NEEM - SITREP no. 17, Sunday 15 August 2010

This SITREP covers the period August 9- August 15, 2010 (inclusive).

Movement of personnel:

August 10 Popp, Trevor (DK) and Curran, Mark (AUS) from NEEM to Camp Century by Norland Air Twin Otter.
Popp, Trevor (DK) and Curran, Mark (AUS) from Camp Century to Qaanaaq by Norland Air Twin Otter.

August 12 Dahl-Jensen, Dorthe (DK) from NEEM to Qaanaaq by Norland Twin Otter.
Dahl-Jensen, Dorthe (DK), Popp, Trevor (DK) and Curran, Mark (AUS) from Qaanaaq to Ilulissat by Flugfelag Island Dash-8.

August 13 Dahl-Jensen, Dorthe (DK) from Ilulissat to Copenhagen by Air Greenland

August 14 Popp, Trevor (DK) and Curran, Mark (AUS) from Ilulissat to Kangerlussuaq via Dye-2 by Norland Air Twin Otter.
Seierstad, Inger (DK) from Kangerlussuaq to NEEM by 109th
Seierstad, Inger (DK) and Kuhl, Tanner (US) from NEEM to Kangerlussuaq by 109th

August 15 Popp, Trevor (DK) from Kangerlussuaq to CPH by Air Greenland

Movement of cargo:

August 10 500 kg DK shallow drill from NEEM to Camp Century by Norland Air Twin Otter.
500 kg DK shallow drill and 250 kg ice core from Camp Century to Qaanaaq by Norland Air Twin Otter.

August 12 375 kg DK science equipment SFJ to CPH by Air Greenland.
500 kg DK shallow drill from Qaanaaq to Ilulissat by Norland Air Twin Otter.
250 kg ice core from Qaanaaq to Ilulissat by Flugfelag Island Dash-8.
3000 kg food from Schenectady to Kangerlussuaq by 109th.

August 13 1200 kg fuel depot from Kangerlussuaq to Dye-2 by 109th

August 14 500 kg DK shallow drill from Ilulissat to Kangerlussuaq via Dye-2 by Norland Air Twin Otter.
250 kg ice cores from Ilulissat to Kangerlussuaq by Flugfelag Island Dash-8.
80 kg LGR instrument from Kangerlussuaq to Reykjavik by Flugfelag Island Dash-8.
3820 kg drill fluid, timber, plywood, food, spares, U.S. ice core boxes and 5000 kg fuel from Kangerlussuaq to NEEM by 109th.
1910 kg ice cores, 1550 kg CFA water, compressed gases, shelves, 660 kg empty drums and 840 kg core troughs and NZ drill box from NEEM to Kangerlussuaq by 109th.

August 15 170 kg LGR equipment from Kangerlussuaq to Akureyri by Norland Air Twin Otter.

Camp activities:
In the beginning of the week, work was dominated by activities on the surface: Shallow ice core drilling and NZ drill tests. In the trenches: Sampling and processing of shallow ice cores. On Tuesday a Twin Otter flew a two man crew to Camp Century with the DK-shallow drill where a 30 m core was drilled and a 2m pit sampled. The planned drilling at Dye-3 on Saturday had to be cancelled due to bad weather a Dye-3. In camp, the rest of the week was dedicated to packing cargo and ice for shipment and to preparing camp for close-down. Friday the first weatherport was packed down. NEEM received two visits from distinguished visitors this week: Wednesday, a private party visited camp in their own chartered plane and on Saturday the 109th brought a group of U.S. visitors to camp. All scientific activity in camp is now terminated.

Skiway:
The Skiway has been groomed in zig-zag and lengthwise with the beam groomer and subsequently tilled. On the mission August 14, the Skiway maintained its 140,000 lbs ACL rating. After the Saturday mission the skiway was tilled and skiway markers checked for the winter.

Drilling:
Deep drilling has been terminated.

Driller's depth: 2522.08 m, final depth
Logging depth: 2537.36 m, final depth

Science trench:
Processing of the NEEM deep core has been terminated.
Left in the buffer for next year is now the ice from 1027.4 m to 1154.40 m, bags 1869 – 2099.

Shallow core NEEM 2010 S3 has been processed and sampled to 87.30 m

Associated programs:

The U.K. optical logger has been in action in the S3 drill hole.

The water vapour sampling site is packed down completely.

GPS reference stations packed down.

Firn Temperature Array:

During the week leading up to Sunday 15th August an over wintering temperature array was set up. A hole was drilled using the DK hand Auger to 10m below 2010 snow level placed 25m from the AWS. The array consists of 7 temperature sensors placed at 10m, 7.5m, 5.0m, 2.5m, 1.0m, surface and 2m above surface. To help the system cope with the winter temperatures the logging equipment was buried 2m below the surface. The battery packs are being charged by the combination of a mini wind turbine & a solar panel.

NZ Ice Drill Testing: Summary of testing operations.

The NZ drill equipment arrived at NEEM camp on 28 July. The winch, base frame and mast were assembled under shelter in the Carpentry Workshop and minor modifications of a few components were required to complete the assembly. The drill system was set up over a 4.5 m deep mast slot cut in the snow outside near the mechanical garage to replicate operations in a drill trench. The drill mast is operated with electric/hydraulics for tilting and also mast traverse that can be used for drilling as well as breaking the core.

Initial coring of the firn was carried out with a 2.1 m long poly flighted dry core barrel with superbanger connection. This gave mixed results with progressively shorter core recovery as the firn became denser. The cuttings did not lift well on the high angle flighting and also became packed around the superbanger coupling which requiried unacceptably high motor current.

To further test the drill motor, mast and winch operation, components of the Hans Tausen drill which were on site (outer barrel, chips chamber and 4 inch dry core barrel) where connected to the NZ motor and antitorque section. Good consistent and stable drilling was achieved with firn cores ranging from 1.2-1.5 in length from the 1.6 m barrel. Drill motor amps remained stable through these runs at about 1 amp showing the drill motor and controller were performing adequately.

The winch and mast system performed well, some minor tuning is required with the hydraulics to improve cold temperature performance. The mast traverse facility provides better drill descent control than slow winch speeds and this was the preferred mode for drilling.

The time available for testing and initial drilling issues did not allow the drill to be relocated to the short coring site to drill a science core. The drill was disassembled and repacked in just over two days. Some equipment departed NEEM on 14 August and the majority is scheduled to leave on 17 August.

Summary of inorganic Hg sampling and sample processing on site NEEM

One hundred and seventeen bags (a total 147 minus 27 bags for Fujita san and first surface 3 bags missing) as well as a 1.6-meter pit (with a 10-cm resolution) were taken for inorganic Hg studies. On site sample processing was carried out for bags from #4 to #71 in a 10' x 10' tent-field lab. Decontamination processing went smoothly except the last day (Friday) when air temperature was a bit higher than normal (higher than -10^{o}C).

A total of about 300 samples were decontaminated and taken for the top bags of core sections (before Bag 71) and the pit. Another 60 bags of cores will be taken back to south for decontamination in September or October this year. A total of 600 samples with be reached for total Hg studies from this field season.

For the S3 short core, on site ECM and weighing were also done almost immediately after each core section was retrieved. ECM files have been copied to the folder of Science.

NEEM iridium numbers:
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Weather at NEEM:
The week began with fine late summer weather at NEEM: Mostly sunshine and some ground fog. Daytime temperatures between -10C and -13C, and night temperatures between -23C and -25C. Wind from SE with speeds of 2 kt to 11 kt. Thursday evening clouds moved in, an low overcast persisted Friday and Saturday Temperatures rose to -8 C at day and -12 at night. Winds at 8 kt– 10 kt from SE.

NEEM camp population: 19

Kangerlussuaq activities:
During the week, we have worked on readying overwintering cargo for the pull out week and cleaning and sorting out field clothes. Thursday was busy dealing with a large food shipment from the U.S. And Friday and Saturday was spent coordinating flights to NEEM by 109th and servicing Twin Otter and Dash-8 flights. A depot was deployed at Dye-2. Ice cores have been received and they are now stored in the freezer. Isotope equipment has been sent directly to Iceland.

Weather in Kangerlussuaq/SFJ:
Mostly sunny and nice. Day temperatures between 8C and 15C. Many mushrooms and blue berries found.

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