

# NYAL Ny-Ålesund 20 Metre Antenna

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## Abstract

In the report period (2002) the 20-meter VLBI antenna at the Geodetic Observatory at Ny-Ålesund has participated in VLBI experiments at the scheduled level. Several maintenance and repair activities were required and there have not been any changes of the staff.

## 1. General Information

The Geodetic Observatory at Ny-Ålesund is located at 78.93°N and 11.87°W on the West Coast of Spitsbergen, Svalbard, Norway. The observatory has developed into a fundamental geodetic station with co-location of space-geodetic techniques and geophysical instruments. The VLBI antenna participates in experiments within: VLBA/RDV, T2, R1, VLBI Europe, R4, CONT02 and Grav01. The observatory has two GPS antennas in the IGS system, and both a LaCoste-Romberg gravimeter and a Super Conducting Gravimeter are installed on the site. The site also includes a CHAMP GPS and a PRARE installation. The observatory participates in the EU-funded Large Scale Facility (LSF) Ny-Ålesund.

## 2. Component Description

The antenna is designed for receiving in S- and X-band, and the equipment is MKIV. (Station configuration file: <ftp://ivscc.gsfc.nasa.gov/pub/config/ns/nyales.config>). Special for this VLBI antenna is the location, which makes it able to receive over the North Pole.

## 3. Staff

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	
	Engineers:	Vidar Eggimann / David Holland	
	Engineer:	Sune Elshaug	
	Rotation group:	Kari Buset	(10.2002)

There are three positions in the Observatory, two for electronic engineers and one for a mechanical engineer. A new system was introduced, making it possible for two persons to share one position on a 4 months on - 4 months off basis after the person first qualifies for it by working



Figure 1. Ny Alesund 20 meter antenna, seen from East

at least one year at the observatory. The changes take place in March, July and November. It started in June 2001. The rotation system has worked ok.

#### 4. Current Status and Activities

The overall operation of the antenna has been smooth, with some periods with more problems than others. The antenna was scheduled for 104 experiments in this period, and has participated in 100 of them, while 4 have been lost. The dewar in the receiver broke down in January and was replaced. We had also a big leak in the HE pipe line system and all of them are changed. The superconducting gravimeter (SCG) has had its yearly service, and the coldhead was changed in August. The tilt measurements of the antenna and the SCG were ended this year. The LSF projects this year has done measurements of gravity with absolute gravity meter and the Lacoste-Romberg gravity meter. The reference network around the antenna has been measured with GPS and gravity meters. The main reasons for losing sources in 2002 have been power supply dips, strong winds and problems with the dewar. The Maser was serviced in June. The antenna motors, gearboxes and brakes were serviced this summer.

## 5. Future Plans

We will continue to participate in the experiments that the antenna is scheduled for. There is a yearly refilling of liquid Helium on the SCG. We will continue the upgrade on the cherry picker. We will also buy the Mark 5 system next year.