Chinese nuclear weapons capability

【Overview】

On July 2019, China released a document on its national defense and military policies, which is commonly referred as the "white paper," for the first time in four years. On the paper, China specified that its positions regarding its nuclear declaratory policies have not changed (State Council Information Office of PRC, 2019). These declaratory policies include: unconditional no-first-use of nuclear weapons, not to use or threaten to use of nuclear weapons against any non-nuclear weapon state or States Parties of any nuclear weapon free zone treaties, not to engage in any nuclear arms races with other nations. As there have been some arguments that China would have changed these policies, it is significant that the paper have reconfirmed them.

China is the only nuclear weapon state under NPT that is increasing the number of its warheads. In 2020, China overtook France in estimated warheads, becoming the largest nuclear power after the United States and Russia. However, the gap with the two leaders remains vast.

China is increasing them at a slow pace, and this is believed to be in line with China's current nuclear strategy. However, as China grows as a military power on the international stage, the lack of its transparency is becoming an issue. The same author estimates the number of warheads as having changed from 250 to 260 in August 2015, 270 in April 2017, 280 in April 2018, 290 in April 2019, and 320 in April 2020 (Kristensen, Hans M. & Norris, Robert S. 2020). This is mainly due to the development of the MIRVed DF-41 (CSS-X-20) ICBM, the MIRVing of other ICBMs, as well as the fielding of the DF-26, an IRBM with nuclear and conventional warheads, and the JL-2 (CSS-N-14), an intercontinental-range SLBM (Kristensen, Hans M. & Matt Korda 2020).

These trends, though in no way conscionable, may still be understood within the framework of the afore-mentioned declaratory policies. To enhance odds for survivability in the event of a first strike by the United States while in compliance with no first use, it makes sense to provide ground missiles with road mobility or bolster SLM capabilities. By MIRVing the existing arsenal, furthermore, China can improve the chance for penetrating US missile defense.

Numbers of warheads in the table are all approximate and originally derived from the available documentary sources (Kristensen, Hans M. & Norris, Robert S. 2019), with any later additions estimated by our team. Currently, PRC warheads capable of reaching the US mainland (DF-5A, DF-5B, DF-31A, and DF-31AG) are thought to number about one hundred. Given that, over the years, China's nuclear provisions tracked roughly at 5% of the country's overall defense budget, they are estimated to be US$ 8.7 billion in 2016 (Zhang, Hui, with updates by Allison Pytlak 2019).

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Type / designation	NATO designation	Range(km)		Yield (kt)		No. of warheads	Remarks
Deployed						0	1)
Reserve / Nondeployed						320	
Ground-based ballistic missile						240	
Dong-Feng DF-4	CSS-3	5,500	+	3,300		10	2)
Dong-Feng DF-5A	CSS-4 M2	13,000	+	4,000 - 5,000		5	3)
Dong-Feng DF-5B	CSS-4 M3	13,000	+	3×200- 300		45	3)
Dong-Feng DF-15	CSS-6	600			?	?	4)
Dong-Feng DF-21	CSS-5	2,150		200 - 300		80	5)
Dong-Feng DF-26	?	4,000	+	200 - 300		34	6)
Dong-Feng DF-31	CSS-10 M1	7,200		200 - 300		6	7)
Dong-Feng DF-31A	CSS-10 M2	11,200		200 - 300		24	8)
Dong-Feng DF-31AG	CSS-10 M3?	11,200		200 - 300		24	9)
Dong-Feng DF-41	CSS-X-20	?			?	10	10)
Ground-launched cruise missile						?	
DH-10	CJ-10	1,500	+		?	?	11)
Submarine-launched ballistic missile (SLBM)						60	12)
Julang JL-2	CSS-NX-14	7,000	+	200 - 300	?	60	13)
Airborne bombs						20	
Nuclear bomb						20	14)
Air-launched cruise missile							
DH-20?	CJ-20?	?			?	?	15)
Total inventory						320	

【Notes】

1) Since the nuclear warheads are stored separately from missiles, they are viewed not as operationally deployed but as reserve / nondeployed warheads. (**Kristensen, Hans & Norris, Robert S. 2018**) As regards submarine-launched ballistic missiles, because China is not known to always maintain a submarine on an underwater patrol/deterrence mission, we treat it likewise (see Note 14).

2) The characters **東風** are romanized as Dong-feng. China's last remaining mobile, liquid-fueled missile. All or some are deployed in tunnels. According to U.S. intelligence agencies, they probably have single warheads. Deployed in 1980. They are capable of reaching India, part of Russia and Guam (**Kristensen, Hans M. & Norris, Robert S. 2015**). Currently being replaced by the DF-31 and expected to fully retire soon.

3) The characters **東風** are romanized as Dong-feng. Liquid-propellant. Silo-based. According to U.S. intelligence agencies, they probably have single warheads. Deployed in 1981. Since the start of the 1980s, they have targeted on the U.S. and Russia (**Kristensen, Hans M. & Norris, Robert S. 2015**). A recent report by the U.S. Department of Defense refers to an M3 variant with multiple warheads for the first time (**Office of the Secretary of Defense 2015**). The same report in 2016 reconfirmed its existence (**Office of the Secretary of Defense 2016**). Here, we assume five DF-5A missiles to have been replaced by DF-5Bs with three warheads each. This gives us a total 15 MIRV ICBMs.

4) The U.S. CIA thought the August 1990 nuclear tests were possibly to develop warheads for short-range ballistic missiles, and estimated that deployment would start in September the next year, 1993. The DF-15 is thought to be mostly for dual nuclear and non-nuclear use. The number of warheads cannot be estimated. (Kristensen, Hans M. & Norris, Robert S. 2015)

5) The characters 東風 are romanized as Dong-feng. The range of the CSS-10 M1 is 1,750km but that of the M2 variant is estimated to be 2,150km (Kristensen, Hans M. & Norris, Robert S. 2015). This is the mainstay of China's intermediate-range missile force. Solid-propellant. 2-stage Mobile. According to U.S. intelligence agencies, they probably have single warheads. Deployed in 1981. The DF-21 also carries a conventional warhead (anti-ground and anti-ship). We estimate nuclear missiles to be 40 and warheads, 80 (Kristensen, Hans M. & Korda, Matt 2019).

6) The characters 東風 are romanized as Dong-feng. 16 missiles appeared in a military parade in 2016. Reappeared in 2017. Road-mobile with a range of 4,000km and Guam is within its range. They are believed to be nuclear/non-nuclear dual use and some contend China may launch the DF-26 carrying conventional warheads aimed at U.S. aircraft carriers, calling it a "carrier killer" (Kristensen, Hans M. & Korda, Matt 2019). The U.S. Department of Defense describes it as nuclear capable in its report (Office of the Secretary of Defense 2019). Because this missile program is being enhanced, Half its launchers are supposed to be nuclear-capable but replacement warheads, even for those, are assumed to be conventional.

7) The characters 東風 are romanized as Dong-feng. Solid-propellant. 3-stage. Mobile. Initially deployed in 2006. According to U.S. intelligence agencies, they probably have single warheads. The increase in deployment has been halted for unknown reasons. The U.S. Department of Defense estimates the range at 7,200 km (Office of the Secretary of Defense, 2019).

8) The characters 東風 are romanized as Dong-feng. Solid-propellant. 3-stage. Mobile. Available in both road- and rail-mobile platforms (Gertz, Bill 2016). Deployed in 2007. According to U.S. intelligence agencies, they probably have single warheads. Although they have single warheads, they are thought to be accompanied by decoys for missile defense. Documentation suggests MIRV (6-10 warheads) capability. The U.S. Department of Defense confirmed that, on April 19, 2016, double test launches were conducted from a road-mobile platform (Gertz, Bill 2016). The U.S. Department of Defense estimates the range 11,200 km (Office of the Secretary of Defense, 2019). 24 launchers are estimated to be in service with four battalions (Kristensen, Hans M. & Korda, Matt 2019).

9) The characters 東風 are romanized as Dong-feng. The People's Liberation Army's 90th anniversary parade in 2017 showcased a modified transporter erector launcher (TEL), fueling speculation for a new ICBM. A 2019 report from the U.S. Department of Defense described the DF-31AG as nuclear capable (Office of the Secretary of Defense 2019). While the launcher is modified, its delivery capacity, in terms of warheads, is estimated to be the same (Kristensen, Hans M. & Korda, Matt 2019).

10) The characters 東風 are romanized as Dong-feng. Road-mobile or Silo, in development. The U.S. Department of Defense reported on the weapon in 1997 but remained quiet for a long time. In 2014, the DOD made another reference, and described that it was in development and likely MIRV-capable (Office of the Secretary of Defense 2016 and Office of the Secretary of Defense 2019). Likely solid fuel (Gertz, Bill 2016). While the missile is in development, some believe there is already a growing stockpile of warheads coming out of production.

11) Ground-launched land-attack cruise missiles. The U.S. Air Force has stated that their nuclear capability is "conventional or nuclear". Subsequent characterizations are opaque, offering no reliable information (Kristensen, Hans M. & Korda, Matt 2019).

12) To be deployed aboard four Jin-class strategic nuclear submarines. A fifth Jin class is under construction (**Office of the Secretary of Defense 2016**). The warheads include those meant for this boat. It is not known if the Jin fleet has been committed to strategic deterrence patrols. Peace time patrols will necessitate a formal change in China's basic doctrine and require upgrades in communications as well as command and control systems (**Kristensen, Hans M. & Korda, Matt 2019**).

13) The characters **巨浪** are romanized as Julang. Single warheads. A variant of the DF-31. Plans are to carry it on the Jin-class (type 094) nuclear submarine. 12 launch tubes. Launch tests had failed, but were successful in 2013. U.S. intelligence agencies anticipate that it will achieve its initial operational capability in 2013-2014 (**Kristensen, Hans & Norris, Robert S. 2015**). The U.S. Department of Defense estimates the range at 7,200km (**Office of the Secretary of Defense 2019**). With this limited range, it would take an advance into the far ends of the Pacific to cover all key cities in the US mainland. Here we estimate a total 60 missiles are available for the five ships.

14) Of the 100-120 **轰** (Hong) H-6 bombers (NATO designation: B-6), 20 are thought to have a nuclear mission. Combat radius 3,100 km. Deployed in 1965. For some time it had not been clear if China's bomber fleet had any nuclear mission. In its 2018 report to the congress, however, the US Department of Defense did confirm for the first time that the PLAAF's long-range bombers have nuclear missions (**Office of the Secretary of Defense 2018**). Aircraft modification and airborne-launched ballistic missile development are under way, according to U.S. Department of Defense 2019 report (**Office of the Secretary of Defense 2019**).

15) Under development. Scheduled to be carried by the improved-model Hong (H-6) fighter-bomber. The U.S. Air Force Global Strike Command supposes it to be nuclear capable. However, there is no consistent account of it in the U.S. Department of Defense (**Kristensen, Hans M. & Korda, Matt 2019**).

【Source】

Gertz, Bill 2016: "China Flight Tests New Multiple-Warhead Missile," The Washington Free Beacon, April 19, 2016, http://freebeacon.com/national-security/china-flight-tests-multiple-warhead-missile/ (accessed May 16, 2020)

Kristensen, Hans M. & Korda, Matt 2020: "Status of World Nuclear Forces," Federation of American Scientists, updated April 2020 https://fas.org/issues/nuclear-weapons/status-world-nuclear-forces/（accessed May 12, 2020）

Kristensen, Hans M. & Korda, Matt 2019: "Chinese Nuclear Forces, 2019," Bulletin of the Atomic Scientists, Vol. 75, #4, 2019 https://www.tandfonline.com/doi/pdf/10.1080/00963402.2019.1628511?needAccess=true （accessed May 12, 2020）

Kristensen, Hans M. & Norris, Robert S. 2015: "Chinese Nuclear Forces, 2015," Bulletin of the Atomic Scientists, Vol. 71, #4, 2015 https://journals.sagepub.com/doi/pdf/10.1177/0096340215591247 （accessed May 15, 2020）

Office of the Secretary of Defense 2015: "Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2015," April 2015 https://dod.defense.gov/Portals/1/Documents/pubs/2015_China_Military_Power_Report.pdf （accessed May 16, 2020）

Office of the Secretary of Defense 2016: "Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2016," April 26, 2016 https://dod.defense.gov/Portals/1/Documents/pubs/2016%20China%20Military%20Power%20Report.pdf （accessed May 16, 2020）

Office of the Secretary of Defense 2018: "Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2018," May 16, 2018 https://media.defense.gov/2018/Aug/16/2001955282/-1/-1/1/2018-CHINA-MILITARY-POWER-REPORT.PDF （accessed May 16, 2020）
Office of the Secretary of Defense 2019: "Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2019," May 2, 2019 https://media.defense.gov/2019/May/02/2002127082/-1/-1/1/2019_CHINA_MILITARY_POWER_REPORT.pdf （accessed May 16, 2020）
State Council of Information Office of PRC: "China's National Defense in the New Era," July 2019 http://english.www.gov.cn/archive/whitepaper/201907/24/content_WS5d3941ddc6d08408f502283d.html （accessed May 12, 2020）
Zhang, Hui, with updates by Allison Pytlak 2019: Chapter 'China', "Assuring Destruction Forever: 2019 edition," edited by Allison Pytlak, 2019, Reaching Critical Will http://www.reachingcriticalwill.org/images/documents/Publications/modernization/assuring-destruction-forever-2019.pdf （accessed May 13, 2020）