

French nuclear weapons capability

【Overview】

On February 7, 2020, Emmanuel Macron gave a speech on France's "Defense and Deterrence Strategy," the first by a sitting French president in five years. In it, Macron, emphasizing nuclear deterrent as essential for safeguarding France's defense, sovereignty, and freedom of action, also called for nuclear disarmament through multilateralism. Remarkably enough, he also called for France's nuclear weapons to be managed as a jointly-held deterrent for the entire European Union's collective security. On the other hand, pegging its current stockpile at "under 300" warheads, Macron reaffirmed France's nuclear posture anchored on two pillars, the nuclear submarine and strategic bomber fleets. This follows President Sarkozy's earlier statement that "France will reduce its number of warheads to 300 or less" (March 21, 2008), the commitment François Hollande fulfilled in due course (February 19, 2015). In a document submitted to the 2015 NPT Review Conference (**Government of France 2015**), France reconfirmed such details in the president's speech as follows: French warheads below 300; submarine-launched cruise missiles to number 16 per vessel and their ordnance to equate three vessels; and air-launched cruise missiles to total 54. This last figure corresponds to the sum (50) of 40 operational warheads of "Air-launched systems (Bombers, etc.)" and 10 non-operational stockpiles of "Air-launched systems (Bombers, etc.)" Emmanuel Macron, who was elected president in May 2017, has largely followed Hollande's nuclear warfare policy. The figures in this table are derived from Kristensen and others (**Kristensen Hans M. & Korda, Matt 2020, as well as Kristensen Hans M. & Korda, Matt 2019**).

To modernize its entire arsenal, France is developing a whole new range of next-generation weapons systems, such as new strategic nuclear submarines (SSBNs), missiles (SLBMs) to be carried by them, and cruise missiles to be launched by aircraft. According to the French government, the annual cost of maintaining nuclear posture is about USD 4.6 billion but some documents peg it at USD 3.6 billion. Some forecast that the nuclear weapon-related budget will swell to USD6 billion by 2025 due to modernization of nuclear weapons (**Kristensen, Hans M., with update by Allison Pytlak 2019**). The French government states that it will spend about EUR 25 billion (USD 28 billion) on nuclear weapons between 2019 and 2023.

Whereas France is a part of NATO, the French nuclear system is independent from the NATO.

Updated: June 1, 2020					
Type / designation	Types of nuclear warheads		Yield (kt)	No. of warheads	Remarks
Deployed				280	
Submarine-launched ballistic missile (SLBM) ¹⁾				240	
MSBS M51 ²⁾	M51.1	TN75	100	240	3)
	M51.2	TNO	150		
Air-launched systems (Bombers, etc.)				40	
Bomber payloads ASMPA ⁴⁾		TNA	Variable ~ 300	40	5)
ASPMA7 for carrier planes ASPMA ⁶⁾		TNA	Variable ~ 300	0	7)
Reserve / Nondeployed				~10	
Air-launched systems (Bombers, etc.)				~10	8)
Total inventory				290	

【Notes】

- 1) The warheads are carried by four Triomphant-class* ballistic missile nuclear submarines (SSBN): Triomphant, Téméraire, Vigilant and Terrible. At least two of these are in a complete state of readiness for action, and one of them is used in deterrent patrols (for approximately 10 weeks). They are based at the Ile Longue, a peninsula near Brest (**Kristensen, Hans M. & Korda, Matt 2019**).

*Triomphant-class SSBN: The Terrible's commissioning made the total of four SSBNs on September 20, 2010. They are equipped with 16 missile launch tubes.

- 2) MSBS is the abbreviation for Mer-Sol Balistique Strategique, French for SLBM. The previous M45, with a range of more than 4,000 km and six-warhead MIRV-capable, completed retirement by the end of 2016. Since then, all four strategic nuclear submarines are equipped with the M51 (**Kristensen, Hans M. & Korda, Matt 2019**). The test launches of version M51.1 were carried out on January 27 and July 10, 2010. The test launch of the Vigilant failed on May 5, 2013 (**Collin, Jean-Marie 2013**). The M51.2 variant was test launched on July 1, 2016 from Le Triomphant and operational deployment was announced in December 2017. Later it was deployed on the Téméraire. The other two Triomphant-class submarines will continue to carry the M51.1. The M51.1 carries the TN75 thermonuclear warhead (approximately 100 kilotons) and the M51.2 carries a more powerful TNO (150 kilotons) than the TN75.

*TN75: The thermonuclear warhead that was used in the last French nuclear test in Moruroa in 1995-96. TN is the French abbreviation for Tête Nucléaire (nuclear warhead). They are planned to be changed to TNO from 2015.

- 3) It is thought that three of the four submarines carry warheads in shifts and one submarine is in overhaul (**Kristensen, Hans M. & Korda, Matt 2019**), leading to a calculation of three submarines x 16 launch tubes x (four to six) MIRV. This means an average of five MIRV.
- 4) ASMPA is the abbreviation for Air-Sol Moyenne Portee Ameliore, French for medium range air-to-ground missile. It is a cruise missile with range of 500km. Its warhead is TNS (Tête Nucléaire Aeroporte: Airborne nuclear warhead) and worth up to 300 kt, but lower yield alternatives are thought to be available (**Kristensen, Hans M. & Korda, Matt 2019**).

- 5) The nuclear-capable fighter bomber Mirage 2000N retired in June 2018, leaving some 40 of the Rafale BF3 to continue with nuclear missions. One warhead per aircraft (**Kristensen, Hans M. & Korda, Matt 2019**).

*The Rafale F3 entered operational service in 2008. It was equipped with ASMPA in 2010. It has a flight range of 2,000km (**Kristensen, Hans M. 2015**).

- 6) The 10 carrier-based aircraft Rafale MF3* on Charles de Gaulle, the only French aircraft carrier (R92, nuclear powered), carry out nuclear missions (**Kristensen, Hans M. & Korda, Matt 2019**). Missions were previously the work of the Super Étendard, but this craft was replaced by the Rafale M3. The Super Étendard is expected to be retired in 2016 (**Kristensen, Hans M. 2015**).

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- 7) The aircraft carrier Charles de Gaulle does not usually carry nuclear weapons. The ASMPA for loading on the Rafale MF3 are stored at a terrestrial base, probably the Istres or Avord Air Base (**Kristensen, Hans M. & Korda, Matt 2019**). In this context, it was categorized to be in reserve (just as we did for China).

8) Approximately 10 warheads for the ASMP-A cruise missile for naval aviation.

【Source】

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