



Ny-Ålesund Newsletter

28th Edition – June 2011



Photo: Ove Hermansen, NILU

10th Ny-Ålesund Seminar

The 10th Ny-Ålesund Seminar will take place on 25 - 26 October 2011 at Lillestrøm Centre of Expertise in Kjeller, Norway. The meeting will be organised by NILU in advance of the NySMAC meeting on 27 October 2011.

For more details see: <http://nyalesund-seminar.nilu.no/>

The seminar will bring together scientists who have Ny-Ålesund (78°55'N, 11°56' E) as a base for their research. The aim of the two day meeting is to exchange experience and share advancements from research and monitoring activities in the Arctic. The meeting wants to encourage collaborations between researchers related to the flagship programs:

- Kongsfjord System Flagship
- Atmospheric Research Flagship
- Terrestrial System Flagship
- Glaciology Flagship

We welcome presentations from most recent and ongoing campaigns in 2011, e.g. early results from the CICCI (Coordinated Investigation of Climate-Cryosphere Interactions).

- **Scientific programme committee:** Dr. Geir Wing Gabrielsen - Norwegian Polar Institute
Dr. Roland Neuber - Alfred-Wegener Institute, Germany
Dr. Maarten Loonen - Arctic Centre, University of Groningen, The Netherlands
Dr. Jack Kohler - Norwegian Polar Institute, Glaciology Flagship
Dr. Christiane Hübner - Svalbard Science Forum
- Local organizing committee: Dr. Kerstin Stebel, Ove Hermansen, Mike Kopernus, Edel Braathen, Pål Berg - NILU
- Important dates: Abstract submission 1 September 2011
Notification of acceptance 20 September 2011
Registration and hotel reservation 24 September 2011
Ny-Ålesund seminar 25-26 October 2011
NySMAC meeting 27 October 2011
- Contacts: Email: NA10seminar@nilu.no Kerstin Stebel, NILU, email: kst@nilu.no; +47 6389 8175

New requirements for research application to the Governor of Svalbard

The Governor of Svalbard has published a set of requirements for applications regarding field research in Svalbard. It is meant to simplify both the application process for researchers and the application processing for the Governor and is mainly a clarification of existing requirements. New requirements include for example the need to attach agreements on cooperation with other projects to minimize environmental strain from logistics and

sampling. If such cooperation is not possible, this needs to be justified. You also should include an assessment of the possibilities to minimize the total environmental strain of the project from logistics, technical solutions, methods, etc.

Read all requirements here:

<http://www.sysselmannen.no/hoved.aspx?m=44365&amid=3181037>

Official opening of the Amundsen Villa

Saturday 28 May saw the official opening of the Amundsen villa. The villa was the Norwegian polar explorer Roald Amundsen's residence in Ny-Ålesund in the 1920s, when Ny-Ålesund was the starting point for his expeditions towards the North Pole by plane and air ship.



Photo: Sylvi Lundgren

In connection with the Amundsen-Nansen year 2011, Kings Bay AS wanted to restore the Villa, originally built in 1918, back to its former glory. With contributions from Conoco Philips, The Ministry of Foreign Affairs, Telenor, Svalbard Environmental Protection Fund, Barlindhaug, Kongsberg Group, and UNI Foundation this was made possible. Saturday 28 May the ribbon was cut and the key was handed over to the owner, The Ministry of Trade and Industry, represented by Secretary General, Mr. Reier Sørberg.

Ny-Ålesund Symposium

The 5th Ny-Ålesund Symposium "Towards a green economy – the role of technology", scheduled to take place from 26 -28 May, unfortunately had to be cancelled. The cancellation was due to a volcanic eruption on Iceland that sent high concentrations of ash into the air space between main land Norway and Svalbard and resulted in many cancelled flights.

New director of Kings Bay AS

Ole Øiseth will succeed Roger Jakobsen as director of Kings Bay AS this summer. He has a background from the Norwegian Army with focus on administration and human resources and several years of international experience working with multinational staff at NATO and UN missions. He was working with East African Brigade as administrative advisor in 2007-2009. Afterwards he was appointed the station commander at Jan Mayen.

35th NySMAC meeting

The 35th meeting will take place 27 October 2011 in Kjeller (20 km from Oslo, Norway).

NPI Sverdrup Station News

The Sverdrup Station will see two significant changes in the summer months with both current station engineers, Dorothea Schulze (Operations Engineer) and Vigdis Lonar Barth (Optical Engineer) leaving after three and two years of employment, respectively. Dorothea, as our longest standing current employee and source of next to all obscure (and general, run of the mill) knowledge will leave a noticeable gap when she departs. NILU, with whom she worked closely during her time here, has wisely snatched her up though – and we hope that means she might be back for some visits (even if she claims she is leaving for work in warmer climes)! Vigdis will be sorely missed around the station but her legacy will live on through all the brilliant instructions and notes she has left, detailing virtually everything! We wish our two fabulous engineers the best of luck. The new Operations and Optical Engineers will begin in late summer and we eagerly anticipate their arrival. Meanwhile, Leif Arild Håhjem, a somewhat frequent presence at the station, will once again return, this time in early June to become our interim Operations Engineer. Finally, we are, as always, very happy to report the return of Wojtek Moskal who arrived at the end of May to support Steinar and the rest of the station during our busy summer period.

Between March and May, the Sverdrup Station jointly supported along with AWIPEV and CNR, a large research project, Variability of Albedo using Unmanned Aerial Vehicles (VAUUAV), funded by the Nor klima Programme (Norwegian Research Council). Project scientists from NPI, Norut, NILU, NOAA (USA), AARI (Russia) and other institutes were working on albedo variation and effects of soot, particularly on snow and ice, and fieldwork included on the ground studies coordinated with data collected from unmanned planes.



The Zeppelin Station is becoming increasingly international, now hosting instruments and projects from Japan, China, Korea, the UK, Greece, Finland, and Sweden in addition to Norway. This spring saw the end of the NSINK precipitation measurements on Zeppelin and PhD students Rafael Kühnel and Mats Björkman continued their work collecting snow samples on Brøggerbreen.

The upcoming summer sees the return of many established projects and we look forward to another busy season, with Max König (also Station Manager) returning in early July to join the others at the Station.

Fiona Danks, Station Manager

Upgrading the Ny-Ålesund Geodetic Observatory

The geodetic observatory operated at Ny-Ålesund in Svalbard by the Norwegian Mapping Authority (NMA) forms part of a global network which is crucial for society's satellite-based infrastructure as well as for accurate climate monitoring of the high north.

The very long baseline interferometry (VLBI) antenna at the observatory receives signals from space which make it possible to calculate how the Earth's surface moves, how fast the planet is rotating and its exact position in the cosmos. Such data are needed to calculate the orbits of Earth observation satellites, which must be known in turn to monitor the climate accurately.

High-north research

The NMA has applied to the Ministry of the Environment for NOK 170 million to upgrade the Ny-Ålesund station in order to meet society's requirements for increased accuracy and continuous observation. This commitment will support climate research and is anchored in the government policy for the high north. Operating year-round, it will also help to maintain the research community and settlement in Ny-Ålesund. In addition, the investment accords with the policy that activity in Svalbard should be based on research as well as tourism and coal mining.

Crucial for GPS and satellite technology

The VLBI network to which the Ny-Ålesund antenna belongs is essential to the functioning of the GPS and other high-precision satellite technology. Without the reference system provided by these antennas, we would not know with sufficient accuracy where a satellite is located in relation to the Earth's surface. Satellite-based measurements would cease to function.

Increased need for accurate data

Today's antennas cannot provide measurements to the level of accuracy demanded by society, climate researchers, users of navigation and Earth observation

satellites and others. The International VLBI Service (IVS) has developed a new VLBI2010 standard to meet future user requirements.

Ny-Ålesund is the only antenna in the high north and Arctic

The VLBI antenna in Ny-Ålesund is the only one in the global network of such installations located so far to the north. An upgraded station will make a particular contribution to increased accuracy in the high north, where the effects of climate change can be recorded earliest and most clearly. According to NASA, new antennas in Ny-Ålesund, with its northern location, would provide significantly better calculations and be a strong contribution to the worldwide collaboration on geodetic observation.

Limited lifespan for existing antenna

The NMA's current antenna in Ny-Ålesund was established in 1993 and has an expected working life of 20 years. It will take five years to build a new facility, plus three years of overlap with the old antenna in order to maintain the time series. With a start to construction in 2012, the present antenna will be 27 years old when it ceases operation. This poses a substantial risk, since securing spare parts and the necessary expertise is already difficult.

Facts

- *The very long baseline interferometry (VLBI) antenna at the NMA's geodetic observatory in Ny-Ålesund forms part of a global research network of similar installations.*
- *The VLBI antenna measures movements of the Earth's surface, how fast the planet is rotating and its exact position in the cosmos.*
- *This facility is crucial for precise Earth observations and climate monitoring.*
- *It is approaching the end of its working life, and the NMA has applied to the Ministry of the Environment for NOK 170 million to upgrade the station.*

"New antennas in Ny-Ålesund will be a strong contribution to the worldwide collaboration on geodetic observation."

NASA

Anne Jørgensen, Geodetic Institute, NMA



The VLBI antenna in Ny-Ålesund is the only one in the global network of such installations located so far to the north. An upgraded station will make a particular contribution to increased accuracy in the high north.

Photo: Bjørn-Owe Holmberg

Nitrogen in atmosphere and snow - 2011 spring fieldwork of the NSINK project.

Rafael Kühnel, Mats Björkman, Tjarda Roberts

Scientists Mats Björkman and Rafael Kühnel from the Norwegian Polar Institute were conducting several field experiments as part of the international project NSINK (Sources, sinks and impacts of atmospheric nitrogen deposition in the Arctic) during spring 2011 in Ny-Ålesund. The project investigates the dynamics of reactive nitrogen and its fate in the Arctic. Within NSINK, NPI researchers study transport and deposition of reactive nitrogen as well as snow photochemistry and its impact on Arctic glacial meltwater. Data will be analysed in conjunction/ collaboration with other fellows within the NSINK project working with glacial and ecological systems.



A 1.5 years daily precipitation sampling campaign at Zeppelin station was completed aiming to link chemistry data to atmospheric transport patterns. In addition snow pit samples and precipitation samples were taken in the Ny-Ålesund area during spring 2010 and 2011 to evaluate total nitrogen deposition and nitrate isotopes. To track the reactive nitrogen during snowmelt, lysimeter sites have been installed to sample meltwater.



The sampled snow is analysed for major ions to gain information on the size of nitrogen input to the arctic and the chemical mass balance around Kongsfjorden. In addition, the nitrate isotope composition will be investigated to identify different sources of reactive nitrogen. In collaboration with C.N.R. Italy, the samples are studied to get a picture of photochemical processes in the snow during the return of sunlight in the arctic spring.

Rafael Kühnel, NPI

Topics from the 34th NySMAC meeting

Topics from the previous NySMAC meeting held in Seoul, South-Korea 28 March 2011:

- Information from Kings Bay AS
- News from Svalbard Science Forum.
- Resource allocations and potential conflict of interests – co-ordination of the high season
- The Governor of Svalbard with new demands for research applications.
- Status for SIOS.
- International student camp in Ny-Ålesund – follow up on the request from last meeting.
- Monitoring of local environment evaluation from the working group
 - Presentation of the analyzed data from NILU.
 - Follow-up on EIA action points from the appointed working group.
- Rules for operations of unmanned free balloons at Ny-Ålesund.
- Environmental plan for East Svalbard.
- Paal Berg was re-elected chairman of NySMAC.

Input to Ny-Ålesund Newsletter

If you would like to contribute to future editions of this newsletter, please e-mail nysmac@npolar.no. Any ideas or suggestions for topics are also welcomed. *Editor: Marit R. Pettersen, NySMAC Secretariat. Next edition: January 2012*

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