

Chinese nuclear forces, 2006*

In July 2005, the annual report of the US Department of Defense on Chinese military power included an overview of the composition of China's ballistic missile force.¹ This overview and other recent information—most significantly a declaration by the Chinese Foreign Ministry in 2004 that 'China . . . possesses the smallest nuclear arsenal of all the nuclear weapon states'²—necessitates a reduction in the estimate of the size of China's nuclear forces. It is estimated here that China deploys approximately 130 nuclear warheads for delivery by land-based missiles, sea-based missiles and bombers.³ Additional warheads are thought to be in storage.

Notwithstanding the change in the estimate for China's nuclear forces, the size of the Chinese warhead stockpile is thought not to have changed significantly for many years. However, the delivery systems for those warheads have changed, with the gradual withdrawal of the old DF-3A (CSS-2) and conversion of some of the newer DF-21s to conventional missions. Moreover, according to US Government assessments, China will soon begin replacing its small force of medium- and intermediate-range ballistic missiles with newer, more survivable, long-range missiles.⁴ This includes the DF-31 (Dong Feng, or East Wind), a new solid-propellant, road-mobile ICBM that the US DOD for a number of years has predicted was about to enter service but which the 2005 report stated is still in development. Two modifications of the DF-31, the longer-range DF-31A and the submarine-based Julang-2, are also under development. The deployment of these longer-range, mobile systems is expected to enhance the survivability of the Chinese missile force by enabling the weapons to operate over a larger area. While the DOD is concerned that the new missiles will increase the number of warheads that can reach the USA, the Chinese Government insists that the development is consistent with China's long-standing commitment to a policy of no-first use of nuclear weapons.⁵

The July 2005 DOD report predicted that the future Chinese land-based missile force will eventually consist of modernized, silo-based DF-5A (CSS-4 Mod 2) and road-mobile DF-31 and DF-31A ICBMs. In addition, China will maintain a number of nuclear-armed DF-21A MRBMs 'for regional contingencies'.⁶ The US intelligence

* Excerpt from Shannon N. Kile, Vitaly Fedchenko and Hans M. Kristensen, 'World nuclear forces', SIPRI Yearbook 2006: Armaments, Disarmament and International Security, (Oxford University Press: Oxford, 2006).

¹ US Department of Defense, *Annual Report to Congress: The Military Power of the People's Republic of China 2005*, 19 July 2005, URL <<http://www.defenselink.mil/news/Jul2005/d20050719china.pdf>>, p. 45.

² Ministry of Foreign Affairs of the People's Republic of China, 'Fact Sheet: China: nuclear disarmament and reduction of [sic]', Beijing, 27 Apr. 2004, p. 1, URL <<http://www.fmprc.gov.cn/eng/wjbj/zjzg/jks/cjkk/2622/t93539.htm>>.

³ Some analysts have argued that only the land-based missile force is operationally deployed, in which case China's operational nuclear arsenal would be as low as *c.* 80 warheads. Lewis, J., 'The ambiguous arsenal', *Bulletin of the Atomic Scientists*, vol. 61, no. 3 (May/June 2005), pp. 52–59.

⁴ US Department of Defense (note 1).

⁵ Information Office of the State Council of the People's Republic of China, 'China's endeavors for arms control, disarmament and non-proliferation', Beijing, Sep. 2005, URL <<http://www.china.com.cn/english/features/book/140320.htm>>.

⁶ US Department of Defense (note 1), p. 28.

Table 1. Chinese nuclear forces, January 2006

Type	US or NATO designation	No. deployed	Year first deployed	Range (km) ^a	Warheads x yield	Warheads in stockpile
<i>Land-based missiles^b</i>						
DF-3A	CSS-2	16	1971	3 100 ^c	1 x 3.3 Mt	16
DF-4	CSS-3	22	1980	>5 500	1 x 3.3 Mt	22
DF-5A	CSS-4	20	1981	13 000	1 x 4–5 Mt	20
DF-21A	CSS-5	21	1991	2 100 ^c	1 x 200–300 kt	21
DF-31	CSS-X-10	0	(2006)	~8 000	1 x ?	0
DF-31A	?	0	(2007–09)	~12 000	1 x ?	0
<i>SLBMs</i>						
Julang 1 ^c	CSS-NX-3	12	1986	>1 000	1 x 200–300 kt	12
Julang 2	?	0	(2008–10)	~8 000	1 x ?	0
<i>Aircraft^d</i>						
Hong-6	B-6	20	1965	3 100	1 x bomb	~20
Attack	(Qian-5, Others?)	?	1972–?	?	1 x bomb	~20
<i>Strategic weapons</i>						~130
<i>Non-strategic weapons^e</i>						
Short-range ballistic missiles (DF-15 and DF-11)						?
Total						~130^f

^a Aircraft range is for illustrative purposes only; actual mission range will vary according to flight profile and weapon loading.

^b China defines missile ranges as: short-range, <1000 km; medium-range, 1000–3000 km; long-range, 3000–8000 km; and intercontinental range, >8000 km. The range of the DF-3A and the DF-21A may be longer than is normally reported.

^c The JL-1 has never been fully operational and the single Xia Class SSBN has never conducted a deterrent patrol.

^d A small stockpile of bombs with yields between 10 kt and 3 Mt is thought to exist for delivery by aircraft. Chinese aircraft are not believed to have nuclear weapons delivery as a primary role but as a contingency mission. Figures for aircraft are for nuclear-configured versions only. The table assumes no more than 40 bombs for aircraft.

^e The existence of tactical warheads is highly uncertain, but several low-yield nuclear tests in 1970s and US Government statements in the 1980s and 1990s suggest that some tactical warheads may have been developed.

^f Additional warheads may be in storage.

Sources: US Department of Defense (DOD), Office of the Secretary of Defense, 'The Military Power of the People's Republic of China,' July 2005; US Air Force, National Air and Space Intelligence Center (NASIC), various documents; US Central Intelligence Agency, 'Foreign Missile Developments and the Ballistic Missile Threat Through 2015' (unclassified summary), Dec. 2001, URL <http://www.cia.gov/nic/pubs/other_products/Unclassifiedballisticmissilefinal.pdf>; US DOD, Office of the Secretary of Defense, 'Proliferation: threat and response', Washington, DC, Jan. 2001, URL <<http://www.defenselink.mil/pubs/ptr20010110.pdf>>; Norris, R. S. et al., *Nuclear Weapons Databook, Vol. 5: British, French, and Chinese Nuclear Weapons* (Westview: Boulder, Colo., 1994); 'NRDC Nuclear Notebook', *Bulletin of the Atomic Scientists*, various issues; and Authors' estimates.

community has stated that China might deploy multiple warheads on its DF-5A (CSS-4) missiles to ensure the effectiveness of its deterrent against missile defence systems, but neither the DF-31 nor its two modifications are thought to be designed to carry multiple warheads.⁷

China has had great difficulty in developing a sea-based nuclear deterrent. The single Type 092 (Xia Class) SSBN, armed with the JL-1 SLBM, is not believed to have achieved full operational capability and, according to US Naval Intelligence, has never conducted a deterrent patrol. A new SSBN, the Type 094, is under construction. Press reports that the submarine had been launched in July 2004 appear to have been premature;⁸ the submarine was probably the first unit of the Type 093, a replacement for the Han Class nuclear-powered attack submarine. The Type 094 is not expected to enter into service before the end of this decade at the earliest.

The missile intended for the Type 094 Class SSBN, a modified DF-31 known as the Julang-2 (JL-2), was successfully test-launched on 16 June 2005 from a submerged submarine in the Pacific Ocean near the Shandong Peninsula.⁹ The submarine is believed to have been a modified Golf Class submarine. A previous test in mid-2004 failed. The DOD estimates that JL-2 will have an intercontinental range of about 7500–8000 km and that it will carry a single warhead.¹⁰

It is thought that China has a small stockpile of nuclear bombs for delivery by aircraft. Between 1965 and 1976, Chinese Hong-5, Hong-6 and Qian-5 aircraft dropped a total of 11 nuclear bombs in nuclear tests at the Lop Nur Test Site. The bombs detonated with yields of 8–4000 kt in four distinct ranges. The US Defense Intelligence Agency estimated in 1984 that ‘a small number of the nuclear-capable aircraft probably have nuclear bombs, even though we are unable to identify airfield storage sites’,¹¹ and in 1993 the National Security Council told Congress that China has a ‘small stockpile of nuclear bombs’. Although the Chinese Air Force was not believed to have units whose primary purpose was to deliver the bombs, the NSC estimated that ‘some units may be tasked for nuclear delivery as a contingency mission’.¹² The candidates for nuclear contingency missions today include the H-6 bomber, and perhaps also a fighter-bomber. China is also developing land-attack cruise missiles that may be for delivery by the H-6. The 2005 DOD report states that, once developed, there ‘are no technological bars to placing on these systems a nuclear payload’.¹³

⁷ A multiple re-entry vehicle system releases 2 or more RVs along the missile’s linear flight path to a single target, which land in a relatively confined area at about the same time. The more sophisticated and flexible MIRV system can manoeuvre multiple RVs to several different release points to provide targeting flexibility against several independent targets over a much wider area and longer period of time.

⁸ See, e.g., Gertz, B., ‘China tests ballistic missile submarine’, *Washington Times* (Internet edn), 3 Dec. 2004, URL <<http://www.washingtontimes.com/functions/print.php?StoryID=20041202-115302-2338r>>.

⁹ ‘China test-fires new submarine-launched missile’, *Daily Yomiuri* (Internet edn), 18 June 2005, URL <<http://www.yomiuri.co.jp/newse/20050618wo42.htm>>; and ‘China test fires long-range missile from submarine’, *Jane’s Missiles and Rockets*, vol. 9, no. 8 (Aug. 2005), p. 4.

¹⁰ Norris, R. and Kristensen, H., ‘Chinese nuclear forces 2003’, *Bulletin of the Atomic Scientists*, vol. 59, no. 6 (Nov./Dec. 2003), URL <http://www.thebulletin.org/print.php?art_ofn=nd03norris>, pp. 77–80.

¹¹ US Defense Intelligence Agency, ‘Nuclear weapons systems in China’, DEB-49-84, 24 Apr. 1984, pp. 3–4, partially declassified and released under the US Freedom of Information Act.

¹² US National Security Council, ‘Report to Congress on status of China, India and Pakistan nuclear and ballistic missile programs’, n.d. [28 July 1993], p. 2, obtained under the US Freedom of Information Act by the Federation of American Scientists.

¹³ US Department of Defense (note 1), p. 29.