

SITREP 1, November 3, 2008

Cara Ferrier (RPSC)

Written at McMurdo Station

WAIS Divide opened on Saturday, 11/01, via Basler at 2 pm. They refueled the Basler and were in the modules by 3 pm. They quickly turned on heat, got the generators going, and ran propane in the galley. Most things wintered well, although the vehicles were parked too close together and snow packed in between them. It took a lot of shoveling to free them of snow. Also, a vent cover blew off one of the perfection stove stacks and packed tight with snow. The arch has drifted a lot, but you can still see some metal on the smaller arch building. All of the heavy equipment is running, as well as four snow machines. One snow machine is not working well and they may need to return it to McMurdo. The rest of the snow machines have not been found yet. Hopefully, they are buried nicely someplace on the cargo berm. The Tucker has a broken spring and the mechanic will replace it soon. The McM and WSD fuelies are setting up the fuel system today. The heavy equipment operator started grooming the skiway today to prepare for a backup flight in two days. WAIS is a primary flight on both Thursday and Friday and five missions are proposed for next week. It has been sunny but windy each day, between -32 C and -35 C.

SITREP 2, November 12, 2008

Matthew Kippenhan (RPSC)

A lot of activity in McMurdo and at the camp have been happening these past two weeks. Camp opened via Basler several days later than scheduled and field reports have been positive in terms of winter-overed cargo and opening conditions. Modules, equipment, and cargo was buried as expected and the crew spent many hours digging out to get the basics up and running. The CAT 953C tracked loader is showing signs of track damage that is of concern for us and forces the tractor into lighter duty. We are preparing for the necessary repairs but hopefully the overall impact will be less than first anticipated. The Camp Manager is Ben Partan and he is assisted by the Camp Supervisor, Theresa Tran, and the rest of the great crew.

FEMC tradespersons under the guidance of the Science Construction foreman, Ben May, arrived two days ago to begin the major camp construction effort. Their LC-130 arrival was delayed due to other aircraft obligations and of course, weather delays. However, now that they are on site, despite the poor weather today, they are able to start building the summer camp in full earnest. Typically, it takes a few weeks to complete the camp construction to 100%, so there will be delays to their schedule, likely 5 - 7 days. Good weather during this intense time may allow them to catch up in a few areas.

The arch facility remains closed for the winter until the Construction Superintendent, Billy Texter, arrives with his crew. They will focus immediate efforts on opening the arch and generator modules. They are expected in camp this Saturday, 15th November. Billy will be in contact with McM in regards to construction progress and when the arch can be occupied by science personnel. For those of you deploying this season, please be prepared to be in McM a few additional days due to the cumulative delays across the board.

Sharon Lewis, WAIS Divide Cargo Coordinator, is back to provide excellent support of passenger and cargo movements for the project. Please contact her upon arrival to review cargo priorities etc. She is back in bldg. 140 and already on top of things as usual. Cara Ferrier and Brian Johnson are your field science POCs, their offices are upstairs in the SSC. Cara is in daily contact with the camp and helps tremendously with keeping things running.

SITREP 3, November 27, 2008

Ken Taylor (Chief Scientist; SCO)

Written at McMurdo Station

Work is progressing at WAIS Divide, however major storms and mechanical problems with the Tucker snowcat and Caterpillar tracked forklift has slowed progress. Settling of the arch and internal walls has also added to the effort required to get the arch structure ready for drilling. The attached photo shows how much the arch drifted over. The top of the almost-buried arch in the foreground of the picture is 16'5" off of the 2005 snow surface (the arch was erected in 2005). Geoff Hargreaves, Jay Johnson, and myself are in McMurdo. The rest of the science crew and most of the drillers are in Christchurch and are heading this way. Overall we are running about a week behind schedule.

SITREP 4, December 2, 2008

Ken Taylor (Chief Scientist; SCO)

Written at McMurdo Station

Operations are progressing slowly. RPSC has the camp up and running, but problems with the Cat 953 (tracked forklift) and Tucker have reduced our ability to move cargo and snow. Compounding the issue is a recent 100 hour period of wind and drifting that obliterated much of the digging that RPSC had already completed. RPSC is trying to get another mechanic and equipment operator to WAIS Divide to help deal with the equipment and drifting. All of the SCO crew and most of the drill crew are in McMurdo. We have endured the endless required training classes and briefings, are tired of being crammed into stuffy windowless and crowded dorm rooms with half a dozen other people, and are ready to go to the field. Geoff Hargreaves (NICL- USGS) is at WAIS Divide. Jay Johnson and I are hoping to get out in a day or so. The rest of the crew should get out soon after that. Considering what the weather has been and the equipment difficulties, I am expecting the delays to continue.

We appreciate the positive attitude of the RPSC staff, especially those that helped us get through McMurdo quickly by scheduling additional classes. For those of us that have been coming down for a while, it is good to catch up with our polar buddies that we have known for years. For the newbies, there is the excitement of being on the Ice for the first time.

SITREP 5, December 7, 2008

Ken Taylor (Chief Scientist; SCO)

Written at WAIS Divide

We have made slow progress in the past week. Half of the drill and core handling crew are at WAIS, and the rest are in McMurdo waiting for flights. We had several days of unusually clear and calm weather, which helped our cargo situation. We have most, but not all, of the equipment we need to start operations. The rest of the equipment and crew should be coming in a few days. We are setting up the equipment we have and preparing the arch.

The camp is still operating a bit slowly because the tracked forklift that is used for moving heavy loads and clearing snow is not operational. The RPSC construction crew is doing a good job supporting us. The construction crew is led by Billy Texter, who has been providing construction support for the project since the Greenland drill test four years ago. It will be another two weeks before we are ready to start drilling with three shifts.

SITREP 6, December 14, 2008

Ken Taylor (Chief Scientist; SCO)

Written at WAIS Divide

We made significant progress this week. The weather has been mostly calm and clear, so camp has been able to catch up on removing the drifts. ICDS lowered the drill to the bottom of the hole with no noteworthy equipment problems. The fluid level in the hole was still above the pore close off depth at the same depth as last year thanks to the ICDS design of sealing the ice/casing contact using O-rings. The cooling system in the core processing area has brought the air temperature down to -30 C, which will be great for minimizing the thermal stress on the brittle ice, however it does come at the cost of significant thermal, noise, and wind shock on the core processing crew. We have been conducting training on the core processing and drilling procedures, and we had an accident response drill that included three simulated victims. We are all set to start drilling and hoping to recover our first core on Monday.

SITREP 7, December 21, 2008

Ken Taylor (Chief Scientist; SCO)

Written at WAIS Divide

Great news from WAIS Divide, all our equipment is working, the procedures have been developed, the crews have been trained, and the cooks are making it very difficult to avoid eating too much. We received the critical parts for the Cat 953 tracked forklift that is needed to load heavy pallets on planes and many other tasks. The piston bully which is used for snow removal and grooming is back from McMurdo after mid season repairs.

It took a few days of coring for ICDS to figure out a set of procedures that allows us to drill one meter of ice, raise the drill to break the core free from the ice sheet, and then drill a second one meter section without bringing the drill to the surface between runs. This produces clean fractures on the ends of the one-meter sections. For comparison, last year when we tried to cut the brittle ice from this depth into one-meter long segments the ends would shatter and damage the core. This is a new method that has not been done before and so far it is working very well. ICDS is now focusing on increasing the speed of all aspects of the operation that will not influence core quality.

Core handling operations are also going well. The new system for vacuuming drill fluid off the core is every effective. The new system for applying the netting around core is much better than last year, but it does require significant muscle power to prepare the netting for the next core. We are holding the temperature of the core processing area at -30 C to minimize the thermal shock to the core. The combination of new core handling procedures and a colder core handling area have resulted in excellent core quality and a hearty core handling crew. I expect core quality to decrease as we go deeper and get into the seriously brittle ice. We also cut a core that was drilled last year and left onsite for the winter. Last year when this core was cut the end shattered. This year after the ice had relaxed for a year, the ice cut smoothly. This validates the concept of leaving brittle ice onsite for a year so it can relax and be less susceptible to damage during shipment. The electrical measurements on the core are showing a nice series of annual layers that we can use to determine the age of the ice.

Our current bottom depth is 621 m, which is 40 m below where we started this year. Now that we have everything prepared, we will start production drilling with 24 hour/day operations.

SITREP 8, December 29, 2008

Ken Taylor (Chief Scientist; SCO)

Written at WAIS Divide

We are now at 811 meters depth. Typically we collect and process 35 meters of ice per day, which is more than we anticipated. As expected, the ice is getting brittle and core quality is declining. There are now several fractures per meter, with many long diagonal fractures that will make it difficult to process the ice with standard melters. Fortunately, the netting is doing a great job holding the ice together. Most of the fractures are tight fitting and do not adversely affect the electrical measurements, which are showing a strong annual signal.

We had a good Christmas with a day off, a nice dinner, gift exchange, dancing and sledding. The Tucker Sno-Cat, which is used for snow grooming and as a light duty forklift, has many cracks in the frame and has to be sent out for a major repair. We have had many fantastically calm and clear days, which is a different and more appreciated weather pattern than last year.

SITREP 9, January 5, 2009

Ken Taylor (Chief Scientist; SCO)

Written at WAIS Divide

We are now in the productive but tiring part of the field season. We are consistently drilling and processing 30+ m of core per day, and have reached a depth of 1,000 m. Our Lead Driller, Jay Johnson, continues to refine the drilling equipment, occasionally making adjustments of only 0.002 of an inch to critical components. The core quality has deteriorated as we move into the center of the brittle ice. There are typically several long fractures per meter, but the netting is holding the cores together. The current ice is much clearer and has smaller bubbles than 100 m above. It will not be possible to use a melter to sample this ice, but there is plenty of high quality ice for measurements that use discreet samples. The electrical measurements are identifying well-defined annual layers. We are still on track to meet our goal of getting out of the brittle ice this season, but we don't have any extra days and rarely take a day off.

We completed two planned personnel changes. Bruce Vaughn has replaced Anais Orsi as Operations Manager. Brian Bencivengo has replaced Geoff Hargreaves as the Core Curator. Julie Palais was on site for several days. It was great to be able to show off the progress we have made.

A LC-130 and crew spent the night at WAIS Divide due to deteriorating weather. We feed them well, explained why we are here, and gave them a tour of the coring and processing facility. Our Danish Ph.D. candidate Susanne Lilja Buchardt gave a nice evening talk on the NGRIP ice core. This was of special interest because there will be many comparisons made between the Greenland and WAIS Divide climate records. He had a great New Years dinner and Anais organized the well-attended second "WAIS Divide Olympics" which included golf, snow block tower building, man hauling sleds, and other events.

We are making preparations for next season. It will be particularly busy because we will be packing the ~900 m of brittle ice we are drilling this year, and will also hopefully recover and pack an additional ~1,400 m of ice. I will be leaving on the next flight, and Bruce will be taking over as the Camp Chief Scientist.

SITREP 10, January 12, 2009

Bruce Vaughn (SCO Rep)

Written at WAIS Divide

Earlier this week we experienced the first break in a long stretch of stellar weather. The one and a half day storm caused moderate drifting that took a couple of days to plow out. The blowing snow required some adaptation in the drilling arch, as snow leaking in the arch interfered with the winch and cable operations. Snow can build up on cable and/or wheels to cause minute but important differences in depth, based on cable payout. Remedies included erecting a tarp over the winch, and clearing snow/ice from critical areas.

A minor emergency occurred earlier in the week when the heater for the control pendant of the gantry crane in the core processing arch over heated and rendered the crane inoperable. After consulting schematics and contacting the factory, a new control box was built on site from spare parts found locally and in McMurdo. The crane was down for only a 2 day period and is completely operable now. Matthew K. is assisting in acquiring a new factory- pendant to be sent down just in case, or as a spare. The most significant problem we have faced with the drill this season came only hours after Ken Taylor departed. Both the cutter and pump motors quit down hole and would not restart. With the motor section removed they found soot and charred material at the wiring connections on the drill fluid side compensator piston. After much diagnosis, they determined that water had been present in this enclosed area allowing the 300 volt lines to the motors to arc between connector pins. The source of the increased conductivity of the fluid is hypothesized to be ice chips + heat from the motors and/or ethanol to generate water. The solution was to put the electrical connectors on the drill fluid side of the compensator piston in epoxy to insulate them. The second part of the fix was to prevent ice chips from entering this area. This was done by replacing the breather hole with a sintered bronze breather plug and taping closed an opening used to view the oil level in the motor section. The epoxy needed to cure over night, so second and third shifts took this time as their "Sunday" off. On Saturday morning the drill was reassembled and has been performing beautifully ever since. A giant thanks goes out to the amazingly talented ICDS crew who put in heroic efforts around the clock to diagnose and remedy the problem in a truly professional manner. Because of this lost time we continued drilling on Sunday, with volunteer crews and we are now back on schedule.

Drilling depth:

- Currently ~ 1,175 meters, and core continues to be brittle, with average quality of fair to good. Netting is essential for maintaining core integrity, and is working well. Runs are typically 2.5 meters, and our current production rate is 36 meters per day. At this rate we should be able to reach 1,500 meters by our drilling stop date of January 23rd.

Passenger movements:

- Ken Taylor departed WAIS Divide Jan 8, 2009. Kelly Jacques, the Environmental Representative from McMurdo, arrived for site visit, along with two RPSC employees (Welder Doug Mettlach and GA Nick Romano).

Other activities:

- Anais Orsi finished up logging borehole temperatures on WDC05A. And after much digging Anais and John Fegyveresi successfully recovered boreholes WDC05B (no casing- will be lost) and WDC05C (w/ casing to be extended). This week saw the arrival of the CReSIS team (I-188 and I-205 Sridhar et al.) who report great success with both seismic and radar work. Brian Bencivengo and Bruce are now preparing for end of season, making small improvements in the coring arch, strengthening tables, re-arranging and making inventories. The D4 caterpillar is currently down with a cracked frame. Welding repairs are underway and it is expected to be in service in 3 days time. A single Cat 225 kw generator now powers all of camp. We currently have approximately 1+ weeks supply of fuel, and tanker flights are expected this week.

As if to compensate for the drama and stress of the past few days, today the camp put on a light hearted Sunday after lunch coffee-house style talent show. We all knew this place had an amazing crew, but never realized the true extent of their talents. Spirits are high, and camp is doing well.

SITREP 11, January 18, 2009

Bruce Vaughn (SCO Rep)

Written at WAIS Divide

We are now in the home stretch of the field season. The current depth is 1360 meters and the core quality is excellent. Plots of core quality versus depth show that we reached a nadir of poor quality brittle ice at approximately 1070 meters, and it has been getting better ever since. On Thursday January 15 at depth of 1320 meters we attempted our first full run of obtaining a ~2.5 ice core with no down-hole breaks. This involved altering our logging methods slightly to accommodate cutting the core into 1-meter maximum length pieces with our chop-saw. It was very successful, yielding a smooth and transparent cut on the ice allowing close investigation that shows we still have small air bubbles (~0.25 - 0.5 mm diameter) and while one cannot say we are totally out of the brittle ice, it is certainly much easier to handle and our chop-saw cuts are much preferred to the down hole dog-breaks. The electrical measurements are going well and show strong annual layering that will make it easy to determine the age of the ice.

We are on target for filling all of our core trays with ice and reaching our goal of >1,500 meters depth by the last day of drilling, Friday January 23rd. Beginning today, drillers will begin to experiment with several different methods for increasing the length of ice core obtained from each run. Bill Mason has designed and fabricated some snap-valves that will be installed to help channel the flow of drilling fluid to allow dense-packing of the upper screen sections sequentially. It is critical that we give ICDS enough drilling-days to adequately test these methods. After the last day of drilling, the new cable will be spooled on the winch and could take several days.

The weather here at WAIS Divide has continued to be far better than last season, with no major storms to report in the last week. However, our winds and limited visibility combined with aircraft mechanical problems have limited the number of flights that we have been able to land this week. We have zero flights since Tuesday January 13, and we have been told that at least 3 of the LC-130s on continent are out of service with mechanical issues. South Pole has been short on fuel and AGAP is closing down. This combination of large demands on limited supply of aircraft is causing great uncertainty in forecasting movements of both cargo and passengers to and from WAIS. Fuel on site is approximately 6,000 gallons, and it is expected that we could leave at least 8,000 gallons on site for next year. Much cargo is palletized and awaiting shipment.

Other activities:

- CReSIS team (I-188 and I-205 Sridhar et al.) remains in town, waiting for a flight out. Sylvan Masclin (I-151) has completed his atmospheric sampling work, is packed up and also awaiting a flight. A safety meeting was conducted Saturday afternoon, and at 3 PM we suspended our work for a day for a much-deserved break after a 17-day stretch of round-the-clock shifts. Brian Bencivengo orchestrated an evening sleigh ride (a CReSIS sled towed behind a Tucker at ~ 2 mph) that provided a forum for a welcome diversion that included music, dancing, snow balls, cartwheels, group photos, human pyramid building and general carrying on. All had a good, safe time. This will be the last such time-off for the season, because once we start taking things down, there will be a steady march to load and go, as planes become available. On Sunday, there was another WAIS Coffee House performance, including comedy improv, music and story telling. As we pace ourselves for the home stretch, it is comforting to know that we really are community in the greatest sense and the camp remains a strong, capable group, in good spirits.

Passenger movements:

- Tuesday January 13, 5 passengers departed: Anais Orsi (SCO), Michael Jayrad (CReSIS), 3 RPSC employees: Kelly Jacques, the Environmental Representative from McMurdo, Dave the heavy equipment mechanic, and Andrew Kirby, carpenter. One passenger arrived: Teresa Tran ("T") our camp supervisor. Expected this coming week are visits from both NSF and RPSC.

SITREP 12, January 25, 2009

Bruce Vaughn (SCO Rep)

Written at WAIS Divide

The 2008-2009 field season is coming to a close and we have reached our goals. Here is a summary of recent activities.

Drilling operations:

- Late in the evening of January 22nd we ceased drilling for the 2008-2009 field season at depth of 1511.9 meters. The stopping point was predetermined by the maximum amount of ice that we could safely store in the basement of the arch on carts for the winter. A total of 931.9 meters of core was processed, measured for DEP, and is now in the basement. The preliminary DEP data indicate that the last ice drilled this season is approximately 7693 ybp in age. John Fegyveresi cut and prepared 9 samples for physical properties taken every ~20 meters beginning at 1320 meters depth, and are also stored in the basement. The new long cable for the drill remains at McMurdo, despite numerous attempts at scheduled flights (see list below) to get it here in time to be spooled by ICDS on the winch. The cable that was used this year has been spooled off the winch, and when the new cable arrives (likely after most of the ICDS and SCO crew have departed) it will be staged inside the drilling arch for re-spooling onto the winch at the beginning of next season.

Other Activities:

- All of camp has been packing up for the last 3 days. Both the drill arch and core-processing arch have been prepared for the winter. The AC units have been winterized, and work areas have been cleaned, organized and inventoried for next year. ISC boxes have been staged inside the arch, and more to come from MCM will also go in the arch. Later, incoming carpenters will complete the job by adding necessary plywood and tarps to protect the arch ends from blowing winter snows. Science Jamesway was taken down today. Winter berms are built and being loaded with cargo.
- With any luck we have two primary flights scheduled for WAIS Divide tomorrow January 27th, and we'll send out science cargo (vessel bound), and nearly all SCO and ICDS personnel along with visitors that arrived during this last week. A small group of camp staff will remain to completely break down winterize the camp. Much cargo is palletized and is waiting to be retrograded to McMurdo.
- Fuel on site: 5,500 gallons. More is expected before close of season.

Flights:

- Received: (1) LC 130 (D029 1/19)
- Canceled: (5) due to weather as WAIS Divide: (Sk 23, Sk 52, Sk 61) Canceled: (2) due to no airplanes: (Sk 43, Sk 53)
- Boomerang: (1) Sk 34 -- circled for two hours before returning to MCM

Passenger movements:

- Monday Jan. 19th flight
 - IN: NSF: Dick Armstrong (turn-around), T-350: Alexander Shturmakov; BFC: Leah Biezun and Rebekah Foy; Planners: Matthew Kippenhan, Chad Naughton, Rob Edwards; EHS: Michael Stone; Sci Cargo: Brian Connell.
 - OUT: RPSC - Victoria (Nurse); I-151 Sylvain Masclin; I-205 -(4) - Srihar Anandakrishnan, Leo Peters, Huw Horgan, Joe Macgregor; I-188 -(1)- Anthony Hoch.

It's the end of a successful field season, and while many chores remain to be done both here and in McMurdo, I think many people are already looking to life after WAIS Divide in New Zealand and beyond.