SITREP 1, November 18, 2012, Day 1 on Ice

Donald Voigt, SCO Rep
Written at McMurdo Station

I. Passenger movements

A. SCO

1. I traveled from home to McMurdo Station leaving the CONUS on 11/13, arriving in Christchurch on 11/15 and McMurdo station on 11/17. I was delayed leaving home because of a bad itinerary that I was not given a chance to approve. It had layovers of an hour in Philly and San Francisco and a start that was too late in the day. I had a delay in State College and it was "game over". I never would have approved that itinerary if given the chance. I have still not received an itinerary for the rebooked flights which caused all sorts of problems during the trip.

B. IDDO

1. K. Dahnert, M. Jayred, J. Goetz and E. Morton traveled from home to McMurdo Station, arriving on 11/17

II. Cargo Movements

A. Cargo arriving from CONUS

1. All I-477 cargo is accounted for.

2. No cargo has been delivered to WSD.

III. Camp Activities

A. Current camp population, unknown. I have not had time to sort this out having arrived on Saturday. Inbrief was at 5PM.

IV. Drill Depth and Time

A. N/A

V. Status of Drilling (# of runs, meters of ice drilled, core quality)

A. N/A

VI. Other

A. I am presenting the Sunday Science Lecture tonight in the galley

SITREP 2, November 25, 2012, Day 3 at WAIS Divide

Donald Voigt, SCO Rep., Chief Scientist at WAIS Divide

I. Passenger movements

A. SCO

1. D. Voigt arrived at WAIS Divide on 11/22, D009. Off deck was at 0955.

B. IDDO

1. K. Dahnert, J. Goetz and E. Morton also arrived at WSD on D009.

II. Cargo Movements

A. Cargo arriving from McMurdo

1. All SCO cargo processed in McM arrived at WSD on D009 or D010 later the same day.

III. Camp Activities

A. Current camp population; 42 total. 3 T-350, 5 C-407 (PIG), 1 I-477, 3 G-079 (PoleNet), 25 ASC, 3 T-500 (KBA), 2 BAS

B. Safety meeting; The Camp's end of week Safety meeting was held on Friday at 1600. This meeting is usually on Saturday but was moved forward due to the day off on Thanksgiving. We discussed the Camp's emergency response plan and how it would start to be implemented. I discussed how the Arch and Science personnel fit into the emergency response plan.

C. Access to the Arch has been made possible through the Processing Side doors. Clearing the Drill Side doors has presented a challenge but the man-door is accessible. The heavy operator and Carpenter crew are working on this in parallel with work to level the floor. We are going to try a snow fence to reduce drifting into the Drill Side access. The third access to the arch (the "Moose Chute") has not been cleared yet. We will see tomorrow the results of another wind storm today (Sunday).

D. Thanksgiving day was the first day off for the camp staff and put-in crew. They certainly deserve it. Camp is organized and looks great, and it is apparent that a lot of hard work has gone into getting it this way. We arrived and were able to jump into our work with no delay. Thanks to Kaija and her team and to the Put-in Carpenters for all the work.

E. Thanks also go to Carrie Schaffner, Jessy Jenkins and the McMurdo folks who enabled us to move through McMurdo with very few hitches.

F. This being the first year of the ASC contract, there are some issues to work through. But our time in McMurdo was optimized and we were able to arrive at WSD after three workdays in town. However, that efficiency means that field parties need to arrive prepared to move through town quickly, and that is a new paradigm. I did not have time to get to the cargo yard to suss out the crates and other items stored in McMurdo that are needed for the retro of Arch equipment next season. This will take some careful planning on my return through town, or possibly a trip back into town once drilling is underway.

IV. Drill Depth and Time

A. N/A

V. Status of Drilling (# of runs, meters of ice drilled, core quality)

A. N/A

VI. Other

A. I was asked by NSF (through Alex Isern) to act as Chief Scientist at WAIS Divide this season. She explained to Terry Wilson (PoleNet) and myself what she was asking. Subsequently Terry briefed me on the PoleNet operation at WSD and we discussed issues that might arise and how I might respond. Kaija (Camp Manager) and I met to talk about this after my arrival at Camp.

B. I presented the Sunday Night Science Lecture to the McMurdo community. The title was “WAIS Divide Ice Core Project; How did we do?”. I received very positive feedback after the talk. It was attended by 108 including Scott Borg and Brian Stone.

SITREP 3, December 2, 2012, Day 10 at WAIS Divide

Donald Voigt, SCO Rep., Chief Scientist at WAIS Divide

I. Passenger movements

A. SCO

1. J. Fegyveresi, B. Markle and E. Longano arrived in McMurdo on 11/28 and are proceeding with required training and preparation. I expect them at WSD on or about 12/4. R. Beaudette (I-476) is on the same schedule.

B. IDDO

1. J. Johnson, M. Jayred, N. Mortensen and C. Gibson arrived at WSD on D013, 11/30.

2. D. Ferris, P. Cassidy and Jason Goetz arrived in McMurdo on 11/28

II. Cargo Movements

A. Cargo arriving from McMurdo

1. None. John has prepared additional cargo that will come when he flies.

2. I have received word that the boxes in the McMurdo Cargo Yard labeled 5" tubes had tubes of various sizes. I am now trying to ascertain how many 5" tubes are actually available in McMurdo and will work from there.

III. Camp Activities

A. Current camp population; 48 total. 7 T-350, 1 C-407 (PIG), 1 I-477, 9 G-079 (PoleNet), 25 ASC, 3 T-500 (KBA), 1 ANG. This week we hit a maximum population of 58.

B. Safety meeting; The Camp's week in review and safety meeting was held on Saturday at 1500. We started training in stabilizing and backboarding for a C-spine injury. Krissy and Elizabeth demonstrated the Kendrick Extraction Device that would be used in the Arch in the case of an incident in the trench or basement.

C. The Drill Side doors are clear but access to the Arch through the Processing Side doors is still by man-door only. Clearing the Processing Side doors and Moose Chute should be completed by the first half of the coming week. The first task when the Processing Side doors are opened is to remove three tri-wall containers of construction debris that accumulated during work on the floors in the Arch.

D. Camp continues to be kept organized and looking great. This has been a challenge because of the amount of snow and wind that we have received in the past week. The more snow and drifting we have, the more important it is that grooming is kept up to mitigate the risk of falls or of rolling a snowmobile.

E. The working 225kW generator was taken down for preventive maintenance on Monday. With no lighting in the Arch 25-40 knot winds, new snow and poor visibility, we stayed in town to work.

F. The freezers are running thanks to Steve Mikel. Jay Johnson repaired the mount for one of the fan motors which enabled Steve to finish repairs on one of the freezer units. I began the routine of emptying condensate trays twice per day. Temperature in the Processing Side is at -23°C.

G. I began preparing the Processing Side of the Arch and the Arch Jamesway so we can start receiving core.

IV. Drill Depth and Time

A. N/A

V. Status of Drilling (# of runs, meters of ice drilled, core quality)

A. N/A

VI. Other

A. Jay, Krissy and I have given three tours of the Arch to various groups including the PIG Traverse crew, C-407, Otter crews and some camp staff from WSD.

B. I presented a Science Lecture to the WAIS Divide community, the same talk I gave in McMurdo. I received very positive feedback after the talk. Forty people attended.

SITREP 4, December 9, 2012, Day 17 at WAIS Divide

Donald Voigt, SCO Rep., Chief Scientist at WAIS Divide

I. Passenger movements

A. SCO

1. J. Fegyveresi, B. Markle and E. Longano arrived at WAIS Divide on 12/7 with R. Beaudette (I-476) on D015.

B. IDDO

1. D. Ferris, P. Cassidy and Jason Goetz also arrived at WSD on D015.

II. Cargo Movements

A. Cargo arriving from McMurdo
1. Cargo that John prepared in McMurdo for I-477 and I-476.
2. I have received word that the boxes in the McMurdo Cargo Yard labeled 5" tubes had tubes of various sizes. There are 4.5 inch ID tubes at McMurdo that will work. Already shipped are 45 5.5" OD tubes in nine ISC boxes.

III. Camp Activities

A. Current camp population; 45 total. 10 T-350, 1 I-476, 4 I-477, 10 G-079 (PoleNet), 17 ASC, 3 T-500 (KBA).

B. Saturday Safety meeting; After the camp End-of-week Review, we discussed use of the AED and the "Epi-pen" both of which are available in camp.

C. All three access doors to the Arch are open. Grooming is ongoing.

D. K. Danhert, E. Morton (IDDO Safety Officer) and I met with K. Webster (Camp Manager) and B. Ackerman (Camp Medical) to go through the Arch and explain our safety procedures and equipment and our SOP for response to an accident anywhere in the Arch. We discussed radio protocol, personnel who would be in the Arch and when and looked at spaces not generally known to camp personnel. Morton and I continue to examine the Arch and surrounding areas with an eye toward safety. The entries to the Arch are always problems because of the large drops that form when the ramps are dug.

E. Camp continues to be kept organized and looking great. I am impressed this year again by the level of support the Camp Staff have for each other and for the Science mission. They are always willing to help and do so in a professional, cheerful manner.

F. The skiway was a problem early in the week because of our unusually warm weather. The LC-130s required numerous passes to take-off and D014 had to leave without cargo.

G. The second 225kW generator is still down. No timeframe for completion of repairs. We are still waiting for parts that are not on continent.

H. The freezers are running normally and temperature has reached -25°C to -28°C. Trays are emptied every 8 hours.

I. Work on preparation of the processing line continues;
   1. Transfer table has been leveled by IDDO, controls installed
   2. FED vacuum emptied, controls installed
   3. Vent system for basement and Transfer table on and working
   4. Tool boxes reorganized
   5. Tri-walls of construction debris removed
   6. Jamesway organized
   7. Hot boxes for logging computer and printer started
   8. Computer database readied for logging
   9. O_2 Monitor readied for installation

IV. Drill Depth and Time

A. N/A

V. Status of Drilling (# of runs, meters of ice drilled, core quality)

A. Broaching test successful, broaching of first deviation at 3000 meters depth started. Drillers anticipate going to two shifts Monday and Tuesday and three shifts starting Wednesday.

VI. Flights;
   A. Monday; D014, Tanker w/ light cargo. 7 Pax out/No cargo
   B. Tuesday; D015 CNX due to McMurdo weather
   C. Wednesday; D015 CNX due to weather at both ends
   D. Thursday; D015 CNX due to weather at Pegesus
   E. Friday; D015 arrive at 2130
   F. Saturday; no flights scheduled

VII. Other

A. Lt. Col. Cliff Souza has been at WAIS Divide this week working with the Otters to recce LC-130 landing sites for proposed open field landings. This is the first time that I know of for this type of interaction and it has been a positive and enjoyable experience for camp to host someone from the NYAG.

B. T. Wilson, PI of I-079 (PoleNet) arrived on D015 and will remain at WSD until relieved by A. Huerta later in December.

SITREP 5, December 16, 2012; Day 24 at WAIS Divide

Donald Voigt, SCO Rep., Chief Scientist at WAIS Divide

I. Passenger movements

A. SCO

1. None

B. IDDO

1. Mike Jayred returned to McMurdo for a medical issue on D016...
2. and returned to WSD on D017 the next day.

II. Cargo Movements

A. Cargo arriving from McMurdo
1. ISC boxes with tubes arrived on D016
2. Ice core tubes; Michael Davis will ship 40 ISC boxes with 200 4.5 inch ID core tubes and hold 50 4.5" ID core tubes in reserve.

III. Camp Activities

A. Current camp population; 45 total. 10 T-350, 1 I-476, 4 I-477, 10 G-079 (PoleNet), 17 ASC, 3 T-500 (KBA).

B. Saturday Safety meeting; After the camp End-of-week Review, we held a SAR exercise combined with a medical scenario.

C. All three access doors to the Arch are open. Grooming is ongoing.

D. Krissy Danhert and Elizabeth Morton (IDDO Safety Officer) presented an overview of Arch Safety to all Arch personnel including members of I-476 and I-477 on Monday and Tuesday.

E. Camp continues to be kept organized and looking great.

F. The skiway is in excellent condition.

G. The second 225kW generator is still down. No timeframe for completion of repairs. We are still waiting for parts. As of Saturday, the correct parts might be on continent. Evidently the parts ordered before the season started were correct by the manual, but the actual generators are a slightly different model.

H. On Wednesday the main breaker on the working generator arced and melted shutting power to camp down. The drill was on the way to the surface and was secure. All IDDO systems on battery backup were brought down since we had no idea of the severity of the damage. Power was restored in and hour and 15 minutes and operations were resumed. Efforts to have two working generators onsite continue.

I. On Thursday I called a meeting with Jay Johnson, Kaija Webster, Terry Jordan (Camp Mechanic) and Roxanne Hogenson (Camp Electrician) to discus the response to a future shut-down of the main generator. My concern is that if we were to loose power while the drill was coring the potential exists for the drill to become stuck. Jay estimated that this could happen within 30 minutes, but that is an educated guess. It was agreed that Terry and Roxanne would prepare the 40 kW generator such that it could restore power to the Arch sufficient to bring the drill out of the hole. At that point other steps could be taken to resume operations, but the critical step is to get the drill up.

J. We lost power again on Saturday. The the main generator was restarted and running normally within 45 minutes. Again, the drill was in a stable configuration and drill operations resumed immediately. We think the shut down was due to an interaction of the switch gear (used for switching between generators) and the controls for the working generator that stem from there being only one supply of power to the switch gear. Timing of the shut-down was awkward, just as people were between tent city and town at 6AM. This lead to a longer response time.

K. The freezers are running normally and temperature has reached -25°C to -28°C. Trays are emptied every 8 hours.

L. During examination of the basement beneath the processing side of the Arch it was determined that in the case of a power failure the cart rack could not be used to lower carts of ice to the basement. Any ice that needed to be transfered to the basement would have to be packed in boxes and moved around the basement by hand. The floor of the basement has bulged too much for a cart or pallet jack to be used.

M. Work on preparation of the processing line continues;
    1. Transfer table controls installed

2. Balluff (laser measurement system for ice core) was set up and calibrated
3. O_2 Monitor installed

N. The Science Techs trained on the procedures for logging core.

O. We assisted Ross in the set-up of his equipment to be used for the Severinghaus experiment sampling fugitive gasses

IV. Drill Depth and Time

A. N/A

V. Status of Drilling (# of runs, meters of ice drilled, core quality)

A. Broaching proceeded successfully. See the IDDO report for details.

B. Logging tool test; A successful Logging Tool Test was run at about 1/3 the full depth of the deviation.

C. Camera runs proved invaluable (see photos sent during the mid-week update) for determining the effectiveness of the broaching and milling tools. The new light source works very well.

VI. Flights;

Tuesday; D016 CNX due to McMurdo weather
Thursday; D016 brought cargo and fuel
Friday; D017, cargo fuel and two pax.

VII. Other

A. John Fegyveresi and Brad Markle have been working on their side projects while we were waiting for core. Emily Longano has been assisting.

B. Terry Wilson (G-079, PoleNet) gave a Wednesday evening science talk that was well attended.

SITREP 6, December 23, 2012; Day 31 at WAIS Divide

Donald Voigt, SCO Rep., Chief Scientist at WAIS Divide

I. Passenger movements

A. SCO

1. Jihong Cole-Dai arrived in McMurdo and is ready to fly to WSD.

B. IDDO

1. None

II. Cargo Movements

A. No Cargo arrived from McMurdo

B. Retro cargo from the Arch and from the winter-over berms was identified and staged for retro.

III. Camp Activities

A. Current camp population; 49 total. 10 T-350, 1 I-476, 4 I-477, 10 G-079 (PoleNet), 17 ASC, 7 T-500 (KBA).

B. Saturday Safety meeting; After the camp End-of-week Review,

C. A three day storm brought snow and high winds hampering efforts to keep access doors to the Arch open. Camp has provided the support needed though and access has been maintained to the best of our ability.

D. Elizabeth Morton (IDDO Safety Officer) and I continue to inspect the Arch and surroundings for Safety issues.

E. Camp continues to be kept organized and looking great. The recent weather has made it difficult however.

F. The skiway was in excellent condition. Again, conditions have change by the end of the week. The heavy equipment operators have been busy.

G. The generator #1 is working again in the capacity of back-up until it has been load tested and run long enough for any problems to show. Terry Jordan has worked hard to make repairs using the parts he has, in some cases the wrong parts. We appreciate the efforts Terry and his temporary assistant, Nate Bourassa.

H. The correct parts for the generator are still on the way. This includes replacements for the breaker that failed last week.

I. Power was lost on Thursday morning for less than 30 minutes. Generator #1 was brought on line. The shutdown of Generator #2 was due to overheating caused by wind restricting the exhaust. This is a problem we experienced last season.

J. Generator #1 will be load tested on Sunday during the time that drilling is halted for 24 hours. There will be PM performed on Generator #2 at this time.

K. The freezers are running normally and temperature has reached -25°C to -28°C. Trays are emptied every 8 hours.

L. The processing line is in full operation; We started packing core on Thursday.

M. We assisted Ross in the operation of his equipment used for the Severinghaus experiment sampling fugitive gasses

IV. Status of Drilling

A. FIRST REPLICATE CORE RECOVERED on Monday, December 17, 2012

B. 3087.62 meters depth in the first deviation to date.

C. 46 runs for 86.07 meters of excellent quality ice

D. Ten ISC boxes (5 tubes per box) have been packed and loaded on skids.

E. On Wednesday night a run of core containing an ash layer was drilled. The only possible ash layer in the data base visible during drilling is at 3034.056 meters CPL depth. This corresponds very well with the depth of that layer in the replicate core at 3034.79 meters. Inclination of the layer was 5°. The second cloudy layer at 3074.1 meters CPL depth was recovered on Saturday. The depth of this layer in the replicate core is 3074.85 meters.

F. Because there is little offset between the CPL depths and the drill depth logged in the Arch, we will drill to a depth of 3100 meters to reach the target goal for the first replicate.

V. Flights;

Wednesday; D018 Cargo, fuel and replacement Otter crew
Sunday; D019 off-deck at 0900 with 6 PoleNet pax and cargo.

VI. Other

A. John Fegyveresi and Brad Markle have been working on their side projects while we were waiting for core and at opportune moments. Emily Longano has been assisting.

B. Christmas will be celebrated on Sunday night with Sunday being a work day. Camp will have off Monday and Tuesday for their Holiday. We plan to drill

SITREP 7, December 30, 2012; Day 38 at WAIS Divide

Donald Voigt, SCO Rep., Chief Scientist at WAIS Divide

I. Passenger movements

A. SCO

1. Jihong Cole-Dai (I-476) arrived on D020.

B. IDDO

1. None

II. Cargo Movements

A. No Cargo arrived from McMurdo

B. Retro; footers from construction of the Arch was shipped back to McMurdo on a T2 pallet.

III. Camp Activities

A. Current camp population; 50 total. 10 T-350, 2 I-476, 4 I-477, 10 G-079 (PoleNet), 17 ASC, 7 T-500 (KBA).

B. Saturday Safety meeting; After the camp End-of-week Review we discussed the location and contents of the camp's emergency cache and how it could be made more pertinent.

C. All three access-ways to the Arch remain open.

D. Elizabeth Morton (IDDO Safety Officer) and I continue to inspect the Arch and surroundings for Safety issues.

E. Camp remains in very good condition thanks to continuous grooming and attention by the camp staff.

F. The skiway remains in good condition.

G. The generator #1 was load tested for 24 hours and passed.

H. The correct parts for the generator are still on the way.

I. We continue to retro unneeded supplies, equipment and parts to reduce the number of pallets that need to be stored over the winter.

J. The freezers are running normally and temperature has reached -25°C to -28°C. Trays are emptied every 8 hours.

IV. Status of Drilling

A. First Replicate Core was completed in seven days, on Monday, December 24, 2012 at 2200.

B. Top depth; 3001.55 m, bottom depth 3100.60.

C. The first replicate was 49 runs for 99.05 meters of excellent quality ice.

D. All of the replicate #1 core was processed and packed.

E. Because there is little offset between the CPL depths and the drill depth logged in the Arch, we drilled to a depth of 3100 meters to reach the target goal for the first replicate.

F. From Jay Johnson; "The final logging tool pass test has been completed for the first deviation. The test was run this time with a 29lb (129N) dummy tool attached to the 10m tether below the camera.The tool was lowered through the deviation zone, 2988m to 3001m, at .05 m/s. The total variation in weight on bit (WOB) was 4N. The video also showed that there were no significant notches or ledges in the low side wall that a logging tool could get hung up on. My conclusion is that the dummy logging tool passed the test." I concur with Jay's conclusion.

G. Broaching for the second deviation began on Monday at 2315.

H. Problem that stopped broaching at 0600 Wednesday. Screen run was conducted to remove chips in fluid. Broaching continued 1930 Wednesday.

I. First core of second replicate attempted on Friday. At 1000 we pulled up a partial core of one meter that was at too shallow an angle. The mill was then sent back down to reestablish the ledge to try again. See the IDDO report for further details of these attempts.

V. Flights;

Wednesday; D020, Cargo, fuel and Pax
Wednesday; D021, Fuel only
Friday; D022, Pax out, fuel

Friday; Flight returning from PIG stopped to take fuel.

VI. Other

A. John Fegyveresi and Brad Markle have been working on their side projects while we were waiting for core and at opportune moments. Emily Longano and Ross Beaudette have been assisting. On Tuesday the 25th we sampled at Brad's first site 10 km from camp towards the Divide. We used this as an opportunity to shake down the evolution.

B. Christmas was celebrated on Sunday night. I was Santa. Camp had off Monday and Tuesday for their Holiday. We drilled. Polenet flew two missions. Camp didn't get much of a day off. I applaud them for their willingness to be flexible. Camp has gone out of their way to make Science a priority, and the evidence is in how productive we have been, even on Christmas day.

SITREP 8, January 6, 2013; Day 45 at WAIS Divide

Donald Voigt, SCO Rep., Chief Scientist at WAIS Divide

I. Passenger movements

A. SCO

1. Kari Peterson (I-476) arrived Wednesday on D023.

B. IDDO

1. None

II. Cargo Movements

A. No Cargo arrived from McMurdo

B. Retro; AFP of ISC boxes with 6" tubes not needed for replicate core.

III. Camp Activities

A. Current camp population; 47 total. 10 T-350, 3 I-476, 4 I-477, 9 G-079 (PoleNet), 18 ASC, 3 T-500 (KBA).

B. Saturday Safety meeting; After the camp End-of-week Review Mike Roberts (PoleNet mountaineer) gave a short workshop on prevention of lifting and repetitive-use injuries.

C. All three access-ways to the Arch remain open.

D. Elizabeth Morton (IDDO Safety Officer) and I continue to inspect the Arch and surroundings for Safety issues.

E. Camp remains in very good condition thanks to continuous grooming and attention by the camp staff.

F. The skiway remains in good condition.

G. The generator #1 was load tested over the New Year break for 24 hours and passed. Camp has been running on gen #1 this week.

H. The correct parts for the generator are still on the way.

I. The freezers are running normally and temperature has reached -25°C to -28°C. Trays are emptied every 8 hours.

J. Weather this week brought lots of fresh snow with little wind and warm temperatures until Sunday when the winds picked up and we received additional new snow.

IV. Status of Drilling

A. Broaching and further attempts at coring continue in the second deviation.

B. The first full diameter core of Replicate Core #2 was retrieved on Sunday, 30 December. Top depth of fully round core in Replicate Core #2 was 2417.5.

C. The second replicate core was brought to a halt on Thursday morning when one of the cutters sheared off the head while coring taking a second cutter off as well.

D. An attempt was made to fish the cutters using magnets but this was unsuccessful.

E. Deviation for the third replicate core was initiated Thursday evening while work continued on production of the tools needed to fish the cutters from replicate hole #2.

F. Jay Johnson produced a tool that would countersink the center of the bottom of the drill hole so that the cutters would gather in the depression. The tool was deployed Friday afternoon. The next run was with the repaired cutter head and came up with 0.9 meters of ice, the cutters and associated hardware. Regular coring continued.

G. Completed Replicate Core #2 on Sunday, 6 January at 1400. The bottom depth is 2468.99 meters for a total of 51.5 meters of core.

H. The dark ash layer found in the main core at 2462.0 meters CPL depth was identified at 2461.14 meters in the replicate core.

I. We had our highest production day of the season Saturday through Sunday, 20 meters in 24 hours.

J. All of the replicate #2 core was processed and packed.

K. From Jay Johnson: “The final logging tool pass test was completed on 1/1/13 for the second deviation. The test was run this time with a 29lb (129N) dummy tool attached to the 10m tether below the camera. The tool was lowered through the deviation zone,

2390.813m to 2415.026m, at .05 m/s. The total variation in weight on bit (WOB) was 6N. A video was taken of the deviation, but the drilling fluid was cloudy due to cuttings at the time of the test, so we were not able to get a clear image of the borehole wall. My conclusion is that the dummy logging tool passed the test." I concur with Jay's analysis.

V. Flights; flights out of McMurdo have been hampered by very poor conditions on both the road to Pegasus and at the skiway. This has affected fights on continent and flights to and from Christchurch and represents a serious challenge for the end of the season.

Wednesday; D023, Cargo, fuel and Pax

VI. Other

A. John Fegyveresi and Brad Markle continue to work on their side projects at opportune moments. Emily Longano and Ross Beaudette have been assisting. See summaries from Brad and John below.

B. Brad Markle presented a science talk on Wednesday evening which was well attended. The topic was global circulation and glacial cycles as seen from the WAIS Divide Ice Core.

C. Jihong Cole-Dai presented a science talk on Saturday evening which was also well attended. Jihong talked about the science behind the ice being recovered from the replicate cores and why it is important.

This from Brad:

My side project has been going well. I've been drilling shallow firn cores (and sampling snow pits) in transect from camp across the ice divide. So far we've sampled the first three (and highest priority) sites; at WDC, at the divide (20 km from camp), and in-between the two. Time permitting, we will sample two more sites on the far side of the divide. The aim of this project is to better understand the recent spatial variability in water isotopes in the region which help the interpretation of the deep WDC core. To this end, I've also been

conducting some modeling of recent atmospheric circulation in the region.

This from John:

On-site, I calibrated and installed (with the help of Brad, Emily and Ross) five platinum thermistor strings in order to obtain a long-term, near-surface temperature profile over a two kilometer survey line. The purpose of this sensor array deployment is to better quantify the temperature fluctuations in the upper 5 meters of firn and determine if there is a correlation to specific surface features and metamorphism that have been noted at WAIS Divide over the past few seasons. It is hypothesized that these noteworthy features are caused under specific meteorological conditions and under varying degrees of solar radiative exposure and penetration at the surface. Varying temperature gradients in the upper few meters of firn may be modulating differing degrees of vapor flux through near-surface.

The survey line was laid out in an upwind (grid-west, true-north) direction starting near the on-site Automatic Weather Station (Kominko-Slade), which also houses a solar, net-radiometer sensor that I installed last season (11/12). The thermistor strings were calibrated over a 60 minute period using a constantly-stirred ice-bath method, and were then deployed over a 10 day period starting December 15th. The sensor strings are spaced at 10 meter, 100 meter, 1000 meter, and 2000 meters intervals from the origin string at the AWS, and are taking measurements every 1 minute. Platinum thermistors were used as they allow for higher accuracy measurements, and respond to temperature changes more linearly that standard thermistors. 12V batteries are swapped out periodically to ensure that the sensor strings are constantly recording. During each site visit, photographs are taken and local meteorological conditions are noted (as well as any observed surface observations). Net accumulation is also noted. Firn density measurements were also taken at two of the five sites thus far. Lastly, it is hoped that a high-resolution GPS grid survey will be taken to document the short and long wavelength surface elevation changes over a 16 km^2 area that includes the thermistor string survey line. The attached photo is example of surface "glazed"/crust.

SITREP 9, January 13, 2013; Day 52 at WAIS Divide

Donald Voigt, SCO Rep., Chief Scientist at WAIS Divide

I. Passenger movements

A. SCO

1. Ross Beaudette and Jihong Cole-Dai (I-476) departed Monday on D024.

2. Kari Peterson (I-476) departed Friday on D026

B. IDDO

1. Tanner Kuhl arrived on D024, Chris Gibson departed.

II. Cargo Movements

A. No Cargo arrived from McMurdo

B. Retro; I-476 cargo including Severinghaus samples in three ISC boxes. The equipment used to wind a new cable for the drill was returned to McMurdo. Jay and I felt that this equipment was no longer needed this late in the project.

III. Camp Activities

A. Current camp population; 48 total. 10 T-350, 4 I-477, 9 G-079 (PoleNet), 18 ASC, 3 T-500 (KBA), 2 O-283 (AWS), 2 C-407 (PIG transitioning to MCM).

B. Saturday Safety meeting; After the camp End-of-week we discussed prevention of injuries especially in light of the fact that we are coming to the end of the season. During this phase of operations people are worn out and loosing focus, the weather is starting to get colder and the potential for careless injuries increases. We discussed where there are potential hazards and points of failure for each work center and in science, and how these dangers might be mitigated.

C. All three access-ways to the Arch remain open, though the processing side doors have started to drift over as of Sunday.

D. Elizabeth Morton (IDDO Safety Officer) and I continue to inspect the Arch and surroundings for Safety issues.

E. Camp remains in very good condition thanks to continuous grooming and attention by the camp staff.

F. The skiway remains in good condition.

G. The generators are running normal except that the switch gear is not on line.

H. The correct parts for the generator are still on the way.

I. The freezers are running normally and temperature has reached -25°C to -28°C. Trays are emptied every 8 hours.

J. Weather this week continues to bring fresh snow with little wind till Sunday when the winds picked up. We received freezing precipitation on Sunday evening and by Monday AM it is -5°C.

K. As of today we are down to about a week's worth of fuel. We are scheduled for an LC-130 with fuel tonight, but weather at WSD being what it is we are keeping an eye on the fuel supply.

IV. Status of Drilling

A. 48 runs this week for a total of 21 meters of ice from Replicate Core #3.

B. Wednesday recovered fully round core in #3 at 2221.71 meters depth.

C. Thursday had too much trouble re-entering hole in deviation #3. Accidently started a new deviation which was drilled to 2228+ meters before it intersected the parent borehole.

D. Worked to establish new ledge to start from with little success.

E. Friday managed to start at 2228 where the previous hole ended and push the drill over enough to drill at a steeper angle. Coring continued in #3. The core depth is now at 2244 meters.

F. After review of the schedule and current rate of success Jay, Krissy and I decided to investigate asking for an extension of drilling. The extension was granted by Julie Palais and we will continue drilling operations by the end of 31 January. This should not have any effect on camp close-out operations. Included in the additional three days are two days of screen runs intended to clean chips fomr the the fluid column and remove approximately 5 to 7 meters of chips from the bottom of the main borehole.

G. Sunday a successful logging tool test was conducted at Deviation #3 before the resumption of drilling. Details to follow.

H. Drilling resumed at 1500 on Sunday after a 24 hour stand-down. First core by 1650

V. Flights; flights out of McMurdo have been hampered by very poor conditions on both the road to Pegasus and at the skiway. This has affected fights on continent and flights to and from Christchurch and represents a serious challenge for the end of the season.

A. We received an LC-130 on Monday with 15 passengers, six of whom went immediately to PIG.

Monday; D024, cargo, fuel and pax
Wednesday; D025, cargo and pax
Friday; D026, cargo and pax

VI. Other

A. Gave Arch tours to three separate groups.

B. The BAS Twin Otter assigned to PIG has been making numerous trips brining science out of PIG and close-out crew in.

C. Brad, Emily, John and Graham (Camp Comms) departed on an overnight traverse to the other side of the Divide to drill two shallow cores. They returned on Tuesday afternoon having successfully finished Brad's side project drilling.

D. Sridhar Anandakrisnan gave a science talk on Thursday night tying together the science of PIG, Polenet and the Ice Core Project.

SITREP 10, January 20, 2013; Day 59 at WAIS Divide

Donald Voigt, SCO Rep., Chief Scientist at WAIS Divide

I. Passenger movements

A. SCO

1. N/A

B. IDDO

1. Linda Morris arrived on D027.

II. Cargo Movements

A. No project cargo arrived from McMurdo

B. Retro; Continue to retro un-needed equipment and supplies as we find it. Collected BFC gear not being used for retro. Retro pallet blankets destined for NICL.

III. Camp Activities

A. Current camp population; 46 total. 11 T-350, 4 I-477, 4 G-079 (PoleNet), 22 ASC (5 transitioning to PIG), 3 T-500 (KBA), 2 O-283 (AWS).

B. Saturday Safety meeting; After the camp End-of-week Review we discussed prevention of back injuries and how to avoid sleep deprivation due to the 24 hours of sunlight we receive.

C. All three access-ways to the Arch remain open.

D. Elizabeth Morton (IDDO Safety Officer) and I continue to inspect the Arch and surroundings for Safety issues.

E. Camp remains in very good condition thanks to continuous grooming and attention by the camp staff.

F. The skiway remains in good condition.

G. The generators are running normal except that the switch gear is not on line.

H. The correct parts for the generator are still on the way.

I. The freezers are running normally and temperature has reached -25°C to -28°C. Trays are emptied every 8 hours.

IV. Status of Drilling

A. From Jay Johnson; “On Sunday, 1/13/13, the logging tool test on the third deviation was run. The 29lb (129N) dummy logging tool was again attached to the 10m tether below the camera.The tool was lowered through the deviation, 2204m to 2221m, at 0.05 m/s. The total variation in WOB was 16N. We continued to lower tool down to 2248m to verify the verify the logging tool would pass by opening between the parent hole and the deviated bore. In this area the WOB varied by up to 151N. From the video we were able to verify the low side wall is smooth, the deviation is on the high side, and that the WOB variation was due to the drill stick-slipping. My conclusion is the dummy logging tool passed the test.” I concured with Jay’s conclusion and we proceeded on.

B. Finished Replicate core #3 on Tuesday morning during third shift at a field measured depth of 2290.95 meters.

C. Immediately began forming the notch for deviation #4.

D. Attempted first core Friday morning.

E. Successfully started #4 at 1:00 with one-meter barrel. Fully round at 1952.65 meters depth.

F. Stopped drilling at 3:00 Saturday at a depth of 1968.65 meters; 15 cores in 14 runs.

G. Tool test and camera run on deviation #4 started at noon on Sunday

H. Drilling resumed at 3:00 on Sunday after a 24 hour stand-down.

V. Flights; McMurdo suffered a large storm on Monday night which shut down Pegasus till late on Tuesday. Our Monday flight, when they finally got airborne, returned due to the McMurdo weather and spent the night at WSD. The start of C-17 flights from ChC to MCM has been moved back because of conditions at Pegasus.

Monday; D027 arrived, cargo, fuel (2500 gallons) and pax
Tuesday; D027R finally departed and took with it 1500 gallons and pax

Thursday; D028, fuel (much needed)
Friday; PIG flight diverted to WSD. Gave us fuel and 5 pax destined for PIG. Our Primary flight was CNX due to fog.

VI. Other

A. Assisted Linda Morris (IDPO under T-350) with her work at WAIS Divide.

B. Gave an Arch tour to the ANG air crew who spent Monday night at WSD and to three other groups.

C. Received two ISC boxes of ice core from PIG for Sarah Das. I was not expecting this core and will have to ship it loose on the cold deck as it is not being shipped to NICL. The boxes were in horrid condition and I repacked the core into new boxes.

D. Masha T gave a science talk on Wednesday night

SITREP 11, January 27, 2013; Day 66 at WAIS Divide

Donald Voigt, SCO Rep., Chief Scientist at WAIS Divide

I. Passenger movements

A. SCO

1. John Fegyveresi and Emily Longano left WSD on Friday, 1/25

B. IDDO

1. Linda Morris departed on the same flight.

II. Cargo Movements

A. Incoming; none.

B. Retro; none.

III. Camp Activities

A. Current camp population; 38 total. 10 T-350, 2 I-477, 2 G-079 (PoleNet), 17 ASC, 3 T-500 (KBA), 3 BAS (Twin Otter pilots and crew), 1 C-407 (PIG).

B. Our last Week-in-review meeting of the season was held on Saturday. It was followed by a steak and lobster dinner and slide show from the season.

C. All three access-ways to the Arch have been re-opened. The Moose-Chute door was drifted in for a period during a two day storm Wednesday and Thursday with no way to get heavy equipment in.

D. Elizabeth Morton (IDDO Safety Officer) and I continue to inspect the Arch and surroundings for Safety issues.

E. Camp remains in very good condition thanks to continuous grooming and attention by the camp staff.

F. The skiway remains in good condition.

G. The generators are running normal except that the switch gear is not on line.

H. The correct parts for the generator are still on the way.

I. The freezers are running normally and temperature has reached -25°C to -28°C. Trays are emptied every 8 hours.

IV. Status of Drilling

A. From Jay Johnson; “Yesterday, 20 January 2013, we ran the logging tool test on fourth deviation. The 29lb (129N) dummy logging tool was used and was attached to the 10m tether below the camera. The tool was lowered through the deviation, 1935m to 1952m, at 0.05 m/s. The total WOB variation was 16N. My conclusion is the dummy logging tool passed the test.” I concur with Jay’s conclusion and we proceeded on with deviation #4.

B. Finished Replicate core #4 on Monday morning during first shift at a field measured depth of 2000.2 meters. Collected a total of 48 meters from #4

C. Immediately began milling for deviation #5.

D. First coring run of replicate core #5 on surface at 11:55 PM on Thursday, TD of 2416.5 meters.

E. A cloudy layer was observed at 2426.5 meters depth that in the main core was at 2426.9 meters and in deviation #2 was at 2426.2 meters.

F. Finished deviation #5 on Saturday morning at 7:30; BD 2429.08 meters.

G. <u>This completes the Replicate Coring Science Goals for the season in stellar fashion.</u> (With aplomb, one might say.)

H. Work began on cleaning the borehole of chips produced during formation of the deviations. This problem was not anticipated before the season, but there are now 15 meters of chips at the bottom of the main borehole that need to be removed.

V. Flights; Several factors are combining to make this a very difficult end-of-season. The weather in McMurdo has prevented the start of C-17 flights for passengers northbound. Maintenance issues with the LC-130 has limited the availability of aircraft. The search and rescue mission for the lost KBA Twin Otter has further drawn on resources. Our flight schedule for the coming week, when were originally scheduled for five flights, is now down to three flights. One of those is our cold-deck with no passengers. We have been asked to re-prioritize our retro cargo and send only critical pieces and I will have to evaluate what items will be returned to McMurdo for shipment north. Our flight scheduled for this coming Saturday has 20 pax on the manifest including the drillers and remaining I-477 personnel. Little cargo will go out on this flight.

Monday; gave fuel, took cargo.
Friday; Received a flight coming back from Union Glacier which refueled at WSD and took 10 passengers. D029 arrived late with fuel and took cargo.

VI. Other

A. Assisted Linda Morris (IDPO under T-350) with her work at WAIS Divide.

B. Had a two day storm Wednesday through Thursday with winds 25 to 30 knots and cold temperatures. This hampered all flight plans and any outside work necessary for preparations to pull out. Storm cleanup began in ernest on Thursday afternoon.

SITREP 12, February 3, 2013; Written at McMurdo

Donald Voigt, SCO Rep., Chief Scientist at WAIS Divide

I. Passenger movements

A. SCO

1. John Fegyveresi and Emily Longano departed McMurdo on Tuesday.
2. Brad Markle accompanied the cold-deck flight on Thursday, 1/31, D032. He is scheduled to depart McMurdo on Monday, 2/4
3. I departed WAIS Divide on Friday, 2/1, D033, Day 71 at WAIS Divide

B. IDDO

1. N. Mortensen departed WSD on D031.
2. The remaining IDDO personnel departed on D033

II. Cargo Movements

A. Incoming; none.

B. Retro; Ice Core (see below), NICL bound cargo and personal gear.

III. Camp Activities.

A. All three access-ways to the Arch have remained open.

B. Elizabeth Morton (IDDO Safety Officer) and I continued to inspect the Arch and surroundings for Safety issues until the last day in camp.

C. Camp remains in very good condition thanks to continuous grooming and attention by the camp staff.

D. The skiway remains in good condition.

E. The Arch Jamesway was brought down on Tuesday, Science on Thursday.

F. The freezers were running normally and temperature was holding at -25ºC to -28ºC.

G. The 225 kW generators were brought down for the season on Friday after the freezers were shut down.

H. Fuel in camp as of COB 1/31; Bladders, 12,674 gallons. Fuels reports that they have move 114,000 gallons of fuel this season.

IV. Status of Drilling

We had a problem when we tried to clean the chips from the bottom of the main hole and came very close to sticking the replicate coring drill due to ice refreezing on the drill head. We think the chips behaved like toothpaste when the drill tried to core, and oozed around the head rather than cutting like ice would. The chips then refroze on the cold drill. Tension on break was about 36,000 N which is within 2,000 N of the highest core break seen, even though there was no core to break, just chips. There are still about 12 meters of chips in the hole; touch-off was at 3393 meters.

We continued with cleaning runs overnight Monday and considered the problem. Tuesday morning we switched to the configuration with the DISC coring head used for drilling the main borehole. We were only able to get to a depth of 2498 meters before having to ream. This proceeded at a rate of 20 mm/sec. Given the remaining depth to the chip pack, the volume of chips that would be produced by this process and the time available it became clear that we would not reach the bottom. I decided that our best efforts would be in vain and that it was time to call it a season.

A. Packed and loaded the final ice from replicate core #5. Built the rest of the skid, blanketed and netted AFP#2 with the help of camp staff.

B. Prepared retro cargo. Because of flight limitations I am limiting the amount of retro cargo going out and packing the rest into the Arch.

C. Cold deck was scheduled for Wednesday night. Conditions were perfect, -28°C and overcast. The first pallet was brought out of the Arch and the second on the forks when the flight returned to McMurdo due to mechanical.

D. The cold deck was rescheduled for a 10:30 off-deck on Thursday. They launched on time with an ETA of 1:25. Conditions were not as good during the evolution but ambient temperatures were -18ºC and dropped two degrees while the aircraft was on the ground. The pallets left the Arch at noon to 12:30 and were loaded at 2:00 and 2:15. Flight deck temperatures were 25ªF and dropping 30 minutes before landing. At my request, Brad Markle was permitted to accompany the ice back to McMurdo. The wait for loading the aircraft was interminable, but all went well and Brad reported that the transfer into town went smoothly. I received the temperature loggers from Michael Davis but have not had a chance to download them yet. Michael reports that all went well on the McMurdo end, and I thank him for his efforts in looking after our priceless core.

V. Flights; We have been reduced to six flights for camp pull-out. This raises concerns for the amount of cargo that can be taken from camp and for the amount of fuel that we will be able to stage for next season.

Monday; D031, pax out, took 500 gallons of fuel and cargo (next season's food).
Wednesday; D032 CNX.
Thursday; D032, cold deck plus two cargo pallets. Brought fuel (2800 gallons), one passenger departed to accompany ice.
Friday; D033, 21 passengers plus two pallets.

VI. Other

A. Our early finish allowed IDDO to get a jump on deconstruction and packing of the drill.

B. Limited flight deck space has reduced the amount of retro cargo that could be sent out. We were only able to take two pallets on our pull out flight and there is one pallet of IDDO and SCO equipment that needs to come out of WAIS in order for me to depart McMurdo.

C. Geordan McQuiston (ASC Carpenter Foreman) arrived on D032 to inspect the Arch for consideration of how deconstruction would proceed and what equipment would be required.