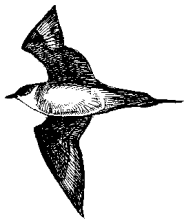

Ny-Ålesund Newsletter

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Ny-Ålesund and the International Polar Year

The International Polar Year[1] 2007-08 (IPY) is approaching rapidly. IPY is an initiative taken jointly by the International Council of Scientific Unions (ICSU) and the World Meteorological Organization (WMO). IPY is intended to collect scientific forces around the world to make substantial progress particularly on larger problems that single groups or even nations would be unable to tackle effectively. This is the fourth[2] time this concept is adopted by the meteorological and geophysical community to tackle great scientific challenges in Polar Regions. The very successful International Geophysical Year (IGY, 1957) 50 years prior to IPY is of course a primary role model and source of inspiration for the present IPY.

IPY is different in many ways from the previous "years". The earlier initiatives have been centered on geophysical problems whereas IPY invites all fields to participate and in particular the human dimension will now be an essential element. Another important difference is that the scientific community is very much larger and diverse than during the previous endeavors. In particular the later is a great challenge since the multitude of ideas and interests that need to interact can appear daunting. If the envisaged synergistic effects and the innovative outcomes of IPY are to accrue many scientists, groups and national programs must find ways of communicating effectively and constructively.

At this stage[3] ICSU and WMO have invited all willing entities to submit their suggestions for scientific projects that seek IPY status. Since the process is ongoing the final content and shape of IPY is still diffuse but paradoxically already also very impressive. In the emerging diversity it is, however, already clear that climate issues (in a general sense) will be one essential element of IPY.

Obviously Ny-Ålesund wishes to and will play a central role in IPY as a primary observational site in the Arctic. The Ny-Ålesund participation is like the entire IPY still in a phase of crystallization. Ny-Ålesund will be present in a multitude of ventures through individual scientists or stations participation in specific projects. NySMAC and Kings Bay AS will be committed to coordinating all these diverse initiatives. There is also a strong desire to front the Ny-Ålesund community as a collected and central player in IPY. NySMAC is suggesting an IPY project where the accumulated strength of all stations in Ny-Ålesund is offered as a collected resource ready to contribute in the best way possible to the global effort.

IPY is an emerging and exciting event that will influence Polar Science and our understanding of these regions strongly during the coming years. For the interested it is recommended to follow the developments closely on the international IPY web site (www.ipy.org) as well as the NySMAC (www.npolar.no/nysmac) and Kings Bay AS (www.kingsbay.no) web sites.

By Kim Holmen, NILU

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[1] *For more and continuously updated information visit www.ipy.org*
[2] *Previous international (meteorological) polar years occurred 1882/83 and 1932/33. Their success lead to the global International Geophysical Year 1957/58.*
[3] *Early January 2005.*

Seventh Ny-Ålesund scientific seminar

The 3rd international symposium on the Arctic research and 7th Ny-Ålesund scientific seminar will take place in Tokyo 22-24 February 2005, jointly organized by National Institute of Polar Research (NIPR), Tokyo and NySMAC. The scope of the symposium is multi-disciplinary and the purpose of the seminar is to promote scientific exchange to stimulate interaction and further co-operation between all scientists active in Ny-Ålesund.

For further information see web-site
http://www-arctic.nipr.ac.jp/symposium2005/
or e-mail nipr2005@nipr.ac.jp

High speed telecommunication to Ny-Ålesund

The project of connecting Ny-Ålesund to the fiberoptic cable between Longyearbyen and mainland Norway has been underway for some time. In September, a contract was signed with Telenor to upgrade the existing radio link between Longyearbyen and Ny-Ålesund to 2x155 Mbt/s capacity, to be delivered by June 1st, 2005. The cost for this upgrade will be covered by the Norwegian Ministry of Transportation. A fiberoptic cable network was laid in the ground in Ny-Ålesund in October, and will be connected to all relevant buildings next spring. A smaller radio link will provide connection to the Zeppelin station. The aim is to have everything ready for use by June 1st, 2005.

All NySMAC members are recommended to apply for membership in UNINETT, which is a provider of Internet to prices given to educational and research institutions. Membership application forms are being translated into English and will be distributed shortly. There will be an entry fee, and subscribtion fees based on the actual use. Kings Bay AS will charge an entry fee for connection to the network, to cover some of the infrastructure costs. There will also be an annual service fee, one price for all year users and half price for the station which are manned only in the sunny season.

Project manager who can be contacted to provide more information is Øyvind Nikolaisen, cell phone: +47 90 17 62 76, or oyvind@ekspressnett.com

Abandoned scientific installations in Ny-Ålesund surroundings

- Scientific field installations/equipment not in use or out of service

Ny-Ålesund is a scientific research area and will always carry marks of that. As a scientist you want to find your research field as pristine as possible and it should be in the interest of all scientists to contribute to remove trace after their scientific work.

Today there are many scientific installations that have not been in use for a long time. The installations have been left out in the field after the scientific work has finished. These installations are mainly located on the Brøgger peninsula but also in other areas in Kongsfjorden. The installations can be categorized in two different main groups:

- equipment that are not in function and could be categorized as waste
- installations that are possible to use again in long-term studies, but are not maintained and are not valuable for this kind of use (ex. fence for vegetation/ grazing study etc.).

In 2000 a description and positioning for some of the installations were done, but there has not been any update since then. King Bay AS wants to take an initiative to clean up and establish routines avoiding field equipments to be left out in the field. Kings Bay AS wish to solve this matter together with the whole Ny-Ålesund community. The main challenge in this case is to register:

- who is responsible to clean up what exist to day
- and how to establish routines for handling this "problem" in the future.

Kjersti Dale, Kings Bay AS

The MariClim project

Norwegian Polar Institute is granted funding for the MariClim project (Marine ecosystem consequences of climate induced changes in water masses off West-Spitsbergen).

The overall goal of the MariClim project is to determine the influence of climate variability and change on the energy transfer in the marine pelagic ecosystem in different water masses on the west coast of Spitsbergen. The project will compare the pelagic food webs in fronts involving ArW and AW masses in this high Arctic region. Climate change effects can be studied in Kongsfjorden because of high variability in the influx and dynamics of AW and ArW. A cold climate scenario would result from less influx of AW to the shelf and fjord regimes in West-Spitsbergen, whereas a warm climate scenario would occur because of an increased influx of AW. The main hypothesis is that variability in water circulation patterns is the main mechanism regulating the distribution and size structure of the zooplankton community, and that changes in size and energy content of key zooplankton prey will influence the energy transfer in the pelagic food web with consequences for growth and survival of Little auks and Kittiwake chicks. The seabirds require access to abundant and energy-rich zooplankton and pelagic fish in order to raise their chicks successfully. Climate related changes in water masses would be expected to indirectly affect these seabirds through changes in their prey base and associated energy flow.

Cruises and field work will be conducted in Kongsfjorden. Scientific historical data from different disciplines (oceanography, sea-ice, marine ecology and seabirds) will be used for climate variability analysis and model validation. The new Arctic Marine Laboratory in Ny-Ålesund will be extensively used by the project. The work will involve a strong international collaboration, including 10 institutes actively participating in the project, and recruitment of young scientists through 3 PhD -, 1.3 Post doc/guest researcher positions and several Master students.

Project manager: Geir Wing Gabrielsen, NP

Web pages for the Sverdrup research station

Web pages for the Sverdrup Research Station in Ny-Ålesund are published on the NP web-site: http://www.npolar.no/sverdrup. On this site you will find useful information about the station and research programs running at the station. Meteorological data and data from long time monitoring projects are also presented.

We kindly ask all who want to use the Sverdrup Research Station as their research platform to use the **online registration form** on this site:
http://miljo.npolar.no/sverdrupDB/pages/formProject.asp

Global monitoring campaign of POPs in air

The occurrence of various Persistent Organic Pollutants (POPs) at elevated levels in the Arctic environment is well established. New international agreements (UNEP, UNECE) are now coming into effect to reduce further environmental exposure, due to concerns about their toxicity, bioaccumulation, persistence and propensity for long-range transport to remote areas. Comparable data are thus increasingly needed in support of these international agreements, as well as to obtain a better understanding of the transport behaviour of POPs from global source regions to pristine areas. Ny-Ålesund is one of about 40 GAW (Global Atmospheric Watch) stations to be included in a global network of passive air sampling sites, using consistent methodologies to obtain a coherent picture of global scale spatial distribution patterns.

Dr Knut Breivik, NILU

Effects of UV radiation on lipids, fatty acids and nutritional quality of Arctic marine algae and zooplankton

During two spring seasons (2003 and 2004) I carried out the field work for my PhD project in Ny-Ålesund. In this project we investigate how solar UV radiation affects planktonic food webs in an Arctic marine ecosystem by changing the nutritional quality of the lower trophic levels. UV radiation has been documented to cause oxidation of poly-unsaturated fatty acids (PUFAs) in phytoplankton. These PUFAs cannot be synthesized de novo by zooplankton, but are key molecules in the marine pelagic food web. A combined approach was chosen with both sampling of field data (biological as well as physical, including spectral underwater light profiles) and experiments which were carried out during two field seasons in Ny-Ålesund in 2003 (April/May) and 2004 (May/June). In 2004, the main part of the field work consisted of an outdoor experiment where phytoplankton was exposed to different irradiation regimes, using the natural sunlight. In combination with different cut-off foils and artificial UV-light, three levels of UV irradiation were applied in the experiments. Algae from all different treatments were used for feeding zooplankton in order to trace the transfer of irradiation-induced changes of the fatty acid composition in phytoplankton to the next trophic level. A number of additional parameters will be analysed as well, combined with the results of an extensive measurement series of both PAR- and UV light. The experiment was carried out on the old pier (Gamle Kaia), while the laboratory part took place in the Italian station 'Dirigibile Italia'. Preliminary results suggest, however, that UV radiation did not play a significant direct role for the fatty acid composition in phytoplankton.

The cooperation partners in this NFR-funded project are the University of Oslo, the Norwegian Polar Institute, NILU and Akvaplan Niva a/s, but without the dedicated help from scientists from the Institute for Oceanology, Polish Academy of Science (IOPAS) in Sopot and the hospitality we experienced during working at the Italian station in 2004, we could have never fulfilled our ambitious working plan as successfully as we did.

Eva Leu, University of Oslo, eva.leu@bio.uio.no

Ny-Ålesund Science Plan

The Norwegian Polar Institute (NPI) has been asked by the Interdepartmental Polar Committee via the Research Council of Norway to develop a Science Plan for Ny-Ålesund. This Norwegian initiative received support by the Ny-Ålesund Science Managers Committee (NySMAC) at its meeting in April 2004.

It is intended that the document will serve as a policy platform for future research activities and scientific co-ordination in Ny-Ålesund. A group of seven scientists and managers from NPI has been assigned to the task: Dr Trond Svenøe (leader), Dr. Eva Fuglei, Dr. Haakon Hop, Mr. Bjørn Fossli Johansen, Dr. Jack Kohler, Ms. Arnhild Ramseng and Dr. Jon Børre Ørbæk.

News about CORBEL Station

Corbel Station is a part of the AWIPEV platform and the plan is to rebuild the station into a 'clean' station for atmospheric science to complement the activities at the Zeppelin Station. The following activities have been carried out up to November 2004:

Validation Site: As requested by NySMAC, 3 scientific campaigns were realized at spring 2003 and 2004 in collaboration with CNR/Italy. The objective was to investigate local pollution due to snow-scooters and proximity effect of Ny-Ålesund (5 km) using passive samplers (NOx, NO2, SO2). The conclusion, presented at the 21st NySMAC meeting in Nov 2004, is that there is no significant pollution in a delimited area around the station. (Reports are available on request).

Power supply: In order to provide 'clean' power for the 'mercury' campaigns and permanent measurements systems at the station, solar cells were installed during spring 2004.

'Environmental' data: Since spring 2004, a meteorological station and a particle counter run permanently (data are available on request).
AWIPEV platform wants to thank Kings Bay for very helpful collaboration in the field and for information provided to keep the 'protected area' around Corbel respected.

Planned activities :

Fuel cell test: A fuel cell system to adapt the prototype to 'arctic conditions' will be tested this winter in France

Power supply: A wind mill and additional solar panels will in the end of March 2005 provide up to 1.3 KW. New generations batteries will be installed at the same period.

2005 Scientific campaign: The 'mercury campaign' will run at the Corbel Station and in parallel at the 'Nobile's cabin'.

Meteorological and particles data: Statistics will be compared to Ny-Ålesund's measurements.

Contact person: Franck.Delbart@ipev.fr

Calendar of Arctic Meetings

3rd International Symposium on the Arctic Research and 7th Ny-Ålesund Scientific Seminar
22-24 February 2005, Tokyo
Seminar web-site:
http://www-arctic.nipr.ac.jp/symposium2005/
or e-mail nipr2005@nipr.ac.jp

Arctic Science Summit Week – ASSW 2005
17 - 24 April 2004, Kunming, China
Seminar web-site:
http://www.chinare.gov.cn/artic/

For a comprehensive list of published meetings, look at **SAM** (Survey of Arctic Meetings) on the IASC home page:
http://www.iasc.no/

Staff News

Norwegian Polar Institute (NP):
Carl Petter Nielsen replaced **Are Bäcklund** as optical engineer in August 2004.

AWI & IPEV Joint French-German Arctic Research Platform
Joann Schmid has replaced **Konni Piel** as station engineer in September 2004. The joint platform is headed by **Thorsten Wilhelm**.

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