



The Final Frontier Flash



15 December 2020: [Russia conducts test of direct ascent anti-satellite weapon from Plesetsk Cosmodrome](#). US Space Command issues [alert](#).

- Russia issued a commercial closure area on 12 December
- Russia posted a nearly identical hazard zone during a similar PL19 (Nudol) test in April
- PL19 Nudol is a so-called "direct ascent" ASAT weapon... Experts believe Nudol is a variant of the [A-235 anti-ballistic missile system](#).
- The missile can reach high enough to hit satellites in low-Earth orbit, which is probably about where A-235 intercepts incoming missile warheads.
- Use of PL19 in a conflict would likely be in the early stages, in order to deprive an adversary of its space-based assets from the outset.

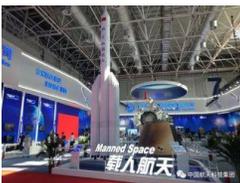
"The United States is concerned by Russia's continued development and deployment of several types of ground-based and space-based ASAT weapons. These actions are contrary to Russia's diplomatic and public stance against the weaponization of space." US Space Command Statement 16 December 2020



21 December 2020: [China conducts maiden launch of Long March 8 \(LM-8\) rocket](#) and deployed 5 satellites. [Video](#)

- China Academy of Launch Vehicle Technology (CALT) designed and produced the launcher...LM-8 fills the gap in China's capability for launches to Sun-synchronous orbit in the 3-4.5 ton range.
- LM-8 is to be adapted for reusability in the future. Further tests related to vertical take-off and vertical landing are planned for 2021.
- The main payload was XJY-7, a classified CAST satellite (NFI)...according to a [launch animation](#) it appears to be a SAR imaging satellite.
- Also onboard was Hisea-1...the first generation of light, small SAR satellites. HS-1 is China's first miniaturized SAR satellite and the country's first commercial SAR satellite.

The launch was China's 38th of 2020. CASC said in January that it aimed to launch around 40 times, before the severity of the impacts of the COVID-19 outbreak became apparent.



- China is developing an [alternative to Long March 9](#) (unofficially called "921 rocket") for crewed lunar missions.
- The new launcher first appeared as a concept in 2018 and may enable China to get to the moon quicker.
- Designed to send a 27.6 ton (25 metric ton) spacecraft into trans-lunar injection. Mass at liftoff will be about 4.85 million lbs. (2,200 metric tons), nearly triple that of China's current largest rocket, the Long March 5.

It is unclear if the LM-9 super rocket is being shelved. It is possible that both rockets are under consideration for final approval, but it is also possible that the LM-9 is designed only for launching of cargo, with the 921 being primarily designed for crewed launches.

Space History: 6 December 1925...[First net thrust by a Goddard liquid fuel rocket](#).