

WISSARD FIELD REPORT: 24 January 2013

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). Jessie and Megan continue to astonish us with excellent food.

Camp Update:

- Flights from MCM to SLW were 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.
- The geophysical team took snowmobiles to a location about 50 km south of SLW (near the confluence of the Mercer and Whillans Ice Streams) to install a 9 station seismic array. The seismometer deployment will record basal seismicity to assess ice stream movement. Unfortunately, only 2 seismometers could be deployed because of data storage issues. These issues were resolved last night and the remaining sensors will be deployed over the next few days. Siegfried and Barcheck collected GPS data from three continuous stations deployed in the area several years ago. They serviced the stations and prepared them for the next year of data collection. Sampson and Barcheck prepared a local seismic station which will be monitoring ice stream slips to facilitate borehole operations (e.g. no long borehole tools should be deployed when the ice stream slips 2-3 feet in about 20-30 minutes).
- Bolsey and Christner completed assembly and testing of two light winches for borehole tool deployment. These winches are ready to be placed on the Launch and Recovery System (LARS) deck.
- Behar and Mankoff continued to prepare the borehole camera on the “mothership”. This camera will be the first deployment tool and will measure directly the depth of the subglacial ice/water interface and the depth of the lake itself. We also hope to use this tool to examine the characteristics of the SLW surface sediment.
- Scherer, Priscu and Bolsey repaired successfully the water pumping system in the sediment lab. This system will be used to clean down borehole instruments.
- Powell, Hodson and Osment continued to prepare the percussion corer by working on the hydraulics and testing communications between the command and control center and the drop weight of the corer. A new configuration was successfully made to the hydraulics for easier and better maintenance. Communications from and to the probe were also successful, and the weight operated as it should. The group also continued to check and clean instruments and then load them in the racks for the POP (Physical Oceanographic Package). The steel casings are also being washed and one stage of the POP was fully prepared with final cleaning using hydrogen peroxide. That cleaning involves first spraying the inside of the casing and then the instruments and their rack as they are slid into the casing. Lastly the outside of the casing is sprayed and then bagged and sealed in a sterile plastic tubing and set aside until its time of deployment. More stages will be prepared to and hopefully be completed tomorrow.
- The drillers completed the rod well beneath the firn layer (~110 m) which will be used as a sub-ice water reservoir for drilling operations. The deep borehole was started late last night and as of 2030 h on 24 January has reached a depth of ~520 m. The present drilling rate is ~0.6 m/minute. The borehole is estimated to be ~700 m deep by 0400h on 25 January. The drill will then be pulled and the depth of the hole with a borehole camera in preparation for final breakthrough. We estimate lake breakthrough at 1300 h on 25 January and, with some luck, hope to begin borehole science operations at 1800 h.
- 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. All systems are up and running.
- The microbiology team took the first samples of borehole water in the drill return line for analysis of bacterial density, viability and DNA. These data will provide us with the biological characteristics of the ice sheet that will be compared to subglacial lake water.

Compiled by John Priscu



Preparing hydrogen peroxide solution for cleaning of down borehole tools



Dennis Duling preparing to deploy return water pump to complete drilling circuit