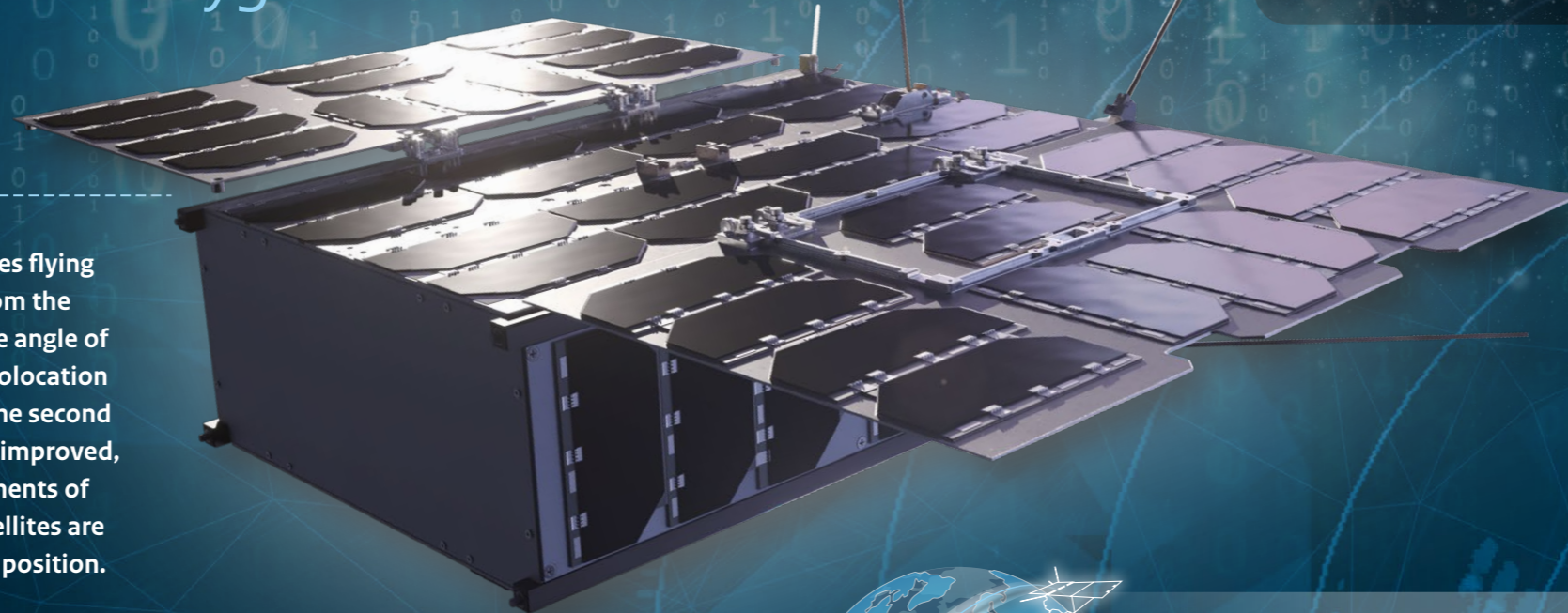




MilSpace2

Satellites Birkeland and Huygens

“Birkeland” and “Huygens” are 2 similar satellites flying in formation. They both receive radar signals from the ground by their on-board antennas. By using the angle of arrival, one satellite alone can determine the geolocation of the transmitter. When including the data of the second satellite, the accuracy of the geolocation can be improved, by using the time difference of arrival measurements of the same signal. To remain in formation the satellites are equipped with small thrusters to maintain their position.



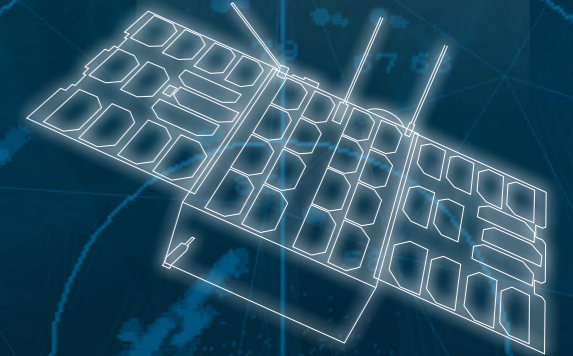
Who were Birkeland and Huygens?

Kristian Olaf Bernhard Birkeland (13 December 1867 – 15 June 1917) was a Norwegian scientist. He is best remembered for his theories of atmospheric electric currents that elucidated the nature of the aurora borealis. In order to fund his research on the aurorae, he invented the electromagnetic cannon and the Birkeland–Eyde process of fixing nitrogen from the air.

Christiaan Huygens (14 April 1629 – 8 July 1695) was a Dutch mathematician, physicist, engineer, astronomer, and inventor, who is regarded as one of the greatest scientists of all time and a major figure in the scientific revolution. (Source: Wikipedia)

Platform

- 2 6U Cubesats
- (Passive) radar detectors
- Active attitude control
- Ion thrusters
- Sun Synchronous Orbit



In orbit

The two satellites will be placed into a polar Low Earth Orbit (LEO) with an altitude of 535 km. They will be positioned in the same orbital plane and the separation distance will vary throughout the mission.



One of the unique aspects is the fact that the satellites are owned and operated by 2 countries: the Netherlands and Norway. Two like-minded NATO nations have joined forces in this research mission. Together they are able to create a capacity that can observe radar systems on land and at sea: the MilSpace2 satellite system.

