Estonia's first satellite carries a tether for testing the electric sail

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ESTCube-1, Estonia's first satellite, was successfully launched into orbit. The purpose of the satellite is to measure the electric sail effect. The Finnish Meteorological Institute bears the main responsibility for the payload.

Using a Vega rocket, Estonia's first satellite ESTCube-1 was successfully launched into orbit early Tuesday morning from Europe's Spaceport in Kourou, French Guiana. After the launch, everything has proceeded according to plan. ESTCube-1 is orbiting the Earth and a radio link has been established with the satellite.

The main payload of the small satellite, which weighs about one kilogram, consists of a 10-metre electric sail tether and an electron gun used for charging the tether. The principal goal of the mission is to test the opening of the tether and to measure the electric sail effect in space by deploying the 10-metre tether and by charging it to 500 volts. The satellite also carries a camera for monitoring the behaviour of the tether in space and for taking images of the Earth.

If the electric sail principle works as planned, it will enable fast and economical transportation in the solar system without consuming any propellant. It also offers an efficient way to prevent the accumulation of space debris by bringing satellites back into the atmosphere once their service life is over.

The ESTCube-1 satellite was built by space technology students at Tartu

University. The Finnish Meteorological Institute has the main responsibility for the electric sail payload. Important components were built at the Electronics Research Laboratory of the University of Helsinki (electric sail tether), the Accelerator Laboratory of the University of Jyväskylä (electron gun), the University of Eastern Finland (nanographite cathode for the electron gun), and at the German Aerospace Center (DLR) (motorised tether reel).

Provided by Finnish Meteorological Institute