China's Strategic Force Modernization

Dr. Phillip Saunders
Senior Research Fellow
Institute for National Strategic Studies
National Defense University

Overview

- **China's Current Nuclear Triad**
- **Delivery System Modernization**
- **Training**
- **Future Directions**
- **Constraints on Modernization**

Based on Phillip C. Saunders and Jing-dong Yuan, "China's Strategic Force Modernization," written for *China's Nuclear Future*. Views are those of the authors and do not reflect the official policy or positions of National Defense University or the US government.

China's Current Nuclear Triad*

- **Land-based missiles**
  - DF-3A (40), DF-4 (12), DF-5A (18-26), DF-21A (48)
- **Sea-based missiles**
  - 1 Type 092 (Xia) submarine with 12 JL-1 missiles
- **Bombers**
  - Hong-6 (B-6 BADGER) (about 100)
  - Qian-5 (A-5 FANTAN) (about 30)
- **About 280 strategic warheads**

*From Robert Norris and Hans M. Kristensen, "NRDC Nuclear Notebook: Chinese Nuclear Forces, 2003," *Bulletin of the Atomic Scientists*, Nov/Dec 2003.

Current Land-Based Missiles

- **DF-3A**
  - 2900 km range
  - Deployed 1971
- **DF-4**
  - 5500 km range
  - Deployed 1980
- **DF-5A**
  - 13,000 km range
  - Deployed 1981
- **DF-21A**
  - 1800 km range
  - Deployed 1985-86

Current Sea-Based Missiles

- **Type 092 (Xia) nuclear submarine**
  - Commissioned in 1981
  - Operational in 1988
  - Refitted in 2000
- **12 Julang (JL)-1 missiles**
  - Range greater than 1000 km
- **Xia submarine seldom deploys**

Current PLA Bombers

- **Hong-6 (B-6 BADGER)**
  - 3100 km range
  - Carries 1-3 nuclear bombs
- **Qiang-5 (A-5 FANTAN)**
  - 400 km range
  - Carries 1 nuclear bomb
- Both derived from 1950s Soviet designs
- Unclear if bombers still have a nuclear mission

Weaknesses of Chinese Deterrent

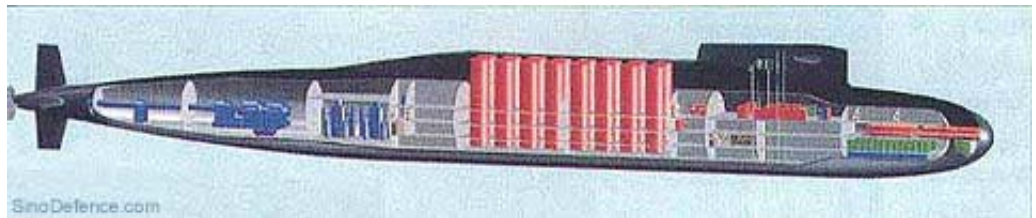
- **Silo/cave-based missiles vulnerable to attack**
- **Liquid-fuel missiles have low readiness**
- **Limited early-warning capabilities**
- **Operational limitations on Xia SSBN and missiles**
- **Bombers have limited range, penetration capability**
- **BOTTOM LINE:**
  - Chinese deterrent is vulnerable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

Land-based Missile Modernization

- DF-31 ICBM
  - **8000 km range**
  - **Flight tested**
  - **Initial deployment "later this decade"**
- DF-31A ICBM
  - **12000 km range**
  - **Replaces cancelled DF-41**
  - **Deployment by end of decade?**

Sea-based Missile Modernization

- **Type 094 SSBN**
  - First unit under construction
  - Deployment “by end of the decade”
  - Carries 16 JL-2 missiles
- **Julang-2 (JL-2) SLBM**
  - 8000 km range
  - Naval version of DF-31



Second Artillery Training

- **Efforts to improve realism**
  - Night and all-weather training
- **Emphasis on mobility and survivability**
  - Camouflage and concealment training
  - Logistics, communications, and meteorological support
- **Increased use of computer simulations**
- **Improvements, but from a fairly low baseline**

Future Directions: Survivability

- **Threat is both nuclear AND conventional**
- **Greater mobility for land-based missiles**
- **Decreased launch-preparation time**
- **Improved command and control**
- **Protection/concealment of silos**
- **Greater reliance on sea-based ICBMs**
- **Implies a modest expansion of ICBMs/SLBMs**
  - 50-60 warheads?

Future Directions: Defeating Missile Defenses

- **US missile defense deployments will affect Chinese modernization**
  - China worries about US intentions and US BMD capabilities
  - China likely to assume US BMD will be highly effective
- **Technical efforts to penetrate missile defenses**
  - Decoys, chaff, stealth, maneuvering warheads
  - Potential for Russian assistance?
  - ASAT weapons?
- **Expansion of Chinese nuclear forces**
  - 100-200 warheads???

Future Directions: Enhancing War-fighting Capabilities

- **"Limited deterrence" debate about nuclear war-fighting**
  - Implies significant expansion and restructuring of nuclear forces
  - Requires more missiles, better C4I, early warning, missile defenses
- **More modest shifts that improve PLA options in a nuclear crisis**
  - More flexible command and control
  - DF-21As with BMD counter-measures
  - Improved intelligence and early-warning capabilities

Constraints on Chinese Modernization

- **Hard constraints**
  - Fissile material stocks (enough for 500-2000 warheads)
  - Ability to produce mobile ICBMs with multiple warheads?
  - Ability to deploy effective BMD counter-measures?
- **Soft constraints**
  - Competing demands for resources
  - Impact on China's international image
- **Significant expansion of China's arsenal possible**

Conclusion

- **China likely to build credible deterrent by 2010-2015**
  - DF-5A ICBMs
  - DF-31, DF-31A mobile ICBMs
  - Type 094 SSBNs with JL-2 SLBMs
- **Ultimate size of Chinese nuclear arsenal driven by:**
  - Political relations with United States
  - Effectiveness of US missile defenses
  - Effectiveness of BMD counter-measures