

Chinese Nuclear Forces: AI/N₃C, Entanglement, and Risks of Nuclear Escalation

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China's Nuclear Policy

- **No-First-Use (NFU)**
- **Rejection of nuclear deterrence/coercion based on first use: striking after being struck by enemy**
- **“Minimum” vs. “Limited” Deterrence**
- **“Effective Counter-Nuclear Deterrence”**
- **De-Alert and Non-Targeting**
- **Evolving Nuclear Strategy and Debates**
- **Toward a competitive nuclear strategy**
- **Nuclear Use and LUA/LOW (“early warning counterstrike”): early warning system; alerted nuclear forces; command and control structures**



Chinese Principles/Positions

- **NFU and no nuclear arms race**
- **All NWS must pledge complete and thorough nuclear disarmament, refrain from new R&D, and reduce role for nukes**
- **Phased objectives and ultimate goal of zero**
- **Address both causes and symptoms of nuclear proliferation**
- **US and Russia must take the lead and nuclear and conventional disarmament**



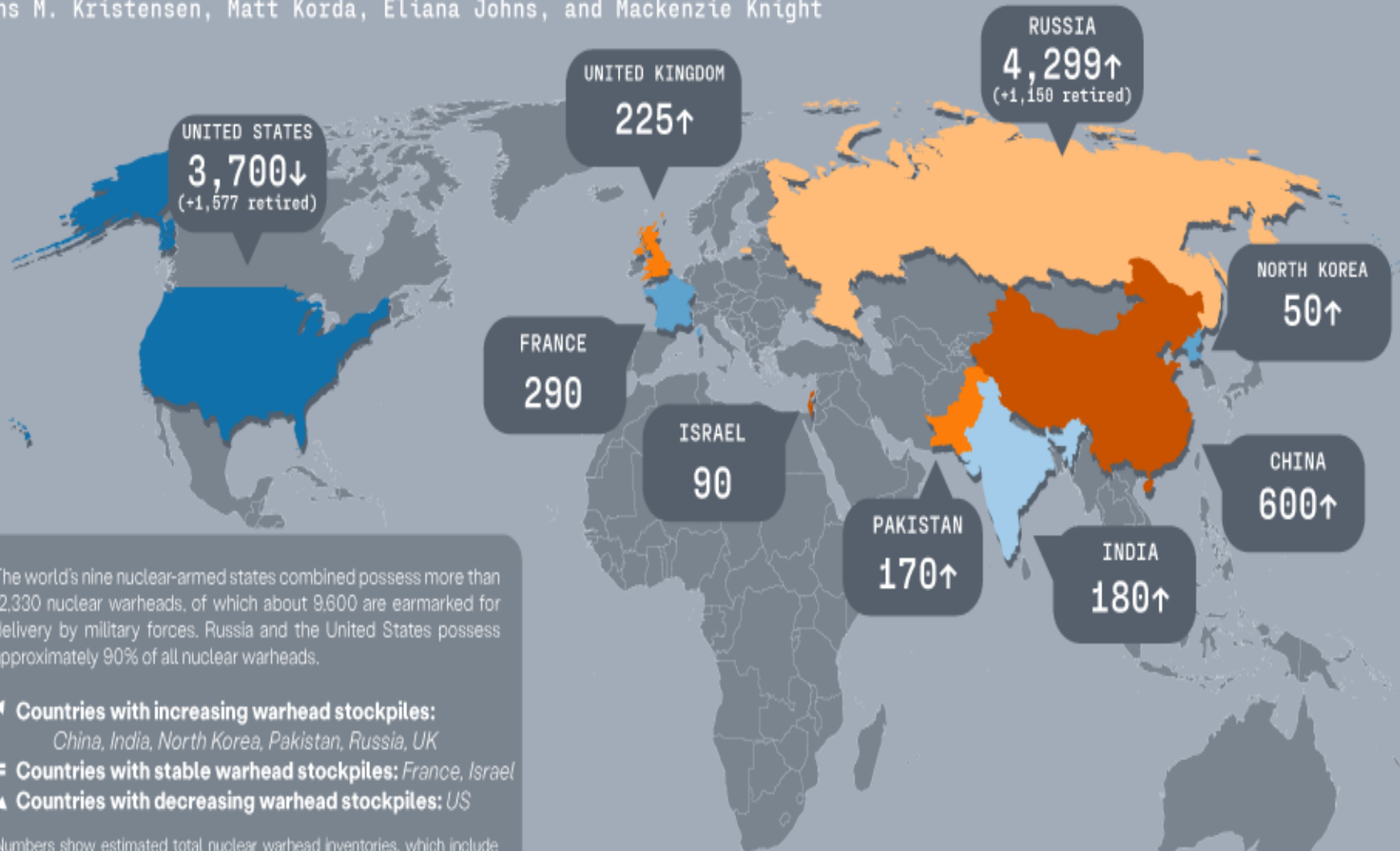
Role of Nuclear Weapons

- Chinese nuclear policy guided by national strategy
- Minimum, effective and reliable second-strike capabilities (“**Assure Retaliation**”—Fravel/Medeiros)
- Strategic deterrence rather than tactical use: to deter nuclear use and to retaliate if attacked
- Prestige and great-power status
- Changing nuclear posture since 2017: counter-nuclear coercion



Estimated Global Nuclear Warhead Inventories, 2025

Hans M. Kristensen, Matt Korda, Eliana Johns, and Mackenzie Knight



The world's nine nuclear-armed states combined possess more than 12,330 nuclear warheads, of which about 9,600 are earmarked for delivery by military forces. Russia and the United States possess approximately 90% of all nuclear warheads.

↗ Countries with increasing warhead stockpiles:

China, India, North Korea, Pakistan, Russia, UK

= Countries with stable warhead stockpiles: *France, Israel*

↘ Countries with decreasing warhead stockpiles: *US*

Numbers show estimated total nuclear warhead inventories, which include stockpiled warheads for use by military forces, warheads held in reserve, and retired warheads in queue for dismantlement. Of the 9,600 warheads in the military stockpiles, about 3,900 are deployed on ballistic missiles and bomber bases. Approximately 2,100 warheads on ballistic missiles are on alert and can be launched on short notice.

Chinese Nuclear Triad

Table 1. Chinese nuclear forces, 2025.

Type	NATO designation	Number of launchers ^a	Year deployed	Range (kilometers)	Warheads x yield ^b (kilotons)	Warheads
Land-based ballistic missiles^c						
<i>Intermediate-range^d</i>						
DF-26	CSS-18	250 ^e	2016	4,000	1 × 425	100 ^f
<i>Subtotal:</i>		250				100
<i>Intercontinental range</i>						
DF-5A	CSS-4 Mod 2	6	1981	12,000	1 × 4.5 MT	6
DF-5B	CSS-4 Mod 3	12	2015	13,000	Up to 5 × 425	60
DF-5C	(CSS-4 Mod 4)	..	(2025)	13,000	1 × "multi-MT"	..
DF-27	?	..	(2026)	5,000–8,000	1 × ?	..
DF-31	CSS-10 Mod 1	..	2006	7,200	1 × 425	.. ^g
DF-31A	CSS-10 Mod 2	24	2007	11,200	1 × 425	24
DF-31A	CSS-10 (silo)	320 ^h	(2024)	11,200	1 × 425	30 ^h
DF-31AG	(CSS-10 Mod 2) ⁱ	72	2018	11,200	1 × 425	72
DF-41	CSS-20 (mobile)	28	2020	12,000	Up to 3 × 425	84
DF-41	CSS-20 (silo)	..	..	12,000	Up to 3 × 425	..
<i>Subtotal:</i>		462				276
<i>Total land-based</i>		712				376
Submarine-launched ballistic missiles						
JL-2	CSS-N-14	0 ^j	2016	7,000+	1 × 700	0
JL-3	CSS-N-20	6/72	2022 ^k	9,000+	1 × 425	72
Aircraft^l						
H-6N	B-6	20	2020	3,100+	1 × ALBM	20
H-20	?	..	(2030)	?	(ALCM?)	..
Subtotal		804				468
Warheads produced for incoming delivery systems						132 ^m
Total						600ⁿ

Weaknesses of Chinese Deterrent in the Past

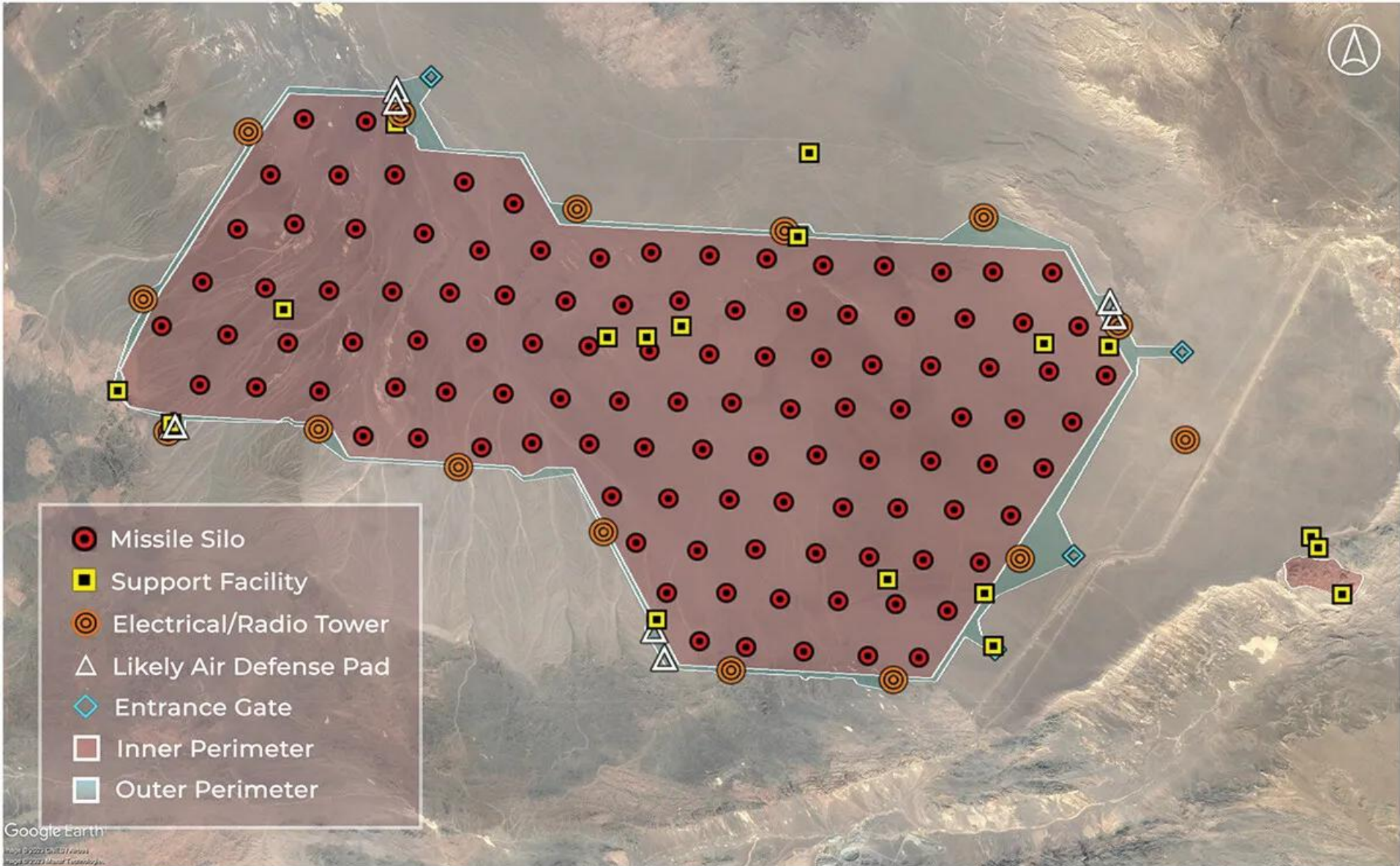
- **Silo/cave-based missiles vulnerable to attack**
- **Liquid-fuel missiles have low readiness**
- **Limited early-warning capabilities**
- **Operational limitations on Xia SSBN and missiles**
- **Bombers have limited range, penetration capability**
- **BOTTOM LINE:**
 - **Chinese deterrent is vulnerable**
 - **Vulnerability against precision/conventional attack**
 - **Deterrence rests on adversary's uncertainty about numbers, precise locations**



China's Nuclear Modernization

- **Modernization process underway for over two decades**
- **Focus primarily on delivery systems**
- **New generation of mobile, solid-fueled long-range/intercontinental ballistic missiles: DF-31, DF-31A, DF-41, DF-61, DF-5C**
- **Submarine-launched ballistic missiles: JL-2/JL-3**
- **Deployed nuclear forces remain medium-sized but growing rapidly (600+; 1,000 by 2030)**





HAMI MISSILE SILO FIELD, CHINA

Satellite imagery © 2025 Maxar Technologies

42.46°, 92.35°

The Hami missile silo field, located in Eastern Xinjiang, spans an area of approximately 390 square miles and includes 110 missile silos. Like China's other solid fuel silo fields, the Hami complex includes several support facilities, towers, and elevated square pads, likely for air defense. At the time of publication, all previously erected construction camps had been cleared, although it remained unclear whether any silos had been loaded with missiles.

Implications of Nuclear Modernization

- **PLA Rocket Force's conventional and nuclear role in the regional context (DF-17, DF-21, DF-26, DF-27)**
- **Command and control issues**
- **China's own confidence in achieving assured secondary retaliatory capability and the stability-instability paradox**
- **PLARF's conventional role—A2/AD and US Air-Sea Battle Concept: escalation control**
- **Missile defense and US long-range precision attacks (CGPS): NFU under strain**



US-China Strategic Stability

- **US accepting Chinese possession of an assured second-strike nuclear capability**
- **Tensions: Taiwan, KP, territorial disputes**
- **Implications of CPGS developments**
 - **Warhead ambiguity (nuclear or conventional? Risks of entanglement)**
 - **Target ambiguity (deny nuclear or conventional use?)**
 - **Command and control for PLARF**
 - **Crisis stability and arms control stability**



Chinese Views of Strategic Stability

- **Mutual nuclear vulnerability through survivable strategic nuclear retaliation capabilities**
- **A broader range of political, economic, diplomatic, etc. factors to strategic stability**
- **Robust nuclear taboo strengthens strategic stability by reducing surprise nuclear attacks**
- **Nuclear escalation cannot be controlled and therefore there is no guarantee tactical use will not escalate to full-blown nuclear war**

China and Nuclear Arms Control & Disarmament

- **Global strategic stability and nuclear arms control and disarmament**
- **Legally binding and verifiable reductions toward downward balance**
- **Overall U.S. nuclear doctrine/posture and R&D in new nuclear weapons**
- **U.S. missile defenses, space dominance, and long-range conventional missile strike capabilities**
- **Rejection of trilateral negotiation (to avoid “probing Chinese strategic capabilities and setting limits”)**



AI and N3C: Chinese Perspectives

China recognizes the important role AI will play in its military modernization, especially as the PLA aims to fight and win intelligentised warfare. The application could benefit the PLA for, for example:

- increasing efficiency in data processing and perhaps even accuracy
- providing better situational awareness (态势感知) and judgement on the battlefield
- shortening decision-making time for faster reaction times
- providing military rehearsal (军事推演) including war-game simulation

AI and N3C: Chinese Perspectives

However, these same capabilities also pose serious risks in nuclear escalation:

- **Data insufficiency, corruption, and bias, and cyber manipulation and attack**
- **Potential for misleading and seriously undermining nuclear decision-making**
- **Encourage preemptive nuclear use, due to concerns over the loss of reliable second-strike capabilities**
- **Importance of human control (‘in the loop’)**



AI and Risks in N3C

Potential risks involved could include:

- **incentives for preemption based on (mis)perceived asymmetrical superiority either to seek initiatives or in response to perceived/identified enemy strikes**
- **(misplaced) confidence in AI-generated intel, combined with AI-powered capabilities result in partial loss of human control**
- **misjudgement during times of heightened tensions and serious military conflicts.**



Conventional-Nuclear Entanglement

- **geographic entanglement: co-location of conventional and nuclear forces within the same areas/spaces;**
- **operational entanglement involves conventional and nuclear forces operated by the same command and control institutions/structures/personnel/support;**
- **technological entanglement where delivery systems are dual-use and interchangeable, between nuclear and conventional warheads;**
- **inherent multifunctional capabilities where certain systems can perform both conventional and nuclear missions**

Source: David Logan, 2023



Entanglement and Risks of Nuclear Escalation: Chinese Perspectives

Chinese perspectives on nuclear-conventional entanglement are based on a divergent understanding of:

- **role of nuclear weapons in one's military strategy**
- **recognition of the challenges caused by the introduction of advanced technologies in their dual-use roles**
- **concerns over the superiority of US nuclear/conventional capabilities and the need for protecting China's small albeit expanding nuclear arsenal to assure its assured retaliatory capabilities**
- **incentives/ perceived benefits and inherent risks of preemptive strikes against US dual-use assets in space**

PLARF: Limited Entanglement

- China's limited nuclear-conventional entanglement driven more by organisational structure (PLARF runs both conventional and nuclear missile units), operational benefits, and resource saving
- Co-location of missiles with both nuclear and conventional missions (e.g., DF-21A and DF-26)
- US speculations about Chinese entanglement as deliberate to enhance deterrence in contrast to near absence of discussion of risks of entanglement by Chinese analysts



Mitigating/Managing Risks

- The need for dialogue on AI governance, its military use in NC3 is clear to all major powers, but incentives and calculations differ
- This is especially the case in the US-China context as the two contending powers are entangled in great-power rivalry in the Indo-Pacific.
- Recent US-China agreement on human controls, not AI, over decisions to use nuclear weapons
- Unlike the US-Soviet engagement during the Cold War, driven by concerns over nuclear war after the Cuban missile crisis, no comparable parallel exists between Washington and Beijing, especially in the nuclear realm.
- There is limited US-China track-II dialogue on AI issues
- For China, strategic trust is a prerequisite for discussing risk reduction measures in an asymmetrical nuclear force structure