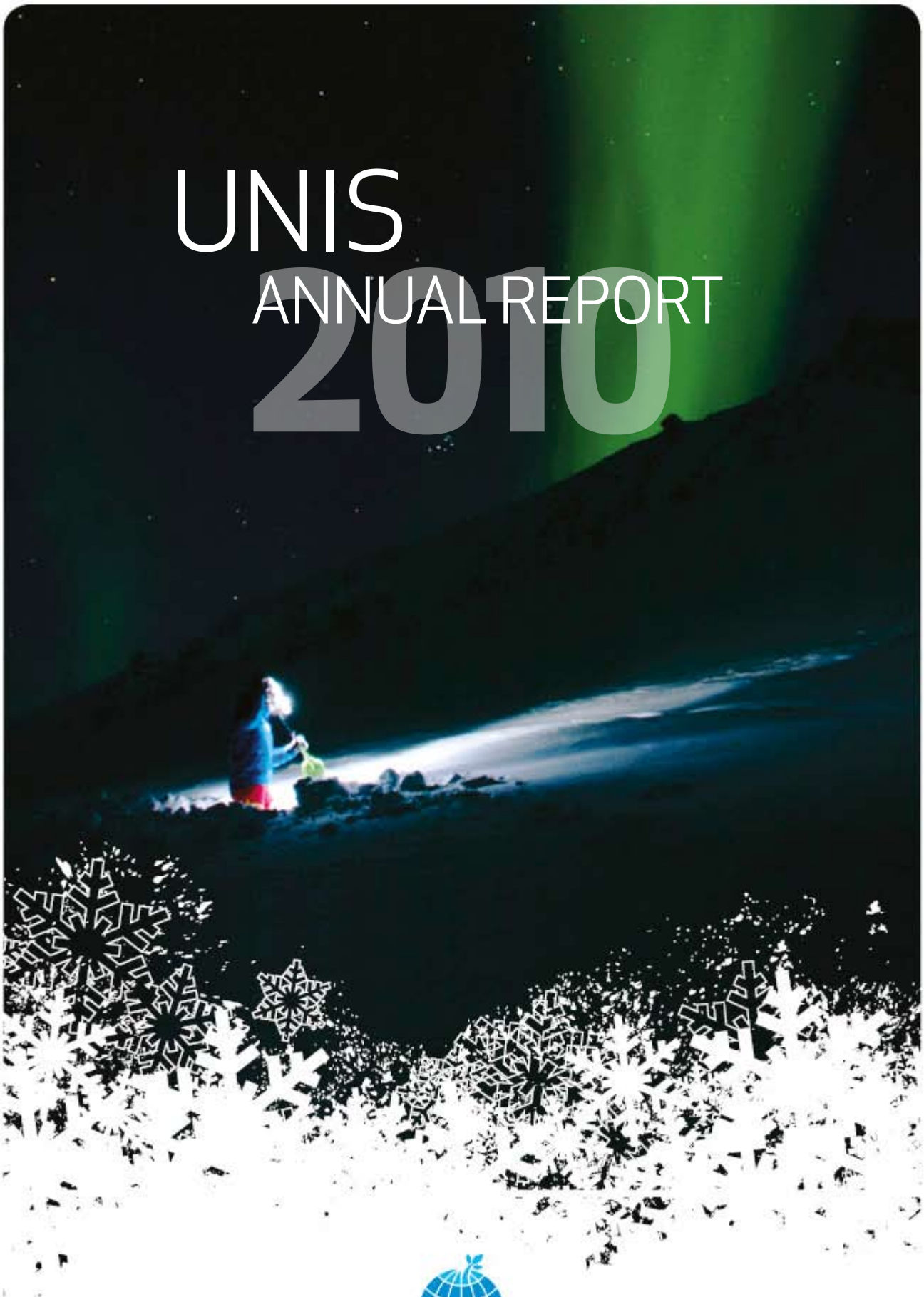
UNIS
ANNUAL REPORT 2010



UNIS
The University Centre in Svalbard

MAP OVER
SVALBARD

Front cover: January, PhD student Marcus Eckerstorfer on fieldwork on Longyear glacier. Photo: Stephan Vogel

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INTRODUCTION

STUDYING IN AN INTERNATIONAL ENVIRONMENT

Right from the beginning, UNIS was conceived as an international center for Arctic studies. The Norwegian government wanted to take advantage of Svalbard's particular status to invite young people from all over the world to come here. Half of the students should be Norwegian, the other half from other countries. The same guideline applied for the scientific staff.

We have never done much international marketing. Still, students seem to find us.
In 2010 we enrolled approx. 400 students from 32 countries. Some have travelled a long way to come here. Entering 2011 we have 3 Ph.D. students from India.

As a student at UNIS, one is privileged by being able to study with people from many different parts of the world. This gives us a unique opportunity to learn about other cultures and establish a worldwide network. The study environment at UNIS is very social and open, where it is easy to get in touch with other students. We are a small community with few students who get very attached to each other as we live together as well as study together.

We are also good at organizing many social activities that bring us together also in our free time. All students live in Nybyen where foreign and Norwegian students share a common area. This means that one can easily come in contact with other students across disciplines, and with different backgrounds.

Studying with students from different backgrounds creates a more inclusive and social environment.

There are many more Norwegian students at UNIS in spring semester 2011 than the autumn semester of 2010. This can easily lead to conversations around the table is in Norwegian, which may seem exclusionary to foreign students. Most people adapt to the ability to switch to English when foreign students sit at the table. It's a plus that we get the opportunity to practice English on a daily basis and increase our language skills. To study at UNIS is indeed an enriching experience.

No other country has chosen to establish a university this far north. Or south, for that matter. UNIS is quite unique and offers a unique working environment. As leaders of the student council and of UNIS itself, we are proud to be part of the experience.

Gunnar Sand
Head of UNIS

Mari Jacobsen
Head of the Student Council

OCTOBER 2010:
Students take a hike up to Trollsteinen.
Photo: Njål Gulbrandsen

REPORT OF THE BOARD OF DIRECTORS 2010

The year 2010 was one in which UNIS prepared for new growth. The Board of Directors notes that the financial situation is now under control, with strengthened shareholder equity and a good system for managing the company's values. The introduction of a quality assurance system for education activities ensures that we live up to NOKUT's requirements. This is accompanied by good research results in several areas. The Ministry of Education and Research allocated UNIS funds for increased student production for the first time since 2006.

The University Centre in Svalbard AS (UNIS) was established as a state-owned limited corporation on November 29, 2002, replacing the original foundation established in 1994 by the Norwegian University of Science and Technology (NTNU) and the Universities of Bergen, Oslo and Tromsø. The relationship with the founding institutions is taken care of through representation on the Board of Directors and teaching committees, as well as direct relations with the research communities. As a continuation, equivalent relationships are being developed with the universities in Stavanger, Ås, Nordland and Agder, but without board representation.

The institution's objective is to provide tuition and engage in research based on Svalbard's geographic location in the High Arctic and the special advantages this offers. The educational provision shall act as a supplement to the tuition offered at the universities in mainland Norway and culminate with examinations at Bachelor, Master or PhD level. The educational provisions at UNIS shall have an international profile, and all tuition is given in English.

EDUCATION

In 2010 UNIS offered four fields of study: Arctic Biology, Arctic Geology, Arctic Geophysics and Arctic Technology. UNIS taught a total of 42 courses, of which 21 were at Master's or PhD level. These courses include the compulsory courses on safety and Svalbard history, and the summer course IPY Field School. A total of 353 students from 32 different countries took courses and 36 Master's students worked on their theses at UNIS in the course of the year. This equates to 120 student-labour years.

The proportion of Norwegian students admitted to courses at UNIS in 2010 was 47 %, of which 60 students were from NTNU, 40 from UiB, 26 from UiO, 19 from UiT, 10 from UiS, and 10 from UMB. A total of 11 % of the course students came from other Nordic countries (Denmark, Sweden, Iceland and Finland), while 9 % were from Germany, 6 % from the United Kingdom and 5 % from Russia. Grants from the Ministry of Foreign Affairs (UD) and the Norwegian Centre for International Co-operation in Higher Education (SIU) have contributed to the development through scholarship programmes for Russian, American (4 %) and Canadian (3 %) students.

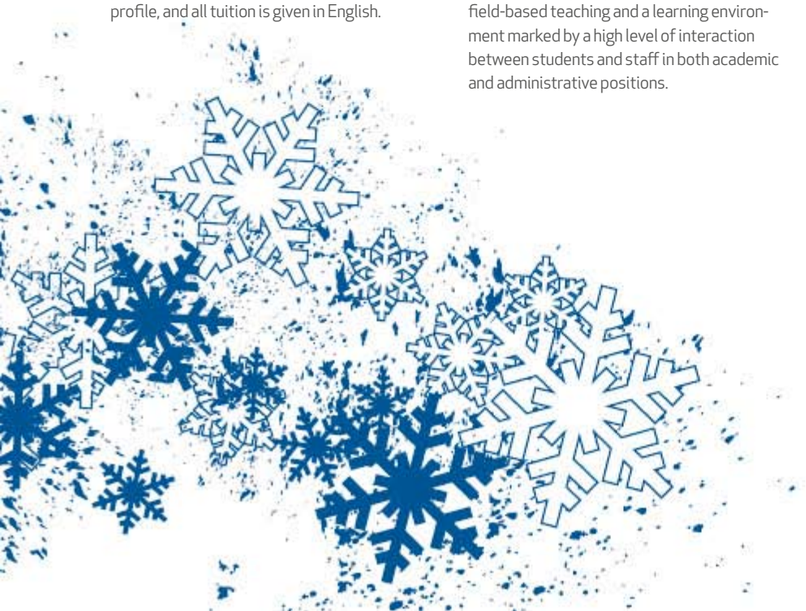
UNIS has developed a quality assurance system, which ensures that we live up to the requirements of the National Agency for Quality Assurance in Education (NOKUT). UNIS shall be a safe and recognised interaction partner both for the individual student and for our collaborating universities. The quality assurance system covers all processes of significance for the academic quality. UNIS offers research and field-based teaching and a learning environment marked by a high level of interaction between students and staff in both academic and administrative positions.

RESEARCH

The research activity at UNIS continues to grow, with participation in several national and international centres. Examples of central projects from the departments follow below:

Fungi are an understudied group in the Arctic. One of the areas of strategic importance within terrestrial biology is studies associated with the interaction between fungi and plants. New technology based on methodology has made it possible to identify fungal diversity in an efficient manner. In the space of last year analysis was completed of the fungal community associated with the roots of the plant alpine bistort (Bistorta vivipara) from a glacier forefront in Kongsfjorden and it uncovered a far greater diversity of root-associated fungus in the Arctic than in corresponding glacier forefronts in mountains on the mainland. The expectation of reduced biodiversity the further north you get does not appear to apply to root-associated fungi.

The Space Physics group at UNIS started several large projects in 2010, including Infra-Space, a Research Council of Norway (RCN) project to develop new optical instruments and calibration equipment, and NORUSCA II, a Norwegian-Russian collaborative project which also focuses on instrumentation. Data from the instruments will be used to enhance understanding of how energy transport occurs from the solar wind, through the Earth's magnetosphere and down to our atmosphere. The group runs the Kjell Henriksen Observatory and the SPEAR (Space Plasma Exploration by Active Radar) facility as well as using the EISCAT radars in its studies. Collectively these form one of the world's best ground-based research infrastructures for studies of the upper atmosphere, in which processes related to nightglow and the Northern Lights are central.



In June 2010 the Third European Conference on Permafrost was held at UNIS, involving 241 scientists from 27 countries. The focus was results from the International Polar Year's permafrost research under the topic "Thermal State of Frozen Ground in a Changing Climate during the IPY". The delegates visited six research locations near Longyearbyen. The first snapshot of the thermal state of the permafrost in the whole circumpolar area, as measured during the IPY time window, was presented at the conference. The conclusion is clear that the warmest permafrost in the High Arctic is in Svalbard. IPY has strengthened the international collaboration in permafrost research. This was the largest scientific conference hosted at UNIS to date.

Arctic Technology has together with NTNU and SINTEF been successful in an application to the RCN for a Centre for Research-based Innovation called SACME (Sustainable Arctic Coastal and Marine Technology). The project group aims to be a leader in technologies for sustainable development of resources in the Arctic. UNIS is heading one of the fundamental work packages related to ice and ice mechanics and is also involved in other parts of the project, including flow conditions and geotechnics. SACME runs over an eight-year period and combines a broad industrial network in addition to the three research partners.

At the start of 2011 UNIS is involved in the formation of several national and Nordic centres, such as the Centres for Environment-friendly Energy Research (FME) centre SUCCESS (Sub surface CO2 Storage), the Nordic Council of Ministers' SVALI (Stability and Variations of Arctic Land Ice) and the Nordic Council of Ministers' DEFROST (Depict¬ing Ecosystem-climate Feedbacks from permafrost, snow and ice), in addition to SACME. UNIS is preparing participation in two applications for Centres of Excellence within the fields of marine biology and space physics in collaboration with the ARCTOS network and the universities of Oslo, Bergen and Tromsø. The Board of Directors is extremely satisfied that UNIS is making its mark in Norwegian and international research and has allocated strategic funding for the application process.

In 2010 scientists at UNIS published 75 articles in international refereed journals, of which 25 were at the highest level.

DISSEMINATION

Work concerning information still has been a top priority. Nearly 150 Norwegian and international media reports have focussed on UNIS, including a series of articles in the German Berliner Zeitung; and articles in the Times of India; Wall Street Journal; and reports on the BBC and the Australian channel ABC.

Each year UNIS receives visits from many delegations for Norwegian and international authorities and other public and private actors. Nearly 100 groups visited UNIS in 2010, including a group of representatives from the United States Congress.

One of our main offers to the population of Longyearbyen, The Svalbard Seminars, had the highest average visitor numbers since the seminars were commenced in 1996. UNIS is also a partner in Studietur Nord, Svalbard-kurset and High North Study Tour. Our website is updated regularly.

Future areas of priority will be regular production of news items for the website and updating of the website content, as well as increased production of articles for the website Forskning.no. The Board of Directors is extremely satisfied with the dissemination activities.

SOCIAL RESPONSIBILITY

UNIS shall be a resource for the local communities in Svalbard. This applies to the staff, students and the knowledge we possess. The staff shall live and work in Longyearbyen and contribute to the development of both the institution and the community. All shall engage themselves in the community's social and cultural life rather than starting their own clubs or societies. The relationship with the Russians in Barentsburg is being developed through regular contact, increased scientific contact and due to the fact that the number of Russian students and staff is increasing. The transition to permanent positions makes UNIS an even more stable institution for the local communities.

The Board of Directors has set a goal that UNIS shall take an active role in the development of Longyearbyen in light of the Svalbard White Paper. It points to the need for new business activities as the basis for a robust population in the long-term. At the start of 2011 discussions are underway about the possibility of a local development company for knowledge-based business development based on the natural and competence-related advantages in Svalbard. UNIS is ready to participate in the process.

The annual account shows that in 2010 a total of 58 % of goods and services were purchased locally in Longyearbyen.

STAFF

As of December 31, 2010, the scientific staff at UNIS comprised nine professors, 11 associate professors, seven post docs, 17 research fellows, two project positions and 27 with professor/adjunct associate professor attachments. The technical and administrative staff comprised 10.8 and 16.7 labour years respectively. Women accounted for 62 % of the technical and administrative positions, 28 % of the scientific positions and 43 % of the students. Five of the eight members of the Board of Directors were women. The Board of Directors is not aware of discrimination of any form taking place at UNIS.

The following positions are externally funded: one professor (Statkraft), six post docs (five funded by the RCN and one by Mabit), three PhD (one funded by the EU and one by the RCN) and three adjunct professorships (one each by ARS/NAROM, NERSC and NGU). One associate professorship is part-financed by the Norwegian Polar Institute. The Board of Directors would like to thank these institutions for their contribution to UNIS.

HEALTH, SAFETY AND ENVIRONMENT

Absence due to sickness at UNIS in 2010 was 1.4 percent. The institution has an agreement with Longyearbyen Hospital concerning occupational health services and is certified as an IA enterprise. In 2010 one staff member injured a finger in an occupational accident. Apart from this incident, there were no other injuries or reports of serious occupational accidents or calamities of significance.

UNIS is unaware of contamination of the wider environment to any significant degree as a result of the institution's operations. UNIS is working continually to limit the environmental impact of its activities.

ECONOMIC DEVELOPMENT

Funds for operation and investment at UNIS are appropriated in the budget of the Ministry of Education and Research. In 2010 appropriations to UNIS from the Ministry totalled NOK 89,553,000, of which NOK 66 million constituted base funding, NOK 3.2 million was for investments in equipment and NOK 20.3 million rent for the science centre and KHO. Income over and above the appropriations from the Ministry of NOK 51.1 million comprises NOK 38.3 million from external project income for research and NOK 12.8 million in income from consultancy services and rentals. Compared with last year, the income from consultancy services in 2010 is double. UNIS has also experienced an increase in external funding for research from 9 % of its gross income in 2001 to 28 % in 2010. The Board of Directors is extremely satisfied with the increase in external income.

The annual accounts for 2010 show an operating surplus of NOK 5,432,568. After financial costs, this surplus is NOK 4,373,863.
From this surplus, a figure of NOK 2,673,863 was transferred to other equity and NOK 1,700,000 was set aside for purchase of inventory and equipment for UNIS Guest House in 2011.

The UNIS Board of Directors gathered in Trondheim. From left: Jarle Nygard (UiO), Gunnar Sand (director), Ole Jørgen Lønne (staff representative); Tore Vorren (chair - UiT), Henning Helgøy (student observer), Berit Kjeldstad (NTNU), Geir Anton Johansen (UiB), Viva Mørk Kvello (Longyearbyen Lokalstyre), Frank Eggenfellner (staff representative) and Juni Vaardal-Lunde (student representative).

Photo: Helen Flå

The company's total assets as of 31.12.10 were NOK 71,640,200, comprising NOK 44,406,482 of institutional buildings and NOK 12,443,337 of shareholder equity and other equity.

In 2010 a salary of NOK 929,517 was paid to the Managing Director. The Chairperson of the Board of Directors received a fee of NOK 55,000, the Deputy Chairperson NOK 33,000 and the other members of the Board of Directors each received a fee of NOK 22,000.

The institution's accounts were audited by PriceWaterhouse Coopers A/S.

INFRASTRUCTURE AND HOUSING

At year-end 2010 UNIS owned a total of 50 apartments. In addition, UNIS rents 11 studio apartments for research fellows and a further 20 for guest lecturers. The access to rented studio apartments for research fellows has halved since 2008, when we received notice as a tenant. The owner wished to sell all the studio apartments and we were forced to use some of the guest studio apartments to replace the lost studio apartments. UNIS has developed a joint living solution for research fellows and guest lecturers in collaboration with Barlindhaug Utbygging AS. The new complex will be completed in July 2011 and has a total of 52 small studio apartments, all of which are less than 30 m^2 in size. UNIS has contracted rental for all the units for a period of 10 years.

At year-end 2010 UNIS' combined housing loans total NOK 33.5 million. Interest and instalments on the loan as well as inventory for the apartments must be financed from the operational budget.

The Student Welfare Organisation in Tromsø (SiTø) offers a total of 142 studio apartments to students. It is decisive for UNIS that the students have satisfactory living conditions, and the Board of Directors emphasises continuing the good co-operation with SiTø. UNIS is working with SiTø to find a solution for the increasing student numbers at UNIS.

SHAREHOLDER EQUITY AND FINANCIAL RISK

In the course of the year the housing loan has been reduced by NOK 2.4 million. Since 2008 UNIS has repaid NOK 10 million of the loan. This year's surplus has contributed to increasing the shareholder equity ratio by 4 % to 17.4 % at 31.12.10. In addition to increasing the shareholder equity, NOK 1.7 million has been set aside for inventory and equipment at UNIS Guest House. However, strengthening of the shareholder equity is still necessary in order to strengthen the solidarity in the company. The conditions for the loan raised in the autumn of 2008 included a requirement from the bank that the shareholder equity ratio shall be 20 % of the account balance. The bank has dropped this requirement for 2009 and 2010.

The cash flow statement shows a liquidity improvement of NOK 3.6 million in 2010. Of the liquidity reserves at year-end of NOK 21.9 million, a total of NOK 9.6 million comprises advance payments to UNIS belonging to external projects. In the past year the working capital (current assets minus short-term debt) has gone from minus NOK 1.2 million in 2009 to a positive figure of NOK 3.2 million in 2010.

Measures implemented in 2009 and 2010 contributed to improving the liquidity. However, in the years ahead it will be a challenge to obtain income over and above the ordinary appropriations from the Ministry of Education and Research in order to handle the liquidity requirements resulting from the loan related to the purchase of apartments and requirements for renewing equipment. The Board of Directors asks the administration to maintain focus on healthy financial operation of the company.

INTERNAL FINANCIAL CONTROL

UNIS has established simple and good systems for financial follow-ups and reporting. In the light of proposals for appropriation frameworks from the Ministry in October, preparations are being made for a thorough budgeting process for all departments linked to this activity. Detailed budgets are prepared for each individual course. The course director attests an expense voucher as indicated by the Head of Finances in the Department of Administration. Research funds are allocated to the departments, which are responsible for allocating these to the individual scientist. The course directors and individual scientists receive continuous updates comparing the accounts against the budget.

Financial reporting to the Board of Directors comparing the accounts with the adopted budget is a regular item on the agenda for board meetings and includes reviewing each discrepancy.

RISK AND INTERNAL CONTROL IN RELATION TO FIELDWORK, EXCURSIONS AND LABORATORY ACTIVITIES

Unique access to the natural environment i the High Arctic area is UNIS' greatest advantage. UNIS makes the most of this opportunity for studies in the field and gathering samples from excursions. UNIS also utilises its location in the recruitment of students and staff.

Travel and fieldwork in the Arctic wilderness makes major demands on the knowledge, skills and attitudes of those carrying out the work. Safety in relation to the health and lives of the participants as well as considerations to the vulnerable natural environment are factors that must have the highest priority in the planning and implementation of activities in the field. Safety instructions and HSE control routines ensure that the participants in fieldwork are thoroughly prepared for the work that shall be carried out. Comprehensive safety training and quality assurance of the activity are implemented before the field party may depart. The field parties are followed up continually in order to safeguard quality and safety during the fieldwork.

Laboratory work is subject to the same quality assurance as fieldwork in that safety training must be implemented in advance and all work is subject to control and supervision.

UNIS is reliant on confidence from the authorities that our activities have as little negative impact on the natural environment as possible. Moreover, it is decisive for the institution that we still manage to carry out our activities without serious injury being inflicted on students or staff members.

UNIS' internal regulations are based on the formulation of objectives from the Svalbard Environmental Protection Act, which states that in the event of conflict between the activity and the environment priority must be given to environmental considerations.

BOARD OF DIRECTORS AND ANNUAL GENERAL MEETING

The Board of Directors held four meetings in 2010, two of which were in Longyearbyen. Sixty-nine matters were officially discussed. The Annual General Meeting was held in Oslo on May 3, 2010.

CONTINUED OPERATION

The institution's annual accounts are presented on the assumption of continued operation. The reasoning for the assumption is in the budget for 2011, which outlines the measures that have been implemented.

THE PATH FORWARD

At the start of 2011 UNIS was well on the way to restoring a healthy financial position. Expenses are now under control and the institution is operating in line with the budget. The level of debt is significantly reduced and the shareholder equity ratio is approaching 20 % for the first time since 2007. This enables new investments.

The Ministry gives the company credit for implementing a turnaround and has increased the target figure for student production by 50 % from 2009 to 2011, from 120 to 180 man-labour years. The student places are well financed and take into account the additional costs associated with field-based activities in Svalbard.

UNIS is positive to continued growth providing the level of allocations also enables an increase in the academic staffing level. The Board of Directors is looking forward to a continuation of the good dialogue with the Ministry about how UNIS can contribute to increasing the capacity and quality in the Norwegian university system.

Over the past year UNIS has submitted three large applications to the RCN infrastructure programme. Two of these applications deal with equipping the Svalbard nature with instruments in the form of field laboratories. This is a forward-thinking concept that will strengthen UNIS' distinctive character. The field laboratories are well suited to the concept of SIOS (Svalbard Integrated Arctic Earth Observing System) and can contribute to realising the vision of Svalbard as an international climate laboratory.

The collaboration with the universities will be of high priority in the future. UNIS has invited parties to a process concerning a revised agreement which includes the potential for collaboration in new areas, in light of both UNIS' growth and political/financial trends in the High North. This process includes the four new universities which were not included in the original agreement which dates from 1994.
The Board of Directors has high expectations for this process and believes it will be a win-win situation for all the parties.

From the Board of Directors' perspective, UNIS has taken new steps towards achieving its overall goal of being a leading international centre for Arctic studies. The Board of Directors would like to thank all staff at UNIS for their good contributions in 2010!

Tore Vorren | Styreleder

Berit Kjeldstad | Nestleder

Jarle Nygard

Geir Anton Johansen

Viva Mørk Kvello

Ole Jørgen Lønne

Frank Eggenfellner

for Rita Sande Rød
Juni Vaardal-Lunde

Gunnar Sand | Head of UNIS

QUALITY ASSURANCE SYSTEM FOR EDUCATION

BY CHRISTIN KRISTOFFERSEN

The UNIS Quality Assurance System for the Educational Activities was implemented in 2010 and provides a description of our strategic and systematic efforts involving the quality of education.

The quality assurance system is a tool that shall contribute to creating a culture in which the focus is on developing and improving the quality; and identify strong points, reveal flaws and contribute to rectifying these flaws. The efforts involving the quality of education shall be documented and visible for all participants in the university community; and overall secure UNIS' position as the leading Arctic educational institution, by providing a recognizable quality system in recognition of the mainland universities and international institutions.

THE UNIS STRATEGIC GOALS FOR EDUCATION

- UNIS offer research- and field based education in the forefront of Arctic science and provide students state of the art research infrastructure.
- UNIS offer an international educational setting that motivates excellence in academic achievements
- UNIS shall be an active partner in the international networks of Arctic universities promoting student exchange programs
- UNIS shall consolidate its courses on Bachelor level and strengthen the portfolio on Master and PhD levels
- UNIS offer quality based educational system recognized by the Norwegian authorities

UNIS also aims at, in accordance with the Ministry of Education and Research and the Svalbard Treaty, a goal of 50 % Norwegian student and 50 % international students.

QUALITY ASSURANCE SYSTEM STRUCTURE

Our goal is that UNIS should provide challenging and excellent research based education based upon our strategic goals and that the UNIS educational setting shall be under continuous development. The system shall provide and build upon engagement and involvement among and between our scientific staff (both UNIS staff, adjunct staff and guest lecturers), students, management and administration/logistic staff.

The quality system is adapted to:

- UNIS offering single research- and field based courses, and not academic degrees or study programs.
- The strong relationship between UNIS and the mainland universities (and the quality systems they provide).
- UNIS distinctive character and size, being a small university center providing intensive research- and field based courses creating both a high level of activity among both scientific and administrative staff, and a highly dynamic environment.

PARTICIPANTS AND AREAS OF RESPONSIBILITY

The responsibility for efforts concerning the quality of education is placed at all levels in the UNIS organization. The Ministry of Education and Research own and govern the institution and constitutes the General Meeting, and hence the UNIS governance and management of the quality of education.

The UNIS Board
is responsible for the management of UNIS as provided by the companies act (AS) and the Ministry of Education and Research who constitutes the General Meeting. The Board is overall responsible for the quality in education, research and educational setting.

The UNIS Administrative Director
is responsible for the management of UNIS and is overall responsible for the quality assurance system at UNIS. The Adm. Director is also system operator for dedicated data processing systems and key statistics- and goal figures at UNIS.

The UNIS Scientific Departments
are the authority for the academic content and educational aspects of all courses offered by the department. The focus of the departments' responsibility is questions of an academic nature, including securing a good academic and pedagogical quality of the teaching. Departments should strive for an appropriate distribution of tasks associated with the quality assurance of courses, including the evaluations of courses.

The Department of Research and Academic Affairs
has secretarial-, system- and operational responsibility for the quality assurance system and for educational activities at UNIS.

The UNIS library
provides information resources for students and scientists and has responsibility for ensuring that the students receive instruction in the use of the library's resources.

The Department of Administration
has responsibility for attending to corporate governance, finance and staff regarding UNIS ` s effort concerning the quality of education.

The Department of logistics and IT
has responsibility for attending to safety, equipment and web and IT systems regarding UNIS's effort concerning the quality of education.

The UNIS Leader Group
consists of the director, the assistant director, all department heads and one student representative. The information leader is the secretariat of the group. The Leader Group is an advisory forum to the Director.

The UNIS Research and Educational Committee (RECom)
consists of the department's heads of the scientific departments, the head of the Research and Academic Affairs department (who also acts as secretariat), one PhD representative and one student representative (Master or Bachelor level). The quality assurance system is anchored in RECom and RECom holds the responsibility for the overall quality on education and educational setting at UNIS. RECom corresponds partly to the mainland universities Learning Environment Committee (LMU), Program Committee (single courses only) and Educational Committee.

The UNIS students
have a responsibility to take an active role in efforts involving quality development and quality assurance of courses and educational setting.

The UNIS Scientific Committees:
Since the establishment of UNIS, the educational cooperation with the mainland universities of Norway has been ensured by four Scientific Committees. The goal is to secure high quality in the UNIS education and to secure the educational involvement between the university of Tromsø, Bergen, Oslo and Trondheim, Stavanger, the Norwegian University of Life Sciences and UNIS. The four committees are appointed within the scope of the four scientific departments. The committees consist of one member and one deputy member appointed by the universities, one student member appointed by the UNIS Student Council and the Head of the departments are the UNIS representative. The mandate for the science committees is to provide advice regarding education and the educational profile at UNIS, appraise educational plans and course descriptions, suggest educational plans for the upcoming academic year, evaluate the education and to ensure implementation of UNIS courses within their own universities.

QUALITY IN COURSE PLANS AND DEVELOPMENT

The effort to improve the courses is a continual process. The students should take advantage of the opportunity to provide feedback about their experience of the quality of education. Much of the feedback is given continually in the day-to-day contact between the students and staff. The day-to-day communication is especially important and appreciated at UNIS due to the field- and research based scope and the size of UNIS, providing close relations between students and staff. Direct communication provides good opportunity for rapid follow-ups and necessary knowledge flow within the organization.

In addition, information about how the quality of education is assessed by the students, the academic environment and the cooperating universities should be systematically obtained.

Evaluations of all courses for which UNIS is responsible shall be implemented in accordance with a cyclic stipulated plan. The evaluations are an important part of the systematic efforts concerning quality assurance of the courses.

In order for the university to succeed in its efforts involving quality, the systematic evaluation work and follow-ups must first and foremost be entrenched in the management at all the various levels and not least in the academic environments. The academic staff members have competence to assess the planning and implementation of teaching and learning activities, examinations and assessment of the students' work and the academic content of the courses.

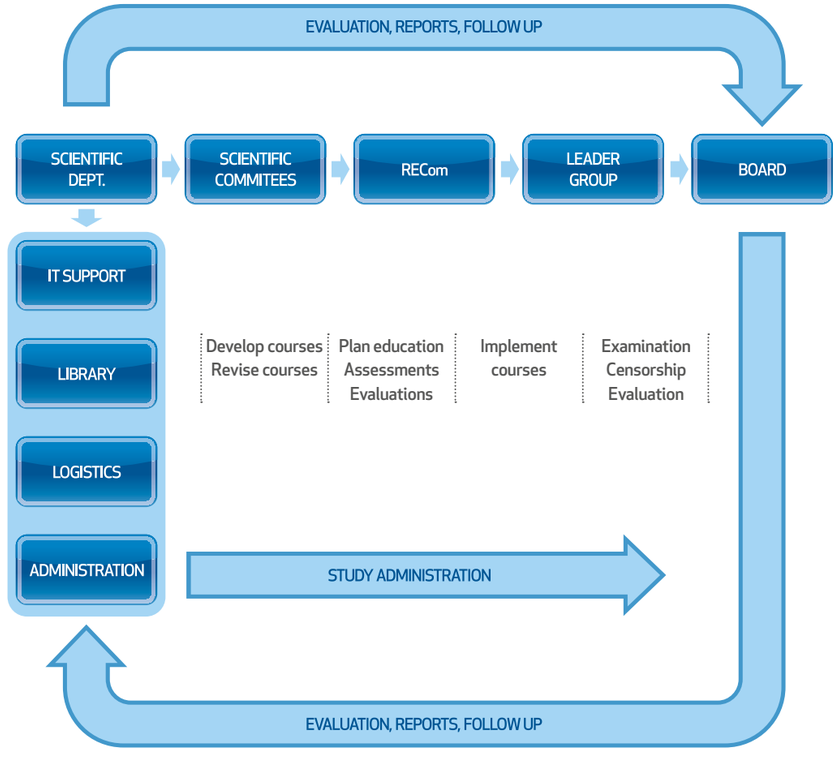
Internal evaluations contribute to giving the students an active role in the work concerning the quality of education, leads to a greater focus on the student's total learning environment and to entrenching efforts concerning the quality of education in the academic environments. Evaluation is part of the students' learning process and the academic environments' self evaluation. The findings from the evaluations provide a good basis for decision-making for the choices of measures which can safeguard and further develop the quality of the courses and educational setting at UNIS.

Course evaluation guidelines:
The evaluations are conducted and processed in accordance with the prevailing regulations. The following delegation of responsibility is recommended:

- The scientific departments evaluate courses, fieldwork and excursions. RECom participates in the evaluation process, responsible for the overall development of course quality and educational setting.
- The Scientific Committees are presented the quality process and provides advice to the specific courses, fieldwork and excursions within their scientific department. RECom evaluates the input from the Science Committees and reports to the Leader Group and the UNIS Board.
- General guidelines for evaluation at UNIS: The evaluations shall be documented; routines shall be established for follow-ups of the evaluation results; the findings of the evaluations are summarized, assessed and commented on before they are made available; the students shall receive information about results and plans for follow-ups of evaluations in which they have participated.

QUALITY IN COURSE PLANS AND DEVELOPMENT

THIS IS A MODEL PRESENTING THE COURSE DEVELOPMENT PROCESS AT UNIS AND THE PARTICIPANT'S ROLE IN THE PROCESS



Evaluation methods

- Written evaluation of courses:
  Are conducted by using anonymous evaluation forms. The questionnaire forms are adapted for the specific course. Data from written evaluations shall be summarized, commented on and made available to the students in question within a reasonable timeframe of the evaluation being conducted.
- Student evaluation of courses:
  Shall be conducted at the end of every course. The evaluations provide the students with the opportunity to express views about conditions of relevance for the quality of the course. If the course comprises several components (e.g. several thematic main parts), each component must be evaluated.

  UNIS provides research and field based education making fieldwork and excursions/laboratory activities part of every course at UNIS. This implies that evaluation topics regarding these activities is implemented in every course evaluation.

  The lecturer with academic responsibility for the implementation of the fieldwork and/or excursion/laboratory activity shall also provide an assessment of the conditions of significance for implementing the learning activity.
- Lecturer's assessment of the course:
  Is completed after completion of the student evaluations and assessment of the coursework requirements and examination. The evaluation shall contain the lecturer's assessment of conditions of significance for the quality of the course.

LEARNING ENVIRONMENT SURVEYS

Learning environment-related conditions shall be included in the systematic student evaluations of courses. This is designed among other things to map the students' physical learning environment and detect shortcomings concerning the facilities the students use in an academic context. Academic and social environment as well as good and accessible information about student-related conditions are also important topics. The annual student survey also includes learning environment topics and are important to the evaluation of the overall quality assessment at UNIS.

The Logistics Department, The University Library (UB) and Student IT services constitute an important component of the students' learning environment. UNIS undertake annual user surveys in which students are given the opportunity to evaluate services of relevance to the learning environment.

Findings from the user surveys shall form part of the annual reporting of the quality at UNIS.

The quality assurance system should also be applied in the support systems. The most important support systems in terms of education at UNIS are: Study guidance; general information; student welfare; student service; infrastructure for the students (rooms, equipment, IT); library; student administration; examination registration and examination procedure; laboratory and engineering services (including IT / PC rooms); logistics related to fieldwork, excursions and other educational activities; office support, and administrative services.

The students shall have the opportunity to provide continuous feedback of their experience of the quality of education and the learning environment. The students may provide their feedback in conjunction with student evaluations or make direct contact with the individual researcher/teacher, administrational and/or logistic staff, scientific department or administrative department at UNIS.

UNIS is a unique institution with high standards in student care and high involvement between students and academic and administrative staff. Hence we acquire knowledge on the quality of education and educational setting both from our quality assurance system and in the day-to-day activities at UNIS.

Analysis of the quality of education is a tool to find out whether UNIS is achieving the educational quality goals in student welfare, admission, accomplishment of courses and result, and the cooperation with the Norwegian universities.

The analyses are based on an overall documentation comprising both qualitative and quantitative quality indicators. The quality indicators shall first and foremost provide us information about actual conditions worthy of closer studying and analysis, including:

- Recruiting to the courses
- Learning environment
- The relevance of the courses

The analyses are carried out in light of the knowledge we acquire through:

- Day-to-day contact between students, the academic environment and the administration
- The students' feedback and evaluations of the courses
- The lecturers' and academic environments' evaluations of the courses
- Internal and external evaluations of the courses
- Input from the Scientific Committees

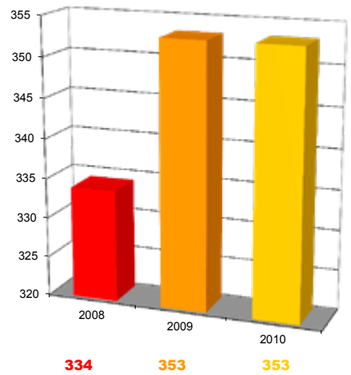
The academic environments have knowledge about the strengths and weaknesses of the courses and RECom have the responsibility for disseminating this knowledge in their analyses and annual reporting about the quality of education. The analyses provide the UNIS Board with a good basis for making decisions of significance for quality. The assessment of relevant measures should be carried out in light of the university's goals as well as the requirements for the courses stipulated in NOKUT's accreditation requirements.

Key data is used in conjunction with budgeting work and as background material for identifying and analyzing relevant problem and success areas: Use of resources (statistics about the course portfolio); establishment and discontinuation of courses (statistics about the course portfolio and credit production); recruitment to the courses (application, and admission statistics); the students' ability to use courses at UNIS as a supplement to their education at Norwegian universities and as an addition to international education.

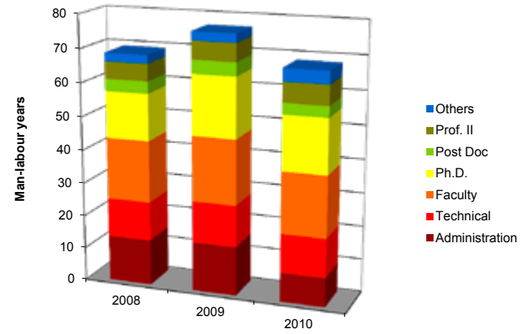
The Department of Research and Academic Affairs prepares annual statistics about the courses (at Bachelor, Master and PhD level) for use in the analysis. Key data is presented to RECom in February, to the Scientific Committees in March-April, and to the Board in September. Analyzes of the key data is important to the sustainability of high quality and improvement when needed to achieve high quality.

STATISTICS

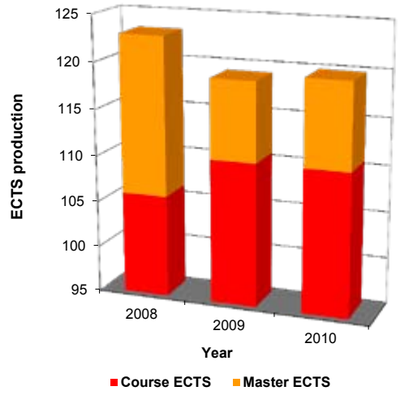
Number of students completing UNIS courses 2008-2010



Work force in man-labour years according to category at UNIS 2008-2010

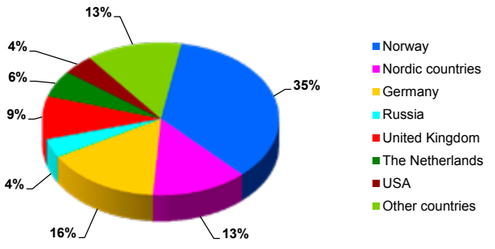


Production in student-labour years (1 year = 60 ECTS credits)

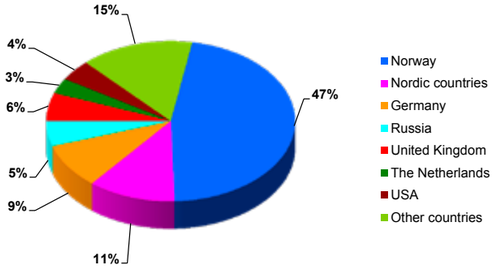


Note: In accordance with mainland universities practice, UNIS now registers ECTS by 1) course production and 2) master students attendance at UNIS

UNIS students' nationality 2009



UNIS students' nationality 2010



RESULTATREGNSKAP 2010

	2010	2 009
Driftstilskudd fra KD	89 553 000,00	83 713 000
Avsatt til investeringstilskudd	-4 918 555	-1 156 553
Årets driftstilskudd fra KD	84 634 445	82 556 447
Eksterne prosjektinntekter	38 263 946	28 194 934
Øvrige inntekter	12 831 960	12 354 966
Brutto driftsinntekter	135 730 351	123 106 347
Direkte prosjektkostnader	33 568 937	25 512 756
Netto driftsinntekter	102 161 414	97 593 591
Lønn og sosiale kostnader	40 932 615	41 881 386
Felt-og toktkostnader	8 961 680	8 582 871
Kostnader lokaler	26 616 869	24 985 249
Øvrige driftskostnader	19 541 921	17 041 043
Avskrivninger	2 384 961	2 241 216
Sum driftskostnader	98 438 046	94 731 766
Driftsresultat	3 723 367	2 861 825
Finansinntekter og finanskostnader		
Finansinntekter	648 839	693 701
Finanskostnader	1 707 544	1 845 953
Netto finanskostnader	1 058 704	1 152 252
Årets overskudd	2 664 663	1 709 573
Disponeringer:		
Til annen egenkapital	2 664 663	

BALANSE PR. 31.12.2010

	2010	2009
EIENDELER		
Anleggsmidler:		
Bygninger	44 406 481	46 791 442
Andeler Svalbardhallen	1	1
Sum anleggsmidler	44 406 482	46 791 443
Omløpsmidler:		
Varebeholdning	607 992	2 603 278
Debitorer	3 040 094	3 823 504
Andre kortsiktige fordringer	1 667 440	2 600 226
Betalingsmidler	21 918 193	18 338 148
Sum omløpsmidler	27 233 718	27 365 156
SUM EIENDELER	71 640 200	74 156 599
GJELD OG EGENKAPITAL		
Innskutt egenkapital	2 054 025	2 054 025
Opptjent egenkapital	10 380 112	7 715 449
Sum egenkapital	12 434 137	9 769 474
Avsetninger		
Utsatt innt.før. inventar Unis Guest House	1 700 000	0
Sum avsetning med forpliktelser	1 700 000	0
Langsiktig gjeld:		
Boliglån SparebankEN	33 460 513	35 845 474
Sum langsiktig gjeld	33 460 513	35 845 474
Kortsiktig gjeld:		
Leverandørgjeld	5 201 350	6 401 194
Skyldige off.trekk og avgifter	3 786 141	3 801 100
Annen kortsiktig gjeld	15 058 060	18 339 357
Sum kortsiktig gjeld	24 045 550	28 541 651
SUM GJELD OG EGENKAPITAL	71 640 200	74 156 599

AUGUST 2010:
AB-201 students arrive ashore on Reinsdyrflya, northwestern Spitsbergen.
Photo: Steve Coulson

JULY 2010:
A camera is watching over Svalbard poppys on the Gruve 7 mountain, part of an on-going research project called "The Polar Palette". The project is undertaken in collaboration with Otago University, New Zealand.
Photo: Eva Therese Jenssen

ARCTIC BIOLOGY

BY OLE JØRGEN LØNNE

The department conducts research in arctic biology and ecology and provides a full one-year curriculum of undergraduate studies and eight Ph.D./Master level courses. In 2010 we offered the Master/Ph.D. course "Ecosystems in Ice Covered Waters" for the first time. The department pursue the strategy to have two research groups, one in marine Arctic ecology and one in terrestrial Arctic ecology. The two strategies are, however, linked in several areas.

TERRESTRIAL ECOLOGY RESEARCH GROUP

By the end of the year, the terrestrial group consisted of two associate professors and two Ph.D. fellows.

The mapping of the terrestrial invertebrate fauna continued in 2010 thanks to funding from Svalbard Environmental Protection Fund and the Arctic Field Grant. There is an extensive area of eastern Svalbard with no records of the invertebrate fauna with the exception of the Rotifera. In 2010 samples were obtained from three locations on the east coast of Edgeøya. Initial analysis has revealed several species of Collembola and enchytraeid worm not previously known from Svalbard with implications for dispersal routes to Svalbard.

A research plan for the Ny-Ålesund area has been finalized in 2010 (Terrestrial Ecosystems Flagship program; eds. Coulson, Gabrielsen, Hübner and Loonen) with active participation from our staff.

Within the RCN supported project "Puccinellia in the European Arctic. Who is who, who is where and why?" we seek to untangle some of the taxonomical problems within the grass genus Puccinellia, like the origin of one of the few endemic species in Svalbard, Puccinellia svalbardensis Rønning (svalbardsaltgras). Two new master projects were initiated within this project during 2010. The project is carried out in collaboration with colleagues at Tromsø University Museum, the University of Oslo and Petrozavodsk State University. One of our aims is to increase the research collaboration with Russia, and during 2010, the project provided research stays at UNIS (1-3 months) for one Russian scientist and two students.

In cooperation with UiO, the investigations of fungi and mycorrhizal interactions were developed further in 2010. This is an extremely understudied field in the Arctic, and a field of research where new molecular techniques, like high throughput sequencing, have provided a new world of insight and possibilities. A large sample of mycorrhiza roots from all over Spitsbergen were collected for high throughput sequencing during 2010. More traditional fungi collections of fruit bodies and morphological investigations were done within the popular science project "Svalbards sopper: Hvem, hva, hvor?" supported by the Svalbard Environmental Protection Fund. A poster about fungi in Svalbard was printed and distributed for free to the residents in Longyearbyen, and a book written for a non-scientific audience is under development.

The Ph.D. project "The Polar Palette" in cooperation with the Otago University, New Zealand, was initiated in 2010. This project tries to untangle the effects of flower color in Polar Regions. In polar areas, pollinators are not always vital, with many plants employing self-pollinating techniques. Why do they still keep their colors, if they are not needed to attract insects? A combination of genetic analyses and field experiments were used, and the project will be continued in 2011.

MARINE ECOLOGICAL RESEARCH GROUP

In 2010 one professor, two associate professors, one postdoctoral research fellow and four Ph.D. students pursued research in Arctic marine biology. Two of the Ph.D. students started their work in 2010; Archana Meshram on a project with the working title "Microbial ecology of arctic waters - a metagenomic approach to understanding the community structure and function of marine protists" and Eike Stübner on "The structure and function of the Billefjord ecosystem. A systems approach".

The research focus on the diversity and activity of Arctic marine microbial eukaryotes was strengthened in 2010 with two new positions (one Ph.D. and one Post doc). The main efforts were towards sampling of microbial communities from potentially different habitats (sea ice versus sea water) and in water masses of different origin (Atlantic and Arctic) throughout different seasons. Preliminary analyses showed an amazing diversity even in water samples collected under the sea ice in midwinter, and show a great potential also for bio-prospecting. A database of the functional activities identified in different microbial habitats is under construction, and will be utilized to search for bioactive compounds.

During January 2010, the marine research group hosted and carried out a field campaign in Ny-Ålesund in cooperation with partners from both Norway (NTNU) and abroad (US, UK and Germany). The main aim was two-fold; first to study the hitherto unknown life in oceans during the polar night, but also to test, develop and deploy new technologies utilizing autonomous underwater vehicles. Both these themes and preliminary results of the campaign were reported on by Aftenposten and forskning.no, in addition to a 15 minutes episode on NRK's "Schrødingers Katt" in March 2010.

The project first of all documented biological activities in the water masses that has previously not been detected or studied. This relates not only to the presence of various species in the water column at a time of year when classical paradigms of arctic marine biology suggests organisms have entered a state a diapause commensurate with the low food supply, but also to the fact that most of these organisms were actively feeding.

Bioluminescence observations were collected by a bathyphotometer on an autonomous underwater vehicle (AUV) with an integrated acoustic system that was used to determine the concentration and intensity of bioluminescent flashes as a function of depth and time.

JANUARY 2010: A camera team from NRK's "Schrødingers Katt" document professor Jørgen Berge's dive into the slush-ice in the harbour of Ny-Ålesund.

Photo: Eva Therese Jenssen

MAY 2010: AB-330 students and staff celebrate the 17th of May in the sea ice at 80 degrees North.

Photo: Ole Jørgen Lønne

Additionally, plankton nets were mounted on the AUV to collect organisms passing through the bathyphotometer, and vertical plankton net hauls were conducted within the study region. Dynamics of bioluminescence, echo intensity and plankton enumerations together provide evidence for unknown processes during the polar night including the recently described patterns of polar night diel vertical migration. While changes in down-welling solar irradiance have been suggested as triggers in regulating both DVM and the circadian rhythm of bioluminescence, the mechanisms governing them are distinct, as the existence of DVM in this study was not accompanied by a circadian rhythm in bioluminescence potential. Rather, the observed diel patterns in flash intensities are interpreted as a direct effect of vertical migrating bioluminescent zooplankton.

MASTER DEGREE:

Allison Bailey: Lipids and diapause in Calanus spp. in a high-Arctic fjord: state-dependent strategies? Tracking lipids through the polar night

Susanne Kortsch: Long-term patterns (1980-2008) in the structure of a rocky-bottom macrobenthic community in Smeerenburgfjord, northwest Svalbard. Assessment of density and cover using image analysis

Lilith Kuckero: Sympagic-pelagic coupling and succession of phytoplankton in a High-Arctic Fjord*

Peter Leopold: Selected persistent organic pollutants in arctic amphipods: a local study from Adventfjorden.

Tore Magnussen: High Arctic Invertebrate Dispersal Vectors: Airborne Transport

Nikolaj Sørensen: Molecular diversity and temporal variation of picoeukaryotes in two Arctic fjords, Svalbard

*Defended in 2009

AUGUST 2010:
AG-210 students on excursion on the Nordenskiöld glacier in Billefjorden.
Photo: Endre Før Gjermundsen

ARCTIC GEOLOGY

BY RIKO NOORMETS

In 2010, the staff at the department consisted of full-time professors Alvar Braathen, Doug Benn and Hanne H. Christiansen, and associate professors Anne Hormes, Maria Jensen and Riko Noormets. During 2010, Snorre Olaussen joined the faculty as an externally funded professor in Arctic petroleum geology to complement the department's existing expertise in structural geology, sedimentology, glaciology, marine geology and geophysics, Quaternary geology, and permafrost and periglacial geomorphology. The department's adjunct staff consisted of six professors: William Helland-Hansen, Ole Humlum, Olafur Ingólfsson, Jörn Thiede, Per Terje Osmundsen and Bo Elberling (5% position), and one adjunct associate professor, Jørn Hurum (10% position). During 2010, Professor Jörn Thiede left the department.

The research and teaching at the department focuses on Svalbard, its fjords and adjacent shelf that together offer excellent opportunities to study a wide range of landforms, sediments, structures and processes related to the development of the Barents Shelf, and the infill and erosion of its sedimentary basins. As an area of terrestrial outcrop on the Barents Shelf, Svalbard provides access to a vast range of basin settings, from the low-latitude infill of the Devonian basins, to the modern glacial and periglacial erosion and infill of valleys and fjords. Apart from the research on Svalbard, the staff is involved in a number of top-level research projects worldwide.

The research work of the department involved two postdoctoral researchers, Kei Ogata (from 01.11.2010) and Håvard Juliussen (until 01.08.2010); four UNIS funded PhD students Karoline Bælum, Endre Før Gjermundsen, Monica Sund and Marcus Eckerstorfer and 13 external doctoral students. 14 MSc students were associated with the department, three of whom graduated in 2010. In addition, Cathy Braathen was involved as an externally funded project assistant in the Longyearbyen CO2 Lab project. All postgraduate and postdoctoral researches are closely integrated with the research led by the full-time academic staff providing a strong and integrated research atmosphere at the department. The research at the department has been supported by external research grants, mostly through the Longyearbyen CO2 Lab project, the largest research project led by the senior academic staff at the department so far.

The staff of the department published one text book, 18 papers in peer-reviewed scientific journals and 61 abstracts and conference contributions.

2010 was a busy teaching year for the department resulting in a total production of 2211 ECTS points. The staff taught courses for 1990 ECTS points, which is an increase of 145 ECTS points compared to the year before. The production from MSc student supervision was 221 ECTS points as compared to 70 ECTS in 2009. Considering that from 2010 each MSc-months at UNIS counts for 5 ECTS points as opposed to 2,5 ECTS points in earlier years, the actual increase compared to 2009 was 81 ECTS points.

Alvar Braathen focused on three projects in 2010; Longyearbyen CO2 lab, Billefjorden rift basin, and East Spitsbergen extensional faults. In June, Alvar left UNIS for a sabbatical year at the Utah State University (USA). In addition to writing up scientific work, this period is focused on studies of faults in sandstone reservoirs, and their importance for fluid flow. In addition, with newly acquired funding from the Norwegian Research Council for three positions (one postdoc and two PhDs), work has been undertaken on characterizing CO2 leakage and cap rock integrity in Utah, and in the vicinity of the Longyearbyen CO2 lab.

Maria Jensen was on maternity leave from March 26th to December 31st 2010, but continued ongoing research projects involving graduate students and initiated a new project on modern tidal systems in Braganzavågen, Van Mijenfjorden, in collaboration with NGU. MSc student Rita Sande Rød (UNIS and NTNU) continued work on the spatial, regional and syn-tectonic distribution of sandstone bodies in the Kapp Toscana Group as part of the work on reservoir characterization in the Longyearbyen CO2 lab project. MSc students Ingvild Aspøy and Eirik Serigstad (UiB and UNIS) initiated investigations of sedimentology in the Firkanten Formation and its influence on coal distribution in collaboration with Store Norske. PhD student Abigail Clifton (University of Leeds and UNIS) continued work on the Eocene palaeoclimate in the Aspelintoppen Formation. She collected plant fossils and investigated the sedimentology on two new sites in central Spitsbergen in addition to studying cores provided by Store Norske. Fieldwork on the modern tidal flat in Braganzavågen was carried out by NGU in April and August 2010 and analysis work of core material and surface samples have started. The following MSc students supervised by Maria graduated in 2010: Ingrid B. Hynne and Hilde Krogh.

Snorre Olaussen focused on four projects in 2010; 1) Longyearbyen CO2 Laboratory, 2) improved reservoir characterization of Triassic and Jurassic shallow marine sandstone bodies –onshore Svalbard and analogue subsurface hydrocarbon bearing counterparts Barents Sea and Basin, 3)basin studies and sequence stratigraphic link between the Arctic onshore Mesozoic strata and their subsurface offshore and 4) studies on paleoclimate and depositional setting in Late Ordovician/Early Silurian and Late Carboniferous icehouse periods. Eni Norge allocated funds for supporting two theses on sedimentology of the two main reservoir units in Goliat for comparison with outcrops in Svalbard. Snorre Olaussen has given multiple interviews and reportages on the ongoing activities in the Longyearbyen CO2 Laboratory in Norwegian, Swedish and Chinese news media.

Doug Benn carried out fieldwork in North-east Spitsbergen with the GAINS project (Glacier Activity in Neoproterozoic Svalbard) funded by NERC (UK Natural Environment Research Council). This project aims to test the 'Snowball Earth' hypothesis that proposes that the Earth experienced two periods of total ice cover in the late Precambrian period. Near-perfect weather allowed the team to make a really thorough investigation of outstanding rock exposures, which yielded exciting new perspectives on the controversy.

2010 saw the launch of the Nordic Centre of Excellence project SVALI (Stability and Variations of Arctic Land Ice), which brings together institutions from throughout the Nordic countries to address the major problem of predicting response of arctic glaciers to climate change. Doug Benn is PI of Working Group 2.2, which focuses on modelling calving glaciers. SVALI was launched in November 2010 at the Nordic Branch meeting of the International Glaciological Society in Copenhagen, where Doug delivered a keynote talk on glacier calving. External PhD student Jason Gulley successfully defended his thesis on the formation of englacial drainage networks. Jason's work was a systematic investigation of 'ice caves' in Svalbard, Alaska, and the Himalaya, and yielded a new, observationally based framework for understanding how water drains through glaciers.

Riko Noormets focused his work on the reconstruction of the extent and dynamics of the former Svalbard-Barents Sea and West Antarctic Ice Sheets in collaboration with colleagues from the Scott Polar Research Institute, University of Cambridge and the Universities of Loughborough, Durham and Stockholm, and the British Antarctic Survey. He led a cruise to map the glacial geomorphology and investigate the glacial history of the fjords of northern Spitsbergen and the Yermak Plateau.
Riko also worked on the late glacial and Holocene climate variability on Svalbard using the distribution of aeolian deposits in the marine sediments as a proxy, in combination with studying the link between the modern weather conditions and occurrences of "dust storms" in Adventdalen, Spitsbergen. Part of the Holocene climate research includes mapping the glacial morphology in front of selected tide-water margins of surging glaciers. This work is expected to contribute to the Nordic Centre of Excellence project SVALI (Stability and Variations of Arctic Land Ice), which Riko is associated with. Riko also participated in the APEX (Arctic Paleoclimate and its Extremes) network.
In addition, research on Svalbard gas hydrates with emphasis on the gas/fluid seepage features in Isfjorden was initiated in collaboration with the Longyearbyen CO2 Lab Project, a partner in the FME-SUCCESS (Centre for Environmentally Friendly Energy Research - Subsurface CO2 Storage: Critical Elements and Superior Strategy) initiative.

Anne Hormes stayed for her sabbatical at the Norwegian Geotechnical Institute (NGI) in Oslo from February until July. This was a great opportunity to widen her network in the Norwegian research community and to design a research project in collaboration with NGI. Her sabbatical led to her coordination of a research application with the title "Integrated database of natural hazards for cultural heritage on Svalbard - roadmap to manage an UNESCO world heritage site". This application will be put forward in the frame of the new Fram Centre - High North Research Centre for Climate and Environment in Tromsø, Norway, and is prepared for submission in June 2011 to the Norwegian Research Council. She became official partner of the new Nordic Centre of Excellence (NCoE) SVALI 'Stability and Variations of Arctic Land Ice'. Anne was also involved with preparations for the XVIII INQUA congress in 2011: she is a session convenor and is responsible for a one-day excursion during this important Quaternary congress. Anne focused on three projects in 2010: Icebound, NSINK and Geohazards for cultural heritage on Svalbard.

Endre Før Gjermundsen, PhD student in the Icebound project accomplished the last fieldwork expedition to Northwest Spitsbergen. Several new samples, mainly of erratic boulders were taken and new localities were investigated in order to round our research and tested hypothesis off. He gave presentations of preliminary research results on the fourth APEX meeting in May in Iceland and on the Nordic Geologic Winter meeting in Oslo. In November he worked on manuscripts during a research stay at the State University of New York.

Ph.D. student Trine Marianne Holm from the University in Innsbruck presented her results of lake sediments studies within the NSINK Marie Curie Initial Training network on three lakes from Svalbard, Hajeren, Blokkvatn and Kongressvatn in two conferences in 2010: on the IPY conference in Oslo and the International Society of Limnology (SIL) congress in South Africa. In Cape Town she was awarded a poster prize for her presentation.

Five students of AG-210 were involved in pushing forward our knowledge on geohazards in cultural heritage sites at Hiorthhamn and Fredheim. The work at Fredheim gained attention in the local press and an article was published on 1. October 2010 in Svalbardposten. One master student from NTNU, Jeanette Kvalvågnes started her work on Gruve 1A, Amerikanergruve. She is supervised by Anders Schomacker, NTNU, Jan Otto Larsen, Department of Technology at UNIS, and Anne Hormes. Her thesis covers the description of geohazards for Gruve 1A and potential safety measures.

The permafrost and periglacial geomorphology part of the Cryosphere research group consisted of Hanne H. Christiansen, Markus Eckerstorfer, Håvard Juliussen, Ole Humlum, Bo Elberling, Tatsuya Watanabe and Jose Saraiva.

As the final part of the IPY research project 'Permafrost Observatory Project: A Contribution to the Thermal State of Permafrost in Norway and Svalbard' (TSP NORWAY) we organized the Third European Conference on Permafrost (EUCOP) at UNIS 13-17 June 2010. The conference focused on showing the outputs of the IPY permafrost research here in Svalbard. The Circumpolar permafrost thermal snapshot presented during the conference, based on the many local, regional and international presentations, clearly showed that the warmest permafrost this far north in the Northern Hemisphere during the IPY 2007-2009 is present here on Svalbard. The scientific output from the conference is presented in the book of 284 one-page abstracts of all accepted presentations, published at and by UNIS.
Hosting the conference in Svalbard enabled a significant field component with a half day field excursion for all 241 participants as an introduction to the permafrost science and engineering activities in and around Longyearbyen. During this half-day field excursion several EUCOP papers were presented orally in the field as a new type of conference presentation. The conference ended with seven different one-day scientific field excursions given over two days, either free or available at low cost. These excursions were a huge success, so much so that there were not enough spaces on some, but all that wanted to participate were accommodated on at least one of them. On the first day, 154 participants walked, sailed and visited five different sites, while on the second day, 83 participants attended five excursions. The UNIS geology department staff and students were involved in more than 20 abstracts for this conference.

The permafrost and periglacial geomorphology research group is part of the Nordic Center of Excellence, 'Impacts of a changing cryosphere - depicting ecosystem-climate feedbacks from permafrost, snow and ice' DEFROST. Hanne H. Christiansen in a co-chair of the work package 3 'Climatic control on landscape processes and vulnerable permafrost carbon pools'. DEFROST started in November 2010.

Markus Eckerstorfer continued the avalanche monitoring around Longyearbyen, initiated by the Cryoslope Svalbard project. Much of his scientific interest focused on an extreme avalanche cycle in January 2010, when wet slabs and slush avalanches occurred. The meteorological and snowpack conditions as the main trigger as well as their reoccurrence in a changing climate were Eckerstorfer's main research topics in 2010.

Matthias Siewert started a master thesis on erosion rates of the talus cones in upper Longyeardalen using resistivity measurements and geomorphological mapping. Master student Stephanie Härtel worked on her ice-wedge reconstruction thesis studying different sites in Adventdalen. Master student Stephan Vogel finished his studies of the cornices above Nybyen with respect to their dynamics and meteorological control. Tatsuya Watanabe continued his field intensive mudboil studies in Adventdalen, with new instrumentation.

A new Portuguese research project, Earth-Mars analogues of polygonal terrains (Anapolis), started in 2010, studying ice-wedges in Adventdalen in Svalbard as comparison for polygonal features on Mars in collaboration. Anapolis collaborates with us and Jose Saraiva, an Anapolis PhD student, started as a UNIS external PhD student. Collaboration with Norut in Tromsø continued in the PermaSAR project studying the potential for the SAR technique to record permafrost landform changes on a seasonal and inter-annual basis. Field data was collected and permafrost found in the Nordnes unstable rock slope area as part of the collaboration with the 'Rockslide in Troms' intermunicipality geohazard research and monitoring project, for determining the potential influence of permafrost on the unstable rock slope processes.

PH.D. DEGREE:

Jason Gulley: Formation of englacial drainage networks

MASTER DEGREE:

Ingrid B. Hynne: Depositional environment on eastern Svalbard and central Spitsbergen during Carnian time (Late Triassic): A sedimentological investigation of the De Geerdalen Formation

Hilde Krogh: Sedimentary architecture and facies in lacustrine delta deposits, Weichselian, NW-Russia

Zoe Lucia Lüthi: Thermal state of permafrost in Central and Western Spitsbergen 2008-2009

Angela Oswald: Monitoring active layer development and freeze-back using DC resistivity tomography. Two field examples from Svalbard

Stephan Vogel: Cornice accretion, cracking and failure along with their meteorological controls at Gruvefjellet, Central Svalbard

NOVEMBER 2010:
AGF-345 students measure the Aurora Borealis (Northern lights) at the Kjell Henriksen Observatory (KHO).
Photo: Njål Gulbrandsen

ARCTIC GEOPHYSICS

BY FRANK NILSEN

The department has in total of six full time faculty positions, and has established research within oceanography, cryosphere, meteorology, middle and upper polar atmosphere.
The department also consists of six adjunct professors, as well as one research assistant (oceanography) and four Ph.D. students (upper polar atmosphere, cryosphere, oceanography and meteorology).

Teaching was conducted at both the undergraduate and graduate level, with six courses in each level. An important part of all courses is the field work, which allows the students to actively carry out research in the field. During 2010 the department has carried out several courses with teaching of field method on glacier, in the surface boundary layer over land and sea ice, at the Kjell Henriksen Observatory (KHO) and on two scientific cruises around Svalbard. The data collected are then typically used in course reports, giving the students valuable experience in analyzing and presenting scientific data in a coherent manner.

MIDDLE/UPPER ATMOSPHERE RESEARCH GROUP

The Space Physics Group investigates the middle/upper polar atmosphere using KHO, SPEAR, and EISCAT. All these facilities operated nominally in 2010, and there were several additions to the instrumentation at KHO, funded by the Research Council of Norway (RCN). The InfraSpace project covered a major upgrade of the meridian-scanning photometer and the installation of a new mesospheric imager.

The very first image of spatial structures in the OH-airglow layer at 90 km altitude was obtained in December 2010. In collaboration with the Polar Geophysical Institute we completed the design of two NORUSCA II cameras; one camera to be installed at KHO, and one in Barentsburg. At SPEAR we carried out several campaigns, including one joint campaign with our Russian colleagues at the Arctic and Antarctic Research Institute. We were actively involved in the launch of the NASA-RENU sounding rocket from Andøya Rocket Range at 06:38 UT on December 12, 2010. RENU carried instruments to study the upwelling of neutral oxygen atoms from the dayside aurora over Svalbard.

For nearly two weeks we were successfully monitoring the upwelling with instruments at KHO and EISCAT. Again KHO was chosen to be the host site for a rocket science team, and it shows how attractive our new facilities have become! In the fall of 2010 we ran the new course AGF-345 Polar Magnetospheric Substorms for the first time, and eight very lucky students witnessed some very spectacular aurora.

The Space Physics Group is also proud to report that Margit Dyrland successfully defended her Ph.D. thesis on February 25, 2010. Afterwards she submitted two proposals to the RCN, and in December 2010 we were pleasantly surprised to learn that both proposals were selected! The group is therefore thrilled to welcome Margit Dyrland as a post doc for the next three years.

FEBRUARY 2010: An AGF-212 student on fieldwork in Adventdalen.

Photo: Carl Egede Bøggild

METEOROLOGY RESEARCH GROUP

Research in meteorology is mainly focused on processes in the atmospheric boundary layer and energy exchange processes with different types of surfaces, such as water, snow, ice and tundra. The meteorological measurements in the 30m tower at Vestpynten on the shoreline of Isfjorden which started in 2008, continued in 2010. These long-term measurements are unique in the sense that most other measurements of air-ice-sea interaction are taken over much shorter time periods, usually lasting no longer than a couple of weeks.

The data from Vestpynten are, together with numerical modelling studies, an important part of Ph.D.-student Tiina Kilpeläinens work. For example, it has been shown that the physical processes in a complex Arctic fjord environment are often not accurately described in today's numerical models.

The data from Vestpynten was also used together with data from other weather stations around Longyearbyen by Associate Professor Anna Sjöblom to show that the solar eclipse which took place 1. August 2008 has a major impact on the local weather. In addition, the eclipse had an economic impact, by triggering a fog which lasted four days, thereby grounding all air traffic to and from Svalbard.

A new project on the dispersal of invertebrates and its connection to local scale meteorology was started together with the biology department at UNIS. Based on results from a pilot study in summer 2010, the project will continue in 2011 with improved invertebrate traps and measuring strategies. Based on data from the CRYOSLOPE Svalbard project (NFR-funded 2007-2009), Matilda Hallerstig defended her Master thesis in Meteorology, focusing on the effect of local weather on avalanches.

CRYOSPHERE RESEARCH GROUP

In the field of snow- and ice processes research on quantification of aerosols impact on surface albedo is carried out. In 2010 a field campaign was carried out on Longyearbreen. The main aim was to quantify the mass of aerosols and solar reflectivity on the melting glacier surfaces and their variability. Results show that glacier ice melt rates are to a high degree controlled by the albedo. However, the albedo of a melting ice surface is not solely a result of dust deposition. Also microorganisms and hydrology affect the way dust concentrates and affect the albedo.

A research project in collaboration with several international research institutions focuses on the impact of Glaciers near the coast of Greenland. The Greenland Ice Sheet reacts on the warming that Greenland has been subject to the last 10 years.
The melt has increased and the glacier fronts have retreated. The melt has both global and local impact. Globally the increased melt results in sea level rise, change of the ocean currents and the atmospheric circulation over Greenland. Locally the position of the glacier front and the fresh water production is vital for fishery and transport. There are big gaps in our knowledge on the amount of freshwater produced each year and on how and where the water melts. The project will investigate these processes with focus on the Nuuk area. The UNIS contribution to this project is research on the impact of aerosols on glacier ice melt.
A new Nordic Centre of Excellence "SVALI" has been established with partners from all Nordic countries. SVALI is a part of the Top-level Research Initiative, which is a major Nordic collaborative venture for studies of climate, energy and the environment. The SVALI NCoE is within the TRI sub-programme "Interaction between Climate Change and the Cryosphere" (ICCC), which aims to improve our understanding of stability, variations and dynamics of the cryosphere.

PHYSICAL OCEANOGRAPHY RESEARCH GROUP

In physical oceanography, main focus has been on research projects related to oceanographic- and sea ice data collection in fjord and shelf areas around Svalbard, in the Greenland Sea, Eurasian basin and the Barents Sea ('CRYOSAT Sea Ice' (ESA-Prodex), 'Arctic Climate and Environment of the Nordic Seas and the Svalbard - Greenland Area' (Polish-Norwegian Research Fund), 'IPY iAOOS-Norway' and 'IPY BIAC' (RCN)). The retrieved data from 2010 have been used to study the dynamic of the West Spitsbergen Current and its effect on the water mass and sea ice distribution in the Arctic Ocean, and to study ice production and deep-water formation in the Barents Sea and its effect on the thermohaline circulation. Based on the long time monitoring conducted by UNIS in collaboration with international partners of selected Arctic fjords in Svalbard, a review of the oceanographic environment and dominant physical processes in Arctic fjords was published.

Based on the data collected during the IPY-iAOOS fieldwork, our PhD candidate Sigurd Henrik Teigen published a paper on the barotropic instability in the West Spitsbergen Current where we describe the existence and period of appearance of a 20-40 km horizontal vortex wave along the West Spitsbergen Shelf break. These vortices are responsible for cooling the warm Atlantic Water before it enters the Arctic Ocean, and knowledge of these cooling processes will increase the understanding of the mechanisms controlling the changing sea ice cover in the Arctic.

PH.D. DEGREE:

Margit Dyrland: Multi-instrument studies of polar mesopause region temperature and airglow variability

Yvonne Rinne: EISCAT Svalbard Radar studies of meso-scale plasma flow channels in the polar cusp ionosphere

MASTER DEGREE:

Matilda Hallerstig: The local weather and its effect on avalanche activity in Svalbard

Maximilian Maahn: Measuring precipitation with micro rain radars in Svalbard

SEPTEMBER 2010: AGF-213 students doing wind measurements in Adventdalen.

Photo: Tor de Lange

MARCH 2010:
Arctic Technology students drilling up an ice core from the sea ice in Van Mijenfjorden.
Photo: Lucie Strub-Klein

ARCTIC TECHNOLOGY

BY JAN OTTO LARSEN

The department of Arctic Technology offers courses in geotechnical engineering related to foundation of infrastructures in frozen ground, ice mechanics influence on offshore structures related to oil and gas exploitation; and in Arctic Environmental Technology and Chemistry related to current and potential pollution problems and impact on the environment. The department also offers courses on Environmental Technology related to the impact of climate change on Arctic infrastructures. The courses are given in close contact with research activity and give the students a good opportunity to study both the theoretical and practical aspects of Arctic technology.

ARCTIC ENGINEERING

In geotechnical engineering the department has been running the courses AT-205 "Frozen Ground Engineering for Arctic Infrastructures" and AT-329 "Cold Regions Field Investigations". Both courses have high focus on field investigations. The department also ran the course AT-301 "Infrastructures in a changing climate". Fabrice Caline defended his Ph. D in December 2010. Louis Delmas is working on his Ph. D. thesis on snow cover stability in Lia, Longyearbyen.

Within the field of ice mechanics the department has been running the courses AT-208 "Thermo-mechanical properties of materials" and AT-323 "Thermo-mechanics of sea ice cover and load on structures". Thesis topics are closely related to AT-327 "Arctic Offshore Engineering" and AT-307F "Arctic Offshore Engineering fieldwork". Most of the field work related to ice mechanics are performed in Van Mijenfjorden, but ship based research has also been performed in the Fram Strait and in the Svalbard fjords. The course AT-209 "Arctic Hydrology and Climate Change" has been run in close agreement with department of Arctic Geophysics. Field work has partly been performed in Ny-Ålesund and Kapp Linné. Lucie Strub-Klein's Ph.D. project was initially related to the study of first-year ice ridges, but the absence of them in the usual site led to a field season where the spatial and temporal development of level ice properties, and in particular the uniaxial compressive strength were investigated.

Every week from early March to early May 2010, matrixes of 16 to 49 points were marked and samples were taken for immediate mechanical testing and for measurements of density, salinity and porosity. The fieldwork took place in Van Mijenfjorden.
Aleksey Shestov is working on his Ph. D. on physical and mechanical properties of sea ice in shallow waters.

ARCTIC ENVIRONMENTAL TECHNOLOGY

In Environmental Technology the department has been running the courses AT-207 "Pollutions in the Arctic", AT-321 "Fate and Modelling of Pollutants in the Arctic" and AT-324 "Techniques for the detection of organo-chemical pollutants in the Arctic Environment".
Field work is partly performed in Ny-Ålesund and partly in the vicinity of UNIS in Longyearbyen. This project has two Ph. D. candidates: Pernilla Carlson and Monica Trümper. Jørgen Hollesen successfully defended his Ph.D. thesis in June 2010.

ARCTIC TECHNOLOGY RESEARCH WORK AND PROJECTS

Physical processes accompanying ice action on the coal quay in Kapp Amsterdam were studied in the natural conditions and in the UNIS laboratory. The filtration of brine through two meters thick ice frozen to the quay wall due to the tide variations of water pressure was registered. The experiment on brine filtration through ice thickness varying from 10 cm to 20 cm was observed in the UNIS ice tank, where overpressure below the ice was created by the pumping of the pressure in the ice balloon fixed at the tank bottom. The rise up of water pressure below the ice was accompanied by the increase of ice pressure on the tank walls. The rise up of the ice surface temperature due to the brine migration was registered with IR camera. Main results of studies are submitted for the publication in Proceedings of POAC 2011, Montreal.

Five ice tracking buoys were deployed on drifting ice to the east from Kong Karls Land and one buoy was deployed on the iceberg in the Olga Strait on March 15, 2010. The buoys sent data on their GPS position every 20 minutes by Iridium. The information about ice drift trajectories was collected up to the middle of the April. During one month the five buoys drifted to the south of Edgeøya, and one buoy was drifting in the Olga Strait. After April only one buoy survived and it was picked up by rubber boat in Billefjorden on June 10. The information on ice drift was processed. Main results are submitted for the publication in Proceedings of POAC 2011, Montreal.

Monitoring of the floating plastic quay in Longyearbyen was realized in 2010, both in ice and ice free seasons. Angular displacements of the quay, speed of water currents below the quay and water level variations were measured. It was discovered that the quay has significant oscillations in wave conditions in the ice free season. In the ice season the position of the quay is relatively stable. The pitch of the quay related to tide was much stronger in the ice season.

The mathematical model of the quay behavior was elaborated. The model analysis has confirmed that natural frequencies of the quay are close to surface wave frequencies, and it can cause the resonant effect. Main results are submitted for the publication in Proceedings of POAC 2011, Montreal, and EuroDyn 2011, Belgium.

Multidisciplinary studies of the influence of sea ice on the hydrology of Svalbard fjords were performed in the 2010 ice season. CTD water profiles below the ice were performed in Tempelfjorden and in Van Mijenfjorden. Experiments on flexural strength of sea ice were conducted in Tempelfjorden, Adventfjorden and Van Mijenfjorden from February to May. The ice thickness was varied from 23 cm to 90 cm. The effects of ice temperature and salinity on the flexural strength were investigated. The results are consistent with existing information on sea ice flexural strength. Characteristics of swell and tides were measured, processed and compared in Adventfjorden, Tempelfjorden, Bellsund, Akseløya, Sveabukta, Ny-Ålesund and in the Barents Sea. Main results were discussed at Arctic Frontiers 2011 and submitted for the publication in Proceedings of POAC 2011, Montreal.

Mathematical model of ice forces applied to drifting icebergs was elaborated for three types of drifting ice structure around the iceberg (small floes, floes with mass comparable with the iceberg mass, continuous ice). Comparison of the field data on iceberg drift with the simulations has demonstrated the importance of ice forces on iceberg drift in the marginal ice zone of the Barents Sea. Results of studies are published in Proceeding of Int. Ice Symposium IAHR in Lahti, June 2011.

Mathematical model of ice load on offshore platform when the ice pile is formed was elaborated taking into account the effect of ice flow around the platform. The model is constructed using the equations describing mass, momentum and energy balance of broken ice in the pile around the platform. Simple analytical solutions describing steady ice drift and pile up near the platform are constructed. Numerical simulations are performed for Molikpaq and compared with existing experimental data from Canadian shelf. Results of studies are published in Proceeding of Int. Ice Symposium IAHR in Lahti, June 2011.

Analysis of the data collected in experiments on iceberg towing in HSVA in 2009 was performed. Conclusions and recommendations on iceberg towing in conditions of broken ice were formulated. Movements of towed icebergs were analysed. It was discovered that oscillations in the system iceberg-towing line-boat can be in a resonance with swell.
Resonant oscillations can create the breakup of the towing lines. Mathematical model of iceberg towing was formulated. Stability of steady towing of icebergs was analysed for different configurations of towing lines.

Coefficient of thermal expansion of saline ice was studied using original fibre optic sensors frozen into ice samples. The effect of native thermal expansion was registered for relatively high ice temperatures. The results of studies were submitted in oral presentation on the International Conference ROOGD 2010, Moscow.

Associate professor Mark H. Hermanson published four papers attributable in part to research at UNIS. This includes pesticide and brominated flame retardant fluxes from the atmosphere to high elevation ice on Svalbard, an area of on-going research into future years, and also exposure of the Inuit to contaminants from diet in the Canadian Arctic. The ice core projects were conducted in collaboration with the Norwegian Polar Institute. The Inuit project was conducted in association with health researchers at the Inuit Circumpolar Conference in Canada. Dr. Hermanson gave presentations related to these topics at 3 conferences, including Arctic Research Consortium of the US (ARCUS) State of the Arctic meeting (Miami), the 6th PCB Workshop (Visby, Sweden) and the IPY Oslo conference.

Dr. Hermanson along with Ph.D. student Pernilla Carlsson, was awarded grant money from Svalbard Environmental Protection Fund to partially fund research on contaminants in reindeer meat from samples collected from community members, in association with the Longyearbyen School.

During part of 2010, Dr. Hermanson was a Fulbright Chair, funded by the U. S. Norway Fulbright Foundation for Educational Exchange. This award enabled expanded research opportunities within Norway and elsewhere, and will support conference participation and publication in 2011. He was the first of four planned Fulbright Chairs to conduct research on the Arctic in Norway.

MAY 2010: Ph.D. student Pernilla Carlsson is ready for a dive into the drift ice, while another student is watching out for polar bears.

Photo: Pernilla Carlsson

Other projects at the Arctic Technology department:

- SIOS: Pollution and pollution transport in the Arctic
- ARCRISK: Arctic populations exposure to pollution and climate change
- AMAP: Climate change and pollutants
- NorthPOP: Norwegian-Russian cooperation of organic pollutions
- PCB on Svalbard: Cooperation with SMS/NGI on Sampling Barentsburg/Longyear

PH.D. DEGREE:

Fabrice Caline: Coastal-sea-ice action on a breakwater in a microtidal inlet in Svalbard

Jørgen Hollesen: Subsurface temperature modelling in permafrost areas

MASTER DEGREE:

Ingjerd Sunde Krogseth: The effect of temperature on fatty acid composition in the Arctic Crustacean Onisimus litoralis

Mikhail Naumov: Sea ice interaction with offshore structures: loads from thermal expansion of ice, movement of ice on the structures and collision of iceberg with offshore platform

Anton Sigitov: Study of ice permeability by sea water

Espen S. Østerås: Actions from landfast ice on coastal erosion protection, in the Van Mijen fjord, Svalbard

STUDENT COUNCIL

BY JUNI VAARDAL-LUNDE (BOARD REPRESENTATIVE 2011) AND MARI JACOBSEN (SC LEADER 2010/2011).

The student environment at UNIS is special and unique in many ways. Students from all over the world come to Svalbard to experience the high Arctic. The small community makes everybody know everybody and there is a close bond between students, staff and the local community. This relationship along with the astounding surroundings, the magic light and the unforgettable excursions make students come back year after year.

Social activities are arranged throughout the year, with Friday gathering every Friday, movie nights, dinners and so on. The students also have access to two cabins and a multitude of hiking and safety equipment, free of charge. The student organization is the main source of funding when it comes to new outdoor gear, kitchen supplies, material for the annual yearbook and more.

The students are able to get involved with the local community on numerous different levels. At Svalbardhallen, the local sports hall, many students participate on sports teams with locals. Students also run the community thrift store known as "Bruktikken". Here you can donate your stuff that you don't need anymore, and get additions to your closet or bookshelf by taking something home with you.

During both the light and dark period students are involved with the organization of the Dark Season Blues festival, the Polarjazz festival in February and events such as Solfestuka (the sun festival). In this way they not only aid the community but also have a chance to socialize more with the local people.

The Student Council exists to support the student body at UNIS to ensure that the student welfare is maintained. The students have representatives on the UNIS board (Board representative and observer) and in the leader group at UNIS (the Student Council leader).

These representatives embody the voice of all students at UNIS and during meetings of the board are able to discuss those topics that are affecting the students most and topics concerning the student view of UNIS as an institution. ReCom (UNIS Research and Education Committee) also has student representatives within the committee. The job of the ReCom student representatives is to assure quality in all courses that UNIS provides. Students also have a say in AMU (Arbeidsmiljøutvalget) and the Library committee. Student surveys are undertaken to get a more clear picture of the opinions about different aspects of the student life and a chance to contribute to the further growth and development of UNIS.

As a student representative you get an inside view of how the UNIS institute is run and participate on most levels. Because of the interaction of past student representatives UNIS has become what it is today, from a student point of view. And it is a reason why close to 100% of the students rate the UNIS experience as AWESOME!

APRIL: Happy UNIS students take a coffee break on Sarkofagen, one of the mountain tops surrounding Longyearbyen.

Photo: Juni Vaardal-Lunde

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AUGUST 2010:
Associate professor Pernille Bronken Eidesen teaches children from Longyearbyen about the Svalbard flora at the annual Camp Svalbard in Billefjorden. UNIS is one of the sponsors of Camp Svalbard.
Photo: Steve Coulson

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