

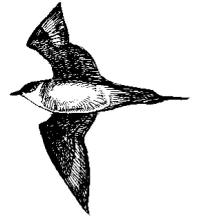
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# Ny-Ålesund Newsletter



8<sup>th</sup> edition  
June 2001

## NY-ÅLESUND AWAITS INVASION

**There are very few signs of the large numbers, which will invade the town of Ny-Ålesund very soon. Today, only ten to fifteen scouts are observed in the village, but large numbers are waiting on the islands in the fjord to conquer the mainland. Next week they will arrive and take their positions at Solvatnet and Thiisbukta, with occasional raids between the houses.**

This text is about Barnacle Geese. Since 1980, this bird is breeding in Kongsfjorden and numbers have risen to over 1000 birds. They have arrived a month ago and started nesting immediately. At this moment, there are 296 nests on Storholmen and 40 nests on Prins Heinrichsøya. These are the highest number ever. Average clutch size is a bit low compared to normal years with 3.5 goose eggs per nest. Thirty nests also contained eider eggs. We have seen already two goslings. Most eggs will hatch in the next 10 days and the families will cross the fjord only few days later.

In Ny-Ålesund, the moss areas are changing from yellow to green. The grasses in the moss are growing with 3 millimetres per day. There will be much food for the geese. But not enough to feed all young. With these numbers, growth of young will be slow and goslings will be eaten by the polar foxes. There are two foxes already observed in the village. The future of the young geese born in this year depends on the predation pressure of the fox. Last year all goslings were eaten. Extreme years like 2000 are normal in the arctic and the geese are adapted to that. They are able to produce large numbers of offspring. Each pair can produce 40 eggs in their lifetime. If all these eggs would survive, the population would triple each year.

In the middle of July, all geese will start to replace their wing feathers. They loose all long flight feathers and are unable to fly for four weeks. The geese know that this is a dangerous period. They start running away from danger when the danger is still five times further away, than when they could fly. However, Ny-Ålesund is unique in the world,

because the geese are used to people. As long as the humans stay on the roads, the geese continue with their normal affairs and are observed easily.

In September, the barnacle geese have to leave Spitsbergen and migrate to Scotland. This is a big test for the young. Only the goslings, which have been growing fast, will survive this trip. To be able to grow, they have to eat: 100 pecks per minute, three out of four hours. In the third and the fourth week of their life, they double their body mass each week. The parents have divided their labour to care for their offspring. The female has produced the eggs and did all incubation. After the young are hatched, she has used all her body reserves and must eat. The male does most of the guarding. He will watch for danger but will also try to chase other families away from his own family, so his family can feed undisturbed. This social behaviour can easily be observed.

The barnacle goose is studied intensively in Ny-Ålesund. Since 1989, geese have been ringed each year with special colour codes, which can be observed with a telescope from a distance. You can observe us in the village walking with telescopes or kneeling on the ground to measure grass growth. Not only during day time, but especially during night hours, when the village is quiet and the geese move between the houses. If you have special observations about the geese, or if you want to learn more about them please contact us.

*Marten Loonen, Arjen Drost, Nils Bunnefeld, Eirik Grønningseter*

**News**

**A new satellite antenna in Ny-Ålesund**

*by Roland Neuber, AWI*

In March/April of this year a satellite receiving antenna was installed to collect data from the polar orbiting satellite CHAMP (Challenging Minisatellite Payload for geophysical research). This satellite was built by the GeoForschungsZentrum (GFZ) in Potsdam, Germany, in co-operation with US, and French institutes and was launched in July 2000 from Plesetsk, Russia. CHAMP is flying a polar low earth orbit (LEO) at about 450 km altitude which will decrease to 300 km within 5 years. The instrumentation of CHAMP allows to determine the gravity field of the earth and to measure its magnetic and electric fields with an increased accuracy.

A high speed GPS receiver onboard is used together with a world wide network of corresponding ground-stations to calculate the precise orbit of CHAMP. When recording the delayed GPS signals through the earth's atmosphere (occultation technique), the atmosphere's vertical temperature and humidity profiles can be retrieved. Such data (up to 250 profiles per day) is essential for weather forecast applications. As the weather service centres need these data in near real time, it has to be down linked at every orbit of the satellite (15 times per day). As this can only be achieved by a receiving station close to the pole, which can "see" the satellite at every orbit, a corresponding antenna was installed in Ny-Ålesund. The antenna has a diameter of 4 m and it is housed in a new dedicated radom beside the air field in Ny-Ålesund. AWI cooperates with GFZ to validate this new technique using data from the Koldewey-Station.

Data is immediately relayed to Potsdam via ISDN telephone lines for processing. Since May, the antenna has successfully collected more than 95 % of the CHAMP data. After the

adjustment of the software for the remote control normal service guarantees an almost 100% down link. Information about the CHAMP project can be found at <http://op.gfz-potsdam.de/champ/>

**Ny-Ålesund Large Scale Facility**

The Ny-Ålesund Large Scale Facility (LSF) Program had its 8<sup>th</sup> and 9<sup>th</sup> User Selection meetings in Copenhagen during November 2000 and March 2001. A total of 18 new research projects originating from Finland, Israel, Poland, UK, Sweden, Slovenia, Italy, Czech Republic, Spain and Germany were granted access to the research facilities in Ny-Ålesund. It is interesting that Ny-Ålesund and our LSF-Program are able to attract new scientific users from the new Associated States and the countries applying for membership in the European Union, especially from "rear" countries like Israel, Slovenia and the Czech Republic.

The 10<sup>th</sup> Announcement of Opportunities is scheduled with deadline 1 October 2001 and subsequent User Selection meeting in November 2001. The LSF Program may still support another 15 – 18 projects for 2002 and spring 2003. Subject to the normal independent peer review process ensuring high quality, emphasis will be put on European young scientists that are new to Ny-Ålesund and would not have normal access to any of the established research facilities there.

Please contact the Ny-Ålesund LSF secretariat at the following addresses for more information:

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**Planning for the marine laboratory continues**

The initial planning for the marine laboratory in Ny-Ålesund is now completed. A full technical and functional description, the combined effort of the science group and the project group, has been sent to the Norwegian Polar Institute. Funding is still incomplete but Kings Bay hopes that this will be solved during the autumn.

The time schedule for the continuous work is as follows:

Autumn 2001:

Completion of funding scheme.

Late autumn 2001:

Stage two – technical description for tender by the project group.

Full scientific and technical description will be sent out on an extended hearing.

Early spring 2002:

Project is sent out for tender.

Spring 2002:

Building first stage construction work.

Earliest starting date for activities in the laboratory will be early spring 2003. Providing that this time schedule can be followed.

**Proceedings from the Tokyo seminar**

The Proceedings of the Fifth Ny-Ålesund Scientific Seminar the "Environmental Research in the Arctic 2000", the Proceedings of the Second International Symposium on Environmental Research in the Arctic and Fifth Ny-Ålesund Scientific Seminar, 23 - 25 February 2000, NIPR, Tokyo is published. It contains 51 scientific papers, scientific notes, review papers and reports, in 520 pages. All the participants have presumably received a copy by now.

## A few words from a retired NySMAC chairman

After four years as chairman of the Ny-Ålesund Science Managers Committee it is with pleasure and confidence I hand over the responsibility to the newly elected Prof. Guido di Prisco. It is indeed timely that someone from the biological sciences is chairman now; one of the largest (probably the largest) forthcoming infrastructure projects in Ny-Ålesund is the establishment of a new marine laboratory.

The past four years have been stimulating and exciting but also at times an ordeal. NySMAC was still a young organization four years ago and has matured during the past years. At the same time Ny-Ålesund has been under intense development. The new mess building, the new power plant, the refurbishing of Nordpol hotellet and the gymnasium, the Sverdrup station, the Italian station, the French station, the new building on Zeppelinfjellet, the new rocket facilities, the "CHAMP" antenna, and the balloon house all came into place during this period. Although I played a very small (if any) role in actually making these things happen there have been many deliberations to prevent conflicts of interest and to optimize coordination.

That Ny-Ålesund has prospered during the past years is no coincidence. It is a consequence of the achievements of all the scientists active in Ny-Ålesund, the dedication of everyone at Kings Bay and above all the positive, creative and stimulating atmosphere fostered by all the strong Ny-Ålesund friendships. Ny-Ålesund friendships are special; it is a personal and scientific privilege to be part of this community.

The most important measure of Ny-Ålesund productivity and success are the Ny-Ålesund seminars. I would like to thank all contributors and in particular the hosting institutions NILU, CNR, and NIPR for the very successful seminars during the past years.

I thank you all for your support during the past years. I will continue to visit, but just as a simple scientist intent on contributing to the development of Ny-Ålesund also in the coming years. I hope to see you all as we move along with the new NySMAC leadership!

*Kim Holmén*

## Prominent visitors

Ny-Ålesund has a lot of prominent visitors through the year. Some of them who have visited this spring are:

The French and Norwegian Ministers of Foreign Affairs and the French Ambassador visited in May.

In June the Parliamentary Secretaries of the various ministries dealing with state affairs visited.

The US Arctic Research Commission visited in June in order to get acquainted with the Ny-Ålesund area and the facilities.

## Statistics for Ny-Ålesund

The total number of mandays for scientists has been quite stable during the three last years (close to 10,000 per year) and in 2000 the mandays are more evenly distributed through the year than in the previous years where July and August were the peak period.

The total number of overnight stays has slightly decreased from 1999 to 2000 mainly due to presence of fewer constructors. Year 2000 was probably the last year with heavy construction work. The number of entrepreneurs will therefore continue to go down and give room for more scientists.

## Bird research in Ny-Ålesund

There are several bird projects in Ny-Ålesund this summer. French and Norwegian scientists are studying the behaviour, physiology and biochemistry of incubating Common Eiders on the Prins Heinrich Island. Scientists from Japan and

Norway will perform studies on the physiology of diving in Brunnichs guillemots in the colony in Krykkjefjellet. French and Norwegian scientists will also, in the same colony, study the behaviour, energetics and biochemistry of Kittiwakes during the chick rearing period. Dutch and Norwegian scientists are doing behaviour and population studies on Barnacle geese in Kongsfjorden. Samples are also being collected, from several seabird species, in order to study the levels and effects of persistent organic pollutants (POPs).

The road between the dog house and Renseverket is closed for traffic by cars and humans. This is done as an experiment, in which Kings Bay and scientists from the Norwegian University of Science and Technology (NTNU) and Norwegian Polar Institute (NP), want to test if Arctic terns and other bird species will establish nests on the road or close to the road. Due to heavy egg predation in Ny-Ålesund this summer, which is caused by glaucous gulls and foxes, we may have to wait until the summer of 2002 to see the effect of closing the road to Renseverket.

## Italian activity in Biology

In expectation for the new Biology Lab in Ny-Ålesund, work has been initiated on Arctic fish specimens kindly provided by Drs S-E Fevolden and J S Christiansen of the Tromsø University. The results will be published in manuscripts in preparation, and have been presented in two international congresses:

Verde C, Carratore V, Riccio A, Tamburrini M, di Prisco G (2001) The hemoglobin system of an Arctic teleost, the Spotted Wolffish *Anarhichas minor*. 4th European Symposium of the Protein Society, Paris, Abstr No 398, p 158

Verde C, Riccio A, di Prisco G (2001) The hemoglobins of polar teleosts: the Arctic Spotted Wolffish *Anarhichas minor*. 8th SCAR Biology Symposium, Amsterdam, September 2001

## Ny-Ålesund Diary

### August 2001

10th August 2001 marks the 10th anniversary of the official opening of the Koldewey-Station.

## Calendar of Arctic Meetings

The 15<sup>th</sup> NySMAC meeting is scheduled to 20-21 september in Potsdam, Germany

From 24-27th September the First Scientific Symposium of the Network for the Detection of Stratospheric Change (NDSC) will take place in Arcachon, France, celebrating 10 years of atmospheric research. See <http://www.observ.ubordeaux.fr/public/ndsc.symp/>

For a comprehensive list of published meetings, look at Survey of Arctic Meetings: <http://www.iasc.no/sam.htm>

## Staff News

### AWI:

**Mareille Wolff** is the current station leader at Koldewey-Station.

**Günther Wehrle** works as a second station engineer at the Koldewey-Station in spring and fall of 2001.

**Holger Poetschick** will replace the current station engineer **Kay Krüger** in September.

### NP:

**Stefan Claes** was re-employed as optical engineer in May

### NySMAC:

**Institut Francais pour la Recherche et la Technologie (IFRTP):**

**Franck Delbart** will replace **Bernard Lefauconnier** in NySMAC

### Norwegian Institute for Air Research (NILU):

**Paal Berg** will replace **Ivan C. Burkow** in NySMAC

### Norwegian Polar Institute (NP):

**Jan Erling Haugland** will substitute **Pål Prestrud** in NySMAC

### Norwegian Space Centre (NSC):

**Kjell Bøen** of Andøya Rocketrange will replace **Ivar Nyheim** in NySMAC

## Publications

### Research in Svalbard 2001

A yearly information. Available from Svalbard Science Forum and on <http://www.npolar.no/ris>

### Fuglei, E., Aanestad, M. And Berg, J.P.

**2000.** Hormones and metabolites of arctic foxes (*Alopex lagopus*) in response to seasonal variations, starvation and re-feeding. Comparative Biochemistry and Physiology A 126:287-294

### Ny-Ålesund - International Research at 79°N

3<sup>rd</sup> revised edition. By the Norwegian Polar Institute in co-operation with Kings Bay AS.

### The Ny-Ålesund Safety Guide

By Nick Cox, NERC (2<sup>nd</sup> edition 1998)  
An introduction to safety in Ny-Ålesund and its surroundings. The guide is obtainable in Ny-Ålesund from Kings Bay AS and Sverdrupstasjonen.

### NySMAC Internet Homepage:

<http://www.lby.npolar.no/nysmac/>  
As well as a general introduction to Ny-Ålesund and to the work of NySMAC, this site contains the complete contents of the *Ny-Ålesund Newsletter* and links to the home-pages of the NySMAC member institutions.

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