



NEWSLETTER

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View from Litla-Skard Field Site in Iceland. Photo: M. Johansson

SCANNET

Editorial

In the last Editorial to the SCANNET Newsletter No. 4, of February 2003, I remarked that SCANNET was at an exciting, but challenging, stage. Although we have responded to some of the challenges, we are still at that stage.

The informal SCANNET meeting at Abisko in April was dominated by the imminent need to plan a way forward for an application to the EU for funding from Framework 6 within or outside ENVINET. After constructive discussions, a consensus negotiating stance was agreed and a good science plan was constructed. Nils Roar Saelthun and myself held intensive negotiations with the leadership of ENVINET and a joint proposal was agreed in which SCANNET represented the terrestrial sub-net of ENVINET. The science plan behind the SCANNET component was, I believe, innovative and potentially beneficial to all SCANNET partners. The basic model was to build partnerships between facility managers and science experts to address key science areas. We now eagerly await a response from the Commission.

The proposal submission to the EU within ENVINET was one way forward. However, SCANNET has received recognition in many places and this has led to an initiative from the US to network existing networks within CEON (Circum-Arctic Environmental Observatories Network). This initiative (see page 4) has been developed by Craig Tweedie (Michigan State University) and Pat Webber (Michigan State University and Chairman, IASC) and it has already been approved by FARO (Forum of Arctic Research Operators) and IASC. The Secretary of SCANNET, Margareta Johansson, Bill Heal and myself have helped Craig and Pat to develop a programme for the first meeting of CEON that we will host in Stockholm in October. Margareta, Bill and myself will represent the interests of SCANNET at this meeting and explore potential future roles for SCANNET within the CEON framework.

We have also been alerted by the Commission to a possibility to apply to Framework 6 as a “Network of Excellence” in environmental observation and monitoring. It is interesting that this call requires “a constrained and manageable number of partners”. We will explore this potential and may call upon SCANNET partners to determine interest in an application – and then for help with the preparation! Such opportunities are likely to increase. I had the privilege of attending two high level meetings on Svalbard recently: one involved the EU and the other the Senior Arctic Officials. Both meetings saw the importance of networks such as SCANNET and our name occurred in many of the presentations. Clearly, we are in an exciting time because of the exploding recognition at all levels of the importance of global observation and monitoring – and also that this is particularly important in the north. In addition to the challenge of achieving funding for our continuation, we need to ensure that all our work packages are successfully completed by the end of the project and in sufficient time to be able to report them comprehensively in our final submissions to the EU. This aspect will be an important part of our tasks in the next and final SCANNET meeting to be held at the Kevo Subarctic Research Institute. The quality and comprehensiveness of work achieved so far leads to optimism. Good progress still being achieved within SCANNET, and in a letter from Riccardo Casale (our scientific officer at Brussels), SCANNET is regarded as “one of the most successful projects”. However, we cannot be complacent, as we need good results as a platform for our future. For example, Toke Høye has written an interesting forum article on critical mass in environmental databases and he again requests information from all WP’s leaders: please respond to him.

Finally, individual facilities have achieved a range of successes since the last Newsletter. We congratulate Lis Mortensen for attracting high visibility at the Sornfelli Station and wish her luck with future funding to continue her monitoring programme there. Zackenberg goes from strength to strength and we congratulate Morten Rasch on the extension of the GeoBasis programme and the acquisition of the ship. Finally, we wish Ola Brandt a speedy and complete recovery after his unfortunate accident.

I look forward to meeting everyone at the Kevo meeting in October and thank Seppo Neuvonen in advance for facilitating the meeting.

Terry Callaghan, Co-ordinator SCANNET

Activities

Internal SCANNET meeting in Abisko April 2003

It was decided at our second annual meeting in Iceland that it would be beneficial to meet before October 2003 when our third annual meeting was planned, and since the Arctic Science Summit Week was organised in Kiruna this year, this interim meeting was held in Abisko (100 km west of Kiruna) in conjunction to that. The main aims of the meeting were to discuss the work package progress and how to finalise the WPs. We also discussed the continuation of SCANNET and some time was spent on the outreach part of the SCANNET web site for the general public.



“Elders” of Arctic Research meet after Arctic Science Summit Week in Kiruna at Margareta Johansson’s home. Left to right: Pat Webber, Jerry Brown, Terry Callaghan and Bill Heal. Photo: C. Tweedie.

It is an important measure of the involvement of SCANNET partners that they agreed to meet at a second unscheduled meeting to discuss future and wider collaboration. Even though most of the time at the meeting was dedicated to prepare the SCANNET part of the ENVINET FP 6 proposal, the presentations from the work packages showed that good progress had been made and that the deliverables SCANNET has promised will be achieved more or less on time. Due to the preparations for the proposal for the future of SCANNET, less time than was planned was spent on the outreach part of our web site. It was however recognised as an important activity and a helpful framework has been developed. This will need to be further developed in the near future and the Secretariat should encourage and facilitate this activity.

Upcoming SCANNET meeting

Our next annual meeting will be held in Kevo, northern Finland, the 16-18 of October (arriving the 15th and depart the 19th). This meeting is a wider meeting and representatives of the “user community” have been invited. The meeting aims to have sessions to interface user needs with SCANNET capabilities, to discuss SCANNET work packages, to ensure the coordination of the final stages of SCANNET and also to quantify perceived environmental and sociological issues in Finland (led by one of the work packages). For further information please contact SCANNET Secretariat (Margareta Johansson): scantran@ans.kiruna.se or visit SCANNET’s web site www.scannet.nu. This meeting is particularly important since it is our last scheduled meeting.

Other developments

SCANNET Memorandum of Understanding

Agreeing an informal Memorandum of Understanding among the partners that builds on their wish to continue to co-operate, was a pleasing development. The MoU has been signed by three partners and is circulating among the remainder.

SCANNET Outreach

SCANNET outreach was discussed at the Abisko meeting. Although progress was constrained by the need to develop a proposal to the EU for further funding, the importance of this process was recognised. We are now likely to have some help available with graphics and web site design and we will try to make more progress with this topic. We will appreciate help from the SCANNET partners with this.

Meetings that SCANNET will, and has participated in

Initial Planning Meeting of the Circum-Arctic Environmental Observatories Network: CEON

The concept of a Circum-Arctic Environmental Observatories Network (CEON) was endorsed by the Forum of Arctic Research Operators (FARO – www.faro-arctic.org) and the International Arctic Science Committee (IASC – www.iasc.no) at Arctic Science Summit Week (ASSW) in April 2003. An initial planning meeting of CEON will be held in Stockholm October 2-5, 2003. This meeting will convene key research specialists active in the Arctic to discuss and outline the scope, organizational structure and priorities for the development of CEON. It is intended that this meeting will lead to the formation of a CEON steering committee and active working groups, an overview paper for publication in an international peer-reviewed journal, a CEON terms of reference document and a network implementation strategy. These documents will provide a basis for sequestering additional funding to support the development and implementation of CEON.

Global Change Vulnerabilities in the Barents Region: Linking Arctic Natural Resources, Climate Change and Economies – BALANCE

BALANCE will hold their next meeting in Stockholm the 5-7 of November. The meeting will consist of a stakeholder workshop and also a consortium meeting. For further information about BALANCE please visit their web site: www.balance-eu.info The meeting is organised by Margareta Johansson and links to SCANNET will be maintained. Please contact Margareta if you need more details.

Arctic Climate Impact Assessment - ACIA

Recently there was an informal ACIA meeting on Svalbard. The main goal was to inform the Senior Arctic Officials (SAOs) about progress. There are three main products: a scientific volume, a policy document and an overview document. The scientific volume has now gone for external review. The comments from the International Expert Review and National review will be due by the 1st of October. A draft exists for the policy document and this has been sent for review to the lead authors. Also, a first tentative draft of the overview document was available at the meeting. The scientific part, the policy document and the Overview document will be sent to the printer in one year's time and should be ready for distribution about the 1st of October 2004.

Study of Environmental Arctic Change – SEARCH

In October there will be a meeting of SEARCH at Seattle. This is an US initiative which has been conceived as a broad, interdisciplinary, multi-scaled programme with the core aim of understanding the recent and ongoing, decadal, pan-arctic complex of interrelated changes in the Arctic. At a presentation of SEARCH during a high level EU meeting at Svalbard, SCANNET and ENVINET were specifically mentioned as platforms for collaboration. Although the co-ordinator of SCANNET was invited to participate, it is unfortunately impossible for him to

participate. It seems that European participation will be less than expected. It will be helpful to know if any SCANNET partners will be involved in this meeting.



Panel at the high level EU meeting at Svalbard. From left to right: Philippe Busquin (EU Commissioner for Scientific Research), Kathie Olsen (Associate Director, Office Of Science and Technology Policy, Executive Office of the President of USA), Karin Refsnes (Executive Director at the Norwegian Research Council) and Terry Callaghan (SCANNET Coordinator and Director, Abisko Scientific Research Station).

Forum

On critical mass and information space in environmental meta-databases

In recent years, collaboration between field stations, institutions and organisations concerned with environmental studies in northern Europe has increased partly due to the SCANNET initiative. Work Package 7 works in close connection with several international organisations and networks. A coordinated effort is necessary to achieve focused and non-overlapping results beneficial to the broader science community and hence, a very valuable tool to track changes in the Arctic environment.

An important part of this networking activity has been concerned with the construction of meta-databases. The value of meta-databases on such information as monitoring activities or bibliographies increases considerably when a threshold fraction or “critical mass” of the information available is covered. This has two critical implications for our work. First, we should define the “information space” that the meta-database covers e.g. what temporal and spatial extent and which parameters and ecosystems are included etc. Second we should gather as much information from within that “information space” as possible to at least cover the “critical mass” of the information. If we continue this process of gathering information on e.g. species performance and phenology then the SCANNET web site will be the “one-stop-shop” for information on long-term environmental monitoring in the SCANNET region.

The merging of information on biological monitoring programmes from field sites in the region has already produced a comprehensive meta-database soon available to the science community via the SCANNET web site: www.scannet.nu. We have good coverage of data on many plant species, birds and mammals and, to lesser extent arthropods. However, other groups of animals are lacking. The programmes have focused mainly on growth and population estimates, but also

phenological recordings are well represented. As the process of compiling meta-data reaches completion it will be evident whether elements lacking so far represent true gaps in the monitoring record. All work package leaders can help by adding information about past and ongoing biological monitoring projects not yet reported to Work Package 7.

Toke T. Høye
WP 7

Productivity and traditional ecological knowledge: two developments

In a recent publication by Nemani *et al* in Science (6 June 2003, Vol 300, page 1560-1563) data on changes in global terrestrial net primary production were presented for the years 1982-1999 at a global scale. Surprisingly, *decreases* in productivity were reported for much of the Arctic and particularly for much of Siberia. The surprises come from two sources: firstly these areas have warmed and productivity should have increased and secondly members of this group previously published studies that showed an increase in greenness, biomass and length of growing season for the north. Of course the latest studies have not been validated on the ground. This has always been an ambition of SCANNET and the present study shows the importance of our potential capability to validate models and to ground truth remote sensing.

On a separate issue, one of the new dimensions of the Arctic Climate Impact Assessment is the inclusion of traditional ecological knowledge (TEK) alongside conventional science observations. This has proved particularly successful and a manuscript by Henry Huntington, Terry Callaghan and others is currently in development. In this study they compare where TEK and conventional science observations agree and what the reasons are for any disagreements. So far there are few disagreements and those that exist can be explained. It is clear that TEK has a lot to offer: there are more indigenous peoples making various types of observations than scientists and indigenous peoples live in the north throughout the year. It will be interesting to see how the subject develops and the cooperation between the two approaches is being encouraged within the CEON process.

Epirrita outbreak at Abisko

One of the driving forces of the long term dynamics of the mountain birch forest in northern Fennoscandia is outbreaks of moth caterpillars that defoliate the birch trees. Population increases tend to be cyclical with a return frequency with about 11 years. In the Abisko area a particularly dramatic outbreak occurred in 1955 and this affected 6000-7000 hectares. This year, the autumn moth (*Epirrita autumnata*) has reached outbreak proportions at Abisko which appeared to be greater than those of recent decades. This has effected several experiments as the caterpillars eat ground vegetation when the birch leaves have been consumed. However, the birch trees have produced new leaves and the damage is not now dramatic. If there is a warm winter, we would expect an even greater outbreak and more persistent damage next year. It would be interesting to record if similar outbreaks have been observed at Kilpisjärvi and Kevo.

Terry Callaghan
Co-ordinator

News from the sites

Sornfelli Station

Ministers of Environment visited the Sornfelli station



The Sornfelli Meteorological Station

two years of operating the Sornfelli station as part of their AMP-V programme (Arctic Monitoring Programme - Knowledge Transfer) succeeding three years of funding from the Danish Research Councils.

The visit began with an introduction about the arctic meteorological station in a room within the Sornfelli military mountain station kindly let to our disposal. The introduction about the meteorological station included an explanation about the scientific motive behind establishing the station, how it was built on the plateau of Sornfelli 722 m above sea level and the operation of the specially designed robust station since 1999. A short resumé of some of the main results from the station were presented covering wind, temperature and pressure monitoring, showing that the major part of the area of the Faroe Islands is within an arctic climate with mean summer temperatures below 10⁰C. The annual temperature at this altitude is approximately 1.8⁰C, so the mountain tops of the Faroe Islands today are not exposed to permafrost condition.

The visit at Sornfelli proceeded with going outside to the station at the mountain summit. It was a very cold and windy day, so we went back inside the military station after an inspection of the meteorological station and one of the two web cameras in its vicinity. The ministers of environment showed genuine interest in the station and were specifically intrigued by the fact that the Sornfelli station as a participant of SCANNET has joined the European and international scientific network.

The Nordlink-workshop

During some of the bright summer days of early June the Nordlink workshop was held in the Faroe Islands. Researchers from Norway, Denmark, Svalbard, Sweden and Scotland along with Faroese colleagues attended the workshop presenting a long number of lectures with an impressive collection of new research results from many projects on the glacial and postglacial environment in the North Atlantic region. The work shop was organized as two days of lectures succeeded by three days of excursions to localities with significance to the glaciation and deglaciation of the Faroe Islands, including sites showing modern active geomorphic processes.

The excursion made a stop at the Sornfelli meteorological station, where the group learned about the station and its cooperation within the SCANNET network. The Sornfelli station is an intriguing station to visit as one has the opportunity to drive by bus up to the locality 722 m above sea level and experience the harsh barren arctic environment typical for this altitude.

The Sornfelli station is the first and still the only meteorological station within the arctic zone of the Faroe Islands above 300 m above sea level. Visits to the station seem to become more frequent as time passes and the station proves its durability. The interest for the station is important as we are working with applying for additional funding to operate the station on a permanent basis.



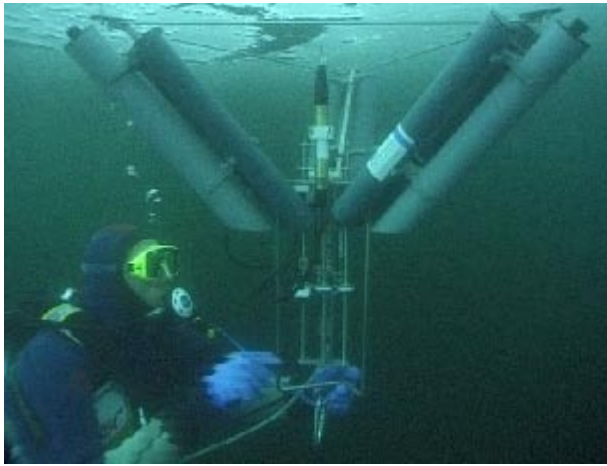
Participants at the Nordlink course, that was held in the Faroe Islands in June, on excursion.

*Lis Mortensen
Sornfelli Station*

Zackenberg Station

Extension of Zackenberg Basic

This summer the monitoring programme at Zackenberg Station, Zackenberg Basic, was extended with a marine monitoring programme that investigates the marine ecology in the Young Sund/ Tyrolerfjord fiord system just outside Zackenberg Station. The programme quantifies the fluxes of carbon and nutrients within the marine ecosystem. The programme manager is Dr. Søren Rysgaard from the Danish National Environmental Research Institute, Email: sr@dmu.dk. To facilitate the marine work at the Zackenberg Station, the Danish foundation Aage V. Jensens Fonde has kindly funded a ship for the activities at the Station. The ship has different equipment for marine biological and geological investigations.



A diver from the MarineBasis programme is investigating the living conditions below the sea ice

Further, the Zackenberg Station has received funding for an extension of the monitoring programme GeoBasis that investigates the physical environment. The programme has been moved from Danish Polar Center to the Danish National Environmental Research Institute, and the programme is now manned by a full time scientist.

*Morten Rasch
Zackenberg Station*

Abisko Scientific Research Station

100 years of Environmental Research in Northernmost Sweden: a celebration of science at the Abisko Scientific Research Station

September will be a busy month for the staff at the Abisko Station. Apart from the ordinary busy field season, we will have a jubilee the 13th of September to celebrate 100 years of environmental research in the Abisko area. The celebration will take the form of setting research at the station on meteorology, geosciences and ecology in an international context. There will also be a presentation on the history of the research of the station and a forward look. Following the jubilee there are plans to hold a 2 days' Workshop, the 15th and 16th to initiate a trilateral collaboration between US, Norwegian and Swedish research councils.

*Terry Callaghan
Margareta Johansson
Abisko Scientific Research Station*

Continuous CO₂ flux measurements over lakes

During the ice-free season of 2004 an eddy correlation tower (funded by the Kempe Foundation) will be set up over a lake close to the Abisko Scientific Research Station. The lake, 'Diktar Erik', is situated about 15 km west of the station mainly draining the birch forest with a small part of the catchment above the tree-line. The lake has a surface area of about 12 ha and the water is slightly coloured by humic substances. The tower will make continuous measurements of the flux of CO₂ and water vapour, and will also measure several climatic parameters. This is one of the first eddy correlation towers to be set up over a lake. This has been made possible because of a technological development, with an open path sensor for the CO₂ measurements.

These measurements will facilitate other carbon flux measurements presently taking place in the same lake. Within the project 'Net carbon flux in lakes and its importance for the carbon balance in different vegetation environments' (funded by The Swedish Research Council) we have this spring started up a sampling program to quantify the carbon fluxes to the lake, from the lake and processes within the lake contributing to these fluxes. Our research in the last years has indicated that most lakes in the region (alpine – conifer forest lakes) are sources of CO₂ to the atmosphere. The project is a part of a larger scale effort at the Abisko Scientific Research Station with a goal to quantify carbon fluxes in the Torneträsk drainage basin. For further information please contact Dr Anders Jonsson, Climate Impacts Research Centre (CIRC), Abisko Scientific Research Station, SE 981 07 Abisko. E-mail: Anders.Jonsson@eg.umu.se, Phone: +46 980 40218, Fax: +46 980 40280, Web: <http://www.eg.umu.se/circ/>



Lake Diktar Erik where the new eddy correlation tower will be set up. Photo: T. Westin

*Anders Jonsson
Climate Impact Research Centre*

Production of the Newsletter

This newsletter is produced by Margareta Johansson at the SCANNET Secretariat, Abisko, Sweden. Our next Newsletter will be produced in February 2004. Please send contributions and comments to Margareta, scantran@ans.kiruna.se