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# Ny-Ålesund Research Station in Svalbard, Norway - a home for international research collaboration

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Ny-Ålesund Research Station in Svalbard, Norway, is a location for true international research collaboration. The station is located at 79° north, at the northernmost point of the warm Atlantic Ocean inflow, and hosts a sophisticated infrastructure enabling observations of relevant parameters in the ocean, on land, and in the atmosphere. The site is ideally positioned for research and monitoring of environmental changes related to climate change issues. With its long-term data series, the station represents one of the most important environmental monitoring sites in the Arctic, and hosts numerous international multidisciplinary collaborative science programs and projects from institutions from more than ten nations. With so many actors and initiatives, it is essential to create coordination tools for increased and enhanced collaboration.

The Ny-Ålesund Science Managers Committee (NySMAC) was established in 1994 to enhance cooperation and coordination between institutions active in Ny-Ålesund, and includes representatives from all parties with major vested interests in Ny-Ålesund. The research in Ny-Ålesund is coordinated through four flagship programs: The Atmosphere, The Marine System, The Terrestrial Ecosystem and The Glaciology. The flagship's chair and science committees are working on establishing meeting-places for scientific discussions and collaboration, coordinating field-activities, and generally increasing information flow between the individual research groups.

## Atmosphere Flagship

The Atmosphere Flagship Programme brings together key scientists studying the lower and upper atmosphere. It provides a platform to establish and develop collaboration and joint research actions to tackle the research challenges in the changing Arctic. The Atmosphere Research Flagship was initiated by Svalbard Science Forum in 2008. The Atmosphere Flagship have established work groups focusing on specific scientific questions with contact persons:

- WG1: Clouds, humidity, precipitation (M. Shiobara, HC Hansson)
- WG2: Long-term obs. and trends in temperature, precipitation, clouds and radiation (M. Maturilli)
- WG3: Boundary layer meteorology (C. Ritter, A. Viola)
- WG4: Interaction of snow, atmosphere, and aerosols (H.-W. Jacobi, J.-C. Gallet)
- WG5: Atmospheric aerosol (R. Krejci)
- WG6: Variability in surface UV irradiance and ozone column (B. Petkov)
- WG7: Atmospheric composition (O. Hermannsen)
- WG8: Upper Atmosphere (J. Liliensten, Y. L. Andalsvik)

## Glaciology Flagship

Ny-Ålesund is an ideal site for glaciological research; despite its remote location, it provides an excellent logistical base for fieldwork programmes. Apart from large ice caps, the area around Ny-Ålesund offer most types of glaciers found in Svalbard and the high Arctic: fast-flowing, surge type, polythermal, and calving glaciers. Two Ny-Ålesund glaciers, Midtre Lovénbreen and Austre Bøggerbreen, have among the longest Arctic mass balance time-series in the world. The flagship have the following prioritized areas:

- Glacier mass balance
- Glacier dynamics
- Glacier hydrology
- Annual snow layer evolution
- Interaction between snow and atmosphere
- Ice cores (for climate and contaminant studies)
- Glacier biogeochemistry

## Kongsfjorden System Flagship

Kongsfjorden is directly influenced by inflow of warm atlantic water and is therefore a highly sensitive marine system to climate change and represents one of the most comprehensive environmental monitoring locations in the Arctic. The Kongsfjorden System Flagship brings together the scientists working on this system, to increase cooperation and coordination. The Flagship is organized in a number of topical working groups, which have the task to further develop the research towards integrated projects to bring the science within the flagship to a higher level.

- WP 1: Physical, chemical and ecological observations (F. Cottier)
- WP 2: Contaminant flow and deposition (G. W. Gabrielsen)
- WP 3: Land-sea-atmosphere interactions (K. Bischof)
- WP 4: Seasonal control of the nutrient regime (C. Jimenez)
- WP 5: Response to key environmental drivers and potential for acclimation and adaptation (J.-P. Gattuso)
- WP 6: Approaches in modelling the Kongsfjorden/Krossfjorden ecosystem (P. Duarte)

## Terrestrial Ecology Flagship

The Terrestrial Flagship Program is aimed at coordinating and integrating the various research and monitoring activities on tundra, lake and soil ecosystems to assess their sensitivity and resilience to change. The flagship seek to break with the general trend that every project has its own measurement sites, and work on identifying a limited number of strategic locations and experimental manipulations to increase collaboration and reduce the environmental footprint of the activities. The future work of the flagship is focusing on the following themes:

- WG 1: Animal adaptations (Å. Pedersen and M. Loonen)
- WG 2: Vegetation dynamics (M. Uchida and A. Augusti)
- WG 3: Soil processes and communities (M. Svenning and S. Ventura)
- WG 4: Carbon and Nutrient fluxes (A. Augusti and M. Uchida)
- WG 5: Freshwater systems (E. Verleyen, D. Mengedoht, J. Elster)
- WG 6: Sensitivity of ecosystems and integration (M. Loonen and E. Verleyen)

### International collaboration

The vision for the Ny-Ålesund flagships are true international collaboration, avoiding duplication of measurements and work, open sharing of data, and common field work, data analysis and publications. Coordinative activities (tools) to achieve this include:

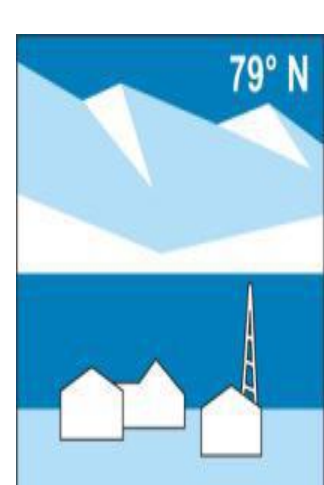
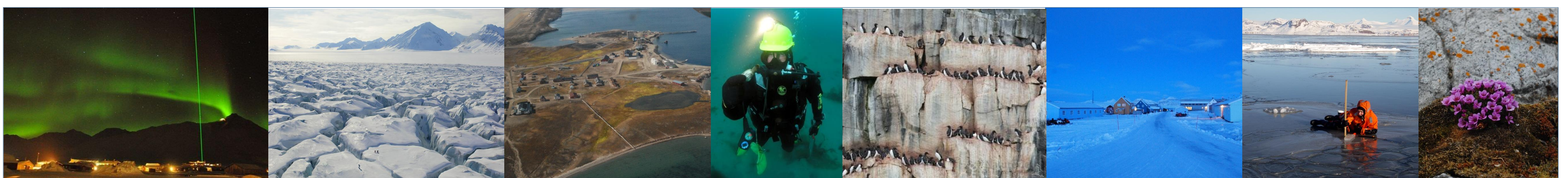
- updated webpages
- coordinate field campaigns
- established work groups on specific themes
- guest visits between groups
- overview of available measurements
- symposium
- work group meetings
- common per-review publications
- on site workshops

### What do you do if you want to be a part of this cooperation:

- All flagships activities are open for everyone with scientific interests in Ny-Ålesund, Svalbard and beyond

### What do you do if you would like to do field-work in Ny-Ålesund:

- If you are working for an institute that has long-term activities in Ny-Ålesund (Norway, UK, Germany, France, Italy, The Netherlands, Japan, South-Korean, India, China) you should contact the responsible institute to find out how to proceed (info is available on NySMAC webpage). If you are located in a country other than those above, contact Norwegian Polar Institute.
- Both INTERACT Transnational Access Program and SIOS pilot access program also funds and give access to Ny-Ålesund Research Station.



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