

SITREP 9 - January 16, 2011  
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Written at WAIS Divide

[Brought to you by the number **3000** (meters) and the letter 'A' (as in "A-okay")]

- I. Passenger movements
  - A. SCO
    1. K.Taylor (PI) departed WSD on 10Jan.
    2. K.Taylor (PI) arrived WSD on 15Jan
    3. M.Twickler departed WSD on 15Jan.
  - B. NICL & IDDO
    1. n/a
- II. Cargo Movements
  - A. Two AFPs (Air Force Pallets) of ice core (I-477) were sent to McMurdo on 15Jan [Skier 54, Tail number: 491].
    1. Negotiations between the NSF and ANG (and RPSC; 12Jan) were fruitful. K.Taylor flew from MCM to WSD (dep ~2200, 14Jan) to monitor on-board air and surface temperatures. 109<sup>th</sup> aircrew followed their (amended) cold-deck SOP, and temperatures were brought low enough for K.Taylor to "greenlight" this ice retro flight. M.Twickler continued to monitor aircraft temperatures as they flew back to MCM (dep WSD ~1330, 15Jan), and he reported the aircraft maintained suitable temperatures for ice transport. AFP logger information will arrive as soon as the loggers are returned to WSD.
- III. Camp Activities
  - A. Current camp population as of 16Jan is 39: 12 RPSC, 4 NANA, 11 I-477 (including 2 NSF-media), 1 I-478, and 11 T-350.
  - B. I-157 arrived at "Site 3" via KBA Basler. Unfortunately, this meant H.Conway ("Twit") had to leave WSD (13Jan). This move, however, did bring in S.Das and L.Trusell for a couple days.
  - C. PIG(let) Traverse returned to WSD this week ... briefly. One well-deserved night of R&R at beautiful WSD was all they could afford before hitting the hard, sastrugi-strewn road back to Byrd.
  - D. We watched our beloved camp carpenter return to the big city that is MCM. R.Kummelehne did so much for our group and this camp. Bon voyage!
  - E. Drilling? You betcha! Our drill ops have been running "A-okay" this week ... as for tempo, how does 3000m (at ~2145 on 14Jan) strike you? Ops tempo has been fantastic this week! So much so that the NICL side of the drill Arch looked more like a Chinese puzzle box than a core-processing facility.
- IV. Drill Depth and Time
  - A. 3019.8m and ~43.5kyr as of 1630, 15Jan (per T.Neumann's calculation using standard Nye correction).

- V. Status of Drilling (# of runs, meters of ice drilled, core quality) [operationally from 09Jan to 15Jan]
- A. 52 Runs (Run 1630)
  - B. 156m of ice drilled (Section 3022, as of 1630, 15Jan)
  - C. Core quality remains excellent. The core diameter continues to be consistent (121.6 to 121.7 mm). Run breaks have been good to fair (some spalling occurs near the dog marks).
  - D. Ice temperatures (as measured by the drill) have shown a distinct warming trend. Temperatures, as measured by the drill, pre- and post-drilling show a fairly uniform 5C rise (brought on by coring itself). Temperatures measured at the receiving "4m" station do not show as noticeable a rise, and we fear it might be a product of the long trip times more than an error in either measurement (drill v. handheld probe). More in the next SitRep.
  - E. FED performance is regularly monitored (cleanings occur when fluid extraction capacity diminishes).
  - F. Cloudy "bands" continue to appear in the core, though this past week's throughput have revealed very few.
  - G. Extra caution continues to be exercised when logging ice core "chips" and "pieces". This is because "missing" chips and pieces, if not "topside" somewhere, can potentially act as foreign object debris (FOD) to the drill in the borehole.

VI. Other

- A. The SCO team continues to streamline and improve operations via daily meetings that discuss safety and procedural challenges.
- B. We continue to observe a discrepancy between the Euro Marks' associated "absolute depths" and the Cut Marks' associated "absolute depths". A brief synopsis was written last week. We see that, with our total throughput for this season, we now see a ~15mm "discrepancy" between the two depth scales. [Euro Marks are made on the whole centimeter and Cut Marks are made on the whole meter.]
  - 1. We have changed, ever so slightly, how we are cutting the ice on the Cut Mark to see if this will slow the trend down. It is too early to discern if this is true. We still believe the Euro Marks (and associated "absolute depths") are holding "more true" for this season and that, if anything, the Cut Marks (this season) may be migrating ~1mm every ~25 meters.
- C. As noted above, "we" (NSF, ANG, PI, RPSC, etc) have been greenlighted to continue ice retro flights from WSD to MCM.
  - 1. Procedurally, roughly 90 minutes from arrival to WSD, the aircrew will initiate their cold-deck SOPs to bring the on-board temperatures down to a suitable level. These temperatures are measured at 3 positions near the "640" cargo location: 8', eye-level, and the deck. These temperatures are monitored until landing at WSD (for "go/no-go" of ice retro). If it's a "go" for ice retro, after ascent to cruising

altitude on the return leg, the temperatures at these locations are continually monitored until arrival at MCM. The appointed ice core "monitor" may also accompany ice as it is transported, via Delta, to MCM "proper" from Pegasus Skiway for placement in the South Pole-designated reefer units. I-477 ice is staged here until the SafeCores arrive via vessel in late January.

- D. Three shifts of "eight" have been GREAT. Informal conversations post-change indicate many on the crew feel more rested and better suited to engage a "full day's work" on the "eights". With T.Fudge now at WSD, we are not only able to reduce our workload to a more civilized ~8-hour day, but we gain a huge reservoir of enthusiasm and positive force of energy!
  - 1. The schedule change between H.Roop and myself has also worked quite well.
  - 2. H.Roop, B.Bencivengo and myself continue to discuss QA/QC and general core-handling oversight.
- E. Regarding I-157's ice cores ... we now have 3 "skids" sitting on the Arch floor. We are awaiting two things: 1) a planned deep-field retrograde flight of I-157 ice to arrive ~17Jan to make an AFP "plus" load for 2) a cold-deck retro flight of I-157 ice to MCM on 19Jan.
- F. A hand planer has been used to collect isotope samples for ~100m of WDC06A ice. The sampling was begun shortly below 2900m "absolute depth". We are now collecting ~6g of sample per 1m of ice. There was some tweaking of the amount collected (blade plunge depth, essentially) while M.Twickler was still in camp. Our collection low was 3g and our high was 18g.
  - 1. K.Taylor and I have discussed implementing 0.5m resolution sampling. We may start this as early as next week.
  - 2. HUGE thanks go to J.Robinson for constructing a jig to be used with the pack-up station's cradle and J.Johnson for attaching rails on the planer so that it may be used while the ice is still sitting IN the ice core trays! We're currently using the latter technique, but we are better equipped having two choices.
- G. There is a large, backlit snowpit a little removed from camp "proper" in place for all (of camp) to enjoy. Huge kudos go to R.Kummelehne and R.McDuff for spearheading this endeavor! M.Twickler, J.Fegyveresi and A.Buffen also lent muscle, both in the way of brains AND brawn!
  - 1. Thanks to J.Fegyveresi for collaborating with me on a short document outlining things to see (patterns) and do/don't (i.e. "don't fall in"). This was sent to all in camp as a quick and easy "reference email".
- H. The NSF media crew (J.Polk and M.Stan) has been super busy filming 3 "shorts" based on (and in) this drill project/WSD. They've done quite a bit with the drill (and K.Dahnert and J.Johnson) as well as a number of core-handlers (background shots, voice-overs, and primary shots).

- I. We all took a moment to celebrate the life of **Willi Dansgaard**. His nigh prescient proposal to study the ice of Greenland because he thought it might contain information on "climatic changes over a period of time of several hundred years of the past" (Dansgaard, 1954) is, in a number of very real ways, THE reason why we're ice-hunting in West Antarctica. Thank you, W.Dansgaard!
- J. We also celebrated the incredible achievement of 3000 meters drilled! Our satisfaction of seeing the run "containing" that 3000<sup>th</sup> meter is founded upon the stout shoulders of ALL who came before us! From planning to funding to building, there are SO many people who deserve to be recognized ... far more than just the few dozen that strolled out to the Arch on 14Jan to toast the 2<sup>nd</sup> time that 3000<sup>th</sup> meter saw the surface of the Earth. On behalf (unofficially) of those of us at WAIS Divide Camp now, working for or alongside I-477, I would like to toast all those persons involved with this project. From DC to Denver to Madison to McMurdo, from "year one" to "year now" ... we are here at 3000m (and going beyond) because of your sweat, blood and smiles. Thank you.
  1. There was a small, bedrock-themed fete to help underscore this week's coring achievement. A multi-layer chocolate cake ~25cm tall anchored this celebration ... and no bedrock was harmed in the celebration of coring 3000m of ice.