Field season report 2011
North Greenland Eemian Ice drilling (NEEM) 2007-2011:

NEEM bedrock core drilling and last processing.

Prepared by Ice and Climate Group, NBI

for

The NEEM Steering Committee and Danish and Greenlandic authorities.

From "red light drilling" of the 411 m core in the sauna tent.

Lars.B.Larsen, J.P.Steffensen, Dorthe Dahl-Jensen
Lawrence,Kansas , 250913

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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 2011 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 life diary and some pictures 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.

The logistical tasks of the field season 2011 required good collaboration with CH2MHill/CPS Polar Field Services and 109th TAG, NYANG to make the field season a success. The NEEM crew wishes to express their sincere gratitude to Robin Abbott, Eric Coplin, Kyli Olson and Earl Vaughn, CPS and the New York Air National Guard for their assistance.

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

Report on the 2011 activities of the NEEM project

Background.

Although drilling was delayed in 2008, the 2009 success got NEEM back on the track. By July 2010 we hit bedrock. The 2011 season was originally planned to be a packing down season with processing and CFA measurements running in parallel; but funds were raised from many members of the NEEM community, particularly from the E.U. project "WaterUnder the Ice" to make a 2012 season possible. Due to the environmental conditions given by the Greenland government, NEEM is obliged to clean up the site completely. Considering the manpower and the cost involved in the construction (both materials and transportation) of the main dome, we were not inclined to to break down the dome and transport it to the landfill in Kangerlussuaq. After negotiations in Nuuk in November 2010, we reached an agreement with the Greenland government that if the dome could be made mobile and all other camp assets mobile, we could get permission to leave the entire camp packed and staged at NEEM for a future project. Therefore, it became a major logistic enterprise in 2011 to put the 45 ton main dome on skis and to demonstrate it could be moved. Plans were conceived, and by March 2011 we had engineering drawings ready for the construction of a permanent sled for the Dome. Lehmann Maschinenbau In Germany was contracted for the task of building the sled. It was delivered in Aalborg in time for the ship to Greenland in May 2011. Apart from supporting associated programs in 2011, we had a season where the drilllers had time to experiment with basal ice drilling. On the NEEM scientific side, we needed to process and perform CFA measurements on the remaining brittle ice (680 m to 1280 m) and to perform CFA measurements on the deep ice below 2200 m.

Kangerlussuaq (Søndre Strømfjord, SFJ)

NEEM had Field Operations Managers (FOMs) throughout the 2011 campaign. The lease of warehouse 442 runs until 2016. In 442 NEEM has an operational 4m x 4m walk-in freezer for ice cores and food. The FOM office (KISS 208) has been leased on a flat rate basis and has been extended to 2012. Kangerlussuaq International Science Support (KISS) accommodated all participants while in Kangerlussuaq.

NEEM operates the following vehicles in Kangerlussuaq: A 8 ton forklift, a 5 ton forklift, a 8 ton 1981 Ford flatbed truck with hydraulic crane, a 1984 Toyota landcruiser, a 1997 F-250 truck and a VW 4-wheel drive pickup.

The 8 ton forklift has been operational in short periods this year. The problem with leakage from the low pressure fuel pump into the crankcase has reappeared. We managed by lending an articulated loader from CPS and for major rearranging in the warehouse, we borrowed a compact fork lift from Air Greenland.

A project to refurbish the shelf system in 442 using the old shelving from the former ice core storage in Copenhagen was begun in 2010 and was finished in 2011. Now a professional pallet shelf system extends along the Eastern wall of 442.

The FOM office maintained contact with the field crew by telephone and internet. The HF radio connection served as a backup.

As in previoud years, the 2011 field campaign had busy periods for the FOMs in Kangerlussuaq, particularly around crew exchanges, DV visits and shipment of the dome sled parts.

It was planned to have 2-3 FOMs during busy periods and this worked well.

Concluding remarks on FOM activities.

At this conclusion of the formal part of NEEM, we want to point out that in future programs we need to set up manuals and standards for storing and handling information on the FOM computer, a new version of the cargo and inventory software is needed, and we need more trained people for the FOM position. In the next project it should be budgeted to send FOM candidates to forklift and truck training schools and to HAZMAT courses.

Start of field season.

The Field Season started with the arrival of the FOM in Kangerlussuaq on 28th April. The FOM office was opened, vehicles were activated and licenced. Everything was found in good order, and by 2nd May the put-in crew of 12 people had arrived.

Put-in at NEEM and camp opening.

The planned put in was postponed two days due to weather and occurred on 5th May. By that time the U.S. GrIT traverse had arrived at NEEM and could report weather. The plane landed at 11:30 and left at 12:00. The put crew of 12 was received by the 6 members of the traverse. The camp was found in good condition; but a lot of snow had to be removed to gain access to the garages. The traverse people helped with the excavations. By 14:00 the 16 kW generator was powering the main dome, and by 21:00 the main generator had been pulled into position and went on line. The following day, the traverse left for Summit and by evening all infrastructure of the main dome was operational.

The GrIT traverse returned from Summit on 26th May and fuel was transferred to NEEM tanks. On 29th May the traverse continued onwards to Thule.

Drilling 400 m core and experiments with replicate coring.

Although the drilling of a 400 m core in principle was an associated project, we include it in this section, because we managed to combine the drilling with a suite of tests of the Danish intermediate (Hans Tausen) drill. The main purpose of the drilling was to obtain an ice core for Joe

McConnells NSF sponsored 2000 year ice core array project. The drill was setup in the so called "sauna tent", i.e. the southernmost garage. Logging table was setup in the tent as well. The core was taken to the science trench for further processing and packing. Drilling began 14th May with a new type of wide drill head. There were several cases of packing at the drill head, and on 17th May the winch motor in the shallow drill tower broke. The cable had to be unspooled to gain access to the motor, which was replaced with a spare. On 22nd May the winch was fine again and drilling continued in two shifts. By 29th May the second winch motor broke, and a special coupling was made to allow for a German winch motor to run the winch. By 2nd June drilling continued. By 24th June 411 m depth was reached. The Vesuvius eruption had shown up in ECM and drilling was terminated. During drilling, experiments on drill behavior and core quality at different fluid levels were conducted. I was concluded that a fluid head of 40 to 100 m ensures good core quality. The drillers then began experiments with replicate coring. Ironically, the 411 m hole was extremely plump (within 0.5 degree from vertical), so drillers decided to drill a 140 m hole (S2) with a preset 4 degree inclination in the same drill pit. From 30th June to 2nd July the hole was drilled, a successful replicate hole was made at 110 m, and everything was documented with a borehole camera. The distance from the beginning of diversion to a complete new hole was 10 m. In preparation of using the 411 m borehole for another associated project, GLISN (see below), the drilling fluid was bailed out of the hole from 3rd July to 7th July.
On 6th August, a 20 m shallow core was drilled close to NEEM camp to take the 411 m core record up to present day.

Work in the deep hole.

Camera inspection was done in the deep hole on 30th June. Rock drilling in the deep hole, using the ICDS rock drill began 4th July. Due to delays in receiving prefabricated dead weights for the rock drill assembly from France, the weights did not arrive in Greenland in time for a scheduled mission. Luckily, the Royal Danish Air Force offered to make an air drop from one of their Challenger Jets, and this was perfectly conducted on 7th July. After about two weeks of work, the deep hole activities ended on 14th July (There is a detailed drillers report in the diary section 14th July).

Skiway.

This year weather was more accommodating than last year. Although the put-in was delayed two days, and the second plane was delayed three days, we received a skiway upgrade at the third flight 23rd May. July became warm and the DV visit 14th July was postponed to 15th July due to warm temperatures. The plane got stuck at NEEM, and all DVs spent the night at NEEM. As the group of DVs contained members of the Danish and Greenlandic cabinet of ministers, a request to Thule AB to open the air port on a Saturday night was sent. Thule was opened for three hours (1 to

3 o'clock) Sunday, 17th July in the morning. The plane successfully made it back to Kangerlussuaq after refueling in Thule. For the mission 22nd July, we planned for an early morning mission due to the continuing warm temperatures. The plane left Kangerlussuaq 5:30 and was at NEEM 8:14. By 9:08 it took off in the first attempt. Conclusion: Early morning missions help when night temperatures are not lower than – 3 C.

Processing and CFA.

Full processing of the remaining brittle ice began 24th May and by 2nd June processing was over. This completed full processing of the entire NEEM deep core. The NEEM S1 (411 m core) was processed from 3rd June to 26th June and afterwards the crew began to dismantle the processing line and the core buffer shelf system.
CFA measurements in both the chemistry laboratory and the gas and isotope laboratory began 25th May. Measurement of the deep part (2200 m to bottom) was completed by 15th June. Then the deep part of the brittlezone (bag 2100 -2330) and the top part of brittle zone (bag 1095-1186) were measured. After this, due to the low core quality, the isotope and gas laboratory closed, and CFA continued for impurities only. In the worst sections of the brittle zone, 6.7 m out of 200 m were usable. All the unmeasured CFA sticks were packed and shipped to Copenhagen. CFA measurements on the NEEM core stopped 27th June, and until 4th July the CFA people measured a series of 12 m shallow cores. Bu 4th July packing down of the two CFA laboratories began in earnest. Only the physical properties warm laboratory remained in the science trench.

Details on the progress of processing and CFA can be seen in the plot below.

Moving the main dome.

The skis and the undercarriage parts for the main dome sled arrived by ship in Kangerlussuaq in June. Allready by 28th June the first shipment went to NEEM. The heaviest single parts were the four skis. They were designed to fit, two by two (6100 lbs), on a double Air Force pallet. By 23rd July the entire 11.5 ton sled had arrived on five flights using space available uplift cargo capacity. Construction of the sled and moving of the dome could begin on schedule. For the job NEEM had hired three Icelandic professionals who together with Sverrir Hilmarsson and Sepp Kipfstuhl formed the construction crew. Excavations to clean up below and around the dome began 18th July. A lot of chain saw action was needed, as melt water from the dome had refrozen in the snow around it. Mounting of the steel side ring panels onto the legs of the dome began 21st July. Then the ring was made stiff by mounting a hub and steel cables, just like a bicycle wheel lying down. Three trenches were excavated where the four skis had to be placed into position, and then, by using pneumatic rubber pillow jacks the weight of the main dome was shifted from the legs onto the skis, one ski at a time. The remaining legs were cut, and the dome was standing on the sled. During construction, the crew noted that the legs under the dome had not only sunk, but were being pushed sideways towards the center of the dome. We managed to complete the transfer in

time and correct for the slight bending of the legs. A 6 degree ramp (1 in 10 slope) was excavated from the dome towards center of camp and by 3rd August the crew was ready to begin the move. The Pistenbully and a Flexmobile were pulling and the Caterpillar Loader was kept in reserve for pushing. Movement of the dome was successful without the use of the Caterpillar. It took about one minute. The dome rested three days in the center of camp until the 4.5 m hole at its original place was filled and leveled. On 6th August the dome was pulled back in place by the Pistenbully alone. Sideboards were mounted between the sled panels and the dome floor. Snow was pushed in around the sled to seal the space between the snow surface end the bottom of the sled panels. This created a "basement" under the dome, and an access hatch in the kitchen floor was made.

Associated programs.

As in all other field seasons, we received the Twin Otter with the PARCA crew. They used NEEM as a hub for the North Greenland operations from 31st May to 2nd June. As agreed, NEEM staff lifted the PARCA weatherstation at NEEM on 3rd and 4th July.
U.S. logging 24 may to june 2.

The GEUS Seismic station in the science trench was maintained 3rd June.

An experiment of through the ice communication by our Dutch colleagues was carried out by lowering a transmitter/receiver to the bottom of the NEEM, and carrying out radio-wave communication through the ice to a receiver/transmitter on the surface. The experiment went very well and was finished in one day on 10th June.

Several NEEM groups made pit studies: Swedish group and CFA group on 12th June. Chinese pit study 27 June. Several Handaugered 12 m cores for CFA and Japanese pit to 5.5 m.

A planned 30 m shallow core for BAS was drilled with the Danish shallow drill. Drilling had to be stopped due to warm weather 11th and 12th July. Drilling completed 26th July.

Ground based radar survey of the NEEM vicinity by AWI radar system began 12th June and the survey was successfully concluded 26th June. The survey used snowmobiles and Nansen sleds.

AWI shallow drill test: Some initial work on mounting the drill were made 21st June to 28th June. Then by 25th July testing began and on 4th August the drill got stuck at 50 m depth. The drill was recovered on 5th August using glycol, and packed down.

The Danish, US and French water vapour sampling station and the Japanese aerosol sampling station were run in concert by shared staff. Water vapour was sampled and measured from 28th June to 5th August, and the Japanese sampling from 20th July to 5th August.
High precission U.S. temperature logging was done in the dry 2009 S1 bore hole on 30th June.

An Ice2 Sea team went by snowmobile traverse to site B26 (77.85210N and 52.02630W) , some 50 km away. They drilled to 14.7 m on 30th July and broke the cable. On 1st August they returned and completed drilling to 30 m. This core and the AWI test core were cut and measured by DEP in the science trench in August.

The permanent seismic station of the GLISN project was setup between 15th July and 20th July. The setup required a lot of assistance from the NEEM crew. Sand was filled into the 411 m deep, now bailed drill hole until a depth of 220 m. Then the seismometer was inserted and made secure using more sand. The surface batteries, control boxes and data transmitters were setup inside the sauna tent with the solar panels just outsite. A GPS relay station (also solar and battery powered) was set up next to the NEEM GPS main reference south of camp. With the massive assistance from camp it was possible for the GLISN crew to complte setup and testing of the equipment before leaving.

The team from Kansas University arrived on a special flight to NEEM 19th July with a full size Unmanned Aerial Vehicle (UAV). After many system tests and mounting of radar equipment, Meridian UAV took wing for the first time 2nd August. On 6th August, the Meridian was airborne with radar equipment and antennas.

Distinguished visitors.

On 29th June the NSF director Dr. Suresh with staff visited NEEM. They came by Twin Otter.

The main event was on 9th July, when NEEM camp received Her Majesty, The Queen, His Royal Highness, The Prince Consort, The Royal Governor of Greenland and Greenlandic Prime Minister. The group came by Twin Otter. A planned overnight had to be cancelled as weather was a bit doubtful; but the guests were able to spend a few hours in camp.

The planned DV minister visit on 14th July was postponed to the 15th due to warm weather at NEEM. On 15th July tha group made it to NEEM; but they got stuck and did not return to Kangerlussuaq before 17th July at 6 in the morning.

As usual, we had agreed with the Joint Commission to host young students from the Science and Education program for two days at NEEM, and, as usual, we were forced by weather to reduce the stay of the students to an hour on 21st July.

Fuel statistics 2011:

Fuel left in depot at NEEM for 2012:	23,900 liter JP-8 and Jet A1 in three tanks.
	7,200 liter Jet A1 in drums.
	1,000 liter Mogas in drums.
Fuel delivered at NEEM:	24,500 liter by GrIT traverse
	200 liter Mogas
Fuel stored at NEEM 2010	27,000 liter Jet A1/JP-8
	5600 liter Jet A1 in drums
	2000 liter Mogas
Consumption (105 days):	26,000 liter.
Mogas consumption 2011 at NEEM:	1,200 liter.
Average consumption per day (105 day):	248 liter fuel and 11.5 liter mogas
Needs in 2012:	
Fuel	30,000 liter
Mogas	1000 liter

Loads carried 2011:

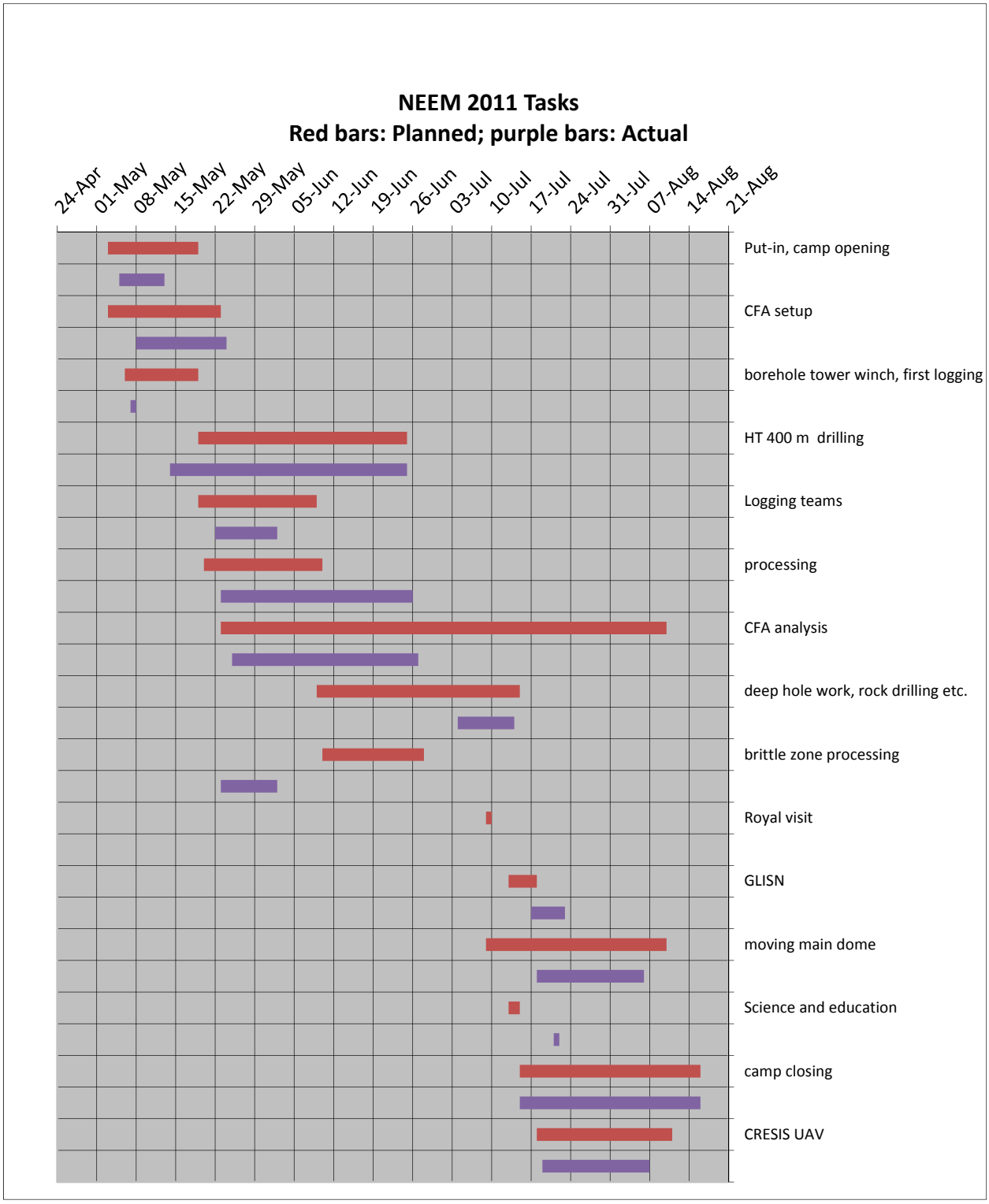
A total of 119,206 lbs (54,180 kg) was transported to NEEM in 12(15) LC-130 missions, and 46,150 lbs (21,000 kg) by GrIT traverse. Below is a table showing the missions. All weights in the table are in lbs.

Flight statistics 2011 (cargo incl. PAX weight):								
Mission	Date	up	down	up	down	total	camp	flight
#		PAX	PAX	cargo	cargo	PAX	PAX sum	hours
							in camp	
GRIT TRAVERSE	3-May	6	6	23540	0	0	0	
1 (scheduled)	5-May	11	0	5302	0	11	11	5.2
2 (scheduled)	21-May	17	5	6270	0	12	23	3.1
3 (scheduled)	23-May	4	2	5100	0	2	25	3.1
GRIT	27-May	6	6	46150	0	0	25	
PARCA TWIN OTTER	31-May	8	0			8	33	
PARCA TWIN OTTER	2-Jun	0	8		0	-8	25	
4 (scheduled)	9-Jun	8	9	7960	9470	-1	24	5.1
5 (scheduled)	11-Jun	14	15	11400	6300	-1	23	5.2
6 (scheduled)	28-Jun	10	17	7370	8640	-7	16	5.2
7 (NSF DV)	29-Jun	15	15	16100	9680	0	16	0
ROYAL VISIT TWIN OTTER	9-Jul	4	4			0	16	
8 up (scheduled and DV got stuck)	15-Jul	26	0	8130	0	26	42	6.3
8 down (scheduled and DV via Thule)	17-Jul	0	25			-25	17	
9 (scheduled)	19-Jul	7	2	10930	8600	5	22	5.2
10 (Science & Education)	21-Jul	15	15	9350	6490	0	22	0
11 (scheduled)	23-Jul	6	5	7755	2510	1	23	5.3
12 (scheduled)	11-Aug	10	18	2760	6424	-8	15	5.2
13 (UAV pick-up, NSF)	11-Aug	6	8	12826	6010	-2	13	0
14 (109th DV)	12-Aug	1	7	6413	10000	-6	7	0
15 (scheduled)	16-Aug	0	7	1540	2500	-7	0	5.4
Totals		174	174	188896	76624			54.3
Total - GRIT fuel = 109th loads				119206				
Average load				7947.067	5108.267			

Calender for tasks in camp 2011.

Calendar for tasks in camp:				
Task:	Period planned		Period actual	
Put-in, camp opening	03-May	19-May		
			05-May	13-May
CFA setup	03-May	23-May		
			08-May	24-May
borehole tower winch, first logging	06-May	19-May		
			07-May	08-May
HT 400 m drilling	19-May	25-Jun		
			14-May	25-Jun
Logging teams	19-May	09-Jun		
			22-May	02-Jun
processing	20-May	10-Jun		
			23-May	26-Jun
CFA analysis	23-May	10-Aug		
			25-May	27-Jun
deep hole work, rock drilling etc.	09-Jun	15-Jul		
			04-Jul	14-Jul
brittle zone processing	10-Jun	28-Jun		
			23-May	02-Jun
Royal visit	09-Jul	10-Jul		
			09-Jul	09-Jul
GLISN	13-Jul	18-Jul		
			17-Jul	23-Jul
moving main dome	09-Jul	10-Aug		
			18-Jul	06-Aug
Science and education	13-Jul	15-Jul		
			21-Jul	22-Jul
camp closing	15-Jul	16-Aug		
			15-Jul	16-Aug
CRESIS UAV	18-Jul	11-Aug		
			19-Jul	07-Aug

GANNT on tasks in camp.



NEEM actual manning 2011

Sorted by names	Name	Country	To SFJ	To NEEM	From NEEM	From SFJ	Number of days in camp.	Number of days in KISS
MECHANIC	Arntorsson, Gunnar Magnus	IS	08-Jun	09-Jun	16-Aug	18-Aug	68	3
Pit study	Azuma, Kumiko	J	13-Jul	15-Jul	23-Jul	25-Jul	8	4
CFA (FIC)	Benton, Ailsa	UK	10-Jun	11-Jun	17-Jul	17-Jul	36	1
FOM	Berg Larsen, Lars	DK	28-Apr			25-May	0	27
FOM	Berg Larsen, Lars	DK	08-Jun			29-Jun	0	21
Strain net	Berg Larsen, Lars	DK	22-Jul	23-Jul	11-Aug		19	0
FOM	Berg Larsen, Lars	DK	11-Aug			12-Aug	0	1
Strain net	Berg Larsen, Lars	DK		12-Aug	16-Aug	18-Aug	4	2
CFA	Bigler, Matthias	CH	02-May	05-May	09-Jun	09-Jun	35	3
BOREHOLE	Boot, Wim	NL	07-Jun	09-Jun	11-Jun	13-Jun	2	4
UAV	Brown, Nicolas	US	17-Jul	19-Jul	11-Aug	12-Aug	23	3
Strain net	Buchardt, Susanne Lilja	DK	22-Jul	23-Jul	16-Aug		24	1
GLISN	Carothers, Lloyd	US	13-Jul	15-Jul	23-Jul	25-Jul	8	4
GLISN	Childs, Dean	US	13-Jul	15-Jul	23-Jul	25-Jul	8	4
PROCESSING	Chuanjin, Li	CHN	10-Jun	11-Jun	28-Jun	29-Jun	17	2
BOREHOLE	Clow, Gary	US	19-May	23-May	09-Jun	13-Jun	17	8
FIELD LEADER	Dahl-Jensen, Dorthe	DK	27-Jun	28-Jun	16-Aug	20-Aug	49	5
UAV	Donovan, William	US	17-Jul	19-Jul	11-Aug	12-Aug	23	3
CFA (gases)	Fain, Xavier	F	18-May	21-May	09-Jun	09-Jun	19	3
CFA	Fischer, Hubertus	CH	08-Jun	11-Jun	28-Jun	30-Jun	17	5
PROCESSING	Fitzner, Antje	DK	10-Jun	11-Jun	28-Jun	30-Jun	17	3
DOCTOR	Florian, Hans Chr.	GRL	02-May	05-May	21-May		16	3
109TH TV crew	Freeland, Robert	US	13-Jul	15-Jul	17-Jul	18-Jul	2	3
SHALLOW (D)	Fromm, Tanja	D	10-Jun	11-Jun	28-Jun	01-Jul	17	4
Radar	Fromm, Tanja	D	18-Jul	23-Jul	11-Aug	12-Aug	19	6
CFA	Gfeller, Gideon	CH	08-Jun	09-Jun	19-Jul	12-Aug	40	25
CFA (Iso. and vap.)	Gkinis, Vasilios	DK	18-May	21-May	28-Jun	30-Jun	38	5
PROCESSING	Guillevic, Myriam	DK	18-May	21-May	09-Jun	10-Jun	19	4
UAV	Hale, Richard	US	17-Jul	19-Jul	11-Aug	12-Aug	23	3
DRILL MECHANIC	Hansen, Steffen Bo	DK	10-Jun	11-Jun	17-Jul	19-Jul	36	3
COOK	Harvey, Sarah	US	30-Apr	05-May	28-Jun	30-Jun	54	7
DOCTOR	Hemmingsen, Mads Peter	DK	12-Jul	15-Jul	11-Aug	12-Aug	27	4
MECHANIC	Hilmarsson, Sverrir Æ.	IS	02-May	05-May	09-Jun	10-Jun	35	4
MECHANIC	Hilmarsson, Sverrir Æ.	IS	27-Jun	28-Jun	16-Aug	18-Aug	49	3
CFA (helper)	Hirabayashi, Motohiro	J	13-Jul	15-Jul	23-Jul	25-Jul	8	4
FOM	Hvidberg, Bo	DK	27-Jun			19-Jul	0	22
FOM	Hvidberg, Christine	DK	27-Jun			19-Jul	0	22

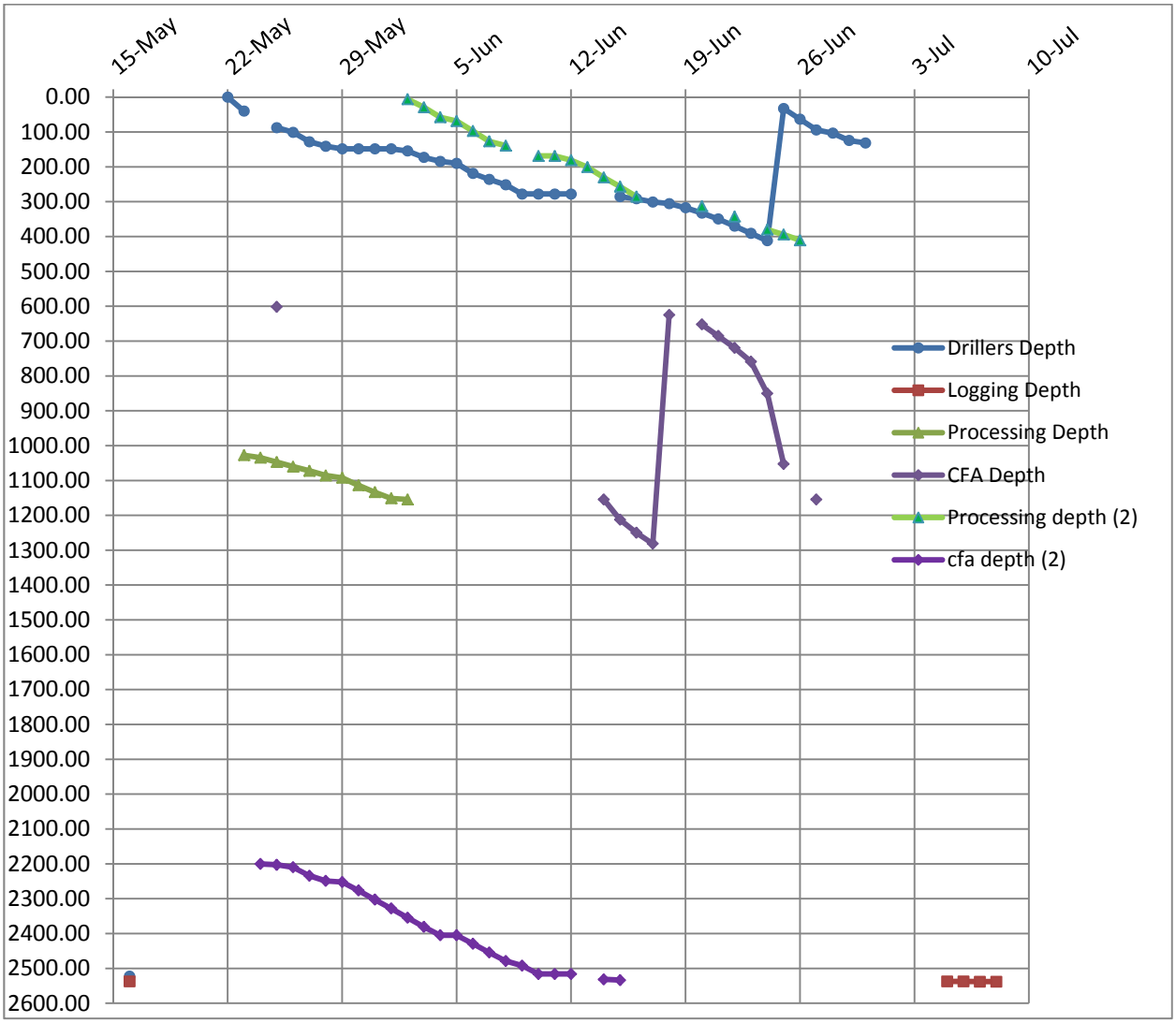
PHYSICAL PROP.	Iizuka, Yoshinori	S	10-Jun	11-Jun	28-Jun	30-Jun	17	3
FOM	Jenk, Theo	DK	20-May			18-Jun	0	29
DRILL OBSERVER	Johnson, Jay	US	27-Jun	28-Jun	17-Jul	18-Jul	19	2
PROCESSING	Jones, Tyler	US	19-May	21-May	11-Jun	13-Jun	21	4
PROCESSING	Karlsson, Nanna	DK	18-May	21-May	09-Jun	10-Jun	19	4
UAV	Keshmiri, Shahriar	US	17-Jul	19-Jul	11-Aug	12-Aug	23	3
PHYSICAL PROP.	Kipfstuhl, Sepp	D	02-May	05-May	11-Jun	14-Jun	37	6
DOME MOVER	Kipfstuhl, Sepp	D	12-Jul	15-Jul	16-Aug	20-Aug	32	7
DOME MOVER	Kjartansson, Vilhjalmur	IS		15-Jul	11-Aug	12-Aug	27	1
DRILLER	Kuthnik, Michelle	DK	18-May	21-May	11-Jun	13-Jun	21	5
DRILLER	Leonhardt, Martin	D	20-May	23-May	28-Jun	30-Jun	36	5
SHALLOW (D)	Leonhardt, Martin	D	22-Jul	23-Jul	11-Aug	12-Aug	19	2
CFA	Leuenberger, Daiana	CH	27-Jun	28-Jun	17-Jul	17-Jul	19	1
UAV	Leuschen, Carl	US	17-Jul	19-Jul	11-Aug	12-Aug	23	3
UAV	Lykins, Ryan	US	17-Jul	19-Jul	11-Aug	12-Aug	23	3
DRILL MECHANIC	Mandeno, Darcy	NZ	18-May	21-May	28-Jun	30-Jun	38	5
CFA (bc)	Maselli, Olivia	US	07-Jun	09-Jun	28-Jun	30-Jun	19	4
CFA (bc)	McConnell, Joe	US	19-May	23-May	11-Jun	13-Jun	19	6
COOK	Millet, Cyril	F	27-Jun	28-Jun	16-Aug	18-Aug	49	3
CFA	Mini, Olivia	CH	18-May	21-May	17-Jul	17-Jul	57	3
FIELD ASSISTANT	Montross, Scott	B	27-Jun	28-Jun	17-Jul	18-Jul	19	2
DRILL MECHANIC	Mortensen, Carsten	DK	02-May	05-May	23-May	25-May	18	5
DRILLER	Moy, Andrew	AUS	18-May	21-May	28-Jun	30-Jun	38	5
CFA (FIC)	Mulvaney, Robert	UK	18-May	21-May	11-Jun	13-Jun	21	5
PROCESSING	Orsi, Anais	US	27-Jun	28-Jun	17-Jul	18-Jul	19	2
FIELD ASSISTANT	Panton, Christian	DK	02-May	05-May	21-May	25-May	16	7
DRILLER	Popp, Trevor	DK	02-May	05-May	11-Jun	13-Jun	37	5
DRILLER	Popp, Trevor	DK	27-Jun	28-Jun	14-Jul	16-Jul	16	3
COOK ass.	Poulsen, Mathilde Thorn	DK	13-Jul	15-Jul	11-Aug	13-Aug	27	4
PROCESSING	Prie, Frederic	F	26-Jun	28-Jun	17-Jul	18-Jul	19	3
UAV	Pritchard, John A.	US	17-Jul	19-Jul	11-Aug	12-Aug	23	3
DOME MOVER	Ragnarsson, Sigurdur	IS	13-Jul	14-Jul	12-Aug	13-Aug	29	2
PROCESSING	Rasmussen, Sune O.	DK	08-Jun	09-Jun	28-Jun	30-Jun	19	3
PROCESSING	Ritz, Caterine	F	08-Jun	09-Jun	28-Jun	30-Jun	19	3
FOM	Ritzmann, Tanina	DK	20-May	09-Jun	09-Jun	18-Jun	0	29
CFA (helper)	Schmidt, Kerstin	D	10-Jun	11-Jun	28-Jun	30-Jun	17	3
Radar	Schuett, Phillip	D	22-Jul	23-Jul	11-Aug	12-Aug	19	2
CFA	Schüpach, Simon	CH	02-May	05-May	11-Jun	13-Jun	37	5
ELECTRONICS	Schwander, Jakob	CH	27-Jun	28-Jun	17-Jul	17-Jul	19	1
ISOTOPES Vapour	Steen-Larsen, Hans Christian	US	27-Jun	28-Jun	23-Jul	25-Jul	25	3
FIELD LEADER	Steffensen, Jørgen Peder	DK	02-May	05-May	11-Jun	15-Jun	37	7
FOM	Steffensen, Jørgen Peder	DK	11-Jul	11-Aug	12-Aug	20-Aug	1	39
FOM	Steffensen, Svend	DK	11-Jul			31-Jul	0	20
ELECTRONICS	Stocker, Bruno	CH	11-Jul	15-Jul	11-Aug	18-Aug	27	11

CFA (gases)	Stowasser, Christoffer	DK	18-May	21-May	13-Jun		23	3
PROCESSING	Stowasser, Christoffer	DK		13-Jun	19-Jul	20-Jul	36	1
109TH TV crew	Stroud, David	US	13-Jul	15-Jul	17-Jul	18-Jul	2	3
DOME MOVER	Svavarsson, Adalsteinn	IS	13-Jul	15-Jul	11-Aug	12-Aug	27	3
PROCESSING	Svensson, Anders	DK	18-May	21-May	13-Jun		23	3
FIELD LEADER	Svensson, Anders	DK		13-Jun	28-Jun	30-Jun	15	2
PROCESSING	Teste, Gregory	F	18-May	21-May	11-Jun	13-Jun	21	5
BOREHOLE	Urban, Frank	US	19-May	23-May	09-Jun	13-Jun	17	8
CFA (helper)	Vallelonga, Paul	DK	18-May	21-May	11-Jun	15-Jun	21	7
109TH TV crew	Van Pelt, Aaron	US	13-Jul	15-Jul	17-Jul	18-Jul	2	3
ELECTRONICS	Vaughn, Bruce	US	30-Apr	05-May	23-May	24-May	18	6
PROCESSING	Vinther, Bo	DK	10-Jun	11-Jun	28-Jun	30-Jun	17	3
CFA (helper)	Warming, Erik	DK	10-Jun	11-Jun	28-Jun	05-Jul	17	8
CFA (helper)	Wegner, Anna	D	18-May	21-May	09-Jun	09-Jun	19	3
ISOTOPES Vapour	Winkler, Renato	F	22-Jul	23-Jul	11-Aug	12-Aug	19	2
	Totals						2074	560

Ice core drilled in the season 2011:

Site	Position	Depth	Comment
NEEM Main		74 cm silty ice, 63 cm basal ice	Basal ice drilling
2011 S1	From bottom of Sauna garage	411 m	US CFA, F Gas, DK Picarro
2011 S1A	77 26'657''N;51 05'010W	12 m	CFA firn
2011S1B	77 26 645 N 51 06784 W	14 m	CFA firn
2011 S2	same hole as S1 for replicate drilling	131.5 m	Logged and packed complete
2011S1C		12 m	CFA firn
2011S1D		12 m	CFA firn
2011S1E		12 m	CFA firn

2011 deep core and 400 m core progress, logging, processing and CFA analysis



SITREPS:

NEEM SITREP no.01, Sunday 1. May 2011.

This SITREP covers the period April 28 – May 1, 2011 (inclusive).

Movement of personnel:

April 28 Lars Berg Larsen (DK) from Copenhagen (CPH) to Kangerlussuaq (SFJ) by Air Greenland

May 1 Sarah Harvey (US) and Bruce Vaughn from Schenectady (KSCH) to SFJ by NYANG 109th.

Movement of cargo:

April 15 (AWB 117-2900 4150), 870 kg Bern (CH) science equipment from CPH to SFJ by Air Greenland.

April 16 (AWB 631-2653 4045) 529 kg, AWI (D) science equipment from CPH to SFJ by Air Greenland.
1263 kg DK drill equipment from CPH to SFJ by Air Greenland

April 26 (AWB 117-2821 1256) 344 Kg BAS (UK) science equipment from CPH to SFJ by Air Greenland.

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

NEEM iridium numbers:
Primary no.: +8816 777 04 766

Kangerlussuaq activities:
The Field Operation Manager Office is open.
The people from the US had to spend one night in Goose Bay (CAN) due to technical problems.

Tel.: +299 84 11 51
Mobile: +299 52 41 25
Kangerlussuaq/SFJ iridium number: +8816 2144 2402

Weather in Kangerlussuaq/SFJ:
Mostly sunny, day temperatures between +2C and -8C.

NEEM Field Operations office,
Lars Berg Larsen

NEEM - SITREP no.02, Sunday 8. May 2011.

This SITREP covers the period May 2 – May 8, 2011 (inclusive).

Movement of personnel:

May 2 Jørgen Peder Steffensen (DK), Sverrir Hilmarsson (IS), Matthias Bigler (CH), Carsten Mortensen (DK), Christian Panton (DK), Simon Schüpach (CH), Trevor Popp (DK) and Sepp Kipfstuhl (D) from Copenhagen (CPH) to Kangerlussuaq (SFJ) by Air Greenland
Hans Christian Florian (GL) from Tasilaq to Kangerlussuaq by Air Greenland

May 5 Jørgen Peder Steffensen (DK), Sverrir Hilmarsson (IS), Matthias Bigler (CH), Carsten Mortensen (DK), Christian Panton (DK), Simon Schüpach (CH), Trevor Popp (DK), Sepp Kipfstuhl (D), Hans Christian Florian (GL), Sarah Harvey (US) and Bruce Vaughn from Kangerlussuaq to NEEM by NYANG 109th.

Movement of cargo:

May 4 70 kg, 1 coli LGGE-CNRS (Teste) from CPH to SFJ by Air Greenland.

May 5 12240 liter (3,500 gal) JP-8 fuel from Thule to NEEM by GReenland Ice Traverse, GRIT
May 6 2410 kg Science and Drill equipment from SFJ to NEEM April 16 Kangerlussuaq to NEEM by NYANG 109th

May 7 50 kg, 1 collo Spare parts from CPH to Kangerlussuaq by Air Greenland

Activities:
Due to technical problems with two out of three LC-130 and a bad weather forecast for the NEEM site the put-in was rescheduled for Thursday May 6.
The evening May 5 the U.S. traverse, GRIT arrived the NEEM camp from Thule. This was very convenient for the NEEM put-in planning. The six traverse crew provided weather observation and made access to essential equipment regarding the flight.
The put in was smooth: Landing, off-loading the two pallets and take off in first slide took 35 minutes. The plane departed NEEM at 12:00. With help from the GRIT tractors the entrances to the garages were dug out and in the evening at 23:00 the Pistenbully and two snow blowers were running and the main dome ran on power from the main generator. May 6 the traverse continued towards Summit Camp, leaving fuel supply for the NEEM camp and a fuel depot for the return trip. The following days in camp were used to bring the infrastructure up to normal standard. Central heating, running water, internet and communication are now working. By inspection of the trenches only minor damages due to compression of the snowpack i.e. compressed ventilation pipes etc. Sunday, the camp was hit by the first blizzard this year. Due to winds approaching 30 knots and temperatures from -25 C to -18 C and blowing snow, work on the surface was not possible. Instead, work was done in the trenches. The CFA team are beginning to build up the system and the drillers shortened the tower by 2 x 1.5 m. The tower is now straightened and can be placed in vertical.

Weather at NEEM: It has been very cold this year with temperature between -19C to -35C and blowing snow with wind speeds at 4-25 knots.

NEEM camp population: 11

NEEM iridium numbers:
Primary no.: +8816 777 04 766

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

Weather in Kangerlussuaq/SFJ:
Overcast, day temperatures between +2C and -8C.

NEEM Field Operations office,
Lars Berg Larsen

NEEM - SITREP no.03, Sunday 15. May 2011.

This SITREP covers the period May 9 – May 15, 2011 (inclusive).

Movement of personnel:

No personnel moved

Movement of cargo:

No cargo moved

Activities:
Beginning of the week all work had to be done inside due to a blizzard. Tuesday weather cleared and it became possible to work outside again. The main task was to remove drifts from the camp and clear entrances. The white weather port over the main entrance to the drill trench was erected, staircase and elevator extended. The old garage was emptied and a 12x20 weather port was erected for food storage. Later two more 12 x 20 weather ports were erected for sleeping quarters for the arriving people next week.

Skiway:
Work on the skiway stared Thursday by breaking the surface with the Flexmobile. Then work continued with the beam groomer. A total of 3 passes has been done. Work continues into next week to prepare for the flight late next week. Sunday all markers on skiway, taxiway and apron were pulled up and reset.

Drilling:
In the drill trench the tower has been shortened to fit the roof. Preparations to meet the coming logging of the deep borehole is done. The drillers have set up the 4 inch shallow drill and core logging table in the storage garage in preparation of the 420 m shallow core drilling. First core was drilled Saturday, and Sunday the first core with undisturbed snow was drilled. The first complete bag logged is bag 12.

Drillers depth: 9.1 m.

Science:
In the science trench cables has been lifted and arranged. The setup of the CFA system continues on schedule and step by step the system becomes more complete. Equipment for studies of physical properties has also been setup.

Weather at NEEM: Snow storm the first two day of the week then clearing with beautiful weather the rest of the week. Fog some nights and mornings.

Temperatures between -12C to -26C and wind speeds at 4-34 knots.

NEEM camp population: 11

NEEM iridium numbers:
Primary no.: +8816 777 04 766

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

Kangerlussuaq Activities:
Organizing cargo, maintenance of vehicles

Weather in Kangerlussuaq/SFJ:
Overcast, rainy and snowy, day temperatures between +12C and -5C.

NEEM Field Operations office,
Lars Berg Larsen

NEEM - SITREP no.04, Sunday 22. May 2011.

This SITREP covers the period May 16 – May 22, 2011 (inclusive).

Movement of personnel:

May 18 Xavier Fain (F), Vasilios Gkinis (DK), Myriam Guillevic (DK), Nanna B. Karlsson (DK), Michelle Kuthnik (DK), Darcy Mandeno (NZ), Olivia Mini (CH), Andrew Moy (AUS), Robert Mulvaney (UK), Christoffer Stowasser (DK), Anders Svensson (DK), Gregory Teste (F), Paul Vallelonga (DK), Anna Wegner (D) from Copenhagen (CPH) to Kangerlussuaq (SFJ) by Air Greenland.

May 19 Gary Clow (US), Tyler Jones (US), Joe McConnell (US), Frank Urban (US) from Schenectady to Kangerlussuaq by NYANG 109th.

May 20 Tanina Jenk-Ritzmann (DK), Theo Jenk (DK), Martin Leonhardt (D) from Copenhagen (CPH) to Kangerlussuaq (SFJ) by Air Greenland.

May 21 Xavier Fain (F), Vasilios Gkinis (DK), Myriam Guillevic (DK), Nanna B. Karlsson (DK), Michelle Kuthnik (DK), Darcy Mandeno (NZ), Olivia Mini (CH), Andrew Moy (AUS), Robert Mulvaney (UK), Christoffer Stowasser (DK), Anders Svensson (DK), Gregory Teste (F), Paul Vallelonga (DK), Anna Wegner (D), Tyler Jones (US), Else Marie Gundersen (GRL), Bente Siegstad (GRL) from Kangerlussuaq to NEEM by NYANG 109th.
Hans Christian Florian (GRL), Christian Panton (DK), Carsten mortensen (DK), Else Marie Gundersen (GRL), Bente Siegstad (GRL) from NEEM to Kangerlussuaq by NYANG 109th.

Movement of cargo:

May 18 1225kg Food, 800kg DSRI Science cargo, 1300kg GLISN Science cargo, 3100kg USGS Science cargo from Schenectady to Kangerlussuaq by NYANG 109th.

May 20 289kg DK drill items and spare parts, 728kg AWI Science equipment from CPH to Kangerlussuaq by Air Greenland.

May 21 2850kg Science and drill cargo from Kangerlussuaq to NEEM by NYANG 109th.

Activities:
The week was dominated by changes to the planned schedule. On the way to Kangerlussuaq the people coming from Copenhagen got delayed by 1 day due to technical problems with Air Greenland air plane. And other technical problems with the 109th planes resulted in only 1 available Skier for ice sheet missions. With only one plane available and two planned missions to SUMMIT and NEEM it was decided in agreement with CPS to fly to NEEM as first priority. But due to a high cross wind at NEEM mission was cancelled. Next day was a successful SUMMIT mission and on Saturday the plane finally made it to NEEM.
People in camp were busy preparing skiway for flight missions and setting up the final tents for the arriving crew. The camp is now fully manned.

Skiway:
Skiway groomed 3 times by beam, 2 times by beam zig-zag and finally 1 time with tiller.
Drilling:
First couple of days of the week were used to tune in a new type of drill head. Tuesday the winch motor failed and drilling was on stand-by until new drill motor arrived on camp on Saturday. The time was used to prepare the setup in the drill tent for routine drilling. On Saturday, the new motor was installed and on Sunday the short cable was replaced with a new 500 meter cable. Sunday drilling could continue with the new drill head while training the new crew.

Drillers depth: 27.5 m.

Science:
This week the setup of the CFA system was completed and CFA detection system is now fully operational. All components started, optimized and tested. Documentation updated. DAQ program improved and adjusted. Ice samples preparation installed. On Sunday installation of the fast I.C. and gas- and isotope units on the CFA began.

Weather at NEEM: Weather was good all week but strong Easterly winds came up Thursday later in the day conflicting with the flight coming in to NEEM.

Temperatures between -13C to -26C and wind speeds at 2-20 knots.

NEEM camp population: 24

NEEM iridium numbers:
Primary no.: +8816 777 04 766

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

Kangerlussuaq Activities:
Organizing cargo, receiving people, preparing for flights to NEEM.

Weather in Kangerlussuaq/SFJ:
Cloudy in the beginning, good weather mid weak and light snow in the weekend, day temperatures between +8C and -3C.

NEEM Field Operations office,
Lars Berg Larsen

NEEM - SITREP no.05, Sunday 29. May 2011.

This SITREP covers the period May 23 – May 29, 2011 (inclusive).

Movement of personnel:

May 23 Frank Urban (US), Gary Clow (US), Joe McConnell (US), Martin Leonhardt (D) from Kangerlussuaq to NEEM by NYANG 109th.
Bruce Vaughn (US), Carsten Mortensen (DK) from NEEM to Kangerlussuaq (SFJ) by NYANG 109th.

May 24 Bruce Vaughn (US) from Kangerlussuaq to Schenectady by NYANG 109th.

May 25 Carsten Mortensen (DK), Christian Panton (DK), Lars Berg Larsen (DK) from Kangerlussuaq to Copenhagen (CPH) by Air Greenland.

Movement of cargo:

May 23 2313kg food and 4540kg science and drill cargo from Kangerlussuaq to NEEM by NYANG 109th.

May 27 24,000 liter (6315 gal) JP8 from Thule to NEEM by GRIT traverse.

Activities:

On Monday Skier 11 was received and people in camp were busy with unpacking food, spare parts and equipment. After forecasts have warned of strong wind much work was done on the surface to be prepared for the next couple of days. In the middle of the week the wind was blowing from the East but work could progress in the shelter of weatherports and down in the trenches. As the wind relented on Thursday there was some cleaning to do. Several entrances had to be excavated and many snowdrifts across the skiway had to be removed. The U.S. GRIT traverse visited camp Thursday afternoon to Saturday morning. End of week was busy with working on the skiway and maintaining of camp utilities.

Skiway:
Skiway groomed twice lengthwise and part of taxiway and apron with beam groomer, snow drifts across skiway removed with dozer blade.
Drilling:
The drill behaved so well that they entered a two shift mode in drilling on Tuesday. The day after the drillers reached the depth where the porous firn turns into non-porous glacier ice so it was decided to change to "wet" drilling mode. Since Thursday the wet drilling ran routinely in two shifts and the drillers are adapting to the different working conditions associated with wet drilling. Good core quality. Sunday evening the winch broke for the second time this year, and drillers are now working on assessing the problem.

Drillers depth: 148.5 m.

Science:
The first two days the CFA people finished setting up the equipment in the laboratory. On Wednesday the CFA system went on-line. Measuring with CFA rest of the week, the last three days in 24 hour operation.
CFA production this week: 2200.55 m to 2252.25 m (51.70 m)
Processing of brittle ice began this week, and slowly the processors are picking up speed.
Core processed this week: Bags 1869 – 1986 (64.90 m)
All planned scientific programs now running.

On Monday the U.S. logging winch got placed in position. The following days people were setting up the equipment and by Friday the U.S. borehole logging was in progress. At the weekend they prepared the second U.S. borehole logging and worked on issues with bearings on the winch.

German and Danish pit study at 2009 S2 drill site (3km South of camp).

GRIT traverse:
Thursday the U.S. GRIT traverse train arrived for a two day pit stop on their way to Thule from Summit. The camp received 24,000 liter fuel (6,315 gallon). NEEM total fuel supply is now 50´000 liter.

Weather at NEEM:
Light Overcast and snow showers the first two days were followed by strong winds and clear sky. End of week mostly sunny with small periods of thin clouds and light snow.
Temperatures between -14 C to -25C and wind speeds at 4-20 knots, during the week from all directions.

NEEM camp population: 26

NEEM iridium numbers:
Primary no.: +8816 777 04 766

Tel.: +299 84 11 51

Mobile: +299 52 41 25
Kangerlussuaq/SFJ iridium number: +8816 214 42402

Kangerlussuaq Activities:
Receiving people from NEEM, exchange of the field office team, organizing spare parts.

Weather in Kangerlussuaq/SFJ:
Cloudy in the beginning, sunny and warmer mid weak , light snow on Sunday morning, day temperatures rising from -2C to +10C and back to +5C on the weekend. At night below 0C.

NEEM Field Operations office,
Tanina Jenk-Ritzmann

NEEM - SITREP no.06, Sunday 05. June 2011.

This SITREP covers the period May 30 – June 05, 2011 (inclusive).

Movement of personnel:

No movement of personnel

Movement of cargo:

May 30 110kg Science equipment (F) from Reykjavik (KEF) to Kangerlussuaq (SFJ) by Twin Otter.

May 31 8kg Spareparts from Kangerlussuaq to NEEM by Norland Twin Otter (PARCA project).

June 02 106kg Science equipment (NL) from Copenhagen (CPH) to SFJ by Air Greenland.

Activities:
The week began productive with some work on the skiway, service on vehicles, repairs on Pistenbully tracks and brainstorming in the driller team. They found a solution to handle their broken winch problem and by Thursday the drilling continued. Both CFA measurements and processing were running smooth. Tuesday at 21.00 the U.S. PARCA team arrived by Twin Otter. They are maintaining a large number of automatic weather stations along the 2000 m contour of the Greenland Ice Sheet and it was planned that they will use NEEM as a hub for their visits to the sites in the North the next few days. But because of forecasted high winds they left NEEM already on Thursday to seek shelter on the East coast of Greenland. Friday morning the bad weather began. Camp personnel were briefed on safety procedures during blizzards and radios were issued to the different teams. Scientific work continued in the trenches and so did drilling in the shelter of the garage. The stormy weather got even worse on Saturday, but luckily got better on Sunday. By lunchtime camp could be seen again and also the extensive snowdrifts which have built up everywhere. Cleaning up began.

Skiway:
Levelled some undulations on skiway with Pistenbully at the beginning of the week. No further work possible because of the bad weather for the rest of the week.
Drilling:

Since the replacement of the initial winch motor also failed and the two motors could not be combined to one working unit due to technical reasons, a new approach to fix the problem had to be found. An adapter was manufactured which allowed to mount the winch motor from the German shallow drill instead. Although successful in the end, this did not happen without complications. Since the old motor is now used as a drive shaft only and thus not physically removed it started to act as a generator when forced to rotate by the external motor. Overheating was the result and the coils had thus to be taken out. Therefore, the 500m cable had to be unwound and rewound for a second (mounting the German motor) and third time (removing coils). After successful tests, drilling started again producing good quality 1.5 m cores. On Saturday drilling entered a routine mode with good runs despite the complications of having to open the garage each time the core barrel was extracted, causing the air in the garage to immediately fill with blowing snow.

Drillers depth: 190 m.

Science:
Instrument for on-line gas analysis SARA has broken down. The back-up instrument JUDY came into operation and it is running fine.

CFA is running smooth, production this week: 2252.25 m to 2405.15 m (152.90 m)
Thursday the last section of brittle ice was processed. Processing NEEM deep core brittle zone is now complete. Core processed this week: Bags 1987 – 2099 (58.85 m)
Processing NEEM S1 2011 420m core: Bags 12 – 125 (68.75 m)

3rd U.S. borehole logging in progress.
Performing logging experiments in the deep hole, including borehole temperature logging and processing temperature log file.

Maintained seismic station in the science trench.

Weather at NEEM:
Monday to Thursday mostly clear with thin overcast in between. Friday the overcast changed to scattered clouds and strong wind picked up, continuously blowing for the rest of the week. Snow during the weekend.
Temperatures between -15 C to -28 C and wind speeds at 4-32 knots with gusts up to 42 knots.

NEEM camp population: 26

NEEM iridium numbers:
Primary no.: +8816 777 04 766
Tel.: +299 84 11 51
Mobile: +299 52 41 25
Kangerlussuaq/SFJ iridium number: +8816 214 42402

Kangerlussuaq Activities:
Organizing spare parts, receiving cargo, ordering food.

Weather in Kangerlussuaq/SFJ:
From Monday on cloudy with sunny spells and windy, sunny and warm on Sunday. Day temperatures between 2 C and 20 C.

NEEM Field Operations office,
Tanina Jenk-Ritzmann

NEEM - SITREP no.07, Sunday 12. June 2011.

This SITREP covers the period June 06 – June 12, 2011 (inclusive).

Movement of personnel:

June 07 Olivia Maselli (US) from Schenectady to Kangerlussuaq (SFJ) by NYANG 109th, Wim Boot (NL) from Copenhagen (CPH) to SFJ by Air Greenland.

June 08 Lars Berg Larsen (DK), Gunnar Magnus Arntorsson (IS), Hubertus Fischer (CH), Gideon Gfeller (CH), Sune O. Rasmussen (DK), Catherine Ritz (F) from CPH to SFJ by Air Greenland.

June 09 Matthias Bigler (CH), Anna Wegner (D), Xavier Fain (F) from SFJ to CPH by Air Greenland.
Olivia Maselli (US), Wim Boot (NL), Gunnar Magnus Arntorsson (IS), Hubertus Fischer (CH), Gideon Gfeller (CH), Sune O. Rasmussen (DK), Catherine Ritz (F), Tanina Jenk-Ritzmann (DK) from SFJ to NEEM by NYANG 109th.
Matthias Bigler (CH), Sverrir Æ. Hilmarsson (IS), Myriam Guillevic (DK), Anna Wegner (D), Nanna B. Karlsson (DK), Gary Clow (US), Frank Urban (US), Xavier Fain (F), Tanina Jenk-Ritzmann (DK) from NEEM to SFJ by NYANG 109th.

June 10 Aliza Benton (UK), Antje Fitzner (DK), Steffen Bo Hansen (DK), Bo Vither (DK), Erik Warming (DK), Tanja Fromm (D), Yoshinori Iizuka (S), Li Chuanjin (CHN), Kerstin Schmidt (D) from CPH to SFJ by Air Greenland.
Sverrir Æ. Hilmarsson (IS), Myriam Guillevic (DK), Nanna B. Karlsson (DK) from SFJ to CPH by Air Greenland.

June 11 Hubertus Fischer (CH), Aliza Benton (UK), Antje Fitzner (DK), Steffen Bo Hansen (DK), Bo Vinther (DK), Erik Warming (DK), Tanja Fromm (D), Yoshinori Iizuka (S), Li Chuanji (CHN), Kerstin Schmidt (D), Morten Thrane Leth (GRL), Talea Weiseng (GRL), Stanley Wisneski (US), Audrey Mills (US) from SFJ to NEEM by NYANG 109th.
Sepp Kipfstuhl (D), Trevor Popp (DK), Simon Schuepbach (CH), Jørgen Peder Steffensen (DK), Michelle Kuthnik (DK), Robert Mulvaney (UK), Gregory Teste (F), Paul Vallelonga (DK), Tyler Jones (US), Joe McConnell (US), Wim Boot (NL), Morten Thrane Leth (GRL), Talea Weiseng (GRL), Stanley Wisneski (US), Audrey Mills (US) from NEEM to SFJ by NYANG 109th.

Movement of cargo:

June 07 680kg Food from Schenectady to Kangerlussuaq (SFJ) by NYANG 109th.

June 09 540kg Drill winch and drill equipment (DK) from CPH to SFJ by Air Greenland.
3617kg Food and Science equipment from SFJ to NEEM by NYANG 109th.
4305kg Ice cores and Science cargo from NEEM to SFJ by NYANG 109th.

June 10 7kg Lithium Batteries (D) from CPH to SFJ by Air Greenland.

June 11 5180kg Science cargo from SFJ to NEEM by NYANG 109th.
2858kg Garbage and Science cargo from NEEM to SFJ by NYANG 109th.

Activities:
The challenge of this week was to adapt to the changed schedule of the flight plan. The second flight to NEEM was 2 days earlier on June 11th leaving less time in between the two flights to perform eventually necessary improvements of the skiway. Therefore and because of the big storm, getting the skiway ready was one of the main tasks which also included revising the markers. The shorter time between the two flights also caused a tight schedule for the Dutch borehole experiment, which nevertheless could be carried out successfully thanks to special support in camp. Besides continuing ongoing work of the CFA, processing and drilling the whole camp was busy preparing for the two flights. Pallets were built for departures and disassembled after the arrivals, in the science trench ice cores and samples were packed in insulated crates for the shipment and new people were introduced to camp live and activities. Despite the additional challenges the week ended successful with both flight missions (Thursday and Saturday) completed and two thirds of the camp population exchanged.

Skiway:
The storm just calmed down a few days before the first flight into camp and the temperatures increased what made it difficult to work on the skiway due to little time and sticky and heavy snow. Most of the rollers got levelled out and the skiway got upgraded to a payload of 15.000lbs.

Drilling:
The routine drilling mode continued most of the week but on Thursday the temperatures increased so the drilling was halted to protect the ice cores. Also the core quality deteriorated. On Sunday the drillers performed a test run under cold conditions in the drill tent, but it showed that the high temperature is not the main cause of the internal cracks in the core.

Drillers depth: 278 m.

Science:
On Saturday the CFA team dug a pit with the purpose of updating the chemistry profile with the most recent samples.
CFA production this week: 2405.15 m to 2516.25 m (111.10 m) ?
Processing NEEM S1 2011 420m core: Bags 126 – 329 (112.20 m)
Dutch borehole experiment Thursday and Friday. The experiment went fine even though they were only given 48 hours due to changes in the flight plans to NEEM.
GPS antenna mounted at the NEEM main GPS position.
Mounting and testing the AWI radar system.

Weather at NEEM:
The beginning of the week was dominated by thick overcast and snow in between until the weather cleared up Wednesday afternoon. Rest of the week it was clear and sunny beside of Thursday afternoon with overcast and fog. Temperatures incriesed.
Temperatures between -3.7 C to -17 C and wind speeds at 2-12 knots.

NEEM camp population: 23

NEEM iridium numbers:
Primary no.: +8816 777 04 766

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

Kangerlussuaq Activities:
Organizing cargo, receiving people, preparing for flights to NEEM.

Weather in Kangerlussuaq/SFJ:
The week started with a rainy and cool Monday. The rest of the week nice and sunny days were interrupted by cloudy and windy days. Day temperatures between 8 C and 21 C.

NEEM Field Operations office,
Lars Berg Larsen and Tanina Jenk-Ritzmann

NEEM - SITREP no.08, Sunday 19. June 2011.

This SITREP covers the period June 13 – June 19, 2011 (inclusive).

Movement of personnel:

June 13 Trevor Popp (DK), Simon Schuepbach (CH), Wim Boot (NL), Michelle Kuthnik (DK) from Kangerlussuaq (SFJ) to Copenhagen (CPH) by Air Greenland.
Gary Clow (US), Frank Urban (US), Tyler Jones (US), Joe McConnell (US) from SFJ to Schenectady by NYANG 109th.

June 14 Sepp Kipfstuhl (D), Robert Mulvaney (UK) from SFJ to CPH by Air Greenland.

June 15 Jørgen Peder Steffensen (DK), Paul Vallelonga (DK) from SFJ to CPH by Air Greenland.

June 16 Gregory Teste (F) from SFJ to CPH by Air Greenland.

June 18 Tanina Jenk-Ritzmann (DK), Theo Jenk (DK) SFJ to CPH by Air Greenland.

Movement of cargo:

June 14 Joe McConnel and Gary Clow science cargo and DK Picarro from SFJ to Schenectady by NYANG 109th
2 shipping containers from Aalborg to SFJ by Royal Arctic Line

June 17 AWB 6310185870 14 coli, 813 Kg, AWI, IMAU and LGGE science and field equipment from SFJ to CPH
AWB 6319703314 6 coli, 103 kg Food from Sisimiut to SFJ by Air Greenland

June 18 1 coli 30 kg UB field equipment from CPH to SFJ by Air Greenland

Activities:

First week after crew change and people got settled and learned the new procedure in the drilling, CFA and processing line.
Many different tasks were done this week beside the routine work in the trenches. When time permitted due to variations in the ice core production people from the processing line did both surface pit studies and a couple of 3 inch, 12m ice cores in the vicinity of the camp.
The final touch of the infrastructure in the camp was done but also few preparations for camp final closure are done.

Skiway:
No activities on the skiway this period.
Drilling:
The shallow borehole was logged Monday and showed an inclination of less than 0.5 degree. When drilling continued the core barrel was accidently dropped in the hole but rescued after some attempt. The ice core quality had suffered from relatively high number of breaks and internal cracks. Several tests with different cutter have been made and the drill liquid level in the borehole has been increased which resulted in better core quality.
Driller's depth: 305,53 m.

Science:
In the beginning of the week the CFA finished measuring discrete pit samples and continued with the deep main core. The work was done Tuesday night and the time consuming work with the brittle ice begun.
It was possible to run the CFA system on 30% of the most brittle ice (without continuous Gas analysis)
Later when it was possible to measure 50% of the brittle ice the whole line was running again.

CFA deep main core and brittle ice production this week: 96,4 m
Processing NEEM S1 2011 420m core: Bags 126 - 467 (187,55 m)

Seismic station in the science trench re-levelled

AWI surface radar traverse did the first successful tests and end of week completed half of the Grid

Weather at NEEM:
The weather this week has been very warm with a record for this season at -1.6 C.
But in general nice weather with clouds and sunny spells, occasionally ground fog.
Temperatures between -1,6 C to -16 C and wind speeds at 4-15 knots from all directions.

NEEM camp population: 26

NEEM iridium numbers:
Primary no.: +8816 777 04 766
Tel.: +299 84 11 51
Mobile: +299 52 41 25
Kangerlussuaq/SFJ iridium number: +8816 214 42402

Kangerlussuaq Activities:
Receiving and unpacking shipping containers from the boat.

Weather in Kangerlussuaq/SFJ:
Nice weather in general. Sunny with few clouds and windy. Day temperatures between 8 C and 22 C.
Mosquito season started

NEEM Field Operations office,
Tanina Jenk-Ritzmann and Lars Berg Larsen

NEEM - SITREP no.09, Sunday 26. June 2011.

This SITREP covers the period June 20 – June 26, 2011 (inclusive).

Movement of personnel:

June 26 Frederic Prie (F) from Copenhagen to Kangerlussuaq (CPH) by Air Greenland.

Movement of cargo:

June 25 362 KG science cargo and resupply from Copenhagen to Kangerlussuaq by Air Greenland AWB 117 2772 8702, 5KG Columbia University Science cargo from Copenhagen to Kangerlussuaq by Air Greenland

Activities:

Many different tasks were carried out this week. An inventory of the food was made. General service of vehicles and main generator. Adjusting and repairing of the saws in the sciencetrench. Taking down and packing Gas-lab equipment and the lab itself. However most effort was put into the work of finishing the 400m shallow core before next crew change.

Skiway:

The skiway has been inspected regularly. Since the weather was fine and stable it was decided to leave it most of the week. Friday came a change in the weather with a little snow and some wind. Sunday the work with grooming the skiway started. With the current temperatures the condition of the skiway looks promising.

Drilling:

The drilling went well all week and after adjusting drill liquid level good ice core were produced.
In order to reach the final depth before the deadline, two drilling teams was drilling in shift 24 hours the last days and a depth slightly deeper than the A.D. 79 volcanic eruption was reach Friday evening .
Then a new drill hole was started Saturday in order to do a deviation drilling test.
Also work on connecting the new AWI drill to the 1000m winch started.
Driller's depth final depth in the NEEM 2011 S1 hole: 411.83m
Driller's depth, NEEM 2011 S2 hole: 32.5m

Science:

The CFA lab has been running all week in order to try to measure the Brittle zone ice.
Starting in the top of the zone it went well but soon the core quality deteriorated. And in the end of the week occasionally whole 1.10m sections had to be skipped.
Picarro gas and isotope have been disrupted and the GIL instrument is packed down.
The GIL lab packed and moved to the surface.
CFA deep main core and brittle ice production this week: XXX.XX m
Processing NEEM S1 420 m core: Bags 520- XXX.XX (XXX.XX m)

AWI surface radar traverse finished the 22 gridlines.

Weather at NEEM:
The weather this week has been very warm with a record for this season at -1.6 C.
But in general nice weather with clouds and sunny spells, occasionally ground fog.
Temperatures between -1,6 C to -16 C and wind speeds at 4-15 knots from all directions.

NEEM camp population: 23

NEEM iridium numbers:
Primary no.: +8816 777 04 766
Tel.: +299 84 11 51
Mobile: +299 52 41 25
Kangerlussuaq/SFJ iridium number: +8816 214 42402

Kangerlussuaq Activities:
Preparing cargo and pallets for the coming two flights to NEEM.

Weather in Kangerlussuaq/SFJ:
Nice weather in general. Sunny with few clouds and windy in the weekend and a few showers occurred.
Day temperatures between 6 C and 22 C.
Amount of Mosquitoes increasing.

NEEM Field Operations office,
Lars Berg Larsen

NEEM - SITREP no.10, Sunday 03. July 2011

This SITREP covers the period June 27 – July 03, 2011 (inclusive).

Movement of personnel:

June 27 Dorthe Dahl-Jensen (DK), Sverrir Æ. Hilmarsson (IS), Cyril Millet (F), Jacob Schwander (CH), Daiana Leuenberger (CH), Christine Hvidberg (DK), Bo Hvidberg (DK) from Copenhagen (CPH) to Kangerlussuaq (SFJ) by Air Greenland.

Scott Montross (B), Jay Johnson (US), Hans Christian Steen-Larsen (DK), Anaîs Orsi (US) from Schenectady to Kangerlussuaq (SFJ) by NYANG 109th.

June 28 Dorthe Dahl-Jensen (DK), Sverrir Æ. Hilmarsson (IS), Cyril Millet (F), Jacob Schwander (CH), Daiana Leuenberger (CH), Scott Montross (B), Jay Johnson (US), Hans Christian Steen-Larsen (DK), Anaîs Orsi (US), Fréderic Prié from Kangerlussuaq to NEEM by NYANG 109th.

Anders Svensson (DK), Bo Vinther (DK), Sune O. Rasmussen (DK), Darcy Mandeno (NZ), Martin Leonhardt (D), Andrew Moy (AUS), Catherine Ritz (F), Antje Fitzner (DK), Hubertus Fischer (CH), Vasilios Gkinis (DK), Tanja D. Fromm (D), Olivia Maselli (US), Yoshinori Iizuka (S),

Sarah Harvey (US), Kerstin Schmidt (D), Erik Warming (DK), Li Chuanjin (CHN) from NEEM to Kangerlussuaq (SFJ) by NYANG 109th.

June 29 Lars Berg Larsen (DK), Li Chuanjin (CHN) from Kangerlussuaq (SFJ) to Copenhagen (CPH) by Air Greenland.

June 30 Anders Svensson (DK), Bo Vinther (DK), Sune O. Rasmussen (DK), Darcy Mandeno (NZ), Martin Leonhardt (D), Andrew Moy (AUS), Catherine Ritz (F), Antje Fitzner (DK), Hubertus Fischer (CH), Vasilios Gkinis (DK), Yoshinori Iizuka (S), Kerstin Schmidt (D) from Kangerlussuaq (SFJ) to Copenhagen (CPH) by Air Greenland.

Sarah Harvey (US), Olivia Maselli (US) from Kangerlussuaq (SFJ) to Schenectady by NYANG 109th.

July 1 Tanja D. Fromm (D) from Kangerlussuaq (SFJ) to Copenhagen (CPH) by Air Greenland.

Movement of cargo:

June 27 1530 kg Food, XXX kg cargo from Schenectady to Kangerlussuaq by NYANG 109th.

June 28 1530 kg Food, 1818 kg dome sledge parts from Kangerlussuaq to NEEM by NYANG 109th.

1964 kg US ice core boxes, 1327 kg DK ice core boxes, 636 kg scientific equipment from NEEM to Kangerlussuaq by NYANG 109th.

June 29 2877 kg food, 3432 kg dome sledge parts from Kangerlussuaq to NEEM by NYANG 109th.
Ca 1000 kg drill liquid ??

2177 kg Scientific equipment (Viessmann), 2223 kg garbage and core troughs from NEEM to Kangerlussuaq by NYANG 109th.

Activities:

This week there has been two flight mission days to NEEM. The first C130 mission, Tuesday June 27th included a major exchange of personnel in camp, and the camp population has been reduced from from 23 to 16. The second, Wednesday 28th was in support of the visit of the director of NSF. A Norland Twin Otter flew the NSF visitors from Summit to NEEM in the morning and a C130 picked them up at lunch time. The CFA teamed finished processing the brittle zone ahead of schedule and expanding their program with measurements of five 12m firn cores. The NEEM SC has been informed on the program. The replicate drilling test was very successful and a camera has provided images of the bottom of the deep borehole in preparation for rock drilling. The atmosphere water vapour monitoring program and measurements of temperature in shallow boreholes started this week. The pisten bully has been maintained and three of the four skidoos are waiting for spareparts for motor repairs.

Skiway:

The skiway was prepared before the flights this week. The skiway has some long undulations that have been difficult to remove. Due to the cold and clear weather the skiway is in good condition, and it was

groomed between the two flights in order to try to remove the undulations. After the flight period the skiway has been zig zag groomed to remove the undulations. The grooming will continue in preparation of the next flight period.

Drilling:

The NEEM shallow hole S2 was drilled to a final depth of 131.51 m. Friday the planned replicate drilling test was successfully conducted using standard O 126mm cutters which had been made aggressive on the outer edge. We deployed the drill in the 2011 S2 hole and started the deviation in a depth of 110m. The 3 - 4 degrees inclination of the hole provided a side force on the drill head of a little more than 20N. This proved sufficient to make the drill cut into the downwards side of the hole, in a way that just 8 runs was needed to create a new independent hole. The complete deviation occurred over a distance of 10m. We have prepared to bail the 100m liquid column from the S1 hole in preparation of the GLISN seismic program later in the season. The new deep borehole camera has been mounted in a pressure tube on the deep drill, and lowered down in the deep borehole to the bottom in 2537m depth to do images of the bottom of the hole. There were no ice cuttings close to the bottom of the hole and we achieved a very clear picture of the bottom of the deep borehole. Small video clips have been prepared. The deep drill surface electronics has been connected and the deep drill prepared for deep ice/rock drilling in the coming week.
Driller's depth final depth in the NEEM 2011 S1 hole: 411.83m
Driller's depth final depth in the NEEM 2011 S2 hole: 131.51m

Science:

The CFA lab has completed measuring the brittle ice. CFA team has drilled cores# 3-5 of the 12 m firn cores by the hand drill, and has measured cores# 3, 4 and 5. Temperature has been measured in the S1 bore hole. The water vapour tower has been placed and the Picarro instrument has been connected and calibrated. The PARCA weather staion was elevated so the lower arms are 2.9 m above the snow surface Sunday afternoon. Coordinates of the station is 77 deg 26.468 min N and 51 deg 04.872 min W.

Weather at NEEM:

The weather this week has been relatively cold and clear. In general clear weather with sun and blue sky and windy.
Temperatures between -4 C (day) to -15 C (night) and wind speeds at 3-12 knots from S, SE and SW.

NEEM camp population: 16

NEEM iridium numbers:

Primary no.: +8816 777 04 766
Tel.: +299 84 11 51
Mobile: +299 52 41 25
Kangerlussuaq/SFJ iridium number: +8816 214 42402

Kangerlussuaq Activities:

Preparing cargo and pallets and receiving PAX and cargo from the two flights to NEEM. Change of personnel in the FOM office. Preparing for DV visits, general cleaning and maintenance in Kangerlussuaq.

Weather in Kangerlussuaq/SFJ:

Very nice weather most of the time. Sunny almost all days, except a few showers in the weekend. Day temperatures between 18 C and 22 C. Mosquito level moderate.

NEEM Field Operations office,
Christine Hvidberg and Bo Hvidberg

NEEM - SITREP no. 11, Sunday 10. July 2011

This SITREP covers the period July 04 – July 10, 2011 (inclusive).

Movement of personnel:

July 5 Erik Warming (DK) from Kangerlussuaq (SFJ) to Copenhagen (CPH) by Air Greenland.

Movement of cargo:

July 4 964 kg ice core boxes from Kangerlussuaq (SFJ) to LGGE (20 colli) by AirGreenland AWB 631 0185 919 6 (AirCargo), and AirFrance AWB 057-5756 7576.

July 5 Received 164 kg box with dead weights for drill, and delivered to Royal Danish Air Force (RDAF).

July 6 Equipment for HMQ and HRHP and 7 other people, 120 kg of dead weights for drill moved from Kangerlussuaq (SFJ) to Thule Air Base with Royal Danish Air Force (RDAF) DA 168.

July 7 120 kg of dead weights moved from Thule Air Base to NEEM camp for airdrop over NEEM Camp by RDAF DA168.

July 08 Received 221.2 kg of cargo (11+4 colli) from Tokyo to Kangerlussuaq (SFJ) AWB 117-2659-3630 and AWB 117-2659-3626. 280 kg cargo (6 colli) with Picarro instruments from Kangerlussuaq (SFJ) to Copenhagen (CPH) by AirGreenland AWB 631 0185 933 6.

Activities:
This week has been an exciting week at NEEM with drilling in the deep borehole, an airdrop by the Danish Air Force, and finally the Royal visit on Saturday. The weather has been good in camp during the week, and the skiway has been thoroughly groomed. The camp had prepared the Royal visit in the weekend and were looking forward to receive Her Majesty the Queen, His Royal Highness the Prince, and their party. The weather changed towards the weekend, with snow and wind, and the visit was reduced to a three hour stay in the camp on Saturday. On Thursday, the Danish Air Force made an airdrop to the camp by two dead weights for the rock drill. The weights were delayed and did not make it at the late June, and were needed for the rock drill.

Skiway:
The skiway has been thoroughly groomed in order to remove the undulations and improve the skiway. Four working days has been used to groom in three rounds: zigzag grooming with beam, straight grooming with beam, straight grooming with thiller. The skiway is much better, undulations are reduced/gone and the skiway is hard and fine. It is ready for the flight period next week.

Drilling:
This week we started drilling in the deep hole with the 1 inch rock drill. The first core consisted of very coarse grain ice, and it was not clear whether it was refrozen water droplets or 'rotten' deep ice sheet ice. The second core drilled on Tuesday contained a bottom piece of very impurity rich ice that could be the

layer we could not penetrate last year. Wednesday the Hans Tausen drill was used with new cutters, and a 37 cm core was drilled with several silty bands. The 1 inch borehole was seen in the upper 5-6 cm where the ice core came up in pieces. A second ice core of 37 cm was retrieved on Thursday. Friday the rock drill was lowered into the hole, but at the base the drill would not rotate due to high friction in the drill. At the surface it was clear that the bore hole was flooded with water to about 60 cm above the bottom of the hole. The camera has been lowered down for observations of the bed. The rock drill was tried again with one dead weight mounted, but no core was retrieved. It is possible that the drill is at the bedrock.
Loggers depth: 2538.10 m
Drilled this week: 74 cm of ice core.

Science:
The CFA team has been packing the equipment down. Water vapour has been measured by the PICARRO instrument at the water vapour station. Temperature measurements have been completed in the S1 borehole.

Weather at NEEM:
The weather this week has been clear but windy until the weekend. Saturday the weather changed to low clouds and increasing wind and later snow fall that continued Sunday.
Temperatures between -4 C (day) to -15 C (night) and wind speeds at 0-12 knots, increasing to 8-16 knots from SW to SSW on Sunday.

NEEM camp population: 16

NEEM iridium numbers:
Primary no.: +8816 777 04 766
Tel.: +299 84 11 51
Mobile: +299 52 41 25
Kangerlussuaq/SFJ iridium number: +8816 214 42402

Kangerlussuaq Activities:
Shipped cargo and ice boxes to Europe. Shipped polar equipment and cargo to Thule. Unpacked retro cargo from NEEM in last flight period. Packed clothes for DV visits and the Royal visit. Checked survival kits, checked tents and made list of needed supplements for both. Arrange airdrop over NEEM Camp with the Royal Danish Airforce. Ordered food for the coming flight period, and prepared for DV visit in the coming week. Small repair of the cooling system on the Ford.

Weather in Kangerlussuaq/SFJ:
Niice weather until the weekend. Sunny with temperatures up to 20 C, but from the weekend clouds and showers and temperatures at 15C. Mosquito level high to moderate.

NEEM Field Operations office,
Christine Hvidberg and Bo Hvidberg

NEEM - SITREP no. 12, Sunday 17. July 2011

This SITREP covers the period July 11 – July 17, 2011 (inclusive).

Movement of personnel:

July 11 Jørgen Peder Steffensen (DK), Svend Steffensen (DK) from Copenhagen (CPH) to Kangerlussuaq (SFJ) by Air Greenland.

Bruno Stocker (CH) from Kulusuk (KUS) to Kangerlussuaq (SFJ) by private airplane.

July 12 Charlotte Sahl-Madsen (DK), Charlotte Holst Hansen (DK), Lars From (DK), Maryanne Gundestrup (DK), Peter Olesen (DK), Luc Riolon (F), Mads Peter Hemmingsen (DK), Sepp Kipfstuhl (D) from Copenhagen (CPH) to Kangerlussuaq (SFJ) by Air Greenland.

July 13 Lykke Friis (DK), Sofus Rex (DK), Claudio Bunster (CHL), Bent Jensen (DK), Villi Kjartansson (IS), Adalsteinn Svavarsson (IS), Matilde Thorn Poulsen (DK), Motohiro Hirabayashi (J), Kumiko Azuma (J) from Copenhagen (CPH) to Kangerlussuaq (SFJ) by Air Greenland.

Palle Christiansen (GL), Najarak Eleonora Paniula (GL), Lars Frederik Andersen (GL) from Nuuk (GHB) to Kangerlussuaq (SFJ) by Air Greenland.

Aaron Van Pelt (US), David Stroud (US), Robert Freeland (US), Lloyd Carothers (US), Dean Childs (US) from Schenectady (SCH) to Kangerlussuaq (SFJ) by NYANG 109th.

July 15 Bruno Stocker (CH), Charlotte Sahl-Madsen (DK), Charlotte Holst Hansen (DK), Lars From (DK), Maryanne Gundestrup (DK), Peter Olesen (DK), Luc Riolon (F), Mads Peter Hemmingsen (DK), Sepp Kipfstuhl (D), Lykke Friis (DK), Sofus Rex (DK), Claudio Bunster (CHL), Bent Jensen (DK), Villi Kjartansson (IS), Adalsteinn Svavarsson (IS), Matilde Thorn Poulsen (DK), Motohiro Hirabayashi (J), Kumiko Azuma (J), Palle Christiansen (GL), Najarak Eleonora Paniula (GL), Lars Frederik Andersen (GL), Aaron Van Pelt (US), David Stroud (US), Robert Freeland (US), Lloyd Carothers (US), Dean Childs (US) from Kangerlussuaq (SFJ) to NEEM by NYANG 109th.

July 17 Charlotte Sahl-Madsen (DK), Charlotte Holst Hansen (DK), Lars From (DK), Maryanne Gundestrup (DK), Peter Olesen (DK), Luc Riolon (F), Lykke Friis (DK), Sofus Rex (DK), Claudio Bunster (CHL), Bent Jensen (DK), Palle Christiansen (GL), Najarak Eleonora Paniula (GL), Lars Frederik Andersen (GL), Aaron Van Pelt (US), David Stroud (US), Robert Freeland (US), Olivia Mini (CH), Ailsa Benton (UK), Scott Montross (US), Jay Johnson (US), Daiana Leuenberger (CH), Fréderic Prié (F), Anaîs Orsi (US), Steffen Bo Hansen (DK), Jakob Schwander (CH) from NEEM to Kangerlussuaq (SFJ) by NYANG 109th.

Charlotte Sahl-Madsen (DK), Charlotte Holst Hansen (DK), Lars From (DK), Maryanne Gundestrup (DK), Peter Olesen (DK), Luc Riolon (F), Lykke Friis (DK), Sofus Rex (DK), Claudio Bunster (CHL), Bent Jensen (DK), Olivia Mini (CH), Ailsa Benton (UK), Daiana Leuenberger (CH), Jakob Schwander (CH) from Kangerlussuaq (SFJ) to Copenhagen (CPH) by Air Greenland.

Palle Christiansen (GL), Najarak Eleonora Paniula (GL), Lars Frederik Andersen (GL) from Kangerlussuaq (SFJ) to Nuuk (GHB) by Air Greenland.

Movement of cargo:

July 15 3695 kg of food, scientific equipment, dome sledge parts and loose load from Kangerlussuaq (SFJ) to NEEM by NYANG 109th.

Activities:
This week has been marked by the continued drilling into the basal ice and a final run drilling into rock. The CFA chemistry lab has been packed down, and the end of the ice core science was marked with an evening with science talks. A new flight period started this week, and the DV visit was the first mission to NEEM out of four missions planned for this and the coming week. The DV visit was planned to be on Thursday, but had to be postponed due to too warm temperatures, the DVs finally arrived Friday in Camp. The visit was planned to last 3 hours, and the camp had prepared a program to present the ongoing science at NEEM to the DVs and the 109th aircrew. During the visit the weather warmed, and the 109th skier did not manage to take off. The visitors had to stay overnight and the camp population was 45 for the night. After a new attempt on Saturday morning, it was decided to postpone the departure to after midnight. During the day the temperatures reached a heat record at NEEM of -0.9C. The visitors spent a day with discussions with scientists and outdoor activities in the warm weather. After midnight, the 109th took off successfully in first attempt and arrived in Kangerlussuaq in the morning after refuelling at Thule Airbase. Thanks to Captain Wynn and his crew for managing this difficult situation and their outstanding efforts during the mission, and thanks to the visitors for their patience during the extended stay at NEEM that lasted 40 hours.

Skiway:
The skiway was groomed in preparation of the planned missions. Due to the very warm temperatures at NEEM all week, the surface became soft. The attempts of the skier to take off produced tracks in the skiway, and the skiway was groomed again between the attempts Friday and Saturday and Saturday. The grooming was continued on Sunday after the skier had left NEEM.

Drilling:
The drilling has been followed with great attention from all in camp, and each ice core revealed an interesting stratigraphy of alternating ice and basal sediment material. In the beginning of the week, the 60 cm basal water that flooded the bore hole last week was a great concern, but the drillers then used the rock drill with the dead weights and the drilling continued through the basal ice. On Thursday the drillers took advantage of the delayed flight mission and continued the drilling one extra day. During two final runs, the drill current jumped to a higher and more stable mode, indicating that the drill was penetrating into rock at the bottom, but they were not able to break and pull the last 7 cm of rock core up.

Science:
This week the CFA lab was packed down and made ready for transportation. The temperature measurement of the shallow hole was packed down. A surface monitoring of water vapour and its isotopic composition has been set up and running. The basal ice cores have been documented.

Weather at NEEM:
The weather this week has been exceptionally warm with overcast, and a heat record at NEEM was reached on Saturday with a surface temperature of -0.9C. Thursday had some groundfog, that cleared away Friday but still with overcast and broken overcast. Winds have generally been weak from SW.
Temperatures between -0.9 C (day) to -10 C (night). Wind speeds at 6-20 knots, but from the Friday decreasing to 0-6 knots form SW to W.

NEEM camp population: 18

NEEM iridium numbers:
Primary no.: +8816 777 04 766
Tel.: +299 84 11 51
Mobile: +299 52 41 25

Kangerlussuaq/SFJ iridium number: +8816 214 42402

Kangerlussuaq Activities:
The week has been dominated by the DV visit and the flight period with planning of 4 missions to NEEM. On Monday the DV visit was organized together with the new FOM Jørgen Peder Steffensen, who arrived Monday. On Tuesday the first DVs arrived and went on an excursion to the ice front at point 660. On Wednesday the rest of the DVs arrived and the day continued with briefings of the program, excursions for a group to point 660, and science briefings about climate variations and the NEEM program. The skiers were received in the afternoon. Cargo and food orders were received and repacked, and the pallets were prepared for the next day. After cancelling the mission to NEEM Thursday morning, the visitors were taken on an excursion to Russel glacier with hiking and barbecue at the glacier front, and later a dinner in the Row club. Friday the skier departed for NEEM. After the skier got stuck at NEEM, all plans had to be changed. Flight tickets for the DVs back from Greenland had to be rescheduled, and discussions continued between the Field operation office, the 109ths, and the NEEM camp to organize the departure from NEEM, and an opening of the Thule Airbase early Sunday morning at 1AM was arranged. Finally the skier arrived in Kangerlussuaq Sunday morning after having refuelled at Thule Airbase. All visitors travelling to Europe left a few hours later.

Weather in Kangerlussuaq/SFJ:
Most of the week sunny weather with clouds coming and going. In the weekend the weather became more cloudy with a few showers. Temperatures 15-20C. Mosquito level moderate.

NEEM Field Operations office,
Jørgen Peder Steffensen, Bo Hvidberg and Christine Hvidberg

NEEM - SITREP no. 13, Sunday 24. July 2011

This SITREP covers the period July 18 – July 24, 2011 (inclusive).

Movement of personnel:

July 18: Aaron Van Pelt (US), David Stroud (US), Robert Freeland (US), Scott Montross (US), Jay Johnson (US) and Anaïs Orsi (US) from SFJ to Schenectady by 109th.
Fréderic Prié (F) from SFJ to CPH by Air Greenland.
Tanja Fromm (D) from CPH to SFJ by Air Greenland.

July 19: Steffen Bo Hansen (DK), Christine Hvidberg (DK) and Bo Hvidberg (DK) from SFJ to Copenhagen by Air Greenland.
Nicholas Brown (US), William Donovan(US), Richard Hale (US), Shahriar Keshmiri (US), Carl Leuschen (US), Ryan Lykins (US) and John A. Pritchart (US) to NEEM from SFJ by 109th.
Gideon Gfeller (CH), Christopher Stowasser (DK) from NEEM to SFJ by 109th.

July 21: Jeannie Wilkening (US-Sci&Ed), Vincent Ader (US-Sci&Ed), Laura Lukes (US-Sci&Ed), Shelly Hynes (US-Sci&Ed), Avaruna Mathæussen (GRL-Sci&Ed), Kurt Olsen (GRL-Sci&Ed), Ole Olsvig (GRL-Sci&Ed), Sylvia Kielsen (GRL-Sci&Ed), Rikke Jørgensen (GRL-Sci&Ed), Jakob Møller Bach (GRL-Sci&Ed), Christine Nøhr Pedersen (DK-Sci&Ed), Rebecca Skov (DK-Sci&Ed), Emil

Stærmose (DK-Sci&Ed), Robbie Score (US-Sci&Ed), Paul Smotherman (US) from SFJ to NEEM by 109th.
Jeannie Wilkening (US-Sci&Ed), Vincent Ader (US-Sci&Ed), Laura Lukes (US-Sci&Ed), Shelly Hynes (US-Sci&Ed), Avaruna Mathæussen (GRL-Sci&Ed), Kurt Olsen (GRL-Sci&Ed), Ole Olsvig (GRL-Sci&Ed), Sylvia Kielsen (GRL-Sci&Ed), Rikke Jørgensen (GRL-Sci&Ed), Jakob Møller Bach (GRL-Sci&Ed), Christine Nøhr Pedersen (DK-Sci&Ed), Rebecca Skov (DK-Sci&Ed), Emil Stærmose (DK-Sci&Ed), Robbie Score (US-Sci&Ed), Paul Smotherman (US) from NEEM to SFJ by 109th.

July 22: Lars Berg Larsen (DK), Susanne L. Buchardt (DK), Martin Leonhardt (D), Renato Winckler (F) and Philip Schütt (D) from CPH to SFJ by Air Greenland.

July 23: Lars Berg Larsen (DK), Susanne L. Buchardt (DK), Martin Leonhardt (D), Renato Winckler (F), Philip Schütt (D) and Tanja Fromm (D) from SFJ to NEEM by 109th.
Dean Childs (US), Lloyd Carothers (US), Kumiko Azuma (J), Motohiro Hirabayashi (J), Hans Christian Steen-Larsen (US) from NEEM to SFJ by 109th.

Movement of cargo:

July 19: 4970 kg Kansas UAV, GLISN cargo and ATO resupply from SFJ to NEEM by 109th.
3910 kg Scientific equipment (CFA), Viessmann cabin from NEEM to SFJ by 109th.

July 20: 32 colli cargo (450 kg) from Bremerhaven to SFJ by Air Greenland.

July 21: 4250 kg 2 x dome skis, dome sled parts, scientific equipment (AWI), food from SFJ to NEEM by 109th.
2950 kg ice cores, drill box and waste, core troughs and vent tubes.

July 23: 3525 kg 2 x dome skis, AWI ice core boxes, food, spare parts.
1140 kg GLISN and Japanese cargo.

Activities:

Work in camp revolved around the three missions we had this week. The put-in of the Kansas UAV team was postponed from Monday to Tuesday due to warm temperatures at NEEM- The flights with Science and Education students on Thursday and the NEEM crew exchange on Saturday were on schedule according to a revised flight plan, despite really marginal flight conditions due to high temperatures. Thursday camp received a group of young students from Greenland, Denmark and the U.S. During their two hour stay, the students were shown NEEM camp and introduced to the scientific activities at NEEM.
The week marked the termination of several activities and the beginning of new ones. As deep drilling activities using the long drill are terminated, the deep drill was packed and made ready for shipment. All activity in the drill trench ended by making bore hole logging on Wednesday and Thursday. A Japanese 5.5 m pit study was completed and a Japanese aerosol sampling site was installed. Setup of the GLISN seismic installation was completed. The Kansas UAV team made ready for their testing of the radar system. Saturday a Danish GPS survey and shallow drilling team and a German radar and shallow drilling team arrived. These teams are now preparing snowmobiles and equipment to work in the vicinity of NEEM camp.

Monday, the large logistical undertaking of construction of the dome sled began. During the week the cover around the dome foundation was removed and significant amounts of ice was cut and removed to make room for mounting of the steel ring. The steel ring was completed by the end of the week, and now work is in progress for finishing the ring and mounting the skis under the dome. With the exposure of the foundation and the removal of ice around the foundation, the dome became sensitive to wind as it was,

just after completion in 2008. Camp crew carefully monitor for any displacement of the dome. It was a complicating factor for mounting the steel ring that the dome legs had been pushed towards the centre of the dome due to ice flow making the steel ring slightly too big. By careful adjustment of leg position the legs were bolted to the steel ring.

Skiway:
The skiway has been thoroughly groomed in order to remove the undulations and improve the skiway. Several working days has been used to groom and maintain skiway and apron using beam and tiller. Working conditions have been far from ideal, as high temperatures and significant new snow fall. In spite of all this, the skiway was upgraded to receive planes with higher payloads. NEEM can now send planes from Kangerlussuaq with 19,000 lbs payload.
Drilling:

Deep drilling activities have finished.
Loggers depth: 2538.10 m.
Last logging of the deep bore hole performed.

In the coming period there will only be short shallow drilling in the NEEM area.

Science:
Much of the ice core processing equipment in the science trench has been packed down. Only a few tables and two band saws remain.
Japanese 5.5 m pit study is completed. A Japanese aerosol sampling site has been setup. Samles will be taken until 10 August end of the season.
Setup of the GLISN seismic station in the storage garage was completed.
The Kansas UAV team has performed several flights with the small aircraft, and they have been mounting radar equipment on the large (Meridian) plane. Sunday, the first tests of the Meridian with radar was performed while on the apron.
The German radar and shallow drilling team are preparing equipment for their work in the NEEM area.
The Danish survey and shallow drilling team are preparing equipment for their work in the NEEM area.

Weather at NEEM:
The weather this week has been mostly cloudy, warm with snow. Monday and Tuesday weather cleared temporarily and temperatures dropped to – 16 C at night. By the end of the week, temperatures were up to -1 C at day and -3 C at night.
Temperatures between -1 C (day) to -16 C (night) and wind speeds at 0-20 knots, mostly from S and SW.

NEEM camp population: 23

NEEM iridium numbers:
Primary no.: +8816 777 04 766
Tel.: +299 84 11 51
Mobile: +299 52 41 25
Kangerlussuaq/SFJ iridium number: +8816 214 42402

Kangerlussuaq Activities:
Unpacked retro cargo from NEEM and made it ready for shipment away from Greenland. Handled cargo and passenger traffic for three missions to NEEM. Gave a science briefing for the Science and Education students. A lot of time was spent arranging flights and re-scheduling flights due to marginal weather conditions at NEEM.

Weather in Kangerlussuaq/SFJ:
Mostly nice weather with E-wind and dust; but a few days with clouds and a little rain. Sunny with temperatures up to 20 C, but on rainy or cloudy days temperatures at 15C. Mosquito level moderate to low.

NEEM Field Operations office,
Jørgen Peder Steffensen

NEEM - SITREP no. 14, Sunday 31. July 2011

This SITREP covers the period July 25 – July 31, 2011 (inclusive).

Movement of personnel:

July 25: Dean Childs (US), Lloyd Carothers (US) and Hans Christian Steen-Larsen (US) from SFJ to Schenectady by 109th
Kumiko Azuma (J) and Motohiro Hirabayashi (J) from SFJ to CPH by Air Greenland.

July 31: Svend Steffensen (DK) from SFJ to CPH by Air Greenland.

Movement of cargo:

July 25: **90**0 kg GLISN cargo from SFJ to Schenectady by 109th

July 28: 415 kg Scientific equipment from SFJ to London by Air Greenland

July 29: 1395 kg Scientific equipment (CFA) from SFJ to Zürich by Air Greenland.

Activities:
The main logistical undertaking has been completion of the dome sled. Last week the ring around all the legs was completed. This week the legs were excavated to allow for slight movement and the hub and cables mounted to the ring. It has been a complicating factor that the legs under the dome have been bent slightly towards the centre because of movement of the snow. Had we waited one more year for this operation, the foundation of the dome might have been too unsafe for construction work. The full base structure was completed by Tuesday. Wednesday the first two skis were placed under the dome. It required a lot of snow removal to make room for the skis. The two last skis were mounted on Thursday and then began the transfer of the weight of the dome from the legs to the skis using air pressure rubber jacks. By 1033 Friday morning the dome was resting on the skis and the last supporting legs were cut. Work on excavating the ramp for pulling up the dome had to be halted during the week-end because of bad weather.

Skiway:
The skiway has received care and maintenance treatment only. Following the snow drift this week-end the skiway will be groomed to accommodate the Kansas UAV.
Drilling:

Deep drilling activities have finished.
Loggers depth: 2538.10 m.
Last years depth 2537.36
This year we have drill2 4 inch ice cores each 62 cm (drill depth: 2538.60m) – on top of this we have 30-40 of 1.5 inch rock drilled ice core but as the amount is small I am not sure if we should count this as drill ice core. Scott Montross made a log of the basal ice cores.

Activities in the drill trench have finished for the season.

Science:
The water vapour sampling site has been running and monitored all week.
The Japanese aerosol sampling station has been monitored and maintained.

The AWI shallow test drill has been assembled and a core logging table setup at the drill site behind the sauna garage. After testing, drilling began on Friday.

The AWI radar and DK remote shallow drilling team with the Danish 3 inch drill spent a couple of days preparing and packing. The 30 m ice core for BAS was completed on Tuesday. The drill and radar traverse departed NEEM for B26 some 50 km from NEEM on Thursday, but because of very high temperatures they had to wait until temperatures dropped again. After drilling to 17.5 m a cable broke and the team had to return to NEEM Friday afternoon for repairs. As soon as weather clears, the team will set out again to complete drilling.

The DK GEUS seismic station has been moved and calibrated

The Kansas UAV team has done several flights with the smaller aircraft. After mounting and adjustment of the radar on the UAV a sequence of rigorous testing was begun. They key was to be absolutely certain that the transmitter of the radar did not interfere with the on board electronics and remote flight controls. Wednesday and Thursday the UAV was tested on the apron and on the skiway, and some high quality radar data was produced. By Thursday evening the UAV was ready for flying; but the bad weather has delayed the first flight. The crew hopes to fly the UAV on Monday.

Weather at NEEM:
The weather this week began mostly fine but windy (16-20 knots). Thursday the wind turned to WNW and it became cloudy with snow. Saturday and Sunday morning camp was hit by strong winds (20-26 knots from SW). By Sunday evening weather is improving.
Temperatures between -0.3 C (Thursday at 1500L) to -12 C (night) and wind speeds at 2-18 knots, mostly from S and SE.

NEEM camp population: 23

NEEM iridium numbers:
Primary no.: +8816 777 04 766
Tel.: +299 84 11 51
Mobile: +299 52 41 25
Kangerlussuaq/SFJ iridium number: +8816 214 42402

Kangerlussuaq Activities:

Unpacked retro cargo from NEEM and sent some of it off from Greenland. Re-arranged cargo in warehouse and began cleaning up in the NEEM warehouse and in the cargo yard. Made several loads to the local rubbish tip. Unpacked polar equipment and sent many items to the local laundry.

Weather in Kangerlussuaq/SFJ:
Mostly nice weather with E-wind and dust; but a few days with clouds and rain. Sunny with temperatures up to 20 C, but on rainy or cloudy days temperatures at 15C. Mosquitoes are gone. Mushrooms, blueberries and flowers everywhere.

NEEM Field Operations office,
Jørgen Peder Steffensen

NEEM - SITREP no. 15, Sunday 7. August 2011

This SITREP covers the period August 1 – August 7, 2011 (inclusive).

Movement of personnel:

- **No movement of personnel**

Movement of cargo:

August 4: 2687 kg (70 boxes) ice cores from SFJ to Copenhagen by Air Greenland.

Activities:
The big event of the week was the movement of the main dome. Monday excavation of a 6 degree inclined slope towards the centre of main-street began and this work was completed by Tuesday. One weatherport had to be taken down as it was in-line with the track. After breakfast on Wednesday all loose items in the main dome were secured, and the pull of the main dome to centre of camp was completed in just one minute. 30 minutes later, power and communication were re-established. The main dome remained on main-street until Saturday morning when it was pulled back to its original position after the hole there had been backfilled. In a few hours electrical power, snowmelters, water supply and central heating were re-established. The dome moving operation has successfully achieved two goals: 1.The main dome has been lifted 4.5 m to the new snow surface securing it for the next three years, and 2. we have demonstrated that the main dome can be moved over snow and can be reused in another project.

Skiway:
The skiway has been maintained to accommodate the Meridian flights. Grooming of taxiway, apron and skiway began on Sunday in preparation of the flights by the 109th next week. As weather during the week has been really good and cold, we do not expect any problems getting the skiway ready for the LC-130s.
Drilling:
Monday night drilling with the Danish shallow drill to 30 m at B26 was completed.
Wednesday evening drilling of a 40 m Ice2Sea shallow core began at 77.85210N 52.02630W. Drilling was completed Thursday morning and the crew of four returned to NEEM camp.
Saturday morning drilling of a 20 m core in the vicinity of NEEM camp began. This core is to complement the 430 m core drilled earlier for Joe McConnell. Drilling of this core was completed by Sunday evening.

During the week, the AWI drill testing team drilled close to the sauna garage. Wednesday night the drill got stuck at 50 m depth. Friday morning the drill was freed again using 50 litre of warm glycol. A new drilling began on Sunday with the Danish inner and outer tubes using the German drill head and motors. This test went fine, and the AWI drill testing is now completed.

Science:
Both the B26 core and the Ice2sea core have been processed in the science trench using DEP and ECM and cutting of samples. The overlap core has been logged and packed into U.S. core boxes for transport to the U.S.
The water vapour sampling site has been running fine until the last day, Thursday. On Friday work began to take the equipment down.
The Japanese aerosol sampling station has been monitored and maintained until Sunday. Monday morning the sampling site will be taken down.

The AWI radar has been used for mapping the area around the drill sites B26 and the Ice2Sea site (directly under a CryoSat track).

The Kansas UAV team had the Meridian airborne on Tuesday. During flights on Wednesday some unexpected issues arose, which required some trouble shooting. Saturday the Meridian was airborne again and this time with the radar active. Sunday flying was restricted due to fog.

Weather at NEEM:
The weather this week was fine with blue skies. Night temperatures are dropping as the end of summer is approaching. Temperature: -18C to -3C, Wind: 4 to 18 knots from S and SE. Ground fog formed Saturday and continued until Sunday evening.

NEEM camp population: 23

NEEM iridium numbers:
Primary no.: +8816 777 04 766
Tel.: +299 84 11 51
Mobile: +299 52 41 25
Kangerlussuaq/SFJ iridium number: +8816 214 42402

Kangerlussuaq Activities:
Cargo in the warehouse has been rearranged and new shelves installed. 80 drums of drilling fluid have been packed away in a container and in the warehouse. One container has been filled with rubbish for the tip. The cargo yard has been cleaned up and 70 boxes of ice have been sent to Denmark. The freezer is now ready to receive the last shipment from camp.

Weather in Kangerlussuaq/SFJ:
Mixed clouds and sunshine and little rain. Mostly wind from the East and dusty. On sunny days temperatures up to 20 C. Night time temperatures around 5 C and it is getting dark at night again. Mosquitoes are gone. Mushrooms, blueberries and flowers everywhere.

NEEM Field Operations office,
Jørgen Peder Steffensen

NEEM - SITREP no. 16, Sunday 14. August 2011

This SITREP covers the period August 8 – August 14, 2011 (inclusive).

Movement of personnel:

August 11:
Anne-Marie Engel (DK-DV), Sigurdur Ragnarsson (IS-DV) and 8 U.S. DVs from SFJ to NEEM by 109th.

Lars Berg Larsen (DK), Mathilde Thorn Poulsen (DK), Martin Leonhardt (D), Tanja Fromm (D), Renato Winckler (F), Philip Schütt (D), Mads Peter Hemmingsen (DK), Bruno Stocker (CH), Vilhjálmur Kjartansson (IS), Adalsteinn Svavarsson (IS) and 8 U.S. DVs from NEEM to SFJ by 109th.

J.P.Steffensen (DK), N.M.Steffensen (DK) and 4 Canadian Discovery T.V. crew from SFJ to NEEM by 109th.

Anne-Marie Engel (DK-DV), Nicholas Brown (U.S.), William Donovan (U.S.), Richard Hale (U.S.), Shahriar Keshmiri (U.S.), Carl Leuschen (U.S.), Ryan Lykins (U.S.), John A. Pritchard (U.S.) from NEEM to SFJ by 109th.

August 12:
Lars Berg Larsen (DK) from SFJ to NEEM by 109th.

J.P.Steffensen (DK), N.M.Steffensen (DK), Sigurdur Ragnarsson (IS) and 4 Canadian Discovery T.V. crew from NEEM to SFJ by 109th.

Martin Leonhardt (D), Tanja Fromm (D), Renato Winckler (F), Philip Schütt (D), Mads Peter Hemmingsen (DK), Vilhjálmur Kjartansson (IS) and Adalsteinn Svavarsson (IS) from SFJ to CPH by Air Greenland.

Nicholas Brown (U.S.), William Donovan (U.S.), Richard Hale (U.S.), Shahriar Keshmiri (U.S.), Carl Leuschen (U.S.), Ryan Lykins (U.S.) and John A. Pritchard (U.S.) from SFJ to Schenectady by 109th.

August 13:
Mathilde Thorn Poulsen (DK) from SFJ to CPH by Air Greenland

Sigurdur Ragnarsson (IS-DV) from SFJ to REY via Ilulissat by Air Greenland.

Movement of cargo:

August 11: 1255 kg Oil, plywood and spares from SFJ to NEEM by 109th.
2920 kg Science equipment, long drill boxes from NEEM to SFJ by 109th.
5830 kg 28 drums Jet A-1 from SFJ to NEEM by 109th.
2730 kg Kansas UAV and 1680 kg ice cores from NEEM to SFJ by 109th.

August 12: 2915 kg 8 drums Jet A-1 and 6 drums of Mogas from SFJ to NEEM by 109th.
4545 kg drilling equipment, red dome 1, rubbish and ATO from NEEM to SFJ by 109th.
3230 kg Kansas UAV from SFJ to Schenectady by 109th.

Activities:
This week the main activities in camp have been packing, the reception of three flights and a significant drop in camp population from 23 to 7. The Kansas UAV group packed their UAV and radar equipment. The

German and Danish drilling equipment was packed down, and the last science equipment was packed. Camp received a DV visit by U.S. and Danish DVs on Thursday, and after this visit the last items from the science trench and drill trench were packed down. The white weatherport over the entrance was removed Sunday and the trenches sealed for winter. Snow hills have been built for overwintering cargo. All small weatherports have been taken down for winter. Red dome 2 remains as storage for bunkbeds. Snow has been pushed up around the dome sled frame and the skis buried. This has created a "basement" under the dome. A hatch in the floor in the dining area has been made to allow access to the basement. Sunday, food for the camp opening next year was stored in the basement. Final packing down will continue until Tuesday when the final flight to NEEM this year is scheduled.

Skiway:
The skiway has groomed and tilled for the flight this week. Substantial amounts of new snow and low contrast made grooming a difficult affair. Camp had to receive the planes on Thursday and Friday on a skiway that was far from perfect. Luckily, the missions went well although the mission planned for Wednesday was postponed to Thursday due to bad visibility.

Drilling:
Drilling activities have ended for this season.

Science:
With packing down of the Japanese aerosol station on Monday, the science activities of this season have ended.

Weather at NEEM:
The weather was fine with blue skies until Tuesday when the 109th arrived to Greenland. The rest of the week weather has been cloudy with substantial snowfall and occasional fog. Snow and fog often reduced visibility to few hundred m. The constant dense cloud cover caused almost no surface contrast at all, and it made it difficult to groom the skiway and to make the berms for overwintering cargo. Temperature: -13C to -1C, Wind: 4 to 18 knots from first W later S. During the week wind directions made two and a half clockwise rotations of the compass.

NEEM camp population: 7

NEEM iridium numbers:
Primary no.: +8816 777 04 766
Tel.: +299 84 11 51
Mobile: +299 52 41 25
Kangerlussuaq/SFJ iridium number: +8816 214 42402

Kangerlussuaq Activities:
Several loads of rubbish and metal scrap have been handed in at the local tip. Many spent batteries and waste oil were handed in for special treatment. Cargo arriving from NEEM has been unpacked and sorted. Field clothes have been unpacked and sorted. Lights in the ware house have been repaired.

Weather in Kangerlussuaq/SFJ:
Mostly sunshine with few showers. On sunny days temperatures up to 20 C. Night time temperatures around 5 C with dark nights and aurora. Mosquitoes are gone. Mushrooms, blueberries and flowers everywhere. Leaves on plants are beginning to show the approaching autumn.

NEEM Field Operations office,
Jørgen Peder Steffensen

NEEM - SITREP no.17, Saturday 20.August 2011

This SITREP covers the period August 15–August 20,2011 (inclusive).

Movement of personnel:

August 16: 4 Canadian Discovery T.V. crew from SFJ to NEEM by 109th.
Lars Berg Larsen (DK), Dorthe Dahl-Jensen (DK), Sverrir Hilmarsson (IS), Gunnar Arntorsson (IS), Cyril Millet (F), Susanne Buchardt (DK), Sepp Kipfstuhl (D) and 4 Canadian Discovery T.V. crew from NEEM to SFJ by 109th.

August 18: Lars Berg Larsen (DK), Sverrir Hilmarsson (IS), Gunnar Arntorsson (IS), Cyril Millet (F) and Susanne Buchardt (DK) from SFJ to CPH by Air Greenland.

August 20: J.P.Steffensen (DK) from SFJ to CPH by Air Greenland.
Dorthe Dahl-Jensen (DK) and Sepp Kipfstuhl (D) from SFJ to Nuuk by Air Greenland.

Movement of cargo:

August 16: 700 kg two snowmobiles from SFJ to NEEM by 109th. 1100 kg Science equipment from NEEM to SFJ by 109th .

August 17: 4450 kg Danish equipment from SFJ to CPH by Air Greenland.

August 18: 1500 kg AWI equipment from SFJ to Germany by Air Greenland.
250 kg Japanese equipment from SFJ to Tokyo via CPH by Air Greenland.
180 kg Swiss cargo from SFJ to Bern via CPH by Air Greenland.
50 kg U.K. cargo from SFJ to Swansea by ship.
80 kg U.S. cargo from SFJ to Schenectady by 109th .

August 19: 1600 kg ice cores from SFJ to CPH by Air Greenland.

Activities:

Only two days of activity in camp this week. The activities were focused on preparing camp for winter and grooming the skiway. The whole camp has been inventoried and documented. Significant snowfall Monday and Tuesday was a nuisance; but the crew was ready when the weather opened just enough to receive the pull - out flight. Pull out occurred Tuesday afternoon at 1600 local, and by 1930 everybody were back in Kangerlussuaq.

Skiway: The skiway has groomed and tilled for the flight this week. Substantial amounts of new snow and low contrast made grooming a difficult affair.

Drilling: Drilling activities have ended for this season.

Science: The science activities of this season have ended.

Weather at NEEM:
Weather has been cloudy with substantial snowfall and occasional fog. Snow and fog often reduced visibility to few hundred m. The constant dense cloud cover caused almost no surface contrast at all, and it made it difficult to groom the skiway. Temperature: - 15C to - 8C, Wind: 4 to 18 knots from first S later SE.

NEEM camp population: 0

NEEM iridium numbers: NEEM camp is closed.

Tel.: +299 84 11 51

Mobile: +299 52 41 25

Kangerlussuaq/SFJ iridium number: +8816 214 42402

Kangerlussuaq Activities:
After pull - out a large effort was made to sort out arriving cargo and send it off to the different destinations in Europe, Asia and America. The annual row club dinner with participation of personnel from the 109th , CPS, NEEM and local Kangerlussuaq associates was held August 17. The Kangerlussuaq warehouse and containers have been inventoried and documented. The Kangerlussuaq field operations office closed Saturday morning.

Weather in Kangerlussuaq/SFJ :
Mostly sunshine with temperatures up to 16 C. Night time temperatures down to 0 C with dark nights and aurora. Leaves on plants are beginning to show the approaching autumn.

NEEM Field Operations office,
Jørgen Peder Steffensen.

NEEM DIARY.

May.

Monday, Tuesday and Wednesday, 2nd, 3rd and 4th May 2011.

Arrival in Kangerlussuaq and awaiting put-in.

Monday morning the last crew members arrived to Kangerlussuaq by Air Greenland. The put-in team of 11 persons is now complete. Lars, our Field Operations Manager, had arrived 5 days earlier and our two U.S. participants, Bruce and Sarah, had arrived with the 109th on Saturday. We were taken to our rooms in the KISS building, and we began to collect our field clothes in our warehouse and sort out the cargo we needed on the put-in. All cargo was put on pallets for LC-130 transport and weighed. Put-in was scheduled to Tuesday morning; but this is Greenland and since the 109th had technical issues with two out of three planes, it was decided to postpone put-in to Wednesday. In the evening we had an excellent dinner at the lakeside restaurant "Roklubben" some 5 km from Kangerlussuaq.

Tuesday became waiting day. Some went for a walk, some relaxed and some worked on raising the radio antenna on the roof of KISS. There was also time to do some extra shopping in the store. Tuesday afternoon we were told that the put-in at NEEM was postponed until Thursday due to a forecast of bad weather in the area on Wednesday.

Wednesday was spent making several adjustments to our cargo as there were some doubts on how much payload the plane could carry on the put-in flight. The issues were resolved, and everything we needed was packed. By satellite phone we learned that the U.S. traverse, GRIT, from Thule had arrived to NEEM on their way to Summit. This was very helpful indeed, as the put-in flight could now be supported with weather observations from ground personnel. Late afternoon a briefing on the put-in was held in KISS. Put-in is scheduled to 9.30 on Thursday.

Weather: Monday beautiful sunshine on snow covered Kangerlussuaq, but with temperatures mush above freezing, snow was melting at a rapid pace. Tuesday and Wednesday were more chilly with clouds and wind and slight snow.

FL, J.P. Steffensen

Picture captions:

Finishing our cargo pallet in the warehouse.

Early morning pick up of our luggage on Thursday morning.

Thursday, 5th May 2011.

Finally we go to NEEM.

Today we had a successful put-in. We departed Kangerlussuaq at 9.25 and landed at NEEM 11.30. We were received by the 6 members of the U.S. traverse from Thule to Summit, GRIT. In preparation, they had excavated the entrances to two of our garage tents which helped a lot in getting our vehicles out and running. At 12.00 the plane departed NEEM and we set to work. The snow drifts this year are very large, some of them are as high as the top of our garages and the entrances to the garages were severely drifted in. Only the main dome was accessible. Due to its spherical shape snow drifts cannot form close to it, so it sits in a 2.5 m deep crater with the snow drifts 10 m away from the walls. While the outside temperature was -20 C, the temperature inside the dome was -9 C in the bottom and above 0 C in the top.

Events of the day:
At 14.00 we had our 16kW backup generator running, and Sarah, our cook, could begin to melt snow for drinking water and hot drinks. At 16.00 we had the Pistenbully running, and Sverrir could begin preparing the area for our main generator. Meanwhile, work gangs had excavated the cable shaft where the main generator hooks up to the entire camp. They also excavated the small elevator, gaining access to the science trench. First inspection showed that the trenches are in good condition, except that the settling snow has caused bending of a few ventilation shafts and the door to the ice core storage cave was compressed and broken. We were 17 for supper in the main dome, as the GRIT people joined us for supper. We were all eating in polar clothes. At 21.00 the main 110 kW generator was running and on-line. We all went to bed at 23.00 after an eventful and successful put-in.

What we have done today:

1. Fast turn around for Skier 95. Only 35 minutes on the snow.
2. Excavated entrances to carpenters garage and workshop garage with the help of the GRIT traverse tractors and our snow blowers.
3. Setting up and running the 16 kW EDMO backup generator for power to main dome until main power was established..
4. Manually excavating the top of the small elevator and gaining access to trenches and inspecting them..
5. Pulled main generator from cargo line to camp. Connected and started it.
6. Pulled tomatoes into camp.

Ad.1: The GRIT people had outlined the skiway by making tracks so the skiway was clearly defined on approach. The snow is hard and has much smaller sastrugi than last year. The combination of good snow condition and a 15 kt wind

almost along the skiway made it possible for Skier 95 to depart in first attempt using 2/3 skiway.

Weather: Thin clouds, then becoming clear. Temp. - 19 C to - 21 C, 10-17 knots from SSE. Visibility: Unrestricted.

We are now 11 NEEM'ers and 6 GRIT people in camp.

FL, J.P. Steffensen

Picture captions:

Group: Group picture of NEEM 2011 put-in crew.

Inflight: Inside the LC-130 en-route to NEEM.

Garage and garage2: The snowdrifts around our carpenters garage are considerable. In the background a tractor from the
GRIT traverse is helping with the digging.

Saunagarage: The storage garage at the end of camp is almost covered by snowdrifts.

Friday, 6th May 2011.

First day at NEEM after the usual cold night.

First night in a cold camp is always something special. Your body needs to become acclimatized to the new environment, the cold and the altitude. There are very few heat sources; but good sleeping bags have been invented. Work on the first day was focussed on survival: Shelter and energy for cooking and making water for drinking. Today, work focussed on taking camp infrastructure to the next step: We now have central heating in the main dome, we have drinking water on tap and by midnight we also have water for dishwashing, laundry and shower. Also, people worked on securing access to the trenches. As the trenches are now 1.6 m lower than last year, we need to extend the staircase and elevator shafts before we can erect a weatherport tent on top. During the day the NASA P3 radar plane passed over camp several times while surveying the ice ridge from NGRIP to NEEM. It was a wonderful sight, as this flight manifests a strong collaboration between NASA and their ice satellite program, the radar people, CRESiS at University of Kansas and the ice core people. With this survey, we get an important input to our interpretation of the NEEM ice core results. At lunch time, the GRIT traverse departed heading for Summit Station some 680 km to the South East. We thanked the GRIT crew for their help, and we will most likely see them back here in a months time on their trip back to Thule. The traverse left a fuel depot for themselves and gave NEEM camp a much welcome re-supply of fuel. During evening temperatures dropped from -21 C to -33 C at midnight. A very cold evening.

What we have done today:

1. Excavating fuel pallet from winter location and pulling it to the main generator.
2. Connected the heating pipes from main dome to main generator and established central heating in main dome.
3. Removing snow from around third garage with snow blower and Pistenbully to gain access to food storage inside sauna.
4. Excavating down to old top of main entrance to drill trench. Constructing new floor for white Weatherport and extension shafts for staircase and main elevator.
5. Constructing plywood base around shaft for small elevator.
6. Installed main snowmelter. Main snowmelter water supply now running.
7. Cooks snowmelter now on-line providing camp with drinking water.
8. NEEM weather station set up and weather monitoring and recording commenced.
9. Saying good-bye to the GRIT traverse.
10. Opened our Iridium satellite system: Camp has now internet access and telephone connection.

Ad.2: The main dome had central heating after lunch. By late afternoon the dome was frost free.

Ad.6: Due to ice blocked hoses, it took some time to get the main water supply started. It did not make the task any easier that the hoses, that needed thawing, were outside at -32 C with some wind. Work was completed by midnight.

Weather: Thin clouds to clear all day. Temp. - 21 C to - 34 C, 6-16 knots from SSE. Visibility: 3-5 miles, slight blowing snow, haze.

We are now 11 NEEM'ers in camp.

FL, J.P. Steffensen

Picture captions:

Matthias: Portrait of Matthias after working in a hole with drifting snow at -30 C.

Traverse: The GRIT traverse heads out for Summit Station some 680 km away. See you soon and thanks for your help.

Saturday, 7th May 2011.

A cold Saturday.

The night to Saturday was very cold. Some people moved from the red dome to the main dome, as temperatures in the red dome did not exceed -15 C. Inside the main dome it was a cosy +15 C. Work on the snow, particularly on extending the entrance shafts, was a cold experience. With temperatures slowly creeping up to -30 C and 20 knot winds, the wind chill was tough. Our weather forecaster predicts a blow coming from the SW tomorrow, so we prepared camp for the blow. In the evening, the wind turned to SW and began picking up, at the same time temperatures began to rise. At that time, however, we sat inside the main dome enjoying Saturday night meal: Steaks with potatoes, beans and béarnaise sauce with some smoked halibut for starters. All prepared by Sarah. After the meal we enjoyed doing dishes with the dishwasher. At 9PM we decided to see a movie; but only a few stayed on to the end, most people simply fell asleep or went to bed. By 12 PM all was quiet in camp with the only sound being the wind outside.

What we have done today:

1. Shaft extensions mounted on main elevator and staircase.

2. Load platform for small elevator in place.
3. Scientific equipment brought into science trench.
4. Overwintering electronics brought from science trench to main dome.
5. Main snow melter filled. Insulation mounted on water pipes at snow melter.
6. Warm water tanks on-line and dishwasher working.
7. Saturday evening.

Weather: Clear. Temp. - 22 C to - 35 C, 4-20 knots from SSE turning SW. Visibility: 1-3 miles, blowing snow.

FL, J.P. Steffensen

Picture captions:

New entrance: Work crew huddles in the lee of the pit while they mount the wooden shaft extensions over the entrance to the drill trench.

Sunday, 8th May 2011.

First blusterous day of the season.

Just as forecasted, we got hit by strong winds today. Our Belgian forecasters had cloud cover, wind direction, wind speed and temperatures correct. The weather system came 8 hours earlier than forecasted, and this gives us hope for tomorrow, because the system may pass tomorrow at noon instead of 8PM as forecasted. We were forced in-door and underground. In the drill trench, the drillers have been working on shortening the tower so it fits under the sinking roof. This is o.k. as we do not need the long drill anymore. All drilling and tests will be performed with the short version called the Hans Tausen drill (named after the Hans Tausen glacier in Peary Land where the drill was first deployed in 1995). The ice core chemical analysis team (CFA team) have begun setting up equipment.

What we have done today:

1. Testing the winch.
2. Aligning the tower and shortening the tower by 2 x 1.5 m.
3. Unpacking CFA equipment and beginning CFA setup.
4. Unpacking in workshop garage.
5. Resetting drillers cabin and floor.
6. Activating drillers workshop.
7. Watching the snow blowing by.

Ad 1,2 and 5: The deep drill winch works normally. Temperature in drill trench: -29 C. The long tower could not pass the backside of the roof supporting beam. A 1.5 m section was removed from both the upper section and the lower section of the tower. The tower can now be tilted to vertical.

Weather: Overcast. Temp. - 17 C to - 25 C, 18-26 knots from SW. Visibility: 1/4 mile, blowing snow.

FL, J.P. Steffensen

Picture captions:

Sepp: In the blizzard Sepp is working on the entrance to the science trench. Part of the main dome is to the left.

CFA: Simon sets up equipment in the CFA lab.

Tower: Top of the tower touches the roof beam before shortening. From left to right: Trevor, Simon, Bruce and Carsten.

Monday, 9th May 2011.

Strong wind continues into the evening.

Another day for in-side or trench activities. Today a lot of snow decided to change position, to top it off, new snow came too. We could sit and watch as all our snow removing efforts the previous days were completely erased. We tried to keep busy, and we kept our high spirits. Because we only have one entrance open to the trenches and there was a risk for this entrance to get buried in snow, the people downstairs have radios so they may call for assistance from the people top-side.After supper wind began to lessen and the forecast for tomorrow is good so we hope we may work outside again soon.

What we have done today:

1. Troubleshooting the big elevator.
2. Raising electrical cables and panels in drill trench.
3. Unpacking CFA equipment and setting up CFA.
4. Prepared and mounted drill head for Hans Tausen drill.
5. Repairing the sodamachine.
6. NEEM local network, e-mails servers, data servers and printers on-line.

Ad. 4: The new drill head mounted is for a 129.6 mm diameter hole. This is larger than the standard for dry drilling (126mm). With this drill head, the drillers avoid reaming the top dry hole before going to wet drilling mode. It is planned that the Hans Tausen drill this year will drill two places: In the deep hole later in the season, and in the coming weeks produce a core from the surface to 420 m depth from inside our storage garage.

Weather: Overcast. Temp. - 12 C to - 17 C, 10-34 knots from SW. Visibility: 1/4 mile, blowing snow. After 1800 wind abates and visibility improves.

FL, J.P. Steffensen

Picture captions:

Christian: Christian working in a pit during the blizzard.

Tower: Inside the drill trench. The shortened drill tower is horizontal.

Hatch: The only entrance to the trenches was hard to navigate during the blizzard.

Tuesday, 10th May 2011.

Beautiful weather – let's get digging.

While there were some clouds and wind in the morning, weather improved and the afternoon was beautiful. Everybody except our cook and the two CFA people were working outside all day. What a difference a day makes. I am

sitting in the top of the main dome and can see the results of our efforts today. The floor for the main entrance to the trenches is made, and tomorrow we hope to get the weatherport up to cover the entrance. The garages are slowly emerging from the snow piles. A couple of good weather days more will make a lot of difference. I can also see that the nice smooth surface of the ice sheet has changed. The strong wind has created sastrugi (i.e. open land snowdrifts) so that the snow now looks like a white ocean where the waves are frozen.

What we have done today:

1. Removing snow around three garages with Pistenbully and two snowblowers.
2. Finished the floor for the white entrance weatherport.
3. Excavated fuel pallet.
4. One Flexmobil and Caterpillar tractor now running.
5. Established vehicle hot-line at workshop garage.
6. Setting up CFA.
7. Fixed problem with frozen drain under main dome.

Weather: Clear. Temp. - 12 C to - 22 C, 4-16 knots from SSW turning SE. Visibility: Unrestricted.

FL, J.P. Steffensen

Picture captions:

Pistenbully: The pistenbully was busy today pushing snow.

Wednesday, 11th May 2011.

Busy – making up for lost time.

Weather is good now, and the forecast gives us several good days ahead. Because of the two day delay on the put-in and another two days delay due to a blizzard, we need to make up for lost time. However, with the present weather it is a pleasure to spend long hours working outside and we will catch up. Two important steps were reached today: We got the white weatherport raised over the entrance stairs and elevator to the trenches. Now the entrances are wind and snow drift proof. We also emptied the storage garage, and the drillers can begin setting up the Hans Tausen drill for the planned 420 m drilling inside it.

What we have done today:

1. Built white weatherport over main entrance to the trenches.
2. Extended staircase to trenches.
3. Took all weatherport units out of winter storage from the storage garage, and placed three of the sets in camp.
4. Rearranging remaining cargo in storage garage to make more space.
5. Cleared snow away from storage garage.
6. Removing snow from around workshop garage and carpenters garage.
7. Building up CFA system.

Ad.7: CFA system setup accomplished. Milli-Q system operational. Sampling equipment installed. Laboratory, consumables and backup material organized.

Weather: Clear. Temp. - 13 C to - 24 C, 4-14 knots from SE turning SW. Visibility: Unrestricted.

FL, J.P. Steffensen

Picture captions:

Stairs: Christian, Bruce and Trevor are mounting the main staircase to the trenches.

Thursday, 12th May 2011.

We are enjoying the weather and camp is changing shape.

We erected a weatherport today, and two more will go up soon. NEEM camp will soon look like a small village. We have also begun to build our airport. The landing strip (the skiway) was groomed for the first time. We will continue to work on the skiway by grooming. This makes the snow surface level and hardens the snow so that we may receive aeroplanes with higher payload. Next planes are scheduled for next week. Camp life is becoming routine and people are doing a lot of small tasks too to make everything work.

What we have done today:

1. Cleaning in the storage garage, beginning to setup drill tower for 420 m drilling.

2. Main staircase to trenches finished, main elevator working and extended.
3. Setting up 12 x 20 weatherport for food storage.
4. Laying foundation for two weatherports.
5. Setting up CFA system.
6. Breaking snow surface with Flexmobil on skiway. Grooming skiway lengthwise with beam groomer.
7. Pulling fuel pallet to main generator hut.

Weather: Clear. Temp. - 18 C to - 26 C, 2-4 knots from SW turning SE. Fog in the morning, later unrestricted visibility.

FL, J.P. Steffensen

Picture captions:

Foundation: Hans Christian is laying out the foundation for a weatherport.

Friday, 13th May 2011.

Nice, but a bit chilly to work outside today.

During the whole morning temperatures stayed well below -20 C and with a constant wind, work with erecting weatherports became a chilly affair; but up they went. Hans Christian, Sepp and Christian got cold though so there was need for coffee breaks once in a while. The drillers, Trevor, Bruce and Carsten, worked in the shelter of the storage garage, outfitting it with drilling equipment. Sverrir pushed snow with the Pistenbully. Sarah provided food. Matthias and Simon worked in the CFA laboratory, and J.P. spent all day grooming the skiway.

What we have done today:

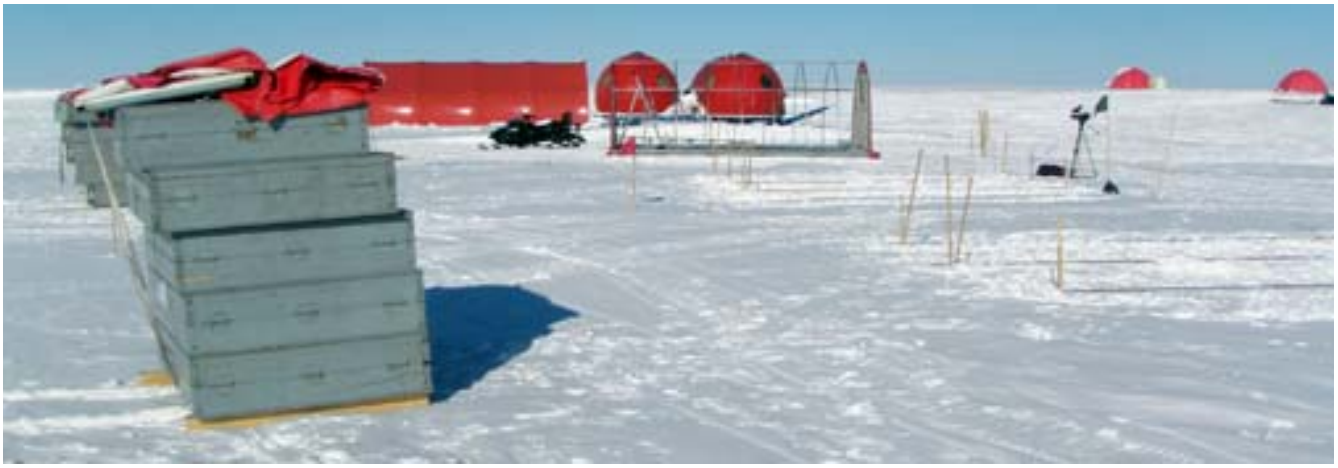
1. Erected two weatherports with 3 bunkbeds in each.
2. Moving food from storage garage to food weatherport.
3. Working on setting up drill in storage garage and excavating drill slot.
4. Removing snow from around red domes.
5. Setting up CFA system.
6. Grooming skiway in zig-zag with beam groomer.

Ad. 5: Melting device installed. Ice core preparation and storage reinstalled. CFA temperature stabilization system repaired. Single detection modules revised. IDP sample canisters located and put in place.

Weather: Clear. Temp. - 16 C to - 25 C, 10 knots from S. Unrestricted visibility, fog at night.
FL, J.P. Steffensen

Picture captions:

HansChr: Hans Christian is assembling the frame for a weatherport.



Weatherport: Weatherport construction site. Two gray weatherport kits are to the left and behind is one under construction.

Saturday, 14th May 2011.

First core in 2011.

We drilled the first ice core today. Although this core only contains snow that has been disturbed by camp activities, we will soon reach a depth where the snow layers are undisturbed. To insure that we get a record up to present day, we plan to drill a core to 30 m depth from an undisturbed site a bit away from camp. Later analysis will later allow us to stitch the records together to one continuous record. Anyway, it is nice to begin the work that NEEM camp is built for. It was with a good feeling we could celebrate Saturday evening enjoying the cooking skills of Trevor and Bruce. Today demonstrated that even in good weather there can be snow drift. The high catabatic winds were able to move surface snow.
What we have done today:

1. Removing snow around red domes.
2. Drilled the first core in storage garage.
3. Repairing broken beam groomer.
4. Grooming skiway lengthwise, driving tracks on taxiway and apron.
5. Taking food from the connecting tunnel to food storage.
6. Setting up CFA system.
7. Saturday night dinner provided by Trevor and Bruce.

Ad.3: During grooming, part of the stabilizing frame broke and the groomer became unstable. Back in the workshop, Sverrir cut away the broken part and welded a new piece of steel on. The repairs took 20 minutes, and grooming could continue.
Ad.6: Optimizing detection modules. Updating CFA documentation. First standard signal in hydrogen peroxide.
Weather: Clear. Temp. - 13 C to - 21 C, 10-18 knots from S. Unrestricted visibility, thin clouds in evening.
FL, J.P. Steffensen

Picture captions:

Drillers: Left picture: Bruce in the slot below the drill. Right picture: Trevor and Carsten at the first drill run.

Sunday, 15th May 2011.

Preparations for the flight next week.

In the coming week we are expecting a flight with many new NEEMers. We are constantly working on getting our skiway up to standard. An important issue is the markings. They have to be set in a prescribed pattern. Over winter, the markers have become half buried in snow and it is necessary to pull them up and reset them. The whole system consists of more than 300 markers, so it takes some time to lift them all. As Sverrir has removed more than a meter of snow around our first outhouse, we needed a new one, and this Matthias and Simon made today. This outhouse should also have the capacity for the new members of camp, at least for some time…

What we have done today:

1. Raising markers on skiway, taxiway and apron.
2. Removing rollers from skiway with Pistenbully.
3. Drilling and testing in storage garage.
4. Building new outhouse.
5. Grooming around cargo and tank area.
6. Excavated and raised downed windsock.
7. Setting up CFA system.

Drillers report: Drill has been set up. Logging table is setup in the storage garage. Drillers depth: 9.1 meter. First complete bag of 420 m core is bag 12.

Weather: Clear. Temp. - 13 C to - 23 C, 12 knots from S. Unrestricted visibility.

FL, J.P. Steffensen

Picture captions:

Markers: Hans Christian and J.P. are lifting the half buried markers out of the snow and resetting them.

Markers2: J.P. resetting the “2” markers. These markers tell the pilots that there are 2000 feet remaining to the end of the skiway.

Outhouse: Simon is testing the new outhouse facilities with snow man spectators. On the hill, the “old” outhouse.

Windsock: The pole holding our windsock did not survive the storms during winter.

Monday, 16th May 2011.

Fine weather continues – we make good progress.

As weather continues to be good to us, work on getting camp into shape before reaching full manning this week is going fine. CFA setup in the laboratory is progressing and the drillers are trying out a new experimental drill head. As with all tests, there is a troubleshooting phase and the drillers have been working at a slower pace to see where the problems are. The new head makes perfect ice cores, but the ice chips produced during drilling are not moved from the head to the chip chamber efficiently enough. For the planned 420 m drilling this is not a problem at all, as the drillers can switch back to our well tested normal drill head and proceed with that. Tests like this are necessary, if we want to advance our technology. There is one item on the "what we have done today" list that is always missing (except on Saturdays), and that is Sarah providing food for all in camp, every day. Not only does she provide us with meals every day, she also plans food purchases, keeps check on food inventory and makes sure we have a balanced diet.
What we have done today:

1. Drilling and logging of ice cores.
2. Removing snow and leveling surface in the 2nd weatherport area.
3. Excavating last two pallets with fuel and drilling fluid from last year.
4. Excavating and pulling all three fuel tanks into position near the apron.
5. Zig-zag grooming the skiway.
6. Raised and reset all approach markers.
7. Setting up CFA system.
8. Again today, Sarah provided us with two nice meals.

Drillers report: Drilling today was slowed due to issues with poor chip transport. Most likely this is caused by the new experimental drill head. Drillers are investigating the problems. Drillers depth: 25.5 meter.

Weather: Clear. Temp. - 15 C to - 22 C, 12 knots from SSE. Unrestricted visibility.

FL, J.P. Steffensen

Picture captions:

Sarah: Sarah at work in the kitchen, preparing yet another meal.

Tuesday, 17th May 2011.

Building up for the plane on Thursday.

On Thursday we hope to receive a plane with cargo, food and 16 new members of the NEEM staff. We are busy preparing everything in camp for the new arriving people. Much effort is put into cleaning up in camp and preparing the skiway, taxi way and apron. The skiway is very important. It is our physical connection with the outside world. On flying to NEEM, the 109th will evaluate the skiway: Are the markings to standard?, Is the skiway even without rollers and bumps? Is the apron soft so the plane is stuck at the parking spot? And is the prepared snow hard enough so the plane can take-off again? All this will we evaluated on Thursday. It feels like going to examinations in school. If we pass, we may get more than double the minimum payload per flight, and since LC-130 flights are not cheap, it will be a huge economic benefit for the project. If we fail, we can only receive minimum payload.

What we have done today:

1. Drilling 0.4 m ice core and worked on broken winch.
2. Made three weatherports ready for construction.
3. Setup cargo ready area at the apron.
4. Made garbage collection pallet.
5. Grooming skiway, taxiway and southern half of apron lengthwise.
6. Setting up CFA system.

Ad.1: Drillers report:
To improve trip transport away from the top of the drill head we increased the cutting pitch to about 5.5 mm to make coarser chips, and we also allowed time for clearing the head during drill penetration. We added the super-banger connection to help in the case of more hard core breaks due to packing at or above the head. After one fairly normal run, though, the winch motor failed. It labored as it pulled the drill out of the hole and a strong odor of electrical burning was detected. After consulting with Steff and Simon back in Copenhagen for some good advice and some good luck, we disassembled the winch system and found a broken brush and lots of black debris in the area. The motor will need to be replaced with the spare which is on the way on the next flight to camp. Meanwhile, we take this opportunity to prepare to replace the cable with the new 500 meter cable by removing the existing cable from the anti-torque and the drum. We are happy with the set up we have created in the “sauna” garage which provides us a good space for both routine drilling and more challenging days like today.
Ad.4: All garbage in camp is sorted into fractions: Glas, metal, household waste, liquid waste (spent oil, spills), batteries etc. All will be flown from camp to Kangerlussuaq.
Weather: Clear. Temp. - 14 C to - 23 C, 12 knots from S, dropping to 4 knots in the evening. Unrestricted visibility.

FL, J.P. Steffensen

Picture captions:

Skiway: Our landing strip (skiway) at NEEM is almost ready. Length: 12000 feet (3.7 km), width: 200 feet (61 m). In total, we prepare 30 hectares (74 acres) of snow surface.

Wednesday, 18th May 2011.

Plane tomorrow, and we are ready to receive it.

Today we put the finishing touches to the flight operations area. Everything is now ready to receive the plane tomorrow. We also erected the last structures in camp and furbished them with beds. Now, all arriving personnel have a good bed to sleep in. The drillers did not drill anything today as the winch motor is broken; but tomorrow they will get a replacement motor so they made ready to exchange motors. Now we keep our fingers crossed that the fine weather we have enjoyed in many days will continue.

What we have done today:

1. Groomed skiway with tiller.
2. Groomed taxiway and apron with beam groomer and tiller.
3. Erected the last three weatherports and made red dome 1 ready.
4. Setting up CFA.
5. Starting the camp information screen.
6. Disassembled the shallow winch.

Ad.1 and 2: The skiway, taxiway and apron are now ready to receive a plane.
Ad.3: Camp is now ready to receive all arriving personnel.
Ad.6: Drillers report: No drilling today as we prepare to replace the winch motor coming on the plane tomorrow.

Weather: Clear. Temp. - 13 C to - 26 C, 4-2 knots from S. Unrestricted visibility.

FL, J.P. Steffensen

Picture captions:

Matthias laundry: A scene that makes you feel a little at home: Matthias is sorting his laundry in the main dome.

Thursday, 19th May 2011.

Plane cancelled today.

Today we found ourselves in a bizarre situation. There were very few clouds (that later disappeared) and we had good visibility. All o.k. for a flight. The scheduled departure was at 8.30 this morning. The plane was loaded, the passengers were on-board and then the plane had a technical fault. They pulled back to repair it; but in the mean time we got an updated weather forecast from our Belgian forecaster, who so far has been spot on. He forecasted fine weather, but strong winds from East-South-East later in the day. The winds forecasted were at 20 knots gusting to maybe 30 knots. From early morning we could see the wind increasing, and our problem was that a ski-plane cannot land at our skiway, which runs North-South at cross-winds exceeding 15 knots. The issue was discussed with Lars, our Operations Manager in Kangerlussuaq, and we agreed that the risk of too strong winds at the time of arrival of the plane was great, and this would result in a so called “boomerang” flight, i.e. a flight to camp without the possibility to land, and since we pay for these missions too, Lars and I felt the risk was too great. At 11.00 we cancelled the plane, and it turned out to be a wise decision. All afternoon we had wind around 20 knots almost across the skiway. We spent the rest of the day listening to the wind and watching the drifting snow. May be tomorrow.

What we have done today:

1. Waiting for the plane that did not come, and sitting out the blow.
2. As Sarah is not feeling well today, Christian volunteered as cook.
3. CFA detection systems now fully operational.

Ad.3: All components started, optimized and tested. Documentation updated. DAQ program improved and adjusted. Ice sample preparation installed.

Weather: Thin overcast in the morning later clear. Temp. - 17 C to - 23 C, 2-20 knots from SE and ESE. Visibility between 3 miles and unrestricted.

FL, J.P. Steffensen

Picture captions:

Weather station: Our weather station sits lonely on the snow surface with snow drifting around it while recording the weather today that did not allow for planes.

Friday, 20th May 2011.

Plane cancelled again today.

As there only was one plane available today, the decision had to be made whether it should fly to the American camp at Summit or to here. After going through the needs and tightness of schedule in both camps, our representative in Kangerlussuaq and his Summit counterpart agreed to make the Summit flight take precedence. Thus we got no plane today; but we will get one tomorrow at Noon. Weather looks good, so this time it should go well. We will soon say good-bye to a few of camp staff and to our extra camp member (who is not on the manning list), Flat Stanley. As part of a school outreach program, Flat Stanley has travelled the U.S. and now to the ice sheet in Greenland. He has sent a picture diary to children in the U.S.; but now his stay is soon over, as he will travel home to the U.S. in an envelope.

What we have done today:

1. Reopened storage garage with snow blower.
2. Made ramp for drinking water snow sled.
3. Several tests on CFA system.
4. Packed snow around the edges of two weatherports.
5. Made safety rail around large elevator.

Weather: Thin overcast, in the evening clear. Temp. - 14 C to - 25 C, 18-2 knots from SE later NE. Visibility unrestricted.

FL, J.P. Steffensen

Picture captions:

Flat Stanley: Our extra crew member, Flat Stanley, in company with Sarah.

Saturday, 21st May 2011.

Finally the plane made it.

Today it happened. The plane finally made it and 15 new members made it to NEEM camp. Now the camp has grown to full size this year. With the arrival of so many, the activity has increased considerably. After the usual briefing, we had to disappoint the new-comes, just a little bit. But due to the delayed arrival, we had decided to postpone the Saturday night celebration to Sunday evening. Everyone joined work in camp immediately and some worked until late. Hans Christian and Christian left us today. We gave them our best wishes and thanks for their good efforts in camp. Our skiway was too bumpy for the 109th and we didn't pass the exam. The good weather in the past week has been a blessing for work outside but a small curse for the skiway, as we have got no new snow to work with using our groomers. However the bumps are small and we hope to correct them soon.

What we have done today:

1. Received Skier 62.
2. Received 15 new NEEM'ers, said good bye to two.
3. Built two new outhouses.
4. Exchanged motor on shallow winch.
5. Unpacking cargo and taking fresh food to food storage.
6. Begun setting up the gas and isotope part of CFA.
7. Groomed central skiway with beam groomer.

Weather: Mostly clear. Temp. - 16 C to - 26 C, 5-10 knots from ENE. Visibility unrestricted.

FL, J.P. Steffensen

Picture captions:

Happy drillers: Happy drillers mounting the new motor. From left to right: Carsten, Bruce, Trevor, Darcy and Bruce.

Sunday, 22nd May 2011.

A Saturday on Sunday.

No, we haven't got the calendar wrong; but because of the three days delay of the last plane, we decided to move the week-end one day. Sarah got her day off and Myriam, Nanna and Christopher volunteered to make a nice dinner for us all. In the science trench there is now a flurry of activity as people are setting up for processing the remaining part of the NEEM deep ice core and a part processing of the 420 m core that is being drilled in the storage garage. The drillers hit two birds with one stone today. First, they completed the repairs on the winch and spooled on a new 500 m cable, and then they made a perfect drill run with the experimental drill head with a perfect chip collection. After adjustments of drilling procedures and adjustments to the cutters, the new drill head seems to work fine. Drillers are ready for some serious drilling now.

What we have done today:

1. Mounted new 500 m cable on shallow winch.
2. Cleaned up in science trench and straightened tables.
3. Horizontal band saw now operational. ECM bench mounted.
4. Groomed and tilled central sections of taxiway, apron and skiway.
5. Setting up equipment in CFA laboratory (Fast I.C.) and in gas and isotope laboratory.
6. One perfect drilling run at the end of the day.

Weather: Clear. Temp. - 17 C to - 23 C, 10 knots from E. Visibility unrestricted (chilly and windy).

FL, J.P. Steffensen

Picture captions:

Drill: Our drill on the right way again. Here, the top of our drill is about to disappear into the borehole. The diameter of the drill is about 125 mm. It drills a 98 mm diameter ice core.

Monday, 23rd May 2011.

We receive the second plane.

A drama is unfolding regarding air traffic in Greenland. Although the weather was fine for flying to NEEM, everybody in camp was anxiously following the news on the Grimsvötn eruption in Iceland. As parts of Iceland and southern Greenland halted air traffic, we got our plane on time and in a perfect rotation the plane only spent 28 minutes on the snow. We are now set for the next three weeks. Again, there was a flurry of activity as people unpacked food, spare parts and equipment. In the science trench things are progressing fine, and the drillers have now learned to handle the drill. In fact, the drill behaves so well that we in the evening decided to enter a two shift mode in drilling on Tuesday

What we have done today:

1. Received Skier 11. Four new NEEM'ers arrived and two left.
2. Unpacking and sorting cargo.
3. Training new drillers and loggers.
4. Placing the U.S. logging winch in position.
5. Setting up equipment in CFA laboratory (Fast I.C.) and in gas and isotope laboratory.
6. Inspecting and tilling skiway
7. Drilling to a depth of 40.04 m.

Weather: In the morning clear, later overcast and light snow showers. Temp. - 13 C to - 25 C, 4-6 knots from E, later N. Visibility unrestricted in the morning, later ¼ mile during snow showers.

FL, J.P. Steffensen

Picture captions:

NEEM camp: NEEM camp seen from the skiway. The 5 red markers show the midway of the skiway.

Tuesday, 24th May 2011.

Camp in full swing.

Now things begin to happen. The drillers made good progress today, albeit with various complications, and the processers began processing the brittle core. The processers "only" made 6.6 m; but it is a good start and since several are new to the job, we expect the learning curve to be steep. The CFA people are almost there in setting up the most comprehensive analytical system ever brought to the field. As forecasts have warned of strong wind the next couple of days much work was also done on the surface. A pit study was conducted, a weatherport was erected over the U.S. logging equipment and the camp and cargo line were cleaned and revised.

What we have done today:

1. Drilling and logging. Now in two shifts.
2. Processing NEEM deep core brittle zone, bags 1869-1881 (1027.40m – 1034.55m).
3. Erecting weatherport over U.S. logging winch, and cased the snow hole over the drill trench with a ventilation tube.
4. All CFA systems almost ready. We may begin CFA measurements tomorrow.
5. Building empty drum pallet.
6. Cleaned up in the cargo line, lifting cargo up to surface.
7. German and Danish pit study at 2009 S2 drill site (3 km South of camp).

Drillers report: We started our shift work with Trevor and Michelle in the morning and Darcy and Andrew in the evenings. We have had great support from Vasileios and Tyler with the core logging. Packing around the top of the dry drill head continues to give some problems, but we persevered and have had a productive day reaching 70.90 meters with a production today of 31 m. Some scary core breaks (or "non" core breaks as they could be) often required multiple pulls to free the drill. We used the superbanger as it was designed once to free the drill with success. The second attempt to use the superbanger to free the drill resulted in leaving the core barrel down, which we later retrieved relatively easily and eventually the core that had been drilled. Limiting the runs to about 1.1 – 1.2 meters seems to help the situation with chips severely packing above the head. Still, we have coarse enough chips and good recovery in the chips chamber. Despite hard breaks, the cores themselves are beautiful so far. Strangely enough, though, we look forward to switching to a wet drilling mode.
Weather: In the morning overcast and light snow showers, later clear. Temp. - 12 C to - 21 C, 4-10 knots from N, later ESE. Visibility 1 mile in the morning during snow showers, later unrestricted.

FL, J.P. Steffensen

Picture captions:

Logging weatherport: The red logging weatherport next to the white weatherport that covers the entrance to the trenches. In front of the red weatherport a red steel tube can be seen. This is a hole in the roof of the drilling trench right over the borehole.

Wednesday, 25th May 2011.

Outside the wind blows; but we are all busy inside.

Again, our forecasters were spot on. Strong winds came to camp this morning; but we were prepared, and work could progress in the shelter of our weatherports and down in the trenches. Today, the CFA system went on-line and with core processing beginning yesterday, the scientific program has got a good start. A further sign of progress is that the drillers announced that they will change to “wet” drilling mode. When we drill an intermediate depth core, like the present 420m, we prefer to drill with the drill immersed in a 10 m column of drilling fluid. The fluid helps chip transport, lubricates the drilling process and removes the tendency of ice cores from depths deeper than 100 m to fracture and crack. We can only use fluid at depths larger than 90 m, because the porous firn, i.e. compressed snow, turns into non-porous glacier ice at this depth and the fluid will no longer seep away into the snow pack, but will be contained in the hole.

What we have done today:

1. Drilling and logging. In two shifts. Drillers now going to wet drilling mode. Depth 87.7 m.
2. Processing NEEM deep core brittle zone, bags 1882-1904 (1034.55m – 1047.20m).
3. Measuring by CFA. All CFA systems running. Measured 2.2 m. Depth 2202.75m
4. Setting up U.S. borehole logging equipment.
5. In preparation for wet drilling, Martin repaired the chip centrifuge.

Drillers report: In the last couple of runs, the cores began to show the flaky breaks along the axis. After consulting with Sepp on the firn/ice transition, we decided to switch to “wet” mode. Tonight 130 liter of fluid was placed in the hole, and we began mounting the wet drill head and modifying the hollow shaft. The test of the new drill head has been successful, and by using it we have avoided the need to ream the hole to larger diameter.
Weather: Clear all day. Temp. - 17 C to - 22 C, 20 knots from ESE. Visibility 1-5 miles, slight blowing snow.

FL, J.P. Steffensen

Picture captions:

Drillers: Loggers and drillers in the storage garage where the 420 m ice core is drilled. From left: Tyler, Michelle, Darcy, Trevor and Andrew.

Thursday, 26th May 2011.

Today the wind relented and we have to push snow again.

There was some cleaning up to do after two days of strong wind from the East. Several entrances had to be excavated and many 40 cm snowdrifts across the skiway had to be removed. Otherwise, work is progressing fine at the drill, in the science trench and in the CFA laboratory. For some of the drillers, the wet mode drilling is a new thing, and although there are a lot of advantages, there are also disadvantages, such as handling a wet drill, processing the wet chips in a centrifuge to retrieve the fluid, and the overall wetness of the fluid on surfaces, on gloves and on the clothes. Today the U.S. GRIT traverse train arrived for a pit stop on their way to Thule from Summit. Tonight and tomorrow, we are hosting the 6 GRIT people.

What we have done today:

1. Drilling and logging. In two shifts. Drillers now in wet drilling mode. Depth 101 m.
2. Processing NEEM deep core brittle zone, bags 1905-1928 (1047.20m – 1060.40m).
3. Measuring by CFA. All CFA systems running. Measured 7.7 m. Depth 2209.90m
4. Setting up U.S. borehole logging equipment.
5. Worked on oven in kitchen
6. Removed snow drift around generator house and at storage garage.
7. Pulled fuel tank into position in camp.
8. Troubleshooting new CH4 PICARRO system.
9. Received GRIT traverse en route from Summit to Thule.
10. Groomed skiway with beam groomer and removing snow drifts across skiway with dozer blade.

Drillers report: Wet drilling runs routinely, and the core quality is good again.
Weather: Clear all day. Temp. - 16 C to - 25 C, 18 - 8 knots from SE. Visibility unrestricted.
FL, J.P. Steffensen

Picture captions: Science trench: A quiet moment in the science trench. Anna and Gregory in the foreground and Sepp and Anders next to the white CFA laboratory.

Friday, 27th May 2011.

We have visitors and enjoy the company.

The six members of the GRIT traverse joined us for meals today and it was nice to spend an evening in new company. This year, the traverse has been very fast. May is not over yet, but they are already almost back to Thule after a trip to Summit. The distance from NEEM to Summit is 680 km and they covered twice that distance in 20 days, and on the way to Summit they hauled much more than 100 tons of freight. In the afternoon Sverrir from NEEM and Brad from the traverse worked together with fuel tanks, pumps and cranes and NEEM received enough fuel to be in good shape all summer. We may now only need a resupply in August when we pull out.

What we have done today:

1. Drilling and logging. In two shifts. Depth 128 m.
2. Processing NEEM deep core brittle zone, bags 1929-1959 (1060.40m – 1077.45m).
3. Measuring by CFA. Measured 24.2 m in 24 hour operation. Depth 2234.10m
4. U.S. borehole logging in progress.
5. Receiving fuel from GRIT traverse.
6. Groomed skiway lengthwise and part of taxiway and apron with beam groomer.

Drillers report: Wet drilling runs routinely, and the core quality is good.
Weather: Clear, later low thin overcast and light snow. Temp. - 15 C to - 25 C, 10 - 6 knots from E later W. Visibility unrestricted, during snow showers down to 1 mile.
FL, J.P. Steffensen

GRIT: One of the three tractors of the Greenland Ice Sheet Traverse (GRIT) on arrival to NEEM yesterday. The sleds consist of plastic carpets with heavy cargo on air cushions. They are capable of carrying very heavy loads with very low ground pressure.

Saturday, 28th May 2011.

We take a sort break – it's Saturday.

Many in camp need a weekend break. This week, all have been working hard and both on drilling and in the CFA laboratories people work in shifts. In the CFA laboratories it is full 24 hour operation, so the Saturday evening break is the only chance for everybody to share some time together. Saturday night dinner was prepared Mediteranian style by Xavier, Paul and Vasileios. We enjoyed the evening together, before the working week begins again Sunday after lunch.

What we have done today:

1. Drilling and logging. In two shifts. Depth 141 m.
2. Processing NEEM deep core brittle zone, bags 1960-1974 (1077.45m – 1085.70m).
3. Measuring by CFA. Measured 14.85 m in 14 hour operation. Depth 2248.95m
4. Preparing 2nd U.S. borehole logging. Working on issues with bearings on the winch.
5. Service on heavy vehicles.
6. Several times repaired fuses and distribution boxes for electricity at the drill site in the garage.

Drillers report: Routine drilling, drillers are slowly adapting to the different working conditions associated with wet drilling.
Ad.4: The temperature at the bottom of the deep borehole is -3.56 C. Near bottom gradient is 28 mK/m.
Weather: Scattered high and medium high clouds all day. Temp. - 16 C to - 23 C, 4 – calm - 10 knots from W later S. Visibility unrestricted, sometimes slight haze.
FL, J.P. Steffensen
Picture captions:

Pistenbully: The Pistenbully for service. A service trench has been made in the snow. All oil and spill is collected and sent to Kangerlussuaq of course.

CFA labs: Activity in the two CFA laboratories inside the snow caves under the surface. To the left are Olivia, Simon and Rob running their shift in the chemistry part, and to the right are Christopher and Vasileios monitoring the measurements of greenhouse gases and isotopes.

Sunday, 29th May 2011.

A beautiful Sunday.

Weather is nice and cold but there is little wind. People enjoyed Sunday morning and after lunch everybody went to work again. Such a weekend break is not only good for people it's also good for machinery. In the CFA laboratories, the systems were checked and adjusted before measurements were resumed. On the surface, Sverrir could open the Pistenbully to inspect all inner parts and make full service on the machine.

What we have done today:

1. Drilling and logging. Depth 148.5 m.
2. Processing NEEM deep core brittle zone, bags 1975-1986 (1085.70m – 1092.30m).
3. CFA system maintenance and service. Later, measuring. Measured 3.3 m. Depth 2252.25m
4. 2nd U.S. borehole logging in progress. Logger winch problems solved.

5. Large service on Pistenbully.

Drillers report: A fairly routine Sunday started slowly and nicely, but ended with another winch failure before a core break. The winch motor received power but had no guts to pull up even with little load. The core break had to be done by hand and eventually we hand cranked the drill back to the surface with the assistance of a hand held drilling machine. On first inspection there was no obvious problem with parts or cables that are easily measured and assessable without taking the winch and tower completely apart again. We will investigate the matter further Monday morning.
Weather: Clear all day. Temp. - 17 C to - 26 C, 10 - 3 knots from S. Visibility unrestricted.
FL, J.P. Steffensen

Picture captions: Drillers: Inside the storage garage where drilling is done. Darcy is operation the drill, Martin is checking, and to the left, Myriam is logging the core. They are wearing blue suits to protect them from getting wet from the fluid.

Monday, 30th May 2011.

A good productive day – except for the drillers; but they have ideas.

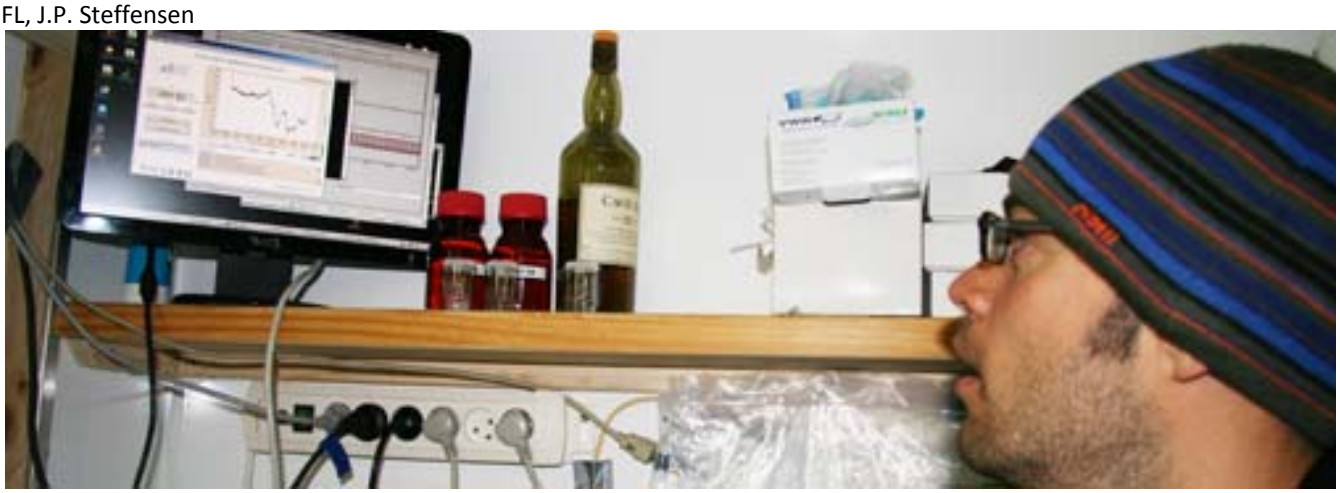
For most people in camp the day was productive; but the drillers had to face the fact that they now have two broken motors for the winch, however, as the Danish proverb goes, “Need will teach the naked woman to spin yarn”. The drillers have been brainstorming, and they now have ideas for a work-around solution. So, instead of being frustrated at the end of the day, they were quite exited to get the problem solved. We are still enjoying beautiful sunny and cold weather. We know the good weather will end some time; but each good day passed cannot be taken from us.

What we have done today:

1. No drilling today. Problems with winch motors.
2. Processing NEEM deep core brittle zone, bags 1987-2025 (1092.30m – 1113.75m).
3. CFA measurements. Measured 24.2 m. Depth 2276.45m
4. 3rd U.S. borehole logging in progress.
5. Service on vehicles.
6. Lifting last of cargo line from last year to surface.
7. Leveled some undulations on skiway with Pistenbully.

Drillers report: To gain access to the winch motor, we unwound the 500 m cable onto the snow. The motor had damage to the coil. Although the two motors have two different types of damage, it is not technically possible to combine working parts of the two motors to one working unit. Instead we decided on a new way ahead. By keeping the damaged motor in the winch, the drive shaft is accessible. We are now manufacturing an adapter that will allow us to attach the winch motor from the German shallow drill.

Weather: Clear all day. Temp. - 17 C to - 28 C, 4 - 8 knots from SSE. Visibility unrestricted.
FL, J.P. Steffensen



Picture captions: Vasileios: In the CFA laboratory Vasileios is watching with interest as results from on-line measurement of water isotopes appear on the screen. Ten years ago, the notion to measure isotopes on-line in the field was but a dream.

Tuesday, 31st May 2011.

A good day for processing and we got visitors.

In the processing line everything is running fine. Although one instrument for gas analysis has broken down (SARA), we have a back-up instrument (JUDY), and now it is running fine. The drillers are working on a fix for the winch, and they are almost there. By tomorrow, the winch could be running again. At 21.00 we got visitors. The U.S. PARCA team arrived by Twin Otter. They are maintaining a large number of automatic weather stations along the 2000 m contour of the Greenland Ice Sheet and in the next few days they will use NEEM as a hub for their visits to the sites in the North. The borehole temperature logging is almost complete and with this precise temperature recording all the way through the ice sheet, we will be able to reconstruct parts of past surface temperature history of the ice. It will also tell us whether NEEM has basal melting or not.

What we have done today:

1. Mounting new motor on the winch and making an adapter for it.
2. Processing NEEM deep core brittle zone, bags 2026-2061 (1113.75m – 1133.55m).
3. CFA measurements. Measured 26.4 m. Depth 2302.85m
4. Performing logging experiments in the deep hole.
5. Service and repair on Pistenbully tracks.
6. Received the U.S. PARCA team, arriving by Twin Otter TF-NLD.

Weather: Clear, in the evening broken thin overcast. Temp. - 17 C to - 28 C, 4 - 10 knots from SSE to SW. Visibility mostly unrestricted, in the evening 5km.
FL, J.P. Steffensen
Picture captions:

Gary: Gary at the best thermometer in Glaciology. He takes temperature readings with an absolute accuracy of 1 mK, all the way along the deep borehole.

June

Wednesday, 1st June 2011.

A happy day for the drillers.

It was a good day for the drillers as mechanical work over the past few days paid off and the reconstructed winch with a new motor worked well. This and the fact that all groups are successful in their tasks give us all a good feeling. We are slowly making mental preparations for the bad weather that forecasts warn us about will hit us tomorrow night. Tomorrow we will rig the camp for bad weather, and we have arranged with the PARCA team and their pilots that they will depart NEEM tomorrow and seek shelter on the East coast of Greenland.

What we have done today:

1. New motor on winch mounted.
2. Processing NEEM deep core brittle zone, bags 2062-2093 (1133.55m – 1151.15m).
3. CFA measurements. Measured 25.3 m. Depth 2328.15m
4. Performing logging experiments in the deep hole.
5. Sent off the U.S. PARCA team on the Twin Otter for the day and receiving it again in the evening.

Drillers report: Today mounting a new motor on the winch was successful. Using a snowmobile out on the snow as friction anchor, the cable was once again spooled back on the winch. The drill was mounted, and just at the end of the day a trial descent was made with success. Tomorrow we drill again.

Weather: Clear, in the evening broken thin overcast. Temp. - 17 C to - 26 C, 8 - 12 knots from S. Visibility mostly unrestricted, in the evening 5km.
FL, J.P. Steffensen
Picture captions:

Science trench: Activity in the science trench. Here, people are performing electrical measurements on ice cores as well as cutting samples of various sizes. Finally, the remaining core and the samples are packed into crates and shipped to Europe, the U.S. and Asia.

Sepp: Sepp is studying a micro-scan of an ice core sample as it appears on the screen. By studying the physical properties of the interaction of ice crystals with enclosed gases and impurities and with the stress and strain of the ice sheet flow, we gain understanding on how to interpret ice core results and which factors determine how an ice sheet flows.

Thursday, 2nd June 2011.

Processing brittle ice is finished, and drillers had an interesting day with a lot of applied physics.

The drillers were eagerly going to work this morning, hoping that their new winch contraption would live up to expectations, and the rebuilt winch worked really well. Unfortunately, the old motor still sitting inside the winch and acting as drive shaft only, decided to continue to play tricks on them. Although it was broken, it was not so completely, so it began to do what many motors do when they are forced to rotate, to act as a generator. As it was disconnected, because of broken brushes, the electricity generated could not go anywhere, so instead it got really hot. Out of fear for the transmission and the bearings, and because of the green smoke emanating from the winch, they decided to remove the cause. They pulled the 500 m cable out on the snow a third time, opened the winch, took the old motor out and machined the coils off the drive shaft. Then they reassembled the system, wound back the cable on the winch, and are now ready for drilling again tomorrow.

In the science trench there was cause for celebration. At Noon today the last section of brittle ice was processed. NEEM has completed the processing of 2537 m ice core. The CFA people are behind due to a slower system, but they are making really good progress too. Also today, we said good bye to the PARCA team and the pilots as they left camp at Noon and flew towards the East. They got most of their job done, and they wanted to leave camp before the forecasted high winds reach NEEM.

What we have done today:

11. Drilling again. 4 x1.5 m beautiful cores. Depth: 154.5 m.
12. Processing NEEM deep core brittle zone now complete. Bags 2094-2099 (1151.15m – 1154.45m).
13. CFA measurements. Measured 26.4 m. Depth 2354.55m
14. Performing logging experiments in the deep hole.
15. Said good bye to the U.S. PARCA team on the Twin Otter. They left for East Greenland today.

Drillers report: We made 4 beautiful runs today, each 1.5 m. The AC motor that has been mounted on the tower comes with an electronic frequency inverter which allows for full torque independent of RPM and very slow cable feed during drilling. This allowed for easy drilling and very controlled easy core breaks. The cores came up with no damage from the core catchers. We were delayed somewhat, because we had to remove the coils from the old motor drive shaft to avoid losing energy and overheating of the winch. Drilling will continue tomorrow morning.
Drillers rules for the past week:

1. Check stuff
2. Take stuff apart
3. Put stuff together

Weather: Overcast in the morning, later Clear. Temp. - 17 C to - 22 C, 17 knots from SSW. Visibility 1-3 km due to haze.
FL, J.P. Steffensen
Picture captions:

Twin Otter: The Twin Otter with the PARCA team just before they left camp. Good bye and see you again next year.

Friday, 3rd June 2011.

The wind came!

This morning the bad weather began. Wind picked up, and soon the snow began to move. Around mid-afternoon the wind speeds culminated with mean wind of 30 knots and gusting to 40 knots. Towards evening the wind abated slightly to about 22 knots. Snow is blowing through camp, making it difficult to see, and forming snowdrifts. According to our forecast, this weather will continue at least the next three days – tomorrow slightly worse than today. Camp personnel were briefed on safety procedures during blizzards, and radios were issued to the different teams. The snowmobiles have been parked in the garage, since the low visibility and the appearance of new snowdrifts in camp makes driving dangerous.

What we have done today:

1. Drilling. 12 good runs. Excellent cores. Depth: 173 m.
2. Processing NEEM S1 2011 420 m core. Bags 12-53 (6.05m – 29.15m).
3. CFA measurements. Measured 26.4 m. Depth 2380.95m
4. Maintained seismic station in science trench.

Drillers report: We made 12 runs today, each about 1.5 m. The breaks remain easy and controlled, and only a few cores show slight flaking from the core catchers. Drilling was slightly more complicated than normal, as we had to open the garage each time we extracted the core barrel and the air in the garage immediately filled with blowing snow.

Ad.2: The science trench is now set up for processing the 420 m core. It will be measured by DEP and ECM and samples will be cut for physical properties, for U.S. CFA and samples for shipment to France.

Weather: Thin overcast to scattered clouds. Temp. - 15 C to - 20 C, 20 - 30 knots (gusting 40 knots) from SSW and SW. Visibility 200 m, blowing snow .
FL, J.P. Steffensen
Picture captions:

Geticecores: Trevor (on snowmobile), Gregory and Myriam are picking up ice cores in boxes for transport to the science trench in the strong wind.

Person in blizzard: A lonely person finds his way in the blowing snow.

Darcyandandrew: Darcy and Andrew are trying to clean the core barrel in the blowing snow inside the storage garage.

Saturday, 4th June 2011.

The wind gets stronger with clouds and snow on top!

Bad weather continued today, and it got even worse. For more than 24 hours, strong winds have been blowing through camp. The surface snow is now very mobile so the amount of blowing snow has increased. To top it off, clouds with snow have come, the Sun is obscured and surface contrast has disappeared. People are navigating from building to building as only the closest building is visible, and traffic is mostly in groups. Radios are in use as we keep track of each other. However, drilling continued in the shelter of the garage and scientific work in the trenches continued. It is Saturday, and dinner tonight is prepared by Frank and Gary.

What we have done today:

1. Drilling. Excellent cores. Depth: 184.3 m.
2. Processing NEEM S1 2011 420 m core. Bags 54-105 (29.15m – 57.75m).
3. CFA measurements. Measured 24.2 m. Depth 2405.15m
4. Following the development of weather.

Drillers report: We continue to make good runs at about 1.5 m. Drilling has entered a routine mode, so the atmosphere is quite relaxed. Drilling stopped at 16.00, as we could not see anything outside. Drilling continued to have the complications of having to open the garage each time we extracted the core barrel and the air in the garage immediately filled with blowing snow. Access to the storage garage is difficult due to snowdrifts.

Weather: Overcast and snow. Temp. - 19 C to - 22 C, 20 - 32 knots (gusting 42 knots) from WSW. Visibility 50 m, blowing snow .
FL, J.P. Steffensen
Picture captions:

Walking: Like three little geese, the drillers walk back to the main dome through the blowing snow.

Sunday, 5th June 2011 (Danish constitution day).

Weather is improving and can see camp again.

During the night wind speeds slowly went down, so by lunchtime Sunday, we could see camp again. Gone was the nice level surface we had until Thursday evening. Now large snowdrifts were everywhere. The drillers had to use the snow blower to gain access to the garage, and Sverrir spent several hours in the Pistenbully just to remove the worst drifts. Bad weather is always a nuisance, but we were lucky, that it hit us over a weekend and five days before the next planned flight. Now we have good chances for getting everything in order in time for the flight, if weather continues to improve...

What we have done today:

1. Drilling. Depth: 190.0 m.
2. Maintenance of equipment and processing NEEM S1 2011 420 m core. Bags 106-125 (57.75m – 68.75m).
3. Tests and calibration of CFA system.
4. Processing temperature log file from deep hole.
5. Removing several large snowdrifts with Pistenbully.

Drillers report: We continue to make good runs with 1.5 m cores.

Weather: Overcast with few sunny spells. Temp. - 16 C to - 19 C, 30 - 17 knots from WSW. Visibility 0.5-1 km, snow showers and blowing snow .
FL, J.P. Steffensen
Picture captions:

Formerouthouse: A storm casualty. One of our three outhouses didn't make it through the blow. Luckily it wasn't occupied during the collapse although it would have been a comic scene.

Domedrift: The advantage of a spherical building is evident as all snowdrifts stay away from it. The entrance never gets blocked.

GarageandWP: The snowdrifts through camp are extensive. Quite some cleaning up to do.

Monday, 6th June 2011.

It is getting warm.

Today camp has been covered by a thick carpet of clouds, and it has been snowing most of the time. Up here, clouds warm up everything. Snow can melt on dark surfaces and the snow is sticky, particularly the new snow. The Sun is covered by clouds so all shadows disappear and on the snow this means that sky and ground have the same colour. When we look out the window, we see only the same gray. However work continues in a good routine, without any drama today. We are beginning to prepare for the planned flight on Thursday. Some are already packing equipment and we are preparing the skiway which needs some tender care after the gale this weekend.

What we have done today:

1. Drilling. Depth: 219 m.
2. Processing NEEM S1 2011 420 m core. Bags 126-177 (68.75m – 97.35m).
3. Measuring with CFA system. Measured 24.2 m. Depth: 2429.35m
4. Packing down temperature logger system.
5. Cleaning up in camp with Snow blowers and Pistenbully.
6. Groomed skiway in zig-zag and half apron with beam groomer.
7. Erected new outhouse.

Drillers report: We continue to make good runs with 1.5 m cores.

Weather: Thick overcast. Temp. - 9 C to - 16 C, 12 knots from SW to W. Visibility 1 km, light snow.
FL, J.P. Steffensen
Picture captions:

Electricity: A scene from inside one of the two fibreglas huts (tomatoes) in the left picture. Sverrir (right) feels the electric charge as blowing snow passes the hut on Saturday.

Tuesday, 7th June 2011.

It is warm, the Sun is gone and we have Christmas snow.

The poor contrast from yesterday continued today. And it snows. We have got about 10 cm of new fluffy snow, and since the wind this morning still was strong enough to move this snow, all camp people got a new experience. Walking around is a heavy affair, because you sink in and in very loose snowdrifts, you sink in to the knees. Needless to say, that this weather does not make it easier for us to get the skiway ready for Thursday. All the new snow has to be groomed an compressed so the plane does not get stuck here on Thursday. It is quite hot (-7 C) and this makes the snow sticky and lumpy. I guess summer has come to NEEM.

What we have done today:

1. Drilling. Depth: 236.85 m. Bag 430.
2. Processing NEEM S1 2011 420 m core. Bags 178-231 (97.35m – 127.05m).
3. Measuring with CFA system. Measured 25.3 m. Depth: 2454.65m
4. Taking down logger weatherport.
5. Cleaning up in camp with Snow blowers and Pistenbully.
6. Groomed skiway lengthwise and turnarounds with beam groomer.

Drillers report: We continued to make good runs with 1.5 m cores, then we needed to re-terminate the cable and to cut off 1 meter. This caused a 4 hour delay. Later, drilling resumed.

Weather: Thick overcast and snow of and on all day. Temp. - 7 C to - 11 C, 12 knots from W, later 2 kt from SSW. Visibility 3 km, during snowfall 1 km.
FL, J.P. Steffensen

Picture captions: New snow: This picture is taken from the drivers cabin of our tracked vehicle. A freshly groomed track is to the left. This is how the surface looked until the gale and new snow covered everything. The new snow covers everything like a blanket.

Wednesday, 8th June 2011.

Tomorrow we have a flight and we are busy preparing.

Today many in camp worked on preparing for the flight tomorrow. Much work was done on the skiway and the markers were revised. In the science trench they packed ice cores and samples in insulated crates for shipment tomorrow. The ice will stay in the trench, until we are sure the plane has departed Kangerlussuaq. Then the ice will be hoisted up to the surface and placed on a pallet for transport. Drillers and CFA people continue their routine. Now, we keep our fingers crossed for plane, skiway and weather. At dinner we celebrated Sepps birthday. In the evening we saw homemade movies (one by Gregory and Xavier, and one by Martin)and people were well entertained.

What we have done today:

1. Drilling. Depth: 261.45 m.
2. Packing ice and preparing for shipment.
3. Processing NEEM S1 2011 420 m core. Bags 232-253 (127.05 m – 139.15m).
4. Measuring with CFA system. Measured 24.2 m. Depth: 2478.85m
5. Placing temperature logger system on pallets for shipment.
6. Revising skiway markers.
7. Groomed skiway lengthwise and half apron with beam groomer.
8. Celebrated Sepps birthday at dinner time. Sarah made a lemon cake for the celebration.
9. Watched two entertaining movies made by camp staff.

Drillers report: We continue to make good runs with 1.5 m cores.

Ad.4: Gary and Frank will leave the weatherport and some equipment at NEEM for next year. It will overwinter on the cargo line.
Ad.6: Rollers and undulations were removed with dozer blade and Pistenbully.

Weather: Overcast and snow in the morning, later clear. Temp. - 8 C to - 17 C, 8 - 4 knots from SSW to SSE. Visibility 3 km, later unrestricted. FL, J.P. Steffensen

Picture captions: Groomer: The groomer is an essential tool for getting cargo out of camp and for getting home. Behind the vehicle is steel beam for leveling and compressing the snow.

Thursday, 9th June 2011.

A successful flight today!

The day began nice and beautiful so we called in the plane. As the plane flew overhead, fog came rolling in from the South. It landed just 2 minutes before camp was engulfed in fog. We couldn't believe our luck! The plane left as the fog began to lift, and then a thick cloud cover moved over camp. It became very warm: -3.7 C (record this year) and water began to pool in the tents. It didn't cool down in the evening so the drillers halted their drilling to protect the ice cores.
Almost one third of camp population was changed today, and since the planned flight for Monday, where also a third will be changed, has been moved forward to Saturday, there will be a significant change to camp life in just 48 hours.

What we have done today:

1. Drilling. Depth: 278 m.
2. Unpacking arriving cargo and organizing it.
3. Introducing 6 new members to camp.
4. Measuring with CFA system. Measured 13.2 m. Depth: 2492.05 m
5. Removed rollers at South end of skiway with Pistenbully.
6. Setting up Dutch bore hole experiment.
7. Received Skier 41 (91). 6 people arrived and 8 departed. And we shipped 11,000 lbs cargo.

Drillers report: The core quality deteriorated today. A type of cracks began to appear which could be caused either by the high temperatures in the garage or by a mechanical problem. Anyway, the day and evening were so warm that drilling was halted in the evening. Tomorrow, Darcy will analyze the drill head and cutter configuration.

Ad.7: Flight operations went well and the plane left with a full load of science equipment and ice cores and samples. To top off a successful operation, the NEEM skiway was upgraded for higher payload. And the plane was on schedule!

Weather: Clear in the morning, thick overcast and some fog the rest of the day. Temp. – 3.7 C to - 17 C, 10 - 4 knots from S. Visibility unrestricted in the morning, during fog ¼ mile.
FL, J.P. Steffensen

Picture captions: Ping-pong: A picture from when the Sun was still shining. Frank is playing ping-pong on the snow.

Friday, 10th June 2011.

Tomorrow we have a flight again and we are busy preparing.
The mood in camp to day is special. The newcomers are adapting to life in camp, while another group are preparing to leave. Like the evening two days ago, this evening saw people staying awake and chatting and having fun in the main dome into the night. Some went out on the snow in the beautiful weather to enjoy the last evening on the ice sheet and taking in the sights and sounds: The azure sky, the flat white surface and the sound of the wind. At this first major crew exchange of the season we can say that all planned activities are on a good track and running fine. As this Field Leader is leaving tomorrow, I use the opportunity to thank NEEMers for good company and good work, and my best wishes for this to continue for the rest of the season.

What we have done today:

1. Drilling. Worked on the drill head. Drilled one test run. Ice core problem is still not solved.
2. Performed Dutch bore hole testing, and packed down equipment.
3. Processing NEEM S1 2011 420 m core. Bags 254-307 (139.15 m – 168.85m).
4. Measuring with CFA system. Measured 24.2 m. Depth: 2516.25m
5. Packing down the physical properties laboratory.
6. Collecting cargo to send out and building pallets.
7. Groomed skiway with blade and tiller, and tilled a second time.

Drillers report: Drillers continue to work on the problem. Some new adjustments are considered.

Weather: Clear all day. Temp. - 5 C to - 11 C, 10 - 12 knots from SSE. Visibility unrestricted.
FL, J.P. Steffensen

Picture captions: Blowingsnow: Trevor operates the snow blower to keep the snow away from the half buried storage garage.

Saturday, 11th June 2011.

Today's flight mission went smoothly with exchange of personnel and cargo as scheduled. Drilling, ice core processing, and CFA analyses were on hold, but camp has been busy with many other activities: People moved in and out with all their luggage and cargo, new people were introduced to camp life and activities, pallets were build and disassembled, and many took advantage of the splendid weather to work outside. A major concern is to improve the core quality of the 420m shallow core that showed many internal cracks during the last days of drilling. Due to the flight mission, the Saturday Night celebration has been postponed until tomorrow giving everyone a chance of a good nights sleep.

What we have done today:

1. Receiving Skier 62. 11 PAX left and 10 PAX arrived. Camp population is 23.
2. Building pallets for departure and disassembled arriving pallets.
3. A ventilation system was attached to the drilling tent in order to cool the drilling site.
4. CFA team dug a pit with the purpose of updating the chemistry profile with the most recent samples.
5. Mounting and testing the AWI radar system that will be applied in the area the following weeks.

Weather: Sunny day. Temp. - 7 C to - 14 C, 10 - 12 knots from SSE. Visibility unrestricted.

FL, Anders Svensson

Picture caption: An unusual sight: The CFA team has escaped the trench and is sampling the upper snow south of camp.

Sunday, 12th June 2011.

Yesterday night a run was made in the shallow hole to test if temperature is the main cause of the internal cracks in the core. The drill was cooled in the drill liquid before drilling and the core barrel was carried immediately out in cold air for removal of the core. Unfortunately, the core quality was similar to what has been seen in previous runs, which indicates that the high temperature in the drill tent is not the only problem for the drilling at this point. Today the main focus for the drillers has been to mount the logger so that the inclination of the hole can be determined. In the trenches the ice core processing has started up slowly, but the processing line is not is a great hurry as it will not take many days to catch up with the drilling. Therefore, we took advantage of the sunny and pleasant weather to continue the pit studies south of camp.

What we have done today:

1. Performed a test run under cold conditions in the drill tent
2. Working on mounting of the bore hole logger for determination of bore hole inclination
3. CFA analysis: Maintenance plus analysis of discrete surface samples
4. NEEM S1 ice core processing: bag 308 – 329 (168.85 - 180.95 m)
5. Continued sampling of the CFA pit and of an adjacent Swedish pit
6. Continued the assemblage of the Nansen-sledge mounted AWI radar system
7. Mounting GPS antenna at the NEEM main GPS position for the radar study
8. Blowing snow on the drill tent to change albedo
9. Celebrating Saturday Night with delicious curry dishes and dessert directed and organized by Sune, Vasilios, and Andrew.

Weather: Sunny day with some fog banks passing by in the morning. Temp. -5 C to - 13 C, 4 - 12 knots from SSE. Visibility unrestricted, except when foggy.

FL, Anders Svensson

Caption: Passing by the newly extended GPS antenna on the way to the shopping center

Caption: Sune and Sarah have a biological experiment going in the kitchen

Monday, 13th June 2011.

Due to the Saturday Night celebration yesterday night camp was today on a Smunday schedule. In the morning, the ice core processing passed the very significant 1259 AD eruption that was clearly seen both in DEP and ECM. The CFA lab has now finished measuring the discrete pit samples and will start working 24h on the main core. In the drill tent the shallow bore hole was logged and found to be vertical within half a degree. This is ironic as the drillers explicitly for this bore hole have aimed at deviating from the vertical direction. Usually, the situation is the opposite: Drilling is aimed at a vertical hole but usually ends up with some degrees of inclination… Murphy's Law appears to play a significant role here. As the drilling is already close to a depth of 280 m it is uncertain if the hole inclination can become sufficiently high before drilling terminates at 420 m depth. An inclination of the bore hole is necessary for testing diverting drilling later this season. The drillers are now concentrating on improving the core quality by changing the drill configuration (new cutters) for a test run tonight when temperatures have decreased.

What we have done today:

1. Logged perfectly vertical shallow borehole
2. Worked on shallow drill configuration
3. CFA analysis of discrete surface samples
4. NEEM S1 ice core processing: bag 330 – 365 (180.95 - 200.75 m)
5. Continued configuring the AWI radar system
6. Seismic station was re-leveled
7. Changed battery on Davis Weather station

Weather: Warm and sunny day. Temp. -4 C to - 13 C, 4 - 14 knots from S. Visibility unrestricted.

FL, Anders Svensson

Caption: A strange visitor met with Andrew today

Caption: Olivia enjoys the evening sun in the middle of nowhere

Tuesday, 14th June 2011.

Smunday night and Tuesday morning gave us a bit of a hard time in camp. During the drilling attempt last night the core barrel was lost in the bore hole and it decided to stay down there. At the same time, the columns of the FIC in the CFA lab were on strike and analyses were on hold. Fortunately, during the day the situation improved significantly: The FIC was brought back on track and analysis of the deepest ice from the main core could continue. Then, after several attempts the lost core barrel was successfully recovered from the hole. Furthermore, the German radar setup went out of camp on a first successful test run. So, at the end of the day things look bright again. Today was by the way the warmest day of the year so far with temperatures up to -1.6 deg C in the afternoon, and sure enough we had a thick ground fog rolling in after dinner.

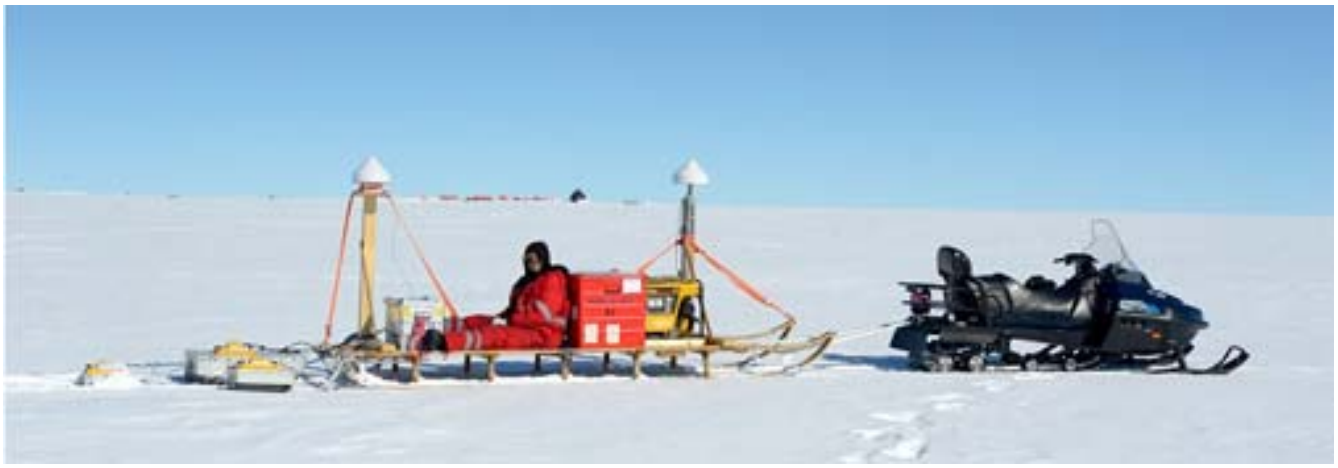
What we have done today:

1. Fishing for lost core barrel in shallow hole S1
2. CFA analysis of deep main core: bag 4576 – 4603 (2516.25 - 2531.65 m)
3. NEEM S1 ice core processing: bag 366 – 419 (200.75 - 230.45 m)
4. First successful open-field test of AWI radar system
5. Preparing flag line for main street
6. Initiating a second trash pallet

Ad. 5. The flag line includes the NEEM funding nations and the nationalities of the 2011 participants. Denmark and Greenland are up front as inviting countries and the other flags follow in alphabetic order of nationality according to British spelling. All flag poles have the same height and flag sizes are of coherent.

Weather: Very warm and sunny day. Ground fog at night. Temp. -1.6 C to - 12 C, wind 4 - 12 knots from S. Visibility unrestricted during daytime but low at night time.

FL, Anders Svensson



Caption: Tanja (on sledge) and Martin (behind camera) went for the first time out of camp testing the AWI radar

Wednesday, 15th June 2011.

Last night the Continuous Flow Analysis (CFA) team and the Gas and Isotope Lab (GIL) completed analysis of the deepest section of NEEM main core. ***CONGRATULATIONS*** to all the hard working NEEM participants that have spent days and weeks and months in 12h shifts in the CFA and GIL labs melting close to 2 km of ice sticks at a melt rate of 3 cm per minute. In other words, there has been ice on the melt head for more than 1000 hours. This is a great achievement and it is going to be a great dataset! Now, only the Holocene brittle ice needs to be analyzed as well…

The shallow core drilling had a difficult start this morning as the cutters would not engage, but at lunch time the first core came up and production has been good since then. The cores do have a relatively high number of breaks and internal cracks, but the drillers are changing the drill configuration step-by-step trying to improve core quality. In the morning it was almost melting in the drill tent so conditions were not optimal for handling cores, but fortunately temperatures have dropped during the day as the ground fog disappeared and the wind picked up.

What we have done today:

1. NEEM S1 drilling depth 285.45 m
2. CFA of deep main core: bag 4604 – 4607 (2531.65 - 2533.85) The End!
3. CFA of brittle zone main core: bag 2100 – 2109 & 2126 – 2205 (1154.45 - 1212.75 m). 15 m analyzed.
4. NEEM S1 ice core processing: bag 420 - 467 (230.45 - 256.85 m)
5. Setting up flag line on Main Street
6. Maintenance of Pistenbully crane

Ad. 3. The CFA processing of the NEEM main core brittle zone started last night at a depth of 1154.45 m (bag 2100), which is just below the zone of the most brittle ice. The ice was badly broken and generally only unbroken pieces of at least 10 cm length were selected and put together in a composite sample of about 1 m length. At this depth about 30% of the ice could be analysed, whereas the remaining pieces were repacked in the original 110 cm plastic bags. The many breaks require hard work and ample patience for sample preparation and for system maintenance, but it is good to see that CFA analysis of brittle zone ice actually is possible and the core quality is steadily improving with depth. The Picarro continuous water isotope measurements are still online, but the continuous gas analyses were not connected as the many breaks of the composite ice spoil the analyses.

Weather: Ground fog during night and morning. In the afternoon we had clouds and sunny spells. During the evening snow showers and white out. Temp. -3 C to -9 C, wind 6 - 15 knots from S in the morning to W in the evening.

FL, Anders Svensson

Caption: Setting up NEEM flag line

Thursday, 16th June 2011.

Core breaks and sushi assembly line

Today drillers have been struggling to improve the core quality by changing cutters and working on other drill improvements. The result is that drilling itself performs very well, the cores are long (1.50+ m for last two runs), chips are well recovered, but, unfortunately, the cores still have many internal cracks/breaks. This night the bore hole liquid level was increased to about 50m above bottom in order to test if this will have any positive influence on core quality. Otherwise it has been a good day in camp with the first AWI radar grid line measured, a good production in CFA lab and science trench, and a busy sushi assembly line in the kitchen.

What we have done today:

1. NEEM S1 drilling depth 291.66 m
2. CFA of brittle zone main core: bag 2206 – 2273 (1212.75 - 1250.15 m). 22 m analyzed. 59%
3. NEEM S1 ice core processing: bag 468 – 519 (256.85 - 285.45 m)
4. First AWI radar grid line successfully measured
5. Pistenbully crane maintenance
6. Enjoying great Sushi meal prepared by Sarah and Yoshinori

Ad. 2. Brittle core quality is improving. Today 59% of the sample could be analyzed (as compared to yesterdays 30%). Both isotope and gas analyzers are now attached.

Weather: A mixture of overcast, blue sky, and snow showers. Temp. -8 C to -15 C, wind 4 - 15 knots from W -> S -> E -> N -> E.

FL, Anders Svensson

Caption: Gunnar doing maintenance of the Pistenbully crane control

Caption: Two sushi experts presenting an impressive and tasty meal
Friday, 17th June 2011.

High quality cores, 300m depth reached, and very shallow drilling

Good news from the drilling tent today: After the liquid level of the bore hole had been raised by some 30 meters yesterday night the cores that were drilled this morning were without breaks and cracks. This means that a relatively high liquid level is necessary in order to keep a high core quality in the present type of ice. The bad news is that we do not have enough drill liquid in camp to keep the liquid level high all the way to 420m depth. Also, the hole is meant to be free of drill liquid for another experiment later this season.
The science trench had run out of work in the trenches and went 2 km W of camp get some fresh air and to drill a 12 m long 3-inch core with the hand auger. The weather was perfect for surface drilling: Cold, but not too cold, not too windy, and not too sunny. The core quality is as good as it gets for this type of core and it is likely to cover the last 25 years or so.

What we have done today:

1. NEEM S1 drilling depth 300.88 m
2. CFA of deep brittle zone: bag 2274 – 2330 (1250.15 - 1281.5 m) 22 m analyzed. 71%
3. Drilling 12 m 3-inch 2011 S1A core 2 km W of camp (77°26’657’’N; 51°05’010’’E)
4. Continued AWI radar grid measurements
5. Removing snow around dome
6. Celebrated Martins birthday and Iceland’s national day with cake and singing

Ad. 2: Today analysis of the deepest CFA brittle zone section was terminated and analysis of the shallowest section will

be initiated tonight.

Weather: Overcast in the morning and blue sky afternoon and evening. Temp. -8 C to -16 C, wind 4 - 10 knots from E and later S.

FL, Anders Svensson

Today the science trench team Olivia, Catherine, Yoshinori, Bo, and Antje went 2 km west of town to drill a 12 m core with the hand auger

Work is done and ice is packed in boxes: Coffee time!

Saturday, 18th June 2011.

Hard core breaks and science trench dream team dinner

With the higher liquid level in the bore hole the core quality is now consistently good. Today, however, several runs had a hard core break and both the 'hammer' and the maximum allowed pull in the cable were needed to free the core in the hole. Therefore, it was decided to go back to the core barrel with the 'super banger' that is safer to use in this situation. It appears that every day gives new challenges for this drilling.

What we have done today:

1. NEEM S1 drilling depth 305.53 m
2. CFA of top brittle zone: bag 1095 – 1136 (601.70 - 624.80 m) 20 m analyzed. 86 %
3. Continued AWI radar grid measurements
4. Put up sign post in front of main dome

5. Put up heated bird house for lost sparrow
6. Enjoyed Saturday night with Science trench dream team composite menu

Weather: Blue sky and occasional ground fog. Temp. -8 C to -17 C, wind 4 - 12 knots from SE.

FL, Anders Svensson

Red light drilling in sauna tent. The drill is up and the drill tower is tilted (top left), the core barrel is made free (top right) and taken out (lower left), the core goes into the core trough (lower centre) where after it undergoes careful inspection (lower right). Steff, Darcy, Andrew, Li, Christopher, and Sune are fighting the various challenges for the recovery of the 420 m S1 core.

Outdoor Saturday midnight table tennis behind signpost at a mild and calm – 16 deg C sunshine.

Sunday, 19th June 2011.

Drilling at two sites and maintenance

After a slow Sunday morning camp came up to speed after lunch. Drilling goes well and drillers will work in 2 shifts from now on if it continues like that. The science trench people went out 1 km west of camp to drill a second 14 m shallow ice core with the hand auger. In the CFA lab Sunday is a day of maintenance for equipment and personnel, but tonight measurements of ice from the upper part of the brittle zone will continue. In the evening everyone looked a bit tired but fortunately there was a 9 pm show at the 2nd floor movie theatre: 'Encounters at the End of the world'.

What we have done today:

1. NEEM S1 drilling depth 317.41 m
2. CFA maintenance. No measurements
3. Drilling 14 m 3-inch 2011 S1B core 1 km W of camp (77°26'645''N; 51°06'784''E)
4. Continued AWI radar grid measurements. 10 out of 22 grid lines measured by now

Weather: mostly thin overcast, some sun, some haze, and some snow fall. Temp. -5 C to -18 C, wind 0 - 4 knots from S.

FL, Anders Svensson

Despite the never-ending analysis of the tedious brittle zone ice the CFA hut is full of smiling faces day & night: Hubertus, Gideon, Olivia, Vasileios, Ailsa, Kerstin and Erik.

Monday, 20th June 2011.

A productive day

The drilling of the S1 core is now in a stable mode running 16h a day. This has produced enough core for the science trench to be open today to catch up with the drilling. Last Saturday the CFA lab started out measuring the top part of the brittle-zone ice at around 600 m dept. As this ice is of quite good quality (few breaks) most of the sample can be measured, meaning that the daily progress is rather 'slow' depth-wise. As ice quality will decrease with depth more sample needs to be skipped and the production will be 'higher'. It is of course great that we will end up with almost continuous CFA records of this approximately 3300 years old ice. In the beautiful evening a nearby point of interest - the couch at the end of the skiway – was well visited.

What we have done today:

1. NEEM S1 drilling depth 332.71 m
2. CFA of top brittle zone: bag 1137 – 1186 (624.80 - 652.30 m) 24 m analyzed. 87 %
3. NEEM S1 ice core processing: bag 520 - 569 (285.45 - 312.95 m)
4. Continued AWI radar grid measurements. 14 out of 22 grid lines done
5. Placing Sysco and Kanger food orders for next flight period
6. Repairing drill tent centrifuge
7. Green tent special task operation

Weather: A beautiful blue-sky day. Temp. -8 C to -15 C, wind 2 - 11 knots from SSE.

FL, Anders Svensson

The camp sparrow is staying alive but it refuses to enter its specially constructed bird house

Science trench members happily presenting their freshly filled sample beakers

Sune's midnight catering service for the CFA

Tuesday, 21st June 2011.

A day of many different tasks

Drilling goes well with some 17 meters of good quality core recovered today. Science trench people did not process ice core but helped out with drilling, inventory of cooks freezer and fresh food storage, and radar measurements. In the CFA the core quality is decreasing, the continuous Picarro gas and isotope analyses have been disrupted, and packing of the GIL instrumentation has started. The weather is perfect for surface work and flight missions. We can only hope that is also the case in a week's time when we have a number of flights scheduled for NEEM.

What we have done today:

1. NEEM S1 drilling depth 349.69 m
2. CFA of brittle zone: bag 1187 – 1248 (652.30 - 686.40 m) 22.5 m analyzed. 66 %
3. Inventory of cooks freezer and fresh food storage
4. Continued AWI radar grid measurements. 15 out of 22 grid lines done
5. Started packing down GIL
6. Worked on new AWI drill
7. Oil change on main generator
8. Secured walking path to main dome (anti-skating)
9. Repaired science trench Swiss saw

Ad. 1. Last drill liquid in camp was added to the hole in the evening: 1 drum estisol and 2 drums coasol

Weather: Another beautiful day with blue sky. Temp. -7 C to -17 C, wind 4 - 10 knots from SSE.

FL, Anders Svensson

After some 25 years of service the motor of the science trench Swiss saw finally had to throw in the towel. United forces of experience got it back on track.

Oil change on main generator: an important and silent moment of maintenance

Wednesday, 22nd June 2011

Full speed ahead

Early next week we'll have a major crew exchange in camp and new people with new projects will show up. Drilling of the S1 bore hole and all ice core processing (except CFA) will have to terminate as most drillers and all science trench people will leave camp on the next flight. Therefore, we're trying to finish up as much as possible before then: drilling at full speed, processing the core, and also measuring the last grid lines of the AWI radar campaign. At the same time we've started packing down the Gas and Isotope Lab (GIL) that is no longer in use and can be shipped out next week.

What we have done today:

1. NEEM S1 drilling depth 370.00 m
2. CFA of brittle zone: bag 1249 – 1308 (686.40 - 719.40 m) 17.5 m analyzed. 53 %
3. NEEM S1 ice core processing: bag 570 – 623 (312.95 - 342.65 m)
4. Continued AWI radar grid measurements. 18 out of 22 grid lines done
5. Continued packing down GIL
6. Worked on new AWI drill

Weather: Another beautiful day with blue sky dotted with a few thin high clouds. Temp. -7 C to -15 C, wind 8 - 13 knots from S.

FL, Anders Svensson

Trying to reach for the Sun. How did that vehicle squeeze into the picture?

Yesterday we forgot to mention the Greenland National Day. We apologize for this and compensate here by posting

the NEEM Greenland flag on today's beautiful blue sky.

Thursday, 23rd June 2011

Work around the clock - no midsummer's eve at NEEM this year

Today is midsummer, 'Sankt Hans' in Danish, and normally we should have a small bonfire this evening, sing a few songs, and say cheers to one another. This year, however, there are a couple of reasons why we have to skip that tradition at NEEM. First of all, we have no waste wood in camp – no fire. Secondly, the wind is 17 knots and it is snowing. Finally, there is so much activity in camp during the evening that it would be a shame to interrupt (mostly a field leader viewpoint). In particular, the drillers are really pushing their working hours these days in order finalize the S1 hole on time. On Saturday, however, we will take revenge and make sure everybody gets a chance to celebrate and relax.

What we have done today:

1. NEEM S1 drilling depth 390.95 m
2. CFA of brittle zone: bag 1309 – 1380 (719.40 - 759.00) 18.8 m analyzed. 47%
3. Continued AWI radar grid measurements. All 22 grid lines done
4. Taking down GIL Viessmann cabin and palletizing
5. Worked on connecting new AWI drill to DK 1000m winch
6. Fighting misbehaving sulfate line in CFA lab
7. Labeling bags for NEEM 2011 S2 4-inch core
8. Labeling of new DK ice core boxes # 5800-5815. Next box should be 5816

Weather: As predicted by Marc De Keyser, who kindly sends us daily weather forecasts, the good times are over for a while. At lunch time the blue sky disappeared and we now have overcast and snowfall. Temp. -6 C to -15 C, wind 8 - 18 knots from S and SSW.

FL, Anders Svensson

Disassembling and palletizing the GIL Viessmann cabin: Before, during and after

The connection lines between the CFA and GIL labs appear to have been sufficiently heated

Friday, 24th June 2011

Termination of the NEEM 2011 Shallow Core 1 (S1) drilling

Due to logistical constraints the drilling of the S1 borehole in the sauna tent terminated this night at 11 pm at a depth of 411.83 m which corresponds to an age slightly older than 79 AD. THANKS AND CONGRATULATIONS to all drillers who participated in this effort that turned out somewhat more challenging than anticipated: At quite shallow depth core breaks became unpleasantly hard. At some point the winch motor burned and the full cable had to be unrolled in the snow for mounting of a spare motor. This exercise was repeated when also the spare motor burned and some innovation was required to mount a different type of motor that was kindly provided by our AWI colleagues. Then at around 275 m depth the core quality suddenly decreased significantly with an almost regular pattern of internal cracks and breaks appearing in the core. After quite some trial and error, it was somewhat surprisingly realized that the main cause of the core breaks was the low liquid stand in the bore hole. As more liquid was added to the hole at a drilling depth of 292 m the core quality instantly improved and it has generally been good since then. Then drill tent temperatures close to the melting point disallowed drilling for a short period. Just to top off the list of complications the core barrel was lost in borehole a couple of times. One case was non-trivial and the core barrel stayed at the bottom of the hole for a scaring 12 hours until it could be recovered. Thanks to their hard work and high morality the drillers got it all sorted out. The drill is safe back on surface, and the deepest part of the core is now being split and packed in the science trench for shipment to DRI (Joe McConnell) for continuous aerosol and multi-tracer measurements and to LGGE (Jérôme Chappellaz) for detailed CO analysis.

What we have done today:

1. NEEM S1 final drilling depth 411.83 m
2. CFA of brittle zone: bag 1381 – 1546 (759.00 - 850.30) 15.4 m analyzed. 17%
3. NEEM S1 ice core processing: bag 624 – 691 (342.65 - 380.05 m)
4. Continued AWI radar grid measurements. Re-measuring sections of data loss
5. Worked on connecting new AWI drill to DK 1000m winch
6. Checked skiway. It is currently in good conditions for next weeks flights

Ad. 2: The core quality is getting increasingly poor and from time to time entire sections of 1.10 m sample have to be skipped as they contain no unbroken segments. Today the CFA temperature stabilization system caused some disturbance for the dayshift.

Ad. 3: The core processing had a record day of 37.4 m processed today!

Weather: Mostly overcast, some snow showers, and a little snow drift. Temp. -7 C to -12 C, wind 8 - 16 knots from S.

FL, Anders Svensson

Celebration of 400 m depth for the S1 core in front of the sauna tent

The entire drill team waiting for the 400m core to come up: Christopher, Darcy, Andrew, Sune, Steff, Bo, and Li

Bo, Yoshi, Antje, and Catherine are marking plastic bags for packing of the S2 ice core. But why the funnel, Yoshi?

On the CFA nightshift melting their way through the rapidly diminishing fraction of unbroken sample in the main core brittle-zone

Saturday, 25th June 2011

Initiation of the NEEM 2011 Shallow Core 2 (S2) drilling and Saturday night

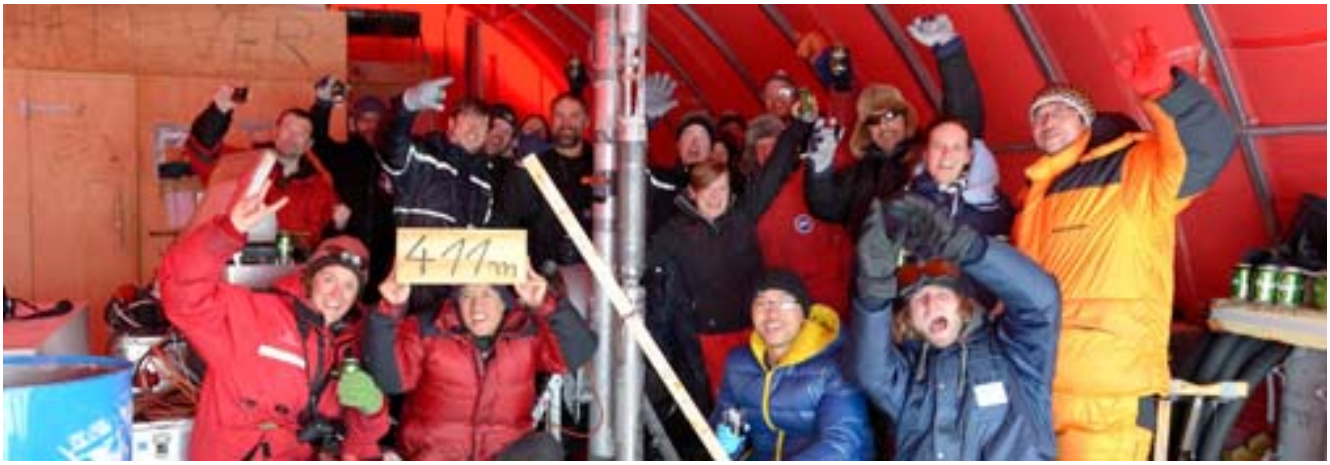
Yesterday night the drilling of the S1 ice core was terminated and this morning drilling of the S2 core was initiated. This core is also recovered in the sauna tent using the same pit and drill tower setup, but it is drilled at an initial inclination of 4 deg so that the bore hole will not be vertical. The main purpose of this drilling is to perform a replicate drilling, that is to drill into the wall of the borehole (Vostok style), and for this the inclination is needed. This test will be performed below the firn at 120-150 m depth. The obtained ice core is logged and packed as a full core without further processing.
The CFA lab is now processing ice from the central part of the main core brittle-zone. The sample quality is now so terrible that most of the sample cannot be analyzed. Over the last 24h only 6.7 m out of 200 m sample could be put on the melthead. We can expect some improvement of sample quality with depth, but in any case the CFA main core analyses will soon be terminated.

What we have done today:

1. NEEM S2 drilling depth 32.5 m. Initial borehole inclination: 4 deg.
2. CFA of brittle zone: bag 1547 – 1914 (850.30 - 1052.70) 6.7 m analyzed. 3%
3. NEEM S1 ice core processing: bag 692 – 717 (380.05 - 394.35 m)
4. Finished AWI radar grid measurements. Re-measuring sections of data loss
5. Moving 120 kg heavy bailer box from drill trench to drill tent
6. Labeling of new DK ice core boxes # 5816-5819. Next box should be 5820
7. Celebrating Saturday Night with delicious German/Swiss CFA cooking

Weather: Mostly overcast, but blue sky in the afternoon. Temp. -7 C to -10 C, wind 6 - 12 knots from S.

FL, Anders Svensson



Friday night celebration of the termination of the S1 bore hole at 411.83 m depth


Saturday night glühwein in front of Main Dome before Culinary Food Adventure (CFA) dinner

Sunday, 26th June 2011

Final processing of NEEM 2011 Shallow Core 1 (S1)

This afternoon the deepest part of the S1 shallow core was processed in the science trench and the 79 AD Vesuvius eruption was clearly identified. The total length of ice cores that has been processed in the NEEM science trench is thus close to 3 km. THANK YOU all ice core processors for doing a great job! The CFA lab went out to the previously sampled pit to drill a 12m core that will bring the CFA dataset up to present day. On the skiway, Gunnar was preparing for the approaching flight missions. Fortunately, the skiway is already in quite good conditions, so not too much work is required.

What we have done today:

5. NEEM S2 drilling depth 63.34 m.
6. NEEM S1 ice core processing: bag 718 - 747 (394.35 - 410.85 m) The End!
7. Preparing apron and skiway with Pistenbully tiller
8. Drilling 12 m 3-inch shallow core at 'CFA' pit site for CFA analysis
9. Chinese pit sampling for chemistry study

Weather: Clear blue sky all day long. Temp. -7 C to -13 C, wind 4 - 12 knots from S.

FL, Anders Svensson

Celebration of the day: The deepest part of the S1 shallow core went through the Science trench

The Vesuvius 79 AD eruption was clearly identified in the deepest section of the S1 ice core

Gunnar prepares the skiway for next week's flight missions

Monday, 27th June 2011

CFA analysis of NEEM main core terminated and packing

Last night the last samples of the NEEM main core brittle zone ice were measured in the CFA lab. The sample quality of the central part of the brittle zone has only allowed for a few percent of the core to be analyzed and therefore the last hundred meters of sample have been processed in just a few days. We were all taken a bit by surprise that it went so fast at the end. Nevertheless, the termination of the CFA processing actually marks the end of our main activity up here: namely drilling, processing and analysis of the main NEEM ice core. So we needed a small celebration event in the evening. Otherwise, camp has been busy today packing ice core boxes and other items that will be shipped out on this week's flight missions.

What we have done today:

1. NEEM S2 drilling depth 94.02 m
2. Logging of NEEM S2 borehole to determine a constant inclination of 4 deg.
3. CFA of brittle zone: bag 1915 – 2099 (1052.70 - 1154.45 m) 6 m analyzed. 6% The End!
4. Packing, strapping, and weighing all S1 and discrete samples ice core boxes for shipment
5. Packing AWI radar equipment on one sledge in Carpenters garage
6. Emptying and taking down 2/3 of main ice core buffer
7. Labeling of new DK ice core boxes # 5820-5827. Next box should be 5828
8. Celebrating termination of CFA main core analyses

Weather: Blue sky in the morning, overcast in the afternoon and evening. Temp. -5 C to -15 C, wind 2 - 10 knots from S.

FL, Anders Svensson

The last celebration for the end of the CFA processing of main core

The 24th camp member finally made it into the bird house

Tuesday, 28th June 2011

A day of exchange of personal in the NEEM camp. The science processing of ice cores from the 411m deep shallow ice core and the cfa processing of the deep ice cores are finalized. 17 will leave camp, 6 will remain and 8 new will arrive. This is really a big change in camp. The morning was used packing 2 pallets with ice cores and the afternoon was used settling in for the newcomers and unpacking food and other goods from Kangerlussuaq.

What we have done today:

1. NEEM S2 drilling depth 103.33 m
2. Receiving Skier 91
3. Packing ice pallets
4. Receiving and unpacking cargo
5. Receiving Air National Guards DV's
6. Hello to 8 new NEEM members and goodbye to 17 departing NEEM members
7. Setting up vapor site
8. Finding shallow hole 2009 S1 for temperature logging
9. Grooming skiway
10. Drilling 12m firn cores for cfa

Weather: Blue sky, Temp. -5 C to -10 C, wind 7-13 knots from SE.

FL, Dorthe Dahl-Jensen

Building the tower for the water vapour program and finding all the tubes to attach to the tower. Hans Christian (on picture) and Fredrik have Scott (on picture) as helper until the basal ice drilling program starts in few days.

Shallow drilling in the 4 deg inclined hole continues and 100m is passed. Steff and Christopher enjoys that Jay Johnsen has arrived to join them

Wednesday, 29th June 2011

The work in camp continues - but in a new way. The big working groups like the science trench and the big cfa teams are no more in strong routine. Most activities have 1-4 personal involved and they have the own schedule. At 10am the Twin Otter Norland 4 arrived with NSF DV's. We are very honoured by the visit of the director of NSF Dr Suresh and additional 5 guests and used the morning showing them the camp activities. At 11am Skier 90 arrived with cargo and received cargo. At 12:10 the Skier departed with our guests and shortly after the Twin Otter departed too. Peace and routine can now fall in the NEEM camp with a population of 16.

What we have done today:

1. NEEM S2 drilling depth 124.27 m
2. Receiving Norland 4 and Skier 90
3. Packing pallets
4. Receiving and unpacking cargo
5. Receiving NSF's DV's
6. Preparing camera for deep bore hole
7. Setting up vapor site
8. Setting up for temperature logging at the 2009 S1 shallow borehole
9. Processing 2 12m firn cores for cfa

Weather: Blue sky, Temp. -5 C to -14 C, wind 9-13 knots from SE to S.

FL, Dorthe Dahl-Jensen

NEEM airport is busy with both a Twin Otter and a C130 on deck

NSF visiting group in front of the NEEM Dome

Anais setting up the temperature logging equipment in a yellow dome tent 2 km from the NEEM camp

Thursday June 30th

A very productive day at NEEM. Again we have had a day with perfect weather: very light wind and blue sky. It is nearly possible to be outside in a tshirt. All outdoor programs made good progress with their programs measuring temperatures, building towers, hand drilling cores and maintaining vehicles. Our cook Cyril prepared paella for dinner to top up a good day.

What we have done today:

1. NEEM 2011 S2 drilling to the final depth of 131.51m
2. Camera for deep hole mounted in pressure tube
3. Replicate drill head prepared
4. Cfa team has drilled core 3 and 4 of the 12m deep hand drilled firn cores
5. Temperature measured in 2009 S1 borehole
6. Foundation for the water vapor monitoring tower prepared
7. Worn flags replaced on the flag line
8. Maintanaince on the Pisten Bully
9. Attempt to repair one of the skidoo's

Ad 1. The 2011 S2 has been logged and packed in 55cm bags. The core will be available for the NEEM programs who have asked for shallow ice cores. The core will be shipped to Copenhagen for intermediate storage.

Ad 9. One skidoo is broken and the motor has been taken apart. It is unclear if we can repair it in camp or we need to send it to Kangerlussuaq for repair.

Weather: Blue sky, Temp. -5 C to -15 C, wind 5-12 knots from SW to SE.

FL, Dorthe Dahl-Jensen

CFA team drilling firn cores a few km from the NEEM camp


The happy new Swiss flag in the NEEM flag line

July

Friday July 1st

An amazing day with great successes. Finally the 2011 S2 hole was completed with an angle of 3-4 degrees to allow us to test replicate drilling. And finally the deep borehole camera was ready to be lowered into the deep borehole. The idea of replicate drilling is to be able to drill a second ice core at a pre-set depth. The drill must 'bit' into the wall and gradually grove a new ice core. We started in the morning and before dinner the we had succeeded in sideward's drilling. After dinner we mounted the deep borehole camera on the pressure tube of the deep drill and lowered the camera to the bottom of the 2537m deep liquid filled borehole. There turned up to be no ice cuttings close to the bottom and we achieved a very clear picture of the bottom of the borehole.

What we have done today:

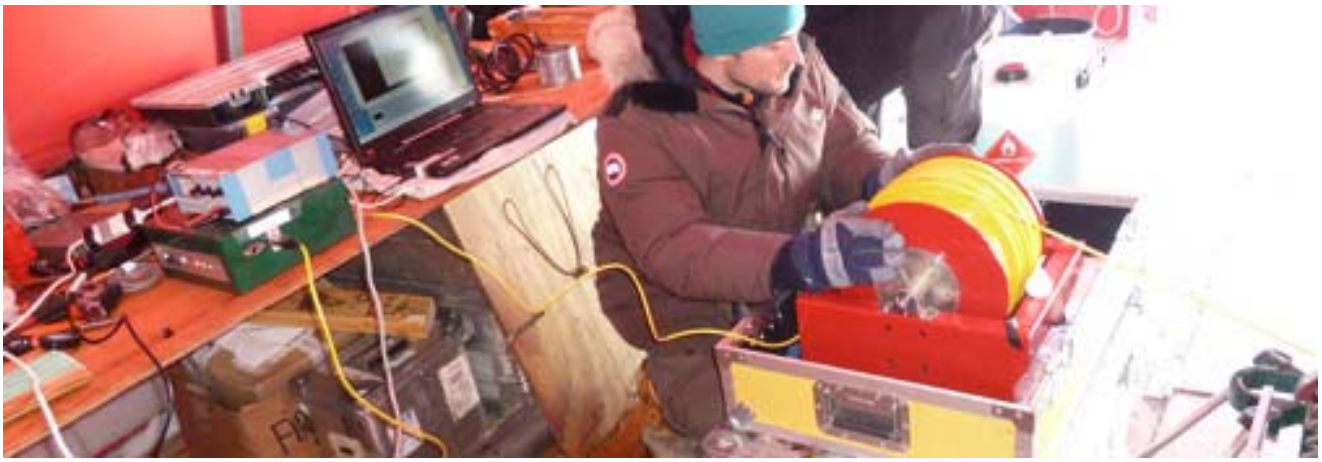
1. Replicate drilling in the 2011 S2 borehole
2. Camera observations of the replicate drilling
3. Temperature measurements in the 2009 S1 borehole
4. Cfa team has drilled core 5 of the 12m deep hand drilled firn cores
5. Cfa team has measured core 3 of the 12 m firn cores
6. Tower of vapor station has been erected (see picture tomorrow)
7. Skiway has been zig zag groomed with beamer and apron groomed with thiller.
8. Deep borehole has been monitored with a new deep camera system
9. 3 skidoos have been taken out of use because the engines are damaged and need repair or replacement

Ad.1 The planned replicate drilling test was successfully conducted using standard O 126mm cutters which had been made aggressive on the outer edge. We deployed the drill in the 2011 S1 hole and started the deviation in a depth of 110m. The 3 - 4 degrees inclination of the hole provided a side force on the drill head of a little more than 20N. This proved sufficient to make the drill cut into the downwards side of the hole, in a way that just 8 runs was needed to create a new independent hole. The complete deviation occurred over a distance of 10m.
Drillers, Steffen Bo Hansen

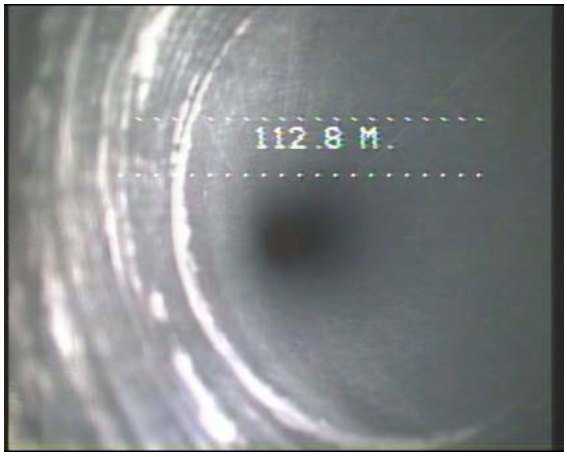
Ad 8. A 20 second low resolution video of the camera descending to the bottom of the deep borehole has been released from camp. Find it on the NEEM homepage.

Weather: Blue sky, Temp. -5 C to -15 C, wind 5-10 knots from S to SE.

FL, Dorthe Dahl-Jensen



Christopher lowering the camera to view the replicate drilling progress



Picture from the depth of 112.8 m in the 2011 S2 borehole. A shelf is clearly seen and this tells us that the drill is starting to deviate from the main hole.

The first replicate core. The core gradually gains area as the drill pushes further and further out in the side wall of the original borehole.

Picture of the bottom of the 2537m deep NEEM borehole.

Saturday July 2nd

A really nice and suuny day. The wind is down and the sky blue with light clouds from time to time. And Saturday evening too! Scott, Frederic, Anais and xxx prepared a delicious dinner for us. It was outstanding - Thanks.
What we have done today:

1. Replicate drilling in the 2011 S2 borehole
2. Camera observations of the replicate drilling
3. Temperature measurements in the 2009 S1 borehole
4. Cfa team has measured core 4 of the 12 m firn cores
5. Small video clips of the deep borehole has been prepared for presentation on the homepage
6. PICARRO installed at the water vapor station
7. Apron has been groomed.
8. Short maintenance on main generator
9. We have decided to order spareparts for the 3 skidoos and attempt to repair them in camp

Weather: Blue sky, Temp. -4 C to -14 C, wind 3-10 knots from S to SW.

FL, Dorthe Dahl-Jensen

Vapour tower was erected July 1st and the PICARRO is now installed in the tent.

Cyril is preparing a delicious salad with salmon for us for lunch

In preparation for Saturday night and the coming royal visit the much worn table clothes where changed.

Sunday July 3nd

A perfect Sunday. After waking up to a calm and sunny day many went for a morning walk on the skiway. Cyril prepared a wonderful brunch and afterward work started in camp. A good productive day with only good surprises.

What we have done today:

1. Preparations to bail the 100m of liquid column out of the 2011 S1 borehole
2. Preparations in the drill trench to mount the rock drill on the drill tower
3. Installation of the surface electronics for the deep drill
4. Cfa team has measured core 5 of the 12 m firn cores and has thus finalized the cfa program for the NEEM

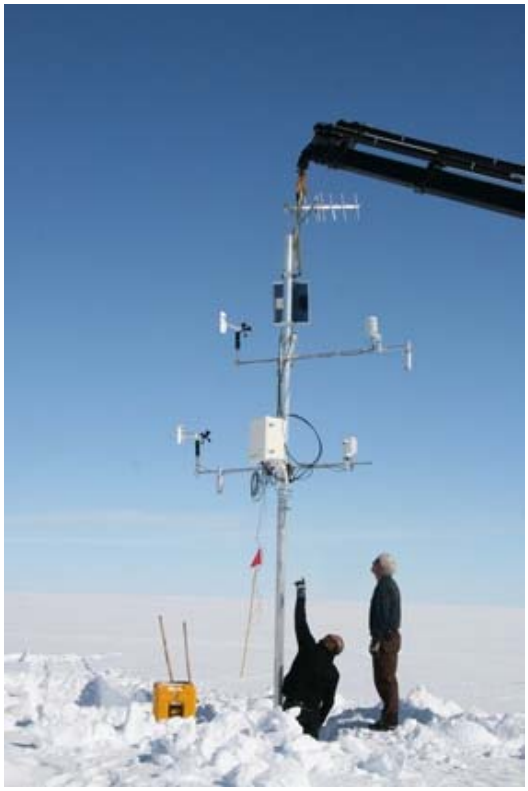
program.

5. PICARRO calibration at the water vapor station
6. Temperature measurements at the 2009 S1 shallow borehole site.
7. Lifting the PARCA weather station up so the lower arm is 2.9m above surface. Orientation of the weather station is unchanged. Cables between battery and station extended. Position: 77 deg 26.468 min N and 51 04.872 min W. The station is 563 m SW of the NEEM main dome.
8. Removing the pilot experiment of measuring temperatures though the top 10m placed beside the PARCA weather station.

Weather: Blue sky, Temp. -4 C to -12 C, wind 2-3 knots from S to SW.

FL, Dorthe Dahl-Jensen

The PARCA weather station was dug out.



The Pisten Bully crane was used to elevate the weather station so the lower arm is 2.9 m above the present snow surface.

Monday July 4th

Drilling in the deep hole. Today was the first day where we drilled in the 2537 m deep borehole. The old rock drill used at the GISP2 site was mounted below our motor and gear section and lowered to the bottom of the borehole. We managed to drill some material up. It consists of ice bits that looked as if they are squeezed/melted together. We are not quite sure what we are seeing and will try to drill a core more tomorrow. So we ended the day with a wonderful barbeque in front of the Dome to celebrate the 4th of July.

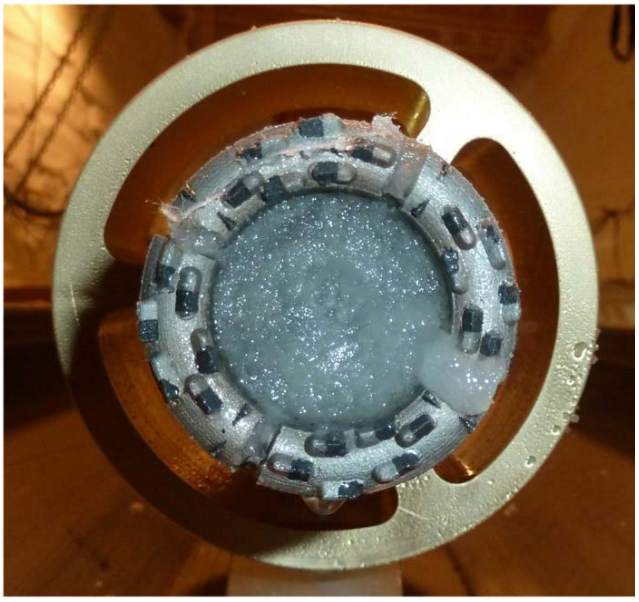
What we have done today:

1. Bailing of drill liquid out of the 2011 S1 borehole
2. Drilling in the NEEM deep borehole with a 1 inch rock drill
3. Cfa team calibrating and packing
4. PICARRO meauring at the water vapor station
5. Temperature measurements at the 2009 S1 shallow borehole site.
6. Grooming skiway
7. Removing snow around the sauna garage

Weather: Blue sky, Temp. -4 C to -12 C, wind 5-12 knots from S to SW.

FL, Dorthe Dahl-Jensen

First core drilled with the 1 inch rock drill



Pictures of the rock drill

Celebrating 4. July with a barbeque on the ice

Tuesday July 5th

Mystic ice from the rock drill. There is great excitement around the drilling at the base of the deep NEEM borehole. The 1 inch rock drill brought up a second core. Most of the material was ice grains that where 'frozen' together when they where retrieved on the surface. Most of the impurities in between the ice grain seems to be our droppings. The last 4-5 cm drilled was a real piece of ice with a very high content of impurities. Is this the plug that we could not penetrate last year?

What we have done today:

1. Bailing of drill liquid out of the 2011 S1 borehole
2. Drilling in the NEEM deep borehole with a 1 inch rock drill
3. Cfa team packing
4. PICARRO measuring at the water vapor station
5. Temperature measurements at the 2009 S1 shallow borehole site completed.
6. Grooming skiway
7. Removing snow around the sauna garage and equipment from the garage tent
8. Ordering food for 14 July mission

Weather: Blue sky, Temp. -4 C to -15 C, wind 0-10 knots from S.

FL, Dorthe Dahl-Jensen

Drillers in action

Second core drilled with the rock drill

Thursday July 7th

A basal ice core with stones. Today the HT drill was used with the new and innovative carbide step cutter with and they drilled through ice, sediments and rocks! Great success! We observed that the liquid near the base is conductive and the drill frequently shorts near the bottom. Scott detects high concentration of iron in the basal sediments. Do these impurities make the basal liquid conductive? The 'rotten' ice found above the regular ice drilled now could also indicated seeping water. Do the impurities change the freezing/melting point of the basal water? The drill liquid near the base is being tested and Steff has improved the insulation of the electrical gliders on the skate section of the HT drill.

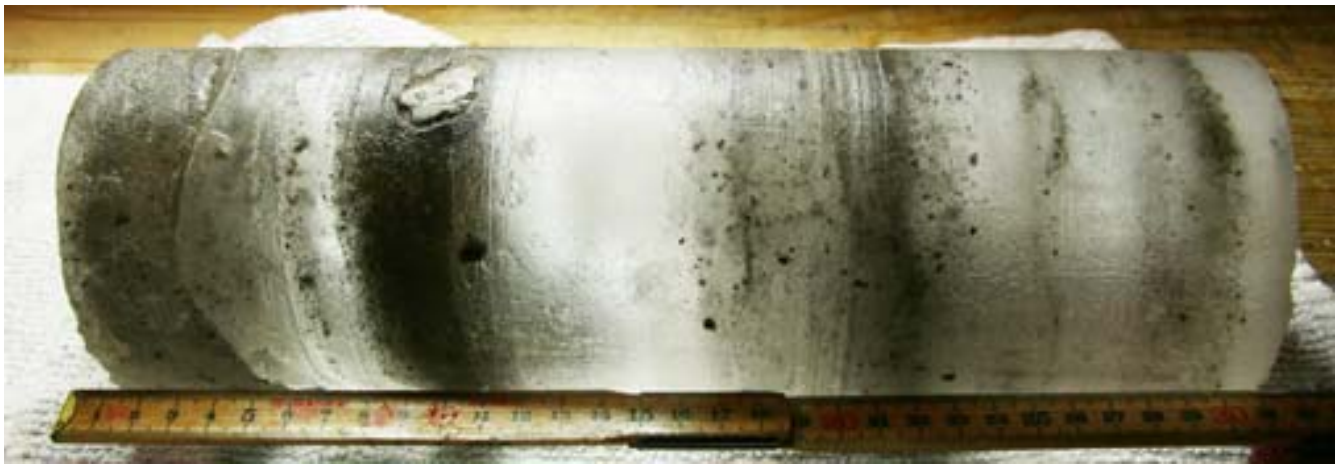
What we have done today:

1. Bailing of drill liquid out of the 2011 S1 borehole
2. Drilling in the NEEM deep borehole with a 1 inch rock drill
3. Cfa team packing
4. PICARRO measuring at the water vapor station
5. Temperature measurements at the 2009 S1 shallow borehole site completed.
6. Grooming skiway

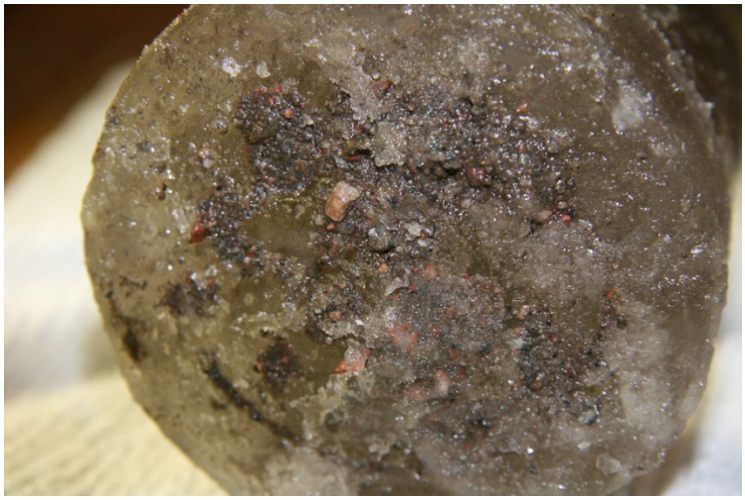
7. Removing snow around the sauna garage and equipment from the garage tent
8. Ordering food for 14 July mission

Ad 2: The ICDS rock drill was tested twice in combination with the Bern pump and the CPH. super banger. It brought up two "cores" consisting of unusual ice pieces. The ice pieces appears more like "rotten ice" or refrozen water drops, than chips or broken off pieces from our drilling activity. We cannot at this time account for these "chips"
The new carbide step cutters has now been installed onto our standard drill head on the HT drill, and they proved very efficient in penetrating through silty ice containing small stones. We drilled smoothly into the bottom ice and retrieved 31 cm of core with several bands of silt and 20 cm of the unusual ice pieces on the top. The current was low and the pitch was constant even when cutting through the small stones.
The reason for the short core was not due to penetrating problems or high current, but due to the fact that the lower 5 -10m of our drill liquid has become conductive , causing shorts in the anti torque section. We have improved the insulation around the slide contact this afternoon and will continue the drilling tomorrow morning.
Drillers: Jacob, Jay and Steff
Weather: Blue sky, Temp. -16 C to -6 C, wind 4-16 knots from SE.

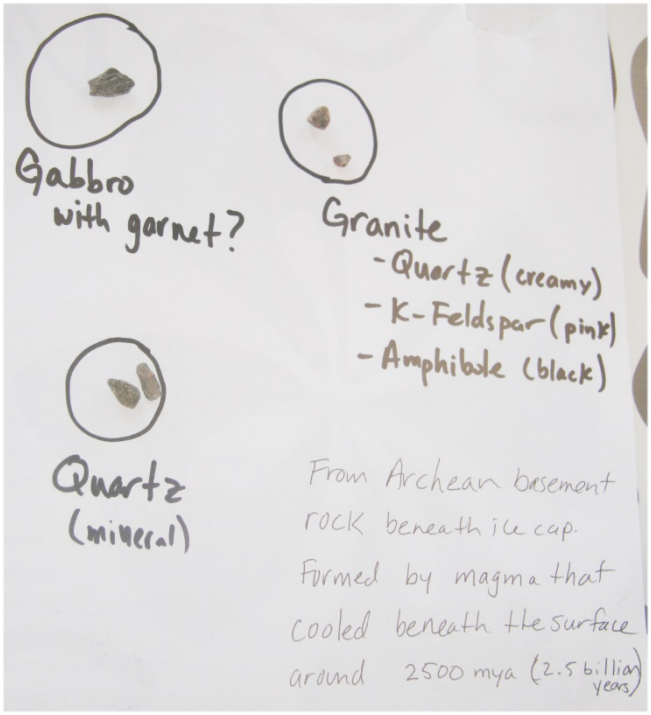
FL, Dorthe Dahl-Jensen



4 inch 37 cm basal ice core



Top end of the basal ice core. The sediment layer that stopped us last year?



Scott's geology lesson on the rocks found among the ice cuttings

Thursday July 7th

A day with big events. The morning started with preparations for the airdrop that happened at 1100 local. The Danish Air Force Challenger came to NEEM and delivered two airdrops with the two 60 kg dead weights to be used with the rock drill. All 16 in camp observed the event and both airdrops hit spot on the designated area on the skiway where the south end of the taxiway meets the skiway. The Challenger came in in beautiful weather and when very low over the skiway for the air drop. A GREAT THANKS to the Danish Air Force from all at NEEM! After lunch the bailing of liquid up from the NM2011 S1 411m deep bore hole was finished and a casing tube was placed in the hole to extend it up through the drill trench to the present surface. All equipment was removed from the sauna tent and the tent moved to the side. The area around the casing of the borehole was filled in with snow to above the present surface and left to harden over night. Just before dinner a beautiful 37 cm ice core with a very high concentration of basal material was drilled. The base of the core was very flat and there is a hope that we really are at the bedrock now. The basal material is very banded and we are looking forward to hear from experts what we are seeing! The NEEM team is considering a new bedrock party!

What we have done today:

1. Bailing of drill liquid out of the 2011 S1 borehole finalized
2. Drilling in the NEEM deep borehole (run 948; 37 cm; loggers depth: 2538.10 cm)
3. Cfa team packing
4. PICARRO measuring at the water vapor station
5. Emptying the Sauna garage
6. Moving the Sauna garage to the present surface
7. Receiving two airdrops from the Danish Air Force
8. Preparing for Royal visit and flight period next week

Weather: Blue sky changing to overcast, Temp. -12 C to -6 C, wind 4-10 knots from S to SE.

FL, Dorthe Dahl-Jensen

Danish Air Force airdrop at NEEM

Moving the Sauna garage to the surface

The second ice core with high content of basal material

Detail of the bottom part of the ice core.

Friday July 8th

Refrozen basal water under the drill! After the ice core from yesterday with a very high content of basal material we decided that there was a high chance that we were at the bedrock. When we lowered the rock drill to the base to drill we nearly immediately had too much friction to drill. At the surface we saw that the drill was full of refrozen basal water with refrozen 'flower' of basal water hanging under the rock drill. During the evening we followed the liquid level and we believe we have of the order of 60 cm of basal water at the base of the borehole.

What we have done today:

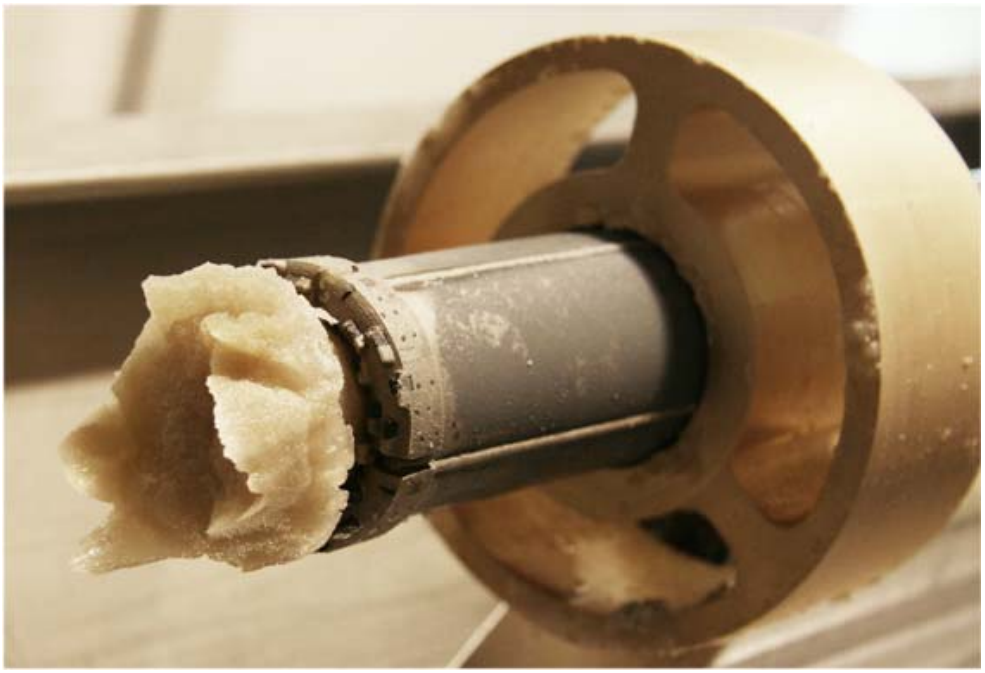
1. Retrieving frozen basal water under the drill
2. Cfa team packing
3. PICARRO measuring at the water vapor station
4. Moving the Sauna garage into place on a new surface hill
5. Grooming camp area

6. Preparing for the Royal visit
7. Repairing shallow drill and preparing for shallow drilling

Weather: Blue sky changing to overcast, Temp. -12 C to -6 C, wind 4-10 knots from S to SE.

FL, Dorthe Dahl-Jensen

Drillers admiring the refrozen water.



Refrozen basal water hanging under the 1 inch rock drill. “The mini-thing”

NEEM camp members admiring the refrozen basal water

Saturday July 9th

Royal visit at NEEM. A very special day at NEEM. Most of the morning was used by all to prepare the Royal visit of Her Majesty and His Royal Highness from Denmark, Kuupik Kleist from Greenland and Rigsombudsmand Mikaela Engell. The visitors where meant to stay over night so the weatherports where prepared , the Dome was cleaned and improved, food was prepared and trenches where prepared. During the morning the weather turned with low clouds and snowfall and the Royal plans where alternated so the visit would only last 2 hours. The visit went very well and especially the attention the guests gave our young scientists is appreciated. We are so honoured by the visit and would like to thank our Royal Guests for the visit. The Norland Twin Otter left with the visitors at 18:00 and the camp celebrated Saturday Night, the Royal Visit and Bedrock. The food prepared by Cyril was outstanding and the dinner lasted to midnight. What a day!

What we have done today:

1. Lowering the deep borehole camera in the borehole for observation of the bed.
2. Preparing for the Royal visit
3. Setup and start of the drilling of a 30m 3 inch ice core for BAS
4. Receiving the Danish Queen, the Princegemal, Chair of Naalakkersuisut Kuupik Kleist and 'Rigsombudsmand' Mikaela Engell
5. Celebrating Saturday Night and a new Bedrock Party

Ad 1. The drill liquid has become all murky as the hoisting up an down of the drills in the borehole has mixed the ice chips into the liquid. The camera movie was thus more or less eventless and grey. Only the last 10 seconds as the drill approaches bedrock indicates that we have a water column of basal water in the borehole. Monitoring of the drill liquid level indicates a basal water column of the order 60 cm.

Weather: Blue sky changing to low clouds and snow fall, Temp. -8 C to -4 C, wind 8-12 knots. Turning from E in the

morning to W at noon and settling on SW during the afternoon.

FL, Dorthe Dahl-Jensen

Royal visit at NEEM

Sunday July 10th

Work goes on at NEEM. After a slow start we had brunch with omelettes and fresh garden salad. The salad was really special because it was a gift from the His Royal Highness Prince Henrik yesterday freshly picked in his garden. It was so delicious. Yesterday we also received spareparts for repair of the skidoos coming with the Royal visitors. The most broken skidoo was attempted repaired with the new spareparts. Sverrir and Gunnar had a new apprentice today, Gideon, who enjoyed the manly work of skidoo repair.

What we have done today:

1. Deployed rock drill to bedrock
2. Pumped 150l drill liquid in the borehole
3. Packed cfa equipment
4. Repair of skidoos
5. Packing and weighing ice core boxes
6. Monitoring of water vapor

Ad 1. The rock drill with the dead weight was lowered to a few meters over bedrock and left an hour to warm to the temperature of the ice near bedrock. It was then lowered very slowly to the bed while rotating and collecting ice

chips. We managed to get the rock drill to operate in the water but the current max'ed out before we managed to drill into the bed. The drillers plan to continue the experiments tomorrow.

Ad 6: Finally snow! A 'zeppeliner' was released at 06am

Weather: Low clouds and snow fall, Temp. -6 C to -3 C, wind 8-16 knots from SW to SSW.
FL, Dorthe Dahl-Jensen

Enjoying the gift of fresh vegetables and herbs from His Royal Highness's garden

Monday July 11th

The last run? The drilling is followed with great attention by all in camp. Will this be the final run? The column of 60 cm basal water at the base complicates matters a lot and a great concern is not the get our tools stuck by circulating water onto colder drill parts. The drillers made 2 runs and each time the drill was left a few meters above the bottom of the borehole to adjust to the warm basal temperatures before drilling. In both runs the drillers managed to rotate the drill and penetrate some cm's and we believe we have rock cuttings in the retrieved material. But no rock core yet! After dinner the conclusion was that the final run would be on Tuesday.

What we have done today:

1. Deployed rock drill to bedrock two times with dead weights
2. Packed cfa equipment
3. Repair of skidoos
4. Monitoring of water vapor
5. Attempt to drill the BAS 30m shallow ice core but warm temperatures stopped the drilling for today
6. Planning of the missions this week
7. Packing temperaure measuring equipment and taking down tent at shallow borehole site

Weather: Varying cloud cover during the day, Temp. -10 C to -4C, wind 6-20 knots from changing from SW to SE.

FL, Dorthe Dahl-Jensen

Sauna garage on new hill

Tuesday July 12th

Packing the science trench. Time has come.. The processing of the deep ice core is finalized and it is time to pack much down and return it to Europe. The cfa team gained muscles taking down the Viessmann cabin and getting the melter table free of the snow floor. Gideon has enjoyed the last days as apprentice to Gunnar and during the evening science talks he received a diploma for Skidoo repair, Flexmobil driving, fuel pumping and Viessmann disassembling. Drilling? We are still enjoying "Last Runs" and get more and more material of refrozen water, sediment and ice layers material up.

What we have done today:

1. Deployed rock drill to bedrock two times with dead weights
2. Took down cfa Viessmann and packed it on a pallet on the surface
3. Cleaned science trench and removed excess wood and paper
4. Repair of skidoos
5. Monitoring of water vapor
6. Attempt to drill the BAS 30m shallow ice core but warm temperatures stopped the drilling for today
7. Weighing and strapping ice core boxes
8. Science talks in the evening

Weather: Overcast, Temp. -10 C to -4C, wind 6-20 knots from changing from SW to SE.

FL, Dorthe Dahl-Jensen

Science Talks in the Main Dome

Gunnar congratulates Gideon on his diploma on Skidoo repair, Flexmobil driving, fuel pumping and Viessmann disassembling.

Ailsa, Olivia and Daiana in triumph after having digged the melter table up.

Wednesday July 13th

Preparations for crew and activity exchange. The DV visit and the exchange of crew will be tomorrow. Everyone is busy with last things to do. Gunnar prepared a trapdoor on the heated bird cage and if we manage to trap the quite tame bird we will bring it out to Kangerlussuaq. The bird is a Lapland Langspur (Lapvaerling) who spends the summers on the west coaust of Greenland eating mosquitoes, spiders and other insects. During winter the Lapland Langspur migrates to the great lake area of the US and feeds on seeds. Steff has warned us that Birdie will be back with hundreds of friends because of the excellent conditions at NEEM. We will risk this and hope Birdie will met up with friends and follow them to the US this autumn. Drilling last runs continue and the runs today where very success full bringing up 50 cm of core consisting of layered sediments and ice. The drilling runs take long time drilling 8 mm pr 2-3 minute.

What we have done today:

1. Deployed rock drill to bedrock two times with dead weights
2. Packed cfa pallet and Veissmann pallet
3. Monitoring of water vapor
4. Attempt to drill the BAS 30m shallow ice core but warm temperatures stopped the drilling for today
5. Preparing program for DV visit
6. Made birdie trap

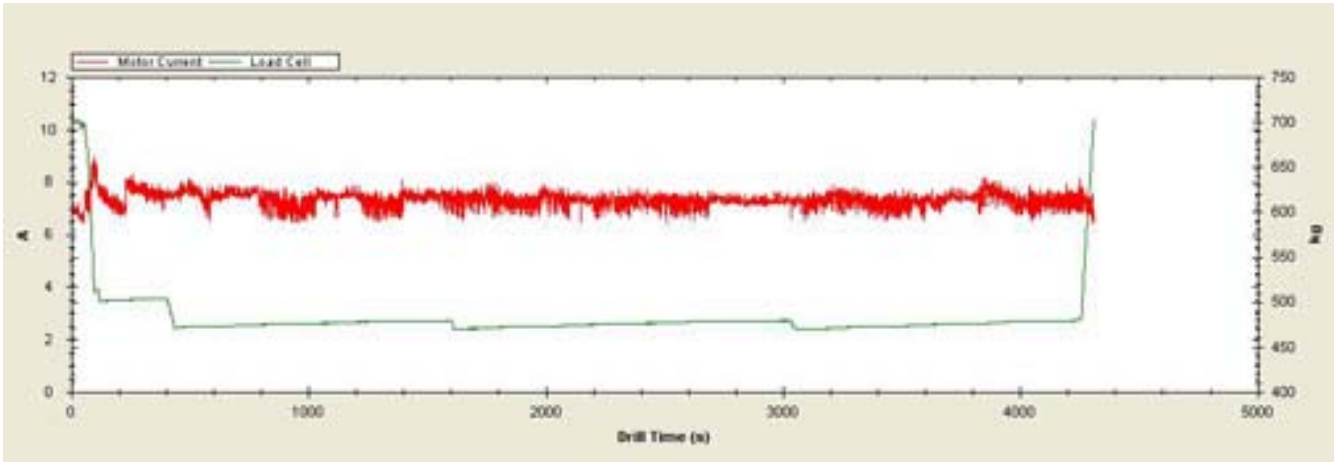
Ad 1: we are using all three dead eights we have now – thanks again to the Danish Air Force for the air drop.

Weather: Overcast, Temp. -5 C to -2C, wind 10-20 knots from SW.

FL, Dorthe Dahl-Jensen

Birdie trap prepared

NEEM team July 13th



Screen picture of a good run with the rock drill.

Thursday July 14th

Very warm weather at NEEM delays the DV visit. The weather at NNEM at 4 am was foggy with temperatures no

colder than 5 deg C. The DV mission to NEEM was cancelled and the camp hurried to finish project – taking advantage of the extra day. Two extra 'final runs' where made with the rock drill and during the runs the current suddenly jumped to a higher and more stable mode. We are pretty sure we are drilling into rock during these two last runs. The drillers estimate we penetrated 10 cm into the rock but we did not succeed in breaking and pulling up the core. The basal water is rising slowly in the hole and the drillers needed to mount an extra long skate section to get the electronic connections above water.

What we have done today:

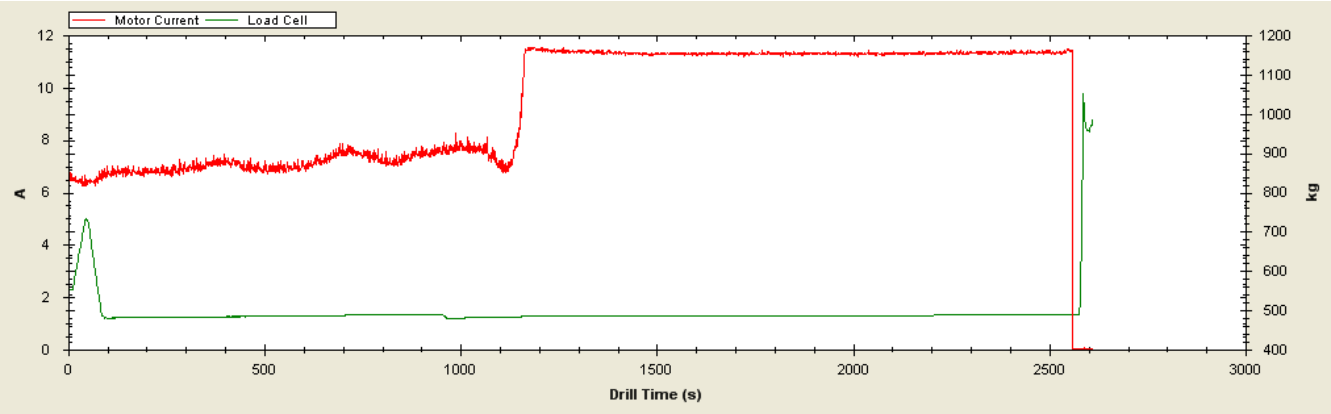
1. Preparing for DV visit
2. Cancelling DV visit due to very warm temperatures at NEEM
3. Monitoring of water vapor
4. Added 200l of drill liquid to keep the basal water level down
5. Drilled 2 more 'last runs'
6. Documenting the basal ice cores drilled 2011
7. Grooming skiway

Ad 5:
NEEM Deep drilling 2011
The 2010 season ended with a series of drilling runs without penetration and badly damaged cutters. The 2011 season was started with the ICDS rock drill in combination with the Bern pump and the CPH super banger, the standard motor and gear section with 75 rpm, and the 70-kg deadweight from LGGE. This provides a maximum load on the cutter head of approximately 120 kg in the drilling fluid. A test drilling at the surface into granite showed the drill was able to penetrate at a rate of approximately 1 cm in 2 minutes. We first drilled through approximately 80 cm of coarse grained ice of unknown origin. The following runs were then made with the new carbide step cutters mounted on the standard drillhead and the HT drill. During the first run a short circuit in the anti-torque section (AT) pointed to the presence of conductive material in the drill hole. After improving the insulation in the AT section, 74 cm of heavily silt loaded ice cores have then been retrieved in three runs. A broken carbide insert and ground adapters for the inserts were a sign that we had encountered of a larger rock piece. We switched back to the rock drill. After a few runs, two additional 70-kg dead weights were added on top of the motor section, resulting in a maximum load on the cutter head of 240 kg. The fluid flow direction had been chosen to suck the drilling fluid into the core barrels with the intention to collect the rock cuttings and bring them to the surface. However it turned out that the clearances in the rock drill, especially the annulus between outer and inner barrel were too small for this flow direction (reverse flow in rock drilling) leading to rapid clogging with ice chips and silt. Refrozen water at the drill head was then a clear sign of liquid water in the hole, explaining the short circuit in the AT. We lowered the video camera into the hole and found a layer of almost one meter of basal water at the bottom of the hole. We changed the fluid flow direction to forward flow mode leading to stable and low drilling current. In the following two runs we drilled with low penetration 0.5 m of sediment rich ice. The runs lasted usually just over one hour and were finally stopped when the motor temperature exceeded 60 °C. The core diameter varied between 2 and 3 cm (3.3 cm nominal) pointing to a wobbling head and possibly drilling by partial melting of the ice. Another run with carbide cutters on the HT drill finished again with broken inserts and damaged insert adapters. Therefore we continued with the rock drill. We have retrieved a total of 63 cm silty ice. During run nr. 10 with the rock drill we observed a sudden rise in drilling current from 6 to 11 A. The run continued in a very stable mode at approximately 40 rpm, a penetration about 3 more centimetres, but without bringing a core up. The screen mounted around the pump was clogged with a thick layer of very fine silt, a clear sign that we were cutting rock. The next run started at low current, but soon reached the stable high current rock-cutting mode again, but this time at full rpm. We drilled an estimated 7 cm deeper. Unfortunately three attempts to catch the "core" failed. The length of the rock drill barrel and the flight schedule determined the end of the 2011 deep drilling.

Drillers, Steff, Jay, Jakob

Weather: Blue sky, overcast, ground fog, Temp. -10 C to -3C, wind 8 to 14 knots from S turning to SE.

FL, Dorthe Dahl-Jensen



The final run – drilling into the rocks?

Steffen Bo Hansen declaring the NEEM deep drilling for terminated

Waiting for the Distinguished Guests

Friday July 15th

Showing our camp to our Distinguished Visitors. Finally the great day came where our DV's managed to get to camp for a three hour visit. The camp was ready and we had carefully planned a program that would present the ongoing science at NEEM. We went by skidoo 3 km from camp and the cfa group offered the visitors the opportunity to drill an ice core. Steff, Christopher and Anais was drilling the 30 m ice core from BAS and the operation of the 3 inch shallow drill was presented. In the science trench the deep drilling was presented and the basal ice cores where put on display. The Danish ministers Charlotte Sahl-Madsen and Lykke Friis and the Greenlandic minister Palle Christensen where very active and we would like to thank them for showing such interest for our research. The Skier did not manage to take off in the warm weather and we ended being 45 for dinner and overnight. Cyril used magic to produce outstanding food for all.

What we have done today:

1. Received Skier 51 with our Distinguished Visitors and new NEEM personal
2. Showed our visitors the activities at NEEM camp
3. Monitoring of water vapor
4. Drilled ice cores for the BAS 30 m ice core
5. Hosting the visitors and the Skier 51 overnight
6. Grooming skiway
7. Put Birdie in a cardboard box to bring her out to Kangerlussuaq

Weather: Broken overcast, Temp. -9 C to -4C, wind 8 to 15 knots from SE turning to SW.

FL, Dorthe Dahl-Jensen

Driving DV's to shallow drill sites

Maryanne Gundestrup and Peter Olsen proudly presenting the firn core they drilled

Three ministers visiting NEEM

Goodbye to Birdie

Saturday July 16th

Warm weather no go. Our Distinguished Visitors experienced a night at NEEM sleeping in the weatherports at NEEM. After breakfast the first attempt for take off was made with no luck. The temperatures reached a new heat record at NEEM, -0.9 deg C and the warm snow is soft and it is not possible for the Skier to reach sufficient speed on our skiway for take off. It was decided to postpone the departure to after midnight when temperatures are coldest and ground fog has not yet appeared. To plan is to gamble! The day was used with dialog between visitors and scientists and outdoor activities in the nice warm weather. Our visitors produced the most fantastic ice bar beside the main dome. The crew of Skier 51 where between our esteemed visitors and we enjoyed their company and good spirit. Thanks to all from Skier 51 for managing the very difficult situation at NEEM in such a competent way. And a big thanks to Cyril for continuing to produce meals for 45 pax!

What we have done today:

1. Hosted Skier 51 and our Distinguished Visitors
2. Groomed skiway
3. Monitoring of water vapor
4. Opened inclined entrance to drill trench
5. Installed GPS unit of GLISN system
6. Discussed possible options for take off

Weather: Broken overcast, Temp. -7 C to -1 C, wind 0 to 6 knots from SW to W

FL, Dorthe Dahl-Jensen

Waiting in the sun

Load master Glenn Preece in front of Skier 51: Warm weather – no go

Sunday July 17th

ATO take off at 0100 am towards Thule Airbase. During the evening of Saturday the temperatures barely dropped to -3 deg C. It was decided to stick to the decision of a 0100 am departure but to attempt as light a skier as possible. All

pallets with retro equipment where off loaded and fuel was returned to the NEEM camp. The plan was to fly via Thule because the distance is shorter and thus less fuel would lighten the Skier. Four rockets (ATO's) where mounted on each side of the Skier. The Skier reached the needed speed to fire the ATOs using half the skiway and the skier was just air born when the ATO's burned out. The cheers in camp and in the skier were loud! THANKS to Caption Wynn for a very outstanding take off.

What we have done today:

1. Departure of Skier 51 at 0100
2. Cancelling planed Skier mission to NEEM with ETA 0930
3. Grooming skiway
4. Monitoring of water vapor
5. Opening inclined entrance to drill trench
6. Pulling long drill boxes up from drill trench
7. Digging and sampling Japanese pit
8. Oil shift on generator
9. Pouring sand in the 411 deep 2011 S1 borehole
10. Mounting solar panels on D-frames for the GLISN project
11. Celebrating 'Saturday night'

Weather: Broken overcast, Temp. -7 C to -3 C, wind 0 to 5 knots from SW turning to NW at midnight

FL, Dorthe Dahl-Jensen

Skier 51 ATO take off

Monday July 18th

A day of digging. Again a very warm day with no hope for efficient Skier missions. After weather reports from 4 am to 6 am local we decided to cancel the mission for the next 24 hours. Work peace settled and the departing 2 PAX Christopher and Gideon was enrolled in the GLISN work force digging holes for the solar panel D-frame legs. Today was also the big day where we started the project of mounting a huge sledge under the main Dome. As always the first to do is to remove snow around the Dome. It seems glaciologists always end with a shovel!

What we have done today:

1. Cancelling planed Skier mission to NEEM with ETA 0930

2. Monitoring of water vapor
3. Digging Japanese pit to 5.5 m
4. Mounting and placing solar panels on D-frames for the GLISN project
5. Setting up GPS station with satellite link
6. Removing ice and snow around the Dome

Weather: Broken overcast, Temp. -15 C to -8 C, wind 6 to 13 knots from SE

FL, Dorthe Dahl-Jensen

GLISN solarpanel D-frames under construction

Frogs in the holes … Drilling the holes for the legs of the solar panels D-frames

Tuesday July 19th

Good flight weather and digging again. Finally we have cold night temperatures and the Skier mission to NEEM could be done. The skier arrived at NEEM at 10:00 local and replacement ATO's, cargo and the little remote control CReSIS aircraft was off loaded. The Skier took of using half the skiway and no ATO's. It was a relief to see operations back to 'normal'. After departure the camp immediately continued the snow removing projects around the Dome. Shovels, chain saws, ice axes, sledge hammers, snow blowers and the Pisten Bully were used by a big work force and just before dinner the mould was complete around the castle of Dome NEEM and the bridge was lowered for entrance for dinner.

What we have done today:

1. Receiving Skier 21
2. Monitoring of water vapor
3. Mounting Japanese aerosol station
4. Sampling Japanese pit to 5.5 m
5. Working on the GLISN project
6. Arranging CReSIS UAV and equipment in the carpenters garage
7. Removing ice and snow around the Dome
8. Built and installed an entrance bridge on the main Dome
9. Taking down HF antenna after Skier mission
10. Maintaining winch motor system on 3 inch shallow drill

Weather: Broken overcast, Temp. -15 C to -8 C, wind 6 to 13 knots from SE

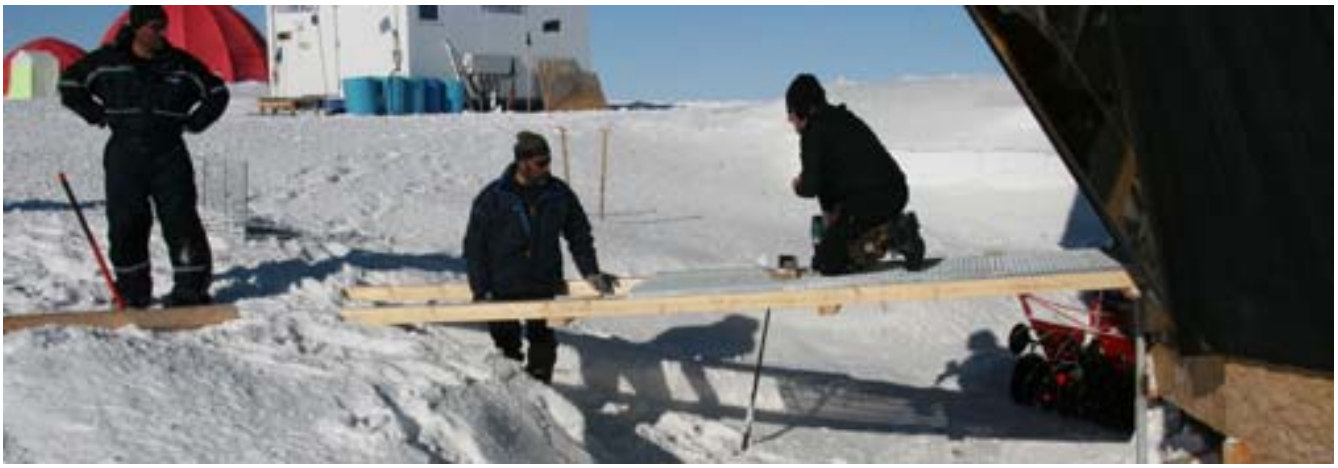
FL, Dorthe Dahl-Jensen

Little brother (CReSIS UAV) departing from big brother (Skier 21)

Moving CReSIS UAV to hangar (carpenter garage)

Chopping ice around the main Dome in order to free the 15 legs

Using snow blowers to remove snow around the Dome



The castle of Dome NEEM – bridge to the entrance of the Dome.

Wednesday July 20th

D-Day for the Dome Sledge Project. The day has come where Alli, Villi, Sepp, Gunnar and Sverrir mounts the first panels of the ring of fifteen panel that form a ring around the Dome legs. The panels each weigh over 200 kg and we have a box with 800 bolts for the project. Really a 'big toy' project. The project is eagerly followed by all in camp and in the dome the removed snow and plywood panels allow the dome to sway slightly.

What we have done today:

1. Monitoring of water vapor
2. Mounting Japanese aerosol station
3. Sampling Japanese pit to 5.5 m
4. Working on the GLISN project
5. Arranging CReSIS UAV and equipment in the carpenters garage
6. Mounting the first of the 15 panels in the ring around the Dome
7. Logging deep borehole
8. Repairing winch motor system on 3 inch shallow drill
9. Arranging fresh food in the food tent

Weather: Clearing to blue sky, Temp. -17 C to -5 C, wind 8 to 16 knots from S changing to WSW

FL, Dorthe Dahl-Jensen

Planning and counting for Dome Sledge

Placing the first of the 15 panels forming the Dome ring

Thursday July 21th

What we have done today:

1. Received Skier 41
2. One hour visit of the high school students under the Science and Education Program
3. Monitoring of water vapor
4. Mounting Japanese aerosol station
5. Sampling Japanese pit to 5.5 m and packing
6. Working on the GLISN project
7. CReSIS first flight of the small UAV
8. Mounting panels in the ring around the Dome
9. Logging deep borehole
10. Repairing winch motor system on 3 inch shallow drill

Ad 1: the Skier mission was very successful, off load, on load and fuelling went fast and smooth. Take off without ATO using half the skiway. Thanks to the crew of Skier 41.

Ad 2: A 2 day stay for the students was planned but due to weather delays the visit was shortened to 1 hour. We were impressed by the knowledge and the good questions from the students. Wish they could have stayed longer.

Ad 6: The seismic instrument was lowered into the borehole. Depth of the instrument 320 m.

Weather: Early morning overcast but clearing, Temp. -7 C to -3 C, wind 4 to 16 knots from SW changing to S

FL, Dorthe Dahl-Jensen

High School students from Greenland, Denmark and the US visiting NEEM

GLISN solar panels and wind turbine installed

Kumiko finished with the pit now packing all equipment

Friday July 22th

Last day in camp for many. Now all setups have to work before the science groups leave camp. The GLISN team with many helpers are desperately finishing the installation of the borehole seismometer and just before dinner Dean is able to monitor the data on his labtop. The Japanese aerosol monitoring system is ready, the vapour monitoring is being prepared by HC to be given over to Renato… A busy, busy day. Alos a remarkable day because the blue ring is mounted around the Dome. The Dome is quite sensitive to wind and a leval has been placed in the office to monitor changes!

What we have done today:

1. Monitoring of water vapor
2. Japanese aerosol station monitoring
3. Packing
4. First results from GLISN
5. CReSIS repair of radar
6. Mounting panels in the ring around the Dome
7. Preparing cargo for Skier

Weather: Early morning overcast but clearing, Temp. -5 C to -3 C, wind 4 to 20 knots from SW

FL, Dorthe Dahl-Jensen

Friends – Goodbye – see you later.

Dean with the first GLISN data

The ring is around the Dome

Keeping the Dome in level

Friday July 22th

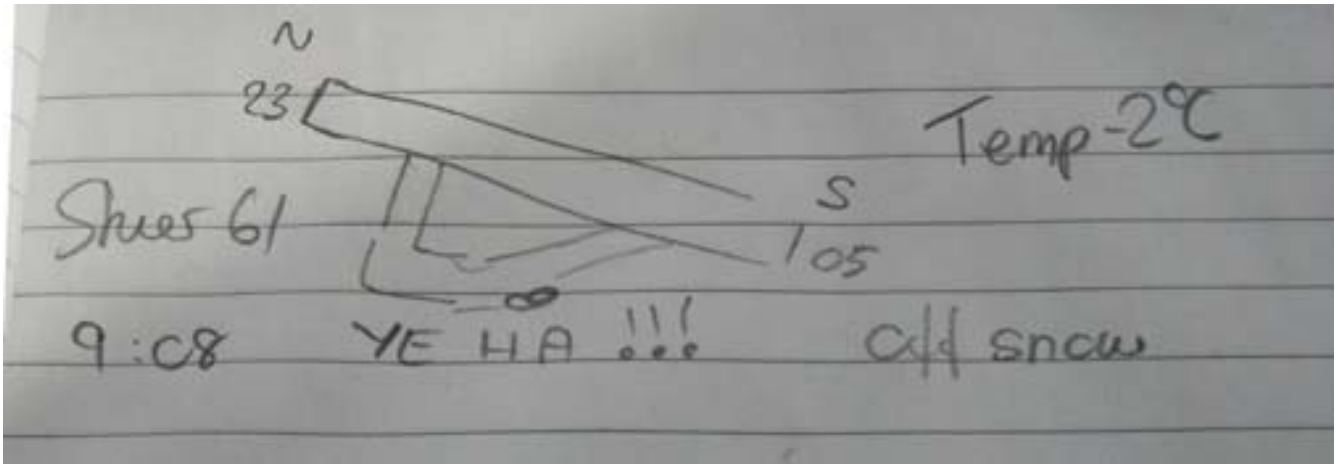
A warm day with a very successful Skier mission. After a warm night with temperatures no lower than -3 deg C Skier 61 came early to camp at 0814 local. We had a very fast turn around receiving 6 PAX and departing 5 PAX. A great cheer to Skier 61 for the very impressive take off under very warm skiway conditions. After the airport at NEEM closed we unpacked cargo, settled the new NEEM'ers in and prepared Saturday Night dinner.

What we have done today:

1. Monitoring of water vapor
2. Japanese aerosol station monitoring
3. Unpacking pallets
4. Mounting panels in the ring around the Dome and tightening 500 bolts
5. Moving snow away from Dome
6. Preparing a snow ramp for the UAV from the 'hangar'.
7. Saturday night

Weather: Early morning overcast, clearing during evening, Temp. -7 C to -0.5 C, wind 4 to 18 knots from S

FL, Dorthe Dahl-Jensen



Field Leader Notebook: Successful Skier 61 mission to NEEM

Saturday Night Dinner by Lars, Susanne, Sepp and Mads

Sunday July 24th

Active day with preparations for new projects. With a new team, new projects are starting up: Tanja is back to finish the AWI radar net, Susanne and Lars are here to drill shallow ice cores far from camp, Martin and Phillip to test the new AWI shallow drill and Renato to take care of the vapour monitoring program. With the UAV project and the Dome ski project all hands in camp where fully occupied.

What we have done today:

1. Monitoring of water vapor
2. Japanese aerosol station monitoring
3. Changing cable on the DK intermediate winch
4. Preparing equipment and waypoints for the ice cores to be drilled far from camp
5. Exchanging empty and full fuel tanks in camp
6. First radar test on UAV taxing on the taxiway
7. Digging out for the Skies under the Dome
8. Tightening the blue ring around the Dome to all 15 legs
9. Updating GPS positions of all NEEM shallow boreholes
10. Numbering all unnumbered ice core boxes in camp. Next number to be used 5840

Weather: Sunny and windy day, Temp. -8 C to -3 C, wind 7 to 18 knots from SE turning to S

FL, Dorthe Dahl-Jensen

Sunday morning (agurketid)

The CreSIS UAV is carefully being moved to the taxiway by the team of seven

Sverrir is exchanging fuel tanks between the generator and the apron.

Monday July 25th

Dome sledge construction dominates life in camp. You cannot avoid noticing the banging and shaking of the main Dome. The 15 legs are free, wires have been mounted on the blue ring circling the Dome and snow blower are moving snow under and around the Dome. We are all very eagerly awaiting the great move of the Dome. The science quietly continues around the dome sledge construction. The vapour sampling and aersol sampling quietly continues. The Radar and UAV tests continue and the AWI shallow drill is soon ready to test.

What we have done today:

1. Monitoring of water vapor
2. Japanese aerosol station monitoring
3. Assembling the AWI drill behind the sauna garage
4. Preparing equipment and waypoints for the ice cores to be drilled far from camp
5. Radar test on UAV on the taxiway
6. Digging out for the Skies under the Dome
7. Mounting the steel cables onto the blue ring under the Dome
8. Moving snow and ice from under the Dome

Weather: Sunny and windy day, Temp. -11 C to -4 C, wind 6 to 19 knots from S to SSE

FL, Dorthe Dahl-Jensen

Mounting the cables onto the blue ring under the Dome

Centre axle for the 'bicycle wheel under the Dome

Villi adjusting the cables under the Dome

Trench to get the skies down under the frame

Tuesday July 26th

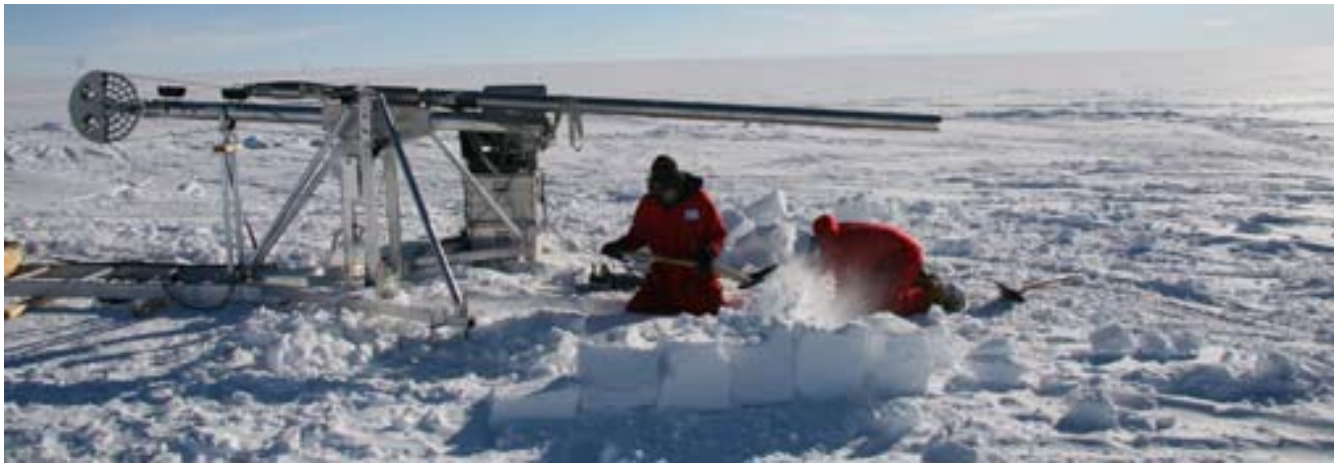
Shallow drilling is on again. Today the weather is good and cold with blue sky and winds up to 20 knots and the shallow drilling programs continue. The Danish 3 inch shallow drill is pulled to the location where the first 13 m of the BAS shallow core was started several weeks earlier. Warm weather has stopped the drilling because water forms on the drill and makes the operation difficult. The traverse team of Lars, Bruno and Susanne are trained to operate the drill and successfully completes the 30 m ice core before dinner. The test of the AWI drill is at the point where the drill is assembled and placed on the tower behind the sauna tent. The first step for Martin and Phillip is to dig the inclined trench to a depth of 2 m. The Dome movers steal the scene again in the afternoon when the 1250 kg skier for the Dome are pulled into camp with a Skidoo. Sverrir is the driver but Gunnar needs to weigh the skidoo down to be able to pull the heavy load. Alli and Villi enjoys the show from the bench in the middle of the camp.

What we have done today:

1. Monitoring of water vapor
2. Japanese aerosol station monitoring
3. Assembling the AWI drill behind the sauna garage
4. Preparing equipment and waypoints for the ice cores to be drilled far from camp
5. Finalizing the 30m 3 inch shallow core for BAS
6. Radar test on UAV taxing on the taxiway
7. Moving snow and ice from under the Dome
8. Moving the Dome Skies to the Dome and mounting the top section onto the skies.

Weather: Sunny and windy day, Temp. -11 C to -4 C, wind 6 to 19 knots from S to SSE

FL, Dorthe Dahl-Jensen



AWI shallow drill mounted on drill tower

Moving Dome skies to camp

Break for Alli and Villi – the brave Dome movers

Lars the new operator of the DK shallow drill

Wednesday July 27th

The first skies are placed under the Dome . The Skies of the Dome weigh 1250 kg each and nearly match the skies under a Hercules in size – at least in the mind of NEEM. It is a memorable day – the day the skies are mounted under the Dome. It becomes clear that the crazy idea of moving the Dome actually seems to be reality. Whats next? When will the Dome move? There is still some work to do – filling snow in under the skies so the Dome can stand on them, carefully cutting all the remaining legs, moving tons of snow to prepare a ramp for the Dome with a slope of no more than 6 degrees. Sverrir warns that the Swiss flag is in the way… and perhaps a weatherport and an outdoor toilet. We hope the move will happen early next week – so keep posted on the NEEM homepage.

What we have done today:

1. Monitoring of water vapor
2. Japanese aerosol station monitoring
3. Testing the AWI drill
4. Preparing ice core logging facilities at the AWI drill site
5. Preparing equipment and waypoints for the ice cores to be drilled far from camp
6. Radar test on UAV
7. Mounting three skies under the Dome
8. Moving snow under and around the Dome
9. Filling the rollers on the skiway with the new fresh snow

Weather: Sunny and windy day, Temp. -13 C to -5 C, wind 4 to 17 knots from S to SSE

FL, Dorthe Dahl-Jensen

A look through the passage under the Dome. Sepp is holding the ski mounting top at the far end of the Dome

Mathilde is pulling a sledge with ice blocks out from under the Dome

The first Ski is on the way down the ramp to its placement under the Dome

The first ski is on place under the front door of the Dome.

Thursday July 28th

Drill traverse departs NEEM. After training of the team and packing the sledges the Traverse team is ready to depart. The traverse leaves with two skidoo's and 5 sledges. Tanja has one sledge rigged for radar measurements around the drill site B26 . Lars, Susanne and Bruno has a second sledge rigged with the DK 3 inch shallow drill. The rest – well what you need when you leave 'home'. The team reached the B26 site 50 km from NEEM at noon. A pit was dug and sampled and the strain net and radar net was started. The temperatures peaked at -0.3 deg C and this is much to warm to be able to drill. The team smuggled in and waited for the cooler evening temperatures. During night they drilled to 17.4 m when a drop of the cable from the top wheel damaged the cable and stopped the drilling. The drill will need to return to camp for repair. Rick and the UAV team have finalized testing the performance of the communication of the UAV and they are ready for a flight. Carl has produced a picture of the radio echo diagrams recorded as the UAV taxied on the taxiway. Looks really good! Last news is that the fourth and last of the skies was placed under the Dome just before dinner. The Dome is ready to 'fly' 4.1 m up to the present surface. Camp is betting on what fly's first the UAV or the Dome??

What we have done today:

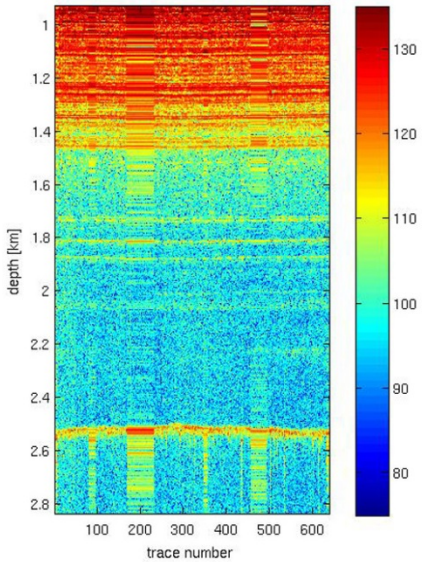
1. Monitoring of water vapor
2. Japanese aerosol station monitoring
3. Testing the AWI drill
4. Drill and radar traverse driving to B26 (77.2533N, 49.2167W)
5. Drilling 17.4 m of the 45m B26 shallow core
6. Making the first part of the radar grid around B26
7. Mounting the last ski under the Dome
8. Moving snow under and around the Dome

Weather: Overcast, Temp. -11 C to -0.3 C, wind 2 to 17 knots, wind turning from SSE to NW

FL, Dorthe Dahl-Jensen

Traverse leaving NEEM towards B26 50 km from camp

UAV parking on the NEEM skiway apron



The first echogram by the CReSIS radar while taxing the UAV on the NEEM taxiway.

Sepp the brave snow block remover

The last ski on the way down under the Dome

Friday July 29th

The Main Dome is standing on skies at 10:33 local. At 10:33 local the last supporting leg of the Dome was cut and the Dome solely was standing on the four skies. A very remarkable event and a big salute to the Dome sledge mounting team Sverrir,Villi, Alli, Gunnuar and Sepp. The Dome is much more solidly placed on the skies than the 16 legs that where beginning to bend. The drilling team at B26 had a broken cable at 0130 am and had to stop drilling at the depth 14.7m. After some hours of sleep the radar and gps programs were completed and the team returned to camp at 15:00 local for cable repair. Weather forecasts predicted a storm Saturday and Sunday and the traverse, the AWI drilling, the UAV program and the ramp building for the Dome movement was put on halt until the storm has passed in a few days.

What we have done today:

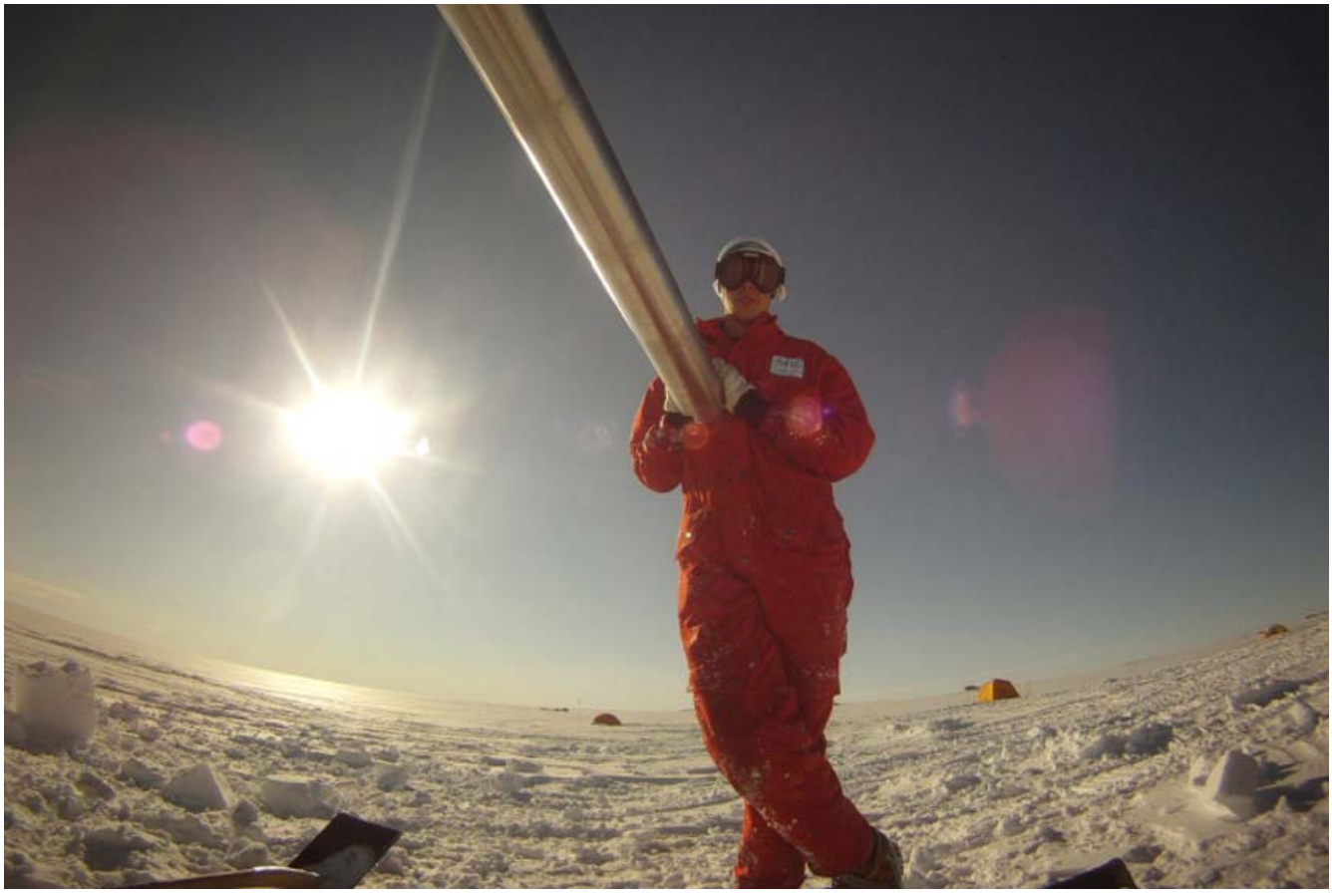
1. Monitoring of water vapor
2. Japanese aerosol station monitoring
3. Drilling with the AWI drill
4. Drilling to 14.7 m at B26 (77.2533N, 49.2167W)
5. Completing radar net and gps net at B26

6. Traverse returning to camp at 1500 local
7. Cutting the last legs under the Dome
8. Due to low cloud cover and increasing winds the UAV's stayed on the snow

Weather: Changing overcast, Temp. -9 C to -7 C, wind 6 to 16 knots, wind turning from NW to SE

FL, Dorthe Dahl-Jensen

Gunnuar with the snow blower



Martin and Phillip have success with the AWI drill

Saturday 30th July

Big game evening. During Saturday the wind picked up to 26 knots and the morning was used to secure camp for the strong winds. Outdoor activities because reduced and indoor activities intensified. The GEUS seismometer was dug out from the side cave of the science trench and moved to the centre of the unused core buffer area. The seismometer was centred and maintained. Matilde and Cyril prepared sushi and pineapple with coconut snow crème for Saturday night dinner. Fantastic! The evening started with a grand football tournament with 8 teams, semifinals and a final. The final was played between the international teams of Mads (DK) and Bil (US) against Martin (G) and Renato (CH). After a very close match martin and Renato won the final and the NEEM championship. The Icelanders played a wordgame with just as loud cheers as those around the football table. The wind never exceeded 26 knots and all could safely walk to their tent to sleep.

What we have done today:

1. Monitoring of water vapor
2. Japanese aerosol station monitoring
3. Securing all loose items in camp for strong winds.
4. Due to high winds the Meridian UAV was towed back to the 'hangar'.
5. Moving and maintaining the GEUS seismic station.

Weather: Overcast and snow, Temp. -11 C to -3 C, wind 8 to 26 knots from SW.

FL, Dorthe Dahl-Jensen

Walking in the snow

Football final between Mads(DK)/Bill(US) and Martin(D)/Renato(CH)

Icelandic wordgame

Matilde's football expressions

Sunday 31th July

Sunny and windy day. The weather forecasts had predicted clearing weather and decreasing winds. The weather did clear and after lunch we had blue sky but the winds continued to be 22-24 knots. Our planed activities of moving snow, grooming skiway and flying UAV's had to be kept on hold for lower winds. Again indoor activities dominated: Sepps warm lab was moved forward in the trench because the back part of the roof of the science trench is hanging low. The first 6 meters of the newly drilled 3 inch B26 ice core was processed in the science trench. DEP and density was measured and 2.5 cm and 55 cm stable water isotope samples cut. Just before dinner an attempt to remove snow to remake the ramp from the 'hangar' was attempted but as the winds still were high skiway grooming was postponed

for early Monday morning.

What we have done today:

1. Monitoring of water vapor
2. Japanese aerosol station monitoring
3. Processing the B26 ice core bag 4-15
4. Working on the AWI drill motor
5. Repairing the DK shallow drill
6. Maintaining power cables in trenches
7. Taking motor in Skidoo3 apart in preparation for repair when spareparts arrive 10 August
8. Moving Sepp's warm lab in the science trench
9. UAV missions not possible due to too high winds

Weather: Overcast and snow clearing to blue sky, Temp. -8 C to -3 C, wind 16 to 26 knots from S.

FL, Dorthe Dahl-Jensen

Dome in blowing snow

August

Monday 01st August

A good start of the last science week at NEEM. August already! It is time to finish all projects and start thinking about packing down. There is still a way to go. The traverse team finished the B26 ice core during the night between 1st and 2nd August. One more to go! The AWI drill is ready to produce a 100m ice core. Still a way to go…. The big movement of the dome on the sledge is getting close. Today the first part of the snow ramp was prepared today and Sverrir hopes to finish the ramp tomorrow. The open space between the sledge and the dome is being closed with plywood… yes camp will be VERY busy the next 14 days.

What we have done today:

1. Monitoring of water vapor
2. Japanese aerosol station monitoring

3. Processed the B26 ice core to the depth 17.5 m
4. Traverse to B26 and finalized the ice core at a depth of 30 m
5. AWI drill tuned and ready for production of 100m 4 inch ice core
6. Closing the open space between dome sledge and dome with plywood
7. Grooming tracks on skiway for UAV
8. UAV missions not possible due to too high ski to snow friction
9. Moving snow with Pisten Bully to prepare a ramp with a slope of 6 deg for the Dome

Weather: Blue sky, Temp. -12 C to -5 C, wind 4 to 18 knots from S.

FL, Dorthe Dahl-Jensen

Dome sledge builders tanning in the sunny and cold weather

Preparing the ramp for the dome move

Matilde processing the B26 ice core in the NEEM science trench

Tuesday 02st August

Meridian wins the race. The weather was perfect for outdoor work and for flying. After lunch the CReSIS UAV, the Meridian made it's first ski equipped flight. Great event! The UAV thus wins the race on what flies first – the Dome or the UAV. AT 09:00 Susanne, Lars and Bruno returned from the B26 site 50 km away with a successful drilled ice core to the depth 30m. During late afternoon the ice cores was DEP'ed and 2.5 cm and 55 cm samples cut for stable water isotopes. The building of the snow ramp for the Dome on skies continued and just before dinner the pull system was mounted between the skies and the pink chain mounted. Lehmann – why is the chain pink?? After dinner Martin, Phillip and Tanja started drilling a 4 inch core behind the sauna garage. They reached 24 m's depth at 0300 early morning.

What we have done today:

1. Monitoring of water vapor
2. Japanese aerosol station monitoring
3. Return of the B26 team at 0900
4. Processed the B26 ice core to the depth 30 m
5. AWI drill depth 24 m
6. Flying the Meridian on skies
7. Moving snow with Pisten Bully to prepare a ramp with a slope of 6 deg for the Dome
8. Taking weatherport close to storage garage down
9. Plywood ring around Dome complete
10. Preparing the domes water and power systems for the move

Weather: Blue sky, Temp. -13 C to -5 C, wind 6 to 11 knots from S.

FL, Dorthe Dahl-Jensen

CReSIS Meridian air born with skies on.

Ramp prepared for the Dome. The ramp is 50 m long with a slope of 6 deg. The weatherport is being taken down at the onset of the ramp – it is in the way!
The pink Lehmann chain ready to pull the dome.

Wednesday 03st August

D-day for moving the NEEM dome on sledge. After a night with stage fever and nerves time came to move the Dome. Breakfast had to be finished before 0800. At 0930 the Dome was secured and at 1000 power lines and water lines were detached from the Dome. At 1010 the Dome was pulled the 50m up the ramp with a slope of 6 deg by the Pisten Bully and the Flexmobile. The move took one minute! The Dome is now standing proudly on the main street while the hole and the ramp is being filled in with snow. The plan is to move the Dome back to the original position, but in level with the 2011 surface on Saturday. A dream has become true – and the Dome is ready to be pulled to the next drill position.

What we have done today:

1. Monitoring of water vapor
2. Japanese aerosol station monitoring
3. Moving the Dome to the NEEM main street
4. Filling the Dome snow ramp in with snow again
5. Departure of the drill traverse to the Ice2Sea site 77.85210N and 52.02630W
6. AWI drill depth 50 m
7. Flying the Meridian on skies

Ad 5: The Ice2Sea team reached the drill site at 1900 and started drilling the 40m ice core
Ad 6: The AWI drill team started drilling at 2000 and planned to drill through the night
Ad 7: The Meridian had some unexplained problems and after lunch the CReSIS team worked on troubleshouting the event.

Weather: Blue sky, Temp. -14 C to -3 C, wind 5 to 10 knots from S turning to SE

FL, Dorthe Dahl-Jensen

Dome on the NEEM main street

Dome being pulled by the Pisten Bully and Flexmobil

A big salute to the dome movers: Villi, Alli, Sverrir, Gunnuar and Sepp

Thursday 4th August

Back to science: After the great event of moving the Dome yesterday life is back to normal and we struggle to finish our science programs before packing down takes over. A great success was the efficient drilling of a 40m deep ice core for the Ice2Sea program combined with AWI radar measurements and located over a CRYOSAT satellite track. During the evening the AWI drill got stuck at the depth of 50m and we begun the 'rescue' program for the drill.

What we have done today:

1. Monitoring of water vapor, last day
2. Japanese aerosol station monitoring
3. Filling the Dome snow ramp in with snow again
4. Return of the drill traverse to the Ice2Sea site 77.85210N and 52.02630W
5. AWI drill stuck at 50 m depth
6. Troubleshouting the Meridian
7. Planning for next flight period and pull out
8. Writing plastic bags for the stable water isotopes samples of the 40 m Ice2Sae ice core

Ad 4: The Ice2Sea traverse team of Lars, Susanne, Bruno and Tanja arrived at the site at 20:00 the previous day and started to setup the drill immediately. Tanja started her radar grid supplemented with pit sampling in a net around the drill site. The teams continued though the night and where ready to return to NEEM at 05:00 in the morning. The two skidoos with the five Nansen sledges returned to NEEM at 08:00.

Ad 5: The AWI drill became struck at the depth 50m at 22:00. The cable was tensioned to 750 kg and two times 5 l glycol was poured down through a hose to the drill. There was a slight upwards movement of the cable. The Tension was left on overnight.

Weather: Blue sky, Temp. -18 C to -7 C, wind 5 to 12 knots from SE

FL, Dorthe Dahl-Jensen

Dome on skies

Ice2Sea traverse returning to NEEM camp after drilling and making radar measurements all night.
The ramp and hole from the previous Dome position has been filled in so the route back for the Dome is ready.

Friday 5th August

Recovering the AWI drill. Waking up the first thought went to the AWI drill – was it still stuck or had the tensioned cable been able to free the drill? The drill was still stuck and we decided to warm 100l of glycol and pour it down after lunch. After 50 l had been poured down the cable tension reduced significantly indicating the drill was coming loose. Sverrir could feel that the hammer in the drill was loose and after a few strong pulls the drill came free. Big relief!

What we have done today:

1. Packing the water vapor equipment
2. Japanese aerosol station monitoring
3. Recovering the AWI drill stuck at 50 m depth
4. Troubleshouting the Meridian
5. Cutting stable water isotope samples and measuring DEP and density of the Ice2Sea ice core

6. Measuring DEP and density of the 50m AWI test ice core.
7. Preparing the movement of the Dome back to the original position to happen Saturday
8. Moving the GEUS seismic solar panels up.

Ad 3: An evaluation of the event points towards three factors that are weak points and together could cause the drill to get stuck: 1) The grooves in the outer core barrel are manufactured the wrong way preventing proper ice chips transportation. Each run ends with packing of ice chips at the drill head. 2) The core catchers do not tip enough and the strength of the springs probable too high. It is observed that very few core breaks are at the core catcher positions. 3) The Danish intermediate winch does not allow sufficient and fast pull at the breaks. Heating the winch helps so it might be a problem with gear oil or ice in the winch.

Weather: Blue sky, Temp. -18 C to -8 C, wind 5 to 12 knots from S

FL, Dorthe Dahl-Jensen

Troubleshouting the CReSIS Meridian UAV

Martin and Phillip with the 'rescued' AWI drill. The blue glycol has coloured the ice core blue.

Saturday 6th August

Moving the Dome again. The time has come to move the Dome back to its original position but 4.5 m higher. The procedure is the same as last time. Early up – pack and prepare the Dome and then move. This time we all know it is possible and the focus is on taking good pictures. This time the Pisten Bully is alone and needs no help from the Flex. In the Dome an experiment has been prepared (a camp of scientists…). On the shelves emptied for plates and glasses a few items have been placed to test how stable the move has been. Even the two glasses on top of each other are still there – just a little water spilled.. After the move water systems, electrical power and water and dome heating by the generator excess heat are re-established. Renato had the remark of the day. He was packing the vapour equipment and came back for coffee at 1000. When he entered the Dome he said: "You are late moving the Dome". What he had not noted was that the Dome HAD been moved and he obviously had 'forgotten' where to find the Dome. CReSIS cooked a fantastic American dinner and we had a great evening. Thanks for the dinner!

What we have done today:

1. Packing the water vapor equipment
2. Japanese aerosol station monitoring
3. Moving the Dome
4. Flying the Meridian with radar
5. Making trap door on the ground floor of the Dome

6. Drilling the first 13 m of the 20 m McConnel shallow ice core
7. GPS measurements near camp
8. Last AWI radar measurements
9. Saturday night

Weather: Blue sky with high clouds, ground fog after 19:00, Temp. -18 C to -8 C, wind 4 to 12 knots from S

FL, Dorthe Dahl-Jensen

Moving the Dome back to its original position just 4.5 m higher

Test of the stability of the Dome during movement – picture is from after the move.
Taking the vapour measurement tower down at NEEM

Sunday 7th August

What we have done today:

1. Packing the water vapor equipment
2. Japanese aerosol station monitoring, last day
3. Filling snow around the Dome
4. Removing tools and equipment for Dome moving
5. Finishing cabling around Dome and replacing HF antenna
6. Drilling the last 7m of the 20 m McConnel shallow ice core
7. GPS measurements near camp
8. Testing the AWI drill with the DK HT inner and outer core barrels
9. Packing ice cores and ECM
10. Grooming apron and taxiway

Ad 8: The AWI drill motor was tested with the Danish HT inner and outer core barrels in a fresh borehole. The drilling went well and the core breaks were easy. The AWI drill head and core dogs function well when the ice chips are transported away and no packing occur around the drill head. The AWI drill tests are finished and packing has begun.

Weather: Ground fog clearing after dinner to blue sky with high clouds, Temp. -18 C to -8 C, wind 4 to 12 knots from S

FL, Dorthe Dahl-Jensen

Ground fog lifting over the NEEM camp after dinner

Monday 8th August

Packing everywhere in camp. The next flight period is getting closer and all science, drill and UAV equipment will leave camp 10-12 August. The ice core boxes are being weighed and strapped in the science trench while the AWI drill equipment and the UAV are being packed in the surface garages. Long lists of boxes and HAZMAT are being made. And off course – most important of all – the skiway is being groomed.

What we have done today:

1. Packing the water vapor equipment
2. Packing the Japanese aerosol station
3. Filling snow around the Dome
4. Removing tools and equipment for Dome moving
5. GPS measurements near camp
6. Packing science and drill equipment
7. Grooming skiway

Weather: Blue sky changing to overcast, Temp. -18 C to -5 C, wind 6 to 12 knots from S

FL, Dorthe Dahl-Jensen

Packing and weighing ice core boxes in the science trench

Tuesday 9th August

Last day in camp – perhaps? Today all science equipment is palletized in preparation of the skier mission tomorrow. The weather forecast for Wednesday looks bad so the weather is followed eagerly: what is the wind and the temperatures. During the whole day winds were high and we had significant snowfall. Not good odds for tomorrows mission.

What we have done today:

1. Packing the Japanese aerosol station
2. Sealing the Dome
3. GPS measurements near camp
4. Packing science and drill equipment
5. Preparing the science trench for overwinter
6. Building Science Pallet

Ad 5: All boxes have been documented and snow removed behind the tables. The ice core box storage room has been emptied.

Weather: Overcast, Temp. -6 C to -3 C, wind 8 to 18 knots from SW

FL, Dorthe Dahl-Jensen

More packing in very grey weather

Wednesday 10th August

A really warm and foggy day. As we have seen many times before the weather changes just when the flight period starts. After a long period with blue sky the weather solidly closes down on the first day with a planned mission. The ground fog makes grooming of the 10 cm of new snow a challenge and the warm temperatures and bad visibility forces us to cancel the planned mission for today.

What we have done today:

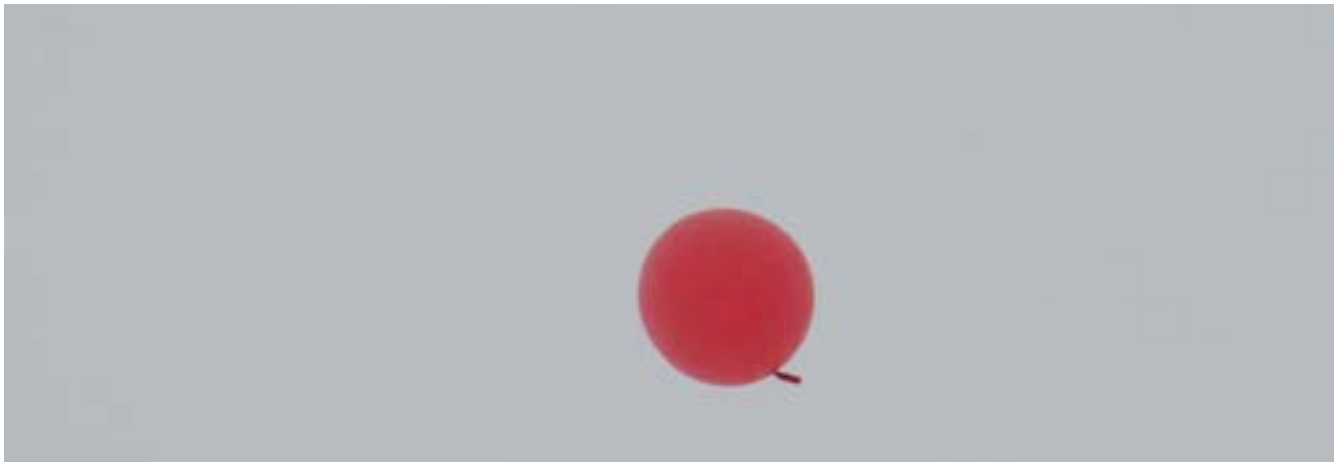
1. Taking down 2 weatherports
2. Palletizing the UAV equipment
3. Sealing the dome
4. Preparing the science trench for overwinter
5. Packing boxes in the drill trench

Weather: Overcast, Temp. -5 C to -3 C, wind 4 to 16 knots from SW turning to NW

FL, Dorthe Dahl-Jensen

Determining the ceiling of the clouds with a weather balloon

Sun peeping through the ground fog while grooming



Weather balloon flying up towards the clouds

Thursday 11th August

Goodbye to 16 from NEEM. At 4:00 am when the weather reporting started we had ground fog with no visibility. During the morning the fog lifted and we managed to get to skiers to NEEM. The first mission brought DV's from the National Air Guard and NEEM and we had 90 minutes to give them a tour of NEEM. The second mission was for the retro of the CReSIS UAV and brought a team from Discovery Channel making a documentary on the Skiers. After dinner we built the last two pallets for the expected mission next day.

What we have done today:

1. Receiving skiers 95 and 94
2. Building pallets
3. Receiving DV's at NEEM

Weather: Overcast, ground fog and snow, Temp. -7 C to -3 C, no wind to wind 4 knots from N and NE

FL, Dorthe Dahl-Jensen

Morning fog lifting

Friday 12th August

Grey, white and snow. Waking up to another overcast, foggy and snowy day! This makes all our activities difficult because we need to work outside with the closing of camp. When the weather is like this there is no contour on the surface and moving cargo on the surface by skidoo, Cat or Pisten Bully is slow. Building the winter hills is near impossible as you cannot 'see' them – just suddenly you are driving sharply up…(or down).

What we have done today:

1. Receiving skier 95 (camp received 5000 lbs fuel)
2. Taking down two weatherports
3. Cleaning up on apron
4. Maintaining the main generator
5. Taking down cargo line at drill and science trench
6. Removing snow from wall of science trench
7. Hosting a TV crew from Discovery Channel

Weather: Overcast, ground fog and snow, Temp. -11 C to -4 C, no wind to wind 5 knots from W turning to S

FL, Dorthe Dahl-Jensen

Dome in the clouds – 10 min with clearing weather

ATO take off from yesterday

Saturday 13th August

Celebrating Gunnars birthday. The last Saturday in camp AND Gunnars birthday. The day began grey and overcast with snow and we struggled to move things on the surface. During the afternoon the clouds lifted and we had a few hours with blue sky. For the first time in days we could actually see the surface, the winter hills and the skiway. We used the time to move the fuel tanks and other big items on the surface. With only seven in camp we had a very good Saturday night with snow lamb prepared by Sverrir and a big birthday chocolate cake prepared by Cyril. We enjoyed the left over bottled wine from the Royal visit and later in the evening we had a drink in the tomatos. This was inspired by Cyril's remark to Sverrir when Sverrir told Cyril he would have the tomatos on the snow hill. Cyril shock is head and told Sverrir he was a silly boy.

What we have done today:

1. Redistributed fule between fuel tanks
2. Moved fuel tanks to winter storage
3. Preparing snow hills for winter storage

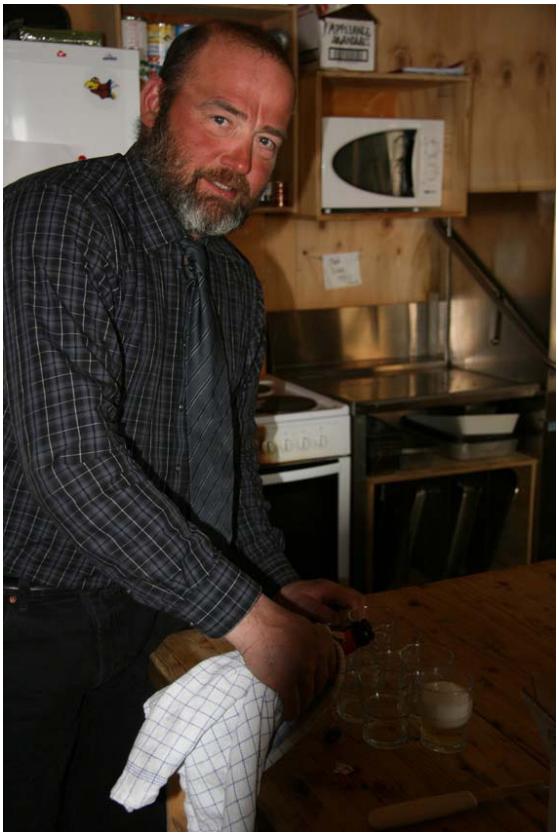
4. Build winter cargo line on winter hill
5. Recovered shallow drill from S5 drill site and returned to camp
6. Flag line down
7. Moed food to sauna garage
8. Removing snow from wall of drill trench
9. Documented and cleaned in science trench
10. Organized and documented food in freezer

Weather: Overcast, ground fog and snow, Temp. -16 C to -4 C, no wind to wind 7 knots from SSW

FL, Dorthe Dahl-Jensen

Moving fuel tanks to winter storage

Packed weatherport and bunk beds on the snow



Sverrir making the traditional snow lamb the last Saturday in camp
Gunnar opening the champagne in celebration of his birthday

Sunday 14th August

Taking the last surface tents down. The D-day for camp pull out is closing in and today the last surface tents where taken down: the fresh food tent and the white tent covering the entrances to the trenches. The red lift and the stair case to the trenches was lowered and the entrance covered with plywood. The drill trench and the science trench are closed for the this year. All food is documented and stored in the sauna tent. In the warm and cosy dome we have a daily talk on how fresh coffee should be. Sepp has made experiments if you can smell if coffee is fresh. A check with a scientific thermometer shows that the coffee is close to 70 deg C warm.

What we have done today:

1. Packed shallow drill for transportation to Copenhagen
2. Documented and moved all food from food tent to sauna garage
3. Packed the food tent and the white weatherport
4. Placed all weatherports on the cargo line
5. Closed trenches
6. Entered documentation of science trench in database
7. Washing of camp linen

Weather: Overcast, ground fog and snow, Temp. -12 C to -9 C, no wind to wind 10 knots from S turning to SW

FL, Dorthe Dahl-Jensen

Sepp checking if he can smell if coffee is fresh

Lifting the heavy zarges box with the winch onto the pallet