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CSDS News and Analysis 1485 (Feature Research: “Benefits/Risks of AI in Nuclear-Weapon Systems,” NTI)

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Welcome to [USAF Center for Strategic Deterrence Studies](#) News and Analysis! As part of the CSDS mission to develop [U.S. Air Force](#), [Department of Defense](#), and other [government](#) leaders to advance the state of knowledge, policy, and practices within strategic defense issues involving nuclear, biological, and chemical weapons, we offer the government and civilian community a source of contemporary discussions.

Feature Research

[“Assessing and Managing the Benefits and Risks of Artificial Intelligence in Nuclear-Weapon Systems”](#). NTI, Aug. 26, 2021.

"At a time when most countries with nuclear weapons are modernizing or diversifying their nuclear arsenals, significant technological advances in artificial intelligence (AI) for military applications suggest that AI inevitably will be explored for use in nuclear-weapon systems. Along with significant benefits, however, come associated risks and implications for strategic stability." [Read Paper](#).

Nukes and Deterrence, Counter-WMD, and Arms Control in News and Research

NUCLEAR WEAPONS AND DETERRENCE

- [An Overlooked Aid to Arms Control: US Nuclear Modernization](#) (Strategic Studies Quarterly)
As the U.S. seeks to expand its nuclear arms control efforts in scope ... and in numbers of partners beyond Russia, U.S. officials must examine what policies might enable the best arms control outcome.
- [Strategic Command Needs New Three-Way Deterrence Model, Deputy Commander Says](#) (Air Force Magazine)
But as for a three-way Cold War that includes China, "that's a dynamic I don't think our nation has teased out," he acknowledged.
- [STRATCOM Commander Warns Of China-Russia Coordination; Report Details AI Collaboration](#) (Breaking Defense)
"Our findings expose gaps between Chinese and Russian aspirations and the reality on the ground, bringing greater accuracy and nuance to current assessments of Sino-Russian cooperation," on AI, notes a new report by the Center for Security and Emerging Technology.
- [New Satellite Images Hint How Russian Navy Could Use Massive Nuclear Torpedoes](#) (USNI News)
The Russian Navy continues to develop how it intends to deploy its latest strategic weapon – a bus-sized torpedo tipped with a nuclear warhead.
- [The Chinese Nuclear Breakout and the Biden Administration's Nuclear Posture Review](#) (Real Clear Defense)
"The idea of cutting our nuclear forces and modernization plans in the face of such a great increase in the Chinese and Russian threat is almost mind-boggling."

COUNTER-WMD

- [The Future of NATO's Air and Missile Defence](#) (RUSI)

This paper identifies shortcomings that would prevent NATO from mounting a credible defence against the multi-tiered salvos Russia can generate. The paper also highlights changes NATO needs to make.

- [House Committee Fears Gap in Industrial Capability to Power Laser Weapons](#) (Defense News)

A 300-kilowatt laser could defeat cruise missiles, and a 1-mega watt laser could possibly counter ballistic missiles and hypersonic weapons, the [Congressional Research Service] report notes.

- [Army's COVID-19-detecting Dogs Show Promise, May Help against Other Biological Threats](#) (UPI)

Dogs have been trained to detect bombs, help with search and rescue operations and even detect colon cancer.

- ["Designer Biology" and the Need for Biosecurity-by-Design](#) (NCT Magazine)

While somewhat more technically difficult, engineering harmful bacteria also poses a dual use threat.

US ARMS CONTROL

- [Organization for the Prohibition of Chemical Weapons \(OPCW\): Budget and U.S. Contributions](#) (Congressional Research Service)

Assessed use of chemical weapons by Syria, North Korea, and Russia since 2013 has drawn renewed U.S. and international attention to chemical weapons issues and placed additional demands on OPCW.

- [Iran Warns US against Wasting Time in Nuclear Talks](#) (AI-Monitor)

While the European Union has stressed the need for a resumption of the Vienna talks, no specific timetable has been set by the parties involved.

- [How Kim Jong Un Keeps Advancing His Nuclear Program](#) (Bloomberg via Washington Post)

He [Kim] has been busy making his nuclear arsenal bigger, deadlier and better able to strike South Korea, Japan, American forces in Asia -- and the U.S. mainland.

- [North Korea Appears to Have Restarted Yongbyon Nuclear Reactor](#) (Wall Street Journal)

Inspectors cite evidence of resumed operations at the plutonium-producing plant, which had been shut down since 2018.

COMMENTARY

- [Tracking Missile Threats](#) (CSIS)

"The influence of these weapon systems on deterrence, assurance, and stability continues to evolve and grow more complex."

- [Do Not Forget U.S. Missile Defense Gaps in This Year's NDAA](#) (Real Clear Defense)

"While the U.S. nuclear triad has atrophied in the last twenty years, our adversaries have diligently sought to exceed our nuclear capabilities."

- [China's Nuclear Missile Silo Expansion: From Minimum Deterrence to Medium Deterrence](#) (Bulletin of the Atomic Scientists)

"Some claim that China is becoming an even greater nuclear threat Others claim that China is responding to US provocations, and that arms control is the only way forward."



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