

IAF SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS SYMPOSIUM (D2)
Launch Services, Missions, Operations, and Facilities (2)

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ESRANGE SPACE CENTER – EVOLUTION OF THE MOST VERSATILE SPACE CENTER IN THE
WORLD

Abstract

Esrange Space Center, already probably the most versatile space station in the World, is seeing significant growth and evolution. Founded by ESRO, the predecessor of ESA, in 1966 and owned and operated by Swedish Space Corporation (SSC) since 1972, it is undergoing an expansion in capabilities including the addition of orbital launches.

Esrange is the main launch and operations facility of SSC. Located in northern Sweden, above the Arctic Circle, it has access to a vast uninhabited ground area, 5200 square km in size, to be used for the impact of rockets, payloads, and other free-falling objects such as drop tests of aerospace systems. Above the ground area is a restricted airspace from ground to unlimited altitude, covering 6600 square km, that when activated makes it one of the best places in Europe to perform launches and flight operations.

Esrange has steadily supported the international scientific community for launching sounding rockets for microgravity and atmospheric research as well as high altitude stratospheric balloons for astronomy and atmospheric research. The space center continues to grow to support space exploration and technology demonstration with high altitude drop tests of capsules, parachutes, and planetary landing vehicles. The vast recovery area provides quick recovery and return of payloads and the deconflicted airspace is ideal for testing UAS flights. Work continues at Esrange to improve and increase state-of-the-art capabilities for preparations, launching, operations, and recovery of sounding rockets, balloons, and UAS.

Since 1978, Esrange has also accommodated a satellite ground station that has grown to one of the world's largest civilian satellite stations and acts as a key part of SSC's satellite station network.

In addition to this long heritage, Esrange is evolving to meet Europe's space access needs as a leading European space hub. Already operational is a new rocket testbed facility, providing vertical and horizontal rocket motor and stage testing and qualification. A new launch complex is under construction at Esrange. This will complement the existing sounding rocket launch complex with new capabilities for launch vehicle reusability testing and orbital launches to high-inclination, polar orbits. Esrange will offer services as a spaceport with small satellite launches starting in 2022.

This paper details the improved capabilities and evolution of Esrange Space Center that continue to help Earth benefit from Space.