

Minutes of the Second NEEM Steering Committee Meeting

Tuesday and Wednesday, 6th and 7th November, 2007

Minutes by J.P.Steffensen, jps@gfy.ku.dk.

Welcome and opening remarks

Dorthe Dahl-Jensen (DDJ) gave a short status of the NEEM project. With the funds secured and the announced national contributions, the NEEM project is fully funded. J.P. Steffensen (JPS) gave a brief overview of the national contributions. NEEM is only fully funded if all national funds applied for will be given. If some applications fail to pass, the budget will have to be reduced accordingly. DDJ asked the national representatives to work for an increase in contributions.

The opening powerpoint presentation and the worksheet with national contributions will be sent as attached files to members of the SC.

Work on science plan in consortia groups.

Before the meeting split into work in Consortia groups, the SC decided to form also a modeling consortium. This group will coordinate NEEM science work in several aspects of modeling relevant to NEEM site and ice core: Ice dynamics, climate and cryosphere, past climate, atmospheric transport and circulation. DDJ also tasked the groups to formulate scientific goals, a list of practical needs and a list of national scientific interests, so that the SC can decide on a final cutting and processing plan for NEEM field work by autumn 2008.

The following consortia had meetings:

Stable isotopes of ice.

Gases, incl. gas isotopes

Aerosols and tephra

Physical properties, Basal ice, Borehole data, Geophysical survey and remote sensing.

Dating and gas ages (and tephra).

Biology

Drilling

Modeling

After tea break the SC re-convened and a short status of the consortia meetings was made (a more detailed list of items discussed in each group made by consortium chairs follows at the end of these

minutes). The consortia's need to advance their planning so they in November 2008 are ready to present a science plan for the 2009 season where the deep ice core will be processed.

The NEEM 2007 season

Lars Berg Larsen (LBL) gave an overview of the past 2007 field season. Details and pictures will be published on the NEEM home page as "**The NEEM 2007 Field Season Report**".

Simon Sheldon presented results from bore hole logging of the NGRIP hole and drilling and temperature profiling of the three traverse cores. Borehole temperature at NEEM is approx. -28.5C.

DDJ asked the German representatives to produce a short summary on the outcome of German accumulation radar measurements for the Field Season Report. Following the meeting a report was submitted (attached)

Prasad Gogineni presented the problems encountered in processing surface radar data. The data are almost destroyed by noise generated by a radar waveform generator. CRE SIS has spent months trapping the source of noise. The equipment was tested in an anechoic chamber. An airborne radar profile was successfully conducted in September by P-3 aircraft along the main ice divide from South Dome to Camp Century. This profile includes the route traveled by the NEEM traverse. The final dataset will be available by Jan. 08. DDJ asked Prasad to produce a short summary of the radar work for the Field Season Report.

LBL presented the stain net work along the traverse route and how the final NEEM site was selected.

JPS presented an overview of NEEM expenses in 2007 and a budget and liquidity overview for 2008. Several posts in the 2007 budget have been exceeded. The extra costs have been caused by: Extra travels to/from Greenland due to the cancelled first put in, some major purchases for 2008 have been in 2007, and transport by ship to Greenland was more expensive than planned. The extra expenses can be compensated in the 2008 budget.

A detailed breakdown on NEEM expenses and budget/liquidity overview including comments will be sent to members of NEEM SC as **NEEM 2007 Financial Report** at the end of the calendar year.

Science actions on NEEM 2007 core:

The three cores (60m + 60 m + 80 m) should be processed in Copenhagen this year. Processing should include density, ECM and 2.5 cm sampling for stable isotopes.

There is a U.K. request for 6 – 10 samples @ 1 kg of preindustrial ice and 0.5 kg industrial ice for sulfur isotopes from the shallow cores. A few samples for microbiology should be taken too (Bristol and Japan).

Jacob Schwander requested that the density profile is to be taken at 20 cm resolution across the firn/ice transition.

JPS was tasked to organize the processing.

Modelers need some accumulation data from radars to begin modeling.

It was decided, that NEEM will not require the PARCA Automatic Weather Station (7 km N of NEEM) to be moved.

Logistic plans for NEEM 2008

JPS presented the logistic plans for NEEM 2008. The main aim is to construct a complete camp for deep ice coring and ice core processing with the necessary infrastructure needed to drill and process deep ice cores from the beginning of field season 2009. Wet ice core drilling will commence in 2008; but the emphasis will be on testing the new drill and fluid and on establishing routines on drilling and ice core handling. We expect a depth of 400 m to be reached. In July there will be time to conduct shallow ice core drilling for firn gas sampling and a traverse to NGRIP to pickup remaining assets.

LBL and JPS presented the time line for 2008 season after the flight periods have been set at the 109th meeting in New York. There are still some unresolved questions regarding the put-in phase in the beginning of the season 2008. NEEM is negotiating with NSF, VECO and the 109th about whether the put-in should occur via Thule AB or, as planned, via Kangerlussuaq.

A break down of the flight periods and man day calculation will be sent as attached files to members of the SC.

Simon Sheldon presented drawings on the layout of the future NEEM camp with skiway, structures and buildings. The camp layout is similar to the NGRIP camp, except for the main generator which is moved outside the main dome and a new heated drillers workshop in the drill trench.

Simon Sheldon presented the planned communication system at NEEM. Telephone and internet will be handled via the new Inmarsat BGAN system. NEEM will facilitate wireless LAN in camp, and a mail server will handle e-mail traffic. Backup telephones will be Iridium handsets. NEEM will still maintain HF radio and VHF radio contact with SFJ and aeroplanes.

Lars Berg Larsen presented the newly purchased Pistenbully 300W polar which is now in Greenland. This Pistenbully is equipped with a 10 ton m crane, and the machine will improve skiway maintenance, camp construction and camp maintenance.

DDJ presented the manning plan (part of the man-day calculation). At present no names are filled in, but manpower requiring special skills has been identified. NEEM operations will send out a manning plan with dates to members of the SC. National representatives should then report back to LBL, JPS and DDJ before Christmas about how much personnel the participants can offer.

The ppt presentation SC_welcome_agenda contains DDJ's overview.

LBL presented and handed out the newly developed Danish Arctic Medical test scheme (attached). NEEM is in collaboration with a team of doctors, and NEEM will have a doctor in camp most of the

time. All participants will have to pass the Danish test (or equivalent) and test results will have to be sent to LBL before 7. March 2008.

Status on drilling plans for the NEEM project 2008.

The NEEM drilling group is beginning to form around Sigfus Johnsen, Steffen Bo Hansen and Simon Sheldon. There have been meetings with people in Grenoble and in Berne. Steffen presented a list of necessary modifications of the NGRIP drill to accommodate the higher viscosity of the new drilling fluid. In 2008 the aim is to perform wet drilling to about 400 m with an emphasis on testing the new design features. The full length drill capable of drilling 4 m cores will be installed in 2009.

Modifications include a joint between outer core barrel and chip chamber to permit separation, a perforated chip chamber like in the Japanese (JARE drill), a longer, 6 m, chip chamber, added weight to the drill, larger diameter of bore hole (133.6 mm), new surface electronics and new down hole electronics. Presently we have one old working set of surface electronics and two down hole sets. Some work is needed on the controls for the 15 kW winch.

NEEM drillers will contact the EPICA SC in order to get permission to use the EPICA drill in Grenoble as a back-up for the NGRIP/NEEM drill.

NEEM 2008 science.

Firn gas pumping: As the demand for firn gas is rather high, it was decided to attempt firn gas pumping in two holes separated by 100 m in parallel. A similar operation was successfully done in 2001 a NGRIP. NEEM will use the DK 3 inch shallow drill for this as the 4 inch Hans Tausen drill will be used in the deep drilling (For specification of the hole diameter, contact Steffen Bo Hansen or Sigfus Johnsen). The ice cores from this drilling should be logged, packed and returned for experiments that require large samples, such as radioactive isotopes and sulfur isotopes.

Processing of deep ice core: It was recommended that 2.5 cm stable isotope samples should be taken in 2008. This way, analytical time can be saved as 12,000 samples already can be measured 2008-2009. ECM and density measurements should also be done.

Temperature profiling in the three boreholes from 2007 should be done. Some of the GPS position stakes can be revisited during the traverse to NGRIP in July 2008.

Radar??

How do consortias proceed: The SC decided that the consortia should be ready with their contributions to a full science plan for NEEM 2009 by November 2008. It was suggested to extend the SC/Consortia meeting by one day to three total in November 2008.

Publication policy:

IPY data policy:

IPY education and outreach: As time was running short for this item to be discussed in detail, it was decided to allocate more time for this issue and increase its priority at the next meeting.

The second NEEM SC meeting closed by announcing the next meeting, which will be held in mid November 2008. The venue could be Copenhagen or Kansas or Colorado.

J.P. Steffensen