



## THE BATTLE ORDER OF AIRCRAFT CARRIERS

Since the end of the Second World War, the aircraft carrier has supplanted the battleship as a *capital ship*. True mobile air bases, they ensure both control of the sea and action against the land. Today, all world-class navies are equipped with them or plan to be so.

### « 100,000 TONS OF DIPLOMACY »

Whether in Afghanistan, Iraq or Syria, the aircraft carrier has been deployed in most recent international conflicts. Strictly speaking, only the US and French navies have so-called CATOBAR<sup>1</sup> aircraft carriers, with a flat deck for projecting fixed-wing aircraft using steam catapults. Their air groups have a greater operational capability in carrying ammunition and fuel than lighter aircraft carriers.

The primacy of the *US Navy* is today beyond doubt. Ten of its aircraft carriers, all nuclear-powered, operate 70 aircraft each, including the F/A-18 E-F *Super Hornet* fighter aircraft and the *Hawkeye* air surveillance aircraft. Admitted to service between the 1970s and the 2000s, those Henry Kissinger's "100,000 tons of diplomacy" enabled the US Navy to achieve its *Sea Control* strategy, the projection of a large fleet to dominate a maritime theater. The US Navy is thus the only one to be able to deploy a naval aviation group permanently on any ocean of the globe. To perpetuate this supremacy, the US Navy is developing a new class of "supercarriers". The *USS Gerald R. Ford*, newly admitted to service, will be operational from 2020. With her 100,000 tons and a price tag of 14 billion dollars, she is the heaviest and the most expensive war ship ever built. The eleventh US nuclear aircraft carrier can board 90 aircraft and drones, including new F-35C fighters to be launched from the flight deck with EMALS<sup>2</sup> electromagnetic catapults.

The French *Charles de Gaulle* (42,000 t) is also nuclear-powered. She operates an air group of 40 aircraft, all Rafale type since 2016. As the ship is reaching mid-life, and given the long development and construction lead times of such ships, the question of the future aircraft carrier becomes relevant again. It is actually a double-edge question since, depending on its delivery date, that new aircraft carrier will be either the successor of *Charles de Gaulle* or, if delivered earlier, a second one enabling again permanent deployment of the carrier group.

### THE ASIAN TAKE OFF

Two of the main Asian maritime nations are now also opting for full-scale aircraft carriers. Until now they were equipped with conventionally propelled light aircraft carriers, without catapult but with a springboard and stopping lines for landing gears, also called STOBAR<sup>3</sup>. China wanted to become a naval air force with the entry into service in 2012 of *Liaoning* (60,000 t, former Soviet *Varyag*). She is primarily used as a

testing and training platform for its J-15 fighters. But the Navy of the People's Liberation Army does not intend to stop there. While launching *Shandong's* hull in April 2017, its future first *Liaoning*-inspired national aircraft carrier, it is said to be also working on its first two full aircraft carriers for the 2030s. Developed from blueprints of the never built Soviet *Ulyanovsk*, these 85,000-ton ships would have nuclear boiler rooms and Chinese electromagnetic catapults allowing China to have even greater influence in the Pacific.

India is a traditional user of aircraft carriers since 1957 thanks first to old British ships, then to the former Russian *Baku* bought in the 2000s to become the *INS Vikramaditya*. It is also building its first aircraft carrier, with admission to service expected by 2020. The *INS Vikrant* (45,000 t) will ship *Sea Harrier* fighters of British construction and will be the first aircraft carrier built in Asia and admitted to service. To cope with Chinese expansionism in the Indian Ocean, the Indian Navy is also banking on the construction of a first nuclear-powered aircraft carrier of 65,000 tons by the 2030s. And the United States have already formalized their agreement to transfer to New Delhi their recent EMALS technology to equip the *INS Vishal*.

### LIMITED WILL POWER

Russia still has its own aircraft carrier *Admiral Kuznetsov*, serving since 1991 and a prestigious element in the revival of the Russian navy. Deployed in the eastern Mediterranean in 2017 as part of the Syrian conflict, she was able to board up to 22 Sukhoi Su-33 fighters and 14 combat helicopters. Although the Russian navy is going to be modernised, it has been thinking for several years about a new "giant aircraft carrier" of 100,000 tons: the *Project 23000E*, or *Shtorm*, a model combining a nuclear boiler room and STOBAR capability.

Finally, some European navies have found in the aircraft carrier type STOVL<sup>4</sup> a naval air tool adapted to their capabilities. Lacking catapults and stakes but with a springboard in the bow, these vessels can take on short, vertical take-off and landing aircraft, such as the new American *F-35B Lightning II*. This is the case of Spain with its aircraft carrier *Juan Carlos I* and Italy with the *Cavour*, as well as the two future largest ships (66,000 t) in the history of the *Royal Navy*, the *HMS Queen Elizabeth* and *Prince of Wales*...

Whatever the type chosen, aircraft carriers have a bright future.

<sup>1</sup> Catapult Assisted Take-Off But Arrested Recovery

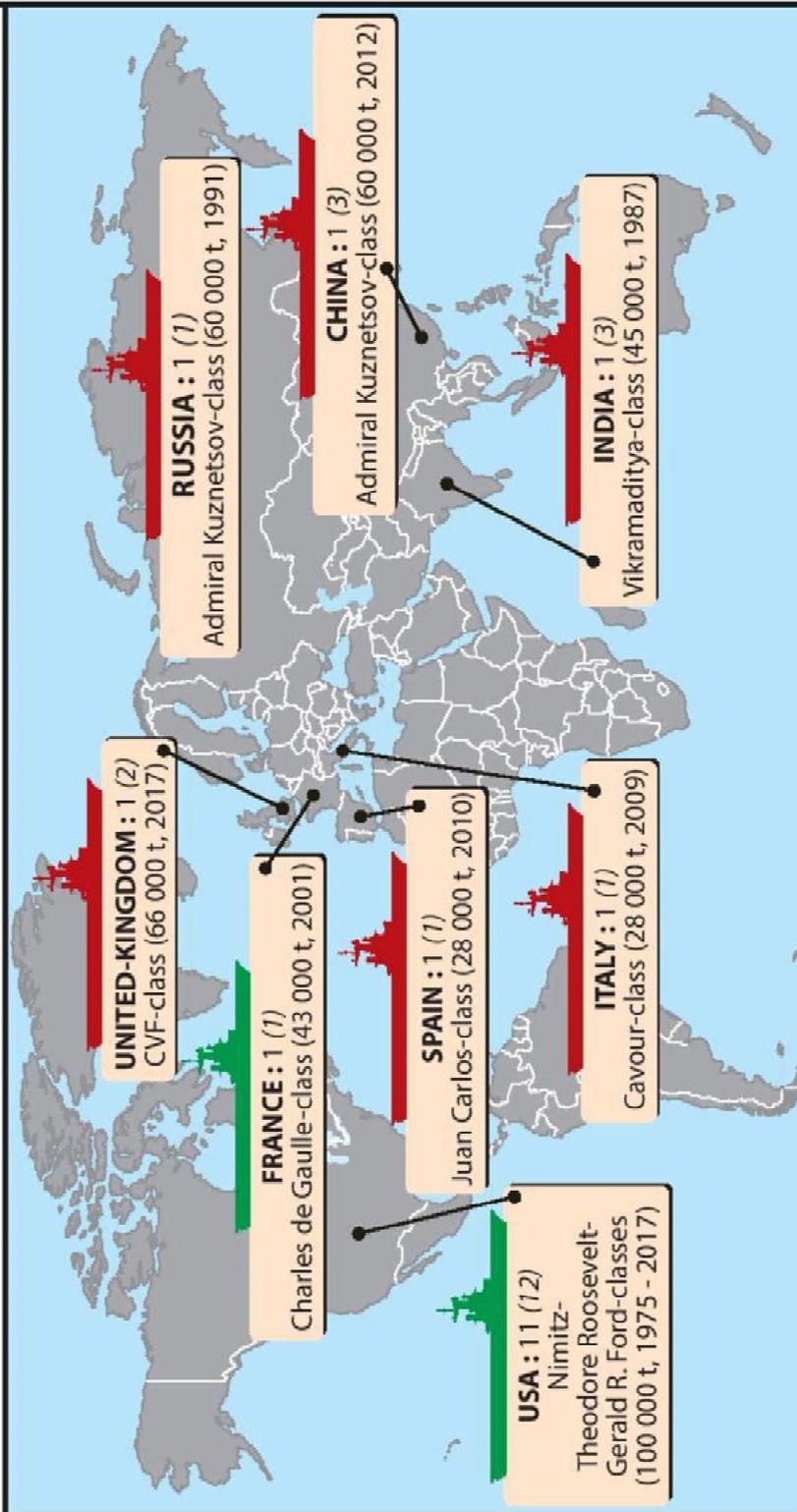
<sup>2</sup> ElectroMagnetic Aircraft Launch System

<sup>3</sup> Short Take-Off But Arrested Recovery

<sup>4</sup> Short Take-Off and Vertical Landing



## AIRCRAFT CARRIERS ACROSS THE WORLD



**LEGEND :**

**USA : 11** : warships in active service in 2018

**(12)** : forecast for 2035

**(100 000 t)** : full load tonnage

**(1975)** : date of entry into service

**CATOBAR** aircraft carrier

**STOBAR / STOVL** aircraft carrier