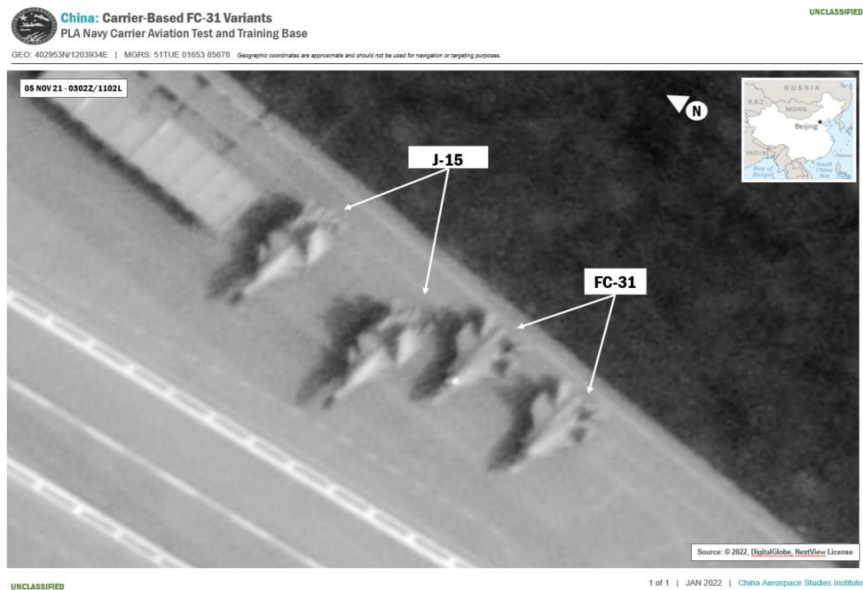


PRC Navy Likely Testing Carrier-Based Stealth Fighters

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Two probable prototype carrier-based FC-31 variants appeared at the People's Liberation Army Navy (PLAN) Carrier Aviation Test and Training Base at Huangdicun in early November 2021.¹ Satellite imagery shows the two aircraft parked on active runways, indicating they are operable prototypes rather than static mockups. The presence of these aircraft at the facility indicates the PLAN is actively pursuing development of a fifth-generation stealth fighter for its carrier program and has likely committed to an FC-31 variant for the role.² It also corroborates an unofficial handheld photo of a parked FC-31 that circulated online in December 2021 and was said to have been taken at the base, especially as the photo was accompanied by claims of a second FC-31 not pictured.³



The FC-31 is a twin-engine stealth fighter demonstrator developed by Shenyang Aircraft Corporation (SAC) and the state-owned Aviation Industry Corporation of China (AVIC).⁴ A carrier-based variant has been rumored to be in development since at least 2018 but has not been officially adopted by the PLAN or given a “J-##” designator. Without an official designator, various outlets have widely used the unconfirmed designator “J-35” to refer to the carrier-based FC-31 variant. At a press conference in September 2021, the FC-31’s chief designer⁵ claimed the public would see China’s next-generation carrier-based fighter by the end of that year.⁶ While no official announcements have followed, unofficial images circulated in late October 2021 featured an in-flight FC-31 with catapult launch bar and foldable wings, clearly indicating a carrier variant.⁷

As noted above, another unofficial image of an FC-31 on the ground circulated in December 2021, with rumors that it and possibly a second FC-31 were at Huangdicun.⁸

The catapult launch bar on the FC-31 seen in flight indicates that it was designed with China's future carrier fleet in mind. China's third aircraft carrier, which is expected to be complete in early 2022, features a catapult aircraft launch system that should allow for greater takeoff weights than the ski-jump configuration on both of its current carriers.⁹ Satellite imagery also shows activity on Huangdicun's two runway catapults during the time the FC-31s were observed there. Although not conclusive, it is possible the fighters were being tested with this system. It is not yet clear whether a carrier-based FC-31 variant would also be compatible with ski-jumps or would be restricted to only catapult takeoff, which would significantly limit its flexibility and leave China's older carriers without stealth fighter capability.



Unofficial FC-31 photo, likely at Huangdicun. Source: Twitter (@RupprechtDeino)

The PLAN's probable testing of carrier-based FC-31 prototypes also hints at a possible development timeline for the aircraft. The first production model J-15 and J-20 fighters reached units in 2014 and 2016, respectively, both five to six years after their first prototype test flights. Applying a similar timeline to the carrier-based FC-31's likely test flights in late 2021 would mean the first production models could be operational as early as 2026. While many factors could shift that timeline slightly earlier or much later, it would be reasonable to expect the PLAN to field a carrier-based fifth-generation stealth fighter by the end of the decade. Between hints from the FC-31's designer and the appearance of these aircraft at Huangdicun, it is likely that more information will be publicized soon, further clarifying the PLAN's intent and development timelines.

Opinions, conclusions, and recommendations expressed or implied within are solely those of the author and do not necessarily represent the views of the Air University, the Department of the Air Force, the Department of Defense, or any other U.S. government agency. Cleared for public release: distribution unlimited.

Notes

¹ The author would like to thank Roderick Lee for bringing this to his attention.

² The PRC defines aircraft generations differently than the U.S., categorizing what are known in the U.S. as fifth-generation aircraft as fourth-generation.

³ Rupperecht, Andreas (@RupperechtDeino). 2021. "RupperechtDeino Twitter post." Twitter, December 31, 2021, 1:15 p.m. <https://twitter.com/RupperechtDeino/status/1476980333816041481>

⁴ Joe, Rick, "The FC-31, China's 'Other' Stealth Fighter", *The Diplomat*, February 18, 2021, <https://thediplomat.com/2021/02/the-fc-31-chinas-other-stealth-fighter/>

⁵ Sun Cong (孙聪) was also the chief designer of the J-15, China's first and currently only carrier-based fighter.

⁶ Chai Minyi, ["J-15 Chief Designer: Everyone Will See the Next Chinese-Made Carrier-based Aircraft This Year"] [歼-15总师：下一代国产舰载机年内将与大家见面], *The Paper*, September 29, 2021, https://m.thepaper.cn/newsDetail_forward_14718062.

⁷ Newdick, Thomas and Rogoway, Tyler, "China's Carrier-Capable Naval Stealth Fighter Has Flown", *The Drive*, October 29, 2021, <https://www.thedrive.com/the-war-zone/42920/chinas-carrier-capable-stealth-fighter-has-flown>.

⁸ Rupperecht, Andreas (@RupperechtDeino). 2021. "RupperechtDeino Twitter post." Twitter, December 31, 2021, 1:15 p.m. <https://twitter.com/RupperechtDeino/status/1476980333816041481>

⁹ Funairole, Matthew P., Joseph S. Bermudez Jr., and Brian Hart, "Signs Point to China's Third Aircraft Carrier Launching Soon", Center for Strategic & International Studies, November 9, 2021, <https://www.csis.org/analysis/signs-point-chinas-third-aircraft-carrier-launching-soon>.