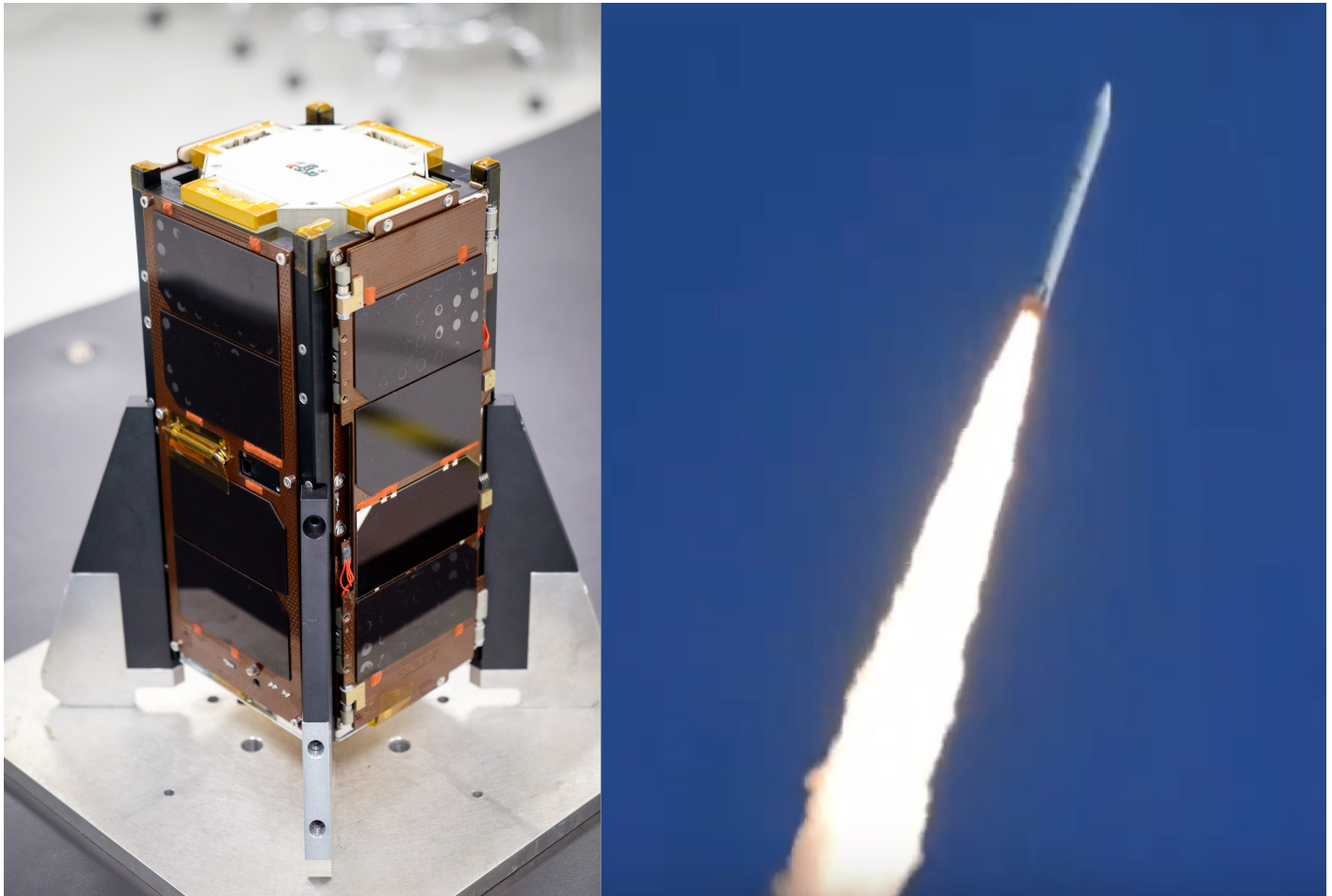


NTU just launched a satellite with an insane camera and plasma thrusters into space – and its only job is to take a photo of a dramatic phenomenon

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The 2.8 kilogram satellite was launched into orbit from a rocket belonging to the Japan Aerospace Exploration Agency. NTU, [Youtube/JAXA](#)

It's that cinematic moment from space, when just before sunrise and after sunset, a crescent of light appears on Earth's horizon.

This phenomenon is known as horizon glow, and taking a picture of it is the only job of a tiny satellite launched into space by scientists from Nanyang Technological University (NTU).

The scientists successfully launched and deployed the 2.8 kilogram OBA VELOX-IV cube nanosatellite into Earth's orbit from a rocket belonging to the Japan Aerospace Exploration Agency (JAXA) on Friday (Jan 18), as part of the university's bid to launch Singapore's first-ever lunar mission.

The satellite was built in collaboration with Kyushu Institute of Technology (Kyutech), one of Japan's leading universities for satellite research and engineering.

NTU has sent eight satellites into orbit in the past 20 years, making this the ninth one. The newest satellite will test out a superior low-light camera that is supposed to sense Earth's horizon glow, and take the photo in under two seconds.

Eventually, NTU scientists hope to photograph the moon's horizon glow, a similar phenomenon first observed by Apollo astronauts in the 1960s.

As capturing a sharp image requires the satellite to control its height and direction, the nanosatellite is also testing out a quad-jet plasma thruster, which uses jets of ultra-hot plasma gases, created from burning solid Teflon fuel, to control the satellite's rotation and angular momentum.

This is an essential feature required for orbiting the moon in a lunar mission, NTU said.

The researchers plan to use findings from all their satellites to create the world's lightest satellite – weighing under 100 kilograms – to go on a lunar mission, adding that this goal “may be achievable within five years”.

Already, this newest satellite packs all the features of a larger satellite – such as advanced cameras, thrusters and electronics capabilities – into “something the size of a shoebox”, said NTU's vice president of research, Lam Khin Yong.

Professor Mengu Cho, director of Kyutech's Laboratory of Spacecraft Environment Interaction Engineering, said that JAXA chose to launch NTU's satellite "because of the commercial value" of its technologies, which could be used for both lunar and Earth-orbiting missions.

He added that the satellite contained technology "necessary for a future lunar mission", and could bring the field of satellite research "tremendous" scientific and commercial value.