

New Fundamental Station in Ny-Ålesund

Line Langkaas, Terje Dahlen, Per Erik Opseth

Norwegian Mapping Authority (NMA)

Contact author: Per Erik Opseth, e-mail: Per.Erik.Opseth@statkart.no

Abstract

The Norwegian Mapping Authority's (NMA) geodetic observatory has been operating in Ny-Ålesund since 1994. To adapt to the VLBI2010 standard and extend our activity to also integrate SLR, NMA is in the process of funding a new fundamental station. Handling more Intensive observations in real time requires a fiber optic cable to Ny-Ålesund. The Norwegian Mapping Authority is currently applying for project funding of 26 million euros.

1. About the Project

The site in Ny-Ålesund is currently equipped with an old and slow-moving VLBI antenna, a superconducting gravimeter, GNSS receivers, a tide gauge, and DORIS equipment. An upgrade of the site in Ny-Ålesund will add a twin telescope and an SLR system in addition to the existing techniques.

The existing observatory is located very close to the runway at Ny-Ålesund airport and is already a challenge due to aviation safety. Also a future development of the airport might affect our activity. Therefore, we have proposed to move the observatory about 1 km away, to the “Knudsen Ridge”. In Ny-Ålesund we have radio silence to a large degree, which is of great benefit for VLBI. This is one of the key reasons for staying in Ny-Ålesund rather than moving to Longyearbyen, which has far better infrastructure. The project plans include preparation for the installation of an automatic stability control system of the antennas.

2. Challenges

The development of a new feed has to be completed; we need to make sure this is finished in due time. Continuous operation (24 hours a day, 365 days a year) is a challenge for NMA when it comes to manning the station in Ny-Ålesund. For NMA, it is important to establish a system for remote control within the IVS network. NMA appreciates the support we have received from the IVS network, and we are depending on this cooperation to be able to go through with the project. Complete radio silence (only selected frequencies today) might be possible to achieve in Ny-Ålesund if this is of great importance for the VLBI community, but this will reduce options for other scientists in the area.

3. Project Plan

The Norwegian Mapping Authority is in the process of funding the project, and support from the “geodetic community” is necessary to raise the funds. An application was submitted to the Ministry of Environment in December 2009. Additional clarification will be carried out during the

first half of 2010 with respect to environmental impact assessment, air traffic, and ground stability. A decision on the funding to be appropriated for 2011 is expected in autumn 2010. In case of a positive feedback on funds for 2011 we will have a project kick off during winter 2010/11 with tender invitations and other activities. The project period is expected to be 2011-20.



Figure 1. Ny-Ålesund geodetic observatory.