



PROJECT SITUATION REPORT DISC Drill 09-10 Season

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| Project: | T-350-M | | | |
| Project Principal Investigator: | Dr. Charles Bentley | | | |
| Report No: | 8 | for period | 12-28-09 | through 01-03-09 |
| Prepared by: | Kristina Dahnert | | Date: | 01-03-09 |

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| ICDS Personnel on Site: | Lou Albershardt Patrick Cassidy Kristina Dahnert Dave Ferris Josh Goetz Ben Gross Robb Kulin Nicolai Mortensen Elizabeth Morton Steve Polishinski Mike Jayred (RAM Drill – returned to WSD on 12/31) Jim Koehler (RAM Drill – returned to WSD on 12/31) Mike Waszkiewicz (visitor – left WSD on 12/31) |
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ACTIVITIES DURING PERIOD

- Inclination appears to have stabilized this week. While we have even seen slight improvements in our average inclination numbers over the past few days of drilling, it is still too early to say if we are in fact heading back toward vertical. Our efforts this week include:
 - Ream one pass per run starting at 6m from the bottom. This is done using the Trip motor, 100rpm on the cutter, 3200rpm on the pump and at a penetration speed of 0.1m/s.
 - We have modified a set of cutters, giving them more side-cutting ability. This was done by taking down part of the relieved edge on the outside of the cutter, leaving a 4/10mm wide x 3mm long relieved edge.
 - We have re-attached stabilizers to top of core barrel, as flex in the drill between the new upper stabilizers on the screen barrel and the lower core dog cages still allowed too much flex in the drill. Clearance distance to the borehole wall on these mid-range stabilizers is .071". Upper stabilizer clearance is now .010" and core dog cage (lower stabilizers) is currently at: .070".
 - Current average inclination ranges between 4.7-5.2°. The season max of 5.4° has not been seen in approximately 25 runs.
 - Late on Sunday, the inclinometer began showing spikes and inconsistencies not reflected in the accelerometers. The trouble is likely with this sensor only. The plan is to change out this instrument section very soon.

- Immediately after installation of the newly-machined cutters, the core diameter decreased to 116mm. This was only seen for approximately two drill runs, whereafter the drill settled in and the diameter returned to 121mm+.
- Core surface has also been more rough with the newly-machined cutters, but Anais assures us these grooves do not pose a threat to overall core quality. The core handlers are keeping us informed of any potential surface fractures caused by these cutters.
- Penetration rates have increased from 1.3mm/s to up to 3.5mm/s. Higher speeds have reduced cutter dropouts and decreased run times.
- We are still using rear button shoes and have re-inserted a second .010" shim under each shoe. Current shoe height is .196".
- As with last season, the nitrogen purge line for the centrifuge appears to have a leak. Efforts were made to locate the leak, but it is now common practice to turn off the nitrogen tank in between runs when the centrifuge is not in use.
- One core dog and spring were replaced after the core dogs slipped on two cores. All four dogs now appear to be working well.
- Fluid level in the borehole is being maintained between 90-110m, as with the previous season.
- Questions have arisen this season as to the drill's ability to correctly determine azimuth. Nicolai has reviewed the program that calculates azimuth and has found errors. While he could, in theory, fix the program this would mean stopping drilling for a 1-2 days. Currently the priority has been balancing efforts to reduce inclination as well as increase production rates, and azimuth will be revisited if necessary. In the meantime, the core handlers have started butting core ends together and have a method for marking a consistent azimuth.
- Mike Waszkiewicz departed WAIS Divide for McMurdo on Thursday, 12/31/09, after an 8-day visit.
- Mike Jayred and Jim Koehler returned to WAIS Divide from the Thwaites Glacier traverse on Thursday, 12/31/09. Due to one of the two Tuckers breaking on the drive back, the drill was left 130 miles from WAIS Divide and is being retrieved this week. Upon its return, it will be packed for retro to McMurdo.
- The New Year holiday was celebrated on Friday night, 1/1/10. Appetizers and a large prime rib dinner were followed by a charity raffle. Prizes included an I-Touch, a music CD, Antarctic photography posters and a signed "Red Parka" painting done by visiting artist Anna McKee.
- Weather onsite has been windy with many days of flat light.
- The crew was in good health (finally) and in good spirits, but it appears the next round of stomach flu has arrived from McMurdo. We will keep our fingers crossed, but everyone is doing a great job in keeping production moving along. Way to go, Team!
- Big news of the week: Late on Sunday we reached 2000m!
- Final driller's depth for the week: -2001.749. Total meters drilled this week: 177.477m. (Correction: Last week's final depth should have read -1824.272.)

SAFETY

- The DISC air monitor is still functioning well and we continue to use Port 3 for vapor readings from the NICL side of the Arch. Despite Brian Bencivengo's attempts to troubleshoot the NICL monitor, it appears the problem is internal.

The monitor will be retroed at the end of the season for repair.

COMMENTS
(Problems, Concerns, Recommendations, Etc.)