

Measurement Opportunities by means of SSC Global Facilities and Services

Mattias Abrahamsson, Kent Andersson

SSC, Esrange Space Center, Sweden

e-mail: mattias.abrahamsson@sscspace.com, kent.andersson@sscspace.com

Esrange Space Center located in northern Sweden has for almost 50 years been a leading launch site for sounding rockets and stratospheric balloons, many used in scientific campaigns measuring phenomena in the Arctic region.

Scientific payloads are launched with one- or two-stage sounding rockets reaching up to 800 km altitude. The payload can consist of several instruments, taking measurements throughout the trajectory, and landing with a parachute after the flight. The sparse population in north Sweden makes it possible to recover the payload over land, which is very hard in other parts of Europe.

Stratospheric balloons with payloads weighing up to 2 tonnes are launched from Esrange. The balloon flights are normally flown eastwards, with landings inside Scandinavia. Since 2005 flights westwards are performed with recovery in northern Canada. Through an agreement between Sweden and Russia it has also been possible to overfly North America and fly a circumpolar trajectory over Russian territory. The Swedish PoGOLite balloon borne telescope, studying the polarisation of gamma-rays from pulsars, was flown on such a trajectory from Esrange in the summer 2013. It made an almost full circumpolar flight, and landed in Russia after nearly two weeks flight.

SSC also has the possibility to host scientific ground instruments, either at Esrange or at different SSC owned sites in several locations globally. KEOPS (Kiruna Esrange Optical Platform Site) is an observation site located at Esrange where customer furnished equipment is co-located with SSC owned instruments. Examples are Fabry-Pérot spectrometers, photometers and magnetometers. Except for the instruments located at KEOPS there are more instruments located around the Esrange base; ESRAD is an MST-radar, a MISU operated LIDAR is located on the radar hill. There is also a RIO-meter, magnetometers available and more available. These instruments are often used together with experiments on sounding rockets and balloons. At SSCs facilities for satellite reception, located for example in northern Canada, western Australia, Hawaii and Chile, scientific ground instruments could be hosted. These could be controlled and monitored through the extensive network SSC employs.