

# ANDØYA SPACEPORT: THE ARCTIC ENTRANCE TO ORBIT

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**Abstract:** Andøya Space (est. 1962) provides operational services, infrastructure, and space education; two suborbital sounding rocket launch sites and a test range for testing of new technologies. The large impact and dispersion area in the Norwegian Sea enables Andøya Space to support a wide range of operations and Andøya Space has launched over 800 sounding rockets for science and technology testing.

And now, the focus has turned to orbital class rockets. In June 2020, the Norwegian Parliament made a unanimous decision to support Andøya Spaceport, and Andøya Space was in October 2021 given green light for the overall funding. In March 2022 the construction of the first building phase of the satellite launch facility began at the island of Andøya, expected to be finished by the end of 2022. This first initial operating capability is what the spaceport needs to start launching. The second building phase will finalised detail projecting during 2022 and building starts in 2023.

The spaceport development is at a site on the west coast of the island, approximately 25km southwest of the existing Andøya Space sub-orbital launch site, and ~4km southwest of the village of Nordmela.

Vehicles launched from here onto northerly trajectories will fly over open ocean for the first ~1000km of flight, and the site provides operators with direct access to polar and sun-synchronous orbits.

Andøya Spaceport can provide launch azimuths between  $-60^\circ$  and  $+5^\circ$ , which translates to orbital inclinations from  $108^\circ$  to  $87.4^\circ$ .

The construction plans outline two orbital class launch pads, with the possibility of adding a third pad. Pad infrastructure includes large storage tanks of hydrocarbon fuel and liquid oxygen used to load the vehicle with propellants in the final stages of launch preparation, as well as integration buildings and tracking and control centers.

The spaceport will support launchers with payload capacity up to around 1.5 tons to polar orbit, depending on the details of the launch vehicles used. The maximum launch cadence capacity will be thirty launches per year.

The paper provides details on the spaceport infrastructure, as well as a status update on the implementation and preparations towards the first orbital launch in 2023.