

NYAL Ny-Ålesund 20 Metre Antenna

Helge Digre

Abstract

For the year 2005, the 20-meter VLBI antenna at the Geodetic Observatory, Ny-Ålesund has participated in VLBI experiments at the scheduled level. In addition to that, Ny-Ålesund also participated in CONT05. For 2005, there has been one person at the station because of a general reduction in the Norwegian Mapping Authority's budgets. The station is now a Mark 5 station only. Maintenance and repair have been done at a minimum level, given the personnel situation. No errors are corrected during unmanned operation. CONT05 tests were performed with one extra person present, and the CONT05 campaign was done with two extra persons at the station.

1. General Information

The Geodetic Observatory of the Norwegian Mapping Authority at 78.9 N and 11.87 W is located in Ny-Ålesund, in Kings Bay at the west side of the island of Spitsbergen, the biggest island in the Svalbard archipelago. In 2005, Ny-Ålesund was scheduled for 87 VLBI experiments within R4, R1, EURO, VLBA/RDV, RD, T2 and ICRF, including the 15 days of the continuous VLBI campaign CONT05. 86 experiments were run during the year. In addition to the 20-meter VLBI antenna, the observatory has two GPS antennas in the IGS system and a Super Conducting Gravimeter is installed on the site. On the site, there is also a CHAMP GPS and a PRARE installation. There is also a SATREF (dGPS) installation at the station.

The Geodetic Observatory of the Norwegian Mapping Authority at 78.9 N and 11.87 W is located in Ny-Ålesund, in Kings Bay at the west side of the island Spitsbergen, the biggest island in the Svalbard archipelago. In 2005, Ny-Ålesund was scheduled for 78 VLBI experiments within R4, R1, EURO, RD, T2 and 15 within CONT05, totally 93 experiments. 93 experiments were run during the year. NMA provided 10 new 2000 GB Mark 5 modules for CONT05. David Holland was on sick leave until the end of his contract in June. The contract was not renewed because of the NMA budget situation. In addition to the 20-meter VLBI antenna, the observatory has two GPS antennas in the IGS system and a Super Conducting Gravimeter in the Global Geodynamics Project (GGP) installed on the site. There is also a CHAMP GPS and a SATREF (dGPS) installation at the station.

2. Component Description

The antenna is intended for geodetic use, and is designed for receiving in S- and X- band. The equipment is Mark 5. Station configuration file: ivscc.gsfc.nasa.gov/pub/config/ns/nyales.config. Ny-Ålesund is located so far north that it has daytime aurora in winter. The location of the antenna enables signal reception over the North Pole. (In 1998, Ny-Ålesund was the only antenna that could receive signals from the Mars Global Surveyor for 24 hours.)

3. Staff

Leif Morten Tangen attended the TOW 2005 meeting at MIT Haystack Observatory. David Holland was on sick leave until the end of his contract. The contract was not renewed due to the



Figure 1. Ny-Ålesund 20 meter antenna

Table 1. Staff related to the operation of the VLBI in Ny-Ålesund.

Hønefoss:	Section manager:	Rune I. Hanssen	
	Station responsible, Hønefoss:	Svein Rekkedal	
Ny-Ålesund:	Station commander:	Leif Morten Tangen / Helge Digre	
	Engineer	David Holland	

budget situation. All the experiments are done during the normal working hours of one person, except CONT05, where 2 extra persons participated so 24 hours manned operation was possible.

4. Current Status and Activities

Ny-Ålesund has participated in VLBI experiments at the scheduled level. Ny-Ålesund is a Mark 5A only station. Both the FS and Mark 5 are upgraded to the latest software versions. Two new FS computers have been bought, and they have some final testing to pass before they can be used for experiments. The Super Conducting Gravimeter placed on the same fundament as IGS-GPS NYA1, has been running without problems. The yearly service on the system includes refilling of liquid Helium and was performed by Professor Tadahiro Sato and Dr. Ikeda in the first week of August. The Ministry of Environment funds the Norwegian Mapping Authority (NMA). In 2005, the Norwegian Mapping Authority ran the Geodetic Observatory, Ny-Ålesund on the

same minimum mode as for the 2nd half of 2004. The given reason is the budget situation. The Geodetic Observatory, Ny-Ålesund, has been run as a one man, Mark 5 only, station also for the entire 2005, except for CONT05, when the 24 hour manned operation made it necessary to have 3 persons present. David Holland was on sick leave until his contract ended this summer. The contract was not renewed because of the budget situation.

5. Future Plans

Ny-Ålesund will continue to participate in the experiments the antenna is scheduled for, and will try to do as many experiments as possible, given the personnel situation at the station. Parts of the experiments will continue to go unmanned, due to the personnel situation. NMA plans to hire a second person for Ny-Ålesund in 2006. The new Field System computers will be set in use very early next year. A direct high-speed data link from Ny-Ålesund Geodetic Observatory to Haystack will be tested in January. The high-speed data link will be able to transfer 100 Mbps. The Ny-Ålesund high-speed data-link project is a cooperative effort between the Norwegian Mapping Authority (NMA), UNINETT, NORDUnet, NASA Goddard Space Flight Center and MIT Haystack Observatory. Responsible person at NMA: Rune I. Hanssen. The SCG has to be refilled with liquid Helium each year, and the lift has to be re-certified every year.