

Whillans Ice Stream Subglacial Access Research Drilling



Project Field Progress Report, 10 - 16 December, 2012

1. Summary

Final preparations and equipment assembly were completed prior to initiating the McMurdo Ice Shelf equipment and operations test. The optimistic target date to start testing was 12 December, however, delays in the electrical power system, LARS final assembly, and minor drill system adjustments necessitated delaying the test start date to 17 December. Lessons learned during drill camp and science platform assembly were sufficient to reduce test requirements to one borehole prior to traverse departure, so the projected date of test completion is 21 December.

2. Environment, Health, and Safety

- Nothing to report

3. WISSARD Personnel:

- Three WISSARD personnel arrived on station - Science team: Brent Christner, Doug Fox, JT Thomas. New arrivals participated in orientations and training as required.
- Drill team on site (10 total): Bolsey, Blythe, Burnett, Carpenter, Duling, Gibson, Lemery, Melby, Rack, Roberts.
- Science team on site (22 total): Achberger, Adkins, Christner, Edwards, Fisher, Fox, Hodson, Kelly, LeBaron, Mankoff, McBryan, Michaud, Mikucki, Osment, Powell, Priscu, Schlepp, Skidmore, Thomas, Trummel, Vick, Winans
- Science observer (RAE, 1 total): Alekhina
- Mike LeBaron departed.

4. Field conditions:

- Weather was warm, -1 to +5 C, and exceptionally calm throughout the week, with clouds and occasional sunshine. Shuttle van transits became more difficult as the snow road softened, and sometimes Deltas were required. In addition to three daily shuttles, a Mattrack, Pisten Bully, and two snowmobiles were provided for access to the test site.

5. Activity Progress:

- Science team finalized the borehole and science operations plan for the test.

- Science team developed a draft field put-in and science operations plan for Lake Whillans field site.
- Cargo necessary for the LARS final assembly was delivered and installed.
- Work-around solutions were put in place for final electrical power connections. IceCube generators and the power distribution module required work throughout the week, necessitating a postponement of the test until 17 Dec (target date to start was 12 Dec).
- Glycol loop to utilize waste heat for snow melting required modification and leak repairs, but was functional by the end of the week.
- The field labs were moved to the test site, final configuration was altered to provide clear access along one side of the LARS deck. The Lab interiors were prepared for use during the test period.
- Overall test site operations were reviewed with complete WISSARD team. All team members with access to the LARS deck held safety briefings and planning sessions for test operations.
- Systems installations in the Reel Container Unit were completed and plumbing leaks repaired. The borehole UV unit was configured for testing. $\frac{3}{4}$ " water hose was installed on the reel, however a manufacturing fault was found on the plumbing connection and could not be repaired on site. Crescent and rack system were completed for use in test. The snow melter was used to fill tanks in preparation for test drilling. The drill system was successfully used to make the mousehole and dummy return water hole. Daily drill project reports are available at: <http://www.wissard.org/publications/drill-reports>
- Water samples were collected to test function of the clean access system during initial recirculation through the drill.
- All preparations necessary for the test to begin were completed. The main drill hose will be used to make a borehole through estimated 80m of shelf ice, using snow melt water without recirculation, in order to avoid saltwater contamination of the drill.
- Final preparations were completed on the science instruments, winch, and control van for use during the test.

6. Outreach:

- Writer and photographer participated with WISSARD team during test preparations.
- Website updates and blogging continued.
- Video of the test preparations and participant interviews was collected.

7. Upcoming activities:

- Full test of Drill system, LARS/crane platform, and primary science instruments will start Monday 17 Dec.
- PI telecon: Wednesday, 19 December, 1400 MST

8. Figures



- Fox, Michaud, Winans, Scherer observe snow melting to fill drill water tank.



- Skidmore, Mikucki, and Christner collect samples during drill water recirculation.



- Kelly and Monk review Outreach video and pictures on site.



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