
- traditional-cyber
- arms reduction / non-proliferation (Iran/BMD/INF)

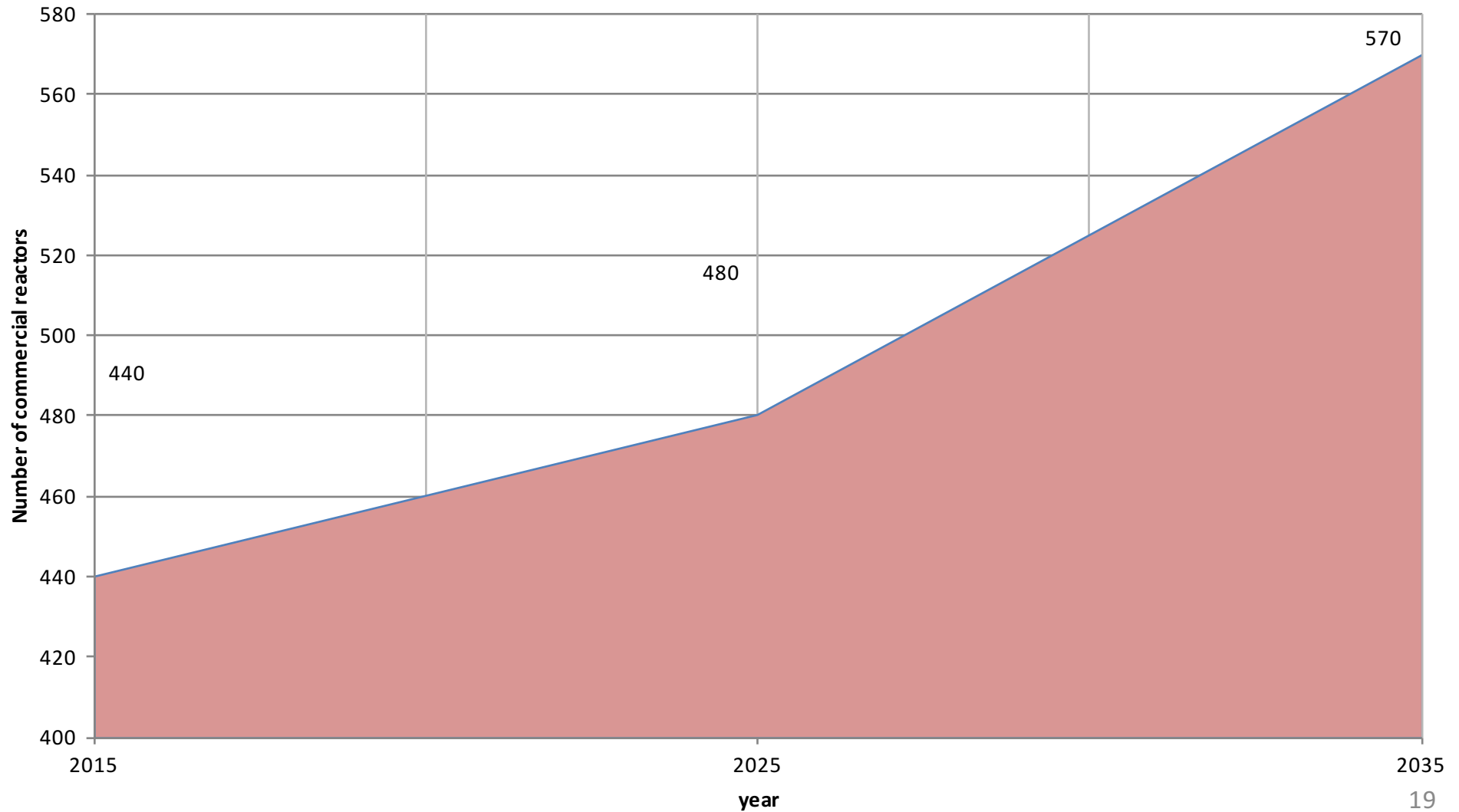
# THIRD NUCLEAR ARMS STATES

Number of nuclear warheads, 2015 r.

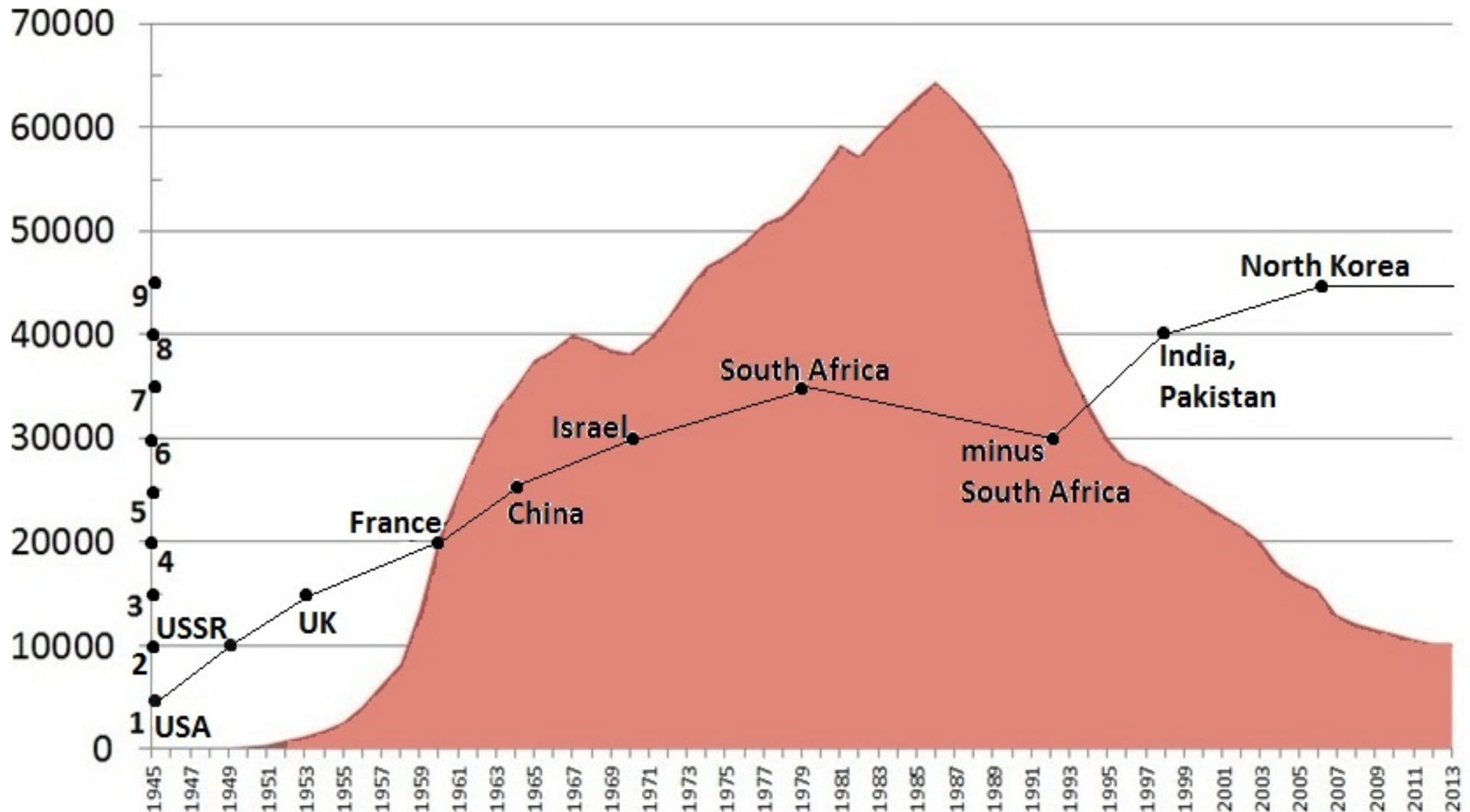


# GROWTH OF WORLD NUCLEAR ENERGY

Prospects for nuclear energy development, 2015-20135



# Nuclear arsenals and proliferation



Source: Hans M. Kristensen and Robert S. Norris, Global nuclear weapons inventories, 1945–2013, Bulletin of the Atomic Scientists, 2013, No. 69(5), p. 76, <http://bos.sagepub.com/content/69/5/75.full.pdf+html>.

- Joint Comprehensive Plan of Action (JCPOA) on Iran's nuclear program, July 14, 2015
- North Korea's nuclear program

- End the new US-Russian Cold War
- Untangle strategic knot:
  - START follow on
  - BMD
  - Strategic conventional systems
  - Sub-strategic nuclear arms
  - Third nuclear arms states

**THANK YOU**