

## **NEEM - SITREP no. 14, Sunday 26 July 2009.**

This SITREP covers the period July 20 – July 26, 2009 (inclusive).

### **Movement of personnel:**

No movement of personnel.

### **Movement of Cargo:**

The following shipments have arrived in SFJ:

1 colli of 20 kg with transmission (SISU) for LYNX Skidoo.

### **Camp activities:**

This week the drilling has reached to depths beneath the brittle zone. Processing of the ice core has started at 1281.50 m, and the new team has been trained in the science trench. Processing is now working smoothly in routine and there is increasing excitement in the science trench as the transition to glacial ice is approaching. Shallow drilling and air sampling in the firn-gas village 2 km from camp is now finished. Next week's flight have been prepared by building pallets and ordering supplies. Also, the amount of ice to be shipped from the camp this year and the usage of fuel and drilling fluid for the remaining part of the season have been estimated and taking into account when planning the remaining flights.

### **Skiway:**

No work on skiway this week.

### **Construction:**

The last core buffer was built. The camp area has been groomed, this involved movement of all vehicles in camp. Centrifuge for recycling drill fluid was repaired. The floors in the mechanic's and carpenter's garages were repaired. Taps with cold and warm water was installed in the bathroom.

### **Drilling:**

Drilling started out this week in a stable mode, but the last days it has been more difficult to obtain a good tuning of the drill. Some instabilities have emerged and continue to cause problems. Some of the problems may be related to chips transport, and it has been considered to change the pump. New cutters have been installed, and the drill has been tuned. Some instabilities are still present. Despite all the problems, the core quality is good, and the inclination is stable at 2.2 to 2.4 degrees.

Driller's depth: 1354.37 m, production this week is 136.63 m.

### **Logging:**

A great effort was made by the logging teams to catch up with the drilling at the end of the brittle zone. Logging was done in 24 hour shifts until the end of the brittle zone. The ice from bag 1095 to bag 2330 is logged and stored in the core buffer to be processed in 2010. The first bag under the brittle zone is bag 2331, with the top of the bag at 1281.50 m depth. The ice is now of good quality. Notice that loggers depth are measured relative to 2008 snow surface, while drillers depths are measured relative to the top of borehole, 13 m lower than the 2008 surface.

Logging depth: 1367.62 m.

### **Science Trench:**

Ice core processing started at a depth of 1281.50 m (bag 2331). After a day of training the new team, tuning of saws and alignment of tables and placement of longer core guiders in the science trench, the core processing is now working in routine. CFA is running in 24 hour schedule and the CFA team had a small celebration when CFA processing passed the depth 500 m.

Processing depth: 1349.65 m.

CFA depth: 540.65 m.

**Other science activities:**

The shallow 3 inch drill has been used in the firn-air village to drill two shallow cores:

- 1) One shallow core at site NEEM2009S2 (77 deg 25.898 N; 51 deg 06.448 W) to a final depth of 91 m for firn-air sampling.
- 2) One shallow core at site NEEM2009S1 (77 deg 25.897 N; 51 deg 06.550 W) to be drilled to 150 m. Present depth 115 m.

Sampling and measurement of firn air is now essentially complete. Air from 18 levels from surface to 76 meters depth was sampled and analyzed over a period of 13 days from borehole NEEM 2009 S2. Samples includes 13 high pressure tanks for UEA/IMAU/MPI, 19 0.5 L glass flasks and 7 large stainless steel tanks for CSIRO, and measurements at the site of elemental mercury vapor (LGGE) and CO<sub>2</sub> concentrations (using UB CO<sub>2</sub> analyzer) at 16 levels. Mercury measurements in the free atmosphere and in the snow have also been made. The CO<sub>2</sub> measurements suggest the deepest samples have older effective air ages than expected based on results from the 2008 NEEM firn air program and model-predicted results. If these results are confirmed with sample analyses in the lab of additional species then the samples would represent some of the oldest firn air sampled from firn in Greenland and even Antarctica. The mercury results also show promise for a long uncontaminated record. Cores to 90 m at S2 have been logged and packed for structural properties at Dartmouth (USA) and accompanied by snow pit and hand auger core measurements. NEEM 2009 S2 has been completed at 90 m and samples packed for analyses. The Laki volcanic eruption (934 AD) was detected by ECM in the NEEM2009S2 core at a depth of 70.5 m.

**Weather at NEEM:**

Sunny with blue sky almost all week with noon temperatures up to -1 deg C, the last two days decreasing to -5 deg C. Night temperatures at -15 - -10 deg C.

**NEEM camp population:** 36

**Kangerlussuaq activities:**

Main activities in Kangerlussuaq office has been to clean up around warehouse, maintain cars and prepare for next week flight period with media/DV visit. We have emptied garbage container, emptied fuel pallets and removed empty oil drums from the warehouse area, and moved 48 drums of estisol out of container. We have worked on the cars. The white VW Taro is fully serviced, the flatbed has been charged and filters have been ordered, the stepvan starter engine is demounted and ready for replacement next week. We have packed clothes for DV visit, we have ordered supplies for camp, and spent some time searching for items in the warehouse, and we have prepared paperwork for the next week flight and the DV visit. We have had a visit by a reporter from Deutsche Welle and given a radio-interview.

**Weather in Kangerlussuaq:**

Sunny with blue sky most days. Temperatures have been 15-20 °C. Saturday there was a sudden dust storm lasting for 2 hours. Mosquito level is fairly low, but still moderate sometimes.

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