

Ny-Ålesund Newsletter

33rd Edition – February 2014

11th Ny-Ålesund Seminar in Rome, Italy 9-11 October 2013

Seminar description

The seminar was arranged by Consiglio Nazionale delle Ricerche (CNR) and took place in their facilities in Rome. 140 scientists who have Svalbard, and Ny-Ålesund in particular, as a base for their research and monitoring activities, were registered.

The seminar fostered the following topics:

- Flagship programs
- SSF funded projects
- Implementation of Ny-Ålesund monitoring activities
- NySMAC and SIOS: Status and future developments



News from Kings Bay

By Sebastien Barrault

Air laboratory

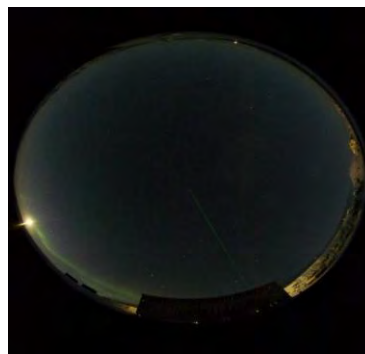
Gruvebadet got all the attention necessary to be completed before the new research campaign starts this spring. The indoor work began in November 2013. Following the same standard as the first room, used by CNR for a year now, the rest of the building was renovated accordingly. Carpenters and electricians delivered the building mid-January. The construction of the two roof platforms on the roof will resume this winter. NCAOR is interested in moving in the South side of the building.



The second room used by CNR, before (right) and after (left)
Photo: Roberto Sparapani & Ole Øiseth

Marine Laboratory

During the second half of January 2014, students and researchers from UNIS, UiT and NTNU used the Marine Lab and Kongsfjord as their research arena. The particularity of the project was to keep the bay and the harbour as dark as possible, already a month prior the start of the campaign. It was very gratifying to register new type of research related to the Kongsfjord at this time of the year (www.mare-incognitum.no).



All sky image of the sky in Ny-Ålesund together with the Marine Lab and the laser beam from the AWIPEV observatory.
Photo: Geir Johnsen

Kings Bay Staff

New people were employed since the last fall. Among them, Åsne Dolve Meyer is the new adviser at Kings Bay in charge of the cultural heritage and the areal management. Sebastien Barrault was employed as research adviser and Marine Lab manager. Marius Natvig is employed as new office manager and will start end of March. Kings Bay admin. director, Ole Øiseth got his contract prolonged until end of June 2015.



Kings Bay AS employees - summer 2013 in front of the newly restored telegraph building. Photo: Moritz Sieber

Ny-Ålesund Symposium

This year's Ny-Ålesund Symposium theme will be "Breaking the Climate Stalemate". The symposium, hosting Ms. Tine Sundtoft, Minister of Climate and the Environment, will focus on the consequences of a melting Arctic and the context of the New Climate Economy initiative.

The Symposium is taking place in Ny-Ålesund in May 26 – 28, 2014. More info on www.ny-aalesundsymposium.no

News from the Sverdrup Station

By Christiane Hübner, station manager

Change of staff at Sverdrup Station.
Autumn 2013 Sverdrup Station got a new operative engineer, Hans Erik Fjeld. He is replacing Bjørn Einar Johnsen. In addition, the logistical engineer Steinar Aksnes moved to Longyearbyen and a new logistical engineer will be in place before spring season starts.



News from Svalbard Science Forum

By Kaja Høvdning Davidsen

The New Research in Svalbard Portal

We are now in the last phase of the development of the Research in Svalbard (RiS) Portal which will be launched in mid-March. The RiS portal will include an updated version of the database as well as permit applications according to Svalbard regulations (submitted to the Governor) and reservation of services and equipment in Ny-Ålesund. The use of maps and better search and statistics functions are some of the improved features in the RiS Portal. All the data from the old database will be migrated to the new base.

Svalbard Science Forum strongly encourages everyone to register AND update their projects. The portal is an important tool to increase coordination and sharing of data in Svalbard research and show the world all the exciting research that is going on in Svalbard.

Mare Incognitum

Summary from Professor Jørgen Berge's article in *Pan European Networks* and Eva Leu's article in *Svalbardposten*.

In January 2014, the largest co-ordinated field campaign, focusing on the marine polar night ever conducted, started in Ny-Ålesund. The campaign is co-ordinated with a new MSc and PhD course on underwater robotics and will contain a wide array of sampling platforms and sensors. Specifically, they are aiming their attention towards three themes:

- 1) The importance of biological light (bioluminescence),
- 2) Hunting for werewolves and
- 3) The benthic life.

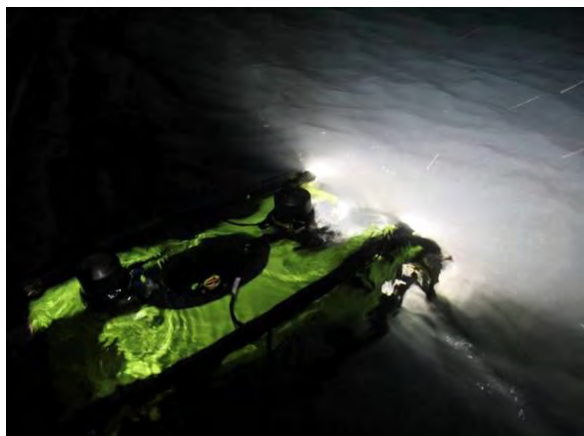
By connecting modern underwater technology with remote or self-operating underwater robots with various sensors which measure light, temperature and phosphorescence in addition to the amount of algae and animals in the water, they hope to get closer to the answers to the many questions about life in the dark polar night.

Bioluminescence is a feature characteristic for all deep sea environments, and is generally used both for communication and for attracting prey. Some organisms also use it as a defensive "weapon" against potential predators. Bioluminescence is also known as a night time phenomenon from shallow waters around the planet, but the unique light climate of the Arctic polar night (total darkness) make this a specifically conspicuous and potentially important process for the entire Arctic marine community.

Main research questions within the project at large therefore include how different communities and habitats potentially differ through the year, and how these differences may affect the food chains of the high Arctic marine systems during the polar night.

As more and more research is providing compelling evidence against our previous conception of an unproductive and dormant marine system during the polar night, Marine Night will be an important tool to provide much needed knowledge to the benefit of both management and policy makers.

But most important, Marine Night will provide important insights into a system that until recently have remained a dark spot on our "map of knowledge", and we will continue to unravel some of the most fascinating and interesting questions yet to be answered concerning marine life at high latitudes. Ultimately, this will be a valuable contribution to a knowledge-based management of the region in an era when considerable attention is directed towards the vast and unused resources held within the Arctic.



These remote-controlled underwater robots are equipped with measuring sensors. Even they need powerful lights to move in the dark. *Photo: Sebastian Menze*



Luminous krill can most likely use their own light to find the food they need to survive through the long polar night. *Photo: Uwe Kils / Wikimedia Commons*

AWIPEV news

By Philipp Fisher, AWI

The AWIPEV underwater observatory delivers daily vertical CTD profiles for the main hydrographical parameters in the Kongsfjorden coastal zone.

As reported in the Newsletter January 2013, the new AWIPEV COSYNA observatory is in operation since June 2012 comprising a FerryBox System and a multi-sensor platform unit (RemOs1) in 12 m water depth in front of the Old Pier in Ny Ålesund. The underwater multi-sensor platform is equipped with a so-called CTD probe to measure water temperature, pressure, salinity and turbidity as well as with an ADCP system to measure currents and waves in the water column. Furthermore, the unit includes a stereo-optical sensor for the daily abundance and biomass assessment of the fish, jellyfish and macroinvertebrate community at the bottom and in the water column. For that purpose, the entire underwater unit can be remotely moved from 11m water depths to the surface to measure the main hydrographic and biological parameters over the entire water column.

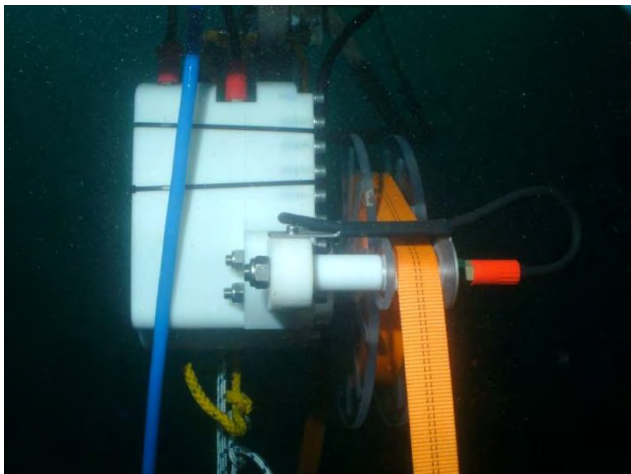


Figure 1) The new winch of system of RemOs1 allowing fully remote controlled (from Germany) vertical CTD and system profiles from 11m water depth to the surface in front of the Old Pier.

The system has now been thoroughly tested and some modifications have been made especially at the winch system in September 2013 (fig. 1). Since then, the system proved to be highly reliable and delivers vertical CTD profiles as well as detailed fish and jellyfish assessments every day. All data are transferred directly to Germany where they are analysed, plotted (fig. 2) and stored in the COSYNA data base (data are free available upon request). The data and plots are now available for the biologists to interpret changes in hydrography and water chemistry and their effects on the biota. From Summer 2014, the ADCP data will be processed in the same way to have also a semi-online knowledge on the currents in the water column in the near shore fjord ecosystem close to Ny-Ålesund.

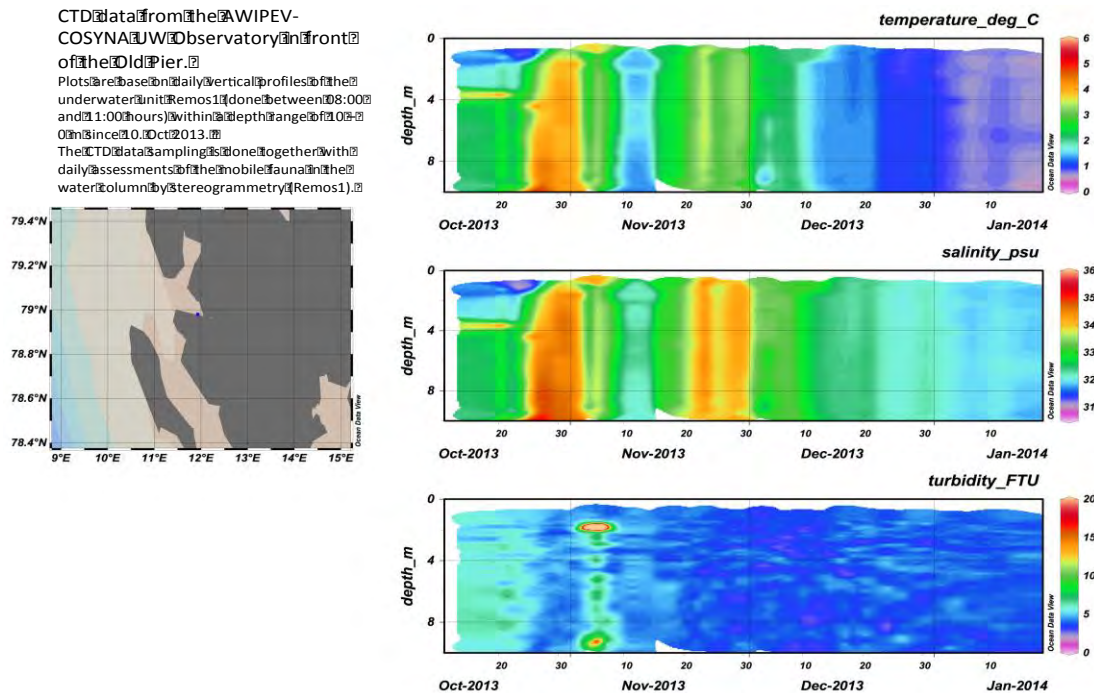


Figure 2) CTD Plots from the AWIPEV-COSYNA underwater observatory in front of the Old Pier.

Arctic tern migration from Ny-Ålesund to Antarctica

Maarten J.J.E. Loonen¹, Tim van Oosten^{1,3}, Sveinn Arne Hanssen² and Børge Moe²
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Tracking devices for bird migration have become so small that they are intensively used in seabird research. They are called geolocators and measure daily light patterns. As soon as there are days and nights (after the Arctic summer) and as long as day length differs with latitude (not around 21 September and 21 March), we are able to calculate a position from the recorded light profiles. In 2012, we have deployed 20 geolocators on Arctic Terns breeding in Ny-Ålesund. In 2013, we re-caught 8 birds with geolocators containing unique data. Here we show a schematic representation of the tracks during spring and autumn migration. Staging areas are given as white circles. The terns take a similar migration route as those breeding in east Greenland. On their way south, birds are following the coasts of Africa or South America. Even switches between these continents have been observed. The birds winter in the Weddell Sea. Northbound, they follow the prevailing tradewinds. Easterly winds on the southern hemisphere and westerly winds on the northern hemisphere. For the coming years, we are specifically interested in individual variation in timing and route during migration and will compare this with other breeding populations in the Arctic.

Photo: Catching an incubating arctic tern
 Photo: A ringed arctic tern with geolocator
 Figure 1: Southbound migration during autumn
 Figure 2: Northbound migration during spring

More information and videos:
[http://www.poolstation.nl/searchoverview.php?keyword=arctic tern&language=UK](http://www.poolstation.nl/searchoverview.php?keyword=arctic%20tern&language=UK)
<http://vimeo.com/72596561>
<http://arcticoracles.randalhyman.com/?p=1018>



An Arctic Tern with a geolocator attached to a yellow ring has arrived in Ny-Ålesund and is waiting for its partner to start breeding. Photo by Brigitte Weiss.



Spring migration



Autumn migration

First year of bird monitoring linked to the new geodetic observatory

Børge Moe¹, Sveinn Are Hanssen¹, Geir W. Gabrielsen², Maarten Loonen³

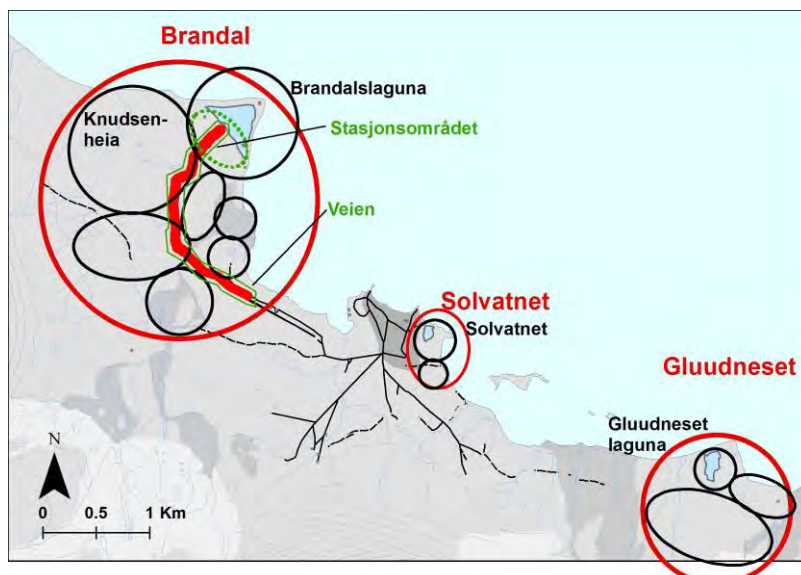
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The new geodetic observatory of the Norwegian Mapping Authority (NMA) will be a technological leap in Ny-Ålesund. It will be a part of a global network of antennas enabling high precision mapping and monitoring of tectonic movements. The station area and the road, however, will be established in an important bird area, and there have been some concerns about potential negative effects on birds. Brandalslaguna is a local hotspot for birds, and there are nesting locations of Arctic skuas and waders relatively close to the planned road and station area. NMA has therefore initiated a bird monitoring program for documenting potential effects and to provide mitigating measures. The monitoring program was designed by Norwegian Institute for Nature Research (NINA) and included standardized observation schedules in the construction areas at Brandal and in the designated control areas Solvatnet and Gluudneset (fig MAP).

The monitoring started in 2013, and was conducted by bird researchers from the Norwegian Polar Institute, University of Groningen and NINA, all of which have long experience from bird research in Ny-Ålesund. Nesting locations and presence of birds were recorded during the course of the entire breeding season. As the construction work only took place in parts of the area in 2013, the main goal was to collect data on the 'before-construction phase'. This was important for being able to evaluate potential effects as the construction progress and the observatory will be operated in the years to come. More than 500 observations were made. We recorded presence of 18 different bird species and nesting of seven different species. Concerning the construction taking place in 2013, no negative effects on birds were documented. We think 2013 was a good start, and believe the cooperation between NMA and the bird researchers will provide good environmental solutions concerning the new geodetic observatory in Ny-Ålesund.



Radiation monitoring at Zeppelin

By Stephen Hudson, NPI

A sun tracker with solar and infrared radiation sensors was installed on the platform outside Zeppelin Station in February 2013 (see introduction to the plans in issue 31). After a year of testing and dealing with some problems related to power failures at the station and sensor and cabling issues, we are looking forward to having everything running smoothly by the time the sun returns this year. A new infrared radiation sensor is on its way to Ny-Ålesund. Its installation will complete the sensor upgrades, so that all sensors are the best available from Kipp & Zonen. After it is installed and we are confident everything is running smoothly, data will begin to be displayed in real time in the spring. All data are freely available through NPI's database, data.npolar.no.



Topics from the 39th NySMAC meeting

held in Rome, Italy, 7-8 October 2013:

- Information from Kings Bay AS
- Presentation of the proposed project “social study of the Ny-Ålesund community and science”
- Svalbard Science Forum work report
- The Norwegian Animal Experimentation Committee
- How to advance the monitoring activities in Ny-Ålesund
- The Ny-Ålesund Charter – approved
- Research proposal and application for membership from the Czech Republic
- Flagship programmes – how to proceed with further work
- Land use plan for Ny-Ålesund / building for light sensitive instruments
- Geodetic Earth Observatory in Ny-Ålesund – status and progress
- Limits of acceptable change in Ny-Ålesund
- More antennas on the Zeppelin Mountain
- Report about the ICARP III steering group meeting
- Booking procedure issue Ny-Ålesund
- Status from member institutions
- Status from member institutions
- SIOS and Ny-Ålesund, collaboration and priorities for Ny-Ålesund
- 40th NySMAC meeting in Helsinki, Finland during ASSW



Input to Ny-Ålesund Newsletter

If you 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: Ingrid H. Storhaug, NySMAC Secretariat. Next edition: June 2014*

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