

Field season report 2015 North Greenland Eemian Ice drilling East Greenland Ice drilling Project (NEEM/EGRIP):

**Moving the entire NEEM camp from NEEM site to EGRIP site by overland traverse.
Setting up EGRIP camp structures**

Prepared by Ice and Climate Group, NBI

for

**The NEEM Steering Committee, EGRIP Steering Committee and Danish and Greenlandic
authorities.**



The traverse after arrival at EGRIP on May 26, 2015..

**J.P.Steffensen, Lars.B.Larsen, Dorte Dahl-Jensen
Copenhagen, 251015**

Table of Contents

Preface	3
Report on the 2015 activities of the NEEM/EGRIP project.....	4
Background.	4
Kangerlussuaq (Søndre Strømfjord, SFJ).....	4
Start of field season.	5
Put-in at NEEM.	5
Flow of the field season.	5
Science.	9
Communication.....	10
List of status of associated projects and tasks in the 2015 season (please refer to the 2015 field plan for detailed description of the projects):.....	10
Earth quake station (GEUS).....	10
PARCA NEEM, GITS, Humbolt, NEEM, Petermann, Tunu, NGRIP, Summit, EGRIP.	10
GLISN seismic station at NEEM.	10
Abdalati group (not mentioned in the field plan – late addition)	11
Nettles group (not mentioned in the field plan – late addition)	11
Situation at NEEM after 2015.	11
NEEM/EGRIP actual manning 2015.....	12
List of NEEM/EGRIP 2015 tasks:.....	13
NEEM/EGRIP 2015 task periods.....	13
Flight Statistics 2015:	14
EGRIP Fuel Statistics 2015.....	15
SITuation REPorts (SITREPs):	16
Daily reports:.....	28
May	28
June	60

Preface

This report has been prepared by the NEEM/EGRIP logistics group. The purpose is to provide the NEEM Scientific Steering Committee with a final report on cleaning up the former NEEM camp and the new EGRIP Steering Committee, relevant authorities and the NEEM/EGRIP 2015 participants with documentation of the events of the field season. The report contains information on the activities leading up to the field season and activities on the ice sheet. The SITREPs and camp diaries are included.

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

To complete the logistical tasks during this special year of traverse activity, a lot of good will, help and flexibility of planning was needed from the organizers and personnel of the National Science Foundation GRiT traverse, the CH2MHill/CPS Polar Field Services, the 109th TAG, NYANG. The NEEM/EGRIP crew wishes to express sincere appreciation of this assistance to the field effort. We also wish to express sincere gratitude to Pat Smith, Stan Wisneski, Robin Abbott, Eric Coplin, Audrey Mills, Earl Vaughn and all other CH2MHill/CPS staff for their assistance.

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

Report on the 2015 activities of the NEEM/EGRIP project

Background.

At the end of the NEEM project in 2012, most of the heavy equipment was left on NEEM site with supplies and equipment stored inside the main dome, in two garages, on 7 heavy sleds which were placed on snow hills and fuel in three steel tanks which were placed at the former apron. NEEM obtained permission by Greenland authorities to leave equipment at NEEM, provided that a plan for removal was made before the end of 2015. During 2013 and 2014, the Centre for Ice and Climate worked on plans for a new deep ice drilling project in the North East Greenland Ice Stream (NEGIS). In preparation of moving the entire NEEM camp to the new EGRIP site, the U.S. National Science Foundation (NSF) kindly offered their assistance by arranging that the Greenland Ice sheet traverse (GrIT) parked a heavy Case tractor, a large traverse sled and a fuel depot at NEEM in 2014. Danish bulk funding for the new EGRIP project was provided by the A.P.Møller foundation in the winter 2014/2015. Since then, most of the budget for EGRIP has been secured by the Danish fund for infrastructure (NUFI), by Alfred Wegener Institute, Germany, by Bjerknes Centre, Norway and by National Institute for Polar Research, Japan. Contributions from France and Switzerland are still pending, as well as EGRIP needs to sign a Memorandum of Understanding with the NSF which hopefully will include a U.S. contribution. With most of the funding secured, the plans for relocating the NEEM camp could be effectuated.

In preparation of the move of NEEM camp, skis were mounted under the main dome and tested in 2011. In 2012 NEEM received three heavy sleds from AWI surplus, so according to calculations, we needed another Pistenbully to have enough traction (including the GrIT Case) to pull the entire NEEM camp to the EGRIP site. As the funding situation was solved after departure of the last ship to Kangerlussuaq in October 2014, it was necessary to send a new Pistenbully to Greenland via New York. It was sent from Germany to New York by ship in March, and after quite a few paper complications (caused by the shipping company) it was released for truck transport to Schenectady and arrived at New York Air Guard base just in time for flight to Greenland.

Kangerlussuaq (Søndre Strømfjord, SFJ)

NEEM/EGRIP had Field Operations Managers (FOMs) for most of the time during 2015 campaign. The lease of warehouse 442 has been extended to 2022. During summer 2015 the warehouse was used, not only for NEEM/EGRIP but also for the Renland Ice cap drilling (RECAP). Inside 442 NEEM has an operational 4m x 4m walk-in freezer for ice cores and food. NEEM/EGRIP renewed the lease of the FOM office (KISS 208) from 2015 to 2020. Kangerlussuaq International Science Support (KISS) accommodated all participants while in Kangerlussuaq.

NEEM/EGRIP operates the following vehicles in Kangerlussuaq: A 5 ton Hyster forklift(1983), a 8 ton Ford flatbed truck with hydraulic crane (1981), a Toyota landcruiser (1984) , a F-250 truck

(1997) and a VW Taro 4-wheel drive pickup (1998). There is also a brand new Toyota Landcruiser 100 (2006) on storage; this will be registered in 2016.

Repairs have been made to the 8 ton forklift (1986) so that the leak in the fuel system should be fixed. CPS kindly allowed us to use their articulated loaders and flat pallet truck (K-loader).

A new 7 ton forklift has been purchased, and it will arrive by ship by mid-summer 2016.

The FOM office maintained contact with the field crew by Iridium telephone and internet. The HF radio connection was not in use during the 2015 season.

The 2015 field campaign(s) was very busy for the FOMs in Kangerlussuaq during certain periods. For the first time, the FOMs not only served the NEEM/EGRIP project but also the RECAP project on the East Coast. As NEEM/EGRIP only had flights in the beginning of the season and at the very end, there were a few periods with no FOM manning in Kangerlussuaq. During these un-manned periods, the RECAP personnel at Contable Pynt was the official point of contact with authorities. Normally there were two FOMs in Kangerlussuaq, and they handled: Daily reports, Hazardous Materials, manifests, packing lists, lodging, inventory, clothing, relation and reporting to Greenland authorities (food and vehicle taxes, reporting on amounts of rubbish) etc. In the un-manned periods, the Field Leader handled daily reports and SITREPs.

Some few special tasks of the FOMs in 2015:

1. Receiving a new Pistenbully from the U.S. and sending it by 109th to NEEM. Here the FOMs received an outstanding assistance from the 109th Aerial Port group and Loadmasters so that the Pistenbully was ready for shipment to NEEM.
2. Receiving cargo from the U.S. and Denmark for both NEEM/EGRIP and RECAP and sorting out the cargo for these two different projects.

Start of field season.

The Field Season started with the arrival of the FOM in Kangerlussuaq on 20th April. The FOM office was opened, vehicles were activated and licensed. On 24th April the put-in crew arrived.

Put-in at NEEM.

The put-in crew of 5 flew to NEEM on 27th April and landed at NEEM 12:20. By 16:10 the main dome was powered by the 15kW backup generator. The entrance to the carpenters garage was excavated, and by 17:00 the Pistenbully was out and running. By 21:15 the main generator was powering camp. Camp was open.

Flow of the field season.

The activities at NEEM, on the traverse and at EGRIP had to be planned to fit the 109th flight schedule. Although the traverse was 6 days delayed on departure from NEEM, it was possible to arrive at EGRIP only 48 hours behind schedule, and EGRIP camp was constructed and ready to be

closed on schedule, June 6th. The reasons for delays are given below; but the overall reason for still being able to recover from delays was unparalleled favourable weather conditions. During the entire 6 weeks of operations, we did not have one single blizzard, no severe snow drifts and we had only one day of flights with marginal weather conditions (this was the last pull-out, 9th June). Most of the time the activities stayed on schedule (see table and GANNT chart comparing schedule versus actual).

Activities at NEEM:

After initial opening of garages and main dome, a new ski landing area was marked on top of the old NEEM skiway (The old NEEM markers were almost completely gone). The landing area was groomed, and 72 hours after arrival, NEEM received a plane from Thule AB that made a double shuttle between Thule and NEEM before returning to Kangerlussuaq. A double shuttle was needed as the plane on top of its ordinary cargo, GriT equipment and belts for the new Pistenbully, brought fuel for the PARCA project, and NEEM/EGRIP had accepted to assist the U.S. PARCA project with fuel and housing during the traverse. The last two LC-130 flights to NEEM followed on 1st May and 4th May, bringing in the Pistenbully. Two persons from the GLISN project and the Pistenbully mechanic were picked up by Twin Otter 6th May. After this the ski landing area was taken down.

In the following weeks the garages were emptied and taken down, the heavy sleds were retrieved and stowed, the large GriT carpet sled was excavated and filled with cargo and the main dome was excavated and pulled onto the apron. Also, the 2012 balloon trench was opened, the food retrieved and trench re-measured. A major cause for the 6 day delay of departure on the traverse, was the unexpected amount of rock hard snow around the base of the dome and both garages. Due to much melting and refreezing in the summers of 2012, 2013 and 2014, the snow/ice had to be removed by chain saws and sledge hammers. Also, the SE side of the snow wall at the base of the dome had slumped so much that a gap between the base of the dome and the snow wall had formed, allowing snow to drift in under the dome and almost filling the entire "basement".

The traverse:

Movement began Monday 18th May in the afternoon and by 20.30 the traverse had made 24 km. Already after 30 min driving one Flexmobil overheated due to a blown fan belt. It was repaired in 30 minutes. This turned out to be the only incident, apart from one cover plate coming loose, where repairs were needed on vehicles en-route.

Most of the time during traverse the configuration was this:

Flexmobil 2: Drillers sled	8 ton
Flexmobil 1: Lumber sled and Workshop sled	10 ton

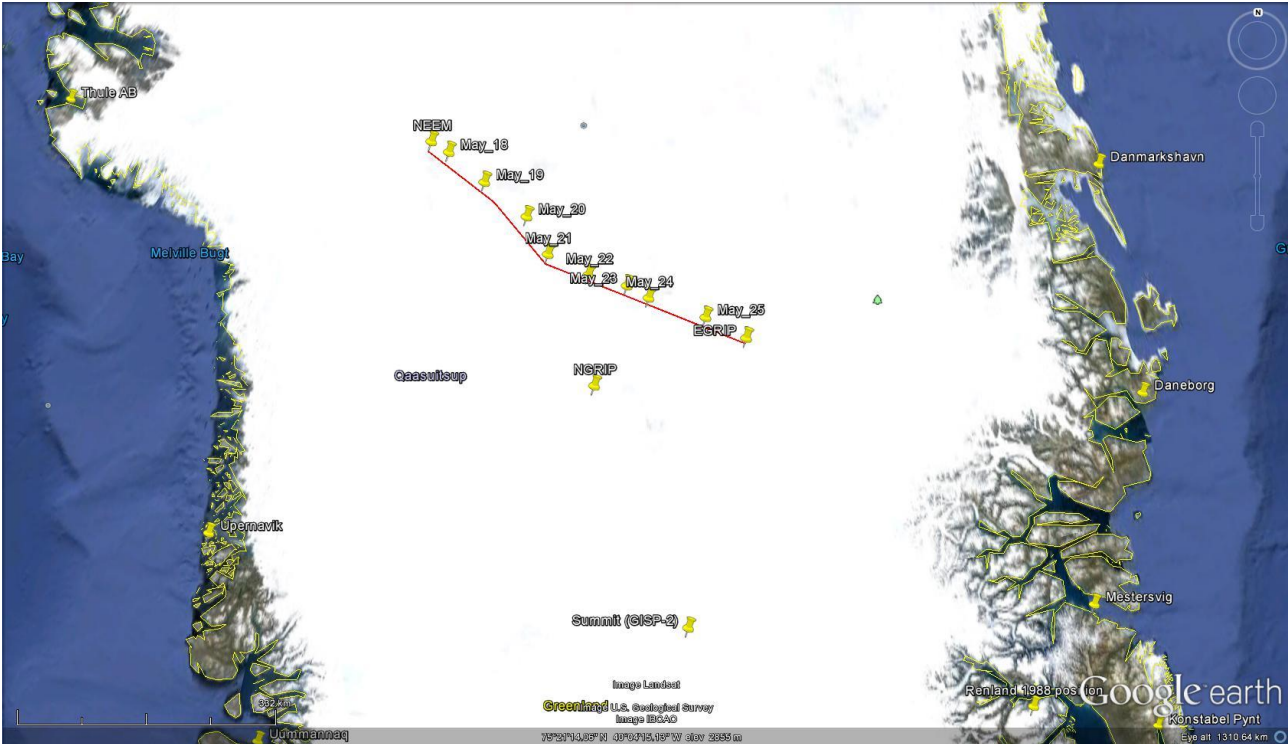
Cabin Pistenbully: Carp. sled, tank and CAT sled, tomato sled, 2 x fuel tanks	24 ton
Crane Pistenbully: GrIT carpet sled	50 ton
Case tractor: Main dome, generator sled, fuel tank	50 ton
1 Lynx snowmobile for German snow studies	0.3 ton
1 Lynx snowmobile for DK/German GPR radar and GPS	0.5 ton
1 Lynx snowmobile for DK snowpits and shallow coring	0.5 ton
Total cargo, vehicles not included	143 ton

Three days in a row, the PARCA group spent the evening and the night in the main dome. During this time, camp population swelled to 17 and floor space in the main dome was scarce. The traverse provided food and fuel for the Twin Otter.

The traverse took place in sunshine all the way, and we soon learned, what Pat Smith told us GrIT had learned, that it was best to begin driving early and that the snow became very soft after 18.00. All pulling after 19.00 was very hard.

After crossing over the ice sheet ridge, the snow became even softer, and according to Sepp Kipfstuhl, the snow also became older, which is an indication of low accumulation. It became harder to pull the loads, and in the morning of Sunday 24th May neither the Case could pull the dome nor could the cabin Pistenbully pull the sled train. It was decided to double head the main dome with the Case and cabin Pistenbully, and subsequently the two tractors went back to pick up the sled train. That day the team only made 25 km.

At this stage fuel consumption and the amount of remaining fuel became a concern. In planning of the traverse, we used fuel consumption numbers for the two Flexmobils from the 2007 NGRIP to NEEM traverse and numbers for the Pistenbully from the 2008 NEEM-NGRIP-NEEM traverse. We had anticipated a rate of consumption for all vehicles of 25 liter/km. The numbers at this stage showed a consumption of 35 liter/km for the traverse. The team was running out of fuel. It was decided to empty two steel tanks completely and to leave the drill trench sled and the lumber sled and two empty tanks behind. It was also decided to go straight to EGRIP and not use the indirect route as laid out in the Field Plan. This reduced the route from 465 km to 449 km. In the morning of 25th May the traverse was rearranged and four units were parked. This day the traverse made 75 km. On 26th May the traverse made 53 km and arrived at EGRIP in the afternoon. The team had approx. 3000 liter fuel left on arrival, which could only have supported the traverse for one more day (daily consumption: 1,700 liter for 50 km).



Actual traverse route.

May 18	77.37 N	50.11 W	24 km from NEEM
May 19	77.12 N	48.15 W	79 km from NEEM
May 20	76.82 N	45.94 W	144 km from NEEM
May 21	76.45 N	44.77 W	200 km from NEEM
May 22	76.27 N	42.88 W	251 km from NEEM
May 23	76.18 N	41.15 W	301 km from NEEM
May 24	76.06 N	40.18 W	326 km from NEEM
May 25	75.86 N	37.70 W	396 km from NEEM
May 26	EGRIP		449 km from NEEM

At EGRIP:

Traverse ended at EGRIP Tuesday 26th May in the afternoon. Immediately, Dorthe Dahl-Jensen chose the site for future drilling and the area was surveyed and markers placed at all future camp structures, future apron and skiway. Between Wednesday 27th May and Sunday 31st May, the

skiway was marked and groomed, the mechanics garage was built on a berm, the berm for the carpenters garage was finished and the main dome was placed at its final position in camp on a prepared surface. After unloading the GrIT sled, the sled was prepared for the traverse to Summit. First flight to EGRIP arrived 1st June, bringing in most needed fuel, and after this fuel delivery, Pat Smith began the traverse to Summit with the Case tractor, the GrIT carpet sled and two scientists who did GPR radar measurements en-route. They arrived at Summit 4th June. EGRIP received an extra (outside schedule) flight with fuel on 2nd June to compensate for the fuel shortage and to ensure that a depot of 1200 liter could be placed at EGRIP for the U.S. "Nettles"-program. On June 3rd the carpenters garage was completed and all structures at EGRIP were completed. The carpenters and the mechanics garage were then outfitted exactly the same way as they were at NEEM. The remaining cargo was placed on the heavy sleds on snow hills, downwind from camp. Finally, the base of the main dome was covered with plywood and snow. To avoid having the main dome cast in ice again, we covered the snow around the base with plastic to stop melt water to penetrate and then we buried the plastic. Everything was ready in camp for pull out 6th June. However, due to technical problems with aircraft, the pull out was postponed to 9th June. The pull out was successful, and EGRIP is closed until next year.

Science.

Almost all the science programs planned for were completed. The only exception was that due to lack of time, the traverse from EGRIP to Summit was not done along the flow line; but instead along a straight line from EGRIP to Summit.

Here only headlines are provided. For details , please contact the responsible persons.

At NEEM:

German surface snow and shallow pit studies. Sepp Kipfstuhl.

Danish pit and hand augered core sampling. Paul Vallelonga and Helle Kjær

German/Danish GPR radar profiles. Anna Winther and Nanna Karlsson

Danish GPS re-measurement of the NEEM strainnet. Anna Winther and Nanna Karlsson.

Danish deep bore hole logging of the NEEM hole. Dorte Dahl-Jensen

During traverse:

German surface snow and shallow pit studies. Sepp Kipfstuhl.

Danish pit and hand augered core sampling. Paul Vallelonga and Helle Kjær

German/Danish GPR radar profiles. Anna Winther and Nanna Karlsson

At EGRIP:

German surface snow and shallow pit studies. Sepp Kipfstuhl.

Danish pit and hand augered core sampling. Paul Vallelonga and Helle Kjær

German/Danish GPR radar profiles. Anna Winther and Nanna Karlsson

Set-up of GPS based strainnet around EGRIP. Paul Vallelonga, Helle Kjær, Anna Winther and Nanna Karlsson.

Test run of BAS phase sensitive radar (Hugh Corr). Anna Winther and Nanna Karlsson

Traverse to Summit:

German/Danish GPR radar profiles. Anna Winther and Nanna Karlsson

Communication.

Throughout the season camp had internet and telephone connection via Iridium OpenPort system and as backup and safety there were several handheld Iridium telephones in different buildings. Air operations were handled by VHF 122.8 MHz radios. Also communication between vehicles was made by 122.8 MHz. The air-band radios were not reliable, and it was decided that the project should invest in a set of Marine-band VHF radios for the future.

List of status of associated projects and tasks in the 2015 season (please refer to the 2015 field plan for detailed description of the projects):

Earth quake station (GEUS).

An Earth quake station operated by GEUS, was taken along on the traverse. At EGRIP the system was set-up in the left far corner of the carpenters garage and activated.

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

Before leaving NEEM, the team set-up a 1600 liter fuel depot for the PARCA Twin Otter. Also, as pre-arranged, the PARCA Twin Otter landed during the traverse three times for fuel and shelter over night.

GLISN seismic station at NEEM.

Two people from the GLSN group accompanied the NEEM team on a flight to NEEM. In five days the GLISN site was serviced and the two person were picked up by a Twin Otter on 6th May.

Abdalati group (not mentioned in the field plan – late addition)

Thursday 28th May the new EGRIP skiway was inaugurated by a Twin Otter bringing in 6 people from the NSF “Abdalati” group. They set-up an automatic monitoring station 1 km S of EGRIP camp. The group came from Summit and they returned to Summit the same day.

Nettles group (not mentioned in the field plan – late addition)

A fuel depot of 1200 liter was placed at the apron at EGRIP in support of the NSF “Nettles” project when EGRIP was packed down.

Situation at NEEM after 2015.

As mentioned above, NEEM logistics had negotiated an agreement with the Greenland government that plans for complete removal of the NEEM camp should be determined by 2015. NEEM was packed down along the guidelines of this agreement, and we can now happily report, that the NEEM site is now completely abandoned. The only remaining items at NEEM are: The bore hole casing pipe (3 m tall and capped). The GLISN seismic station and the PARCA Automatic weather station. Everything else has been removed.

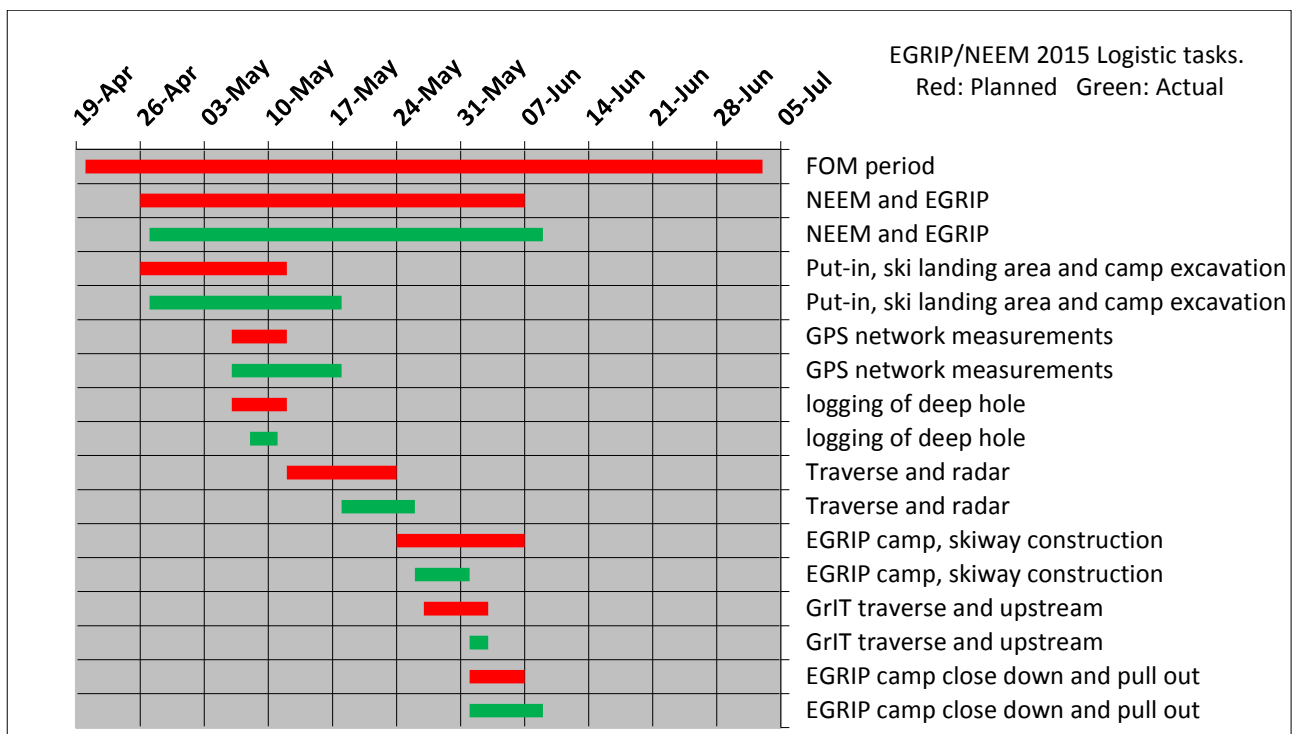
NEEM/EGRIP actual manning 2015.

	Name	Country	To SFJ	To NEEM	From EGRIP	From SFJ	Number of days in camp.	Number of days in KISS
FOM	Larsen, Lars Berg	DK	20-Apr			28-Apr	0	8
FOM	Steffensen, Jørgen Peder	DK	20-Apr			27-Apr	0	7
FOM	Hvidberg, Christine	DK	28-May			11-Jun	0	14
FOM	Steffensen, Jørgen Peder	DK	09-Jun			12-Jun	0	3
FOM	Steffensen, Jørgen Peder	DK	23-Jun			03-Jul	0	10
FIELD LEADER	Steffensen, Jørgen Peder	DK		27-Apr	09-Jun		43	0
MECHANIC	Hilmarsson, Sverrir Æ.	IS	20-Apr	27-Apr	09-Jun	11-Jun	43	9
MECHANIC	Miller, Georg	D	29-Apr	04-May	06-May	07-May	2	6
COOK	Dahl-Jensen, Dorthe	DK	24-Apr	01-May	01-Jun	05-Jun	31	11
COOK	Ernst, Kim	GRL		01-Jun	09-Jun		8	0
ASSISTANT/MEDIC	Brejneboel, Matthias	DK	24-Apr	27-Apr	09-Jun	11-Jun	43	5
FIELD ASSISTANT	Kipfstuhl, Sepp	D	24-Apr	27-Apr	09-Jun	11-Jun	43	5
FIELD ASSISTANT	Pedro, Joel	DK/AUS	24-Apr	01-May	09-Jun	11-Jun	39	9
MECHANIC/DRIVER	Smith, Pat	US	20-Apr	30-Apr	01-Jun	10-Jun	32	19
SURFACE	Karlsson, Nanna	DK	27-Apr	01-May	01-Jun	11-Jun	31	14
SURFACE	Kjær, Helle Astrid	DK	24-Apr	27-Apr	09-Jun	11-Jun	43	5
SURFACE	Vallelonga, Paul	DK	24-Apr	01-May	09-Jun	11-Jun	39	9
SURFACE	Winter, Anna	D	27-Apr	01-May	01-Jun	09-Jun	31	12
GLISN	Childs, Dean	US	24-Apr	01-May	06-May	07-May	5	8
GLISN	Leone, Orlando	US	24-Apr	01-May	06-May	07-May	5	8
	EGRIP-Summit traverse arrived Summit 04-jun, departed Summit 9-June							
Totals							438	162

List of NEEM/EGRIP 2015 tasks:

List of NEEM/EGRIP 2015 tasks:	Planned period		Actual period		no days	no days
FOM period	20-Apr	03-Jul			74	
NEEM and EGRIP	26-Apr	07-Jun			42	
NEEM and EGRIP			27-Apr	09-Jun		43
Put-in, ski landing area and camp excavation	26-Apr	12-May			16	
Put-in, ski landing area and camp excavation			27-Apr	18-May		21
GPS network measurements	06-May	12-May			6	
GPS network measurements			06-May	18-May		12
logging of deep hole	06-May	12-May			6	
logging of deep hole			08-May	11-May		3
Traverse and radar	12-May	24-May			12	
Traverse and radar			18-May	26-May		8
EGRIP camp, skiway construction	24-May	07-Jun			14	
EGRIP camp, skiway construction			26-May	01-Jun		6
GrIT traverse and upstream	27-May	03-Jun			7	
GrIT traverse and upstream			01-Jun	03-Jun		2
EGRIP camp close down and pull out	01-Jun	07-Jun			6	
EGRIP camp close down and pull out			01-Jun	09-Jun		8

NEEM/EGRIP 2015 task periods.



SITuation REPortS (SITREPs):

TO NEEM/EGRIP PARTNERS, DANISH AND GREENLANDIC AUTHORITIES.

PROJECT NEEM/EGRIP (C-15-7) – SITuation REPort (SITREP) no.02, Sunday 3. May 2015.

This SITREP covers the period April 27 – May 03, 2015 (inclusive).

Movement of personnel:

April 27: Nanna Karlsson(DK), Anna Winter(D) from Copenhagen to SFJ by Air Greenland. Jørgen Peder Steffensen (DK), Sverrir Hilmarsson (IS), Sepp Kipfstuhl (D), Mathias Brejnebøl (DK) and Helle Astrid Kjær(DK) from Kangerlussuaq (SFJ) to NEEM by NYANG 109th.

April 29: George Miller(D-Pistenbully) from Copenhagen to SFJ by Air Greenland.

April 30: Pat Smith(US-GrIT) from Thule AB to NEEM by NYANG 109th.

May 1: Dorthe Dahl-Jensen(DK), Nanna Karlsson(DK), Paul Vallelonga(AUS/DK), Anna Winter(D), Dean Childs(US-GLISN), Orlando Leone(US-GLISN), Joel Pedro(AUS/DK) from Kangerlussuaq to NEEM by NYANG 109th.

Movement of cargo:

April 27 3400 kg Science equipment, communication and food from Kangerlussuaq to NEEM by NYANG

April 29 2800 kg Pistenbully belts from Kangerlussuaq to Thule AB by NYANG 109th.

April 30 3700 kg GrIT spareparts and tools, and 600 liter mogas, 3000 liter JP-8 from Thule AB to NEEM by NYANG 109th. 2800 kg Pistenbully belts and 3200 liter fuel from Thule AB to NEEM by NYANG 109th.

May 1 2540 kg Science equipment, food, Pistenbully blade and 2500 liter fuel from Kangerlussuaq to NEEM by NYANG 109th. 1000 kg empty pallets and ATO bottles from NEEM to Kangerlussuaq by NYANG 109th.

Activities:

The put-in went on schedule. The 109th LC-130 landed at 12:20 and was off the snow again 12:45. Although camp has been deserted for three years, we were still able to gain access to the main dome in 20 minutes. It took a couple of hours to make a ramp with the snowblower and to open the mechanics garage. Although both garages appeared to be drifted in only lightly, the drifts consisted of a lot re-frozen water, most likely from the Summer of 2014. The main dome and garages were intact. The weather was clear sky, -33C with relatively high winds up to 16 knots. At 16:00 the Main Dome was powered by the 15 KW generator. Then the access to the garages was gained by snow blower in order to get the vehicles out. At 21:15 the Main Generator was pulled to the Main Dome and was powering the building.

Tuesday and Wednesday were spent setting up new markers on the old NEEM skiway and grooming it for the next landing Thursday. As luck had it, few old markers were still 5-10 cm above

the snow, so it was possible to place new markers on top of the old and thus reconstruct the old skiway system. On Thursday NEEM received the same plane twice, as it made a fuel shuttle out of Thule AB. Operations were successful. Of the two planned flights Friday, one was cancelled due to technical issues with the aeroplane in Kangerlussuaq. The other had a successful mission. Friday, Saturday and Sunday have been spent retrieving the cargo sleds from storage since 2012, chopping, hammering and sawing snow away from the garages in preparation of taking them down, and excavating the Grit equipment left at NEEM in 2014.

The first couple of days there were some issues with the Iridium OpenPort system and communication with the FOM office in Kangerlussuaq was maintained twice a day by handheld Iridium phones. The OpenPort is now up and running.

Drilling: No drilling is planned at NEEM.

Science: Sampling of surface snow is in progress. Maintenance of GLISN seismic station in progress.

Weather at NEEM: It has been very nice weather this week, clear blue sky with wind 5-16 knots and temperature between -26C to -38C.

NEEM camp population: 13

NEEM iridium numbers:

Primary no.: +8816 777 37835

Second no: +8816 234 93272

Kangerlussuaq:

It has been an unusual week in Kangerlussuaq. The FOM office serves two projects: NEEM/EGRIP and RECAP (Ice core drilling on the Renland Ice cap). Therefore flights were coordinated to NEEM (direct or via Thule AB) and to Mestersvig at the same time. Pallets with cargo were built for four flights to NEEM and three flights to Mestersvig, and the office coordinated with people at following locations: Renland Ice cap, Mestersvig, Konstabel Pynt, Neem and Kangerlussuaq.

Tel.: +299 84 11 51

Mobile: +299 52 41 25

Weather in Kangerlussuaq/SFJ:

Mixed weather, first part of the week some clouds and snow with temperature close to freezing, in the weekend mostly clear and temperatures between -18C and -2C. Mostly little or no wind during the week.

NEEM Field Operations office, Bo M. Vinther.

NEEM Field Leader, J. P. Steffensen

TO NEEM/EGRIP PARTNERS, DANISH AND GREENLANDIC AUTHORITIES.

PROJECT NEEM/EGRIP (C-15-7) – SITUATION REPORT (SITREP) no.03, Sunday 10. May 2015.

This SITREP covers the period May 4 – May 10, 2015 (inclusive).

Movement of personnel:

- May 4:** George Miller(D-Pistenbully) from SFJ to NEEM by NYANG 109th .
- May 6:** Dean Childs(US-GLISN), Orlando Leone(US-GLISN) and Georg Miller(D-Pistenbully) from NEEM to SFJ by Air Greenland Twin Otter.
- May 7:** Dean Childs(US-GLISN) and Orlando Leone(US-GLISN) transferred to U.S. program. Georg Miller(D-Pistenbully) from Kangerlussuaq to CPH by Air Greenland

Movement of cargo:

- May 4:** 7500 kg Pistenbully main body and cabin from SFJ to NEEM by NYANG 109th .
- May 4:** 1200 kg Empty drums and Glisn parts from NEEM to SFJ by NYANG 109th .
- May 6:** 370 kg Pistenbully spare parts, and few remaining items from SFJ to NEEM by Air Greenland Twin Otter .
- May 6:** 700 kg GLISN equipment from NEEM to Kangerlussuaq by Air Greenland Twin Otter.

Activities:

On Monday the last scheduled LC-130 landed at NEEM with the Pistenbully main body and cabin and the Pistenbully mechanic. In two days, tracks, blade and cabin was mounted on the Pistenbully and the complete vehicle was delivered. The ski landing area was in good condition. On Wednesday a Twin Otter came to pick up the two GLISN project members and the Pistenbully mechanic. Maintenance of the GLISN seismic site is successfully concluded. After the flights, the skiway markers were taken down to be re-used at EGRIP. The balloon trench was opened and all food stored here was retrieved. The trench was in perfect condition and measurements showed that the roof height in the past year has lowered only by 19 cm. The remaining sleds were excavated and pulled to camp. The fuel tanks were excavated and fuel transferred to the GrIT sled bladders. The carpenters garage was emptied and taken down and packed. Problems with vehicles have been solved and vehicles were serviced. Cargo has been organized for later stowage on traverse sleds. A fuel depot has been made for the PARCA project.

Drilling: A few, up to 10 m deep hand augered cores were retrieved with the borrowed IDDO, Madison drill.

Science: Sampling of surface snow is in progress. Maintenance of GLISN seismic station is completed. Re-measurement of the NEEM GPS strain net is in progress. Several tracks with German accumulation radar. Pit study performed S of NEEM camp. Old 100 m hole at NEEM main GPS reference station located, and temperature profile measured. Logging of the deep NEEM borehole in progress.

Weather at NEEM: Weather has been fine. It was sunny, clear and cold until Wednesday when temperatures increased by 10 degrees and clouds, light snowfall and haze came. This change was not accompanied by strong winds, for which we are grateful. Sunday, the weather cleared up again and it became colder. Winds during the period 2-7 m/s and temperatures between -26C to -39C (monday to wednesday) and between -16C and -30C (Wednesday to Sunday).

NEEM camp population: 11

NEEM iridium numbers:

Primary no.: +8816 777 37835

Second no: +8816 234 93272

Kangerlussuaq:

Bo Vinther remained in Kangerlussuaq until Wednesday when all flights to NEEM were completed. Then he transferred to Constabel Pynt where he oversaw the put-in of the RECAP project. The NEEM/EGRIP FOM office in Kangerlussuaq is temporarily unmanned, until next flight period in three weeks. We remain in contact by satellite internet, and we send daily reports also to our U.S. counterparts CPS polar services in Kangerlussuaq.

Tel.: +299 84 11 51 (FOM office is temporarily closed)

Mobile: +299 52 41 25 (this phone is automatically passed on to Lars Berg Larsen, who is currently in Copenhagen)

Weather in Kangerlussuaq/SFJ: FOM office unmanned.

*NEEM Field Leader,
J. P. Steffensen*

TO NEEM/EGRIP PARTNERS, DANISH AND GREENLANDIC AUTHORITIES.

PROJECT NEEM/EGRIP (C-15-7) – SITUATION REPORT (SITREP) no.04, Sunday 17. May 2015.

This SITREP covers the period May 11 – May 17, 2015 (inclusive).

Movement of personnel:

No movement of personnel.

Movement of cargo:

No movement of cargo.

Activities: The main activity has been packing and removing the last structures at the former NEEM camp site. By Wednesday the mechanics garage was taken down, and Thursday after two days of hard work removing ice, the main dome was hauled up a ramp to the surface and parked on the former apron. The rest of the week has been spent preparing for the traverse. By Sunday evening everything is stowed, and we are ready to begin the traverse Monday morning. When we have left, there will only be a borehole casing pipe, for future measurements of the NEEM borehole, an automatic weather station and a seismic station.

Drilling: A few ice cores were drilled through the roof of the balloon trench for study of density and physical properties.

Science: Sampling of surface snow at NEEM is now ended. Re-measurement of the NEEM GPS strain net is almost completed. Two points will be measured Monday. Logging of the deep NEEM borehole is successfully completed. The equipment is packed and the borehole casing has been extended.

Weather at NEEM: Weather has been cooperative. Several days with clouds, light snowfall and haze. Some clear days too. It was rather windy in the middle of the week with some snowdrift; but before the weekend the wind dropped and the weather cleared. Winds during the period 2 - 12 m/s and temperatures between -15C and -29C.

NEEM camp population: 11

NEEM iridium numbers:

Primary no.: +8816 777 37835

Second no: +8816 234 93272

Kangerlussuaq:

The NEEM/EGRIP FOM office in Kangerlussuaq is temporarily unmanned, until next flight period in three weeks. We remain in contact by satellite internet, and we send daily reports also to our U.S. counterparts CPS polar services in Kangerlussuaq.

Tel.: +299 84 11 51 (FOM office is temporarily closed)

Mobile: +299 52 41 25 (this phone is automatically passed on to Lars Berg Larsen, who is currently in Copenhagen)

Weather in Kangerlussuaq/SFJ: FOM office unmanned.

*NEEM Field Leader,
J. P. Steffensen*

TO NEEM/EGRIP PARTNERS, DANISH AND GREENLANDIC AUTHORITIES.

PROJECT NEEM/EGRIP (C-15-7) – SITUATION REPORT (SITREP) no.05, Sunday 24. May 2015.

This SITREP covers the period May 18 – May 24, 2015 (inclusive).

Movement of personnel:

Pat Smith (U.S. GRIT), Dorthe Dahl Jensen(DK), Nanna Karlsson(DK), Paul Vallelonga(AUS/DK), Helle Astrid Kjær(DK), Sverrir Hilmarsson(IS), Anna Winther(D), Sepp Kipfstuhl(D) Mathias Břejnebo(DK), Joel Pedro(AUS/DK) and J.P.Steffensen(DK) from NEEM to 76 06' N, 40 18' W by traverse.

Movement of cargo:

Approx. 150 ton of cargo (The entire NEEM station) from NEEM site to 76 06' N, 40 18' W by traverse.

Activities: The main activity has been traversing, with full days focusing on moving heavy loads across the ice sheet to the new location at EGRIP. The traverse has made the following progress: Monday 24 km, Tuesday 55 km, Wednesday 65 km, Thursday 55 km, Friday 51 km, Saturday 50 km and Sunday 25 km. The snow is getting progressively softer, and we use a lot of fuel (37 liter per kilometre). We have made inventory of fuel, and we might have to abandon two heavy sleds with cargo that is not necessary for opening EGRIP. We will pick up these sleds next year. During the traverse, we have food, shelter and fuel for the U.S. PARCA crew three nights. This boosted camp population to 17. The main dome appears to take the traverse in the stride, and we have so far not had major incidents with tractors and sleds.

Drilling: Several 10m ice cores have been drilled along the route, including 2007 drill sites 1 and 2.

Science: Sampling of surface snow continues along the route, as well as accumulation radar survey.

Weather on Traverse: Weather has been cooperative. Mainly clear days. It was rather windy in the middle of the week with some snowdrift; but before the weekend the wind dropped and the weather cleared. Winds during the period 2 - 6 m/s and temperatures between -15C and -30C.

Traverse population: 11, NEEM camp population: 0 (NEEM camp does not exist anymore)

NEEM iridium numbers:

Primary no.: +8816 777 37835

Second no: +8816 234 93272

Kangerlussuaq:

The NEEM/EGRIP FOM office in Kangerlussuaq is temporarily unmanned, until next flight period next Friday. We remain in contact by satellite internet, and we send daily reports also to our U.S. counterparts CPS polar services in Kangerlussuaq.

Tel.: +299 84 11 51 (FOM office is temporarily closed until Thursday May, 28)

Mobile: +299 52 41 25 (this phone is automatically passed on to Lars Berg Larsen, who is currently in Copenhagen)

Weather in Kangerlussuaq/SFJ: FOM office unmanned.

*NEEM Field Leader,
J. P. Steffensen*

TO NEEM/EGRIP PARTNERS, DANISH AND GREENLANDIC AUTHORITIES.

PROJECT NEEM/EGRIP (C-15-7) – SITUATION REPORT (SITREP) no.06, Sunday 31. May 2015.

This SITREP covers the period May 25 – May 31, 2015 (inclusive).

Movement of personnel:

Pat Smith (U.S. GRIT), Dorthe Dahl Jensen(DK), Nanna Karlsson(DK), Paul Vallelonga(AUS/DK), Helle Astrid Kjær(DK), Sverrir Hilmarsson(IS), Anna Winther(D), Sepp Kipfstuhl(D) Mathias Brejnebøl(DK), Joel Pedro(AUS/DK) and J.P.Steffensen(DK) from 76 06' N, 40 18' W to EGRIP (75 38' N, 36 00' W) by traverse.

Movement of cargo:

Approx. 120 ton of cargo from 76 06' N, 40 18' W to EGRIP by traverse. 2 sleds and two empty tanks (approx. 30 ton) were left at 76 06' N, 40 18' W for pick up next year.

Activities: Tuesday, 26 May the traverse reached EGRIP, after driving 75 km Monday and 53 km Tuesday. The travelling speed of the traverse increased dramatically after leaving two sleds and two tanks behind. There were two reasons for abandoning the sleds: Soft snow, that made it necessary to haul the heavy loads with two tractors in a shuttle, and the shortage of fuel. We simply did not have fuel (or time) for running two tractors the same distance three times. The fuel consumption has been higher than expected due to the heavy load and the soft snow (37.80 liter/km). Without the heavy sleds, we managed to enter an area where the snow conditions got better and after that, the traverse made good time. However, on arrival, we did not have enough fuel to send Pat and his GRIT tractor and sled onwards to Summit. We have requested one more flight than the planned two with LC-130 flight with extra fuel on 2.June. On Thursday we received a Twin Otter from the U.S. CIRES (Abdalati) group and GEUS. They setup an automatic snow deformation station. They did not stay overnight.

Camp setup came at these stages:

Tuesday: Dorthe Dahl-Jensen picked the final spot for the future EGRIP camp.

Wednesday: Camp area surveyed and location of all future structures marked.

Thursday: Survey and marking of EGRIP skiway and apron completed. Berm for mechanics garage finished. GrIT sled unpacked and cargo set in cargo line. Grooming of skiway begins.

Friday: Berm for mechanics garage and main dome finished. Grooming continues.

Saturday: Mechanics garage completed. GrIT sled ready for departure. Now just waiting for fuel.

Sunday: Moved dome to final position. Built a pallet with cargo (ice samples) for the Monday, 1 June plane.

Drilling: One 10m ice core has been drilled at EGRIP.

Science: A GPS strain net has been setup around EGRIP. The British Antarctic Survey, Hugh Corr, radar has been tested at EGRIP. Snow samples have been collected on site.

Weather on Traverse and at EGRIP: Weather continues to cooperate. Except for few high clouds, mainly clear days. Winds during the period calm - 7 m/s and temperatures between -13C and -27C.

Traverse and now EGRIP population: 11.

NEEM iridium numbers:

Primary no.: +8816 777 37835

Secondary no: +8816 234 93272

Kangerlussuaq:

The NEEM/EGRIP FOM office in Kangerlussuaq was manned again Thursday. We remain in contact by satellite internet, and we send daily reports also to our U.S. counterparts CPS polar services in Kangerlussuaq.

Tel.: +299 84 11 51

Mobile: +299 52 41 25 (this phone is automatically passed on to Lars Berg Larsen, who is currently in Copenhagen)

Weather in Kangerlussuaq/SFJ:

NEEM Field Leader,

J. P. Steffensen

TO NEEM/EGRIP PARTNERS, DANISH AND GREENLANDIC AUTHORITIES.

PROJECT NEEM/EGRIP (C-15-7) – SITUATION REPORT (SITREP) no.07, Sunday 7. June 2015.

This SITREP covers the period June 1 – June 7, 2015 (inclusive).

Movement of personnel:

- 1 June: Dorthe Dahl Jensen(DK) from EGRIP to Kangerlussuaq by 109th.
Kim Ernst(GRL) from Kangerlussuaq to EGRIP by 109th.
- 1 June: Pat Smith (U.S. GrIT), Nanna Karlsson(DK) and Anna Winther(D) from EGRIP to Summit by GrIT traverse.
- 5 June: Dorthe Dahl Jensen(DK) from Kangerlussuaq to CPH by Air Greenland.

Movement of cargo:

- 1 June: Approx. 8 ton of cargo from EGRIP to Summit by traverse.
- 1 June: 3424 liter fuel, 15 sheets of plywood and cargo nets from Kangerlussuaq to EGRIP by 109th
1200 kg ice samples and borehole logger equipment from EGRIP to Kangerlussuaq by 109th.
- 2 June: 5925 liter fuel from Kangerlussuaq to EGRIP by 109th.

Activities: Much needed fuel arrived on Monday, and after the plane departed, the GrIT tractor and sled could begin the traverse to Summit with a surface radar team on-board. The traverse arrived at Summit on June 4. On Tuesday another plane brought more fuel, so EGRIP camp is now in good shape for opening next year. The second garage was completed on Tuesday, and Thursday we completed the snow wall around the main dome undercarriage. This operation provided us with a closed basement under the main dome. The rest of the week was spent clearing the camp area for equipment and cargo and stowing the garages and the heavy sleds. By Saturday afternoon, camp was packed down for winter in anticipation for the last flight on Sunday. However, the Sunday flight has been cancelled, so we are now looking at a pull-out from EGRIP for this season on Tuesday.

Drilling: No drilling this week.

Science: Setup of a GPS strain network around EGRIP has been completed. German snow sampling program completed. A seismic station (GEUS) has been setup. Surface radar measurements have been done along the traverse route to Summit.

Weather at EGRIP: Weather continues to cooperate. Only clear days. Winds during first half of the week: calm - 4 m/s from W and NW. During second half of the week: 5 m/s from WSW and temperatures between -11C and -25C.

EGRIP population: 8.

NEEM iridium numbers:

Primary no.: +8816 777 37835

Secondary no: +8816 234 93272

Kangerlussuaq:

The NEEM/EGRIP FOM office in Kangerlussuaq was manned again Thursday. We remain in contact by satellite internet, and we send daily reports also to our U.S. counterparts CPS polar services in Kangerlussuaq.

Tel.: +299 84 11 51

Mobile: +299 52 41 25 (this phone is automatically passed on to Lars Berg Larsen, who is currently in Copenhagen)

Weather in Kangerlussuaq/SFJ:

*NEEM Field Leader,
J. P. Steffensen*

TO NEEM/EGRIP PARTNERS, DANISH AND GREENLANDIC AUTHORITIES.

PROJECT NEEM/EGRIP (C-15-7) – SITUATION REPORT (SITREP) no.08, Thursday 11. June 2015.

This SITREP covers the period June 8 – June 11, 2015 (inclusive) and is the last for this project for this year.

Movement of personnel:

9 June: Kim Ernst(GRL), Sepp Kipfstuhl(D), Sverrir Hilmarsson(IS), Paul Vallenga(DK/AUS), Helle Kjær(DK), Joel Pedro(DK/AUS), Mathias Brejnbøl(DK) and J.P.Steffensen(DK) from EGRIP to Kangerlussuaq by 109th.

9 June: Pat Smith (U.S. GRIT), Nanna Karlsson(DK) and Anna Winther(D) from Summit to Kangerlussuaq by 109th.

10 June: Pat Smith(US GRIT) from Kangerlussuaq to Schenectady by 109th.

11 June: Sverrir Hilmarsson(IS), Paul Vallenga(DK/AUS), Helle Kjær(DK), Joel Pedro(DK/AUS), Mathias Brejnbøl(DK), Anna Winter(D), Nanna Karlsson(DK) and Christine Hvidberg(DK) from Kangerlussuaq to Copenhagen by Air Greenland.

Movement of cargo:

9 June: 4800 liter fuel in drums from Kangerlussuaq to EGRIP by 109th.

9 June: 1300 kg equipment and samples and camp waste from EGRIP to Kangerlussuaq by 109th

11.june: 29 ice sample boxes from Kangerlussuaq to Copenhagen by Air Greenland.

Activities: In anticipation of pull-out on Sunday, EGRIP camp was packed down for the winter. Sunday and Monday was spent waiting for news of the flight and camp documentation. The pull out went well. The plane was stuck on the apron; but after a little digging, the plane got loose and we could lift off in the first attempt using only ½ skiway. With the delivery of 4800 liter of fuel, we left camp with 9500 liter fuel, and this ensures a safe put-in situation in 2016. All camp structures are sealed and closed.

Drilling: No drilling this week.

Science: Science programs completed for this year.

Weather at EGRIP: Tuesday morning weather changed, and for the first time, we had clouds and light snowfall. Winds were 4 m/s from WSW, along the skiway; but Tuesday morning it turned to NNW a 4 m/s. Temperatures between -11C and -25C.

EGRIP population: 0.

EGRIP iridium numbers: Camp is closed.

Kangerlussuaq:

The NEEM/EGRIP FOM office in Kangerlussuaq has been busy taking care of arrivals and arriving cargo. Ice samples were shipped Thursday. The FOM office will be closed for 10 days from Friday, when Sepp Kipfstuhl(D) and J.P.Steffensen(DK) will fly to Copenhagen. The office will open again June 24 to receive the RECAP crew and cargo from Mestersvig.

Tel.: +299 84 11 51

Mobile: +299 52 41 25 (this phone is automatically passed on to Lars Berg Larsen, who is currently in Copenhagen)

Weather in Kangerlussuaq/SFJ: Rainy and cool over the weekend, from Tuesday improving to sunshine and more than +14 C. Mosquitoes are now coming out in numbers.

*EGRIP Field Leader now FOM in Kangerlussuaq,
J. P. Steffensen*

Daily reports:

May

Friday, 1st May 2015.

The first direct diary from NEEM 2015.

While 5 people arrived at NEEM on Monday, April 27, we didn't have direct internet connection until this morning. All communication between us and the people in Kangerlussuaq was done via satellite phone. Now we are connected, and here is a short resume on events of the last five days:

Monday, April 27: Five people (Sverrir, Mathias, Helle, Sepp and J.P.) flew with the 109th from Kangerlussuaq at 9.40. At 12.20 we landed at NEEM on the open snow and the plane taxied into camp. The old skiway was almost gone. After 25 minutes the plane was airborne again at 12.45, and we were alone. Gaining entrance to the main dome was relatively easy. It was good to get out of the wind as the temperature was -33 C with a 8 m/s wind. Inside the main dome we found a note on the table from a U.S. science expedition that visited NEEM in 2013 and 2014. The dome was found in good order, albeit cold. With shovels and picks we gained access to the carpenters garage and pulled out our 15kW backup generator. This powered the main dome from 16.10. At 17.00 we got our Pistenbully started, and it went fine although this vehicle has been in a deep frozen condition in three years. With the Pistenbully out, we were in action. We picked up the main generator on its snow hill and pulled it to camp, and by 21.15 the main dome was under full power.

Tuesday, April 28: First priority was to mark the ski landing area for the next four landings with LC-130, Hercules. All the old skiway markers were almost but gone. The top 2-5 cm of a few markers could be found, however this was enough to mark the ski landing area on top of the old NEEM skiway. Once the new marking was done, we could begin grooming the landing strip. Sverrir excavated the entrance to the mechanics garage, and now we had access to all structures at NEEM. Late in the evening, temperatures in the main dome went above freezing.

Wednesday, April 29: As we were expecting a flight from Thule on Thursday, we focussed on making things ready. The landing area was groomed several times, and the markings were completed. Mathias and Helle cleaned the main dome, and collected all food stored in the basement. Sverrir managed to start our Caterpillar loader and made the fuel pump ready.

Thursday, April 30: This was an anxious day. Only 72 hours after arrival in a camp that has been inactive for three years, we received a plane from Thule carrying tools and spareparts for the U.S. GriT tractor left at NEEM in 2014, and most importantly, Pat, the driver and technician from GriT. Operations went very well, and after one hour the plane departed for Thule to pick up fuel and more parts. The plane landed again at 17.00 and departed at 17.35. In the process, we received 6,200 liter fuel, and we are now able to support several planned Twin Otter flights from NASA and NSF projects in North Greenland. Most importantly, however, was that the pilots were satisfied enough to allow for heavier payloads, and this was crucial for our planning as we have a 7.5 ton Pistenbully in Kangerlussuaq that we need for our planned traverse.

Thank you, 109th for an excellent show.

Today, Friday, May 1: We had planned for receiving the last two flights with LC-130 from Kangerlussuaq today; but one plane did not come due to technical problems discovered in Kangerlussuaq. However, we did receive one, and what a change in camp! In the morning, we were 6 people in camp; but this evening we are 13. Hello to Paul, Anna, Joel, Dean, Orlando, Nanna and Dorthe. Dean and Orlando are here to maintain the GLISN seismic station. This station will remain in operation even after we abandon the NEEM site. Next week, they will be picked up by a Twin Otter. We were able to present the newcomers with a warm and cosy dome, and Helle had prepared a nice dinner for all. The cancelled plane with our Pistenbully cannot arrive before Monday, as we need Thule to be open for safety of operations. One person that needs to come to NEEM waits in Kangerlussuaq over the week-end and that is a Pistenbully specialist we need to assemble the vehicle. He is, however, not alone, as Bo Vinther from the RECAP

project is now acting FOM in Kangerlussuaq and another member of the RECAP projects is there as well. Bo was able to extend best regards from our colleagues on the Renland ice cap in Scoresbysund Fjord, our colleagues in Mestersvig and our colleagues in Neerleriit Inaat (Konstabel Pynt). Never before, in the history of Danish ice core science, has one ice core group been active in so many spots in Greenland at the same time.

What we did Monday:

1. Five people arrived at NEEM
2. Outhouse ready
3. Opened main dome
4. Opened Carpenters garage
5. We have one snowblower, 2 snowmobiles and one Pistenbully running
6. Started main generator.
7. Tomato sled pulled into camp

What we did Tuesday:

1. Almost finished new marking of landing area and taxiway and apron.
2. Groomed the landing area.
3. Opened the mechanics garage
4. Opened the basement under the dome.
5. Setup of the meteorological station

What we did Wednesday:

1. Cleared all food from basement under the dome. The basement is full of snow, as heavy melting in past summers has caused the snow wall of the basement to sink and become open for snow drift.
2. Cleaned in the main dome.
3. Finished marking ski landing area.
4. Zig-zag groomed and groomed along on the landing strip and groomed taxiway and northern half of apron.
5. Caterpillar and Flexmobil now running.

What we did Thursday:

1. Received Skier 31 twice, bringing Pistenbully belts, GrIT equipment and fuel.
2. Repaired ski landing area to receive an upgrade.
3. Checked the science GPS systems.
4. Sepp began German top snow sampling.
5. New arrival: Pat smith from GrIT traverse.

What we have done today:

1. Unpacking GrIT cargo and excavating the GrIT tractor.
2. Building a pallet with cargo for Kangerlussuaq.
3. Receiving Skier 52, and 7 passengers.
4. Unpacking arriving cargo and food.
5. Began excavation of one of the two GLISN sites.

Monday weather: Clear all day. Temp. – 33 C to -38 C, 12-16 knots from SSE. Visibility: To horizon.

Tuesday weather: Clear all day. Temp. – 28 C to -35 C, 10-15 knots from ESE. Visibility: To horizon.

Wednesday weather: Clear all day. Temp. – 32 C to -34 C, 8 knots from SE. Visibility: To horizon.

Thursday weather: Clear all day. Temp. – 26 C to -38 C, 8-10 knots from ESE. Visibility: To horizon.

Friday weather: Clear all day. Temp. – 27 C to -38 C, 5-8 knots from ESE. Visibility: To horizon.

We are now 10 NEEMers, 2 GLISN and 1 GrIT personnel in camp.

FL, J.P. Steffensen

Picture captions:



NEEM camp seen from the air just before the first landing.



The crew of five are left alone on the ice sheet.



Touch-down of the plane today, bringing 7 new members to camp.

Saturday, 2nd May 2015.

First Saturday night and a birthday.

This is the first day in camp for more than half of the people here; but everybody was hard at work. The first steps of preparing the traverse are to activate all tractors, dismantle the garages and making all heavy sleds ready for the trip. Today, three work groups were assigned tasks. One group used chain saw, sledgehammers, shovels and spades to free the base along the walls of the carpenters garage which have been encased in ice from melting last year. Another

group excavated the U.S. tractor, and the third group removed snow from the heavy sleds as they were pulled to camp. It is a bit tough to be working outside in the low temperatures and a persistent wind. At the end of the day, however, there was a good moment. It is Nanna's birthday and Dorthe had prepared lamb roast with potatoes and vegetable salad.

What we have done today:

1. Excavating the GrIT tractor.
2. Pulling sleds with cargo from their three year storage to camp.
3. Freeing the base of carpenters garage from ice and snow.
4. Preparing Saturday night dinner and birthday celebration.
5. Removing snow and ice from the freed sleds.

Saturday weather: Clear all day. Temp. – 28 C to -34 C, 10-14 knots from SE. Visibility: To horizon.

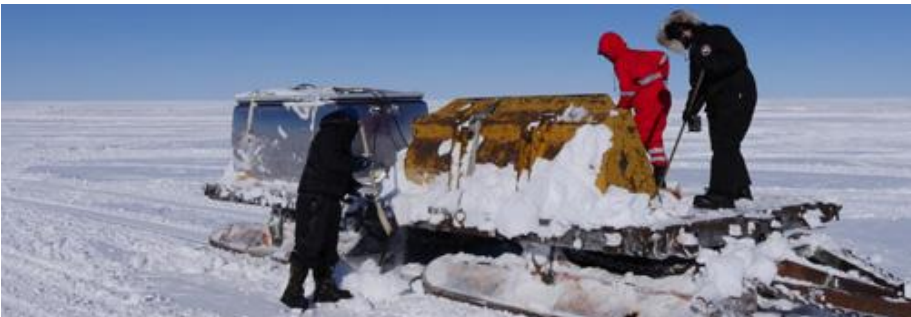
We are 10 NEEMers, 2 GLISN and 1 GrIT personnel in camp.

FL, J.P. Steffensen

Picture captions:



Cutting and hammering ice away from the garage.



Removing snow from sleds pulled from storage.

Sunday, 3rd May 2015.

Hack, saw, whack and dig.

Today's headline covers the working life of most in camp today. The two garages, the sleds and the GrIT tractor have not only been encased in snowdrifts; but also in pure ice from melting in the summer of 2014. Several work teams

spent the day with shovels, spades, chainsaws and sledgehammers. These were the tools needed to free the garages, sleds and vehicles from the icy grip of the snowdrifts. At the end of the day, both garages are almost free, the GrIT tractor is moving, and all heavy sleds are now pulled to camp. What remains before we can pack down NEEM camp for good, is to excavate the GrIT sled and excavate the main dome and pull it to surface. We also groomed the skiway in anticipation of the last planned LC-130 landing at NEEM. The plane is scheduled for tomorrow, and we hope this mission will be successful. It brings our new Pistenbully tractor that we need in order to pull the entire camp to the EGRIP. At dinner tonight there were many tired arms and shoulders. The day ended with a movie and small talk.

What we have done today:

1. Freeing the mechanics garage from snow and ice.
2. Excavating the remaining heavy sled from its hill.
3. Cleaning the sled (there are now 7 cleaned heavy sleds in camp).
4. Excavation of GrIT sled in progress.
5. Maintaining GLISN site.
6. Groomed ski landing area, taxiway and apron.

Sunday weather: Clear all day. Temp. – 28 C to -34 C, 10-14 knots from SE. Visibility: To horizon.

We are 10 NEEMers, 2 GLISN and 1 GrIT personnel in camp.

FL, J.P. Steffensen

Picture captions:



A tired, but happy crew enjoys dinner.

Monday, 4th May 2015.

Last Hercules flight to NEEM.

The 109th landed at NEEM at noon bringing in our new 7.5 ton Pistenbully, and this mission is the last to NEEM, maybe forever. Next time we plan to see an LC-130 on the snow is at the new site EGRIP, some 450 km from here. Although for the first time this season there was some haze/fog to contend with, the mission was a success, and we are grateful to the 109th for their outstanding service. Immediately after departure of the plane, Sverrir and the Pistenbully mechanic, Georg, went to work, and by the end of the day the new Pistenbully had tracks on and was able to move around under own power. Several work teams cleaned sleds, chopped ice from inside of the carpenters garage and began excavation of the GriT sled. It is now 75 % free. The GLISN seismic team have been working on both their sites, and their work is progressing fine. It has been yet another sunny, very cold day with temperatures between -31C and -38C with up to 5 m/s winds, so working outside requires energy that Dorthe can supply with her excellent cooking. For lunch we had borst and for supper we had salmon with vegetable and rice.

I believe we have been lucky so far, the weather has been good for flying, and it appears that we have been lucky indeed as forecasts predict worsening of weather conditions tomorrow afternoon. But we can deal with that, as flights are almost over.

What we have done today:

1. Receiving Skier 11.
2. Building a pallet with empty drums.
3. Mounting tracks on the new Pistenbully.
4. Removed 1.5 m snow from $\frac{3}{4}$ of the GriT sled.
5. Maintaining GLISN site.
6. Chopped ice away from inside carpenters garage.
7. Finished removal of snow from driller sled.

Weather: Clear all day. Temp. – 31 C to -38 C, 5-10 knots from SE. Visibility: Mostly to horizon with periods of haze in the morning.

We are 10 NEEMers, 2 GLISN, 1 GriT and 1 Kaesbohrer mechanic in camp.

FL, J.P. Steffensen

Picture captions:



The new Pistenbully is rolled out of the plane.

Tuesday, 5th May 2015.

The stubborn snow lost, all sleds free.

With a Pistenbully mechanic in camp, the assembly of the new Pistenbully is completed. Today was the first day in action for this vehicle. It pushed snow in from to the GrIT sled. Some of the snow piled on top of the GrIT sled turned out to be so very resilient that our snowblower was often not enough and we had to resort to using chainsaws. In the afternoon, the sled was free, and Pat was able tug it to camp. Now all sleds are free and ready to be loaded. The GLISN team finished their work on maintaining their equipment with lifting of their equipment box at their GPS site to surface. Some of our work today was recorded using a video camera on a drone. Dorthie is the operator, and her footage was quite spectacular. We ended the day watching a movie with Dorthies aerial shots as a trailer.

What we have done today:

1. New Pistenbully assembled and ready.
2. Lifted GLISN relay station to surface. GLISN maintenance is finished.
3. Removed last tough snowcover from GrIT sled and pulled it to camp.
4. Began excavation of the ramp to balloon trench.
5. Recording activities in camp with video from a drone.

Weather: Mostly Clear. Temp. – 23 C to -38 C, 5-10 knots from SE turning to SSE. Visibility: Mostly to horizon with periods of haze in the morning. Between 16.00 and 19.00, clouds from S and a jump by 10 degrees in temperature.

We are 10 NEEMers, 2 GLISN, 1 GrIT and 1 Kaesbohrer mechanic in camp.

FL, J.P. Steffensen

Picture captions:



The excavated GrIT carpet sled, just before it is pulled to camp. On the left side are three load platforms, and on the flat right side we will place bladders with fuel during the traverse.

Wednesday, 6th May 2015.

Final plane to NEEM camp today.

An Air Greenland Twin Otter came to NEEM today to pick up Dean and Orlando from GLISN project and Georg, the Pistenbully mechanic. They landed at 12.06 and took off at 14.08 after refuelling 400 l fuel. After this take off, the NEEM landing area is now officially closed, and we will begin to take down the markers. They will be set up again at EGRIP after we arrive there. According to plan, we are now left to our own devices until beginning of June. Since yesterday, we have experienced an increase in temperature by 10 degrees C. This makes work outside much easier, and we accomplished a lot. We managed to open the balloon trench, and from inside the trench, we hauled an abundance of frozen food stored there since 2012. We have now enough frozen food to sink a navy. The evening was peaceful, and after some chats and board games, people went early to bed. They have all been working hard and they deserve the rest.

What we have done today:

1. Final delivery of new Pistenbully.
2. GLISN seismic station maintenance is now completed.
3. Received Twin Otter, and three persons left camp.
4. After going through a hard snow layer, the balloon trench was opened, and all food brought to surface.
5. Maintenance of GrIT sled system.
6. Practiced with IDDO hand auger.
7. Working with GPS and GPR radar system.
8. German surface snow sampling.

Weather: Mostly thin, broken cloud cover. Temp. – 19 C to -27 C, 8-11 knots from S. Visibility: Mostly 1-3 km. Few light snow showers.

We are now 10 NEEMers and 1 GrIT mechanic/driver in camp.

FL, J.P. Steffensen

Picture captions:



Nanna and Anna inside the balloon trench fetching the food boxes.

Thursday, 7th May 2015.

Science and packing down.

The recovery of garages, sleds, fuel tanks and the contents of the balloon trench from the grip of three years of snow and ice accumulation is almost over. Today was the time where several people could begin their scientific projects around NEEM. Paul and Helle were doing pit studies of the topmost annual layers, Anna and Nanna were making adjustments to the ice radar and GPS setup, Sepp was taking snow samples and Dorthe and Sverrir were setting up the equipment for measurements in the 2538 m deep NEEM borehole. Still organizing cargo for stowage on the sleds, maintaining sleds and emptying garages to take the down is also important (Pat, Sverrir, Mathias, Joel and J.P.). We plan to take down the carpenters garage tomorrow, weather permitting. One big excavation job remains however, and that is to excavate the main dome and make a ramp for pulling it to surface. Soon we will begin this work, again if weather permits it.

What we have done today:

1. Maintenance and adjustment of the GrIT sled.
2. Setting up equipment for borehole logging.
3. Performing a pit study.
4. Working on operating the GPR radar and GPS.
5. Emptied carpenters garage, and began to take it down.
6. Excavated the last two fuel tanks and pulled them to camp.

Weather: Mostly thin, broken cloud cover. Temp. – 21 C to -29 C, 6-8 knots from S. Visibility: Mostly 1-3 km. Few light snow showers and slight fog.

We are 10 NEEMers and 1 GrIT mechanic/driver in camp.

FL, J.P. Steffensen

Picture captions:



Joel and J.P. beginning to take down carpenters garage.

Friday, 8th May 2015.

Science and packing down.

As yesterday, people in camp were doing two lines of work: Collecting samples and doing radar measurements (science) and packing down in camp (logistics). As the wind dropped from 7 m/s to 3 m/s this afternoon, it was time to remove the cover on the carpenters garage. Also, all markers on the ski landing area were retrieved. They will be setup again at EGRIP. After Pat had arranged fuel bladders on the GrIT carpet sled, some 19,000 liter fuel was transferred from NEEM tanks to the bladders. It is much easier to transport fuel in bladders than in tanks. Dorthie is troubleshooting the control for the winch that will be used to lower our borehole logging device all the way to the bottom of the 2538 m NEEM borehole. We have had contact with our colleagues on Renland ice cap, and we were happy to learn that they now are fully deployed on the ice cap and that camp construction is going fine.

1. Maintenance and adjustment of the GrIT sled.
2. Transferring fuel from NEEM tanks 2 and 3 to GrIT bladders.
3. Setting up equipment for borehole logging. Troubleshooting winch control.
4. Continuing pit study and hand augering of shallow cores.
5. Practise run operating the GPR radar and GPS.
6. Main tarp removed from carpenters garage.
7. Removed all ski landing area markers.
8. Surface snow sampling.

Ad.2: More than 5000 liter remain in NEEM tank 1

Weather: Mostly thin, broken cloud cover. Temp. – 19 C to -26 C, 3-7 m/s from S and SW. Visibility: Mostly 1-3 km. Few light snow showers and slight fog.

FL, J.P. Steffensen

Picture captions:



Nanna and Anna are passing while doing radar and GPS work.



Paul at the pit study site with halo in the background.

Saturday, 9th May 2015.

Some technical problems.

Even on Saturdays you can have problems. The electric drive for the logger winch did not work, and having an operational winch is essential for performing deep borehole logging. In the afternoon Dorthe and Sepp solved the problem, and tests were fine. Tomorrow the logger will go into the deep borehole. Pat, with assistance from Mathias and Joel, has rigged the GrIT carpet sled in such a way, that it can accommodate our dismantled garages and 5 Hercules pallets worth of cargo. During service of one of our Flexmobil tractors, the steering ceased to work. This could become a serious problem for the traverse as we depend on all tractors being available. Sverrir was working so long and hard, with assistance from Pat, that he came late for our Saturday night dinner. We really hope the problem will be solved tomorrow. Helle and Paul prepared Saturday night dinner. Everybody washed from a basin (we do not have running water or shower in camp), dressed up and partook in a fine meal with suchi, fried duck fillet and lemon pie. It was a nice and cosy evening.

What we have done today:

1. Making space for 5 pallets of cargo on GrIT sled.
2. Repaired the electric drive for the logger winch. Sent probe down to 100m and broke through ice bridge at 87 m.
3. Dismantling and packing carpenters garage. Only arches and bottom frame remains.
4. Running radar and GPS at points of the strain net around NEEM.
5. Service on both Flexmobils. Troubleshooting steering on Flexmobil with yellow shovel.
6. German surface snow sampling.

Weather: Mostly thin, broken cloud cover. Temp. – 16 C to -26 C, 3-5 m/s from S and SW. Visibility: Mostly 1-3 km. Few light snow showers and slight fog.

FL, J.P. Steffensen

Picture captions:



Helle preparing Saturday night dinner with lemon pie.

Sunday, 10th May 2015.

Some anxious moments – with a good outcome.

Tests of the repaired logger winch yesterday showed that it was o.k. Today Dorthe proceeded to do the deep borehole logging. She lowers a probe down the hole which transmits data through the cable to the surface. The measurements consist of highly precise temperature measurements, borehole diameter, borehole inclination and azimuth and pressure in the borehole fluid. These measurements began this morning and will continue until midnight. Cook duties were covered by J.P. for lunch and Nanna for dinner. We could not steer one of the Flexmobils; but fortunately the problem was located to a hydraulic valve, which was replaced. It now drives nicely. A team of six removed and packed the remaining parts of the carpenters garage.

A new point has been added to our daily report: A short status of our colleagues in the SE on the Renland ice cap. They do not have access to the internet, so Bo Vinther and I agreed, that we will add a short point on status at the RECAP site.

What we have done today:

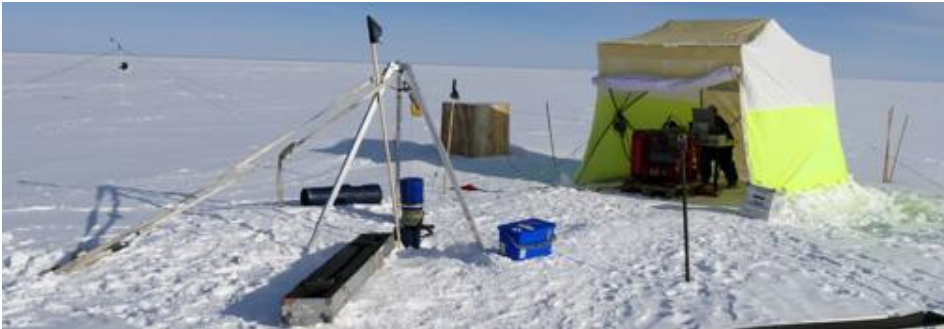
1. Repaired the steering problem on the Flexmobil, and fixed a small problem on PB no.1.
2. Logging of the NEEM deep hole is in progress.
3. The GPS team visits strain net sites.
4. Carpenters garage is taken down.
5. Placing fuel depot (8 drums) for PARCA twin Otter (150 m from the PARCA weather station).
6. German surface snow sampling.
7. Contact with our colleagues on the Renland Ice cap at 19 local (21 Renland time).

Ad.7: Bo Vinther reported that all members of the Renland team are well, and that all tents (including kitchen weatherport and drill tent) are now up. Tomorrow they will build the freezer to keep ice cores extra cold as springtime advances. The Penn. State group is about to begin shallow drilling and firn air sampling. Weather is fine and forecast for tomorrow is good.

Weather: Mostly thin, broken cloud cover, later clearing. Temp. – 19 C to -28 C, 2-4 m/s from SE. Visibility: In the morning 1-3 km, later unrestricted. Few light snow showers and slight fog in the morning.

FL, J.P. Steffensen

Picture captions:



Dorthe (in the tent) is logging the NEEM 2538 m deep hole which is in the blue piece of pipe next to the bamboo flag.



Former site of the carpenters garage.

Monday, 11th May 2015.

Last day of science – tomorrow we concentrate on packing.

Logging of the deep NEEM hole was terminated last night at 4. The results are good, and Dorthe is eager to analyze them. The GPS team went to a strain net point 25 km away and measured position. Most of the cargo in camp is now collected in a row of stacks close to the old apron. The cargo is sorted according to what can be stowed and what we need to have access to on the traverse. The mechanics garage is the last structure outside the dome, and it was emptied today. We plan to take it down tomorrow. Two short cores were drilled through the roof of the balloon trench, and they show a hard, dense and uniform firn. Sepp has measured temperature in the 170 m borehole at the GPS main reference station.

What we have done today:

1. Visited GPS strain net point 25 km away.
2. Drilled cores through roof of balloon trench.
3. Packing down in mechanics garage.
4. NEEM deep borehole logging successfully completed.
5. Cleaning up in camp.
6. Repaired the winch on the GrIT Case tractor.
7. Organizing antennae and radios for the traverse.
8. Contact with our colleagues on the Renland Ice cap at 19 local (21 Renland time).

Ad.2: The cores show quite uniform firn with a density of 600 g/m³.

Ad.8: The Renland team reports all well. Weather is fine, and today they assembled the freezer for the ice cores. The drill tent is being outfitted with furniture and equipment, and the inclined trench for the drill was excavated. A melt layer (most likely from last year) was encountered at 1.7 m depth. Main drilling will probably begin the day after tomorrow. The shallow drill system has been setup and the team expect to begin the U.S. firn air drilling and gas collection tomorrow.

Weather: Fog in the morning, later clearing, low clouds in the evening. Temp. – 21 C to -34 C, 3-5 m/s from S. Visibility: In the morning less than 1 km, later unrestricted.

FL, J.P. Steffensen

Picture captions:



Paul and Helle are drilling cores through the roof of the balloon trench. To the right: The drill hole from above and from below.

Tuesday, 12th May 2015.

Packing, packing and moving snow.

From the morning it was all hands on deck. The mechanics garage was emptied and all boxes were staged next to our large sleds for later stowing. We have sorted the cargo in a group that can stay all the way to EGRIP and a group that we'll need access to on the way. Everybody was busy chopping ice to free the cover of the garage. Weather forecast for tomorrow predicts higher winds, and therefore it was important to take the cover down today and pack it. Sverrir began clearing the area around the main dome by moving a huge amount of snow. There is quite a lot of ice in the snow around the dome, so tomorrow we will begin to cut free the skis under the dome with chainsaws. At dinner tonight there was a very good mood, and everybody had a good feeling of accomplishment.

What we have done today:

1. Fitting a meter on the fuel pump, so we can keep track on fuel consumption during traverse.
2. Emptying mechanics garage.
3. Taking down mechanics garage. Now only the bottom frame and arches remain.
4. Removing snow around main dome down until bottom of blue ring. We now have to use a ladder to enter.
5. Packed borehole logger.
6. A tired and happy crew at dinner tonight.
7. Contact with our colleagues on the Renland Ice cap at 20.30 local (22.30 Renland time).

Ad.7: The Renland team reports all well and a good mood. Weather is fine, but warm (-8 C). Today they powered the freezer for the ice cores, and it is stable at -25 C. The drill tent is outfitted with furniture and equipment, and the drill is in place. Main drilling will begin tomorrow. The shallow drill system has begun operations, and the first U.S. firn air sampling has been done at 10 m depth. Construction of the kitchen is completed.

NEEM weather: Mostly clear, broken low clouds and haze in the evening. Temp. – 19 C to -25 C, 3-6 m/s from S.
Visibility: In the morning unrestricted, later 1 km.
FL, J.P. Steffensen

Picture captions:



A beautiful halo surrounds the main dome.



The dome before excavation. Note, how the snow stays away from this spherical building.

Wednesday, 13th May 2015.

Main dome liberation day.

So far, we have believed that the garages were the most difficult structures to prepare for the traverse. Today proved otherwise. The snow base around the main dome has turned into a solid rock of ice, mostly because of water dripping from the roof in summer time. While a small work group dismantled the rest of the mechanics garage in the morning, it took the combined effort of everybody to chip away the ice from around the main dome skis. By the end of the day, everybody were exhausted; but the effects of the work could clearly be seen. Most of the skis are now free, and tomorrow we will try to pull the dome clear. If all goes well, this will be the last time I am writing from this spot. By tomorrow evening, the dome should be parked on the former NEEM aeroplane apron along with all the other sleds for our traverse.

What we have done today:

1. Packed down borehole logger equipment and extended the casing.
2. Removing remaining parts of mechanics garage. Site is now empty.
3. Made ramp for hauling up main dome.
4. Cut ice from around the skis of the main dome. Now only the inside of the side skis remain to be freed.
5. Contact with our colleagues on the Renland Ice cap at 20.30 local (22.30 Renland time).

Ad.1: The 4 small casing extensions were removed and a full length casing pipe inserted.

Ad.4: There was a lot of ice around the skis and along the outside of the base ring. It took the entire crew most of the day to saw, pick, hack and dig the ice away. Sverrir developed a scraping technique with the Pistenbully blade, which he called “a cheese cutter”. He was able to break off slice by slice of the hard frozen snow and ice around the base. This saved a lot of time.

Ad.5: The Renland team reports all well and a good mood. Weather is fine, but warm (-8 C) with a weak westerly wind. Today they drilled the first runs with the main drill to 11 m. The shallow drill system and the first U.S. firn air sampling has reached 42 m depth. All cargo is organized, the kitchen tent is completed and food stores check out o.k.

NEEM weather: Mostly broken low clouds and fog in the evening. Temp. – 18 C to -26 C, 3-8 m/s from S. Visibility: In the morning 1 – 5 km, later 1 km.

FL, J.P. Steffensen

Picture captions:



The dome being excavated. The most important instruments in action: The Pistenbully and Mathias with a pick and Anna with a shovel.

Thursday, 14th May 2015.

Main dome took the first slide towards a new home.

Today was a momentous day, a day anticipated with a slight nervousness. After more chopping ice away from the main dome skis, we were ready to insert inflatable jacks under the skis. After few seconds, the skis popped clear of the ice. Then the steering rods were mounted on the skis and at 15.20 the U.S. GrIT tractor winched the dome clear. It was dragged up from its 5 m deep hole to the surface along a 70 m long ramp, then pulled in a gentle curve to the former apron some 500 m away. We now have a completely new perspective from the dome windows. Immediately thereafter we pulled the generator to the dome, and then drove the vehicles to the dome. The former NEEM camp site is now all but vacated. We now need to stow our sleds and do a final clean up at NEEM before we leave. It was a happy crew that toasted to the success of operations so far.

What we have done today:

1. Removed the last ice from the main dome skis, and popped the skis free with air pillow jacks.
2. At 15.20 moved main dome up the ramp to the surface and pulled it in a gentle curve to the former apron. It is now pointing towards EGRIP.
3. Moved generator, tomatoes and all vehicles to former apron.
4. Good dinner with a toast and cakes decorated with dome and tractor.
5. Contact with our colleagues on the Renland Ice cap at 19.30 local (21.30 Renland time).

Ad.3: The former NEEM camp site is now vacated. We now need to stow the sleds and clean up the camp area.

Ad.5: The Renland team reports all well, a good mood and being busy in a good way. Weather has been snowy with winds at 12 m/s from south and -11 C. The main drill reached 37 m depth, even with testing a new inner core barrel. Core processing (logging, cutting and ECM) is in progress. The shallow drill system reached 57m depth and the U.S. firn air sampling continues.

NEEM weather: Clear during the day, low overcast and fog in the evening. Windy day. Temp. – 15 C to -26 C, 3 - 11 m/s from S. Visibility: In the morning unrestricted, later 1 km. Some drifting snow.

FL, J.P. Steffensen

Picture captions:



The dome is pulled to the former apron in a gentle curve.

Friday, 15th May 2015.

Stowing garages and equipment on sleds.

While the entire camp is centered around the main dome on the former apron, we spent the day preparing departure. Joel and Mathias were acting carpenters mounting safety barriers on most shelves in the main dome so that things do not drop during the traverse. Pat, Sverrir and Sepp were loading heavy items on the GrIT sled. Paul, Nanna, Anna and Helle were stowing scientific equipment and helped stowing the heavy too. Dorthe was cooking excellent meals for all and J.P. kept records on the stowed items. Yesterday and last night there was snowdrift, and we were impressed by the amount of snow already beginning to fill the holes left behind as we removed the camp structures. Soon, most signs that this was once an ice core drilling camp will be gone. Only a few snow hills remain, a weather station, a seismic station and the extended casing pipe for the NEEM deep hole. After some years, we plan to return and repeat the bore hole logging, that Dorthe completed a few days ago.

What we have done today:

1. Stowing garages and equipment on GrIT sled and some equipment on other sleds.
2. Making safety shelves in the dome in preparation of traverse.
3. Repairing malfunction on crane.
4. Contact with our colleagues on the Renland Ice cap at 19.00 local (21.00 Renland time).

Ad.4: The Renland team reports all well, a good mood and being busy in a good way. Weather has been sunny with little wind and -8 C. The main drill reached 60 m depth. The shallow drill system reached 64 m depth while the U.S. firm air sampling continues. The high temperatures outside begin to cause too high temperatures in the drill tent. It has been decided to go to night time operations. This means, that from tomorrow the Renland crew will work at night and sleep by day.

NEEM weather: Windy and cloudy with snowdrift in the morning, later clearing and less wind. Temp. – 15 C to -23 C, 3 - 9 m/s from S and SSE. Visibility: In the morning 1 km, later unrestricted.

FL, J.P. Steffensen

Picture captions:



The former NEEM site seen from the dome. To the very left, the vertical pipe of the NEEM bore hole. Until yesterday, the dome stood just to the right of it.

Saturday, 16th May 2015.

Continue stowing on sleds.

As the NEEM camp was vacated, we placed our cargo in a cargo line next to our sleds. In the last few days, this cargo

line has dwindled, and very few things remain to be stowed. A work crew mounted plastic front runners on two fuel tanks, and another excavated the 30 m heating pipes between the former generator and main dome sites. We had Greenlandic reindeer for Saturday night supper, which Dorthe had prepared, and desert prepared by Paul. It was a fine and relaxed evening. Anxiety grows as we approach departure from NEEM.

What we have done today:

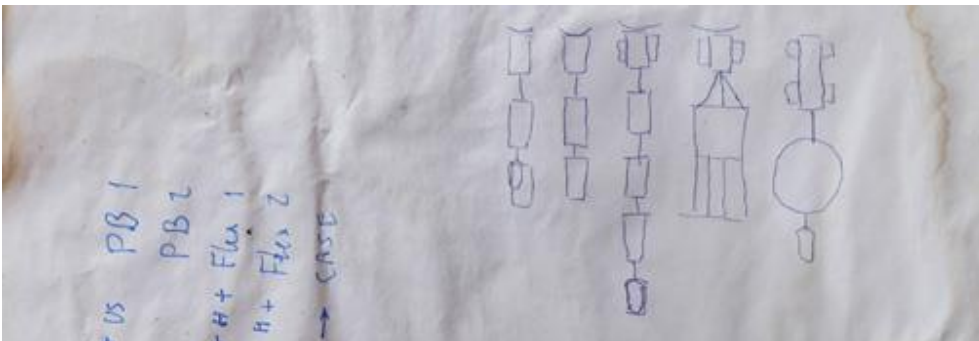
1. Almost finished stowing sleds.
2. Mounted plastic runners on two fuel tanks.
3. Placed Caterpillar on heavy sled.
4. Recovered heating pipes from old generator site to old dome site.
5. Saturday night dinner.
6. Contact with our colleagues on the Renland Ice cap at 19.00 local (21.00 Renland time).

Ad.4: The Renland team reports all well, a good mood and being busy in a good way. Weather has been dominated by fog and 100 m visibility. Temperatures at -8 C. The main drill reached 85 m depth. The shallow drill system reached 71 m depth and the U.S. firm air sampling ended as close off depth was reached. The crew now prepares the second planned shallow coring.

NEEM weather: Clear all day. Temp. - 17 C to -26 C, 3 - 5 m/s from S. Visibility: Unrestricted.

FL, J.P. Steffensen

Picture captions:



A plan for the traverse convoy outlining a combination of tractors and sleds.

Sunday, 17th May 2015.

Ready for departure.

Today, we finished packing everything and arranged all our sleds on the former NEEM apron. There are a lot of last minute items, such as checking radios, GPS and satellite phones. Over dinner we discussed a plan for calling each other, as two teams: Nanna and Anna, and Paul and Helle are going to some GPS points by snowmobile for measurements, while the main train will drive towards the southeast. Tomorrow will be the big day, when we leave this site with approx. 150 ton on the hook. Then the NEEM camp will be gone and only a casing pipe, an automatic weather station and a seismic station will remain. The mood in camp is a mixture of excitement and nervousness. We keep our fingers crossed.

What we have done today:

1. Finished stowing sleds. NEEM camp site now vacated.
2. Repaired pulling rod on one heavy sled.
3. Mounted plastic runner on last fuel tank.
4. Mounted radios and GPS in vehicles.
5. Mounted heater system in main dome.
6. Pull test of all sleds to configure load composition.
7. Contact with our colleagues on the Renland Ice cap at 21.00 local (23.00 Renland time, or 11.00 camp time).

Ad.4: The Renland team reports all well. They are in a process of turning the clock, i.e. work at night and sleep during the day. More information on progress tomorrow.

NEEM weather: Thin overcast most of the day, later clear. Weak to moderate wind. Temp. – 16 C to -26 C, 1 - 4 m/s from S. Visibility: 2 km to unrestricted. Nice day.

FL, J.P. Steffensen

Picture captions:



Our camp physician, Mathias, is making a pull test of one of the heavy sleds.

Monday, 18th May 2015.

Good-bye NEEM. Welcome EGRIP traverse.

Finally, we are on our way. Even though we began early, the whole morning was spent doing service to vehicles, doing the last packing and arranging the sleds into trains. It requires a very special technique to line up four 7-10 ton sleds in a row to be hooked up. At 15.20 the traverse pulled off, and the NEEM site is not a camp anymore. We are now the EGRIP traverse. Not everything went according to plan on this first day. After only 4 km, one Flexmobil had a broken fan belt. This was repaired in half an hour. Then the snow got softer, and the two Pistenbullies had trouble keeping up with their heavy loads. Several times they were stuck, and most of the time, they could barely make 7 km/hour. To the rescue came Pat in his huge CASE tractor. After pulling the dome in position, Pat returned to help the struggling Pistenbullies. This was welcomed by the rest of camp, as the Pistenbullies had the camp generator in tow. In contrary to the slow pulling, camp setup was accomplished in half an hour. The dome contains everything, and with a little power, you are at home. Several more items needed to be secured in the main dome. As Dorthe was the only person onboard in the dome, she was busy securing items with straps, screws and wooden blocks all day. To make the traverse faster, we will reconfigure the loads according to today's performance of the vehicles. We ate supper at 22.00, where Dorthe served a warm meal.

What we have done today:

1. Packing last items.
2. Service on vehicles.

3. Arranging sled trains.
4. All clear to go at 15.20. At 22.00 we reached Waypoint 4 (77.37 N, 50.11W, 24 km from NEEM site)
5. Some last GPS points were measured.
6. Contact with our colleagues on the Renland Ice cap at 22.00 local (24.00 Renland time, or 12.00 camp time).

Ad.4: The Renland team reports all well. In the short report, due to bad phone connection, the crew reported that drilling goes well.

NEEM weather: Beautiful all day, by late evening, fog. Temp. – 15 C to -28 C, 3 m/s from southerly direction. Visibility unrestricted until fog came.

FL, J.P. Steffensen

Picture captions:



The traverse leaves NEEM (some disturbed snow hills in the background).

Tuesday, 19th May 2015.

EGRIP traverse on the move.

We began late today (breakfast at 8) due to late arrival last night. Then several hours were spent reconfiguring the trains. In the meantime, the two slowest vehicles took off. Finally, the main train (Two Pistenbullies and one CASE) could leave at 12. Reconfiguring helped, and we made good time without incidents (55 km). Some vehicles arrived at the next stop at 18.30 and began setting up camp. As the last tractor arrived at 20.15 camp was established. Tomorrow we will begin earlier yet, as we do not need to reconfigure loads. During the traverse, three science groups swarm around the traverse train like busy bees. In the evening, at 23.00 a Twin Otter aeroplane stopped by. This is a prearranged visit by Koni Steffen and his PARCA crew. They are here to maintain automatic weather stations on the Greenland ice sheet.

We are temporarily 17 persons in camp.

What we have done today:

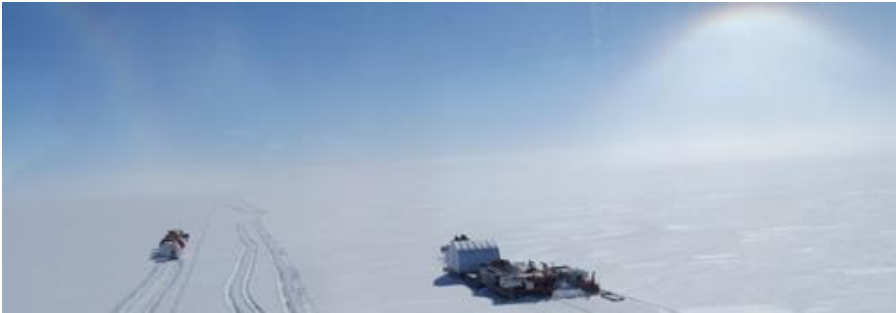
1. Reconfiguring sled trains.
2. Service on vehicles.
3. Flexmobils left at 11, and main train followed at 12. At 20.00 we all had arrived midway between Waypoint 9 and 10 (77.12 N, 48.15W, 79 km from NEEM site)
4. Measurement of radar and GPS en-route.
5. Snow sampling en-route.
6. Received Twin Otter flight with the PARCA weather station crew. Six more persons stay in camp tonight.
7. Contact with our colleagues on the Renland Ice cap.

Ad.7: The Renland team reports that one person had to be helicoptered out due to problems at home. Main drilling has reached 137m and the drillers prepare for “wet” drilling. Second firn air sampling and drilling almost complete.

NEEM weather: Beautiful all day. Temp. – 15 C to -22 C, 2-5 m/s from SE. Visibility unrestricted.

FL, J.P. Steffensen

Picture captions:



Two traverse trains head ESE in the glare of a morning halo.

Wednesday, 20th May 2015.

EGRIP traverse going uphill.

Today we made good time, and drove 65 km in fine snow conditions, without any major incidents. We are slowly finding a traverse routine. Following the wise advice of Pat, we pushed for an early start; but even then there are many things to check and adjustments to be made. The two flexmobils started first, followed by the Pistenbully pulling the GriT sled. The last to depart were the CASE with the dome and the Pistenbully with the sled train. The tractors arrived at our present destination in almost reverse order. Again today, three science groups swarmed around the traverse train like busy bees. Also, following the advice of Pat, we decided to stop at 18.00 as snow conditions change for the worse after 18.00. In the evening, at 22.00 the Twin Otter aeroplane stopped by. And Koni Steffen and his PARCA crew stay another night.

We are temporarily 17 persons in camp.

What we have done today:

1. Refuelling aeroplane and sending our PARCA guest on their way.
2. Service on vehicles. Repairing a loose side plate on Pistenbully.
3. Flexmobils left at 9.30, and main train followed at 10.15 At 18.00 we all had arrived at Waypoint 17 (76.82 N, 45.94W, 144 km from NEEM site)
4. Measurement of radar and GPS en-route.
5. Snow sampling en-route.
6. For the second time: Received Twin Otter flight with the PARCA weather station crew. Six more persons stay in camp tonight.
7. Contact with our colleagues on the Renland Ice cap.

Ad.7: The Renland team does now have internet connection, so today we only greeted each other.

NEEM weather: Beautiful and slightly windy day, much glare and haze. Temp. – 15 C to -23 C, 2-5 m/s from SSE.

Visibility: 1 km to unrestricted.

FL, J.P. Steffensen

Picture captions:



Like snails, we bring along our house. The building has four levels.

Thursday, 21th May 2015.

EGRIP traverse on the central ridge of the Greenland ice sheet.

Although the traverse was late to get under way, we made good time, and drove 55 km in fine snow conditions, without any major incidents. The two flexmobils started first, followed by the Pistenbully pulling the GrIT sled. The last to depart were the CASE with the dome and the Pistenbully with the sled train. The tractors arrived at our present destination in almost reverse order. Again today, two science groups swarmed around the traverse train like busy bees. The third snowmobile group went directly to former 2007 drill site 1 to drill a core. We met them on arrival. We have arrived at the highest point of our traverse. We have climbed from 2484 m (NEEM) to 2771 m. We are on the main Greenland ice divide. Tomorrow, we will begin our descent into East Greenland towards EGRIP site at 2705m. We are also at the point of the Greenland ice sheet where it is furthest from any margin of the ice sheet, some 500 km in any direction. In the evening, at 19.00 the Twin Otter aeroplane stopped by and Koni Steffen and his PARCA crew stay another night.

We are temporarily 17 persons in camp.

What we have done today:

1. Refuelling aeroplane and sending our PARCA guest on their way.
2. Service on vehicles.
3. Checking and tightening bolts and cables in foundation of dome.
4. Flexmobils left at 11.00, and main train followed at 12. At 18.30 we all had arrived close to Waypoint 23 (76.45 N, 44.77W, 200 km from NEEM site)
5. Measurement of radar and GPS en-route.
6. Snow sampling en-route.
7. Drilled a 11 m core today at 2007 drill site 1, and yesterday a 11m core at 2007 drill site 2
8. For the third time: Received Twin Otter flight with the PARCA weather station crew. Six more persons stay in camp tonight.

NEEM weather: Beautiful day. Temp. – 15 C to -25 C, 2-5 m/s from SSE. Visibility: Unrestricted.

FL, J.P. Steffensen

Picture captions:



EGRIP traverse camp on the ridge with Twin Otter aeroplane.

Friday, 22nd May 2015.

When are we going down again?

Doing a traverse across an ice sheet is a challenge, not only because of the hard work involved, especially for Pat and Sverrick; but it is also a challenge of the patience of the tractor drivers. By constantly reconfiguring the loads to optimize travel speed (7 km/hour) for all vehicles, we are slowly achieving an even speed for our vehicles. The snow has to cooperate however, and sometimes, particularly after 18.00, the snow deteriorates and we lose traction and progress is slow. The snowmobile teams however, enjoy the freedom of movement. Several drivers sit and hope for higher speeds, and all day today, they were discussing, when it would begin to go downhill, while watching their GPS. But today's trip was very flat indeed. Here, the Greenland ice sheet is very flat; but we hope that the downhill trek will begin tomorrow. We only have to descend 70 m, but all the same, it helps on our spirits. We had tonight for ourselves, which was a welcome change to the past three days. The PARCA team was welcome here, but the dome has been rather crowded.

What we have done today:

1. Refuelling aeroplane and sending our PARCA guests on their way.
2. Service on vehicles.
3. Flexmobils left at 8.40, and main train followed at 9.00. At 18.30 we all had arrived midway between Waypoint 23 and 24 (76.27 N, 42.88W) 2786 m altitude. As we are more than half way: 205 km from EGRIP (251 km from NEEM site).
4. Reconfiguring sleds. Attaching mechanics tools sled behind U.S. GrIT sled.
5. Measurement of radar and GPS en-route.
6. Snow sampling en-route.

Ad.1: The PARCA team was able to fly to Summit today. Again, we are 11 persons in camp.

Weather: Beautiful day, in the evening thin broken. Temp. – 16 C to -25 C, 4-7 m/s from SSW. Visibility: Unrestricted.

FL, J.P. Steffensen

Picture captions:



One of the snowmobile teams: Helle is studying a fresh ice core from one of the drill sites. The tracks after passage of the traverse can be seen to the right

Saturday, 23rd May 2015.

Doing traverses never become routine.

Already last night we got a warning that the chosen spot for camp had some very soft and troublesome snow. Several vehicles had to be either dragged into camp or came at a limping speed. This morning, one Pistenbully train got stuck right at start, then with assistance of the other Pistenbully, the train got going. In the meantime, the Pistenbully that assisted the first one got stuck. It took a third vehicle to get all going. Some 5 km later the snow improved, and we continued. Later in the day, the same happened: Two vehicles stuck and freed by a third one. Still, we drove 50 km, and we are getting closer to our goal at EGRIP. Everybody is fine, and the snowmobile teams who spend full days outside, do appreciate the luxury of a heated dome at the end of the day.

What we have done today:

1. Service on vehicles. Inspection of dome.
2. Flexmobils left at 8.40, and main train followed at 9.00. At 18.30 we all had arrived at Waypoint 24 (76.18 N, 41.15W) 2764 m altitude. 155 km from EGRIP (301 km from NEEM site).
3. During the day reconfiguring sleds several times.
4. Measurement of radar and GPS en-route.
5. Snow sampling en-route.

Weather: Beautiful day. Temp. – 16 C to -30 C, 2-5 m/s from SW. Visibility: Unrestricted.

FL, J.P. Steffensen

Picture captions:



Pistenbully train stuck.



Solution.

Sunday, 24th May 2015.

We are in a difficult snow zone.

Although we hoped for the better, the snow becomes softer and softer, and fuel is becoming an issue. We do not have fuel in abundance, and this morning was spent pooling all our fuel in one tank. We have fuel to reach EGRIP, if conditions do not get worse; but if the snow does not get better, we will set aside two heavy sleds. These two sleds are not essential for opening EGRIP, and we can pick them up next year. Again this morning, both a Pistenbully and the Case tractor got stuck from the start. It was decided to double head the dome and pull it 25km. Then the two vehicles went back to pick up the sled train. The three other vehicles made normal progress. We only made 25km because of a late start, due to pooling of fuel and because sending two tractors along the same route three times is time consuming. Tomorrow, we will decide if we leave two sleds for later. All the while this tractor business happens, the three snowmobile teams continue to do science. Dorte is still preparing good evening meals for us, and the dome is still in one piece.

What we have done today:

1. Service on vehicles. Inspection of dome.
2. Emptying all three NEEM tanks completely and transferred fuel to fuel bladder.
3. Traverse moved at 12.00 with a double header for the dome. At 19.30 we had arrived at 76 06' N, 40 18' W) 2756 m altitude. 130 km from EGRIP (326 km from NEEM site). Made only 25 km today.
4. Measurement of radar and GPS en-route.
5. Snow sampling en-route.

Weather: Beautiful day. Temp. – 14 C to -30 C, 2-5 m/s from S. Visibility: Unrestricted.

FL, J.P. Steffensen

Picture captions:



Helle and Paul are taking snow samples, while Anna is watching the traverse train go by. To the right: The snowmobile with radar equipment.

Monday, 25th May 2015.

We are out of the difficult snow zone.

Yesterday evening we made plans. It was doubtful if the Case tractor could pull the dome, the generator and a tank in the morning. Likewise, the Pistenbully had trouble pulling the long train. Therefore, we decided to perform a test this morning. If the Case could not pull the dome with attachments, then the attachments should be uncoupled and we should check if the Case could pull the dome only. This test was successful, and the Case kept moving with the dome. The other vehicles stayed behind to rearrange loads. As planned, we removed a few essential items from the lumber sled and the drillers sled, and we parked them along with two empty tanks at our overnight position. This is 135 km from EGRIP, and next year, we will send a vehicle to the site for pick-up of the sleds and tanks. The sleds only contain items that we anyway will not be using until next year. After rearranging the rest, one Flexmobil pulled the generator, the other pulled the mechanics sled and a tank, and the Pistenbully train became shorter. The Pistenbully with the GriT sled kept its load. This turned out to be a good configuration, and all four tractors went in pursuit of the Case and the dome. Soon the snow conditions improved too, and we made very good time. From 10.30 to 19.30 we drove 75 km – a new record! We are now only 53 km from EGRIP, and we expect to arrive there tomorrow at 16.00. The whole camp was in a very good mood tonight, although several of the snowmobile teams were very tired after being outside in the wind and cold for 75 km; but we are looking forward to some celebration and a little extra rest tomorrow.

What we have done today:

1. Service on vehicles. Inspection of dome.
2. Tested if Case could pull dome, generator and a tank as usual. Test failed.
3. Decided to leave two heavy sleds (Lumber sled and drillers sled) and two empty tanks and to reconfigure the rest.
4. Dome moved at 9.00 and the other vehicles 10.30 after reconfiguring. At 19.30 we had arrived at Waypoint 25 (75.86N, 37.70W) 2720 m altitude. 53 km from EGRIP (396 km from NEEM site). Made 75 km today.
5. Measurement of radar and GPS en-route.
6. Snow sampling en-route.

Weather: Beautiful day. Temp. – 16 C to -32 C, 2-9 m/s from SW. Visibility: Hazy due to low snow drift, later unrestricted.

FL, J.P. Steffensen

Picture captions:



The two parked sleds and two parked tanks. We will pick them up next year.

Tuesday, 26th May 2015.

We have arrived at EGRIP!

This has been a good day! As our configuration was working fine, we could leave early. The snow cooperated and we made good time. 12 km before EGRIP, the lead vehicles appeared to sink into the snow as they passed the broad valley formed by the edge of the NorthEast Greenland Ice Stream (NEGIS). We are setting up camp in the middle of the ice stream. It is 20 km wide at this spot, but in contrary to a flow velocity of the surrounding ice sheet of approx. 5 m/year, the ice stream moves 50 m/year towards NNE, where the ice will finally be discharged through Nioghalvfjerdingsfjorden and Zachariae Isbræ, some 500 km away. We are here to investigate why an ice stream can be so active so far into the ice sheet. People were happy on arrival. It is a huge relief that we made it through. Our main dome has taken the 465 km of bumpy ride in the stride. This night, we discovered the only damage so far: A nail had vibrated its way through an electrical wire, causing our circuit breakers to trip. Both the traverse group and the snowmobile groups were happy and tired. Tomorrow everybody is allowed to sleep in. We have already begun marking out the future camp. Dorte went onto the snow with a flag and decided where the future center of camp shall be. We made it!!

At this occasion, I feel a deep sense of gratitude to the efforts of our crew and in particular to the Greenland Ice Sheet Traverse (GrIT) team. They lent us the assistance of a tractor and sled, and GrIT team member, Pat Smith has given us invaluable support, done hard work and shared his extensive wisdom during the traverse. THANK YOU.

What we have done today:

1. Service on vehicles.
2. Dome moved at 9.30 and the other vehicles at the same time. At 16.30 we had arrived at EGRIP (75.63N, 35.99W) 2660 m altitude (GPS). EGRIP is 453 km from NEEM site. Made 53 km today.
3. Measurement of radar and GPS en-route.
4. Snow sampling en-route.
5. Marking up of new camp in progress.

Weather: Beautiful day. Temp. – 16 C to -32 C, 2-4 m/s from SW. Visibility: Un-restricted.

FL, J.P. Steffensen

Picture captions:



Dorte walks with a flag to set it where the new EGRIP camp will be established.

Wednesday, 27th May 2015.

Second day at EGRIP!

For the first day in 10 days, the dome didn't move. People were allowed to sleep in, and then we began unpacking our

cargo. Now the once compact cargo on the sleds is spread all over the snow in smaller piles. At the same time, survey of the future camp was completed, and we began to construct snow hills for the future garages. Tomorrow, we will begin to prepare the snow foundation of the dome. We plan to move the dome to its future location on Sunday. We are also surveying the future skiway area for LC-130 flights. The designated area is flat and well suited for flights. Tonight, after dinner, there was time for a little relaxation in the dome.

What we have done today:

1. Finished surveying and marking the sites of all future camp structures.
2. Unpacking sleds and arranging cargo in cargo line.
3. Building berm for future mechanics garage.
4. Surveying future skiway. Skiway marking is in progress.
5. Meteorological station installed in center of future camp.

Weather: Beautiful day. Temp. – 16 C to -27 C, 4-5 m/s from SW. Visibility: Un-restricted.

FL, J.P. Steffensen

Picture captions:



Our arrival picture of the traverse at EGRIP.

Thursday, 28th May 2015.

Camp layout and skiway taking shape – and we had visitors.

Survey of camp area is now complete, we can now recognize the future layout of camp. As skiway marking is approaching the end, we now have a significant structure to look at for reference. We got a visit from 11.00 to 19.00 by a group of scientists that set-up an automatic station at EGRIP. They arrived from Summit and they returned to Summit. The twin Otter inaugurated the skiway as the snow at EGRIP is bumpy, so they took advantage of a freshly groomed skiway to take off. The visitors had lunch at EGRIP; but otherwise they focussed on getting their job done. It was a day where the science groups had a little time to do sampling and experiments. Tomorrow, we will begin to rebuild the garages that were taken down at NEEM. Work is progressing fast, and we have almost caught up with the six days delay in departure from NEEM. If weather continues to behave, we will be ready to receive the first LC-130 flight on Monday. Our Field Operations Management (FOM) office in Kangerlussuaq is open again, as Christine Hvidberg arrived from Copenhagen today. The EGRIP Field Leader forgot all about normal telephone hours, as it has been a while since the FOM office last was open.

What we have done today:

1. Finished marking approaches and apron.
2. Unpacking sleds and arranging cargo in cargo line.
3. Building berm for future carpenters garage and foundation for dome.
4. Visit by Twin Otter from the Abdalati group. The group set up an automatic station.
5. Drilled shallow core.
6. Performed pit studies of surface snow.
7. Activated British Antarctic Survey, Hugh Corr, radar.
8. Groomed skiway.

Weather: Beautiful day, some clouds and a tendency for fog. Temp. – 12 C to -27 C, 0-3 m/s from SW and W. Visibility: Un-restricted, down to 1 km in fog banks.

FL, J.P. Steffensen

Picture captions:



A group of happy people after the traverse to EGRIP. From left lower row: Mathias, Sverrir, Dorthe, Paul, Helle, Nanna and Anna. From left upper row: J.P., Sepp, Joel and Pat.

Friday, 29th May 2015.

Slowly getting into camp routine again.

We have to get used to a dome that doesn't move, but it is a good feeling, and we can eat two hot meals a day. Today, the team split into several task groups: Pat maintained and repaired the Case tractor and began checking the GrIT sled, which is now empty except for Pats stuff. Sverrir worked the berm for the carpenters garage and the future site for the dome. Dorthe cooked lovely meals and Anna and Nanna placed skiway markers and maintained the Hugh Corr radar. Paul, Helle, Mathias and Joel built garages, Sepp documented camp activities and J.P. groomed the skiway. Our work is in good progress and the fine weather helps. In the evening there were science talks where the group members exchanged recent results. Finally we saw a movie on the NGRIP drilling from 1999 and 2000.

What we have done today:

1. Finished marking entire skiway system.
2. Un-loaded last items on GrIT sled.
3. Repair and maintenance of CASE tractor.
4. Construction of Mechanics garage in progress.
5. Finishing berm for future carpenters garage and foundation for dome.
6. Unloaded parts for carpenters garage at construction site.

7. Checked British Antarctic Survey, Hugh Corr, radar.
8. Groomed skiway, 2nd time (zig-zag) with dozer blade.

Weather: Beautiful day. Temp. – 17 C to -26 C, 2-5 m/s from WSW. Visibility: Un-restricted.

FL, J.P. Steffensen

Picture captions:



Grooming the skiway.

Saturday, 30th May 2015.

First Saturday evening at EGRIP.

We completed the mechanics garage, and the construction team had a good feeling of accomplishment. Skiway grooming is also complete. The skiway will be inspected tomorrow, when the snow has set and hardened. Nanna and Anna have raised a tent on one of the platforms on the GrIT sled that Pat is making ready. They will live there during the four days it will take to reach Summit. We had good news today: We will receive three flights next week, and this means that camp will have fuel and Pat will have fuel for his drive to Summit. Dorthe cooked a lovely dinner for us, and for the first time in weeks, people could celebrate Saturday night in a relaxed fashion. Tomorrow at noon the dome will move for the last time this year as we pull it to its designated place in the EGRIP camp. Weather is absolutely gorgeous and this afternoon, we could enjoy a beer sitting in the sunshine. The sun warms you, even at -15 C, when there is no wind. We find, that the move from NEEM to EGRIP has put us in a better place.

What we have done today:

1. Finished grooming skiway. Grooming of apron in progress.
2. Made GrIT sled ready for departure to Summit.
3. Mechanics garage completed.
4. Snow sampling.
5. Repaired fuel pump.
6. Packed British Antarctic Survey, Hugh Corr, radar for traverse.
7. Celebrated Saturday night.

Ad 2: Nanna and Anna have made a camp on the GrIT sled. They will measure with radar along the traverse path and thus join Pat on his way to Summit.

Weather: Beautiful day. Temp. – 15 C to -27 C, 1-3 m/s from W. Visibility: Un-restricted.

FL, J.P. Steffensen

Picture captions:



The finished mechanics garage. Construction site for carpenters garage is to the right.

Sunday, 31st May 2015.

It is Sunday; but we have a flight tomorrow.

Although it is Sunday, here is no rest for the wicked. We have been busy making things ready for the plane tomorrow. Preparation of the skiway and apron lasted almost until midnight. We made a pallet ready with ice samples and the bore hole logger, which now is heading to our colleagues in the Renland project. Today was also a special day, at noon precisely, the dome was pulled into camp to its final parking spot in camp. The weather continues to be good, so at 16.30 we were invited to a picnic at the GrIT sled where Nanna and Anna showed us their camp and their setup. They will accompany Pat when he drives tractor and sled to Summit camp some 410 km away. The foundation for the carpenters garage is laid, and tomorrow we will begin assembling the structure. We toasted for Pat at dinner. Pat has been an invaluable asset for the traverse team. By the same token, we want to extend our sincere gratitude to the GrIT team and the U.S. National Science Foundation. Without their help, the traverse would not have been possible.

What we have done today:

1. Finished grooming skiway. Finished grooming of apron.
2. Made GrIT sled ready for departure to Summit.
3. Laid foundation for carpenters garage.
4. Packing pallet with retro cargo.
5. Pulled fuel pump and tank to apron.
6. Moved dome to final position.
7. Removed all traverse protection of items in dome.
8. Tested radar and camp configuration on GrIT sled. Ready for departure.

Ad 1: Only northern side of apron is groomed.

Weather: Beautiful day. Temp. – 13 C to -28 C, 2-4 m/s from W. Visibility: Un-restricted.

FL, J.P. Steffensen

Picture captions:



The composed GrIT sled. The yellow tent is camp for two persons. The little white tent is measurement hut for the radar, which will be active while driving.

June

Monday, 1st June 2015.

A busy day – the first LC-130 flight to EGRIP.

Today we had the first LC-130 flight to EGRIP, because of it a lot changed in camp. Dorthe left to Kangerlussuaq to help out as field Operations Manager. In her stead came Kim Ernst, the cook from Restaurant Roklubben in Kangerlussuaq. Also, we got fuel, and this allowed Pat to leave EGRIP and head for Summit with his sled and tractor. On board the sled are Nanna and Anna, who will do radar studies of the snow layers while en-route to Summit. It is also planned to set-up Hugh Corrs radar at the head of the East Greenland ice stream. We enjoyed Kim's musk-ox stew for dinner. The rest of the group continued constructing camp, and the frame for the last garage is now up. Soon we will have shelter for most of our equipment over winter.

What we have done today:

1. Received Skier 12. It brought 3424 liter fuel.
2. Grit sled traverse departed for Summit at 16.30.
3. Carpenters garage frame now completed.
4. Groomed skiway.
5. Preparing floor in mechanics garage.
6. Working on DTU Space automatic station.

Ad 1: The new skiway was even, but soft, and as there was no wind to help the plane get airborne, it had to try three times to get airborne. In the last attempt starting rockets were fired.

Weather: Beautiful day. Temp. – 13 C to -24 C, 1-3 m/s from WNW. Visibility: Un-restricted.

FL, J.P. Steffensen

Picture captions:



Pat is heading off towards Summit. Anna and Nanna are waving from their porch.

Tuesday, 2nd June 2015.

The second LC-130 flight to EGRIP.

Today we had the second LC-130 flight to EGRIP. It carried very little cargo; but we got a good amount of fuel. We now have enough for the rest of the season and enough for opening camp next year in a safe way. The skiway is still young (no hardened sole underneath the surface) so the plane had some difficulty getting airborne. The good weather didn't help either, as temperature was relatively high and the weak wind came across the skiway. The carpenters garage is now finished, and this means that EGRIP camp (2015 version) is complete. We have rebuilt everything what we took down at NEEM. It also means that we have passed the phase where we have been a bit sensitive to bad weather. Now we have shelter for work outside. Joel, Mathias, Paul and Helle did the garage construction. This afternoon, Helle went on a long snowmobile drive to set up the strain net around EGRIP. She is about half way. After an excellent dinner cooked by Kim (reindeer) we enjoyed a movie together.

What we have done today:

1. Received Skier 21. It brought 5925 liter fuel.
2. Carpenters garage now completed. EGRIP construction completed.
3. Rebuilding the interior of mechanics garage, and restocking.
4. Work on placing and positioning strain net around EGRIP

Ad 1: The new skiway was even, but soft, and as there was no wind to help the plane get airborne, it had to try five times to get airborne. In the last attempt starting rockets were fired.

Weather: Beautiful day. Temp. – 12 C to -23 C, 1-3 m/s from WNW. Visibility: Un-restricted.

FL, J.P. Steffensen

Picture captions:



The completed 2015 EGRIP camp.

Wednesday, 3rd June 2015.

The heaps of cargo on the snow disappear.

After we arrived at EGRIP, we began to unpack our sleds. This led to stacks of boxes and equipment strewn all over the snow. In bad weather this could be a problem as boxes, ladders, shovels, drums etc. very fast get buried in drifting snow. But weather has been on our side, and as we have reliable 48 hour weather forecasts, we could relax. Today however, we began to restock both garages with equipment, and the stacks of exposed cargo has dwindled to a mere fraction of what they were. EGRIP has a more orderly appearance now, and we are confident that we will be ready for departure on Sunday. Tonight Kim treated us with Greenland halibut, and it tasted wonderful. Helle and Sepp have done science today, so not all is focussed on logistics. Mathias has spent the day going through the medical supplies, while the rest of us have enjoyed the task of finally being able to clear away the cargo clutter, and stock cargo in the garages.

What we have done today:

1. Mechanics garage unpacked and finished.
2. Groomed skiway, taxiways and apron.
3. Setup and positioning strain net measurement points.
4. Snow sampling and pit study.
5. Stocking carpenters garage.
6. Preparing fuel depot for the Nettles group.
7. Documenting and sorting medical supplies.

Weather: Beautiful day, with some high thin clouds. Temp. – 12 C to -25 C, 3-5 m/s from W. Visibility: Un-restricted.

FL, J.P. Steffensen

Picture captions:



The skiway (ski aircraft runway) that hopefully is good enough to get us from EGRIP on Sunday. EGRIP camp can be seen to the right.

Thursday, 4th June 2015.

We are on schedule in packing down EGRIP camp.

Step by step, we complete the tasks of closing camp in an orderly fashion. The mechanics garage is unpacked and stocked. The carpenters garage is also well on the way. On the snow, we only have boxes and equipment that we send back to Kangerlussuaq. We still need to clean up in the main dome, set-up a seismic station, build berms for overwintering sleds and fix a GPS reference near camp. The mood in camp is good. People still have to do hard work; but as weather continues to smile at us, we get all tasks done, and we have a sense of accomplishment. Kim served us excellent lamb-chops tonight, and afterwards, we enjoyed a movie.

What we have done today:

1. Covered undercarriage of main dome with plywood, snow, plastic and snow.
2. Placed food in trench in main street.
3. Reset skiway markers.
4. Snow sampling and pit study.
5. Setup the last points of the strain-net. Now only main reference station needs set-up.
6. Fuel depot for the Nettles group completed.
7. Packed water tank, bucket and pallet sled.
8. Added scaffold, reserve skiway markers and light weight scaffold to carpenters sled.
9. Parked Flexmobile (yellow shovel) in winter position.

Weather: Beautiful day. Temp. – 12 C to -22 C, 3-5 m/s from W. Visibility: Un-restricted.

Ad. 8: We have no black markers in reserve. Only 8 red and 6 no. “2” markers.

FL, J.P. Steffensen

Picture captions:



Sverrir, Mathias and Paul are mounting a plastic skirt (nicknamed “tou-tou” – a ballerina skirt) around the base of the dome to prevent the undercarriage from becoming encased in ice (re-frozen meltwater).

Friday, 5th June 2015.

We are preparing to be flown out on Sunday.

This afternoon, all items on the snow have been stowed either on sleds or in garages. The only cargo not stowed, is what we will load on the plane Sunday. Inside the main dome, a revolution happened: We cleaned the mess after 5 weeks of habitation and 465 km of bumpy ride. A lot had to be replaced in shelves, and at the same time, we vacuum cleaned the dome. Inside the carpenters garage we setup and activated a seismometer. Powered by solar panels and two batteries, it will record seismic events to a memory card that will be picked up next year. A camp on the ice sheet needs a road sign at its heart. We placed one in the center of camp. Sepp collected his last samples today, so we can pack our cargo home onto two pallets for the LC-130. Paul and Helle completed the setup of the GPS strain net.

What we have done today:

1. Parking one snow blower and snowmobile.
2. Cleaning up in main dome.
3. Setting up a GEUS (Danish and Greenland Geological survey) seismic station in carpenters garage.
4. Snow sampling and pit study.
5. Removing last items from the snow.
6. Building berms for five heavy sleds.
7. Marking all depots with trail flags.
8. Main reference GPS station setup.
9. Setup road sign.

Weather: Beautiful day. Temp. – 11 C to -23 C, 5 m/s from WSW. Visibility: Un-restricted.

FL, J.P. Steffensen

Picture captions:



Mathias and Joel at the new road sign in the middle of EGRIP camp. It points to NEEM 440 km away.

Saturday, 6th June 2015.

Plane Sunday cancelled – just as we finished packing down in camp.

All day was spent on packing down camp. Vehicles were parked in garages, food in the kitchen was reviewed, pallets with outgoing cargo were packed, netted and weighed and manifests of Sundays flight were sent to Kangerlussuaq. In short, everything was stripped down to the few vehicles and items that we need to handle the flight and which can be removed and closed down in the two hours it takes for the plane to arrive here after we are told, it has taken off. Then in the afternoon we were told that the flight Sunday was cancelled due to technical problems. Our Saturday night dinner, which was supposed to be out last at EGRIP this year, all of a sudden got a different feeling to it. However, the news didn't deter us from enjoying Kim's excellent three course dinner: Home-smoked halibut, Musk-ox filet with fresh potatoes, and blackberry tart. As we could look forward to a Sunday spent waiting, we could enjoy the dinner in the most relaxed fashion.

What we have done today:

1. Checking seismic station.
2. Pulling heavy sleds onto hills.
3. Packing and documenting two pallets of outgoing cargo.
4. Parking both Pistenbullys in garage. The new garage door works.
5. Parking snowblower, sleds and two snowmobiles.
6. Parking fuel tank.
7. Saturday night dinner.

Weather: Beautiful day. Temp. – 12 C to -22 C, 5 m/s from WSW. Visibility: Un-restricted.

FL, J.P. Steffensen

Picture captions:



Kim, normally chef at Restaurant "Roklubben" in Kangerlussuaq, introduces our Saturday night dinner.

Sunday, 7th June 2015.

Plane Monday cancelled too – the art of hurrying up and waiting.

What can you do? Except for waiting? Everything has been packed down, and we can do nothing. If we would engage in an activity outside, we would need to unpack equipment and activate vehicles. This would add unnecessary complications to our camp closing procedure. We therefore have to contend ourselves with waiting. In the afternoon, we were told that the plane on Monday is cancelled too – maybe Tuesday.... People spent the day mostly in the dome reading books, playing games and watching movies. Everybody is safe, albeit a bit impatient. We found some food for tomorrow in the ice storage outside, and we have fuel and food for several weeks.

What we have done today:

1. Waiting for news about the plane.
2. Talking to office in Kangerlussuaq.
3. Several phone calls to family and friends.
4. Watching movies and reading books.
5. Fixing the coffee machine

Weather: Beautiful day. Temp. – 13 C to -24 C, 5 m/s from WSW. Visibility: Un-restricted.

FL, J.P. Steffensen

Picture captions:



Sleds with equipment parked for the winter on snow hills.

Monday, 8th June 2015.

Plane coming tomorrow.

This afternoon we got confirmation that a plane will head for EGRIP tomorrow morning. We keep our fingers crossed. Now the plane can come; but the weather forecast tells about possible overcast tomorrow, so let's see... Anyway, we are more than prepared. We have been waiting for two days so we are eager to be pulled out tomorrow. Most of us have not had a shower since April, and we are looking forward to be clean and wearing clean clothes. There has been time read, to talk, to play games and several simply took a walk on the ice just to get out a bit.

What we have done today:

1. Waiting for news about the plane.
2. Talking to office in Kangerlussuaq.
3. Several phone calls to family and friends.
4. Watching movies and reading books.
5. Re-fuelling the daytank.
6. Documentation of camp.

Weather: Beautiful day. Temp. – 14 C to -24 C, 3 m/s from WSW turning to WNW. Visibility: Un-restricted.

FL, J.P. Steffensen

Picture captions:



EGRIP pull out team at road sign. From left to right: Sepp, Joel, Mathias, Kim, Sverrir, Helle, J.P. and Paul.

Tuesday, 9th June 2015.

We are out – EGRIP camp is closed for the winter.

The pull out flight to EGRIP was a success. The plane landed at 11.25 and by 13.30 the camp was closed and we took off in the first attempt without using rockets. Even though the weather for once was not ideal: Snow showers and cross winds, the skiway had set in a fine way and was hard and fast, so we got airborne with all our cargo in first attempt. All worries have now gone, and EGRIP is closed after a successful season. Back in Kangerlussuaq we got reunited with Pat, Nanna and Anna who arrived from Summit one hour before us. I know, that the phrase: “It has been a long journey for me” is used so often on television show these days; but in our case it is true. We came to NEEM camp, took it down and stowed it all on sleds. We pulled everything 465 km across the ice sheet, and built EGRIP camp in ten days. We got pulled out two days behind schedule; but in this line of work, that is nothing. The NEEM/EGRIP campaign has been successful, and I thank members of the team: Pat, Anna, Nanna, Paul, Helle, Sepp, Sverrir, Mathias, Joel, Dorthe and Kim for their hard work and good attitude. Team effort is essential for the success of a project of this kind. I thank for a good collaboration with CH2MHill Polar Services (CPS) staff, the GriT traverse team and our funding agencies: A.P.Moller Foundation (Denmark), U.S. National Science Foundation, Alfred Wegener Institute (Germany) and Bjerknæs Centre (Norway).

What we have done today:

1. Adding the final things to pallets.
2. Taking down weather station and windsock.
3. Pulling tomatoes and generator to snow hills.
4. Receiving Skier 21.
5. Parking Flexmobile on snow and snow mobile and Caterpillar in garage.
6. Sealing the main dome with plywood.
7. Flying to Kangerlussuaq.

Weather: snow showers coming and going. Temp. – 14 C to -22 C, 3 m/s from NW. Visibility: 1 – 5 km.

FL, J.P. Steffensen

Picture captions:



EGRIP members on LC-130 on the way to Kangerlussuaq. From left to right: Paul, Kim, Mathias and Helle.