

WISSARD FIELD REPORT: 25 January 2013. Compiled by John Priscu.

WISSARD Science Personnel at SLW: Slawek Tulaczyk, Matthew Siegfried, Dan Sampson, Brent Christner, Grace Barcheck, John Priscu, Ross Powell, Alberto Behar, Jill Mikucki, Tristy Vick, Amanda Achberger, Andy Mitchell, Reed Scherer, Tim Hodson, Mike Osment Alex Michaud, Carlo Barbante, Mark Skidmore, Ken Mankov, Jason Thomas, Doug Fox

WISSARD Drillers at SLW: Dar Gibson, Darin Blythe, Graham Roberts, Dennis Duling, Justin Burnett, Jeff Lemery, Robin Bolsey,

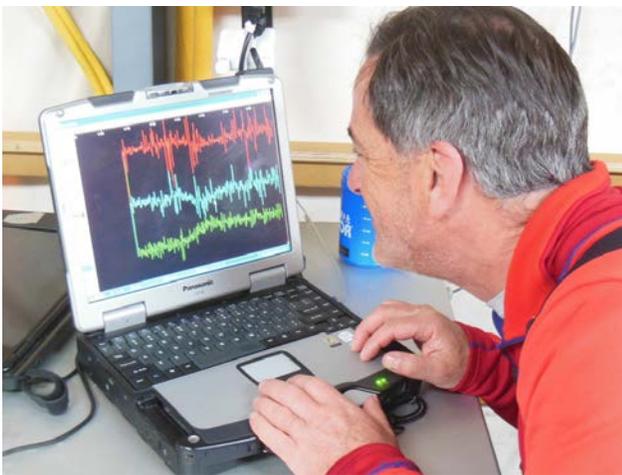
The SLW camp population is at 40 in addition to 9 members of the SPOT2 traverse (49 total).

Camp Update:

- Flights from MCM to SLW were again cancelled today. This flight was to bring in 7 WISSARD personnel (Emily McBryan, Marino Protti, Marci Beitch, Susan Kelly, Betty Trummel, Brian Guthrie and William Adkins) plus 3000 pounds of cargo. The cargo included a borehole pumping system that will be used to collect water for helium isotope analysis, a piston corer for sediment collection, and deionized water for the laboratories. We remain hopeful that we will receive these pax and cargo before entering SLW. We have reprioritized cargo to maximize pax put-in.
- Our ASC camp staff Jesse and Meghan continue to provide us with excellent meals. In addition to cooking, they provide us with flight information, weather updates and general camp maintenance. They will play a big role for WISSARD during camp pull-out when they will be responsible for cargo logistics, packing, and winterization of the camp.
- Our local broadband seismic station for monitoring ice stream slips is up and running. We observed a tidally-triggered slip starting today at 0738 hours. It occurred on the falling tide. From Padman's tidal model we estimated that the next slip should occur around 1530 h and it did. Movement of the Whillans Ice Stream is tidally modulated with slips of up to 1 meter over a 20-30 minute period during tidal cycles. This information is important for deployment of long borehole tools—we do not want to deploy these tools during a slip.
- Barcheck, Siegfried, Sampson went back on snow machines to finish installing the surface active-source network. They are expected to return before midnight.
- The borehole reached a depth of 700m at about 0330 h this morning. At this time the drill was pulled and a Downhole Optical Camera To Observe Roundness (DOCTOR; kindly loaned by the Antarctic Research Centre, Victoria University of Wellington, NZ) tool was lowered through the borehole using our light winch system to check diameter and roundness. The DOCTOR provided us with excellent video of the borehole from the surface to the bottom, verified that the depth was 700m, provided a measurement of borehole diameter, and showed us that the water return borehole was connected to the main borehole. The drillers attached a “spray” drilling nozzle and reamed the upper portion of the borehole for several hours before commencing borehole deepening. The plan is to drill relatively quickly to 750 m then reduce the rate before lake penetration to avoid disturbance of the water column. Once the lake is penetrated the borehole (particularly the lower portion) will be reamed to provide us with a ~60 cm diameter borehole for science operations. All down borehole drilling equipment followed a stringent hydrogen peroxide wash and passed through a high intensity UV collar to eliminate viable bacteria before entering the borehole. Borehole drilling water is also being cycled continuously through 2 and 0.2 um filters, and 2 banks of germicidal UV radiation.
- A 10 liter Niskin water sampler was attached to the DOCTOR lowering cable and successfully collected a water sample, which was sent to our onsite laboratory for biological (cell density, cell viability and DNA analysis) and chemical analysis. Data from the borehole will be used in concert with data from the filtration system to ensure that we meet our clean access requirements for environmental stewardship and sample integrity. The microbiology team will continue its daily sampling of borehole water in the drill return line for analysis of these parameters, allowing us to assess the cleanliness of the borehole water.
- Our onsite outreach personnel (JT Thomas and Doug Fox) have been working intimately with all scientists and engineers at SLW to document ongoing progress. Their overall goal will be to produce material for a feature story in a major scientific magazine. The images attached to this report were taken by JT this morning during deployment of the DOCTOR.
- Behar and Mankoff continued to prepare the borehole camera on the “mothership”. This camera will be deployed once reaming of the borehole is completed. If all goes well, this deployment will occur around 0200 h tomorrow morning. The video from the mothership will provide us with lake depth, water column turbidity and the quality of the sediment (i.e., soft, hard, gravelly, etc).
- Powell, Hodson and Osment continued to prepare the percussion corer as per yesterday's report. The main components of the percussion corer were cleaned and prepared for vertical testing outside the workshop tomorrow. We have exchanged nutrient analyzers in in the POP with discrete water samplers. Two more stages of the POP had their instrument communications tested, cleaned and placed in their casing and bagged, ready for deployment. Smaller stages were prepared at the cleaning station of the Sediment Lab, whereas larger components were cleaned in the NIU workshop.



Tristy and Amanda processing borehole water (left); John preps camera on doctor (right)



Dan checking local seismic data (left); Brent, Robin and John retrieving 680m borehole water sample

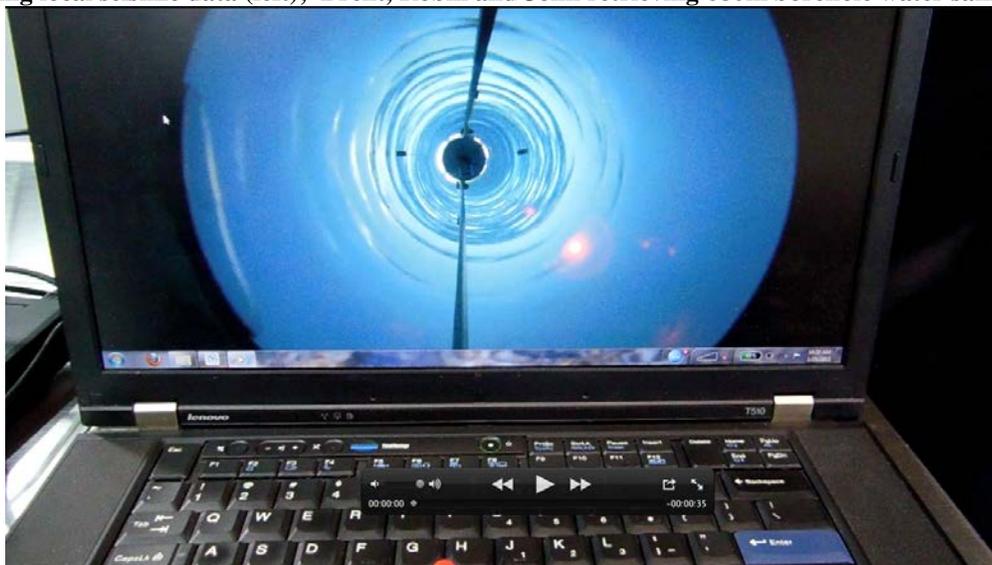


Image from the DOCTOR camera looking down the borehole. The “whiskers” provide borehole diameter estimates