

NYAL Ny-Ålesund 20 Metre Antenna

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Abstract

In the report period (2001) 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 changes in station staff have occurred.

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, CORE-C, CORE-3, VLBI Europe, NEOS and CONT. 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 manager:	Leif Morten Tangen / Helge Digre	
	Engineers:	Vidar Eggimann / David Holland	
	Engineer:	Sune Elshaug	(06.2001 →)
	Rotation group:	Kari Buset	(02.2001 - 06.2001)
	6 months contract:	Nils Petter Rognstad	(10.2000 - 03.2001)

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



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

position on a 4 months on - 4 months off basis after the person first qualifies for it by working at least one year at the observatory. The changes take place in March, July and November. It started in June 2001.

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 80 experiments in this period, and has participated in 78 of them, while 2 have been lost. The temporary repaired coaxial cables between the receiver and the rack have been replaced with new ones. A new MKIV decoder has been installed. It seems like narrow SCSI disks are being discontinued, so while they still are available, we have bought three 18 GB disks for the field system computers. The Dewar in the receiver broke down in October and was replaced. The new one had an oscillating amplifier in S-band that had to be replaced. A new PRARE site has been built, and the replacement equipment has been installed there. It runs ok. The superconducting gravimeter (SCG) has had its yearly service, and the coldhead was changed in November. The LSF projects this year were installing tilt meters on the foundations of the VLBI antenna and the SCG (Hans-Joachim Kuempel and Marcus Fabian), and hosting a technical journalist (Joanna Diaz Pont). The main reasons for losing sources in 2001 have been

power supply dips, strong winds, condensation problems in the elevation encoder and trouble with the temporary repairs on the signal cables. The Maser has not been serviced as scheduled in 2001 because of the terrorist attack on the US.

5. Future Plans

We will continue to participate in the experiments that the antenna is scheduled for. The Maser has to be serviced this year. We plan to service the electric motors, the brakes and the gearboxes on the antenna this summer. Some maintenance has to be performed on the helium lines in the antenna. There is a yearly refilling of liquid Helium on the SCG. We will continue the upgrade on the cherry picker. We hope to get our GLONASS system working, so we get data from it. LSF has been granted 142 man-days in 2002 (ref.: <http://www.npolar.no/nyaa-lsf/>)