Field season report 2012
North Greenland Eemian Ice drilling (NEEM) 2007-2012:

Final basal ice drilling, shallow coring, support of associated projects and camp CLOSE DOWN.

Prepared by Ice and Climate Group, NBI

for

The NEEM Steering Committee and Danish and Greenlandic authorities.

The NEEM dome just before closing on August 11, 2012. The only visible structure from the ice drilling is the casing pipe of the drill hole to the right.

J.P.Steffensen, Lars.B.Larsen, Dorthe Dahl-Jensen
Copenhagen, 140813

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Preface

This report has been prepared by the NEEM logistics group. The purpose is to provide the NEEM Scientific Steering Committee, the relevant authorities and the NEEM 2012 participants with documentation of the events of the field season. The report contains information on the activities leading up to the field season and activities on the ice sheet. The SITREPs and camp diaries are included.

Besides listing the facts, it is our hope that the report can relay some of the special experiences which were part of the multinational efforts on the ice sheet.

To complete the logistical tasks during this final year of NEEM required as usual a lot of good will and flexibility of planning from the CH2MHill/CPS Polar Field Services the 109th TAG, NYANG and the personnel of the GRiT traverse. The NEEM crew wishes to express their sincere gratitude to Robin Abbott, Eric Coplin, Audrey, Paul , Kathy Young and Earl Vaughn, CPS and the New York Air National Guard for their assistance.

Jørgen Peder Steffensen, Lars Berg Larsen and Dorthe Dahl-Jensen

Report on the 2012 activities of the NEEM project

Background.

During 2007 and 2008 the NEEM camp was set up, and in 2009 deep ice core drilling and processing began in earnest. Basal ice was reached in by the end of July 2010 at 2536 m depth, but ice core analysis was not completed as 300 m deep ice and the entire section of brittle ice awaited both full processing and CFA analysis in 2011.

In 2011 all planned ice core analysis was completed, and several intermediate and shallow ice cores were drilled and processed before the processing line was closed. Experimental drilling into the basal, debris laden ice was successful and yielded many samples of basal material, and it was decided to extend NEEM another year. NEEM logistics reached an agreement with the Greenland Department of the Environment on the future of NEEM camp and NEEM assets on the ice sheet. The key for this agreement was to ensure that all equipment can be removed from the site, and one major step was making the main dome mobile by mounting skis under it. Skis were mounted under the dome, and it was successfully pulled up slope from the 2008 surface to the 2011 surface. Therefore plans for making mobile the bulk of NEEM assets on the ice would go ahead. NEEM acquired three heavy German sledges from the AWI surplus storage in Bremerhaven. They were transported to Greenland by ship to arrive at midsummer 2012.

Kangerlussuaq (Søndre Strømfjord, SFJ)

NEEM had Field Operations Managers (FOMs) throughout the 2012 campaign. The lease of warehouse 442 is still active and needs to be renewed by 2016. There might be a problem with extending the lease as the Kangerlussuaq village is expanding around warehouse 442 and it appears that the long term plan is to remove the warehouse. During summer 2012 the entire warehouse was reorganized. Many old items and tents were sold at a garage sale or taken to the local tip. This gave space for all the equipment that was taken from NEEM. Inside 442 NEEM has an operational 4m x 4m walk-in freezer for ice cores and food. NEEM ended the lease of the FOM office (KISS 208) in 2012. Kangerlussuaq International Science Support (KISS) accommodated all participants while in Kangerlussuaq.

NEEM operates the following vehicles in Kangerlussuaq: A 5 ton forklift, a 8 ton Ford flatbed truck with hydraulic crane, a Toyota landcruiser , a F-250 truck and a VW Taro 4-wheel drive pickup. There is also a brand new Toyota Landcruiser 100 on storage; but we decided that it was too costly for the project to register it. The Toyota was used in 2007 – 2010 on the ice sheet for ground based radar measurements, and it serves as a backup vehicle for future projects.

The 8 ton forklift developed a leak in the low pressure fuel pump that caused fuel to leak straight into the crankcase. It took several seasons to obtain the spare parts and to find a mechanic to fix it. I 2011 it was repaired and was running fine until the leak reappeared. CPS has kindly allowed us to use their articulated loaders and flat pallet truck (K-loader).

The FOM office maintained contact with the field crew by Iridium telephone and internet. The HF radio connection was maintained as a backup throughout the season via an antenna on the roof of KISS.

As has been the case for all seasons , the 2012 field campaign was very busy for the FOMs in Kangerlussuaq during certain periods. When we evaluate the work intensity of the FOM across all seasons, we conclude that in a future project there should be a permanent manning of 2 persons at the FOM office. Only for short periods, between 109th flight periods, can one FOM maintain the job. The reasons for this are manifold, each year the need for administration and documentation increases: Daily reports, Hazardous Materials, Manifests, packing lists, lodging, inventory, clothing, relation and reporting to Greenland authorities (food and vehicle taxes, reporting on amounts of rubbish) etc.

Some few special tasks of the FOMs in 2012:

1. Receiving three heavy German sleds from ship and making these ready for LC-130 transport to NEEM. Here the FOMs received an outstanding assistance from the 109th Aerial Port group and Loadmasters so that the sleds were ready for shipment to NEEM ahead of schedule and we could take full advantage of space available on uplifts when missions were mainly flown to retrieve cargo from NEEM.

2. Cleaning out the warehouse of old stock and rearranging the shelf system to make room for the equipment from NEEM. Our policy was to store light, bulky and fragile equipment (such as Wiessmann cabins, Weather Ports, Nansen sleds, clothing and snowmobiles) in Kangerlussuaq along with all drilling, winch and tower parts(for easy maintenance).

3. We got rid of the old stock by arranging a garage sale in August. Here, the two red domes and the white dome were sold, as we had decided to discontinue the use of domed weatherports. In a future project there will be a need for 2 – 3 new 12' by 20' weatherports. Also we will need a new cover for the weatherport sauna garage . Everything that couldn't be sold was separated into three dumpsters that were placed at 442 by Kangerlussuaq waste management.

4. In July the bridge across the Watson River washed away. This not only cut off town from the Rowing club restaurant, but also, and more problematic, the village tip. We had to leave about 50 empty drums and three full dumpsters at our warehouse when we left. These have since been removed over winter, as the water disappeared and the riverbed became passable.

5. The traditional end of season dinner at the Rowing club was not possible, so the staff from the Rowing club setup a large barbeque close to the airport terminal in front of the old school.

Start of field season.

The Field Season started with the arrival of the FOM in Kangerlussuaq on 9th May. The FOM office was opened, vehicles were activated and licensed. On 14th May the put-in crew arrived.

Put-in at NEEM.

The put-in crew of 11 flew to NEEM on 15th May and landed at NEEM 12:30. By 13:30 the main dome was powered by the 15kW backup generator. The entrance to the carpenters garage was excavated, and by 19:30 the Pistenbully was out and running. By 20:30 the main generator was powering camp. By 22:30 both main and cooks snow melters were in operation. Camp was open.

Flow of the field season.

The list of activities at NEEM had to be planned in close coordination with ice drilling groups, 109th flight schedule and the AWI Basler schedule. Although there were a few delays due to weather, most of the time the activities stayed on schedule (see table and GANNT chart comparing schedule versus actual).

Of course the activity was centered around work on the deep bore hole, and the attempts to penetrate the basal ice. As soon as NEEM camp opened, work on gaining access and opening the drill trench was underway. The drillers adjusted tower and winch systems. Here they had to shorten the tower because sinking of the roof in the drill trench had removed any clearance. As soon as the winch and tower systems were ready, the drillers performed borehole logging of inclination, diameter, azimuth, pressure and temperature with the Danish instrument and video inspection of the bottom part of the borehole. (Logging and video inspection completed) The original plan to allow access first to the U.S. high precision temperature logging, was abandoned as the U.S. temperature logging was cancelled just before the field season began.

After the hole was clear, the U.S. team for ultrasonic logging were given access to the hole in about one week. They ran the cable through the roof of the drill trench and setup equipment on the snow surface. In the meantime, the drillers setup the DK intermediate drill inside the Carpenters tent for testing and for testing of a new fluid. Test was completed after 6 days, and by that time the U.S. team was finished in the deep hole. Activity shifted back to the drill trench, where a rock drill head was mounted on the deep drill motor section. At the same time, the drill trench was sealed off from sun light and darkroom lighting switched on. During the first week of rock drilling several meters of mixed ice and basal till samples were retrieved in dark room conditions for future luminescence dating.

A breakdown of the German test shallow drill system, forced the German and Danish drillers to switch to the DK shallow drill for completion of the planned airborne shallow coring at the German North Greenland Traverse sites of 1994 and 1995. While the shallow coring was happening a core group of drillers kept working with the rock drill at NEEM.

The rock drilling continued with a combination of the HT drill and the rock drill, until the crew after almost 7 m of drilling ran out of extension rods. There was also a need for a concrete drill head for the rock drill. As all other activities were on schedule or slightly ahead of schedule, it was decided to postpone closing of the deep drilling, and thus the closing of the drill trench until after some spare parts arrived. Some of the drillers went to Kangerlussuaq with the DK-shallow drill and made shallow coring at Dye-3 and South Dome using the AWI Basler for transport.

I mid-July the final deep drilling runs were made producing yet again cores with mixed stones and ice. NEEM deep drilling was terminated and access to the deep hole was given to University of Aberystwyth for optical bore hole logging. The drill cable was cut and dismantling of the drill trench began in earnest. In the table of tasks and the GANNT of tasks (see below) you can clearly see the extended rock drilling period and how this in turn delayed closing of the trenches and extension of the casing. However, the extension and delay were coordinated, and all tasks were fulfilled by the end of the field season.

Communication.

Throughout the season camp had internet and telephone connection via Iridium OpenPort system and as backup and safety there were several handheld Iridium telephones in different buildings. Air operations were handled by HF 8093 kHz and VHF 122.8 MHz radios.

List of status of associated projects and tasks in the 2012 season **(please refer to the 2012 field plan for detailed description of the projects)**:

Testing intermediate drill and new fluid completed.

Intermediate drill worked well and tests of the new fluid completed. Please consult the diary from 26th May on driller comments to the new fluid.

Shallow coring program completed.

Due to the breakdown of the German test drill, the DK Shallow drill was used for the AWI North Greenland shallow coring campaign (see table in this report for sites drilled). The drill had several issues with broken down power supplies, but this influenced only one coring that had to be stopped after 5 m drilling. The drill was repaired in Kangerlussuaq to complete the Dye-3 and South Dome drilling.

Earth quake station (completed) and GLISN (continuing).

The Earth quake station operated by GEUS, has been active since 2007. After 5-6 years of operation it was taken down. However it has been substituted by the permanent GLISN seismic station, which was serviced in July and had produced one year of excellent data.

PARCA GITS, Humbolt, NEEM, Petermann, Tunu, NGRIP, Summit

As usual the collaboration with the PARCA group went well and within 5 days they visited 5 North Greenland sites.

AWI NGT shallow drilling (testing new drill).

The new AWI drill was tested just SW of the NEEM camp. After 25 m drilling the tower and winch arrangement broke down and the drill was lost in the bottom of the hole (see diary 31st May). Three days later, a fishing operation was successful and the drill was retrieved. It remained out of commission the rest of the season.

U.S. borehole temperature and sonic logging experiments.

After the success of logging temperatures in the deep borehole in 2011 by USGS, we hoped that this would be an easy repeat. Unfortunately the logging had to be cancelled in the last minute. The sonic logging by the University of Washington group was however completed and successful.

Aerosol sampling (NIPR Japan) and Surface water vapour isotope monitoring (INSTAAR, LSCE de CNRS and CIC).

Already few days after camp opening the water vapour sampling site was running. The European and Japanese groups had coordinated beforehand to share maintenance and to insure the stations were running. Both projects were successfully completed, except for one part of the Japanese program: Gas isotope measurements. The mass spectrometer was unfortunately broken on arrival to NEEM.

AWI Basler GPR and GPS, NGT 2012

The planned aerial radar survey in North Greenland and around NEEM was successfully completed after 4four days of flights.

Surface program. Strain rate (CIC)

Re-measurement of the GPS fix points for observing surface motion and strain rates was completed.

Optical bore hole logging (Aberystwyth, UK).

The optical bore hole logging was completed in one day by Bryn Hubbard.

Hosting and supporting NEGIS camp. (Penn State and CReSIS)

The coordination between U.S. NEGIS program and NEEM went well without any incidents. The NEGIS crew used NEEM as a staging area and as an area for final field testing the equipment. The explosives had been flown to NEGIS from Ilulissat with the Basler several weeks before, and the detonators arrived just before the NEGIS crew came to camp. During put in to NEGIS, which took 6 return flights, the Danish shallow drill was set up for at first core at the site and 66 m core was drilled. During the 4 weeks of NEGIS operation the camp stayed in contact with NEEM and the collaboration was good. At the end of the project the crew was flown back to NEEM and subsequently to Kangerlussuaq .

Science and Education visit.

This year we finally managed to provide the students under the Joint Committee Science and Education program an overnight visit at NEEM. The visit was a success.

Special issues regarding flights and flight activity at NEEM 2012.

During previous field seasons a collaboration with the PARCA program emerged. PARCA maintains a row of automatic weather stations in North Greenland and they need to visit the stations by aeroplane every year for maintenance. As Summit station has become a clean air station with only limited air traffic, NEEM camp came in handy as a hub for North Greenland flight operations. As NEEM also is on the route for the U.S. GReenland Ice Sheet Traverse (GRIT) it was possible to coordinate an overland fuel delivery from Thule AB to NEEM. In 2012 NEEM also became the hub for the joint German AWI and U.S.NSF flights with the Basler. In May the GRIT delivered the planned amount of fuel to support both the Twin Otter and the Basler (please consult the Fuel Statistics table). As NEEM was serving as a hub, there were several periods with flight activity and several man days were spent on radio, weather and air-traffic controlling. Sometimes the Field Leader had to juggle three planes at a time at NEEM.

However, it is also evident from the table on flights at NEEM that the number of 109th LC-130 missions intensified in July. This situation was caused by the “heat wave” hitting Greenland in July. The surface across the entire ice sheet began to melt over several days. This massive melting event caused deep cracks to form in the firn at the Raven skiway. The 109th had to cancel flights for training at Raven, and since Summit Camp could not serve as a backup for skiway training, NEEM offered its services, and within one week many missions were flown to and from NEEM to insure that the 109th met their training goals.

After NEEM?

As mentioned above, NEEM logistics had negotiated an agreement with the Greenland government on the future of NEEM. NEEM was packed down along the guidelines of this agreement. The main dome is on skis on will be moved to a future drilling site. All equipment is stowed on heavy sleds, ready to be pulled to a new site, and vehicles are stored inside two garage tents. When a new project is funded, the remaining structures can be taken down in 2 weeks, and everything can by pulled away, leaving only gray water frozen in the snow pack and about 20 ton untreated timber, plywood and bamboo in the collapsed roofs over the drill and science trenches. NEEM has received a new set of environmental conditions from the Government and NEEM logistics has to make inspection of all equipment in 2014 and 2016. By 2015 NEEM logistics shall provide the Government with a fixed deadline for removal from NEEM. We hope that the U.S. GRIT will provide assistance when the camp is going to be moved.

14th June 2013 NEEM logistics received the official document from Greenland for area allotment of the packed down NEEM camp.

NEEM assets have been thoroughly inventoried described and mapped in preparation for the area allotment. The map can be obtained as a separate document from us, however it is in Danish.

Balloon trench experiment.

The balloon trench experiment went really well and a separate report has been written. Results will also be presented at the Drilling Conference in Madison September 2013. It really appears that the need for roofing and timber in future programs can be reduced significantly. The balloon trench is used for storage of frozen food and ice core boxes. It is important to gain access to the trench in a few years to monitor the deformation of the roof. If the deformations are small, we can go ahead with planning new trenches based on this technique.

2012 maintenance and needs for the future.

2012 Service for Vehicles – NEEM BRP YETI 800
Snow Mobile #3 - 29 June – new engine, oil and filter – 5530 km Stays at NEEM
Snow Mobile #1 - 29 June – oil and filter, 8018 km stays at NEEM
Snow Mobile #4 - 29 June – oil and filter, 5039 km to SFJ
Snow Mobile #2 - 10 July – oil and filter, 7763 km to SFJ
Snow Mobile SN..250 - 29 June - oil and filter, 4824 km at SFJ
Snow Mobile SN…253 - 10 July – oil and filter, 4386 km at SFJ
Black Shovel - 11 July – maintain tracks and bolts
Cat 931 B LGP- 12 July – change oil in transmission.
Pisten Bully 300 W polar- service oil change, oil filters, fuel filters, oil change gear box, change oil planetary gear – 1725 hrs

2012 NEEM Vehicle - Vehicle Garage 2012 Need List

PB 300 – 2 ea. Oil filters
2 ea. Engine Fuel filters
1 ea. Track potentiometer (left tumble wheel on steering)
2 ea. Engine fan belt (from Mercedes Benz) inner on belonging to the engine – not Kaesbohrer special.
Hydraulic Cylinder rebuild – send back to PB for rebuild ?

LYNX –
10 ea. Oil filters
8 ea. Rubber handle bar grips

Main Generator –
10 ea. Oil filters (IVECO Filtro Olio 2992242)
2 ea. Air filters
No fuel filters – we have plenty

Snow Blower – Yanmar 3220 A
1 bag of 20 each. - 10 X 30 Saftey Bolts – part # 26207-100304
1 bag of 20 each – M10 nuts – part# - 26707-100002
1 bag of 20 each – M10 Spring washer – part # 22217-100000

Production of ice cores in 2012

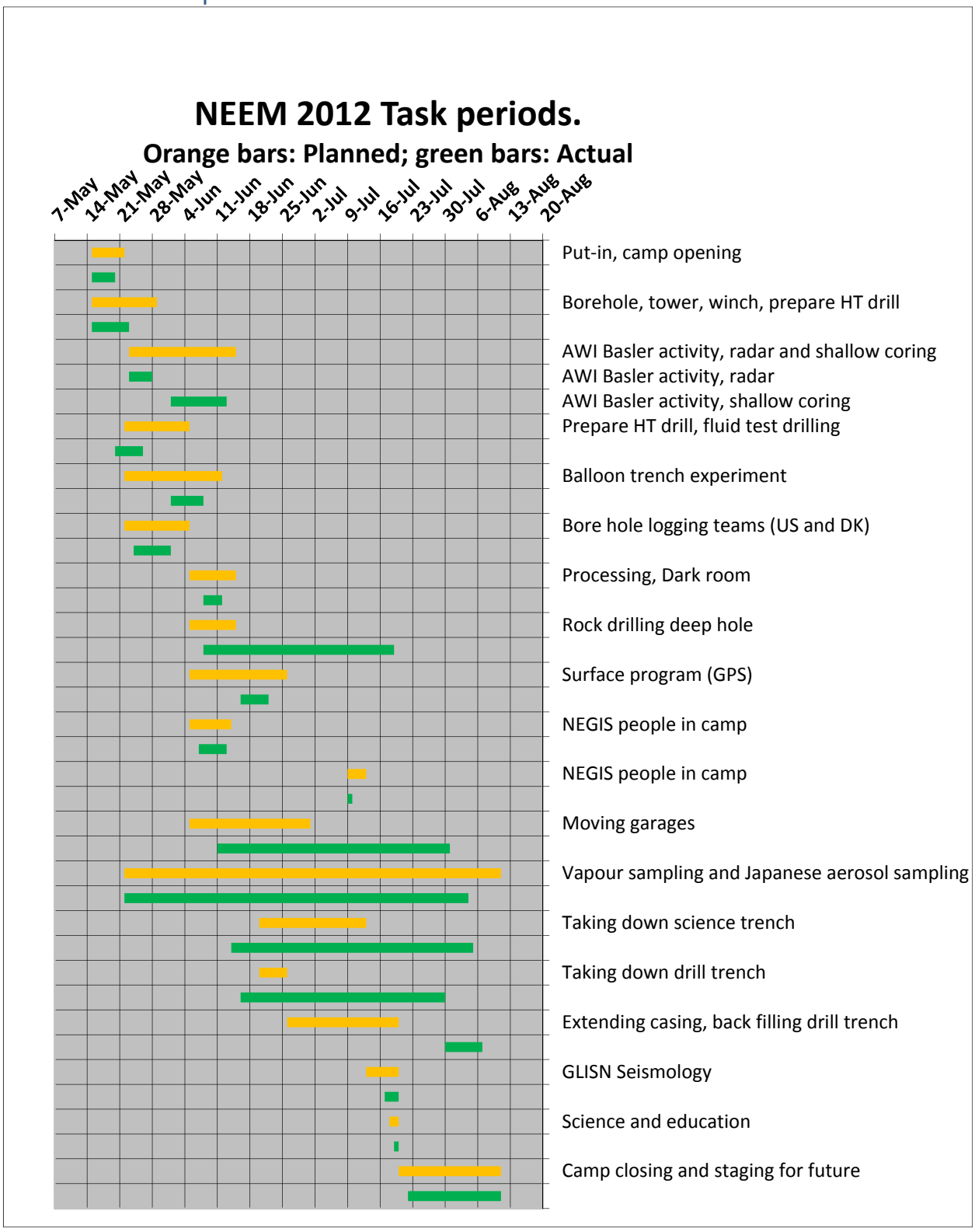
Production of ice cores in 2012 season.				
Site	**Location**	**depth**	**diameter**	**Project**
NEEM Carp. Garage	77.4486N,51.0556W	130.4m	98 mm	DK intermediate test of new ESTISOL 140 fluid.
NEEM 800m SW of borehole	77.4486N,51.0556W	25 m	98 mm	German test, abandoned.
B21	80.000N, 41.137W	31 m	75 mm	DK-shallow, AWI program
NGRIP	75.0970N,42.3208W	30 m	75 mm	DK-shallow, AWI program
B18	78.000N, 36.383W	31 m	75 mm	DK-shallow, AWI program
B22	78.5 N, 36.5W	5.5 m	75 mm	DK-shallow, AWI program
B23	78.0000N, 44.0000W	30 m	75 mm	DK-shallow, AWI program
NEGIS	75.6268N,35.9915W	66.1m	75mm	DK-shallow, US, CIC program
NEEM Main Hole	77.4486N,51.0556W	2538+ m	50 and 98 mm	DK deep drill + U.S. rock head
				length 7 m and 1.5 m hollow cores.
Dye-3	65.1514N, 43.8172W	45.3 m	75mm	DK shallow, CIC and AWI
South Dome	63.5259N,44.5812W	49.5 m	75 mm	DK shallow, CIC and AWI

Note: The positions of B18, B22 and Dye 3need confirmation from Sepp Kipfstuhl.

List of NEEM 2012 tasks:

List of NEEM 2012 tasks:	**Planned period**		**Actual period**		**planned no days**		**actual no days**	
Put-in, camp opening	15-May	22-May			7			
			15-May	20-May			5	
Borehole, tower, winch, prepare HT drill	15-May	29-May			14			
			15-May	23-May			8	
AWI Basler activity, radar and shallow coring	23-May	15-Jun			23			
AWI Basler activity, radar			23-May	28-May			5	
AWI Basler activity, shallow coring			1-Jun	13-Jun			12	
Prepare HT drill, fluid test drilling	22-May	5-Jun			14			
			20-May	26-May			6	
Balloon trench experiment	22-May	12-Jun			21			
			1-Jun	8-Jun			7	
Bore hole logging teams (US and DK)	22-May	5-Jun			14			
			24-May	1-Jun			8	
Processing, Dark room	5-Jun	15-Jun			10			
			8-Jun	12-Jun			4	
Rock drilling deep hole	5-Jun	15-Jun			10			
			8-Jun	19-Jul			41	
Surface program (GPS)	5-Jun	26-Jun			21			
			16-Jun	22-Jun			6	
NEGIS people in camp	5-Jun	14-Jun			9			
			7-Jun	13-Jun			6	
NEGIS people in camp	9-Jul	13-Jul			4			
			9-Jul	10-Jul			1	
Moving garages	5-Jun	1-Jul			26			
			11-Jun	31-Jul			50	
Vapour sampling and Japanese aerosol sampling	22-May	11-Aug			81			
			22-May	4-Aug			74	
Taking down science trench	20-Jun	13-Jul			23			
			14-Jun	5-Aug			52	
Taking down drill trench	20-Jun	26-Jun			6			
			16-Jun	30-Jul			44	
Extending casing, back filling drill trench	26-Jun	20-Jul			24			
			30-Jul	7-Aug			8	
GLISN Seismology	13-Jul	20-Jul			7			
			17-Jul	20-Jul			3	
Science and education	18-Jul	20-Jul			2			
			19-Jul	20-Jul			1	
Camp closing and staging for future	20-Jul	11-Aug			22			
			22-Jul	11-Aug			20	

NEEM 2012 task periods.



Flight Statistics 2012:

	Flight statistics 2012 (cargo incl. PAX weight):								
	PAX numbers do not include T.O. Crew of 2 and Basler Crew of 3.						For LC-130 and traverse only		
Project	Mission/Route	date	month	to NEEM	from NEEM	to NEEM	from NEEM	Flight Hours (SAAM)	
				PAX	PAX	cargo	cargo		
AWI Radar	SFJ - NEEM	23	May	2	0				
AWI Radar	Radar survey N-Greenland	24	May						
AWI Radar	Radar survey N-Greenland	25	May						
AWI Radar	Radar survey N-Greenland	26	May						
AWI Radar	Radar survey N-Greenland	27	May						
AWI Radar	NEEM-SFJ	28	May	0	2				
NEGIS	SFJ-Ilulissat-NEEM	1	June						
AWI	NEEM-drilling B21-NEEM	2	June						
AWI	NEEM-drilling NGRIP-NEEM	3	June						
AWI	NEEM-drilling B18-NEEM	4	June						
AWI	NEEM-drilling B22-NEEM	6	June						
AWI	NEEM-Ilulissat-NEEM	7	June	1					
AWI	NEEM-drilling B23-NEEM	9	June						
NEGIS/CIC	NEEM - NEGIS - NEEM (drilling NEGIS)	11	June						
NEGIS	NEEM - NEGIS - NEEM	11	June						
NEGIS	NEEM - NEGIS - NEEM	12	June						
NEGIS	NEEM - NEGIS - NEEM	12	June						
NEGIS	NEEM - NEGIS - NEEM	13	June						
NEGIS	NEEM - NEGIS - NEEM (drilling NEGIS)	13	June		4				
NEGIS	NEEM-SFJ	14	June		4				
AWI/CIC	SFJ - DYE 3 - SFJ (Drilling over night)	27	June						
AWI/CIC	SFJ - DYE 3 - SFJ (Drilling over night)	1	July						
AWI/CIC	SFJ- South Dome - SFJ (drilling over night)	2	July						
NEGIS	SFJ-NEGIS-NEEM	9	July	1					
NEGIS	NEEM-NEGIS-NEEM	9	July	4					
NEGIS	NEEM-SFJ	10	July		5				
NEEM	Mission 1 (SFJ-NEEM-SFJ)	15	May	11	0	5600	0	5.2	
NEEM	Mission 2 (SFJ-NEEM-SFJ)	23	May	6	1	9900	5900	5	
NEGIS	Mission 3 (SFJ-NEEM-SFJ)	7	June	11	5	12760	7480	0	
NEEM	Mission 4 (SFJ-NEEM-SUMMIT-SFJ)	12	June	19	20	15620	5500	5.6	
NEEM	Mission 5 (SFJ-NEEM-SFJ)	27	June	7	13	17380	8600	5.2	
NEEM	Mission 6 (SFJ-NEEM-SFJ)	17	July	9	3	3266	7300	5	
109th	109th training (SFJ-NEEM-SFJ)	18	July	3	0	7200	6500	0	
109th	109th training (SFJ-NEEM-SFJ)	18	July	0	2	6600	6500	0	
NEEM/Joint Committee	Mission 7 (SFJ-NEEM-SFJ) (Sci & Ed put in)	19	July	18	1	1075	3000	2.4	
109th	109th training (SFJ-NEEM-SFJ)	19	July	0	1	6000	4250	0	
109th	109th training (SFJ-NEEM-SFJ)	19	July	0	0	0	0	0	
109th/Joint Committee	109th training (Sci & Ed pull out)	20	July	6	21	1180	3000	2.5	
109th	109th training (SFJ-NEEM-SFJ)	22	July	0	2	0	9500	0	
NEEM	Mission 8 (SFJ-NEEM-SFJ)	23	July	2	5	0	12600	4.8	
109th	109th training mission (SFJ-NEEM-SFJ)	24	July	0	0	0	4400	4.7	
NEEM	Mission 9 (SFJ-NEEM-SFJ)	11	Aug	0	11	0	13350	5.2	
GRIT/NEEM	Thule AB overland to NEEM	17	May	0	0	67550	0		
PARCA	Ilullissat - NEEM	23	May	4	0				
PARCA	NEEM-GITS-HUMBOLT-NEEM	24	May						
PARCA	NEEM-PETERMANN-NEEM	25	May						
PARCA	NEEM-TUNU-NEEM	26	May						
PARCA	NEEM-NGRIP- SUMMIT	28	May	0	4				
				104	104	154131	97880	45.6	

NEEM Fuel Statistics 2012.

	NEEM 2012 fuel statistics (all numbers in liter).						
	Tank 1	Tank 2	Tank 3	Daytank	Bladder		sum
Fuel at camp opening:	8400	9500	7700	0	0		25600
In drums							7200
Fuel delivery (LC-130 and traverse):	9600	17650	15800	N/A	11726		54776
Fuel at camp closing:	-100	8100	6500	600	0		15100
Fuel consumption:							72476
Twin Otter consumption (PARCA)							5030
Basler consumption (AWI/radar)							20296
Basler consumption (NSF/NEGIS)							15480
NEEM consumption (power plant and vehicles)							31670
Consumption rate 14 May - 11 Aug (89 days) in liter per day							355.8

SITuation REPorts (SITREPs):

TO NEEM STEERING COMMITTEE MEMBERS, DANISH AND GREENLANDIC AUTHORITIES.

PROJECT NEEM (C-12-5) – SITuation REPort (SITREP) no.01, Sunday 13. May 2012.

This SITREP covers the period May 9 – May 13, 2012 (inclusive).

Movement of personnel:

May 9: Lars Berg Larsen (DK) from Copenhagen (CPH) to Kangerlussuaq (SFJ) by Air Greenland

Movement of cargo:

May 9: (AWB 631-2669 0171), 87 coli, 1204 kg, AWI (D) (AWB 631-2669 0565), 10 coli, 144,5 kg, AWI (D) (BlueWaterShipping), 49 coli, 1609 kg, CIC (DK) (BlueWaterShipping), 26 coli, 929 kg, CIC (DK) (BlueWaterShipping), 10 coli, 343 kg, CIC (DK) science and drill equipment from CPH to SFJ by Air Greenland.

May 10: (SYSCO) 680 kg food, NEGIS 2136 kg Science equipment, NEGIS 320 kg Batteries NEGIS 425 kg Science equipment from SCH to SFJ by 105th C-17.

NEEM camp not yet opened, put-in scheduled for this coming week.

Kangerlussuaq activities:

The Field Operation Manager Office is open. Arranging the NEEM office. Licenses cars/trucks and pickup and prepare cargo for the planned Put-In next week.

Email: neem-fom@gfy.ku.dk

Tel.: +299 84 11 51

Mobile: +299 52 41 25

Kangerlussuaq/SFJ iridium number: +8816 2144 2402

Weather in Kangerlussuaq/SFJ:

Mixed weather from snow to sunny. Temperatures between -5C to + 15C.

NEEM Field Operations office,

Lars Berg Larsen

TO NEEM STEERING COMMITTEE MEMBERS, DANISH AND GREENLANDIC AUTHORITIES.

PROJECT NEEM (C-12-5) – SITuation REPort (SITREP) no.02, Sunday 20. May 2012.

This SITREP covers the period May 14 – May 20, 2012 (inclusive).

Movement of personnel:

May 14 Sarah Harvey (US), Tyler Jones (US), Hans Christian Steen-Larsen (US/F) and Lou Albershardt (US) from Schenectady (KSCH) to SFJ by NYANG 109th
Jørgen Peder Steffensen (DK), Sverrir Hilmarsson (IS), Carsten Mortensen (DK), Jakob Wrigley (DK), Simon Sheldon (DK), Trevor Popp (DK) and Sepp Kipfstuhl (D) from Copenhagen (CPH) to Kangerlussuaq (SFJ) by Air Greenland.

May 15 Sarah Harvey (US), Tyler Jones (US), Hans Christian Steen-Larsen (DK), Lou Albershardt (US), Jørgen Peder Steffensen (DK), Sverrir Hilmarsson (IS), Carsten Mortensen (DK), Jakob Wrigley (DK), Simon Sheldon (DK), Trevor Popp (DK) and Sepp Kipfstuhl (D) from Kangerlussuaq to NEEM by NYANG 109th.

Movement of cargo:

May 14 200 kg food from Schenectady (KSCH) to SFJ by NYANG 109th.
May 15 2540 kg Drill equipment, communication and food from Kangerlussuaq to NEEM by NYANG
May 17 34,410 litre JP-8 fuel moved to NEEM from Thule AB by GReenland Ice Traverse, GRIT
May 18 120 kg Antifreeze (AWI) from Germany to Kangerlussuaq by AirGreenland

Activities:

This year the put-in went on schedule. The 109th LC-130 landed at 12:30 and was off the snow again 13:00. In and around the camp there was significantly less snow drift than previous years. Access to the Main Dome, the red dome and the sauna garage was easy.
The lower level in the Main Dome was below freezing while the cupola was +11C.
The weather was clear sky with relatively high winds up to 25 knots. At 13:30 the Main Dome was powered by the 15 KW generator. Then the access to the garages was gained by snow blowers in order to get the vehicles out. At 20:30 the Main Generator was pulled the Main Dome and was powering the building.
The same evening the water and heating system came up and running.

On Wednesday access to the trenches was made and in general the trenches were in good order.

The ramps to the remaining garages were finished and all the rest of the vehicles was started and moved to the surface. In the afternoon the GRiT traverse arrived from the Summit Camp with four people.

Thursday the Grit and NEEM teams moved the NEEM fuel tanks to the right places and transferred fuel from the Grit bladders to the NEEM tanks.
The Grit Traverse continued their travel towards Thule early Friday May 18.
Five Weatherports have been erected and there are now beds for a full manning.
The floor over the elevator and staircase was excavated (1.7 m snow) and the staircase reinstalled.
On the skiway all markers, lead-ins, taxiway and apron have been lifted and grooming has started.
The first couple of days there were some issues with the Iridium OpenPort e-mail system and communication with the FOM office in Kangerlussuaq was maintained twice a day by handheld Iridium phones.
The OpenPort is now up and running as well as the NEEM camp computer system.

Drilling: The Danish intermediate drill has been assembled and test runs have begun.

Science: Work on water vapour sampling station in progress

Weather at NEEM: It has been very nice weather this week, mostly clear blue sky with few clouds wind 3-25 knots and temperature between -16C to -28C

NEEM camp population: 11

NEEM iridium numbers:
Primary no.: +8816 777 15686
Second no: +8816 414 39863
Tomato back-up: +8816 414 52559

Kangerlussuaq:
On May 15 the Polar 6 airplane arrived to Kangerlussuaq including 3 crew and 3 AWI scientists. During the week test flights have been carried out and the airplane was reconfigured to the ski application.
Sunday May 20 the LC-130 flight from New York was cancelled due to technical problems. The flight carries 2 NEEM PAX, a winch and food for the NEEM camp. A new flight is scheduled for Monday May 21. The scheduled NEEM flight Tuesday May 22 is therefore moved to May 23.

Tel.: +299 84 11 51
Mobile: +299 52 41 25
Kangerlussuaq/SFJ iridium number: +8816 214 42402

Weather in Kangerlussuaq/SFJ:
Mixed weather, first part of the week sun and temperature up to +15C in the weekend snow and temperatures between +5 and -2C.

NEEM Field Operations office,
Lars Berg Larsen

TO NEEM STEERING COMMITTEE MEMBERS, DANISH AND GREENLANDIC AUTHORITIES.

PROJECT NEEM (C-12-5) – SITuation REPort (SITREP) no.03, Sunday 27. May 2012.

This SITREP covers the period May 21 – May 27, 2012 (inclusive).

Movement of personnel:

May 21 Mirena Olaizola (DK), Martin Leonhard (D), Philipp Schuert (D) and Marja Kröger (D) from Copenhagen (CPH) to Kangerlussuaq (SFJ) by Air Greenland.
Erin Pettit (US) and Dan Kluskiewicz (US) from Schenectady to Kangerlussuaq by NYANG 109th

May 23 Mirena Olaizola (DK), Martin Leonhard (D), Philipp Schuert (D), Marja Kröger (D), Erin Pettit (US) and Dan Kluskiewicz (US) from Kangerlussuaq to NEEM by NYANG 109th.
Hans Christian Steen-Larsen (US) from NEEM to Kangerlussuaq by NYANG 109th

Daniel Steinhage (D) and Julia Binder (D) from Kangerlussuaq to NEEM by AWI Basler POLAR6
Koni Steffen (US), Gino Casassa (CHL), Faezeh Nick (US) and Simon Steffen (US) from Kangerlussuaq to NEEM by Nordurland Twin-Otter.

Movement of cargo:

May 21 2110 kg food and logging winch from Schenectady (KSCH) to SFJ by NYANG 109th.

May23 4490 kg Logging/drilling equipment and food from Kangerlussuaq to NEEM by NYANG
365 kg food from Kangerlussuaq to NEEM by AWI Basler POLAR6
194 kg test balloon from Copenhagen to Kangerlussuaq by AirGreenland

2675 kg Weatherports, Met Tower and Garbage from NEEM to Kangerlussuaq by NYANG 109th

Activities:

A main activity for the camp this week was preparing and handling of the flight operations to and from the camp. The NYANG 109th flight was postponed a day to wait for delayed US cargo and passengers in Kangerlussuaq. Due the bad weather in southern part of Greenland the AWI Basler Polar 6 was a little behind schedule had to postpone the arrival at NEEM. The Nordland Twin-Otter took advantage of the nice weather in North Greenland and moved the schedule forward. This

caused a busy May 23 with all three airplanes flying to NEEM. The operations went well the NEEM Skiway got an upgrade and the NYANG 109th LC-130 could take off without any problem. The AWI Basler Polar 6 and the Nordland Twin-Otter were staying in camp for further flight operations in an out of NEEM.
Before the flights HF communication was set up and successfully tested with Kangerlussuaq office.

Camp opening is now over and work at NEEM is entering a phase with scientific and logistical tasks.
Work has begun on excavating the two big garages. Later, the garages will be lifted to new hills for storage. Already on the second LC-130 mission this year camp has been able to send equipment back to Kangerlussuaq, and this week most of the overwintering cargo in the cargo line has been excavated and lifted to the snow surface. The collection of cargo to be shipped out next time is in progress.

Drilling:
The Danish intermediate drill test is completed. 130.4 meter was drilled. From 117.5 meter to 130.4 meter drilling was done in wet mode for testing a new drilling fluid. More tests with the new drilling fluid are planned for next week.
The German shallow drill has been mounted for testing in the southern part of camp. Some adjustments are still needed before test drilling can begin.

Science:
Logging with the Danish logger was completed; temperature and borehole geometry was measured.
Mounting and testing the US sonic logging system using the NEEM deep drill winch was tested; but the characteristics of the winch and cable setup did not fit. Saturday and Sunday the U.S. SP winch was put in place on the snow surface inside a tent. The sonic logging will be done through a hole in the roof of the drill trench.

Associated programs:
The AWI Basler Polar 6 completed four radar missions in the northern part of the Greenland ice sheet and made a test landing at the NEGIS site where Polar 6 will fly in a U.S. team later in the season. Polar 6 is now ready to deploy to Kangerlussuaq to reconfigure the airplane.
The Nordurland Twin-Otter and the PARCA team completed three mission and serviced the Automatic Weather Stations (AWS) at the following sites; GITS, Humbolt, Peterman, TUNU and NEEM. The Twin-Otter is now ready to leave NEEM.
All the procedures related to the flight operations went fine: i.e. fuelling, communication ground to air and contact to Airspace authorities Flight Information Centre (FIC)

The automatic water vapour sampling and isotopic measuring station is now operational. It is scheduled to run the entire season.

Weather at NEEM:
Again a week with very nice weather, mainly clear blue sky with few clouds wind 3-13 knots and

Temperature between -14C to -31C

NEEM camp population: 27

NEEM iridium numbers:
Primary no.: +8816 777 15686
Second no: +8816 414 39863
Tomato back-up: +8816 414 52559

Kangerlussuaq:
Packing and preparing cargo for NEEM flights this week.

Tel.: +299 84 11 51
Mobile: +299 52 41 25
Kangerlussuaq/SFJ iridium number: +8816 214 42402

Weather in Kangerlussuaq/SFJ:
Snow and rain most of the week with temperatures between -5C and + 10C.
First mosquitoes reported...

NEEM Field Operations office,
Lars Berg Larsen

TO NEEM STEERING COMMITTEE MEMBERS, DANISH AND GREENLANDIC AUTHORITIES.

PROJECT NEEM (C-12-5) – SITuation REPort (SITREP) no.04, Sunday 3. June 2012.

This SITREP covers the period May 28 – June 3, 2012 (inclusive).

Movement of personnel:

May 28 Daniel Steinhage (D) and Julia Binder (D) from NEEM to Kangerlussuaq by AWI Basler POLAR6
Koni Steffen (US), Gino Casassa (CHL), Faezeh Nick (US) and Simon Steffen (US) from NEEM to Summit Camp by Nordland Twin-Otter.

May 29 Daniel Steinhage (D) and Julia Binder (D) from Kangerlussuaq to CPH by AirGreenland.

Movement of cargo:

May 31 450 kg Balloon and food from Kangerlussuaq to NEEM via Ilulissat by AWI Basler POLAR6.
50 kg science equipment from Ilulissat to NEEM by AWI Basler POLAR6.

Activities:
The camp is still in general packing down mode. In the drill trench the food storages was moved to the Science trench. The drill liquid mixing station packed and moved to the surface.
The cargo line has been cleaned for all items ready to be shipped out and work cleaning and packing the Garage has continued. Pallets are packed with retro cargo for the C-130
The skiway groomer has been modified and tested on the skiway in order to limit undulations. Taxi, apron and skiway groomed prior to the coming week C-130 flight. The Basler Polar6 returned to the NEEM camp after some days in Kangerlussuaq. The airplane was reconfigured from radar measurement to cargo plane in order to support the coming weeks deep field shallow drilling
The AWI Polar6 arrived NEEM Friday and two missions were accomplished.

Drilling:
While the US sonic logging team was using the deep borehole. Preparations started on the deep drill to have the drill ready for the coming week's rock drill tests. Motor was tested and antitorque reconfigured.
The week was also used to train new people in shallow drilling and processing of ice cores.
The AWI Team and their new drill reached a depth of 29 meters when a mechanical accident happened and the drill was stuck at the bottom. Special tools were made to recover the drill and in the third attempt the tools locked on to the drill, and the drill was brought to the surface Sunday evening.
Due to the drill incident, the Danish shallow drill was deployed as a backup and went with the Polar6 to the following sites; B21 (80N, 41W) 31 meter ice core drilled and NGRIP (75N, 42W) 30 meter ice core drilled.

Associated programs:
The US sonic logging was completed Friday with success. Minor problems during the week with noise in the electronics was solved.
A full profile to the bottom was completed and a second profile from the bottom to 900 meter was completed in high resolution.

Water Vapour station is running.

Weather at NEEM:
After weeks with sunny and relative cold weather the weather changed at NEEM in the beginning of the week were the camp experienced snow, low clouds and high temperatures. After two days the weather cleared again with only a few foggy conditions. Temperatures during the week -2.8C to – 21C.

NEEM camp population: 19

NEEM iridium numbers:
Primary no.: +8816 777 15686
Second no: +8816 414 39863

Tomato back-up: +8816 414 52559

Kangerlussuaq:
Packing and preparing cargo for NEEM flights the coming week.

Tel.: +299 84 11 51
Mobile: +299 52 41 25
Kangerlussuaq/SFJ iridium number: +8816 214 42402

Weather in Kangerlussuaq/SFJ:
Very nice weather all week with record high temperatures in south of Greenland, Kangerlussuaq temperature +15C to +25C.s
Mosquitoes...
NEEM Field Operations office,
Lars Berg Larsen
Hans Christian Steen-Larsen

TO NEEM STEERING COMMITTEE MEMBERS, DANISH AND GREENLANDIC AUTHORITIES.

PROJECT NEEM (C-12-5) – SITuation REPort (SITREP) no.05, Sunday 10. June 2012.

This SITREP covers the period June 4 – June 10, 2012 (inclusive).

Movement of personnel:

June 4 Anders Svensson (DK), Astrid Schmidt (DK), Steffen Bo Hansen (DK), Christine Thiel (DK), Thomas Hedegaard (DK) and Nanna Karlsson (DK) from CPH to Kangerlussuaq by AirGreenland.
Leo Peters (US), Knut Christianson (US), Kiya Wilson (US), Atsuhiro Muto (US) and Jose Velez(US) from Schenectady to Kangerlussuaq by 109th NYANG.

June 5 Bo Vinther (DK) from CPH to Kangerlussuaq by AirGreenland.
Leo Peters (US) from Kangerlussuaq to Ilulissat by AirGreenland.

June 7 Anders Svensson (DK), Astrid Schmidt (DK), Steffen Bo Hansen (DK), Christine Thiel (DK), Thomas Hedegaard (DK), Knut Christianson (US), Kiya Wilson (US), Eliza Cook (UK), Atsuhiro Muto (US), Jose Velez (US) and Nanna Karlsson (DK) from Kangerlussuaq to NEEM by 109th NYANG.
Carsten Mortensen (DK), Jakob Wrigley (DK), Erin Pettit (US), Dan Kluskiewicz (US) and Mirena Olaizola (DK) from NEEM to Kangerlussuaq by 109th NYANG.
Leo Peters (US) from Ilulissat to NEEM by AWI Basler POLAR6.

June 9 Erin Pettit (US) and Dan Kluskiewicz (US) from Kangerlussuaq to Schenectady by 109th NYANG.

June 10 Carsten Mortensen (DK), Jakob Wrigley (DK) and Mirena Olaizola (DK) from Kangerlussuaq to CPH by AirGreenland.

Movement of cargo:

June 7 5800 kg NEGIS equipment and NEEM food from Kangerlussuaq to NEEM by NYANG
3400 kg Danish and German drilling equipment and US sonic logging tool from NEEM to Kangerlussuaq by NYANG
250 kg NEGIS science equipment from Ilulissat to NEEM by AWI Basler POLAR6

June 8 900 kg AWI radar equipment and two AWI generators from Kangerlussuaq to Aalborg by Royal Arctic Line.
607 kg Japan science cargo from Copenhagen to Kangerlussuaq by AirGreenland
8 kg DK spare parts from Copenhagen to Kangerlussuaq by AirGreenland

Activities:

This week the camp made the initial preparations for the coming crew exchange. But due to high (-2.4C) temperatures and bad weather with snow and fog, the flight to the camp was delayed two days. In the meantime work on clearing snow from the mechanic garage continued. The work on excavating the trench for the experimental balloon was finished, the balloon was put in place and inflated. It was covered with snow from snow blowers and left the set for three days. The balloon was then deflated packed and removed. The new subsurface trench looks promising but more tests will be carried out the coming weeks. Packing and preparing cargo for C-130 flight.
Service on Main Generator.

Drilling:
The lost test shallow drill was recovered from the 29 meter hole after making a new recovery tool on site.
Due to damages on the drill system the tests were terminated for the season. As substitute for the damaged shallow drill, the Danish shallow drill was tasked to perform the planned AWI drilling program.

In the deep borehole the HT drill was deployed with special hardened cutters and basal material was recovered in red light for later luminescence experiments.
The drill was reconfigured with the rock drill and two samples (45 cm and 20cm) basal material were recovered.

Following shallow coring sites were visited with AWI Basler POLAR6:
B18 (78 00N, 36 23W) 31 meter ice core drilled;
B23 (78 00N, 44 00W) 30 meter ice core drilled;
B22 (78 25N, 36 26W) 5.5 meter ice core drilled – this was due to a fault in the winch control.

All shallow cores have been processed; DEP (di-electric-properties) and density.

Associated programs:
The NEGIS team has arrived at the Camp. They have started sorting out and testing equipment for a seismic line west of NEEM.

Water Vapour station is running.

Weather at NEEM:
In the beginning of the week weather decreased with clouds, snow, fog and high temperatures. End of the weather cleared again and temperatures dropped. During the week temperatures was -2.8C to – 21C.

NEEM camp population: 26

NEEM iridium numbers:
Primary no.: +8816 777 15686
Second no: +8816 414 39863
Tomato back-up: +8816 414 52559

Kangerlussuaq:
Moving cargo and made preparations for next week flight

Tel.: +299 84 11 51
Mobile: +299 52 41 25
Kangerlussuaq/SFJ iridium number: +8816 214 42402

Weather in Kangerlussuaq/SFJ:
Very nice weather all week with record high temperatures in south of Greenland, Kangerlussuaq temperature +15C to +25C.
Aggressive Mosquitoes...

NEEM Field Operations office,
Lars Berg Larsen
Bo Vinther

TO NEEM STEERING COMMITTEE MEMBERS, DANISH AND GREENLANDIC AUTHORITIES.

PROJECT NEEM (C-12-5) – SITuation REPort (SITREP) no.06, Sunday 17. June 2012.

This SITREP covers the period June 11 – June 17, 2012 (inclusive).

Movement of personnel:

June 11 Bruno Stocker (CH), Motohiro Hirabayashi (J), Julian Gomez (E), Thierry Win (LUX), from CPH to SFJ by AirGreenland.

June 12 Lars Berg Larsen (DK), Bruno Stocker (CH), Motohiro Hirabayashi (J), Julian Gomez (E), Thierry Win (LUX), Bjarno Sørensen (DK), Louise Amkær (DK), Karen Margrethe Stevens (DK), Marianne Skodborggaard (DK), Jan Johansen (DK), Trine Bramsen (DK), Jeppe Mikkelsen (DK), Jonas Dahl (DK), Thomas Danielsen (DK), Stine Maiken Brix (DK), Stanley Wisneski (US), Geoff Miller (US), Henrik Mikkelsen (DK), Jesper Fleisher (DK), from SFJ to NEEM by 109th NYANG.
Jørgen Peder Steffensen (DK), Simon G. Sheldon (UK), Tyler Jones (US), Marja Kröger (D), Philipp Schuert (D), Jose Velez Gonzalez (US), Bjarno Sørensen (DK), Louise Amkær (DK), Karen Margrethe Stevens (DK), Marianne Skodborggaard (DK), Jan Johansen (DK), Trine Bramsen (DK), Jeppe Mikkelsen (DK), Jonas Dahl (DK), Thomas Danielsen (DK), Stine Maiken Brix (DK), Stanley Wisneski (US), Geoff Miller (US), Henrik Mikkelsen (DK), Jesper Fleisher (DK), from NEEM to SFJ via Summit by 109th NYANG.

June 13 Leo Peters (US), Knut Christianson (US), Kiya Wilson (US), Atsuhiro Muto (US), from NEEM to NEGIS (75 37.61 N, 35 56.49W) by AWI Basler POLAR6.

June 14 Julian Gomez (E), Thierry Win (LUX), Sepp Kipfstuhl (D), Martin Leonhardt (D), from NEEM to SFJ by AWI Basler POLAR6.
Jørgen Peder Steffensen (DK), Philipp Schuert (D), from SFJ to CPH by AirGreenland.
Jose Velez Gonzalez (US), Tyler Jones (US), from SFJ to Schenectady by 109th NYANG.

June 15 Simon G. Sheldon (UK), Marja Kröger (D), from SFJ to CPH by AirGreenland.

June 16 Julian Gomez (E), Thierry Win (LUX), Sepp Kipfstuhl (D), Martin Leonhardt (D), from SFJ to CPH by AirGreenland.

Movement of cargo:

June 12 3400 kg Equipment including sledges and skidoos for NEGIS projec from SFJ to NEEM by 109th NYANG. 1400 kg food and GLISN/Japanese science equipment from SFJ to NEEM by 109th NYANG. 2300 kg fuel (Jet A1 in AC tanks) from SFJ to NEEM 109th NYANG.
2500 kg Danish and German drilling equipment and empty drums from NEEM to SFJ via Summit by 109th NYANG.

June 14 400 kg Danish shallow drilling and logging equipment from NEEM to SFJ by AWI Basler POLAR6.

June 15 90 kg DK drilling equipment and spare parts from SFJ to CPH by AirGreenland.

Activities:
The week started with AWI Polar 6 flights to/from NEGIS, facilitating shallow drilling and NEGIS camp equipment transport. Tuesday NEEM camp received 109th NYANG Skier 01 with 3 new camp members, 2 journalists (Euronews) and 13 DVs, including 6 MPs from the Danish parliament and the new Greenlandic police chief. Skier 01 stayed on the snow for 2 hours facilitating a tour of camp organized by camp personnel for the DVs. The DVs and 6 camp members departed for Summit and then SFJ on Skier 01. Wednesday 4 NEGIS personnel transferred to the NEGIS site on AWI Polar 6, while the journalists and 2 camp members departed NEEM on AWI Polar 6 Thursday. AWI Polar 6 is now parked in SFJ.
Both rock drilling and packing down of science trench has progressed during the whole week. Furthermore the Mechamical Garage was emptied and successfully moved to a new snow hill during the week.
GPS measurements of the NEEM strain net commenced and DNA surface samples were taken at the end of the week.

Drilling:
The rock drilling continued with the rock drill and several samples of basal material were recovered. Total core length now at 4.9m. All samples are a combination of sediment and ice; no bedrock samples so far.
The following shallow coring site was visited with AWI Basler POLAR6:
NEGIS (75 37.61 N, 35 56.49W), 66 meter ice core drilled; technical problems prevented further drilling and the shallow drilling equipment was transferred to SFJ for repairs on AWI Polar 6.
The NEGIS shallow core have been processed; DEP (di-electric-properties) and density.

Associated programs:
The NEGIS team has completed seismic profile west of NEEM camp. The 4 person NEGIS team was subsequently deployed (by AWI Basler POLAR6) and established camp at the NEGIS site (75 37.61 N, 35 56.49W). Daily contact maintained between NEEM and NEGIS camps every morning.
Water Vapour station is running.
Setup of aerosol sampling progressing.

Weather at NEEM:
In the beginning of the week weather was sunny with cold nights (-20C) facilitating all scheduled flights. Later in the week weather deteriorated rapidly culminating with snow storm conditions Saturday (wind speed 30kn, gusts 35kn). Sunday the storm eased and calm weather returned.

NEEM camp population: 14

NEEM iridium numbers:
Primary no.: +8816 777 15686
Second no: +8816 414 39863
Tomato back-up: +8816 414 52559
Kangerlussuaq:
Handling 109th and Polar 6 flights. Moving cargo and breaking down pallets. Organizing received cargo in warehouse.

Briefing DVs on NEEM operations in general and preparing them and NEEM personel for field conditions. Giving interview to Euronews at ice margin.

Tel.: +299 84 11 51
Mobile: +299 52 41 25
Kangerlussuaq/SFJ iridium number: +8816 214 42402

Weather in Kangerlussuaq/SFJ:
Nice weather in the beginning of week, turning rainy Thursday and Friday. Saturday and Sunaday, return of nice and sunny weather. Day temperature +10C to +17C. Some clear nights with temperatures down to +3C.
Aggressive Mosquitoes...

NEEM Field Operations office,
Bo Vinther

TO NEEM STEERING COMMITTEE MEMBERS, DANISH AND GREENLANDIC AUTHORITIES.

PROJECT NEEM (C-12-5) – SITuation REPort (SITREP) no.07, Sunday 24. June 2012.

This SITREP covers the period June 18 – June 24, 2012 (inclusive).

Movement of personnel: No movement of personnel.

Movement of cargo:

June 20 800 kg DK logging and drilling equipment and 980 kg German drilling equipment from SFJ to CPH by AirGreenland.

June 22 90 kg shallow drilling equipment from CPH to SFJ by Air Greenland.

Activities:
The task of packing down, bringing to surface and palletizing science trench equipment and structures was continuously hampered by adverse weather conditions with snow drift filling inclined trenches as soon as they were blown free. Most equipment was therefore moved to surface using the more cumbersome procedure of having all available hands loading/unloading the elevator in the drill trench. Towards the end of the week the skiway was continuously groomed in preparation for next weeks flight and a general clean up of snow dunes forming in camp also took place. GPS measurements of strain net was carried out whenever weather permitted out of camp activities. Equipment was moved into the garage on the new snow hill during the beginning of the week, while snow was moved away from the carpenters garage in preparation for also moving this garage to a new snow hill.

Drilling:

The rock drilling continued until the last extension was used (total core length 7.0m). Drilling will resume later in the season when more extensions are flown to camp. All samples are a combination of sediment and ice, with sediment getting coarser (gravel/stone) in the deeper drill runs.

Associated programs:
The NEGIS team has been working from the camp at the NEGIS site (75 37.61 N, 35 56.49W) all week. Radar measurements and seismic measurements are progressing as planned. Daily contact maintained between NEEM and NEGIS camps every morning.
Water Vapour station is running.
Aerosol monitoring is running.

Weather at NEEM:
Windy (20-25kn, gusts 30-35kn), snowy and warm weather prevailed during the first half of the week with temperatures reaching -1C June 20. Towards the end of the week conditions improved with sunny spells, colder nights (-10C) and less wind (5-15kn).

NEEM camp population: 14

NEEM iridium numbers:
Primary no.: +8816 777 15686
Second no: +8816 414 39863
Tomato back-up: +8816 414 52559

Kangerlussuaq:
Preparing cargo for 109th flights next week, including one heavy duty sledge. Shipping retro cargo to CPH and Germany.

Tel.: +299 84 11 51
Mobile: +299 52 41 25
Kangerlussuaq/SFJ iridium number: +8816 214 42402

Weather in Kangerlussuaq/SFJ:
Nice sunny weather in the beginning of the week and towards the end of the week with temperatures exceeding +20C. Rainy weather Thursday and Friday with day temperatures from +10-15C. Some clear nights with temperatures down to +6C.
Aggressive Mosquitoes...

NEEM Field Operations office,
Bo Vinther

TO NEEM STEERING COMMITTEE MEMBERS, DANISH AND GREENLANDIC AUTHORITIES.

PROJECT NEEM (C-12-5) – SITuation REPort (SITREP) no.08, Sunday 1. July 2012.

This SITREP covers the period June 25 – July 1, 2012 (inclusive).

Movement of personnel:

June 25 Dorthe Dahl-Jensen (DK), Paul Vallelonga (I), Helle Astrid Kjær (DK), Rune Gjermundbo (DK) and Gunnar Magnus Arnthorsson (IS) from CPH to SFJ by AirGreenland.
Alejandra Borunda (US) from Schenectady to Kangerlussuaq by 109th NYANG.

June 26 Sepp Kipfstuhl (D) and Martin Leonhardt (D) from CPH to SFJ by AirGreenland.

June 27 Dorthe Dahl-Jensen (DK), Paul Vallelonga (I), Helle Astrid Kjær (DK), Rune Gjermundbo (DK), Gunnar Magnus Arnthorsson (IS), Alejandra Borunda (US) and Veronika Eder (S) from SFJ to NEEM by 109th NYANG.
Lars Berg Larsen (DK), Bruno Stocker (CH), Anders Svensson (DK), Astrid Schmidt (DK), Steffen Bo Hansen (DK), Christine Thiel (DK), Thomas Hedegaard (DK), Sverrir Hilmarsson (IS), Lou Albershardt (US), Trevor Popp (US) Nanna Karlsson (DK), Eliza Cook (UK) and Veronika Eder (S) from NEEM to SFJ by 109th NYANG.

June 28 Lars Berg Larsen (DK), Bruno Stocker (CH), Anders Svensson (DK), Astrid Schmidt (DK), Thomas Hedegaard (DK), Sverrir Hilmarsson (IS) and Nanna Karlsson (DK) from SFJ to CPH by AirGreenland.

June 29 Christine Thiel (DK) and Eliza Cook (UK) from SFJ to CPH by AirGreenland.
Lou Albershardt (US) and Hans-Christian Steen-Larsen (DK) from SFJ to Schenectady by 109th NYANG.

Movement of cargo:

June 27 2000 kg food, oil and science equipment including winch for optical logger from SFJ to NEEM by 109th NYANG. 5900 kg fuel (Jet A1 in AC tanks) from SFJ to NEEM 109th NYANG.
1300 kg Viessmann huts and empty ice core boxes from NEEM to SFJ by 109th NYANG. 1700 kg ice cores from NEEM to SFJ by 109th NYANG. 2200 kg generators and scientific equipment from NEEM to SFJ by 109th NYANG.

Activities:
Grooming and preparation of NEEM skiway ahead of Wednesdays 109th flight commenced as soon as stormy and snowy conditions eased early Tuesday morning. Furthermore an oil change was carried out on the main generator Tuesday. Drilling with both HT drill and rock drill Monday and Tuesday. Wednesday NEEM camp received 109th NYANG Skier 94 from SFJ with fuel, cargo, 6 new camp members and 1 DV. Skier 94 stayed on the snow for 1 hour 15 minutes and left with 12 camp members, 1 DV and 3 pallets of retro cargo including ice cores. The new camp crew immediately continued the work of documenting, packing down and palletizing camp cargo and

structures: Thursday the red dome was taken down and palletized, Friday and Saturday the sauna garage was documented and emptied while packing down and documenting goods in the Carpenters garage continued through Saturday and Sunday. Snow and ice removal around garages and on top of science trench commenced Sunday. Taking advantage of the nice weekend weather, a small team also managed to dig and sample a 2m pit 2km from camp (position: N77.42067, W51.12614, elevation 2451m). Finally the motor in one of the camp skidoos was successfully replaced Friday.

Drilling:
The HT drill was deployed in the NEEM deep hole twice. First run cleaned the hole and recovered dispersed sediment material. Second run failed to penetrate further into the sediment previously drilled with the narrow rock drill. Following the HT drill runs, a run was made with the rock drill recovering refrozen ice in the narrow hole drilled with the rock drill two days earlier. Hence it appears that the deepest part of the borehole is filling up with water that freezes in.
The following shallow coring sites were visited with AWI Basler POLAR6 operating out of SFJ:
Close to DYE-3, Wednesday/Thursday and Saturday/Sunday nights. Core drilled to 45.3 m depth as planned after successful repair of drill electronics in SFJ warehouse.

Associated programs:
The NEGIS team has been working from the camp at the NEGIS site (75 37.61 N, 35 56.49W) all week. Radar measurements completed while seismic measurements are progressing as planned. Daily contact maintained between NEEM and NEGIS camps every morning.
Water Vapour station is running.
Aerosol monitoring is running.

Weather at NEEM:
Windy (20-25kn, gusts 30-35kn), snowy and warm weather Monday. Improving conditions starting Tuesday with decreasing winds and temperatures reaching -0.5C during a calm and sunny Thursday June 28. Towards the end of the week sunny and colder conditions prevailed with night temperatures of -18C, day temperatures of –8C and light to moderate winds (5-15kn).

NEEM camp population: 8

NEEM iridium numbers:
Primary no.: +8816 777 15686
Second no: +8816 414 39863
Tomato back-up: +8816 414 52559

Kangerlussuaq:
Handling 109th flight to NEEM Wednesday morning and Polar 6 flights to DYE-3 Wednesday evening and Saturday evening. Shallow drill electronics repair in warehouse between Polar 6 flights.

Tel.: +299 84 11 51
Mobile: +299 52 41 25

Kangerlussuaq/SFJ iridium number: +8816 214 42402

Weather in Kangerlussuaq/SFJ:
Nice sunny weather with temperatures exceeding +20C Monday to Saturday. Rainy weather Sunday with day temperatures from +10-15C
Mosquitoes declining.

NEEM Field Operations office,
Bo Vinther

TO NEEM STEERING COMMITTEE MEMBERS, DANISH AND GREENLANDIC AUTHORITIES.

PROJECT NEEM (C-12-5) – SITuation REPort (SITREP) no.09, Sunday 8. July 2012.

This SITREP covers the period July 2 – July 8, 2012 (inclusive).

Movement of personnel:

July 3 Christine Hvidberg (DK) and Bo Hvidberg (DK) from CPH to Kangerlussuaq by AirGreenland.

July 4 Martin Leonhardt (D), Trevor Popp (DK) and Steffen Bo Hansen (DK) from Kangerlussuaq to CPH by AirGreenland.

July 5 Bo Vinther (DK) from Kangerlussuaq to CPH by AirGreenland.

July 6 Sepp Kipfstuhl (D) from Kangerlussuaq to CPH by AirGreenland.

Movement of cargo:

No movement of cargo.

Activities:
The packing down of NEEM camp has continued through the week. The carpenters garage has been sorted and packed. The carptenters garage is now emptied and snow and ice has been removed around it. 25 zarges boxes have been packed and documented to be stored on a NEEM traverse sledge. 15 boxes were packed for retro to Kangerlussuaq. The sauna garage is packed and palletized for retro to Kangerlussuaq. Science boxes have been sorted, and a small collection of plastic bags and science tools will be stored in the Main Dome for future use. Snow has been removed around the drill trench roof t the depth of the “submarine” window, 5m below the present surface. A new documentation software for the NEEM 2012 documentation has been

prepared. It contains one line of overview information per box, a text file for each box describing the detailed content, and a jpeg file with a picture of the box.
Trenches to the drill trench and the balloon trench have been opened. Small tents have been checked and documented. Sorted and packed food. Repair of shock absorbers in one of the skidoos and oil shift on Pistenbully. Unpacked casing tubes from a sledge, and stored casing tubes in the drill trench in preparation of extending the bore hole to the present surface.

Science
Sunday to Tuesday as the 2.2 m pit 2km from camp (position: N77.42067, W51.12614, elevation 2451m) was sampled.. From University of Copenhagen measurements for light absorption, sampling for major ions, phosphate and organic acids (pyruvic acid) and stable water isotopes have been done in the 2.2 m deep pit and temperature measurements in the top 70 cm were done. From Lamont-Doherty University 10 40kg samples have been taken to melt and filter for 3He and interplanetary dust particles and 20 1l samples have been taken for organic geochemistry. From National Institute of Polar Research the density has been measured and samples taken for ions, metals and physical properties and temperatures in the 2.2 m deep snow pit have also been measured. The air aerosol sampling and the measurements of the stable water isotopes in the vapour successfully continues..

Drilling:
The following shallow coring sites were visited with AWI Basler POLAR6 operating out of SFJ: South Dome (position: 63.52593°N, 44.58119°W), Monday/Tuesday night. Core drilled to 49 m depth.

Associated programs:
The NEGIS team has been working from the camp at the NEGIS site (75 37.61 N, 35 56.49W) all week. During the week, a full seismic profile across the North East Greenland Ice Stream was accomplished. GPS stations have been recovered and packed. The camp is packing down and preparing for pull out on Monday.

Weather at NEEM:
The week started with sunny conditions and night temperatures of -16C, and day temperatures of -8C, wind 5-15 from S an SE. Weather changed during Wednesday to cloudy and Thursday and Friday overcast with light snow and night temperatures -9C and day temperatures -3C, wind 3-13 kn from S. Friday evening the weather cleared and cooled to night temperatures of -15C. Saturday afternoon again cloudy, winds 1-9 kn turning to NW.

NEEM camp population: 8

NEEM iridium numbers:
Primary no.: +8816 777 15686
Second no: +8816 414 39863
Field leader night: + 8816 214 64 908

Kangerlussuaq:

Polar 6 flights to South Dome Monday evening. Changing personnel in the FOM office. Packing and arranging AWI cargo. Cleaned and sorted polar equipment .

Tel.: +299 84 11 51
Mobile: +299 52 41 25
Kangerlussuaq/SFJ iridium number: +8816 214 42402

Weather in Kangerlussuaq/SFJ:
Cloudy conditions most week with periods of sunshine now and then. Day temperatures +10 - +15C. Mosquitoes level medium.

NEEM Field Operations office,
Christine Hvidberg
Bo Hvidberg

TO NEEM STEERING COMMITTEE MEMBERS, DANISH AND GREENLANDIC AUTHORITIES.

PROJECT NEEM (C-12-5) – SITuation REPort (SITREP) no. 10, Sunday 15. July 2012.

This SITREP covers the period July 9 – July 15, 2012 (inclusive).

Movement of personnel:

July 9 Casper Rasmussen (DK) from Kangerlussuaq to NEEM by AWI Basler Polar6.
Leo Peters (US), Knut Christianson (US), Kiya Wilson (US) and Atsuhiro Muto (US) from NEGIS Camp to NEEM by AWI Basler Polar6.

July 10 Leo Peters (US), Knut Christianson (US), Kiya Wilson (US), Atsuhiro Muto (US) and Sarah Harvey (US) from NEEM to Kangerlussuaq by AWI Basler Polar6.

July 11 Trine Dahl-Jensen (DK) from CPH to Kangerlussuaq by AirGreenland.
Dean Childs (US) and Allan Shi (US) from Schenectady to Kangerlussuaq by 109th NYANG.

July 12 Leo Peters (US), Knut Christianson (US), Kiya Wilson (US), Atsuhiro Muto (US) from Kangerlussuaq to Schenectady by 109th NYANG.
Bryn P. Hubbard (UK), Sverrir Æ. Hilmarsson (IS), Kazuhide Sato (J), Steffen B. Hansen (DK) and Trevor Popp (DK) from CPH to Kangerlussuaq by Air Greenland.

Movement of cargo:

July 9 Approx. 8000 lbs of NEGIS cargo from NEGIS camp to NEEM by AWI Basler Polar6.

July 10 Approx. 3000 lbs of NEGIS cargo from NEEM to Kangerlussuaq by AWI Basler Polar6.

Activities:
The packing down of NEEM camp has continued through the week. We have removed snow blocks from the drill trench ramp. Removed tables and floor grids from the Science Trench, and packed band saws in boxes. Designed and built a box for the science trench scale. Removed ice and water from drill and tower every day due to the unusual weather situation at NEEM and the meltwater dripping everywhere. We have installed light in the balloon trench.

Science:
We have used the warm weather at NEEM to study formation of melt layers and changes in the firn. We have made shallow pits to observe the melt and formation of ice layers, measure firn temperatures and take samples. The air aerosol sampling and the measurements of the stable water isotopes in the vapour successfully continues.

Drilling:
No drilling.

Associated programs:
The NEGIS camp has been closed down and pulled out to the NEEM camp. The camp crew and some cargo were moved to Kangerlussuaq by the Basler Polar6. The remaining NEGIS cargo was repacked and organized on pallets at NEEM and prepared to be moved to Kangerlussuaq by the 109ths.

Weather at NEEM:
Until Tuesday morning, Sunny weather with day temperature of -4C and night temperatures of -13 C. Then an unusual weather situation came with temperatures around the freezing point night and day, overcast, and periods with rain, sleet or light snow. This weather continued throughout the week. The planned flight with LC-130 this week was cancelled due to this unusual weather

NEEM camp population: 8 (15 Monday night, including the NEGIS crew and the Basler Polar6 crew)

NEEM iridium numbers:
Primary no.: +8816 777 15686
Second no: +8816 414 39863
:Field leader night: + 8816 214 64 908

Kangerlussuaq:
Polar 6 flights to NEGIS Monday, and returning to Kangerlussuaq Tuesday. Preparing for the 109 flight period, planning flights and cargo, and receiving the NEEM crew. DV visit to the NEEM project in Kangerlussuaq Thursday to Saturday by Niels Strandberg Pedersen, chairman of the board of University of Copenhagen. Arranged an excursion to the ice front with the stranded NEEM crew.

Tel.: +299 84 11 51
Mobile: +299 52 41 25
Kangerlussuaq/SFJ iridium number: +8816 214 42402

Weather in Kangerlussuaq/SFJ:
Sunny and warm most week. On Wednesday, a strong föhn wind from the ice sheet with dust storm around Kangerlussuaq. The warm temperatures over the ice sheet increased melting and run-off of meltwater, and caused flooding of Watson River. The bridge has been closed since Tuesday night, and the dams were washed away Wednesday. The water supply survived the flooding, but the radar at Black ridge was disconnected, but will be restored in the coming week. Day temperatures +20 - +25C.
Mosquitoes level low.

NEEM Field Operations office,
Christine Hvidberg
Bo Hvidberg

TO NEEM STEERING COMMITTEE MEMBERS, DANISH AND GREENLANDIC AUTHORITIES.

PROJECT NEEM (C-12-5) – SITuation REPort (SITREP) no. 11, Sunday 22. July 2012.

This SITREP covers the period July 16 – July 22, 2012 (inclusive).

Movement of personnel:

July 17 Sarah Harvey (US), Trine Dahl-Jensen (DK), Bryn P. Hubbard (UK), Sverrir Æ. Hilmarsson (IS), Kazuhide Sato (J), Steffen B. Hansen (DK), Trevor Popp (DK), Dean Childs (US) and Allan Shi (US) from Kangerlussuaq to NEEM by 109th.
Lou Albertshardt from Schenectady to SFJ by 109th NYANG.
Motohiro Hirabayashi (J), Gunnar M. Arnthorsson (IS), Casper Rasmussen (DK) from NEEM to SFJ by 109th.

July 18 **1st. Flight:**
Bo Hvidberg (DK), Erik S. Hvidberg (DK) and Niels S. Hvidberg (DK) from SFJ to NEEM by 109th.

2nd. Flight:
Erik S. Hvidberg (DK), Niels S. Hvidberg (DK) from NEEM to SFJ by 109th.

July 19 **1st. Flight:**
Marisa LaRouche (US), Alexandra Schmidt (US), Shelly Hynes (US), Lynn Reed (US), Peter West (US), Kaitlin Keegan (US), Nivi Rosing (GRL), Cecilia Olsen-Heilmann (GRL),

Aggu Erik Wæver Broberg (GRL), Malou Papis (GRL), Lisbeth Susanne Gliese Mathiesen (DK), Cecilie Sand Nørholm (DK), Fie Thorup Hansen (DK), Charlotte Kjær Madsen (DK), Torben Benoni (DK), Robbie Score (US), Louise Albershardt (US) from SFJ to NEEM by 109th.
Dean Childs (US) NEEM to SFJ by 109th NYANG.
2nd. Flight:
Bo Hvidberg (DK) from NEEM to SFJ by 109th.

July 20 Peter Ditlevsen (DK), Lisbeth Nielsen (DK), Anne Katrine Faber (DK), Alexandra Messerli (CH), Bo S. Madsen (DK), Myriam Guillevic (F) from SFJ to NEEM by 109th.
Alejendra Borunda (US), Rune Gjermundbo (DK), Helle Astrid Kjær (DK), Paul Vallelonga (DK), Allan Shi (US), Marisa LaRouche (US), Alexandra Schmidt (US), Shelly Hynes (US), Lynn Reed (US), Peter West (US), Kaitlin Keegan (US), Nivi Rosing (GRL), Cecilia Olsen-Heilmann (GRL), Aggu Erik Wæver Broberg (GRL), Malou Papis (GRL), Lisbeth Susanne Gliese Mathiesen (DK), Cecilie Sand Nørholm (DK), Fie Thorup Hansen (DK), Charlotte Kjær Madsen (DK), Torben Benoni (DK), Robbie Score (US), from NEEM to SFJ by 109th.

July 22 Trine Dahl-Jensen (DK), Bryn P. Hubbard (UK) from NEEM to SFJ by 109th.

Movement of cargo:

July 16 16.5 kg hydraulic cylinder for Pistenbully from Kässbohrer, Germany to SFJ by AirGreenland.

July 17 3266 lbs, Food, scientific equipment, generator from SJF to NEEM.
7300 lbs, Carpenter equipment, camp gear, NEGIS retro cargo and personal gear from NEEM to SFJ.
Received 3654 l of fuel from Skier 21.

July 18 **1st. Flight:**
7200 lbs, German sledge from SFJ to NEEM.
6500 lbs, NEGIS retro cargo, 2 heaters, red dome, sauna garage and white balloon from NEEM to SJF.
2nd. Flight:
6600 lbs, German sledge from SJF to NEEM.
6500 lbs, Garbage and NEGIS retro cargo, camp gear from NEEM to SFJ.

July 19 **1st. Flight:**
1075 lbs, Fresh food, S & E personal gear from SFJ to NEEM.
3000 lbs retro cargo, NEEM to SFJ.
2nd. Flight:
6000 lbs, German sledge from SFJ to NEEM.

4250 lbs NEEM retro cargo, 2 x snowmobiles, NEEM to SFJ.

July 20 1180 lbs, Zarges boxes, food from SFJ to NEEM.
3000 lbs, Drill boxes, ice core boxes, scientific equipment retro from NEEM to SFJ.

355 kg of general cargo, electronic devices and polar gear (14 colli) sent to AWI, Bremerhaven by AirGreenland (AWB 631-2661-5923). 702 kg of science equipment (13 colli) sent to CIC, Copenhagen by AirGreenland (AWB 631-0187-0945).
2 boxes (Daniel Steinhage) handed in to Blue Water Shipping (Chris Sørensen) to be sent by ship August 4, 2012.

July 22 9500 lbs, deep drill winch, Center tower section with linear motors, Hans Tausen drill from NEEM to SFJ.

Activities:
Packing down of camp is one of the main activities in camp. By mid-week the cable between the drill and the winch was cut and the drill tower was disassembled. The big heavy winch and the central part of the drill tower with the linear motors were pulled out of the trench by the Pistenbully and sent out of camp at the end of the week. Garbage and empty drums were put on pallets and sent out of camp.

Receiving extra Skiers, due to training activities, and maintenance of skiway were another two main non-scientific activities all during the week. Received three big German sledges. The first two casing tubes were placed in the drill trench. On July 19 and July 20 NEEM was hosting a visit from group of Greenlandic, U.S. and Danish students under the NSF Science and Education Program.

Science:
Finalized melting of samples.
Air sampling program.
Several pit studies and drilling of a 4.5 m deep ice core with the hand auger to observe the melt layers.
Set up logger outside drill trench roof.
Optical logging of borehole finalized.
Made a 10 meter long double trench with the snowblower to study the melt layers.

Drilling:
Basal drilling with rock drill and Hans Tausen drill. Recovered a mixture of sediments and ice and recovered the stone that had stopped the drilling in 2010 and 2011. All drilling stopped mid-week for immediate packing down.

Associated programs:
Monitoring of GEUS seismic system in the science trench. The data recovery was very high – over 95% and the quality excellent both in the borehole and on the accompanying surface sensor. The GEUS seismic station is now packed and sent out.

Maintenance of the GLISN seismic station: The station is maintained and operational.

Weather at NEEM:
The warm and humid weather at NEEM finally cleared in the beginning of the week. Temperatures between -12C to -0,5C. Wind speeds at 0- 15 from all directions but mostly from SSE. Start of week blue sky. Mid week and end overcast and snow.

NEEM camp population: between 8 (beginning of week) and 29 (during S&E visit).

NEEM iridium numbers:
Primary no.: +8816 777 15686
Second no: +8816 414 39863
:Field leader night: + 8816 214 64 908

Kangerlussuaq:
The FOM office has been very busy all week planning flights to NEEM. The 109ths have used NEEM as a training site all week, because Raven and Summit were not available for training. Received crew from NEEM and sent crew to NEEM. Received and organized cargo from NEEM. Sent cargo to Europe, and organized cargo in and around the warehouse.

Tel.: +299 84 11 51
Mobile: +299 52 41 25
Kangerlussuaq/SFJ iridium number: +8816 214 42402

Weather in Kangerlussuaq/SFJ:
Sunny and clear most week. Day temperatures 20-25 C, night temperatures 15 C. Almost no mosquitoes. Sunday change in weather with low clouds and rain.

NEEM Field Operations office,
Christine Hvidberg & Lone Holm Hansen

TO NEEM STEERING COMMITTEE MEMBERS, DANISH AND GREENLANDIC AUTHORITIES.

PROJECT NEEM (C-12-5) – SITuation REPort (SITREP) no. 12, Sunday 29. July 2012.

This SITREP covers the period July 23 – July 29, 2012 (inclusive).

Movement of personnel:

July 23 Jørgen-Peder Steffensen (DK), Nanna Steffensen (DK) from Kangerlussuaq to NEEM by 109th NYANG.

Dorthe Dahl-Jensen (DK), Nanna Steffensen (DK), Trevor Popp (DK), Steffen Bo Hansen (DK), Kaitlin Keegan (US) from NEEM to SFJ by 109th NYANG.
Bryn P. Hubbard (UK) from SFJ to CPH by Airgreenland.

July 24 Trine Dahl-Jensen (DK),Trevor Popp (DK), Steffen Bo Hansen (DK) from SFJ to CPH by Airgreenland.

July 25 Dorthe Dahl-Jensen (DK), Nanna Steffensen (DK) from SFJ to CPH by Airgreenland.

Movement of cargo:

July 23 12600 lbs, Drill boxes, Viessmann + Stapi, garbage and empty drums, rack of ATO's from NEEM to SFJ by 109th NYANG.

July 24 2242 kg Ice core samples (63 boxes) from SFJ to Holbæk/DK by Airgreenland. Transport in Denmark by G.P. Spedition. AWB 631 0186 994 3
2200 lbs Drillers workshop Viessmann from NEEM to SFJ by 109th

July 27 Cargo to Bremerhaven and UK picked-up by BlueWater. Cargo will leave Kangerlussauq by ship on August 04.

Activities:

Packing down camp was the main activity this week. Drillers workshop was disassembled and sent out of camp. Drill trench was emptied and all installations and main elevator were removed. Carpenters garage was emptied and brackets and braces for movement of the garage were mounted. The white weather port was excavated free of snow and ice, lifted up to the surface and disassembled. Snow hill for carpenter garage is being built. The roof over the drill site has been removed, bore hole casing has been fixed to vertical and the inclined trench in drill trench floor has been back filled with snow. Backfilling of drill trench is in progress. Small items were sorted out as rubbish and useful items. Rubbish will be sent to Kangerlussuaq and useful items will be documented and packed. Received one scheduled Skier and one training and had more retro-cargo sent out of camp. The skiway was groomed to remove tracks from the last couple of flights.

Science:

Air sampling program still ongoing. Japanese pit study in progress.

Drilling:

Activity is concluded.

Associated programs:

Activity has stopped.

Weather at NEEM:

-14C - +1C, wind 2 – 26 knots mainly from S and SW, overcast and snow and at times drifting snow. Friday Night and all Saturday a very warm blizzard hit camp with a mixture of snow, rain and sleet.

NEEM camp population: 11

NEEM iridium numbers:
Primary no.: +8816 777 15686
Second no: +8816 414 39863
Field leader night: + 8816 214 64 908

Kangerlussuaq: Moving cargo and breaking down pallets. Organizing received cargo in warehouse according to cargo that will stay in Kangerlussuaq and cargo to be sent south. Garbage from NEEM camp brought to dump. Handled 2 flights to NEEM, one scheduled and one training. Received outgoing field crew and changed tickets at Air Greenland. 63 boxes of ice core samples were sent by Airgreenland to Holbæk/DK. Arranged pick-up by BlueWater of AWI cargo and cargo to UK going by ship on August 4. Maintained cars, clothes picked-up from laundry and retro-clothes brought in for cleaning. Signed up JP and Lars for a 5K Fun Run on August 19 at 10 O'clock.

Tel.: +299 84 11 51
Mobile: +299 52 41 25
Kangerlussuaq/SFJ iridium number: +8816 214 42402

Weather in Kangerlussuaq/SFJ: Start of the week sunny and warm weather with temperature up to 20C. Mid week clouds came in. Showers. Temp. Around 15C. One... no zero mosquitoes left.

NEEM Field Operations office,
Lone Holm Hansen

TO NEEM STEERING COMMITTEE MEMBERS, DANISH AND GREENLANDIC AUTHORITIES.

PROJECT NEEM (C-12-5) – SITuation REPort (SITREP) no. 13, Sunday 05. August 2012.

This SITREP covers the period July 30 – Aug. 05, 2012 (inclusive).

Movement of personnel:
None

Movement of cargo:

Aug. 05
Cargo to Bremerhaven and UK leaves Kangerlussuaq by ship.

Activities:

Also this week packing down camp was the main activity. Carpenters garage was moved up to the new snow hill, turned 135 degrees and the floor and walls were consolidated with snow. The tent was restocked and electricity installed. Both the drill and the science trench were emptied and all equipment packed and documented. The drill trench and the hole left after moving the carpenters garage were backfilled with snow. The drill casing was extended and capped. The small elevator to the trench was taken down and put on a heavy sled. All timber from the outskirts of NEEM was pulled into camp on a heavy sled. Remaining snow- and ice samples were stored in the balloon cave.

Science:
Collected summer snow isotope standard, 50 litres. Isotope- and aerosol stations closed. By end of the week all scientific activities stopped.

Drilling:
Activity is concluded.

Associated programs:
Activity has stopped.

Weather at NEEM:
-15C - +1C. Wind: Calm and up to 16 knots mainly from SW- SSW. Most days with overcast and snow showers, one full day with fog and midweek one day with bright sunshine. The week ended with temperatures above 0 with overcast and snow and rain.

NEEM camp population: 11

NEEM iridium numbers:
Primary no.: +8816 777 15686
Second no: +8816 414 39863
Field leader night: + 8816 214 64 908

Kangerlussuaq:
Sorting and documenting polar equipment in the containers at the warehouse.

Tel.: +299 84 11 51
Mobile: +299 52 41 25
Kangerlussuaq/SFJ iridium number: +8816 214 42402

Weather in Kangerlussuaq/SFJ:
Most of the week fine weather with some sun and occasionally a light shower. Temp. between 15C and 20C. No mosquitoes left.

NEEM Field Operations office,
Lone Holm Hansen

TO NEEM STEERING COMMITTEE MEMBERS, DANISH AND GREENLANDIC AUTHORITIES.

PROJECT NEEM (C-12-5) – SITuation REPort (SITREP) no. 14, Sunday 12. August 2012.

This SITREP covers the period Aug. 06 - 12, 2012 (inclusive).

********** NEEM CAMP IS CLOSED AND ALL PEOPLE PULLED OUT SUCCESFULLY 11. AUGUST 2012 *********

Movement of personnel:

Aug 09 Lars Berg Larsen (DK) from CPH to SFJ by AirGreenland.

Aug 10 Lone Holm Hansen (DK) from SFJ to CPH by AirGreenland.

Aug 11 Jørgen-Peder Steffensen (DK), Sarah Harvey (US), Peter Ditlevsen (DK), Lisbeth Nielsen (DK), Anne Katrine Faber (DK), Alexandra Messerli (UK), Bo Madsen (DK), Myriam Guillevic (F), Lou Albertshardt (US), Sverrir Hilmarsson (IS), Satow Kazuhide (J) from NEEM to SFJ by 109th NYANG.

Aug 12 Peter Ditlevsen (DK) from SFJ to CPH by AirGreenland

Movement of cargo:

Aug 11 6070 kg, Ice core samples, science and camp gear from from NEEM to SFJ by 109th NYANG.

Activities:

Also this week packing down camp and documenting all items were the main activities. Aerosol and isotope sampling station was taken down. Skidoos had a service. Remaining holes after trenches were backfilled with snow, the areas were dozed flat and all markers removed. Flagline was taken down and so were all the remaining tents. 7 hills for the heavy sledges were prepared, and sledges placed each on a top. 3 fuel tanks were placed on hills next to the apron. All camped was measured including positions for final storages with GPS. By the end of the week water supply was stopped and the main snow melter was emptied. Skiway, taxiway and apron were prepared and maintained for pull out Saturday. Pull out was successful as the fully loaded plane took off in first attempt at 1525 local time after exactly 1 hour and 30 minutes stay on the snow.

Science:

Activity has stopped.

Drilling:
Activity is concluded.

Associated programs:
Activity has stopped.

Weather at NEEM:
-20C - 0C. Wind: 2-13 m/s from S- SW, and SSE. Week started out with overcast and rain. Later on (Monday) a blizzard hit with dense snow and blowing snow and temperatures dropping 4 degrees. Thursday to Saturday at Noon full sunshine.

NEEM camp population: 0

NEEM iridium numbers: CAMP CLOSED!

Kangerlussuaq:
Sorting and documenting polar equipment in the containers at the warehouse. Maintenance of vehicles. Preparing for camp pullout.

Tel.: +299 84 11 51
Mobile: +299 52 41 25
Kangerlussuaq/SFJ iridium number: +8816 214 42402

Weather in Kangerlussuaq/SFJ:
Most of the week overcast, little sun, little rain. Temp. between 10C and 15C. Only a few hardcore mosquitoes have survived the cold weather.

NEEM Field Operations office,
Lone Holm Hansen
Lars Berg Larsen

TO NEEM STEERING COMMITTEE MEMBERS, DANISH AND GREENLANDIC AUTHORITIES.

PROJECT NEEM (C-12-5) – SITuation REPort (SITREP) no. 15, Sunday 19. August 2012.

This SITREP covers the period Aug. 13 - 20, 2012 (inclusive).

********** NEEM CAMP IS CLOSED AND ALL PEOPLE PULLED OUT SUCCESFULLY 11. AUGUST 2012 *********

Movement of personnel:

Aug 14 Sarah Harvey (US), Lisbeth Nielsen (DK), Anne Katrine Faber (DK), Alexandra Messerli (UK), Bo Madsen (DK), Myriam Guillevic (F), Sverrir Hilmarsson (IS) and Satow Kazuhide (J) from SFJ to CPH by Air Greenland.

Aug 15 Lou Albertshardt (US) from SFJ to Schenectady by 109th .

Aug 20 Jørgen-Peder Steffensen (DK) and Lars Berg Larsen (DK) from SFJ to CPH by Air Greenland.

Movement of cargo:

Aug 16 170 kg Japanese cargo to Austria, 140 kg Japanese cargo to Japan.
110 kg French cargo to France

Aug 20 450 kg Ice core samples and estimated 450 kg FOM and NEEM essential equipment from SFJ to CPH by Air Greenland.

Aug 20 Estimated 5,000 kg cargo by SHIP in 20' container.

Activities:
NEEM camp is closed.

Science:
Activity has stopped.

Drilling:
Activity is concluded.

Associated programs:
Activity has stopped.

Weather at NEEM:
Consult the PARCA project home page for Automatic Weather Station data.

NEEM camp population: 0

NEEM iridium numbers: CAMP CLOSED!

Kangerlussuaq:
The NEEM project held its last end of season dinner on August 15. As the Rowing Club was inaccessible due to the missing bridge, the dinner was held in tents close to the airport. After most people had left, air freight was handed in and the FOMs began to clean out in the warehouse. A lot of 20-30 year old equipment was taken out, and a garage sale/give away was arranged on August 17. Two large dumpsters and a 20' container (to go later by Ship) were brought to the warehouse and all metal scrap and combustible waste was collected. Also, about 75 empty drums were

transferred to waste. After the total clean out, the FOMs began to dismantle all airplane pallets from camp. Cargo was arranged in shelves or on the floor. Everything in the shelves and in the containers has been documented. By evening on August 19, the yard at our warehouse is empty and packing down of the FOM office is in progress. On Monday the remaining cargo will be handed in for air freight, the ship container will be sealed, the antenna will be taken down, the vehicles will be parked and their licence plates removed.

Tel.: +299 84 11 51
Mobile: +299 52 41 25

After August 20:
Tel.: +45 35 32 05 51

Weather in Kangerlussuaq/SFJ:
Tuesday and Wednesday rain all day. The rest of the week beautiful sunshine. Temp. between 6C and 20C.

NEEM Field Operations office,
Lars Berg Larsen
Jørgen Peder Steffensen

Daily reports:

May

Monday, 14th May 2012.

NEEM put-in crew arrives in Kangerlussuaq.

Today 7 NEEM crew members arrived in Kangerlussuaq from Copenhagen. We were received by our Field Operations Manager, Lars. Later in the afternoon the last 4 of our put-in crew of 11 arrived with the 109th from the U.S. At 19.00 we had a meeting with the deployment commander and agreed on a put-in flight tomorrow at 10.00 local time. In the evening we arranged cargo and packed food and we were done at 23.00 and ready to go to bed. Everything looks fine: The weather in Kangerlussuaq has been beautiful with sun from a blue sky and +11 C. The weather forecast for NEEM tomorrow and the next few days looks fine so it is very likely we will fly in tomorrow.
The FOM office of NEEM in Kangerlussuaq is now open, and tomorrow by this time we hope to be able to say the same about NEEM camp.
Weather at NEEM from automatic weather station: Temp. - 21 C to - 26 C, 6-12 knots from SSE.

We are now 11 NEEM'ers and 1 FOM in Kangerlussuaq and no people in camp.
FL, J.P. Steffensen

Picture captions:

People stacking boxes for loading on the plane.

Sarah making tough decisions on what to bring now and what can wait.

Tuesday, 15th May 2012.

First group arrives at NEEM on schedule. NEEM camp opens.

This year the put-in happened on schedule. Everything went fine and when we came to camp, we noticed significantly less snow drift than seen in previous years. The almost buried garages could be clearly seen and there was easy access to the sauna garage, the main dome and the red dome. There was also little snow drift in the cargo line. Inside the main dome everything was on good order, and while temperatures in the lower levels were below freezing, the temperature in the top cupola was +11 C. Weather was cooperative and the wind became weaker as the day passed, the list of tasks accomplished shows it. NEEM is now open.

What we have done today:

1. Departed Kangerlussuaq on Skier 95 at 09.55.
2. Landed at NEEM 12.30. Plane took off towards SE in first attempt at 13.00.
3. 15 kW backup generator started and powering main dome at 13.30.
4. Gained access to the two main garages with snow blowers.
5. Pistenbully started at 19.30 and at 20.30 main generator was powering camp.
6. Installed main snowmelter. Main snowmelter water supply now running.
7. Cleared out red dome.
8. Cooks snow melter was running at 22.30.
9. One toilet tent set up.
10. The two tomato cabins were set-up.

Weather: Clear all day. Temp. - 19 C to - 21 C, 25-16 knots from SE. Visibility: to horizon.

We are now 11 NEEM'ers in camp.

FL, J.P. Steffensen

Picture captions:

Excavation: Snow blowerhard at work to gain access to the nearly buried garage.

Put-in: People carry personal luggage and cargo from the plane at the put-in.

The put-in crew before departure from Kangerlussuaq.

Wednesday, 16th May 2012.

Day two at NEEM.
Most things went fine on this beautiful second day at NEEM. Everybody was busy and everything went fine except for a couple of hiccups: We still have no power for our satellite internet link; but a solution has been found, and we will fix it tomorrow. With the absence of added telephone and internet connection, we maintain contact with Lars, our FOM, by satellite handheld phone twice a day. Another little setback was the frozen drain pipes below the main dome. Even though we had water from the main snow melter, we could not use it without a drain. It was unclogged in the evening. In the afternoon the U.S. traverse tractor train arrived, and we got company for supper. Sarah, our cook made a fine meal for all 15 people.

What we have done today:

1. Installed central heating in main dome.
2. Set-up main snow melter.
3. Work on repairing frozen drain pipes.
4. Setup 2nd toilet.
5. Made ramps to all garages.
6. Caterpillar and one Flexmobile now running.
7. Prepared for construction of four weatherport tents.
8. Began to assemble the Danish intermediate depth drill.
9. All arriving cargo sorted and placed.
10. Gained access to the underground trenches.
11. Receiving the U.S. GrIT traverse arriving from Summit.
12. Searching for solutions to activate our internet satellite link.

Ad.3: As the drain pipes froze up on us, and we were not able to clear them before late in the evening, we will have to wait until tomorrow for water in sinks, shower, dishwasher and kitchen sink.

Ad. 10: In both the science trench and the drill trench many beams in the roof are broken. One of the triple beams in the drill trench is broken. Otherwise everything is in good order.

Weather: Clear all day. Temp. – 15 C to -28 C, 5-12 knots from SSE. Visibility: mostly to horizon, some patches of haze.
We are now 11 NEEMers and 4 GrIT personnel in camp.
FL, J.P. Steffensen
Picture captions:

Mech garage: The newly excavated access ramp to the mechanics garage.

Construction: Foundations are being laid out for the weatherport tents.

Thursday, 17th May 2012.

NEEM camp now fully operational.

Today the last small problems were solved, and the camp is now fully operational. The main dome is warm and cosy. Once the NEEM fuel tanks were pulled into position, the traverse people worked on transferring fuel from their bladders to NEEM tanks. Although this is the last field season at NEEM in this project period, we still receive fuel because NEEM is going to be hub for U.S. and German operations in North Greenland. As these operations require the use of airoplanes, we need to have fuel for them. Building up of camp progresses in a fine speed and work outside is a pleasure in this fine weather. Again we enjoyed the company of the traverse people, and much to our surprise they even brought a bicycle! Several in camp got the chance of a first bicycle ride on the ice sheet.

What we have done today:

1. Pulled NEEM fuel tanks into position: Two tanks at the apron and one next to main generator.
2. Transferred fuel from GrIT traverse to NEEM tanks.
3. Erected weatherport for food (12 x 20) and one for quarters (10 x 15) and finished the foundation for the last two weatherports.
4. Excavated the floor over the elevator and staircase to the trenches. Since last year 1.7 m snow had accumulated.
5. Main water supply and drains are now working.
6. Rolled out drill cable for the Danish intermediate depth drill and rewound it under tension onto the winch. Continued with assembly of the drill.
7. Raised all markers on the Southern half of the skiway, including lead-in, and taxiway and apron.
8. Fixed the satellite internet connection. It is now powered by a car-battery.

Weather: Clear with few thin clouds. Temp. - 15 C to - 19 C, 12-3 knots from SSE. Visibility: to horizon.

FL, J.P. Steffensen

Picture captions:

Cyclist: A rare sight on the ice sheet: Robin from the traverse cycles back to his tent after supper in the main dome.

Fuel transfer: Our diesel fuel pump was hard at work transferring fuel from tractor train bladders to NEEM tanks.

Friday, 18th May 2012.

Camp opening is well under way.

The day began with good byes. At 8.00 this morning the GrIT traverse began its journey to Thule. For two days we have enjoyed the company of the four traverse people, their tractors and bicycles. We erected the last two weatherports and so far all snow blowing and weatherport construction has happened without mishaps, such as cut electrical cables. Weather continues to behave, and we have begun work on the skiway. Everybody is beginning to look like seasoned field hands due to the long hours in the open exposed to wind and sun. Sepp and Tyler built weatherports, Simon and Carsten worked on the drill, Sverrir, Lou and J.P. worked on the skiway, Trevor finished his job of opening the trenches, Jakob got the NEEM camp computer system going, H.C. began setting up a water vapour sampling station and Sarah made several good meals. All in all a good productive day.

What we have done today:

1. Said goodbye to the U.S. GrIT traverse.
2. Cleaned area for the white weatherport and laid new floor.
3. Installed staircase to the trenches.
4. Erected two weatherports for quarters (10 x 15 and 10 x 10). All weatherports are up. There are now beds for

full manning.
5. Groomed apron and prepared grooming of the skiway.
6. Main water supply and drains are now working.
7. Continued with assembly of the Danish drill.
8. All markers on skiway, lead-ins, taxiway and apron have been lifted.
9. Began work on setting up water vapour sampling station.

Weather: Clear. Temp. - 16 C to - 25 C, 12-3 knots from SE. Visibility: To horizon.
FL, J.P. Steffensen

Picture captions:

Traverse: The U.S. traverse leaves NEEM en route to Thule. The tiny dot in the center of the image is the NEEM main dome.

Trevor hole: Trevor at the product of his efforts in the past days: The now open main entrance to the trenches. Saturday, 19th May 2012.

It is Saturday, and this means that people get a shower and dress up for Saturday night dinner. Because weather has been behaving so nicely, we had time to take the evening off. We enjoyed both lunch and dinner prepared by Sarah: For lunch eggs Benedict and for dinner Steaks, corn and potatoes. During the day people got a lot of work done, and we are on schedule. Simon and Carsten finished assembling the Danish intermediate drill system and made the first runs. If this drill test is successful, we will have a system capable of drilling to 1000 m depth and which weighs less than 500 kg total. In ice core drilling, people work with shallow drills (to 200 m depth, often in dry holes), intermediate depth drills (to 1000 m depth, mostly in fluid filled holes) and deep drills (through the thickest ice sheets, up to 3.5 km, always fluid filled). If the intermediate drill test goes well, the Copenhagen group will have all three systems available.

What we have done today:

1. Zig-zag groomed skiway with Pistenbully and active blade.
2. Drilled the first 3 m test core with the Danish drill in carpenters garage.
3. Finished heating and floor in food storage tent.
4. Erected white weatherport over trench entrance.
5. Cleaned up in cargo line and staged retro cargo.
6. Work on setting up water vapour sampling station.

Weather: Clear. Temp. - 18 C to - 27 C, 15-3 knots from SE and SSE. Visibility: To horizon.

FL, J.P. Steffensen

Picture captions:

Small door: Trevor demonstrates how small the doorway to the ice core storage has become. This doorway was built two years ago to full size, and snow deformation has minimized it.

Sunday, 20th May 2012.

Preparations for flights and more crew in full swing.

Most efforts in camp are now centered on preparing camp for a large number of people arriving Tuesday, Wednesday and Friday. We will have a plane from the 109th and we will host the Alfred Wegener Institute, Polar 6 (Basler, i.e. a modernized DC-3 on skis) and a Twin Otter flying for the U.S. PARCA project. We are making beds ready, working on the skiway and getting food storage in order. There has been time to work on other things as well, like drill testing, water vapour sampling station and setting up the elevator to the trenches. It has been a beautiful Sunday, although temperatures are low, it doesn't feel cold as there is hardly any wind and the Sun is shining.

What we have done today:

1. Moved food into food storage tent.
2. Installed beds and mattresses in weatherports.
3. Danish drill test in carpenters garage: Tuning winch. Depth 10 m.
4. Groomed skiway two times along and groomed taxiway and apron.
5. Setting up elevator to drill trench.

6. Work on water vapour sampling station.

Ad.5: As usual there are problems getting the elevator to operate. We will go through all switches tomorrow.

Weather: Clear. Temp. - 20 C to - 29 C, 5-3 knots from SSE and SSW. Visibility: To horizon.

FL, J.P. Steffensen

Picture captions:

DKdrill: Simon and Carsten at testing the Danish intermediate depth drill system in the carpenters garage.

Monday, 21st May 2012.

We got one more day before next flight.

Work progresses in a fine pace; but still everybody in camp is happy of getting an extra day for preparation before the flights. The LC-130 going to NEEM has been postponed one day due to late arrival of cargo in Kangerlussuaq, also the German Polar 6 has been delayed because of bad weather in South Greenland. Here at NEEM weather is still perfect and we are enjoying every minute. Now we just hope it will hold a little longer so we can the scheduled aeroplanes up here. This week we are expecting three! We have put a lot of effort in grooming the skiway, and we hope it will be in good shape for the planes.

What we have done today:

1. Tested winch and tower at deep hole in preparation of logging.
2. Finished installing beds, mattresses and heating in weatherports.
3. Danish drill test in carpenters garage: Testing settings. Depth 30 m.
4. Groomed skiway in zig-zag and lengthwise.
5. Repaired elevator to drill trench.
6. Set-up of water vapour sampling station completed.

Ad.1: Winch works well and the tower still clears the ceiling of the drill trench.

Ad.6: The automatic water vapour sampling and isotopic measuring station is now operational. It is scheduled to run the entire season.

Weather: Clear. Temp. - 20 C to - 31 C, 10-3 knots from SSE. Visibility: To horizon.

FL, J.P. Steffensen

Picture captions:

vapour: 120 years time difference in technology meet on the Greenland ice sheet. A Nansen sled, developed by Fritjof Nansen 120 years ago is still king of the snow, and inside the tent a modern laser based spectrometer capable of on line separation of water isotopes in atmospheric vapour.

Tuesday, 22nd May 2012.

Tomorrow NEEM will turn into an airport.

Today we were notified that three aeroplanes intend to fly to NEEM tomorrow. First will be the cargo and passenger plane from the 109th, then the German Basler will arrive with the German radar crew and finally a Twin Otter from the PARCA project will arrive. The two last planes will stay at NEEM for a while using NEEM as a hub for their North Greenland operations. In one day camp population will go from 11 to 27. We fell well prepared for this influx of people and if the weather holds camp life will become very different from tomorrow Noon. The put-in crew of 11 enjoyed a last quiet evening.

What we have done today:

1. Danish test drilling at 70.8 m. Cores are fine of around 1.40 m each.
2. Groomed skiway, taxiway and apron with Pistenbully and tiller.
3. Finished pallets with outgoing cargo.
4. Setup flagline.

Weather: Clear with few events of thin broken clouds. Temp. - 19 C to - 29 C, 12-5 knots from S. Visibility: To horizon.

FL, J.P. Steffensen

Picture captions:

grooming: Our Pistenbully with tiller in action on the apron. To the left coarse groomed snow and to the right the final snow surface of the apron.

Wednesday, 23rd May 2012.

Welcome to NEEM airport.

It has been a very busy and successful day. At 10.40 a 109th plane landed with passengers and cargo and conditions were so good, that the NEEM skiway was upgraded so we may fly in more cargo in the next plane. Also, we were able to send out a full load cargo to Kangerlussuaq. The plane was on the snow in one hour and it took off without difficulties. At 16.15 the Basler arrived and at 17.43 the Twin Otter. These two planes will operate out of NEEM in the coming days. Life in camp has been completely changed and population has grown from 11 to 27. Sarah has been very busy in the kitchen to cater for all new arrivals. Camp opening is now over, and we enter now a phase of scientific work. In the coming days, people will do measurements in the deep borehole, one plane will be used to service the PARCA network, the other plane will fly radar surveys of the ice sheet, Danish and German teams will both test their drill systems. It is going to be interesting.

What we have done today:

1. Receiving Skier 31 (95) LC-130 with cargo and passengers.
2. Receiving Alfred Wegener Institute Polar 6, Basler (rebuilt DC-3)
3. Receiving Norlandair Twin Otter with PARCA project.
4. Danish test drilling at 92.5 m. Cores are fine of around 1.40 m each.
5. Groomed skiway, taxiway and apron with Pistenbully and tiller.
6. Unpacked pallets with arriving cargo and placed food shipment in food stores.
7. Began assembly of AWI drill system for test drilling South of sauna tent.

Ad.4: After final adjustments the drillers have found a stable routine where they can drill 1.4 m cores in 20 minute runs. Drilling in a dry hole is now over and after measurements in the deep hole have been completed, drillers will continue testing with a new borehole fluid.

Weather: Clear with haze in the morning. Temp. - 15 C to - 25 C, 12-5 knots from SSE. Visibility: 5km to to horizon.
FL, J.P. Steffensen

Picture captions:

airport: Two beautiful aeroplanes parked on the NEEM apron. In front a Basler (rebuilt DC-3) and behind a Twin Otter.

Thursday, 24th May 2012.

17 for lunch and 27 for supper.

An interesting routine is developing. In the morning we send off two aircraft, one with 6 persons and one with four. They stay away during the day and return for supper. It is almost as if NEEM needs an air traffic controller. The U.S. team is testing if they can use the existing tower and winch for their logging device. If this test is successful, then we don't have to mount another winch and weatherport on top of the drill hole and this would save a lot of effort and time. The Danish drill test has run well so far and after few modifications, the drillers are ready to test the drill in a fluid filled hole. The German drill team are setting up their drill for testing. Later on, this drill will be taken by the AWI plane to several locations on the North Greenland ice sheet. The mood in camp is fine and we have so far been blessed with good weather conditions. Today we had the first significant clouds and the first snow of the season.

What we have done today:

1. Sending off and receiving two aircraft.
2. Danish test drilling at 117.5 m.
3. Testing U.S. sonic borehole logging device on deep drill cable and winch system.
4. Removing snow wall from South side of carpenters garage.
5. AWI drill system assembly in progress.
6. Mounting garbage collection pallet.
7. Maintenance of the PARCA weather station at NEEM.

Ad.1: The PARCA Twin Otter made successful visits to GITS and Humbolt weather station sites. AWI Polar 6 made a successful radar mission along one of the predetermined profiles.
Ad.2: Dry drilling has now finished at 117.5 m. Ice core quality has been superb. The last 27.5 m have been drilled with a new slip ring design which works fine. Drillers are now ready to begin wet drilling after logging of the deep hole has been done.

Weather: Clear with patches of overcast and light snow. Temp. - 14 C to - 22 C, 13-3 knots from SSW. Visibility: 2km to horizon.
FL, J.P. Steffensen

Picture captions:

PARCA: Koni Steffen and Gino Casassa perform maintenance work on the PARCA automatic weather station at NEEM.

Friday, 25th May 2012.

Work in camp on track and aeroplane operations on track.

The fine weather continues to help us a lot. The aeroplanes are able to complete their missions, even to areas that are often difficult to reach due to weather, and camp it is a pleasure to work out side. Almost everything left on the surface from last year is now lifted to the surface and reorganized in a neat fashion. Re-fuelling of the planes from pumps and tanks in camp runs very fine. The Danish drillers in the carpenters garage are now preparing to work in "wet" conditions as a new test fluid has been poured into the hole. In the drill trench borehole measurements were completed without incidents. Sarah was happy as all food has been unpacked , sorted and laid out in the food storage for easy access.

What we have done today:

1. Sending off and receiving two aircraft.
2. Danish logging of deep hole geometry and temperature completed.
3. Prepared Danish wet drilling by putting test fluid in the hole.
4. Work on reducing noise in the signal to the U.S. sonic borehole logging device mounted on deep drill cable and winch system.
5. Removing snow from South side of carpenters garage.
6. AWI drill system assembly in progress.
7. Lifting cargo from last year to new surface. Cleaning up in cargo line.
8. All food has been sorted and organized in the food storage.

Ad.1: The PARCA Twin Otter made successful visits to Peterman Glacier weather station site. AWI Polar 6 made a successful radar mission along one of the predetermined profiles. The airborne missions require coordination with Flight Information Centre in Kangerlussuaq, between camp and the planes by radio and satellite telephone and fuel handling in NEEM camp.
Ad.2: The logging was done according to the latest plans.

Weather: Few clouds in the morning, otherwise clear. Temp. - 14 C to - 21 C, 3-12 knots from S, later NE. Visibility: To horizon.

FL, J.P. Steffensen
Picture captions:

Three drillers: Simon, Trevor and Carsten prepare for the wet drilling. Simon and Trevor carry the hollow shaft for wet drilling and Carsten has a hammer – just in case.

Saturday, 26th May 2012.

It is Saturday and we have a full house for dinner.

Although it is Saturday, there is a lot of activity in camp and in the air space over the North Greenland ice sheet. One of the experiments planned for this year is successfully completed, and both aircraft have been flying missions. We have been very lucky with all the beautiful weather and after tonight the Twin Otter is ready to leave NEEM after completing it's program in the NEEM area. For AWI Polar 6 there remains one mission before they can go back to Kangerlussuaq to unmount the radar equipment. Later, the AWI Polar 6 will return to support other programs. The completion to the airborne programs is good, as forecasts are beginning to indicate a change in weather. Tonight however, we will celebrate Saturday night with good food and good company. Mirena, Erin and Marja have volunteered to be cooks.

What we have done today:

1. Sending off and receiving two aircraft.
2. Danish wet drilling test successful.
3. German drill almost ready for test drilling.
4. Collecting all empty drums in camp and preparing them to be sent out.
5. Saturday night dinner: Mirena, Erin and Marja.

Ad.1: The PARCA Twin Otter made a successful visit to Tunu weather station site. AWI Polar 6 made a successful radar mission along one of the predetermined profiles and in the NEEM area.

Ad.2: Drillers report: After 98 runs a depth of 130.4 m was reached. 8 runs (117.5 m to 130.4 m) were done using a new test fluid. In the dry mode, the cores drilled below 100 m began to show the normal fracturing due to brittle ice. In the wet mode the cores became excellent again.
Setup and testing of the new Danish intermediate drilling system is completed with success. The Copenhagen group now has a complete system for drilling shallow cores to 120 m weighing total 250 kg, a intermediate system to 1 km with a total weight of 475 kg, and a deep system to 3 km weighing a total of 4 tons.
Immediate reactions to the test drilling fluid: A lot less slippery. At -14 C need proper ventilation. Smell manageable and acceptable. Smell reminds us of DEET based insect repellant. As tests in Copenhagen showed almost no smell at –35 C, we would say that: Fluid is acceptable for deep drilling in Greenland and fluid recommendable for work in Antarctica. Drillers find that the advantage of less stickiness outweighs the disadvantage of smell.
More tests on the fluid will be performed in the coming days.

Weather: Thin clouds with haze in the morning , otherwise clear. Temp. - 16 C to - 21 C, 3-12 knots from NE and N.

Visibility: 3 km, later to horizon.

FL, J.P. Steffensen

Picture captions:

Ice core from the test drilling and drillers: Simon, Trevor and Carsten.

Saturday night cooks: Mirena, Erin and Marja in full swing.

Sunday, 27th May 2012.

After a good party Saturday night, activities in camp began with the departure of Polar 6 on a radar mission. Slowly but surely everybody went to work. Again, it has been a good day for work outside albeit somewhat chilly due to the wind. The drill was pulled out of the carpenters garage to make room for the bore hole camera system. This will be the last day where two aeroplanes decorate the parking area at camp. Tomorrow Polar 6 will fly to Kangerlussuaq to have the radar equipment removed and it will return to NEEM some time next week as a pure cargo plane. The Twin Otter and crew will continue the PARCA program by flying to Summit tomorrow. After Polar 6 had landed, people used the skiway area for recreational purposes: Skiing, running and walking. We have placed the usual sofa at the Southern end of the skiway, and this sofa is a popular picnic spot.

What we have done today:

1. Logging test hole with bore hole camera.
2. Sending off and receiving one aeroplane.
3. Excavations around carpenters garage.
4. Setting up U.S. logger winch in tent on the surface next to the drill trench.
5. Setting up German drill system. Some adjustments needed before drilling.
6. Cleaning up in the cargo line.
7. Made new outhouses.

Ad.2: The PARCA Twin Otter had a much needed day off before flying to Summit tomorrow. AWI Polar 6 made a successful radar mission along one of the predetermined profiles and made a test landing at the future NEGIS site. There were very few sastrugi at NEGIS.

Ad.4: The electric characteristics of the winch and cable in the drill trench did not fit the U.S. sonic logger so it has been decided to mount the U.S. logger on the surface.

Weather: Clear all day. Temp. - 16 C to - 27 C, calm-12 knots from SSE. Visibility: To horizon.
FL, J.P. Steffensen

Picture captions:

Polar 6: Polar 6 is being refueled. This plane was built in 1942. It has been outfitted with two modern turbine propeller engines, new cockpit instrumentation and is still going strong.

Monday, 28th May 2012.

Big changes today.

Weather changed today. While the day began almost as usual, the weather changed rapidly in the afternoon. Temperatures increased and clouds with snow moved in obscuring the Sun and removing all contrast. So far the wind has not picked up; but we expect it will. By midnight visibility was reduced to 500 m due to snow. Because we have very reliable weather forecasts, we knew this weather was coming, and both aeroplanes managed to escape the weather. The Twin Otter left at 13.00 and by 17.00 NEEM was closed for traffic. A close escape! We cannot believe our luck. During their time at NEEM, both planes and crews completed their tasks without delay. With the planes and crews away, the number of people at NEEM is reduced from 27 to 16, so all of a sudden it was much less crowded at the dinner tables. We wish all the departed people "Bon Voyage".

What we have done today:

1. Sending off two aeroplanes.
2. Moving frozen food from ramp to science trench.
3. Packing Danish intermediate drill down for shipment out. All traces of drilling activities in the carpenter garage have been removed.
4. U.S. sonic logging of deep borehole in progress.
5. Setting up German drill system. Final adjustments. Drilling should begin tomorrow.
6. Cleaning up in the cargo line. Collecting cargo for shipment out.

Weather: Few clouds in the morning, after 17.00 overcast. Temp. - 7 C to - 21 C, 5-12 knots from SSE to SW. Visibility: Morning, to horizon and evening 500 m, snow.

FL, J.P. Steffensen

Picture captions:

Two drills: Trevor, Carsten and Simon presenting two drill brothers: Little brother to the left is for dry holes to 120 m, and middle brother to the right for wet and dry holes to 1 km depth (Big brother is in the underground drill trench).

Twin Otter: The Twin Otter with the PARCA crew waves goodbye to NEEM by making a low overpass of the dome.

Tuesday, 29th May 2012.

Adverse weather.

Summer has arrived to NEEM, bringing clouds, snow and very high temperatures. The absence of contrast and poor visibility due to snow made it more difficult to work outside. Inside the tents and on any exposed surface of boxes and crates snow began to melt, forming puddles of water. Martin, Philip and Sepp operated the German drill. Sverrir and Lou were conducting experiments with a reconfigured beam groomer, Simon, Carsten, Tyler and Trevor worked in the drill trench, Dan and Erin worked with the logger, J.P. and Mirena cleared out in the carpenter garage while Marja, Jakob and Sarah worked in and around the main dome. At lunch time J.P. reminded everybody about the dangers of driving snow mobiles too fast in poor contrast and visibility. On the snow neither holes nor snow drifts can be detected before it may be too late and a crash happens.

What we have done today:

1. German shallow drill test in progress.
2. U.S. sonic logging to 600 m in deep hole.
3. Cleaning out in carpenter garage.
4. Cleaning out in drill trench.
5. Experimenting with new beam groomer design.

Ad.1: The first cores have been drilled; but still some adjustments have to be made along the way.

Ad.2: Sonic logging progressed to 600 m depth when the signal disappeared. The logger was retrieved for repairs, and this evening the next attempt is in progress.

Ad.3 and 4: We are beginning to clear out stored equipment and prepare equipment not needed during a future move of camp for shipment to Kangerlussuaq for storage there.

Weather: Thick overcast all day. Temp. – 2.8 C to –7.5 C, 5-16 knots from SW to W. Visibility: 500 m – 1 km, substantial snow fall.

FL, J.P. Steffensen

Picture captions:

German drill: Drilling with the German drill South of camp. To the left, the drill is horizontal for service and core removal and to the right, the drill is vertical and ready for descent in the hole.

Wednesday, 30th May 2012.

36 hours of bad weather over.

We cannot believe our luck. A big change in weather as we experienced yesterday is normally associated with high winds and severe snow drift; but this time the weather dissipated after 36 hours. Weather is fine again, albeit with much higher temperatures. It has been a pleasant day, and while the Erin and Dan are working with their logger in the deep hole, Trevor and Carsten opened a drill school for our young scientists: Tyler, Mirena and Marja. Simon worked on the deep drill electronics that will be used next week. Martin, Philip and Sepp worked with the German drill system, Sverrir and Lou modified the groomer, groomed and pushed snow, J.P. removed snow drifts with the snow blower, Jakob helped in the main dome and Sarah presented us again with wonderful meals.

What we have done today:

1. Grooming taxiway and apron with modified groomer.
2. U.S. sonic logging: Repairing a noise problem in electronics.
3. Excavation around mechanic garage.
4. German shallow drilling: Adjustments and working on establishing a routine.
5. Testing motor section of deep drill.
6. Shallow drilling class in camp.
7. Removing snow drifts from yesterday.

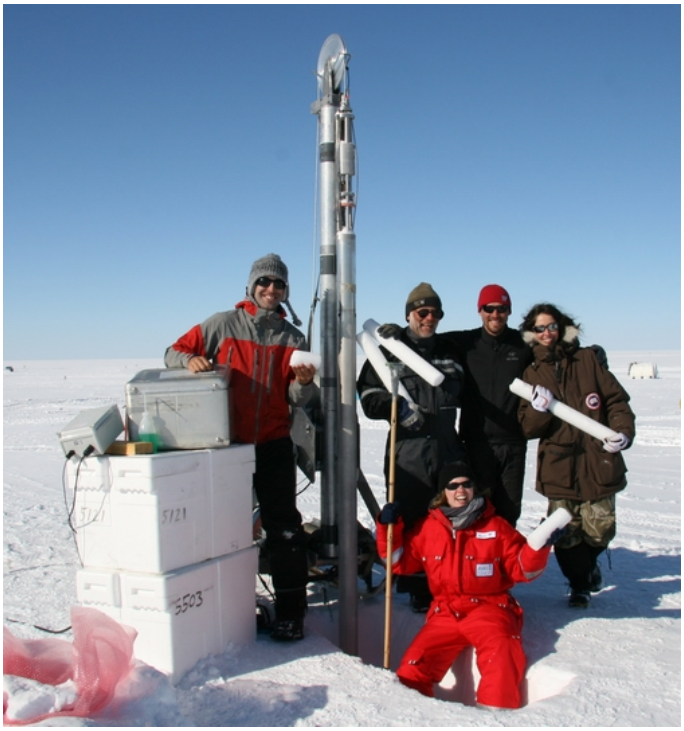
Ad.1: The frame behind the groomer has been cut off, and the main beam is lifted a few cm by skis on each side. We hope that this design will help removing undulations on the skiway.
Ad.2: Sonic logging progressed to 900 m depth when the signal disappeared. The logger was retrieved for repairs, and this evening the next attempt will begin.
Ad.3: Excavation around mechanic garage has begun in preparation of a move of the garage from the deep hole to a new snow hill.
Ad.5: While the U.S. logging is on the way, we are beginning to prepare sections of the deep drill.

Weather: From 9.00 Clear all day. Temp. – 4 C to –10 C, 4-13 knots from W to S. Visibility: unrestricted.

FL, J.P. Steffensen

Picture captions:

Pistenbully: Sverrir with the Pistenbully attacks the snow around the mechanic garage. We will lift this garage to a new snow hill.



Drill school: From left: Tyler (driller student), Carsten (drill mechanic), Trevor (driller teacher) , Mirena (driller student) and in front Marja (driller student) .

Thursday, 31st May 2012.

A gloomy day with a gloomy technical fault.

Well, actually the bad weather returned with thick clouds, snow and blowing snow. We had to cancel a planned flight of Polar 6. Right after lunch the German drill suffered a mechanical fault. The cable holding the top wheel broke, and the drill plunged 9 m into the hole. As the main cable snapped taught, the drill split in two, leaving only the top section attached to the cable. The bottom part of the drill now sits at 25 m depth. Most important of all: Nobody got hurt. A borehole camera was sent down to inspect, and in the afternoon and evening several plans were made to rescue the drill. The crew in camp is still optimistic about rescuing the drill. Grooming with the modified groomer seem to work just fine, and the skiway improves. Sonic logging is on the right track, and they expect to have completed their work by tomorrow.

What we have done today:

1. Cancelled planned flight with Polar 6.
2. Removed fluid mixing station in drill trench.
3. Grooming skiway, taxiway and apron.
4. German shallow drilling: Mechanical fault .
5. First U.S. sonic logging almost complete.
6. Work on rescue of drill.

Ad.2: The fluid mixing station was dismantled, and Trevor described this task as equivalent to working in salt mines.

Ad.6: The rescue plans involve special fishing tools that will be produced in the coming days.

Weather: Overcast. Temp. – 3 C to –10 C, 5-17 knots from SW to SSW. Visibility: 1 km. Snow and blowing snow.

FL, J.P. Steffensen

Picture captions:

Gloom: A picture of part of camp illustrating the gloomy weather and gloomy mood regarding the drill incident at the tower to the left.

June

Friday, 1st June 2012.

A day with changes of plans.

Polar 6 arrived this afternoon in splendid sunshine. On the way here, it picked up detonators for seismic studies in NEGIS camp in two weeks time. The explosives will arrive later. As we have decided to go forward slowly with the drill rescue, making the right tools, having glycol ready and having several alternative methods ready at the same time, we decided to send the Danish shallow drill along with Polar 6 to perform 30 m ice coring at a number of sites the AWI has designated. First drilling is planned for tomorrow. Field work requires constant planning and changes of plans; but we believe that we have found a good solution. The Polar 6 crew said that the skiway has improved with the new groomer and we have high hopes that the 109th will be just as satisfied next week when they come. Erin and Dan are happy as their task, sonic logging, is successfully completed.

What we have done today:

1. Received Polar 6. Loaded DK shallow drill on Polar 6.
2. Begin excavation of trench for balloon experiment.
3. Grooming and tilling taxiway and apron and grooming skiway.
4. Work on producing tools for drill rescue.
5. First U.S. sonic logging completed with success.
6. Moved all frozen food from ramp to science trench.
7. Ice core processing school.

Ad.1: As substitute for the German drill, we plan to send the Danish shallow drill with Polar 6 to the shallow coring sites designated by the AWI team in the coming days.

Ad.5: The logging team completed a full profile going down, and a second profile from the bottom to 900 m depth at high resolution.

Weather: Clear. Temp. – 3 C to –10 C, 5-17 knots from SSW to S. Visibility: Unrestricted.
FL, J.P. Steffensen

Picture captions:

Loggers Erin and Dan: Erin and Dan celebrating a successful completion of sonic logging.

Dan: Dan repairs the sonic logger in the drillers workshop.

Erin: Erin watches the data output of the logger during logging.

Saturday, 2nd June 2012.

A little unusual Saturday.

Simon and Trevor had originally signed up as cooks for the Saturday evening dinner; but as plans have changed Simon, Trevor, Sepp and Mirena went with the Basler for deep field drilling at German drilling site B21. The operation went well. They departed at 9.00 and were back at 16.45 with 31 m ice core. Luckily for our Saturday dinner others volunteered, and Erin, Dan, Lou and Tyler became cooks. Carsten, Philip, Martin and Sverrir were devising plans and making tools for drill rescue. It became a fine Saturday evening, however everybody were a bit spent and most went to bed early. By midnight all was quiet in camp.

What we have done today:

1. Made tools for rescue of drill.
2. Excavation of trench for balloon experiment 2 m deep.
3. Packed sonic logging equipment.
4. Basler drilling mission. Drilled 31 m core at B21 (80 N, 41W).
5. Tilled skiway.

Ad.1: Several plans are in play and we attempt a rescue tomorrow.

Ad.4: Aided by the very fine weather the drilling crew of four and the air crew had fine day out with approx. 5 hour stay.

Ad.5: The skiway is more even than previous years at this stage of the field season.

Weather: Few clouds. Temp. – 3.6 C to –13 C, 10 knots from S. Visibility: Unrestricted.

FL, J.P. Steffensen

Picture captions:

Shallow drill: Deep field drilling at 80 degrees North. Trevor operates the drill while Basler mechanic, Gerard, is watching and to the right pilot John is talking to Sepp while Mirena is logging the ice cores.

In Basler: Compared to the Twin Otter, the Basler has a lot of room. Mirena and Trevor are in their seats and behind them to the left is the complete drill system.

Sunday, 3rd June 2012.

A busy Sunday.

Most people in camp were up and about at 8.00. The Basler took off at 10.00 with Trevor, Sepp and Marja, while Simon stayed back to work on the antitorque of the deep drill. Tyler and J.P. finished the first stage of excavation of the test trench. Lou and Sverrir with the assistance of Erin and Dan moved the logging equipment to the cargo area, and Martin, Philip, Carsten and Sverrir took part of the rescue operation. Mirena and Jakob helped Sarah in and around the main dome. Weather is really nice and easy to work in. People have to take care not to be sun burned, and we hope weather will continue like this just a little while more, although we know that it cannot continue indefinitely.

What we have done today:

1. Gathering cargo for shipping out.
2. Excavation of trench for balloon experiment 3.1 m deep.
3. Basler drilling mission. Drilled 30 m core at NGRIP (75 N, 42W).
4. Drill rescue operation.
5. Mounted a new rotating connector in the antitorque of the deep drill.

Ad.1: We hope to be able to send out three pallets with equipment.

Ad.3: The drilling of 30 m core at NGRIP was completed in fine weather. From touchdown to finish packing took 4

hours and 20 minutes. The group then had a chance to visit the NGRIP dome. The top hatch is still visible and everything inside is in good order. There is one triangular panel in the generator room pushed in by the snow. This dome has now lasted 16 years on the snow. The NGRIP casing is 3 m above surface, and the road sign is 1.8 m high. The skiway is gone, and the most visible feature is the buried Lucht Castle. An aluminium pipe with a bamboo pole will mark the dome after the top becomes buried.

Ad.4: Sunday afternoon there have been two attempts to place a hooking tool in the top of the drill. Sunday evening a third rescue attempt is in progress.

Weather: Few clouds. Temp. – 5 C to –14 C, 9 – 3 knots from S. Visibility: Unrestricted.

FL, J.P. Steffensen

Picture captions:

At NGRIP: All what's left of NGRIP camp. To the left a lonely road sign. To the right the 3 m casing pipe which allows access to the 3080 m deep NGRIP borehole. Trevor and pilot Erik are standing on the main dome and are about to open the top hatch. Marja watches in the background.

In the NGRIP dome: After 16 years, the dome still holds up. Erik, Trevor and Marja are studying the pictures on the wall in the dining area.

Sunday, 3rd June 2012. EXTRA

Successful drill rescue.

In the third attempt Sunday evening, the team succeeded in placing the special tool in the top section of the drill and lock it. A borehole camera showed the operators the top of the drill, and five 6 m long aluminium pipes coupled up provided the means of manipulation and locking the device in the deep. Two flags are right now missing in the flag line because their poles were used as pipes. 200 kg pull was applied to the cable and glycol added through the pipes. After one hour the drill was free and slowly hoisted to the surface by a very anxious and happy crew. The drill is up thanks to a good team work of Sverrir, Simon, Martin, Philip, Carsten and Lou.

FL, J.P. Steffensen

Picture captions:

Drill rescue: The drill coming up from the deep hanging in a special tool. As soon as it reached the surface it was secured with a cargo strap.

Monday, 4th June 2012.

We prepare for an LC-130 flight tomorrow – and yet again not.

It looks as if the good weather is coming to an end. The forecast we received this morning indicates that a lot of moist warm air will arrive tomorrow. We trust these forecasts, and therefore we decided to postpone the flight to Wednesday. Otherwise, this day was fine, and again the drilling crew outdid it self. They left at 9.15 and were back at 15.30. Work is continuing in the drill trench. They both clean up and prepare for the coming weeks attempt to penetrate the debris laden ice and enter bedrock.

What we have done today:

1. Gathering cargo for shipping out.
2. Excavation of trench for balloon experiment 5.3 m deep. Balloon inserted and test inflated.
3. Basler drilling mission. Drilled 31 m core at B18 (78 N, 36 23'W). 31m was drilled in 3 hours 20 min.
4. Testing slip ring in antitorque of deep drill.
5. Packing down German drilling equipment.

Ad.2: The balloon (i.e. a 270 cubicmeter gas tank) was inflated with an electrical air pump. Filling took almost 3 hours.

Ad.4: The slip ring was tested at various depths all the way down to 2530 m. Test went o.k.

Weather: Thin broken cloud cover. Temp. – 5 C to –15 C, 10 – 3 knots from S. Visibility: Unrestricted.

FL, J.P. Steffensen

Picture captions:

NEEM: NEEM camp seen from the air as the Basler approaches from drilling. The skiway is by far the most visible feature. Came with the main dome is to the right.

Deep field: Another good picture of the drilling team at a point somewhere on the Greenland ice sheet.

Tuesday, 5th June 2012.

LC-130 flight cancelled and Basler flight cancelled.

Today weather turned bad. It has been cloudy with snow most of the time. Al surface definition disappeared and people had to be very careful to avoid driving or walking into holes and bumps. And it has become hot and sticky. Water formed on all non white surfaces making work difficult. These high temperatures also turn the snow into soft powder. People sink in when walking and it makes walking long distances quite an undertaking. No planes flew to and from NEEM today due to weather. Since the forecast tomorrow is almost as bad as weather today, we have already decided to cancel the LC-130 flight tomorrow. Now we hope for Thursday…

What we have done today:

1. Gathering cargo for shipping out.
2. Test balloon trench almost complete.
3. LC-130 and Basler missions cancelled.
4. Work in science trench. Processing shallow cores.

5. In the drill trench, the drillers made a new mount for the slip ring.
6. Maintenance on main generator.

Ad.2: After a glycol filled u-tube was mounted as pressure gauge, the balloon was inflated to 0.075 bar overpressure. After this test, the pressure was decreased to 0.025 bar overpressure, and the backfilling with snow blowers began. Backfilling lasted the whole day and is almost complete. The balloon holds pressure in a fine way.

Weather: Thick overcast. Temp. – 2.5 C to – 8 C, 13 knots from S to calm. Visibility: 500m to 5 km, snow most of the day in variable intensity.

FL, J.P. Steffensen

Picture captions:

Balloon trench: Tyler is blowing snow down onto the balloon now partly buried in trench. A still exposed part of the almost buried white balloon can be seen to the right.

Wednesday, 6th June 2012.

We prepare for the arrival of an LC-130 tomorrow.

Lou spent the entire day today driving the Pistenbully up and down the skiway to till in the new snow in preparation of the plane tomorrow. Some people in camp are now eager to go home. Their projects are finished, and the plane arriving tomorrow will arrive to days later then planned. However it is a fact of life here that we are totally dependent of weather. But people mostly help where they can and give their contribution to the community this way. During the day weather cleared and we are confident the weather will be good for a flight tomorrow. Life in camp continues to progress at a good pace, and all share the anticipation and excitement of not only Sarah's lunches and dinners but also her cookies and cakes.

What we have done today:

1. Basler mission to B22 (78 25'N, 36 26'W).
2. Excavated along sides of mechanic garage.
3. Processing ice cores.
4. Finished blowing snow on top of experimental trench.
5. Tilling skiway, taxiway and apron.

Ad.1: The drilling today was short with only 5.5 m core drilled before the power supply for the winch developed a

fault. Back in camp the power supply is under repair, and in the mean time the power supply for the intermediate winch will substitute the faulty one.

Ad.2: In preparation of lifting the mechanic garage to a new hill, all sides have to be excavated.

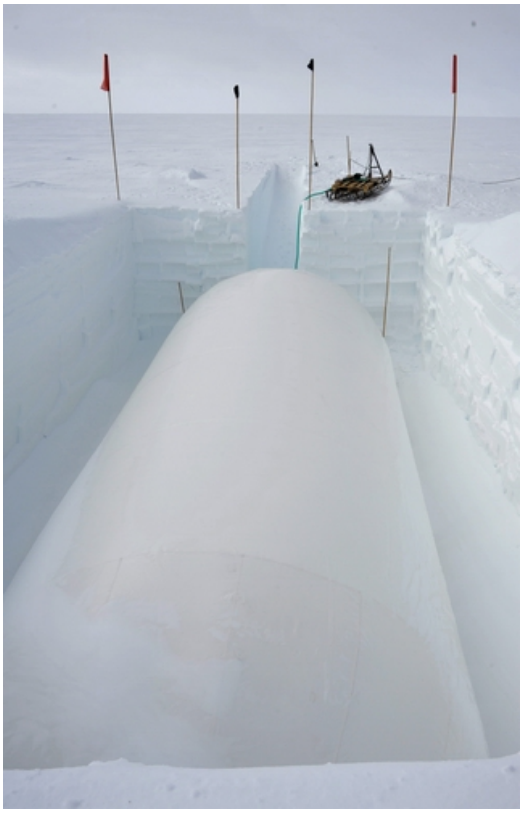
Ad.4: The process of blowing snow on top of the gas tank in the experimental trench finished as the snow roof reached 1 m above the snow surface. Now, we will keep the gas tank pressurized for several days to allow the snow on top to sinter and harden.

Weather: Broken to scattered cloud cover. Temp. – 5 C to – 15 C, 2-10 knots from E,S to NE. Visibility: unrestricted.

FL, J.P. Steffensen

Picture captions:

Processing: There is life in the science trench! Mirena and Marja are processing the shallow cores that were drilled in the previous days. They measure di-electric properties and densities before packing the cores for shipment.



Balloon: A view of the 15 m long and 4.85 m wide gas tank in the trench before we began to bury it.

Inspection: A view from underneath the gas tank shows the size of the tank. J.P. inspects the position of the tank.

Balloon buried: This is what is left of the trench with the gas tank after burial has been completed.

Thursday, 7th June 2012.

Finally the LC-130 came.

Waiting for good weather conditions pays off. Today we had a very successful mission with the New York Air Guard Hercules plane on skis. The crew said that the skiway was really good. The arrival of the Hercules coincided completely with the departure of the DC-3, so while the Hercules was taxiing in the DC-3 taxied out for take off. For a moment NEEM camp looked like a busy airport. The arrival of an LC-130 is always associated with big changes to camp life. Several people left and many new arrived. Some projects are over and other projects may begin.

What we have done today:

1. Prepared deep drill for bedrock drilling.
2. Received Skier 51 (92) and 12 new NEEM'ers and good-bye to 5. We are now 26 in camp.
3. Basler mission to Illulissat.
4. Unpacking arriving cargo and organizing food in food storage.
5. Sorting out arriving NEGIS cargo.
6. Began construction of roof over access ramp to experimental trench.

Ad.1: The drill has been mounted, and tomorrow drillers will make the first descent to the bottom of the deep hole, some 2538 m down.

Weather: Dense fog in the morning, which lifted at 8.30. Otherwise clear. Temp. – 6 C to – 17 C, 5-6 knots from SE. Visibility: 300 m in fog, later unrestricted.

FL, J.P. Steffensen

Picture captions:

Garage: Substantial excavation is needed to free the garage from the grip of snow. This garage was built on a 1.5 m hill in 2008.

Shallow drill: A beautiful portrait of the shallow drill in deep field operation with Simon and Trevor as operators. Friday, 8th June 2012.

We have got basal material.

One day after her arrival, Christine is already happy to have obtained a series of samples central to her research. The drillers were able to retrieve basal material from 2538 m depth and it was extracted under ideal conditions for Christine's work with luminescence dating. A fine success. Although our weather forecast hinted reasonable conditions, it was not possible today to launch a drilling mission with the Basler (DC-3). It has been cloudy and snowy all day. The group scheduled for drilling instead continued excavation of the mechanic garage. A group worked on laying roof over the entrance to the experimental trench, later they began to dig out all the excess snow that had been accumulated during the burial of the balloon. As the end of the balloon was exposed, it turned out that the snow had packed and hardened nicely in the last three days. It was decided to deflate the balloon, and as the balloon deflated, a large cavern of snow was exposed. Most of the floor is the original flat bottom of the trench; but the ceiling is vaulted as it was cast around the cylindrical balloon.

What we have done today:

1. Drilled with HT drill with hardened cutters in deep hole .
2. Today's Basler mission cancelled.
3. NEGIS team preparing seismic profile West of NEEM camp.
4. Grooming skiway with beam groomer and resetting skiway markers.

5. Preparing drill trench for extraction of basal material in red light.
6. Laying roof on the inclined entrance to the experimental trench.
7. Deflating balloon in experimental trench.
8. Excavation of the mechanic garage almost complete.
9. Snowmobile with lost ski repaired.

Ad.1 and Ad.4: Drillers made drilling efforts with hardened cutters and did not have good penetration. Before the drill came to the surface, all lights were switched off and dark room lighting was established. No core was retrieved; but the chip chamber contained substantial amounts of chips with basal particles. The chips were retrieved and packed in light tight packing in dark room light. The particles in the chips will later be analyzed with stimulated luminescence for dating the basal layers. When the light was switched on again, drillers could see that the cutters were damaged. They have decided to switch to the rock drill and will attempt drilling with this tomorrow.

Ad.6: This evening the balloon the in the experimental trench was deflated, and as access was gained. The roof over the trench is pure compacted snow, and it is holding out fine. The balloon has made a smooth vaulted roof and the snow cast around the balloon is very hard. Tomorrow the new trench will be inaugurated and measurements of roof height, width etc. will be recorded. It is our hope that it will be possible to measure how the trench compresses over time in the coming years.

Weather: Overcast with snow showers all day. Temp. – 7 C to – 16 C, 4 - 14 knots from S. Visibility: 1 km during snow showers, otherwise unrestricted.

FL, J.P. Steffensen

Picture captions:

Basal material: An example of the basal material retrieved today. All the tiny dark spots are mineral particles. Using luminescence technique, we may determine the time when they last were exposed to sunlight.

Saturday, 9th June 2012.

Saturday in very nice weather.

Although people stop working earlier than normal, a lot was accomplished today. A 30 ice core was drilled, the NEGIS team worked on the seismic profile, the skiway was made ready for the plane on Tuesday and in the drill trench more basal material was collected. Saturday afternoon and evening is Sarah time off, and Astrid, Nanna and Christine were the cooks of the evening. Our main course was musk-ox roast. Tyler removed snow from the entrance of the balloon trench and made steps. Eliza and Marja made an ice bar in the trench and made decorations with candle holders and

snow sofas to the side. Before dinner everybody went into the new trench and had a glass of warm mulled wine. After dinner we had a fine party.

What we have done today:

1. Today's Basler mission to B23 (78 00 N, 44 00 W) was successful and 30 m ice core drilled.
2. NEGIS team preparing seismic profile West of NEEM camp.
3. Grooming skiway, taxiway and apron with tiller.
4. Drilling with rock drill in red light.
5. Saturday night cooks: Astrid, Nanna, Christine.
6. Building ice bar in experimental trench. Folding balloon, cleaning around the construction site and excavating snow from the entrance ramp.

Weather: Clear. Temp. – 9 C to – 18 C, 5 - 13 knots from S to SE. Visibility: Unrestricted.

FL, J.P. Steffensen

Picture captions:

Gluehwein: Everybody participate in the opening of our ice bar inside the new balloon trench by toasting in mulled wine.

Balloon trench: The trench looks like an alien landscape with strange formations along the wall and a conical imprint of the balloon at the end.

Sunday, 10th June 2012.

Water rationing day.

Early Sunday morning we discovered that the ladies urinal was leaking water due to a dislodged seal. It fact it had been leaking for some time and the main snow melter was almost empty. The toilet was repaired, but it took all Sunday with water rationing to build up the volume of water in the snow melter again. It is Sunday, and work began a little later than on week days. The air crew had the day off; but tomorrow they will fly again. This time to the NEGIS (North East Greenland Ice Stream) site. At dinner we celebrated Sepps birthday and in preparation, Sarah had assistance from many people to make fabulous Japanese type Sushi, and for desert we had tiramisu.

What we have done today:

1. NEGIS team working seismic profile West of NEEM camp and sorting cargo for deployment by Basler.
2. Drilling with rock drill in red light.
3. Celebrating Sepp's birthday.
4. Working on steel beams for garage move.
5. Repairing leaking toilet and rebuilding main snow melter water level.

Ad.2: Drillers were again able to retrieve 20 cm basal material under red light. In the process they recoverd a hardened cutter plate which was lost two days ago.

Weather: Clear. Temp. – 9 C to – 21 C, 5 knots from SE to S. Visibility: Unrestricted.

FL, J.P. Steffensen

Picture captions:

Red light: Some unclear images to illustrate work in the drill trench under red light conditions. To the right is 15 cm material including a small stone recovered from the deep hole.

Monday, 11th June 2012.

Put-in of the NEGIS camp begins.

This year NEEM camp is also a staging station for a remote camp on the North East Greenland Ice Stream. Today and the next two days, the Basler will transport equipment and 4 people to the NEGIS camp where they will work in the next four weeks. During the staging of equipment there will be shallow ice core drilling at NEGIS. Today was the first of two, maybe three drilling days at NEGIS. At NEEM many tasks were completed, as the list of things done today testifies. We are ready for the planned LC-130 flight tomorrow. Weather has been outstanding: Nice and cold, as we like it, sunny and little wind. Sarah continues to work wonders with food and this has a positive impact on camp morale. Tonight we had spare ribs. A small problem with the shallow drill is repaired.

What we have done today:

1. NEGIS team working seismic profile West of NEEM camp.
2. Drilling with rock drill in red light. One sample retrieved.
3. Two flights with Basler to NEGIS (North East Greenland Ice Steam) . Staging of NEGIS camp.
4. Drilling at NEGIS (75 37.61 N, 35 56.49W). 17 m drilled.
5. Mechanic garage emptied in preparation of move.
6. Pit study by Eliza and Christine. 2 m pit excavated for tephra studies.
7. Top snow experiment with aging of pollen in the top snow initiated(Astrid).
8. Inserting measurement points for width and height in balloon trench. Initial measurements.
9. Taking down last Viessmann cabin in science trench and brought it to surface.
10. Made new outhouse.

Ad.3: First cargo has been put in at NEGIS and a tent erected.
Ad.4: Only 17 m were drilled when another power supply broke down. It has now been repaired at NEEM. We believe that the two breakdowns in power supply in the last week were caused by a faulty regulator on the generator. Tomorrow drilling will continue with another generator.

Weather: Clear. Temp. –10 C to – 19 C, 3-6 knots from S. Visibility: Unrestricted.
FL, J.P. Steffensen
Picture captions:

Drilling at NEGIS: Martin, Lou and Sepp during NEGIS drilling today.

Tuesday, 12th June 2012.

Crew exchange, DV visit, and sediment cores

Today we received a C-130 from Sønderstrømfjord that brought us new camp personnel plus a large group of interested Distinguished Visitors. After a two-hour tour of camp the DVs continued with departing camp members to Summit Camp for a stopover before returning to SFJ. At the same time the deep drilling continued in the drill trench where several cores were retrieved. The core material is now a mixture of ice and 'frozen mud' apparently consisting of very fine grained material. At the NEGIS site the shallow drilling continued successfully and reached 61m depth. Drillers were left alone at NEGIS while Polar 6 was shuttling NEGIS equipment.

What we have done today:

1. Drilling 'ice-mud' cores with rock drill in the deep hole
2. Receiving Skier 31 with DVs, NEEMers, cargo, and fuel
3. Providing DVs a 2-hour tour of camp
4. Two Polar 6 flights to NEGIS bringing equipment
5. Shallow drilling at NEGIS: 17m – 61m depth
6. Breaking down arriving pallets
7. NEGIS team working on seismic profile West of NEEM camp

Ad. 1: Subglacial drilling continues slowly but steady with two runs per day. The retrieved material now contains less ice and more fine grained clay-like material. Cores are continuously handled and packed in dark/red light in order to allow for luminescence dating.

Ad. 2: Skier 01 arrived at NEEM at 11:06L with 3 NEEMers, 14 DVs (members of the Danish parliament,

Forsvarskommandoen, Rigsombudsmanden, Greenland police officers, CPS personnel) and two media persons (Euronews). We received two pallets with scientific gear and food, 2 skidoos, sledges, and 5000 lbs fuel from the skier. Skier departed for Summit Camp at 13:09L with all DVs and 5 NEEMers using only half the skiway. Thank you all visitors, air guards, and camp personnel for a smooth operation.

Ad.5: For unknown reasons the new power supply broke shortly after engaging the drill motor. Drilling was, however, successfully continued with a spare power supply and drillers had good progress. If weather permits, drilling will continue tomorrow.

Weather: Beautiful day with clear blue sky and a few fog banks in the morning. Temp. –9 C to – 21 C, 5-10 knots from S.

FL, Anders Svensson

Picture captions:

A group of interested DVs being guided around camp by the man in yellow also known as JP

Wednesday, 13th June 2012.

Establishing the North East Greenland Ice Stream (NEGIS) camp

A final Polar 6 shuttle brought four scientists to the remote NEGIS site some 400 km SE of NEEM where a camp is now established. The scientists will stay at NEGIS for four weeks doing seismic work and radar surveying until they are picked up by Polar 6 in July. During this period, NEEM camp will be in contact with NEGIS on a daily basis. The shallow ice core drilling at NEGIS was terminated at 66.1 m depth and the ice core and the shallow drill are now back at NEEM.

What we have done today:

1. Drilling sediment cores with rock drill in the deep hole
2. Polar 6 flight to NEGIS bringing crew in and drill out
3. Established camp at NEGIS
4. Shallow drilling at NEGIS: 61 m – 66.1 m depth
5. DEPping NEGIS core. Laki found at 44.3 m depth
6. Setting up equipment in the water vapor sampling tent
7. Shooting film all over camp for Euronews
8. Drilling sample holes in skiway and in balloon cave roof
9. Preparing supporting beams in garage for lifting operation
10. Marking new foam boxes using numbers 5994-5999

Ad. 1: Today penetration went slowly. First run resulted in 13 cm core (see picture) while a second longer run was left at the bottom.

Ad. 3: The 4 person NEGIS camp crew was deployed and a camp was established. A first contact was made on Iridium (phone # in NEEM field log book page 1). Everyone is in good shape. NEGIS camp will call NEEM every morning at 8 am. If connection fails, they continue calling every half hour.

Ad. 4: The drilling at NEGIS continued and was terminated at 66.1 m depth. Due to technical issues with the drill it was not possible to proceed and all equipment was brought back to NEEM.

Ad. 6: Motohiro is setting up equipment in the water vapor sampling tent. A small AWS is installed and a proton transfer reaction mass spectrometer for DMS detection was unpacked. Unfortunately, a vital stainless steel tube had broken during transport and the instrument is unlikely to function until a spare part has been brought to camp.

Ad. 8: The skiway was probed by the hand auger for 3D tomography microstructure analysis at AWI.

Weather: Another beautiful day with clear blue sky and fog banks in the morning. At night a cloud cover rolled in. Temperatures –9 C to – 20 C, wind 5-12 knots from SW slowly picking up.

FL, Anders Svensson

Picture captions:

Today's mud and ice core from below the ice sheet.

Thursday, 14th June 2012.

This morning we said goodbye to the Polar 6 DC-3, its friendly crew, our Euronews visitors, and our AWI colleagues. We waved at the airplane and it waved back as it passed over camp. After a week of almost constant sunshine and a very busy airport, weather converted this afternoon into complete overcast, snow fall, snow drift, no contrast whatsoever, and winds up to 25 knots. In other words, we've been extremely fortunate! As the rock drill continuously digs its way into subglacial sediments, we're now focusing on our second major task of the coming weeks: clearing out trenches and packing down camp.

What we have done today:

1. Drilling sediment cores with rock drill for hours and hours

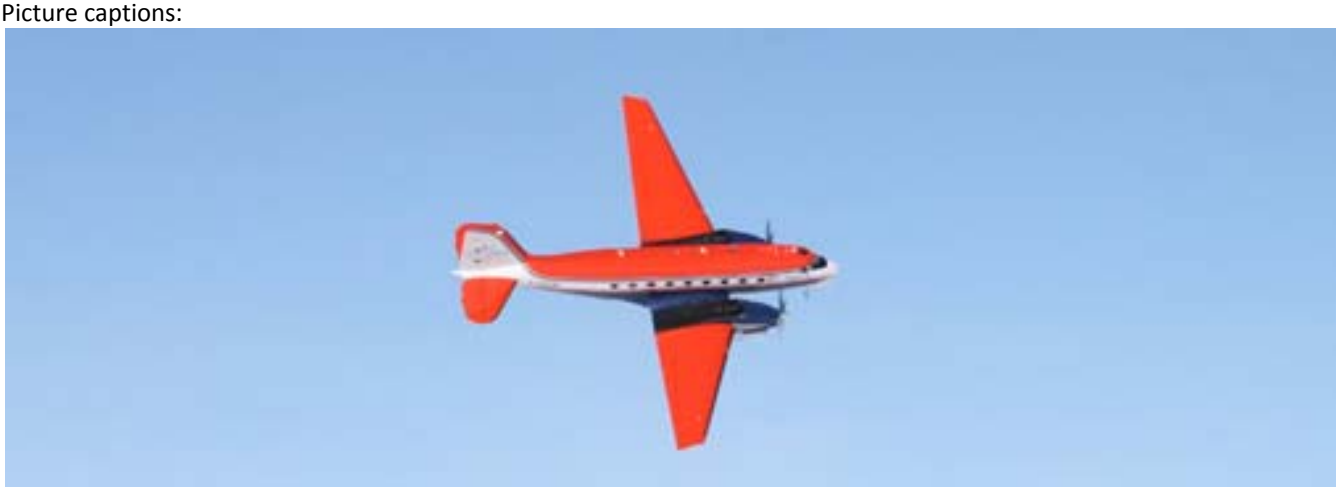
2. Waving goodbye to Polar 6 as it left for SFJ
3. Communication with NEGIS: All is well, camp is up and running
4. Strapping and documenting all ice core boxes: Weight: 1.5 tons
5. Setting up aerosol samplers next to water vapor sampling tent
6. Building new mountain for garage
7. Started clearing out science trench

Ad. 1: Today penetration went extremely slowly. A mixture of sediment and ice layers is very difficult to get through.

Weather started out beautifully with clear blue sky, but during the afternoon the wind picked up and a cloud cover came in with snow. Temperatures –5 C to – 10 C, wind 10-25 knots from S.

FL, Anders Svensson

Picture captions:



Waving goodbye to Polar 6

Camp girls hanging out on the coolest airplane of the ice sheet

Farewell NEGIS camp, see you guys in a month….! (yesterday)

Do you prefer sugar in your Café Latte? (NEGIS camp yesterday)

No lack of coziness in NEGIS kitchen tent (yesterday)

Loading the aircraft…

… before take-off in the mist.

Friday, 15th June 2012.

Marathon drilling and trench dismantling

Windy conditions with snow, drifting, and white-out did not permit much surface work to be carried out today. Instead we focused on drilling, packing in the trenches, and preparations for moving the garage up on a new hill. Drilling is currently extremely time consuming as the rock drill penetration is very slow in the icy conditions at the base of the hole, so progress is slow but steady. In the science trench the ice core buffer, all the saws, and the tables have now been taken down and are ready to be taken to surface when weather permits.

What we have done today:

1. Drilling 69 cm sediment/ice core
2. Communication with NEGIS: All is well, weather is cloudy but better than NEEM
3. Instrument maintenance in water vapor sampling tent
4. Getting garage ready for move
5. Clearing out science trench: taking down core buffer, saws, and tables

Ad. 1: The material recovered from the borehole now contains layered sections of clear, silty, and pebbly ice. Drilling in this sort of material requires a lot of patience and a single run can take up to 10 hours. So far, a total of 3.9 m basal material has been retrieved this season. The drill and its extension rods now take up the entire length of the drill tower and the inclined trench. Further extension of the drill will require assemblage and disassemblies of the drill while the deepest part of the drill is still in the casing.

Weather has been quite windy with winds around 20 knots from S and overcast. Late afternoon blue spells appeared and we hope for milder conditions in the coming days. Temperatures –3 C to – 10 C.

FL, Anders Svensson

Picture captions:

Despite very long working hours the spirit of the drillers is still high.

The result of yesterdays ~10 hour marathon drilling

Saturday, 16th June 2012.

Stormy weather

Today we had storm with average wind speed around 30 knots (16 m/s) occasionally rising to 35 knots. Indeed, there was 'no significant improvement' as the weather forecast predicted. The strong wind loosens snow from the surface and there is considerable snow drift several meters above surface, so it feels like being in a snow storm. Furthermore, meter high dunes of soft snow are piling up around tents and buildings. Because the contrast is very low it's almost impossible to see where you walk and we are half walking half falling through the piles of snow when walking around camp. Still, it is possible to see from one tent to the next, so there is no risk of getting lost. Under those conditions it's basically impossible to do any work on the surface, so we have to postpone moving the garage and moving our trench gear to the surface. Fortunately, drilling is not influenced by weather and we got a good run of 36 cm brownish sediment recovered in some 9 hours. Besides, it is Saturday, so we take advantage of the situation and stay inside cooking nice food and enjoy the good company.

What we have done today:

1. Drilling 36 cm sediment core
2. NEGIS: All is well, weather is cloudy and warm, but not as windy as here
3. Widening the ramp to the drill trench to allow for the winch to be pulled out

4. Getting ready to empty science trench when weather permits
5. Securing smaller tents against the storm
6. Enjoying delicious meal Indian style, prepared by Lars, Nanna, Eliza, and Astrid

Ad. 3: The drill trench ramp is not yet open to surface, but the deeper part is accessible from the trench (picture)

Ad. 5: Splendid Indian curries for main course. For desert, New Nordic Kitchen 'Tropical Island' Coconut ice cream made from freshly-picked light-isotropic Greenland Inland Ice snow.

Storm, overcast, snowdrift, wind 20-30 knots from SSW, temperature -7 to -10. Winds went down at night but we got snow showers instead. Still, we hope for reasonable conditions tomorrow.

FL, Anders Svensson

Picture captions:

Working in the mine shafts of NEEM

Lars and Nanna practicing New Nordic Kitchen with a twist of Indian cuisine

Sunday, 17th June 2012.

A calm day - good for moving stuff

Today the high winds had disappeared and we could inspect the new dunes of freshly deposited drift snow all around camp. Besides the ongoing deep sediment drilling, we had plenty of activity on the surface: The garage was moved up on its new hill in a spectacular operation, we started excavating the ramp to the drill trench, the first GPS points of the NEEM strain net were measured, aerosol measurements were started, surface samples were taken for DNA analysis, and equipment from the science trench was moved to surface. The weather forecast predicts a new storm in a couple of days, but we hope to be able continuing our surface activities tomorrow.

What we have done today:

1. Drilling 63 cm sediment core. Total core length: 4.9 m
2. NEGIS: All is well, had sunny calm weather, science program initiated
3. Moving garage up on new hill
4. Working on opening ramp to drill trench
5. Measuring 4 GPS positions at 7.5 km distance
6. Moving stuff out of science trench
7. Initializing aerosol measurements at water vapor tent
8. Taking remote DNA surface samples
9. Celebrating Lars' recent birthday

Calm weather with sun and snow showers, wind 2-10 knots from S, temperature -9 to -12 C.

FL, Anders Svensson

Picture captions:

Pisten Bully pulling caterpillar pulling garage from old valley to new mountain. It all worked out and the garage is now resting on its new elevated foundation.

Monday, 18th June 2012.

More snow, more wind, and more snow drifting

The day started out with overcast and snow showers, but winds were low, so we optimistically started blowing the ramps free of snow with the snow blower and began moving stuff around. Around lunchtime, however, winds picked up rapidly, snow drift started again, and everything filled in. At the same time we have quite some snowfall so snow dunes are piling up everywhere. The weather forecast predicts another 2-3 days of stormy weather, so we are preparing ourselves for some days of reduced surface activity. The drillers are now mounting their last extension rod to the rock drill and drilling can continue for a couple of days. Then, however, it is time to start clearing out the drill trench, so hopefully the storm will be over by then.

What we have done today:

1. Drilling 69 cm sediment core. Total core length: 5.6 m
2. NEGIS: All is well, had sunny calm weather, science program initiated
3. Moving equipment into garage on new hill
4. Ramp to drill trench blown free of snow and filled with new drift snow
5. Ramp to carpenters garage blown free of snow and filled with new drift snow
6. Moving stuff out of science trench
7. Making food order for next week's flight

Ad. 2: NEGIS camp has had good weather for surface work, 10 GPS stations have been set up, the first radar measurements have been made, and the first holes for seismic profiles have been drilled. First velocity and strain measurements can soon be done.

Overcast, snow showers, snow drift and increasing wind, 5-25 knots from SW, gusts of 30 knots, temperatures are high and rising, -4 to -11 C.

FL, Anders Svensson

Picture captions:

White in white – it is hard to tell what is up and down with the current weather conditions.

DNA samples taken from pristine surface snow (yesterday)

Happy Birthday Lars! (yesterday)

Tuesday, 19th June 2012.

Pebbles from below

We had high winds all day and could not do much outdoor work. All ramps are filled in, snow dunes next to constructions are now several meters high, and it has been snowing most of the day. Drilling proceeded and an interesting 67 cm core was recovered that contains a much higher fraction of course grained material than previous cores (see pictures). The pebbles / small rocks are up to a few centimetres across and they are mostly embedded in stratified ice and mud layers. The last extension rod is now mounted on the drill and there is still 1 m to go until the drill cannot penetrate any deeper.

What we have done today:

1. Drilling 67 cm sediment core. Total core length: 6.3 m
2. NEGIS: All is well, except weather is now similar to NEEM: snow, wind, drift, warm temperatures
3. Moving equipment into garage on new hill
4. Removing main lamps in science trench. Temporary lighting installed

Weather: Overcast, snow showers, and snow drift. Wind 18-30 knots from SW, decreasing trend during daytime, but increasing again at night. Temperatures -4 to -7 C.

FL, Anders Svensson

Picture captions:

Small rocks from below the ice cap that detached from today's core. The largest pebble is 2 cm wide.

Close-up of today's core containing 'rocks' and stratified material

The rock drill extension is now so long that the last rod has to be mounted with the drill in vertical position. An unusual operation that needs to be carried out at the bottom of the inclined drill trench. There is a high risk of drill liquid showers.

The Pisten Bully is slowly disappearing in the drift snow.

Wednesday, 20th June 2012.

'Any improvement is temporarily'

It is now definitely summer time at NEEM with today's temperature reaching a maximum of -1.1 C. The snow gets heavy and sticky, but still we had snowdrift most of the day. At midday the wind decreased somewhat and we took advantage of the improved conditions to remove some of the snow dunes with the Pisten Bully and made access to tents and trenches with the snow blower. In the evening, however, the wind picked up again and new dunes are currently forming. Indeed, the weather forecast was entirely right in stating that 'any improvement is expected to be short lived'. As next weeks flight period is approaching we are hoping for colder and less windy conditions so that the skiway can be well prepared.

What we have done today:

1. Drilling 69 cm sediment core. Total core length: 7.0 m
2. NEGIS: Weather improved, wind 10 kts, cloudy and warm conditions
3. Redistributing large amounts of snow on surface
4. Measuring two GPS stations
5. Moving science trench stuff to pallets

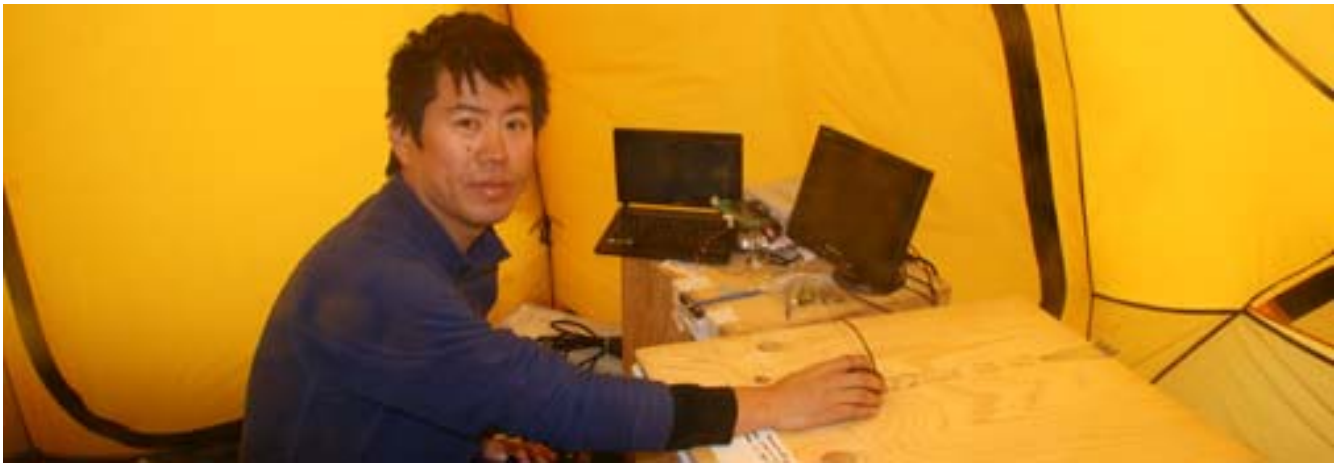
Ad. 1: Today's core contains sections of clay, a 10 cm sand layer, centimeter-sized pebbles, and ice layers.

Weather: Complete overcast and snow drift most of of the day. Wind 15-30 knots from SSW, relatively low winds during midday but increasing wind at night. Temperatures -1 to -4 C.

FL, Anders Svensson

Picture captions:

Thomas is happily operating the snow blower in the soft and warm snow



Motohiro takes care of the snow and water vapor sampling and analysis in a yellow tent regardless the weather conditions.

During daytime the wind decreased temporarily and Sverrir took advantage of the improved conditions to smoothen out some of the large snow dunes with the Pisten Bully

Thursday, 21st June 2012.

The Sun reappeared!

Hurrah, after a week of overcast we saw the Sun today! Both wind speeds and outdoor temperatures have been dropping, so we are in a better shape to prepare for next week's flight and there was much activity on the surface: Lou started preparing the apron, Sverrir removed snow dunes in camp, Lars and Nanna went out to measure a couple of GPS positions of the NEEM strain net, and the science trench gang moved another pile of gear to surface. If those conditions continue, we may soon try opening the ramps to the trenches and buildings again.

What we have done today:

1. No drilling today
2. NEGIS: wind around 10 kts, the Sun is seen, and there is good progress
3. Redistributing large amounts of snow in camp
4. Started beam grooming apron
5. Measuring two GPS stations at 7.5 km and 25 km
6. Packing of science trench electronics
7. Moving science trench stuff to pallets
8. Worked on synchronization of NEEM and NEGIS ice cores

Ad. 1: The deep drilling cannot proceed any further without more extension rods for the rock drill. It was somewhat unexpected that the drilling has not yet reached 'solid' bedrock at this point. There is general agreement that the drilling should continue if possible. Therefore, new rods have been ordered and the plan is to continue the deep drilling in 2-3 weeks time.

Ad. 6: The science trench is slowly being emptied. It now contains ice core boxes, the cooks freezer, a seismic station and some bulky items that need opening of the drill trench ramp to get out.

Weather: Mostly overcast and snow drift most of the day, but sunny spells appeared. Wind 10-30 knots from SW, rapidly decreasing at night. Temperatures -3 to -10 C, decreasing at night.

FL, Anders Svensson

Picture captions:

Perfectly packed boxes containing lamps and electronics from the science trench. Bruno is taking care of packing down all science trench electronics and the equipment is packed in boxes in an optimized, Swiss way.

Nanna and Lars are waiting in the middle of nowhere for a GPS measurement of a strain net position 25 km out of camp.

Friday, 22nd June 2012.

The weather is still collaborative and we've spend the day preparing for the flight scheduled for next Tuesday: Lou has been zig-zag grooming the skiway all day, the first pallets are starting to build up, the science trench elevator was opened, the science trench is continuously being emptied, and packing has begun in the drill trench work shop. Lars, Nanna, and Astrid also took advantage of the reasonable weather and drove more than 150 km on Skidoo to measure the most distant GPS positions of the NEEM strain net.

What we have done today:

1. NEGIS: wind around 5 kts and sunny, everything is well and the science program is on schedule
2. Beam grooming entire skiway
3. Measuring three GPS stations at 25 km. NEEM strain net now completed.
4. Opened ramps to carpenters garage and balloon trench
5. Pisten Bully maintenance
6. Made science trench elevator operational
7. Started building pallets for next week's flight

Ad. 2: After the heavy snowfall and important snow drift of the last week the skiway needs a full treatment. The skiway quality next week will strongly depend on weather, in particular temperatures.

Weather: Mostly overcast with a few snow showers. Fairly good visibility but rather poor contrast most of the day. Wind 5-10 knots from SW. Temperatures -8 to -12 C.

FL, Anders Svensson

Picture captions:

Astrid (left), GPS (center), and Lars (absent) drove 25 km out of camp to measure the NEEM strain net that provide us with information on the ice surface movement around NEEM. It's fairly white out there.

Saturday, 23rd June 2012.

Preparing for Monday storm and Tuesday flight mission

The weather forecast predicts stormy conditions for Monday, just before the flight mission scheduled for Tuesday. We therefore take advantage of today's relatively good weather conditions to prepare the camp for another storm and to get ready to receive the airplane. We continue preparing the skiway and we have now two pallets of science equipment ready to go. A third pallet will be build from ice core boxes containing the 1.5 tons of shallow ice cores that were drilled earlier this season. Next weeks flight mission will also be a major NEEM crew exchange where the camp population will go down from 14 to 8 persons and only 2 participants will stay in camp, namely Sarah and Motohiro.

What we have done today:

1. NEGIS: all well, clouds and sunny, wind 10 kts, radar work and preparation for seismic work
2. Beam grooming skiway
3. Making two pallets ready for next week's flight
4. Clearing snow away from carpenters garage preparing it to be moved
5. Emptying balloon trench and closing entrance
6. Cooking delicious meal and enjoying a nice evening

Weather: Overcast with a few snow showers as well as sunny spells during the afternoon. Varying visibility and poor contrast most of the day. Wind 10-18 knots from SW. Temperatures -7 to -9 C.

FL, Anders Svensson

Picture captions:

Net-throwing is an important skill for pallet strapping and it helps to be +2 m tall.

Sunday, 24th June 2012.

A large stone in the borehole

Today Steff and Trevor went down with the rock drill to investigate if ice has formed in the deepest part of the borehole. If namely there is water in the sediment there is a risk that ice formation could prevent further drilling. Re-drilling of the 7m borehole proceeded very slowly and after some 7 hours of reaming without reaching the bottom of the hole the drill was taken up. Surprisingly, the drill held a 5 cm large stone (picture). So a possible explanation for the slow penetration is that the rock was somehow in the way.

Although we had almost clear sky during the night and morning, weather is still rather unstable and tomorrow's forecasted storm is still an option. At least we got a cold night that hardened the skiway and today Lou has been out with the tiller all day. Lars and Christine went out to measure 12 GPS positions in a strain net located some 50 km SE of camp. It took almost 12 hours to obtain all of the GPS positions but it put an end to this seasons GPS campaign.

What we have done today:

1. Going down with drill to look for refrozen water in borehole – a stone came up!
2. NEGIS: all well, sunny and wind 10 kts, today will be any 'easy' day in camp after a couple of busy days
3. Grooming skiway with tiller
4. Measuring strain net 50 km SE of camp (12 GPS positions)
5. Sorting and packing electrical cables

Weather: Almost blue sky in the morning and sun shine! After lunch we got back to normal with overcast and low contrast. Heavy snowfall in the evening. Wind 12-20 knots from SW. Temperatures -5 to -13 C.

FL, Anders Svensson

Picture captions:

Today's capture: The largest stone recovered from the 7 m borehole drilled this season with the rock drill.

It was great to see the sun again. Eliza shot this beautiful halo late at night when the sun came out

Astrid, Christine, Eliza, and Nanna cooked great starter (Borsch) and main dish (Musk ox and vegetables) yesterday


For desert, Trevor's flying pancake circus!

Monday, 25th June 2012.

A final day of high winds?

After another day of blowing snow, high winds, complete overcast, and high temperatures the skiway is not in a good condition to receive an airplane. The flight mission originally scheduled for tomorrow has therefore been postponed to Wednesday morning. Tomorrow we hope to be able to work on the skiway before temperatures are predicted to drop tomorrow night. After a cold night the skiway should be in a good condition.
After recovering a 5 cm large stone from the borehole with the rock drill yesterday, the HT ice drill was lowered in the borehole today. A first run went to the base of the ice where it cleaned the hole and recovered dispersed sediment material that was saved for pollen studies. A second run with the HT drill attempted to drill into the sediment (that is already penetrated by the more narrow rock drill) but the attempt was unsuccessful and resulted in a set of badly broken cutters: There appear to be no more ice to recover at NEEM.

What we have done today:

1. Went down two times with HT drill
2. NEGIS: all well, overcast, some snow, wind 10-15 kts, it will be a day of work close to camp
3. Sorting and packing electrical cables
4. Quiet indoor activities

Weather: Frequent snow showers, snow drift, wind 13-22 knots from WSW. Wind speed is decreasing at night. Temperatures -4 to -6 C.

FL, Anders Svensson

Picture captions:

We refuse to show more pictures of blowing snow: Here a shot of the Dome from Saturday night when the Sun was out

Store in a cool and dry place: Ice Queens

Tuesday, 26th June 2012.

Water under the ice

Yesterday Steff and Trevor went down with the HT ice core drill and found rock. Today they went down with the rock drill and found … ice. It appears that the deepest part of the borehole is filling up with water that freezes in. In just two days enough ice has formed that a hollow ice core came up today with the rock drill. The ice forms from the sides of the bore hole despite a drill liquid overpressure. Whereas this is an interesting finding in itself, it may put an end to the rock/sediment drilling, because the hole freezes in faster that it can be drilled. In two weeks time when the rock drilling is supposed to continue the deepest part of the bore hole is likely to be full of ice.
Weather conditions have been improving today. The wind, snowfall, and snow drift has disappeared and instead we got sunshine and warm temperatures. The good weather inspired a lot of camp activity: Lou and Sverrir have been on the skiway with the beam and tiller, Lars went out to do a few more GPS measurements, Eliza dug a 2m tephra pit, Astrid, Christine, and Nanna checked and repaired the skiway flags, Bruno packed the last electronics boxes, and for the first time Motohiro did not have to dig his way into the yellow vapour sampling tent. As there is absolutely no wind and the sun is out the dome rapidly warms up, so despite open doors and windows the temperature on the third floor became close to 30 deg. C. Outside the temperature went up to -3 deg. C, but with the disappearing clouds we have good chance of a cool night.

What we have done today:

1. Went down with rock drill and found ice
2. Skiway and apron grooming with beam and tiller
3. NEGIS: yesterday's weather was a bit rough, but today the Sun is back and it should be a productive day
4. Oil change on main generator
5. Checking skiway flags
6. Clearing entrances to trenches and tents
7. GPS work around camp
8. 2 m tephra pit study

Ad. 2: It was snowing and drifting all night, so in the morning the skiway was full of fresh, soft snow. Lou started beam grooming at 10 AM after the snowing had stopped. Sverrir went out with the tiller at around noon. In the evening the skiway conditions are good. With a cold night it should be in good condition for receiving the skier.

Ad. 3: The oil was changed from 8:20 to 8:40 in the morning. In the meantime the vapor sampling system in the yellow tent was powered from a small generator

Weather: In the morning frequent snow showers, snow drift, and wind up to 10 knots from W. During the day the wind dropped to <5 knots, the temperature went up to -3 C, and we had sunny spells/broken clouds. At midnight we have -9 deg C and ground fog.

FL, Anders Svensson

Picture captions:

Trevor, Lundi (below ice core), and Steff with the hollow ice core.

The hollow ice core retrieved today with the rock drill. It suggests that water is entering the borehole faster than the drill can remove it.

Wednesday, 27th June 2012.

Big change in camp

Today the weather is good with no snowfall and not much wind. Just a little ground fog coming in and out. Skier 95 arrived to camp at 10:15 with 6 new NEEM'ers and picked up 11. So only Sara and Motohiro remains of the old group. This is a very big change in camp and we hope us newcomers can fill in for the departing friends. Before dinner a little welcome in the top office. Sara is cooking and Dorthe is taking the picture. We are looking forward to some good weeks at NEEM and need a few days to obtain the NEEM face only tan.

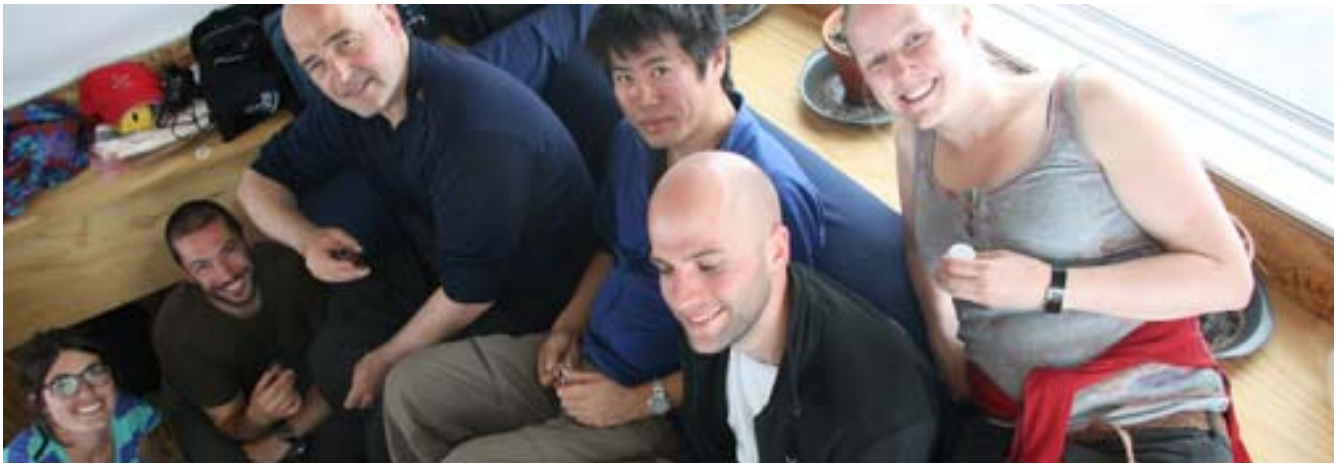
What we have done today:

1. Received Skier 95
2. NEGIS:all well and sunny
3. Packed ice pallet
4. Cleared skiway flags from rim
5. Received fresh food, empty boxes, a few boxes science cargo and 6800 l fuel
6. Settled in and unpacked

Weather: -10 deg C warming to -3 deg C. Wind 5-12 kn from S-SW. Groundfog patches during the whole day.

FL, Dorthe Dahl-Jensen

Picture caption:



Six of the new NEEM crew in the top office.

Thursday, 28th June 2012.

Red Dome packed

The low winds made this a perfect day for outdoor work and we decided to take the red dome down. The dome was

constructed in 2008 and was deep below the present surface. After blowing snow away around the dome and hacking ice away on the south side the cover was lifted off with the Pistenbully crane. The frame as next and the dome was packed on a pallet for retro to Kangerlussuaq next flight period. Long beams under the floor where moved to the timber sledge while the old plywood floor and wooden beds will not be kept in camp.

What we have done today:

1. Taken red Dome down and packed on a pallet for retro to SFJ
2. NEGIS:all well; Radar line are finished preparations for seismic lines will be finalized today
3. Organized in fresh food tent

Weather: -4 to deg C warming to -0.5 deg C. Wind 2-7 kn from W turning to N. Varying overcast

FL, Dorthe Dahl-Jensen

Picture caption:

Seven of the eight in camp busy taking the red dome down.

Friday, 29th June 2012.

Outdoorday

Again a wonderful warm and sunny day. We settled on small tasks today and all where busy in camp. It has been one of the warmest days this year with temperatures very close to zero. After dinner we all drove to the south end of the skiway with the sofa and had a small 'little Saturday night' celebration. The sofa is only placed at the end of the skiway when the ski equipped C130 have returned to the states so this marked the end of a very successful flight period.

What we have done today:

1. Placed new motor in Skidoo , skidoo is out running
2. NEGIS:all well; Radar equipment being packed, seismic program started
3. Repaired skiway flags
4. Gathered empty foamboxes in camp for end-of-season-food-storage
5. Sorted bamboo on bamboo sledge
6. Placed sofa at south end of skiway
7. Make an overview of what is inside sauna garage

8. Set up a tent for Paul
9. Prepared for pit project

Weather: -4 to deg C warming to -0.5 deg C. Wind 0-3 kn from S. Varying overcast and sun

FL, Dorthe Dahl-Jensen

Picture captions:

Gunnar preparing motor for skidoo

Alejandra exchanging broken bamboo poles on skiway flags

Sarah cooking fish after Gunnars instructions

Saturday, 30th June 2012.

Our first Saturday at NEEM

The day to dig the 2m deep pit has come and Paul, Helle, Motohiro, Alejandra and Rune finds a spot on the line of the clean area 2 km from camp. They are busy all day digging and sampling. In camp packing and documentation is on the agenda and the three remaining in camp are busy. The chef's of Saturday evening was Paul, Helle and Dorthe and thy served a four course dinner. After dinner we played games until early morning.

What we have done today:

1. Made and sampled 2 m snow pit
2. NEGIS:all well; Good weather, a good part of the seismic program done
3. Prepare system to obtain camp documentation
4. Packed/documented in Carpenters Garage
5. Emptied Sauna Garage
6. Removed snow with a snow blower around Sauna Garage
7. Filled hole from Red Dome with snow
8. Cooked for Saturday Evening

Weather: -18 to deg C warming to -8 deg C. Wind 8-16 kn from E. Varying overcast and sun

FL, Dorthe Dahl-Jensen

Picture captions:

Motohiro and Sarah shopping at NEEM

Gunnar and Rune enjoying a sunny spot on the stairs infront of the generature hut.

July

Sunday, 1st July 2012.

Sunny Sunday

Sunday morning is always peaceful and the sunny weather made it really nice. After a brunch the work started again with the pit and various good weather surface projects. The camp is really in the packing down phase and a lot of difference activities on this happened today. The weather forecast for the next 3 days is also good so we are getting spoilt. The 4th July is forecasted to be good so perhaps we can prepare a barbecue…

What we have done today:

1. Continued sampling in the 2m snow
2. NEGIS:all well; Good weather, The seismic program continues
3. Documented and packed in Carpenter Garage

4. Removed ice around Sauna tent and loosened cover
5. Removed snow around Sauna Garage with snow blower
6. Prepared food order
7. Sorted food in the fresh food tent
8. Started removing snow on the roof of the drill trench

Weather: -16 to -8 deg C. Wind 6-164kn from E. Sunny

FL, Dorthe Dahl-Jensen

Picture captions:

Motohiro sampling in the snow pit

Monday, 2nd July 2012.

Packing NEEM

Again a very nice and sunny day with low winds and we decided it was the day to take the sauna garage down. Before lunch the tent was down and packed on a pallet on top of the red dome tent. The afternoon was spent sorting out the zarges boxes from the science trench and blowing snow from the drill trench roof. We really felt we had achieved much this Monday.

What we have done today:

1. Continued sampling in the 2m snow
2. NEGIS:all well; Good weather, The seismic program half way done
3. Taken Sauna garage down and palletized for retro to Kangerlussuaq
4. Packed 6 boxes with give-away-food to be retroed to Kangerlussuaq
5. Blowing snow away from drill trench roof around borehole location.
6. Sorted Science boxes

Ad 5: The snow will be removed with snow blower to the depth of the plexiglass on the 'submarine' window. The plexiglass is found in 5 m depth below the present surface. The last 40 cm of snow will be shoveled away by hand.
Ad 6: A small collection of plastic bags and science tools will be stored in the Main Dome for future use. The rest will be returned to Copenhagen.
Weather: -16 to -8 deg C. Wind 5 to 10kn from E turning to SE. Sunny

FL, Dorthe Dahl-Jensen

Picture captions:

Taking down and packing the Sauna Garage

Removing snow from Drill Trench Roof

Camp view without Sauna Garage

Tuesday, 3nd July 2012.

Busy and wonderful day

Not much news to tell because the packing just goes on. Really strong progress was made packing and documenting the Carpenters Garage and we believe we can see the end of it soon. It is unbelievable how much we have in store… While most where packing and documenting Gunnar used the whole day removing snow from the roof of the drill trench and lowering the surface south of the camp with the PistenBully. Alejandra initiated the melting of the big snow samples she has collected from the pit. Even being heavily involved in the packing of all the kitchen equipment in the Garage Sarah (with helpers) produced the most outstanding sushi menu for us all. It is a treat just to be eight in camp and we are totally spoilt by Sarah. A big THANKS to Sarah!

What we have done today:

1. Melting samples initiated
2. NEGIS:all well; Good weather, The seismic program about two thirds done
3. Sorted, documented and packed in Carpenters Garage
4. Blowing snow away from drill trench roof around borehole location.
5. Moving snow with PistenBully to lower surface south of drill trench
6. Restocking dome with expendables
7. Entering documentation in a documentation 2012 files
8. Enjoyed Sarahs outstanding sushi buffet

Ad 3 25 zarges boxes have been packed and documented to be stored on a NEEM traverse sledge. 15 boxes/items have been placed on a pallet to retro to Kangerlussuaq
Ad 6: In preparation for the new documentation software the NEEM 2012 documentation consists of an overview file with one line information pr box, a text file for each box with the detailed content and a jpeg file with a picture of the box.
Weather: -16 to -8 deg C. Wind 5 to 16kn from SE turning to S. Sunny

FL, Dorthe Dahl-Jensen

Picture captions:

Sarah's outstanding sushi buffet

A sushi plate

PistenBully in action moving snow from south side of the drill trench

Wednesday, 4th July 2012.

4th of July

Today was 4th of July so we planned an American meal with barbequed chicken, potato salad and blueberry pie. Before dinner we continued the tasks of the day before: moving snow from the roof of the drill trench and documenting, packing and removing equipment from the Carpenters Garage. The shelves and the rood are empty, but we still have piles on the floor. We hope to have the garage empty by the end of next day… We had a good and happy evening with American music.

What we have done today:

1. Melted samples to be filtered
2. NEGIS: all well; Sunny, low winds, Good progress on seismic work, 1-2 days left of seismic work
3. Sorted, documented and packed in Carpenters Garage

4. Finalized clearing the drill roof around submarine (5m below the present surface)
5. Celebrated 4th July with Sarah's barbecued chicken

Weather: -18 to -5 deg C. Wind 5 to 10 kn from S. Overcast with low clouds in the morning and lifting during the day

FL, Dorthe Dahl-Jensen

Picture captions:

Gunnar being honored by Paul, Rune and Helle at the cleared submarine.

People used to visualize the depth of the drill roof

Rune hauling equipment from the Carpenters Garage

Helle removing chains from Carpenter Garage to Mechanic Garage

Almost empty carpenters garage.

Friday, 6th July 2012.

The mysterious eighth camp member.

The mysterious eighth camp member Motohiro has been absent from the pictures the last days and today he will be featured in the NEEM Diary. Motohiro is responsible for a Japanese air sampling program and he collects air and surface snow samples several times each day. He also is taking care of the air stable water isotope measurement in the yellow dome tent. As we all are very fond of Japanese food Sarah also successfully inspires him to cook in the kitchen.. The rest of us: we teamed to finish the Carpenters Garage and built a pallet with all the retro items from the garage.

What we have done today:

1. Melted samples to be filtered
2. NEGIS: all well; Good weather, Full seismic profile across North East Greenland Ice Stream accomplished
3. Finished removing snow and ice around Carpenters Garage
4. Documentation of Carpenters Garage finalized
5. Built pallet with Carpenter Garage retro to SJF items
6. Moved the yellow outdoor toilet tent behind weatherports

Weather: -7 to -3 deg C. Wind 3 to 10 kn from SW turning to SE. Overcast most of the day turning sunny in the evening

FL, Dorthe Dahl-Jensen

Picture captions:

Motohiro changing filter on the air sampler

Motohiro cooking Japanese lunch

Saturday, 7th July 2012.

NEEM Drive In Cinema features TRON

Saturday evening – the long waited fun time of the week. For the first (and probably only time) NEEM opened the skidoo Drive In Cinema. The four skidoos rowed in front of the Cinema and when the doors opened drove into the cinema. After drinks and popcorn were served the evening started with NEEM commercials for Swiss Miss, Cup of Noodles, Chile redwine, Zarges, Sorel, PistenBully and Sysco. A very red cinema version of TRON (original from 1982) was watched before we all walked back to the Dome where a late dinner was served with lime prawns, filet with Swedish mushroom sauce and Italian eclairs. What an evening!

What we have done today:

1. Melted samples to be filtered
2. Air sampling program
3. NEGIS: all well; Low winds, Packing and recovering GPS stations
4. Unpacked and sorted sledge with mixed timber and casing tubes
5. Repair of shock absorbers on skidoo 4
6. Oil shift on PistenBully
7. Sorting and packing frozen food in science trench freezer

Ad 4: Casing tubes are moved and stored at the drill trench and snow and ice is removed from the tubes in preparation of extending the borehole to the present surface.

Weather: -15 to -4 deg C. Wind 1 to 9 kn from SE turning to NW. Sunny morning turning to overcast

FL, Dorthe Dahl-Jensen

Picture captions:

NEEM skidoo Drive In Cinema

Sorting timber on mixed timber sledge

Sunday, 8th July 2012.

Happy Camp

After a brunch with omelettes and pancakes the day gently started. We are really enjoying being a small camp which is different from the normal bigger population at NEEM. Today we opened the ramps to the drill trench and the ballon trench in preparation for next week's activities. We checked and documented all the small tents at NEEM. The plans for next week with the pull out of NEGIS and the exchange of camp personal on Friday are closing in and the days of the small camp reaches an end. Sarah will leave with Polar 6 on Tuesday for a few days rest in Kangerlussuaq and Kasper from Kangerlussuaq will be our stand-in cook.

What we have done today:

1. Melted samples to be filtered
2. Air sampling program
3. NEGIS: all well; Low winds, Packing and recovering GPS stations

4. Opened ramps to drill trench and ballon trench
5. Checked and documented all NEEM small tents
6. Food order and packing or give-away food in Kangerlussuaq
7. Sitrep and Polar6 planning

Weather: -12 to -4 deg C. Wind 2 to 10 kn from NW turning to SE. Morning ground fog lifting at 10:00 local to give way to a sunny day

FL, Dorthe Dahl-Jensen

Picture captions:

Checking and documenting small tents on the first floor of the Dome

Seven of the eight in our 'Happy Camp'

Alejandra attempting to ski in Lars's ski boots?

Monday, 9th July 2012.

Receiving the NEGIS team and Polar 6

The morning was used finishing the snow blowing of the ramp to the drill trench and removing the snow blocks from the ramp. In addition Gunnar started to groom the center part of the skiway . There has been no snow fall or drifts since the last mission June 27th and besides from the depressions made by the skier during the last mission the skiway is fine and hard. Just after lunch Polar 6 arrived from NEGIS with cargo and Kiya and Alan. Polar 6 took off as fast as possible with a box lunch to pick up the second load and the remaining NEGIS team members, Leo and Knut. They where back just at dinner time and after unloading and fuelling Polar 6 we all had dinner. The radar and seismic results from NEGIS are very exciting and the project has been a success. We used the evening packing pallets, measuring the NEEM GPS stations and looking at the science of NEGIS:

What we have done today:

1. Melting samples to be filtered
2. Air sampling program
3. Twp pick-up missions of the NEGIS camp
4. Fuelling Polar 6 with 967+2234 = 3210 l fuel
5. Grooming the skiway
6. Organizing NEGIS cargo on pallets.
7. Finalizing the snow blowing of the ramp to the drill trench

8. Removing snow blocks from drill trench ramp
9. Hosting NEGIS team and Polar 6 crew

Weather: -13 to -4 deg C. Wind 7 to 17 kn from SE turning to S. A sunny day with only few clouds

FL, Dorthe Dahl-Jensen

Picture captions:

Gunnar fuelling the Polar 6

Tuesday, 10th July 2012.

Tropical NEEM

At 0600 in the morning the weather was -10 deg C and the preparations of departure of Polar 6 started. Polar 6 was airborne at 0755 with the four NEGIS members as well as Sarah going for a (hopefully short) holiday in Kangerlussuaq. During the morning temperatures just kept increasing and during lunch temperatures became positive. At 1400 we reached a maximum of +0.8 deg C, a record at NEEM. The snow is soft, it is raining, Gunnar would like to order new rubber for the window wipers on the CAT. It is dripping badly in the dome and from the cleaned roof in the drill trench. We all agree that we prefer frost at NEEM! A great thanks to Marc for predicting these warm temperatures so we could groom the skiway Monday before the warm temperatures reached us. Marc predicts the temperatures at NEEM will stay between -1 deg C and +1 deg C the next four days! We enjoyed Kaspers Danish flaeskesteg and watched “the green butchers” while the water dripped into the dome.

What we have done today:

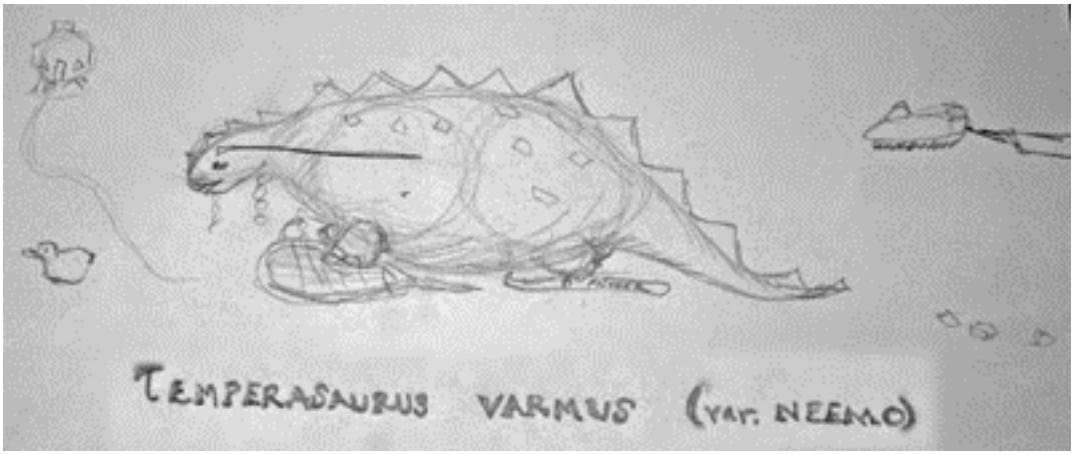
1. Melted samples to be filtered
2. Air sampling program
3. Supported the departure of Polar 6
4. Organizing the remaining NEGIS cargo on pallets.
5. Removing the long tables in the science trench and the floor grids that were stacked at the entrance to the science trench.
6. Placed buckets to collect the dripping water in the dome.
7. Host NEGIS and Polar 6 crew.

Weather: -12 to +1 deg C. Wind 10 to 15 kn from S turning to SW. Sun in the early morning, low overcast with rain from 1000.

FL, Dorthe Dahl-Jensen

Picture captions:

The NEEM information board showing outdoor temperature of +0.8 deg C. A record at NEEM.



Alejandra's Temperasaurus at NEEM – we hope it will become a snow sculpture some time?

Kasper presenting the Flaeskesteg

Motohiro between the buckets at his desk in the Dome

Wednesday, 11th July 2012.

Rainy day

We woke up to a totally overcast day with rain! The lowest temperature at 03:00 am was +0.3 degC! The weatherstation showed an umbrella and informed of 0.2 mm daily rain! We had a busy day taking down the staircase to the trenches and had good use of Paul's climbing skills. Alejandra and Rune had a very wet pit trip to take additional samples and from the fixed measure tape from last week observe that the surface had decreased elevation with 5-6 cm due to compaction and water. We are very excited by being able to see and monitor this extreme warming at NEEM and we are looking much forward to see how the isotopic composition of the water vapor collected by the PICARRO will be.

What we have done today:

1. Melted samples to be filtered
2. Air sampling program
3. Collected 4 additional samples to melt
4. Removed staircase and stored for placement on a big sledge later
5. Maintenance of Flexmobil
6. Made report on skiway conditions

Weather: +0.3 to +1.1 deg C. Wind 12 to 15 kn from S. Very overcast with low visibility.

FL, Dorthe Dahl-Jensen

Picture captions:

NEEM weatherstation reporting +1.1 deg C and rain

Paul abseiling and removing the trench staircase

Thursday, 12th July 2012.

Even warmer!

Going into the third day with positive temperatures. We can fell that the surface layer is heating and getting very soft. In the morning Paul, Helle, Alejandra and Rune made a pit study and observed that melt layers are forming about 15 cm below the surface. The top 20 of the surface is heated to -0.3 degC. The top 20-25cm is so soft that we sink through even on the hard skiway and the hard surface in front of the Dome. We have placed buckets to collect the melting water and we have removed ice from the nearly full trough on the drill tower to protect the drill. Today we have had good visibility on sun most of the day and even with the clear sky temperatures reached a new record of +1.3 deg C. The Netherland flag was the first to fall and was rescued by the teamsters.

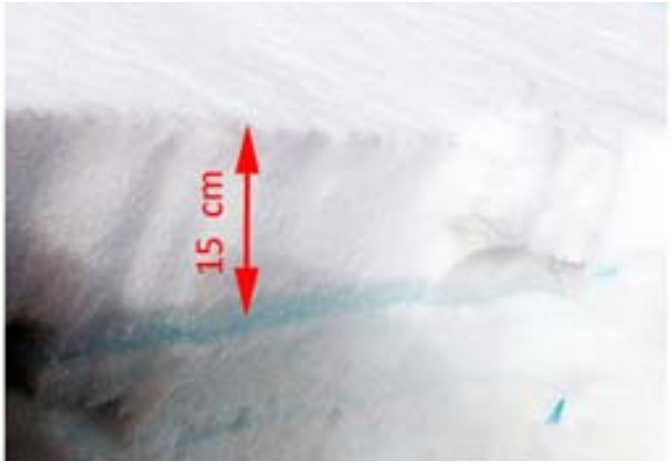
What we have done today:

1. Melted samples to be filtered
2. Air sampling program
3. Made shallow pit to observe the melt
4. Rebuilt the too heavy NEGIS pallet
5. Maintenance of the Cat
6. Removed ice from drill and tower

Weather: +0.3 to +1.3 deg C. Wind 12 to 15 kn from SSW. Clear sky most of the day.

FL, Dorthe Dahl-Jensen

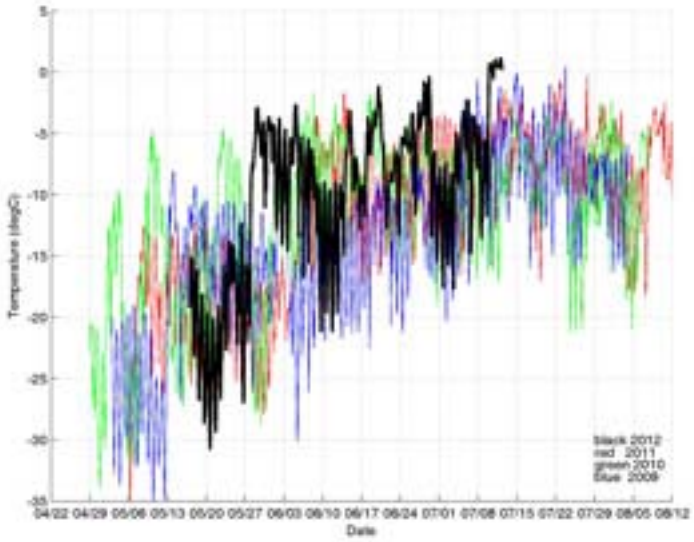
Picture captions:



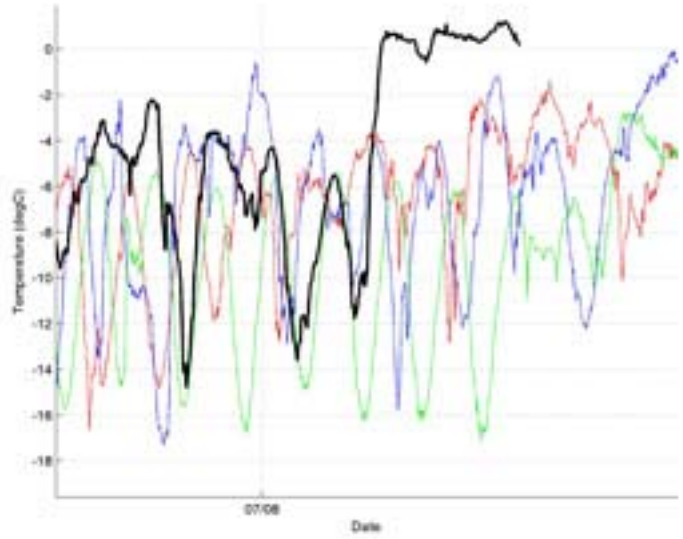
Meltlayer forming 15 cm under the surface

Removing ice in the drill trench

Ice in the drill trench



Comparison of the temperature at NEEM 2009-2012



The last week temperatures

Flag line falling due to melting.

Rescuing the flag of the Netherlands

Friday, 13th July 2012.

Friday the 13th – not a good flight day!

If you are superstitious don't fly Friday 13th…. Well conditions were bad with low overcast and ground fog and wet skiway so the mission was cancelled during the night. We had a productive day - the extra day giving us time to observe the unusual melt by pit studies. We see a very strong change of temperature in the top layers as a result of penetration of water and refreezing of water layers now at depths of 60-70 cm. We might start some penetration experiments with dye (in this case TANG) but you will hear more on this later…

1. Melted samples to be filtered
2. Air sampling program
3. Made shallow pit to observe the melt
4. Removed ice from drill and tower
5. Made boxes to ship the science trench saws
6. Lowered floor in the inclined ramp to drill trench
7. Power line and light in ballon trench
8. Checked fuel stock in camp

Ad 3: the surface layer on the melting point has increased to 70 cm

Ad4: Nearly 100 kg ice/water is removed each day. Most is collected in buckets under the dripping spots. We hope to keep the drill in good shape for the drillers soon to arrive to NEEM

Weather: -0.7 deg C to +0.2 deg C. Wind 5-12 kn from SSW. Very overcast with light snow/sleet

FL, Dorthe Dahl-Jensen

Picture captions:

Alejandra and Rune producing fantastic boxes for the science trench saws after own design.

Helle and Paul busy with the chain saw lowering the floor in the drilling trench ramp.

Saturday, 14th July 2012.

Waiting for cold weather

The unusual warm weather continues and it is clear that we will need to wait until the surface cools. The pallets are checked and rechecked and we are ready. The good old team celebrated a very good Saturday night beginning with a drink in the ballon trench, melon with parma, chicken with orange and chilli, bean salad and lime tart.

1. Melted samples to be filtered
2. Air sampling program
3. Made shallow pit to observe the melt
4. Removed ice from drill and tower
5. Worked on design of box for science trench scale
6. Lowered ramp to drill site with snow blower on the outside part of the ramp

Weather: -1.1 deg C to +0.3 deg C. Wind 0-13 kn from and SW and W. Mostly overcast

FL, Dorthe Dahl-Jensen

Picture captions:

Checking and rechecking pallets

Paul observing temperature and melt layers in a snow pit

The water continues to run down into the drill trench

Sunday, 15th July 2012.

Same story again…

News?? Observing pit, moving ice block, removing ice from drill . All reported the last days. The best news is that the weather forecasts from Marc de Keyser promise sunny and cold weather in a few days. We are very set on being able to start flight operations Tuesday July 17th morning. We are looking forward to report to you the outcome of the Tang and Swiss milk experiments (yellow and brown!!) but need to wait for the surface top one meter to freeze before we open and observe the penetration into the snow.

1. Melted samples to be filtered
2. Air sampling program
3. Made one more shallow pit to observe the melt and sample
4. Removed ice from drill and tower
5. Built box for science trench scale
6. Removed blocks to lower the ramp to the drill trench with 60 cm at the entrance

Weather: -3.2 deg C to +1.2 deg C. Wind 0-13 kn from and WSW. Ground fog until 1600 local, sunny

FL, Dorthe Dahl-Jensen

Picture captions:

Clean pit sampling

Removing ice blocks in T-shirt

Monday, 16th July 2012.

Barbeque in the Blue

Today a day with temperatures below zero, sunshine and no wind. Now we really believe in good conditions for the coming day. We are really happy to be able to receive the next team next day and used much of the day with final preparations. After a wonderful grill dinner with grilled redfish by Kasper we all went down in the balloon trench with warm clothing and sleeping bags and watched a movie in the 'omimax' cinema. Even with a good supply of hot chocolate we were very cold after 2 hours in the trench.

1. Finalized melting of samples and packed equipment
2. Air sampling program
3. Made one more shallow pit to observe the melt
4. Removed ice from drill and tower
5. Replaced all flags on flag line
6. Finished removing snow blocks so ramp is ready for pull up of drill equipment

7. Checked skiway flags

Weather: -7 deg C to -0.5 deg C. Wind 0-9 kn from SSE turning to SW. Clear blue sky

FL, Dorthe Dahl-Jensen

Picture captions:

Barbeque in the blue

NEEM omimax cinema

Tuesday, 17th July 2012.

Fly Day

Finally a day where we have had a cold night and the snow surface is hard again. We were ready for ski operations and just need the ground fog to lift in the early morning. The skier arrived and we said goodbye to Motohiro, Gunnar and Kasper. We will miss you! Hello to Sverrir, Steff, Trevor, Trine, Dean, Alan, Bryn – and welcome back to Sarah! Few

minutes after the skier was air born all were in activity unpacking fresh food, preparing lunch, setting equipment up for drilling, logging and seismic monitoring. Really a good day in camp.

1. Received Skier 21 with PAX and pallet
2. Air sampling program
3. Unpacked equipment
4. Reaming run of borehole
5. Monitoring of both seismic systems (GEUS station in science trench and GLISN station)
6. Setup of Bryns logger outside drill trench roof
7. Receiving fresh food

Ad 1: we received 3654 l of fuel from skier 21

Ad 4: The drill was operational regardless of the showers of ice it has received from the melt though the roof during the week. The reamer made it down to the blocking stone and a mixture of sediments and ice was recovered.

Weather: -9 deg C to -2 deg C. Wind 0-10 kn from SW turning to WNW. Ground fog from midnight, lifting at 11:00 local, scattered overcast

FL, Dorthe Dahl-Jensen

Picture captions:

Runes boxes ready and packed

Celebration of Fly Day – a beautiful ice crystal and blue sky

Wednesday, 18th July 2012.

A very interesting day

With the drillers, loggers and seismic teams the camp is running full speed. In addition we had two skiers coming with the first two big German sledges. The day was busy with drilling in the deep borehole where interesting events always happen. The big event today was the recovery of the evil stone that has stopped the drilling in 2010 and again in 2011. On the picture you can see three tracks of drill cutters chewing into the rock: 1) tracks of the Hans Tausen cutters, 2) tracks of the rock drill cutters and 3) tracts of the concrete drill cutters. Quite impressive what his little 5 cm has been subject to and the different angles of the events show the stone has changed position. The sledges also excited us as they only had few cm's slip at the side of the Skier. It took some planning to get them in and out the air plane. It went very, very well – a big Hurra for Sverrir of his genius plan. The dinner was outstanding! Sarah barbequed lobster for us and it was so good.

1. Received Skier 31 and 32 with big German sledges
2. Air sampling program
3. Packed pallets
4. Drilled with the new concrete drill
5. Planned Science and Education group visit
6. Setup of Bryn' logger outside drill trench roof
7. Checked and improved GLISN seismic recording system
8. A final pit study to measure temperature and see if the melt layers have frozen
9. Drilled a 4.5 m deep ice core with the hand auger drill to study melt layers.

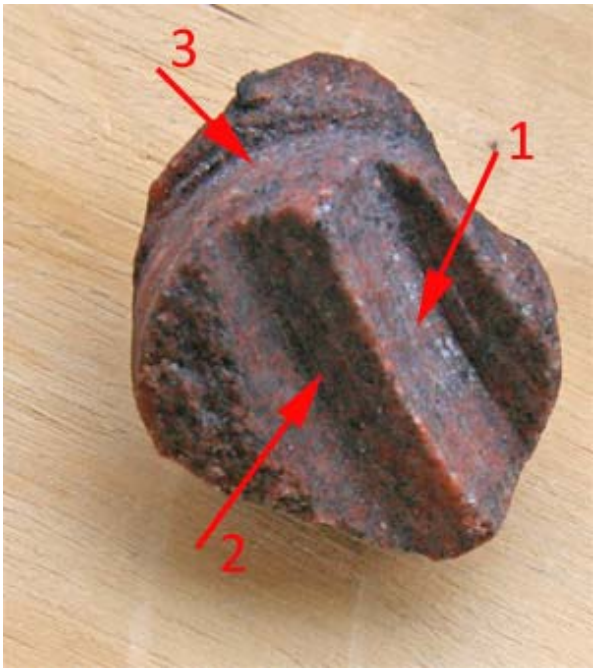
Weather: -7 deg C to -2 deg C. Wind 0-10 kn from SW turning to WNW. Overcast from time to time with low thin

clouds

FL, Dorthe Dahl-Jensen

Picture captions:

The big German sledge on the way out skier 31.



The evil rock

Lobster for dinner

Thursday, 19th July 2012.

The final ice core

The termination of the NEEM deep drilling after 6 years is a big event. During the afternoon the last ice core Trevor and Steff drilled the last ice core. The removal of the 'evil' stone allowed the Hans Tausen drill to penetrate. The high amount of basal material, however, battered the drill head badly grinding the outer side of the drill head so several of the screws attaching the drill head to the drill were gone or worn down. THE END!

1. Received Skier 41, 42 and 43 with the Science and Education Team and the third big sledge
2. Air sampling program
3. Packed pallets
4. Drilled the final NEEM ice core
5. Logged with the optical logger during the night
6. Had program with the Science and Education group
7. Removed grids from drill trench floor and dug out cables under the floor

Ad 4: The 27 cm long final ice core was drilled with the Hans Tausen drill. The core is hollow from the rock drilling and has refrozen water on the inside.

Ad 6: The science and education team had a briefing on NEEM camp and ice core science followed by a GPS skidoo treasure hunt. After this the team was divided into groups and prepared presentations on the highlight of their 3 week school. After dinner the three groups presented for the camp. Outstanding!

Weather: -7 deg C to -4 deg C. Wind 0-15 kn between S and SE. Overcast.

FL, Dorthe Dahl-Jensen

Picture captions:

The final NEEM ice core

The Science and Education teams on the skidoo GPS treasure hunt

Friday, 20th July 2012.

The final cut

Today Paul, Helle, Rune, Alejandra and Allan left us – we will miss you. Peter, Miriam, Alex, Anne Katrine, Bo and Lisbeth came to camp – welcome. Kaitlin will stay until July 23rd. A new camp team is getting into the NEEM routine! The big event today was the cut of the cable and that the drill tower was disassembled. It is definitely over.

1. Received Skier 52 and new NEEM personal
2. Air sampling program
3. Packed pallets
4. Cut the cable between the drill and the winch
5. Drill tower down and disassembled
6. Winch free of cables and motor and ready to be pulled up
7. Smoothed and widened the ramp to the drill trench
8. Goodbye to the Science and Education group
9. Optical logging of the borehole successfully finalized

10. Repair of Pistenbully
11. Checked the seismic data

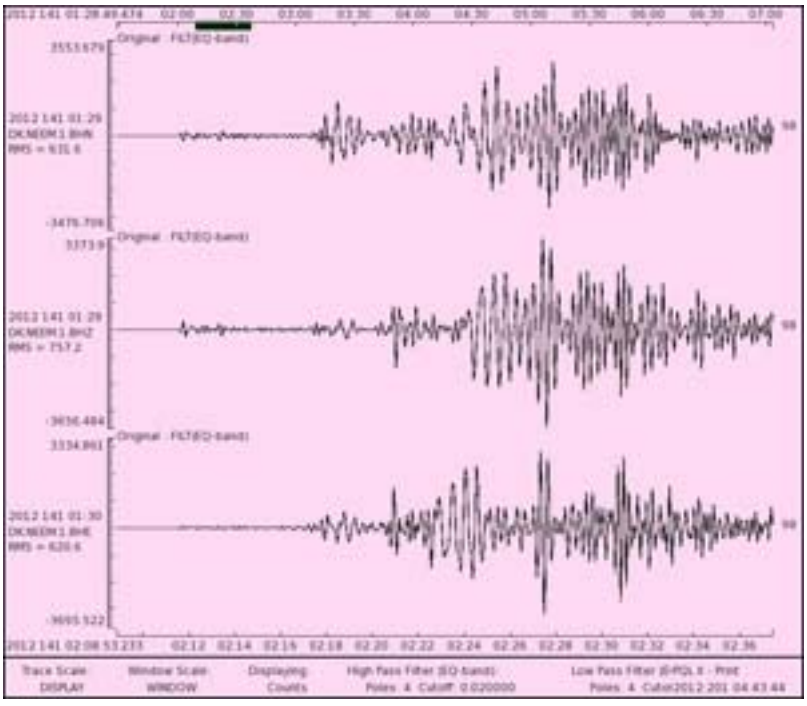
Ad 11: In 2010 a borehole seismometer was installed in the 400 m deep 2010 S1 borehole. The data recovery is very high
- over 95% and the quality is exellent, also on the accompaning surface sensor.

Weather: -7 deg C to -4 deg C. Wind 0-15 kn between S and SE. Overcast.

FL, Dorthe Dahl-Jensen

Picture captions:

The final cut of the drill cable



On May 20 2012 northern Italy experienced a 5.9 earthquake, that unfortunatly caused several deaths.
The earthquake was recorded with good quality at NEEM

Saturday, 21th July 2012.

The winch is moved out of the drill trench

The heavy winch has to be pulled out of the drill trench by the inclined ramp that has been opened. A long line of chains is made up the inclined ramp and the crane of the PistenBully is pulled out and attached to the chains on the surface. Slowly the winch is pulled up using beams to make it glide on the ramps snow surface and beams are used along the side as gliders too. We made it and the winch was chained on a pallet and moved to the apron. The central towerpart with the linear motors was also pulled up the ramp and chained to a pallet for retro Sunday. We had a slightly delayed Saturday Evening prepared by the chefs Peter D., Myriam and Kaitlin. Thanks for a very sophisticated dinner. After midnight dancing as the NEEM tradition is.

1. Air sampling program
2. Packed pallets with winch and central tower part
3. Moved tower parts out of drill trench
4. Placed the first two casing tubes
5. Melt layer studies
6. Packed deep drill equipment in and around drillers cabin
7. Packed optical logging winch and equipment
8. Enjoyed Saturday Evening

Weather: -12 deg C to -6 deg C. Wind 3-15 kn from SE turning to W. Overcast.

FL, Dorthe Dahl-Jensen

Picture captions:

The drill trench without the winch and tower

The winch on the way up the inclined ramp

Sunday, 22th July 2012.

Goodbye to the winch

The winch is too heavy for the cat to lift into the skier so the skiers need to winch the pallet into the aircraft. It went very well. A big thanks for the very professional handling by the loadmasters. Normally Sunday is s peaceful day with the morning off but this Sunday we received a training skier and had the pack the drill equipment so it turned into a very busy day. After dinner the pallets were packed and netted and a tired camp retired between 23 and 02.

1. Air sampling program
2. Received skier 72 and retro'ed two pallets with the winch and the central tower part.
3. Disassembled the drillers cabin and moved palletized it on the apron
4. Packed Stapi on a pallet
5. Peter made a 10m long double trench to study the melt layers with snowblower
6. Steff packed the tools in the drillers workshop
7. Drill boxes and workshop boxes palletized
8. Garbage and empty drum pallets built.

Weather: -12 deg C to -7 deg C. Wind 2-13 kn from SW turning to N. Overcast and snow

FL, Dorthe Dahl-Jensen

Picture captions:

The winch behind the skier

Monday, 23rd July 2012.

Last scheduled plane in this period.

The packing down in the drill trench goes fast. Sunday until late and Monday morning everybody was busy making as much cargo as possible ready for shipment to Kangerlussuaq. When the plane arrived, camp had four full pallets of cargo ready, and because the skiway is so good, the plane was able to take off with everything. Today was also the very last change in crew, as the drillers, Steff and Trevor left and Dorthe was replaced as Field Leader by J.P. Now we are 11 in camp and this is the last crew in the NEEM project. Our task is to pack down remaining equipment on heavy sleds, make inventories and place the sleds on snow hills. When the packing is over, all that will be left is the dome (on skis), two garages for vehicles and loaded heavy sleds. In some years time, when we get funding for a new project, a complete ice coring camp is ready to be pulled to a new site by tractor train.

1. Air sampling program
2. Received skier 21 and retro'ed four pallets with the drillers cabin, weather port, scrap and empty drums.
3. Disassembled the drillers workshop and palletized it on the apron
4. Packed remaining drillers workshop tools and removed the last tables in the drill trench.

Weather: -12 C to -7 C. Wind 4-11 kn from S turning to W. Overcast and light snow.

FL, J.P. Steffensen

Picture captions:

Peter Packing: Peter is packing remaining items from the drill trench into boxes.

Tuesday, 24th July 2012.

We got an extra plane today.

As the 109th needed another training mission, Skier 32 paid us a visit at Noon. We were told about this the day before, so all hands were hard at work until Monday evening at 23 to disassemble the drillers workshop and put it on a pallet. The workshop went to Kangerlussuaq on the Skier in a successful landing and take-off. This mission concluded a very strange period of flights to NEEM. Originally, we had only planned for 3 missions to NEEM this period; but we received 10! This huge change came about because of the heat wave that hit Greenland between July 10 and July 16. The 109th could not use their normal training skiway in South Greenland so NEEM offered their skiway as replacement. Although this cost NEEM several man-days of work with weather reporting, communication and air plane handling, we achieved two things: We helped the 109th (and in turn the U.S. National Science Foundation) in a difficult situation and we got so much cargo out that the final closing of NEEM in August will be much easier to organize. Today, the 109th will be heading back to the U.S. and we will be alone up here until August 11. We at NEEM camp wish to express our sincere thanks to the 109th for an outstanding collaboration. For NEEM the heat wave in July turned out to be a blessing in disguise.

As the last plane left, a sense of tranquillity fell over the NEEM crew. Several people were very tired, so we spent the evening in a relaxed manner.

1. Air sampling program
2. Received skier 32 and retro'ed a pallet with the drillers workshop.
3. Cleaning up in the drill trench and packing down equipment.
4. Grooming the skiway with beam groomer to remove the tracks from the flights.

Weather: -8 C to -4 C. Wind 2-9 kn from NW turning to SSW. Overcast in the morning, then clearing up and after 1800 fog.

FL, J.P. Steffensen

Picture captions:

Skiway repair: Lou is grooming the fresh snow into the tracks left behind from the intense traffic of the past days.

Wednesday, 25th July 2012.

The “drill trench” is now just a hole in the ground.

On this gray and snowy day we removed the last infrastructure from the drill trench. Lamps and hoists were removed and later all electrical installations: Cables, panels and the big elevator. Now only the casing pipe remains in the middle of the floor. Also carpenters garage was emptied. All collected bits and pieces were sorted out as rubbish (to be sent to Kangerlussuaq) and useful items to be documented and packed. In the empty carpenters garage preparations began to mount the rails that will make it possible to move it from the deep hole it is sitting in to a new snow hill. The mood in camp is good, and everybody participated in the work.

1. Air sampling program
2. Maintenance on main generator.
3. Emptying drill trench, removing lamps, electrical installations and main elevator.
4. Emptying carpenters garage and preparing for move.
5. New power line for aerosol and air sampling site.
6. Emptying white weather port.

Weather: -13 C to -4 C. Wind 3-15 kn from SW. Overcast and snow all day. Drifting snow.

FL, J.P. Steffensen

Picture captions:

Main elevator: A group of happy people after dismantling the main elevator and bringing it to the surface. From left: Myriam, Bo, Peter, Lisbeth, Anne Katrine and Alexandra.

Thursday, 26th July 2012.

A gloomy day became nice.

It has been snowing with drifting snow all night, and this continued in the morning. The big inclined trench leading into the underground caves almost drifted in. For a moment we were worried if we could excavate the white weatherport and lift it out as planned. However, just after lunch weather improved and we were able to remove snowdrifts and begin excavation. All afternoon we were digging and chopping ice. Due to the melting in camp two weeks ago, a lot of ice had formed at the base of the weatherport and simply frozen the tent solid to the base. It took quite some chopping and hammering before we finally at dinner time were able to lift the weatherport to the surface. The group working on carpenters garage had to face similar problems. In the evening, nobody complained about lack

of exercise.

1. Air sampling program
2. Digging, chopping ice and moving the white weatherport to the surface.
3. Digging, chopping ice and continued preparations for moving carpenters garage.

Weather: -14 C to -5 C. Wind 10-18 kn from SW and S. Overcast, snow and drifting snow until 1400. Later clear.

FL, J.P. Steffensen

Picture captions:

Flying weatherport: For safety reasons the white weatherport is lifted away from the now vacant elevator shaft and stair well leading down to the former drill trench. The weatherport can then be disassembled on the surface without risk of falling down.

Friday, 27th July 2012.

NEEM gets hit by another heat wave.

As forecasted NEEM today was hit by another heat wave. As opposed to heat waves further South, here they manifest themselves by extremely high temperatures and a blizzard. All day the weather has become worse: Thicker and thicker clouds, loss of contrast, increasing snow fall, increasing snow drift and increasing temperatures. At 2300 Friday night it was +0.1 C. This weather is forecasted to last the week-end. Weather is hampering our work outside, but we continue the best we can. We have now removed all equipment from the drill site and stashed it on the snow. Progress is a bit slow; but due to the hard work of people in the past weeks, we still have time to do the packing down properly.

1. Air sampling program
2. Japanese pit study stopped due to high winds.
3. Removed part of the skylight over the drill site and removed snow from the roof of drill trench.
4. All braces and supports in place for moving carpenters garage.
5. Disassembled and packed white weatherport.

Weather: -10 C to 0 C (at 2300). Wind 10-20 kn from SSE. Overcast, snow and drifting snow all day.

FL, J.P. Steffensen

Picture captions:

Drill trench: What a change. To the left is the drill trench as it looked when active and to the right the drill trench Today. The pipe in the center is the extension of the casing of the bore hole. This will be extended up above the surface and capped. In the coming years, we will be able to send logging instruments down to measure how the ice sheet flows.

Saturday, 28th July 2012.

A rainy and windy Saturday.

We woke in the morning to the patter of raindrops on tents and on the dome. That is, when we could hear it over the noise of the wind. All day it has been warm, wet and windy and the low contrast made us work with extra care when removing the roof over the drill site. None the less we were successful in getting the roof off and in celebrating Saturday evening with a good dinner. J.P. was cooking a muskox leg and Myriam made flan and chocolate cake for dessert.

1. Air sampling program.
2. Removing the roof over the drill site.
3. Lifting the lathe out of the drill trench with the crane.
4. Moving toilets.
5. Removing all roofing timber from the drill site.
6. Working on inventory.

Weather: -4 C to +1 C. Wind 10-26 kn from S and SW. Windy night (Fri/Sat). Overcast, rain, sleet and snow and drifting snow all day.

FL, J.P. Steffensen

Picture captions:

Rainbow: A very unusual sight on the ice sheet Saturday morning - a rainbow. People in camp with many years of experience in the arctic have never seen this before. Rainbows only form with rain in the air as opposed to sundogs and halos that form with ice crystals in the air. This is another testimony of the unusual warm conditions over the Greenland ice sheet this year.

Sunday, 29th July 2012.

NEEM icelympic games are on.

None of us here at NEEM can follow the Olympic games, so we have created NEEM icelympic games. As the real Olympic games, these run over a fortnight. Saturday evening we had the opening ceremony, and Sunday we had the first competition: 50 m sprint in the snow barefooted. Results: 1st Alexandra, 2nd Bo and 3rd Peter. Tomorrows competition will be ice block throwing. However the games only took 20 minutes, so the rest of the time we worked. Today was pleasant. We could se everything, the sun was shining and there was little wind. With the removal of the trench roof and the backfilling in progress, we are getting past a rather tricky and potentially dangerous job. From the snow surface to the bottom of the inclined trench was a more than 14 m drop; but today the drop is reduced to 6 m, and tomorrow we hope to remove the drop completely.

1. Air sampling program.
2. Building snow hill for carpenter garage.
3. Setting bore hole casing to vertical.
4. Backfilling inclined trench in drill trench floor.
5. Backfilling drill trench in progress. Casing is capped during this.
6. Japanese and isotope pit study.

Weather: -3 C to -9 C. Wind 5-10 kn from S and SE. Scattered clouds in the morning, later clear. In the evening: Fog.

FL, J.P. Steffensen

Picture captions:

Heavy beam: The quadruple, broken heavy beams of the drill trench roof has been cut and is about to be lifted by the crane. In the bottom centre, the bore hole casing pipe can be seen pointing up. The picture gives an impression on just how much snow has accumulated on the drill trench roof since 2008 when it was laid on the surface.

Monday, 30th July 2012.

Wet games.

The ice block throwing competition was postponed, because the blocks were melting! Once again temperatures above zero Celcius were reached at NEEM. Today has been foggy with little or no wind and warm. It was difficult to push snow for backfilling the drill trench and building the hill for the garage. The snow is wet and sticky. At the pit study site, people could not drill a hand augered core because of a wet drill that immediately froze when put in the hole. Although is was relatively nice outside, we really wish for lower temperatures.

1. Air sampling program.
2. Completing snow hill for carpenter garage.
3. Casing extended and drill trench backfilled.
4. Working on inventory and documentation.
5. Japanese pit study completed.

Ad.5: A planned hand augered core from the bottom of the pit is postponed due to high temperatures.

Weather: -12 C to +1 C. Wind 10 kn from S to calm. Fog all day. Temperature Monday evening at 2300: -1 C

FL, J.P. Steffensen

Picture captions:

Pit study: The team, Myriam, Alexandra and Satow, poses for the camera after completion of the pit study.

Tuesday, 31st July 2012.

Yet another meltlayer has formed in 20 cm depth.

As testimony to the unusual warm weather since mid-July, another layer of refrozen water has formed in the past three days. We are a little tired of present weather. We hardly see the Sun, and when there is no fog we have thick overcast and snow/sleet showers. Everything is wet, and all cargo we now pack on heavy sleds is lying in snow drifts encased in ice. The snow is slippery and soft and feels like walking on soap. Nevertheless, all hands are on deck, and we accomplished a lot. Due to melting and high wind, we again postponed the icelympics; but tomorrow competitions will resume.

1. Air sampling program.
2. Moved carpenter garage to new hill and turned it 135 degrees.
3. Packed and documented drill trench equipment on heavy sled. ¾ done.
4. Collected summer snow isotope standard, 50 liters.

Weather: -5 C to -1 C. Wind: Calm to 16 kt from SW. Overcast and snow showers all day. A short sunny spell at Noon.

FL, J.P. Steffensen

Picture captions:

Garage move: The carpenter garage has been move to a new hill. The previous site was in the hole to the left. That hole was a 2 m hill in 2008 and illustrates the amount of snow accumulated in NEEM camp. For size comparison, note the Caterpillar tractor to the right of the garage.

Garage hill: Lou is freeing the corner of the garage before it is moved up the hill to the tractor. She is working with bare arms in the warm temperatures and has hung her polar clothes on a shovel up the hill. It almost looks like a person.

Melt layer: A clear blue band at 20 cm depth in the snowpack can be seen. This is refrozen meltwater from the surface. When melting occurs on the surface, water seeps down into the porous snow until it reaches temperatures below freezing. Here it refreezes and forms an ice layer in the snow.

August

Wednesday, 1st August 2012.

NEEM camp is changing.

Today we finished packing all drilling equipment onto a heavy sled, and the area around the former drill trench is now clear of cargo. At the same time Sverrir and Lou completed the garage move and backfilled the hole left behind. We also organized the timber on a heavy sled and pulled it into camp. We have fewer and fewer spots on the snow with equipment, so slowly but surely more and more of the snow surface is given back to nature. We feel confident that we will finish packing in time for the closing of camp August 11. Again today we had to face melting and handling wet equipment. At Noon the cloud cover was so thick that it was easy to see the headlights of vehicles in the gloom; but the Icelympic games continued with ice block hurling. There were two disciplines: Throwing distance (1st Peter, 2nd Alexandra and 3rd Bo) and precision (1st J.P., 2nd Myriam and 3rd Anne Katrine).

1. Air sampling program.
2. Finished packing sled with drilling equipment.
3. Lumber sled packed and pulled into camp.
4. Packing and documenting carpenters sled in progress.
5. Consolidated floor and walls of carpenter garage with snow.
6. Backfilling hole at carpenter tents old position.
7. Extending bore hole casing and capping it.
8. Icelympics: Ice block hurling.

Weather: -6 C to -2 C. Wind: 5 to 10 kt from SW. Overcast and snow showers all day. At 2100 slightly improving.

FL, J.P. Steffensen

Picture captions:

Ice block hurling: Myriam is hurling the block as far as she can while Peter is watching.

Competitors in icelympics: Anne Katrine, Myriam, Lisbeth, J.P., Peter, Bo and Satow are discussing the during the games.

Ice block hurling team: From top left: Alexandra, Anne Katrine, Bo, J.P., Lisbeth, Myriam, Peter and Satow.

Thursday, 2nd August 2012.

Packing continues – this time in sunshine.

Packing down camp equipment onto heavy sleds has its own rhythm. Each box, piece of furniture, pipe or drum is pulled to the sled and then the item is documented before it is loaded onto the sled. It is a meticulous and slow process; but we need to know exactly what has been loaded in order to have good plans for a future ice core drilling. Today has been special for this last crew at NEEM. The Sun has been shining all day. Several used the opportunity to take a walk or drive with snowmobiles to the far end of the skiway to get away from camp and experience the vast emptiness of the ice sheet and the stunning view of flat, white surface and deep blue sky.

1. Air sampling program.
2. Restocking carpenters tent and installing electricity.
3. North most three power outlets removed.
4. Packing and documenting carpenter sled finished.
5. Working on documentation and inventory.
6. Opening entrance to balloon trench.
7. Building empty drum pallet on pallet sandwich.

Weather: - 13 C to -4 C. Wind: 3 m/s from SSW. Sunshine and blue skies most of the day.

FL, J.P. Steffensen

Picture captions:

Loading heavy sled: Final items are being loaded onto the heavy sled containing most of drill trench infrastructure.

Picnic: There was time to enjoy the Sun at the picnic tables.

Packing: All items going on the heavy sleds are presented to camera for photo documentation.

Friday, 3rd August 2012.

Preparing to close the science trench.

The drill trench is not anymore. And we are preparing to close the science trench. We have removed the elevator in the science trench and all remaining boxes are being documented and closed. Tomorrow we will empty the science trench completely. A small storage of frozen food and the remaining snow and ice samples will be stored in the balloon cave, which was constructed in June. On the surface, cleaning up and packing is progressing fine, and we are confident that we will have finished packing in time.

1. Air sampling program.
2. Repairing wooden heavy sled.
3. Documenting and sorting frozen food in trench.
4. Collecting and sorting last items from trenches.
5. Working on documentation and inventory.
6. Taking down small elevator and stowing it on heavy sled.

Weather: - 15 C to - 3 C. Wind: 2 – 6 m/s from SW. Overcast most of the day. At 2000 one hour sunshine, at 2100 dense fog and at 2300 snow.

FL, J.P. Steffensen

Picture captions:

Drill trench closed: The end of the NEEM drill trench. To the left is the still open tunnel to the science trench. Of the drill trench only a few broken roof beams and some sticks of bamboo remain. The rest is snow…

Saturday, 4th August 2012.

Last Saturday celebration at NEEM.

We celebrated the last Saturday evening at NEEM with a new heat wave arriving. Dinner was snow lamb and potato gratin. We had a fine dinner, and afterwards the next competition in icelympics were on: Table soccer. The results were: 1st Australia (J.P.) and Canada (Anne-Katrine), 2nd U.K. (Alexandra) and U.S.A. (Bo), 3rd Denmark (Bo) and Greenland (Myriam). Things around camp were moved around with great care as surface contrast most of the day was low. And there was a big move. All ice samples and the remaining frozen food was moved from the science trench to the balloon trench.

1. Air sampling program. Calibration and shut down.
2. Service on Pistenbully.
3. Moving ice samples and frozen food to balloon trench.
4. Sorting out food. A small quantity is placed under the floor of the dome.
5. Working on documentation and inventory.

Weather: - 4 C to - 1 C. Wind: 2 – 5 m/s from SW to SE. Overcast most of the day. At 1700 clearing, at 2300 fog.

FL, J.P. Steffensen

Picture captions:

Snow lamb: A NEEM tradition ends. Sverrir prepares barbequed lamb in a snow pit for Saturday evening dinner. In most years of NEEM, Sverrir has prepared snow lamb as a last Saturday dinner.

Sunday, 5th August 2012.

A rainy day at NEEM.

Today it rained at Noon. Most of the day temperatures have been over 0 C. The snow surface is getting wet and sloshy, and some places small puddles of water can be seen. The science trench is now closed and tomorrow we will secure it and begin to back fill entrances, shafts and holes. Now there is only the test balloon trench under the surface. All remaining packing down and documentation activity is above ground from now on. The water vapour sampling system has been dismantled and packed. Packing of the Japanese aerosol sampling system is in progress. NEEM camp is shrinking and condensing, and we are on schedule.

1. Aerosol and isotope sampling station closed.
2. Closed science trench. Now totally empty.
3. Service on vehicles and cleaning up in garages.
4. Removed markers and cables South East of dome.
5. Working on documentation and inventory.
6. Washed windows on ground floor of dome.

Ad.4: Most bamboo flags had to be pulled up with Caterpillar due to the many melting and refreezing events.

Weather: - 3 C to + 1 C. Wind: 2 – 5 m/s from SSW. Overcast all day. Rain and snow showers.

FL, J.P. Steffensen

Picture captions:

Science Trench: Last photographs of the once so busy science trench. The pictures are taken just before the last lamps and electrical distribution panel were taken down.

Window wash: At a temperature of +1 C, it was possible for Bo to wash the windows of the dome from the outside.

Rain on CAT window: Driving around camp with our Caterpillar loader provided an unusual sight: Rain on the wind screen.

Monday, 6th August 2012.

Temperatures took a welcome step down.

We were about to become tired of walking about in slush in the gloom of dense overcast when nature decided to change the setting. At 1600 camp was hit by a three hour blizzard and afterwards temperatures were more than 3 degrees lower. We now have the frost we were longing for. If this holds, we will soon be able to groom the skiway area in preparation of our pull out flight on Saturday. In camp, packing down continues. It is amazing how much stuff we have. It looks particularly daunting when we study the list of camp inventory; but that's how it is, you can't run a camp like this without a lot of bits and bobs – even a kitchen sink….

1. Taking down and packing aerosol and isotope sampling station.
2. Packing, sorting and clearing out in food tent.
3. Service on skidoos, organizing oils and fluids. Documenting contents in garage.
4. Finished packing on heavy sled with drilling infrastructure.
5. Working on documentation and inventory.
6. Backfilling hole from little elevator.
7. Grooming in camp with beam groomer.

Weather: - 6 C to 0 C. Wind: 2 – 10 m/s from SSW and WSW. Overcast all day. Rain and snow showers. At 1600 camp was hit by a 3 hour blizzard with dense snow and blowing snow. During this temperatures dropped by 4 degrees.

FL, J.P. Steffensen

Picture captions:

Cargo parade: Three almost fully packed heavy sleds along the flag line in camp. Later these sleds will be pulled to a snow hill each West of camp.

Tuesday, 7th August 2012.

Camp is shrinking.

NEEM camp is condensing, and today a big task is completed. After everything was taken from the science trench, all openings and entrances were backfilled with snow, all markers were removed and the area was dozed. Now there is only the extended casing pipe that breaks the flat surface. The day began fine with sunshine and fine working conditions and a lot was done. However after lunch it became overcast and the temperature rose to -2 C. In the evening it began to snow, and because of the high temperatures, water began to drip into the main dome. At 2200 a

blizzard came with snow, blowing snow and dropping temperatures. Everybody in camp is active with different tasks and therefore the list of things we have done is long.

What we have done today:

1. Backfilled ramp, elevator shaft and stair well. The drill and science trenches are no more.
2. Dozing the entire drill and science area flat. All markers removed.
3. Making 7 hills for heavy sleds.
4. Grooming skiway, taxi way and apron with beam groomer.
5. Moving food from food tent to main dome and balloon trench.
6. Packing Japanese cargo.
7. Documentation and cleaning up on 1st floor in dome.
8. Working on documentation.
9. All small tents taken down.

Weather: - 2 C to -9 C. Wind: 5 – 7 m/s from SE, later 10 – 13 m/s from W. Fine in the morning, later overcast. At 2030 rain and snow . At 2200 camp was hit by a blizzard with dense snow and blowing snow. During this temperatures dropped by 4 degrees.

FL, J.P. Steffensen

Picture captions:

Drill site: This is the view from the main dome of the entire ice core science and drill site after closing today. The only visible structure is the extended bore hole casing pointing out of the snow (the picture was taken on august 8 as the blizzard of August 7 obscured the view).

Wednesday, 8th August 2012.

Blizzard has passed – back to work.

Luckily this was not a multi-day blizzard. When we began to work weather was fine again, and nice cold for a change. Lou had to go on the skiway and re-do what she did yesterday. The rest of us continued to pack and document everything in camp. Soon, we have two more sleds to be pulled into position on hills. Sarah continues to cook fine meals for us even though her selection of food goes down rapidly. Tomorrow will be the last day of full operation of the main dome as we will begin to disassemble the water systems. The packing down is on schedule for leaving on Saturday.

What we have done today:

1. New snow floor in mechanics garage.
2. Packing Japanese cargo.
3. Re-arranging lumber sled.
4. Grooming skiway beam groomer.
5. Pulled drillers sled into position on Hill 7.
6. Packed Food tent and one 10 x 15 Weather port.
7. Documentation and cleaning up on 1st floor in dome.
8. Placing all 3 fuel tanks on hills next to the apron.
9. Packing and documenting food and cleaning in kitchen.
10. Measured the entire camp including positions for final storage with GPS.

Weather: - 7 C to - 17 C (Coldest since July 4). Wind: 5 – 2 m/s from S – SW. Fine all day with fog in the evening.

FL, J.P. Steffensen

Picture captions:

Timber: Myriam, Lisbeth and Peter are re-arranging the timber stored on the heavy sled. When this is finished, the sled will be pulled to a hill for storage.

Drillers sled: A portrait of the drillers sled resting on its snow hill.

Thursday, 9th August 2012.

Sunshine and suntan.

It has been a wonderful day. It was nice and cold with lots of sunshine. After almost three weeks several members of the last team got a facial suntan today. This demonstrates how little we have seen the Sun in the past weeks. We got a lot of work done and we are still fine on track. The long list of accomplishments below shows this. There was even time for a shooting contest in the Icelympics: 1st J.P., 2nd Satow and 3rd Alexandra. Tonight we stopped the main water supply and part of the closing down schedule and people have to get used to more simple camp life in the last two days. Sarah had a special treat for us tonight: Lobster with potatoes, coleslaw and beet. Everybody enjoyed the meal.

What we have done today:

1. Completed building Weatherport and carpenter sled.
2. Completed building timber sled.
3. Adjusted floor in carpenter garage and parked tiller in it.
4. Grooming skiway, taxiway and apron with tiller and blade.
5. Made pallet with snowblower, weather ports and Japanese cargo.
6. Building science pallet. Waiting for the last boxes.
7. Made pallet ready for two snow mobiles.
8. Took last weatherport down.
9. Took flag line down.
10. Stopped water supply and emptied main snow melter. Dome water system is now winterized.
11. Working on documentation.
12. Icelympics: Shooting contest.

Weather: - 10 C to - 20 C (Coldest since June 12). Wind: calm to 3 m/s from S – SSE. Fine all day.

FL, J.P. Steffensen

Picture captions:

Documentation: Anne-Katrine is working on documentation of everything in camp. Office work is another side of our activities – and very important.

Strapping: Lisbeth and Bo are strapping down cargo that goes on the big sleds.

Friday, 10th August 2012.

Final day of packing. Tomorrow we fly out – hopefully.

It has been an unusual day. Outside, a group cleaned the camp area and packed the last items. Inside the dome, a group was busy cleaning the kitchen and the first floor. Everything was sorted and documented, and finally at 2100 the documentation was complete. At dinner time the draught beer ran out. That must be due to very good planning – or something. For lunch we had a taste of Greenland: Mattak, i.e. raw whale skin. And for dinner Sarah served lasagne with the last fresh vegetables which was coleslaw and carrots. The plane is scheduled to pick us up tomorrow at about 1100, and we keep our fingers crossed that it will be successful.

What we have done today:

1. Cleaning in main dome.
2. Finished building 3 pallets. We need to put non freeze cargo on the fourth.
3. Pulled heavy sleds to hills, only tomato sled and generator sled remain to go.
4. Removing snow drifts from former weatherport positions.
5. Adjusting markers of balloon trench and closing it.
6. Inventory in main dome complete.
7. Finished documentation.
8. Parked Pistenbully and all equipment in carpenter garage. Garage is now closed.
9. Parked one Flexmobil in mechanic garage.
10. Took one toilet tent down.

Weather: - 9 C to - 17 C. Wind: 5 m/s from S – SSE. Fine all day. After 2000 heavy fog.

FL, J.P. Steffensen

Picture captions:

Sleds on hills: A panoramic view from the Southwest. To the left a row of parked sleds on hills and to the right the almost empty NEEM camp. Only three buildings remain: The dome and two garages.

Last dinner at NEEM: At dinner Satow presents gifts to his camp fellows: Origami cranes symbolizing “peace” and origami samurai helmet symbolizing “strength”.

Saturday, 11th August 2012.

NEEM is closed and we are out.

It has been a dramatic day. The plane was scheduled to arrive at NEEM at 1045; but due to technical issues the departure from Kangerlussuaq was delayed. In the mean time we had received a weather forecast from our forecaster, Marc de Keyser that an at least three day long severe blizzard was coming later today. We were biting our finger nails, the Sun was still shining after the morning fog had lifted; but something ominous was hovering in the sky to the South. With almost everything closed and packed down, we were not inclined to spend a weekend in a blizzard. The 109th sent another plane, and by 1355 the plane landed at NEEM in sunshine. The plane was loaded to the roof with all our cargo and by 1515 we started to slide out to the skway. By that time, the sky was overcast and snow was imminent. The heavily loaded plane began to accelerate down the skiway, and by 1525 we were airborne! All crew members are now back safely in Kangerlussuaq where everybody got a shower and changed clothes and NEEM is closed. I can happily report that population at NEEM is now 0, and the NEEM camp was closed in a clockwork operation.

What we have done today:

1. Removing last toilet.
2. Finished the last pallet.

3. Pulled the tomato sled and generator sled to hills.
4. Taking the cooks snow melter down.
5. Taking the weather station down.
6. Photo documenting the main dome.
7. Parked last vehicles in garages.
8. Sealed the main dome.
9. Flew to Kangerlussuaq with the 109th.

Weather: - 9 C to - 11 C. Wind: 2 m/s from W. Fine in the morning after fog had lifted. After 1300 rapid increasing overcast.

FL, J.P. Steffensen

Picture captions:

NEEM closed: Lou, Sverrir and Peter are sealing the entrance of the main dome with plywood just before they rush to the waiting plane.

Lonely dome: The main dome sits rather forlornly on the empty ice sheet. In the center of the picture the casing of the borehole can be seen. In the past 4 years, hundreds of people have been working around the borehole in underground snow trenches. The trenches are no more, and only a pipe shows the site of earlier scientific activity.

Last crew: A group picture of the last crew well back in rainy Kangerlussuaq. From the left: Sarah, Peter, Alexandra, Lou, Sverrir, J.P., Bo, Anne-Katrine, Lisbeth, Myriam and Satow.