

# SITREP 1, November 2-12, 2009

Matthew Kippenhan (RPSC), Ken Taylor (SCO) and Bruce Vaughn (SCO Rep)

NOVEMBER 2, 2009 – Matthew Kippenhan

The put-in team, led by camp manager Theresa "T" Tran, arrived yesterday (November 2, local time) at WAIS Divide via Basler (5.5 hour direct flight from McM) after 10 days of weather delays. Onsite temperature was -49 degrees C. Skiway is in good shape and should be able to accept LC-130 Hercules flights within a couple of days after a good grooming and touchups are completed.

Good news is all cargo, modules, and equipment wintered well with minimal drifting allowing them to get the CAT 953 and one Tucker up and running in record time. Our experiment with wintering over the power poles and service cable worked fine, but the poles did create significant drifting that will need to be groomed down. The arch is as expected - still buried with some new winter drifting.

The overall schedule remains behind by 10 days at this point, however, once the carpenter crew arrives and camp construction gets started in the next several days, T will be able to better evaluate the schedule and any opportunities to get it back on track. For now, expect equal delays in any major activities scheduled for WAIS Divide until further notice. There is still a long way to go before any basic structures are up and running to accommodate additional persons.

NOVEMBER 9, 2009 – Kendrick Taylor

The ten person put-in team, led by camp manager Theresa "T" Tran, arrived at WAIS Divide on November 2. It was a 5.5-hour flight in the Basler and the temperature at WAIS Divide was -49C. This was 10 days later than our most optimistic plan due to weather delays. All the cargo, modules, and equipment wintered well with minimal drifting allowing them to get the CAT 953 and one Tucker running in record time. The power poles created significant drifting that will need to be cleared. The arch has some new winter drifting and it will be a while before anyone can get inside.

Major storms have prevented any other flights. So in twenty days of trying we have only gotten in one flight. High winds, drifting snow, a small crew, and an incomplete camp set up is making it difficult to make progress. We are now at least two weeks behind our most optimistic plans. All of this is sort of normal, but of course we hoped for a quicker start.

The southward movement of people is going as planned. NICL, IDDO, and the SCO all have people in McMurdo waiting for flights.

NOVEMBER 12, 2009 – Bruce Vaughn (written at McMurdo Station)

The WAIS 09-10 season was off to an early start with high hopes. After 10+ days of weather delays, the put-in crew of 10 led by Teresa Tran arrived WAIS Divide on November 2 and were greeted by a cold (-49 C) camp that appears to have wintered well. The core processing end of the arch is at least partially exposed and equipment on the berm was accessible. However, bad weather has hampered progress since then, with only one flight with very minimal cargo has made it since Nov. 2. We are on the fixed wing schedule each day for 2 flights, but without exception they have been weather cancelled so far.

Our time table hinges on the next successful flight to WAIS, which will contain ~10+ science construction crew to build out the camp. We estimate that it will be possible for NON-RPSC personnel to be queued for flights to WAIS beginning ~7+ days after that. Weather is again deteriorating at both McMurdo and WSD over the next 24 hours. I do not anticipate a successful mission to WAIS before Saturday.

Meanwhile the McMurdo contingent is completing training as needed, and organizing cargo. The

SCO/NICL personnel on site in McMurdo include:

Bruce Vaughn  
Geoff Hargreaves  
Bess Koffman  
John Fegyveresi  
Ryan Banta  
Bo Vinther

Housing in McMurdo is extremely tight, and most science groups are being berthed in larger rooms in Building 155. These large rooms are not conducive to getting good rest, and only seem to further expose team members to a revolving door of potentially sick people, of which there are many. Since it now seems unlikely that the SCO crew will be able to get to WAIS before Nov 23 at the earliest, we have purposely delayed the second wave of the SCO team in Christchurch from arriving McMurdo on Nov-13, pushing them back to a flight on Nov-18. They are registered for snow school on Nov-20-21. The crew in Christchurch includes:

Maria Banks  
Thomas Bauska  
Tommy Cox  
Peter Neff  
Heidi Roop

Weather permitting, the first drillers and some of CReSIS will arrive on tomorrow's flight (Nov. 13). We will all have ample time in McMurdo to prepare for the field. The crew here healthy and in good spirits. We hope to stay that way.

# SITREP 2, November 18, 2009

Bruce Vaughn, SCO Rep

Written at McMurdo Station

As most of you know, the WAIS Divide 09-10 season was off to an early start with high hopes. After 10+ days of weather delays, the put-in crew of 10 led by Teresa Tran arrived at WAIS Divide on Nov-2 via the Basler and were greeted by a cold (-49 deg C) camp that appears to have wintered well. The core-processing end of the arch was at least partially exposed and equipment on the berm was accessible. The wooden basement floor in the core-processing side of the arch appears to have fared well, with no major heaves. Bad weather hampered progress through Nov-17, allowing only one LC-130 flight shortly after the Nov-1 put-in. On Nov-18 our luck changed, and as of moments ago, we have had one successful LC-130 mission to WAIS Divide with science construction crew and another LC-130 to Byrd with put-in crew and skiway drag! In addition, the Basler also flew to WAIS Divide today with cargo of ice core boxes. We have an additional LC-130 mission (for WAIS Divide) at 1700 departure with cargo of the Piston Bully and ice core boxes, which if successful, means we'll have two full pallets of ISC boxes (64) on site. Weather at WAIS Divide looks promising for next 10 to 12 hours, but will likely close down for the next system moving through.

All time tables in our season planning hinge on the arrival of science construction crew to build out the camp. We estimate that it will be possible for NON-RPSC personnel to be queued for flights to WAIS Divide beginning ~7+ days from today (Nov-18). The critical infrastructure in camp necessary to support any science and drilling personnel is the galley. We will be in very close communication with camp to insure that we get some portion of our core handling/drilling teams on site as soon as it is physically possible, but not a moment before, so we don't impede camp construction. Obviously weather will play a large role in this timing. Once on site, NICL/SCO will immediately focus on packing and staging brittle ice, and drillers will prepare the arch and winch for drilling. An optimistic start date would be Nov-25.

Given these significant weather delays and the fact that many projects in West Antarctica can, and will, be affected a large meeting was held here (McMurdo) Tuesday morning, November 17. Participants included representatives from NSF both on site and several from Washington DC via telecon, all pertinent RPSC staff (science coordination, fixed wing coordinator, science construction, etc.) here in McMurdo, as well as Matthew Kippenhan in Denver. Everyone is trying to collaborate to achieve the maximum field success given the delays. While all projects acknowledge that setbacks will occur, we are going to optimize flights to both WAIS Divide and Byrd when weather windows occur. We agreed that this is a critical week, and we will re-convene as necessary to mitigate issues as they arise.

The SCO/NICL personnel arriving McMurdo Nov-9 included:

Bruce Vaughn  
Geoff Hargreaves  
Bess Koffman  
John Fegyveresi  
Ryan Banta  
Bo Vinther

Since housing in McMurdo is extremely tight (most science groups are being berthed in larger bunk rooms), we made the decision to delay the 2nd wave of SCO personnel 5 days, arriving McMurdo Nov-18 (today).

This includes:

Maria Banks  
Thomas Bauska  
Tommy Cox  
Peter Neff

Heidi Roop

A significant portion of IDDO personnel arrived McMurdo Nov-17, and will have ample time in McMurdo to prepare for the field.

The crew here is healthy (mostly) and in good spirits. We hope to stay that way, and are anxious to get to work in the field.

# SITREP 3, November 23, 2009

Bruce Vaughn, SCO Rep

Written at McMurdo Station

Weather in West Antarctica has finally given us a break, allowing the success of some critical missions to West Antarctica. Science construction has been making great progress in camp, setting up buildings in record time. Because of the initial and continuing weather delays, we have had to significantly modify original staging plans. All 11 early season NICL/SCO staff are now in McMurdo along with 8 (of 11) drillers. We are sending our first teams from a mix of IDDO, SCO and NICL to WAIS Divide on Wednesday Nov-25. The rest will soon follow as the carrying capacity of camp allows. We anticipate that we will have another wave of people into WAIS Divide on either Friday Nov-27 or early next week. Drillers are going in along with core handlers so that we can expedite drilling. Brittle ice pack up will be in full production, and contingency plans are in place should we have to process new core, before the basement of the arch is entirely empty of ice. We'll be in a delicate balance between ice pack-up, cold-deck flight availability, and ice core drill readiness.

The current schedule for flight (to WAIS Divide) on Wednesday Nov-25:

(5 persons) FROM: I-477, I-478, I-168 [will start ice core pack up]

Bruce Vaughn

Geoff Hargreaves

Bo Vinther

Bess Koffman

John Fegyveresi

(Remainder of I-477 people on a later flight)

(3 persons) FROM: T-350 [will work to get drill set up]

Jay Johnson

Nicolai Mortensen

Kristina Dahnert

About 1 pallet of science cargo must accompany this flight, or be there before)

(Next priority will be 8 more T-350 people on a later flight)

CRISIS is beginning to prepare for their season, and has graciously loaned their Tucker Sno-Cat to go to Byrd camp with Byrd camp manager and CRISIS mechanic to groom the ski-way allowing greater allowable cargo loads (ACLs), to expedite Byrd set up. This may buy some time for extra cargo/pax to get to WAIS Divide before shipment of Challenger vehicles is needed.

We hope the weather will continue to improve both in camp and in McMurdo, as we have had weather delays on both ends. We remain optimistic, and crews are anxious to get to WAIS Divide and begin working.

# SITREP 4, November 30, 2009

Bruce Vaughn, SCO Rep

Written at WAIS Divide

After waiting in McMurdo for 16 days, five NICL/SCO people arrived to the WAIS Divide field site on November 25: Vaughn, Hargreaves, Koffman, Fegyveresi, and Vinther along with 3 IDDO staff including, Johnson, Dahnert, and Mortensen. Strong efforts are being made by all to get back on schedule.

We were elated to find the camp in good shape, and agreeable weather to set up tents. The start of camp construction was so delayed, that when the science construction crew arrived on Nov-18, they, along with the original put-in camp staff, worked straight through with no time off to get things going. All but one of the normal camp structures was in place, and last one soon followed. The galley was functional and able to deal comfortably with the new camp population of 33 total. Cargo lines were neatly laid out over a well-groomed camp, and the snow was entirely removed from the core processing end of the Arch. Power modules were up and running, but power distribution was only beginning. All in all, it was a remarkable, and well organized effort.

In general, the entire Arch is in surprisingly good shape. The ice core basement is in excellent condition, with the wood floor very much intact, and quite suitable for rolling the 39 carts, with each one carrying about a 1/2 ton of ice. The height between basement floor and the main floor appears to have compressed by ~3 inches, causing the basement stairs (which were safely unattached at their top for the winter) to rise above the floor, which now prevents the metal hatch in the floor from closing all the way. This will soon be easily fixed and is no problem for us now. The gantry crane was instantly functional. The door leading to the drill side of the arch has some predictable clearance issues that will also soon be fixed. The drill side of the arch fared reasonably well over the winter - the most notable issues being the that the slot for the drill bulged in slightly, and the ventilation covers on the end of the drill Arch came off during the winter allowing a Volkswagen-size snow to drift at the entrance to the arch. The ice core that wintered over appears to be in remarkable shape. The green mesh-netting on the core has made a very slight impression in the ice, but can easily be pulled away. It would not be a stretch to say this is the best preserved ice through the brittle zone I have ever seen.

We are working long hours through the holiday weekend to try to make up lost time, but we were treated to a very nice Thanksgiving meal Friday evening and the camp staff took a well deserved break the following day. (Back in McMurdo our crew burned some of the energy accumulated from the forced wait by participating in the Turkey Trot, and Heidi Roop was the first woman over the finish line.) Electrical power to the arch was not available before Thursday evening, so our first day was spent working with head lamps to open the arch and stage equipment and boxes. By late Friday we packed our first core, and as of Sunday evening Nov- 29, we have packed 152 meters of ice (about 1.2 Air Force Pallets). Our goal is to have 2 pallets ready for retrograde on Tuesday, to be flown on a cold-deck LC-130 flight to McMurdo, where freezers await. Another reason to work fast is the sea ice runway in McMurdo will be closed down by the end of the week, forcing planes to land at the far more distant Pegasus skiway, which means a much longer, bumpy ride for the ice core back to McMurdo. Since we need to get ice out ASAP, and weather continues to be a large variable in our flight schedule, we no longer have the luxury of choosing only night-flights for ice shipments. To guard against potential exposure of the ice to warmer environments, we have chosen to pack the ice core tubes in snow, giving us a greater thermal mass. The pallets will be slightly heavier, but it is a small price to pay for insurance. Temperature in the arch basement was -29 deg C, and upstairs it was approximately -25 deg C. After adding power, lights and people to the arch, the temperature warmed to -21 deg C, causing us to bring on line 2 of the 4 refrigeration units, which are now doing a fine job of keeping the arch at -26 deg C.

The snow will be clear from the drill end of the arch by tomorrow (Nov-30) and IDDO staff is busy preparing the drill, hoping to begin spooling the new cable on the winch soon. Camp will receive 20 passengers on Nov-30, including all remaining SCO staff (Banta, Roop, Neff, Bauska, Banks, and Cox) and a large number of CReSIS project people. Once we have the rest of the SCO crew on site, we will

commence with two shifts to pack ice, raising our daily output from ~ 70 m/day to possibly ~130 or more. We project that we will finish packing last year's by December 8 or 9 if weather holds to keep flights on schedule. The slot wall cutting should be done on Dec-2. Drillers will start spooling cable on Dec-3 and making all efforts to start drilling on Dec 11. If the season runs to Jan-23, this would give us 34 drilling days (accounting for normal holidays) to achieve our goal of getting to 2,600 meter depth.

The crew is in good spirits and everyone is putting in lots of extra hours to make up for the delays.

# SITREP 5, December 7, 2009

Bruce Vaughn, SCO Rep

Written at WAIS Divide

Despite early season weather delays, we are quickly gaining headway on our schedule. Expect drilling by end of week Dec-7-11.

## I. ICE CORE PROGRESS

- A. The core handling team worked non-stop since arriving 11 days ago to get ice flown out before the sea-ice runway at McMurdo closed on December 4th, due to diminishing sea ice strength. The pay-back for this effort is that ground transport from the airplane to the freezer vans in McMurdo is considerably shorter and less bumpy from the sea ice runway than from Pegasus field- which we will use for all subsequent ice shipments this season. We have missed some flights due to weather and mechanical delays, but have mostly lucked out on ice flights. This last week we were able to pack and ship 4 Air Force Pallets (AFPs) of ice (512 tubes) that went out on two separate cold-deck LC-130 flights to the sea ice runway. We have discovered how to expedite 3 AFPs on a single cold-deck flight with no compromise to the ice, and will have 3 pallets ready to go out on Monday December 7th, flights and weather permitting. After this we will focus on setting up the logging stations and preparing for receiving ice core from the drillers. The goal-oriented core handling crew is becoming a well oiled machine and is good spirits.
- B. (Update: The remaining 3 AFPs successfully left WAIS Divide Monday night (local time). All ice from last season is now in McMurdo waiting to be shipped back to the USA.)

## II. DRILLING PREPARATION

- A. 8 of 11 drillers are on site, and have been busy preparing the entire arch for drilling. For example, the drill slot was broadened; the casing was modified to better drain drill fluid into the hole and drip pans were extended; 3,800 meters of cable has been spooled onto the winch, and the tedious termination of the cable is underway. Drilling is expected late in the week of Dec- 7-11.

## III. OTHER PROJECTS

- A. Snow pits are planned to be dug in the interim between the end of the basement ice shipments, and the beginning of drilling in the coming week, as personnel become available. Sridhar and the CReSIS team (I-189) was in town all last week, and departed (with a festive send-off) on December 5 for their seismic profile traverse, dropping our camp population from 53 to 44. The Basler MKB aircraft is currently staged at WAIS to support fuel caches for CReSIS, but has been slowed by weather and for the moment, this classic aircraft simply provides a stunning and colorful back drop to our camp. Parts for the Challenger vehicles are slowly accumulating and 2 mechanics on site are working assembling one of them. Later they will drive them to Byrd, where they will live in support of further activities.

## IV. PAX MOVEMENT

- A. The Camp population is currently 44 and includes: 11 Science personnel on site (from I-477, I-478, I-168); 8 drillers (T-350); 15 camp staff; 5 science construction; 2 Challenger



mechanics; 3 Basler crew. On Monday December 7 we expect 7 PAX: 1 NICL; 3 Drillers; 2 science (A-357 magnetometer people); 1 General Assistant.

#### V. FUEL & EQUIPMENT

- A. Currently ~5,000 gallons of JP8 on site. All heavy equipment is functional with the exception of the snow blower attachment for the Piston Bully that is down with a mechanical problem. But, despite this, snow removal around the arch has been excellent this year and there are broad excavated areas at each end of the arch which help tremendously to reduce drifting.

#### VI. GENERAL

- A. Support from camp staff has been stellar, and all systems in camp are on-line, including the installation of a dish-sterilizer in the galley. At times it feels like we are a Cirque du Soleil show that requires as much set-up and take-down time as the time we get to perform. But it's a good show, and we seem to be on the eve of that part of the season when we are operating at peak production. With the exception of the efforts of a few who are working on terminating the dill cable today, most of us are taking Sunday Dec-6 off as a day of much needed rest.

# SITREP 6, December 13, 2009

Bruce Vaughn, SCO Rep

Written at WAIS Divide

Much progress has been made at WAIS Divide this past week. All of the drilling and core handling teams are on site now, fully trained, and on Friday December 11, we brought up the first ice core of the season. In short, the camp is fully operational, and we are off to the races.

## I. ICE CORE PROCESSING

- A. Nearly all of the ice from the 2008-09 season traveled safely on 7 Air Force pallets in 3 different LC-130 flights to end up in McMurdo freezer storage vans. Four of those seven had the luxury of landing on the sea ice runway close to town, and the others arrived at Pegasus air field for a longer ride home. The few remaining boxes of ice will be palletized and shipped out when there is enough ice drilled to make up another pallet. The wood floors heaved enough in the winter (~ 3 to 4 cm) that core processing tables needed to be re-leveled, first with carpenter's levels, followed by more precision adjustment with surveying transit. The core logging software has been loaded into the two bench-side computers, as well as their networked server that is also connected to the drillers computer. Core handling crews have been trained and are anxious to get logging.

## II. DRILLING

- A. The first ice core was brought up on the morning of December 11, 2009. Two runs were made in the hole - the first one to ream the hole and touch off the bottom to reset the depth measurement, and the second run as a filtering run, pumping down the hole with screens and a 10 micron filter bag in the screen section to capture any ice or debris. On the first actual drill run there was some difficulty in getting good ice penetration with the cutters. One possibility may be the complications from copious amounts of detritus from the cable void filler that was present on the cable at delivery that come off steadily when in use. These small bits of void filler collect at the bottom of the hole, impairing the ability of the drill to start a vibration-free hole. Consequently the first short (66 cm) core was 119.9 mm diameter, as opposed to the normal 122 mm, and displayed odd spiral indentations, oddly in the opposite direction of the normal helix of the cutter marks. After a couple of more short attempts with minor adjustments to the drill, the drill head cutters were finally set to a much steeper pitch (8 mm, as opposed to 4 mm) and the problem was solved, yielding normal great core quality. Next runs will drop to 5 mm pitch, then eventually back to the 3.5 mm, which was the winning setting from last season. To further remedy the problem, the cable was cleaned using multiple hands holding scotch-bright pads as the cable paid out. Now the cable appears to be almost as clean as last years. In addition, the drilling crew spent Sunday installing new bearings on the crown sheave and extended the drill tower by 1 meter for the anticipated longer runs that will come with the new core barrel. They are very anxious to drill.

## III. OTHER PROJECTS

- A. This week camp hosted A-357 (James Weyglund) who was on a mission to recover an ailing magnetometer not far from WAIS. It was his good fortune to have stellar weather, and catch the camp on one of the few days when extra hands were available to help dig out his instrument, some 2.5 meters below the surface. He provided us a science talk on his magnetosphere research. On Sunday December 13, a Byrd traverse crew of 3 left

WAIS with two Challenger tractors and sleds. The CReSIS grooming team, (2 pairs of 2) will be in town next week to groom skiways for the twin otter crew that will be caching fuel for CReSIS. SCO team has dug two snow pits, one a multi-wall back lit pit that John Fegyveresi sampled, and another pit further from camp that Bess Koffman sampled for snow chemistry. The back-lit snow pit will likely be useful for the media visit in January.

#### IV. FLIGHTS & PAX MOVEMENT

- A. We had 5 successful LC-130 missions this week and only one cancellation due to weather in McMurdo. We also had 2 successful Basler MKB flights from WSD to support CReSIS open field fuel caches for I-189. Camp population peaked this week at 52, and we are currently back down to 43. The coming week -weather/flights depending- has pax flights that may bring us back up to peak levels.

#### V. FUEL & EQUIPMENT

- A. Currently on site we have: 5,568 gal. of JP8, 400 gal. mogas, and 500 gal. premix. Caterpillars, Tucker, and Piston Bully are functional. Our skiway is well groomed and its current ACL is 21.9K

#### VI. GENERAL

- A. The coming week we are scheduled early in the week for a turn-around visit by NSF representative Lisa Clough, and later in the week by RPSC Tom Ellis and Doug Freer. The camp seems to be getting into its groove, as people are getting to know one another better, and the air is full of anticipation for the work ahead. Each morning after breakfast we are led in a group stretch/yoga session that sets the tone for the day, and goes a long way to safeguard otherwise stiff bodies for the sometimes strenuous work ahead in the day. Sometimes in the evening you can hear live music from a collection of violin, harp, guitar, and mandolin. We expect to be working in three shifts around the clock by the middle of the week. Outreach efforts continue to be a part daily life here for at least 3 of our core handlers. You can find links to the blogs on the WAIS Divide web site: <http://www.waisdivide.unh.edu/blogs/index.html>

# SITREP 7, December 21, 2009

Anais Orsi, SCO Rep

Written at WAIS Divide

This week was marked by the passing of the baton from Bruce to Anais, Geoff to Brian and Jay to Krissy. Drilling has started its routine of producing more than 30m a day on 3 shifts, and we had our first visible ash layer, most likely from Mt Takahē, 8.2kaBP.

## I. DRILLING

- A. This week, we used exclusively the new core barrel. Tests were done with using a double pump to pack chips harder. It did not yield to longer core, and the pumps were heating up, so this idea was dropped. Another idea was to use hollow tubes in the center of the screen barrels, to have better fluid flow, but it did not end up improving the core length either. The new core barrel allows drillers to produce reliably 3.4m cores with the chip chamber completely full. It was decided to aim for 3.2m cores. Timing between 2 runs is about 2 hours. Tests are still being done to find the perfect drilling settings. We have had 11 runs in the last 24hr, with more than 30m of ice drilled, ending at 1613.068m (8.47kaBP, Neumann time scale).

## II. ICE CORE PROCESSING

- A. Core handlers worked 1 shift on Monday, 2 shifts on Tuesday and Wednesday, and the full 3 shifts started on Thursday. We have decided to work split shifts during the day and evening: shift 1 works 7am-12pm and 3pm-7pm, and shift 2 works 1pm-4pm and 7pm-12am. Shift 3 is on 11:30pm-7:30am. Everyone is in great spirits, with no crud to report. The ice cores sit in the drying booths for 24 hours before they are packed. We will be ready on Monday for a 1-pallet nighttime cold deck flight containing the end of the brittle ice and the start of this year's ice. Logging and packing the ice takes a bit less time than drilling, and core handlers have time to warm up in between runs. We had a temperature incident Friday morning at 5am. Shift 3 realized that the temperature quickly increased to -14C in the Arch. The wind swirled around the exhaust of the AC units, making the flow running inwards, which opened the door to the back side of the AC units, letting the warm air rush into the room. Core handlers shut the door, and woke up Todd Rampendal (Electrician) and Anais. They arrived at 5:20am. Todd overrode the thermostat and restarted all units. At 6am, the temperature was back at -20C. Temperature was taken on the cores sitting in the drying booths. It did not go above -17C. Measures have been taken to avoid this to happen again:
  - i. There is a handle to the door now, which can be opened on both sides, so that no one would be locked in, but the wind shouldn't be able to open the door again.
  - ii. A thermostat override will shortly be installed so that we (core handlers) can switch the AC on if it is idle for an unwanted reason.
  - iii. A flap has been installed on the snorkel so that the wind can no longer blow in.

To sum up, the cores were between -20C and -17C for less than 1.5hr. I feel confident that this event will not be repeated. We saw an ash layer on Friday. It is ~1mm thick, yellow in color, at 1586.37m (temporary depth). It is most likely the Mt Takahē Eruption of 8.2kaBP. (More info about ash layers from Byrd at Wilch et al, GSA bulletin, Oct 1999; v.111; no. 10; p. 1563-1580).

### III. PAX MOVEMENTS

- A. It with great sadness that we saw Geoff Hargreaves, Bruce Vaughan and Jay Johnson leave camp. We wish them a merry Christmas with their loved ones. Krissy Dahnert is now the lead driller, Anais Orsi the SCO rep, and Brian Bencivengo represents NICL. At RPSC, The foreman of the Arch, Eric brown also left us, but he will be back for take down at the end of the season. Erica Bribiesca left us. We changed our DA. Anna McKee is now with us. She is a visual artist. Check out her work at [annamckee.com](http://annamckee.com) The 3 person Byrd traverse left camp, and we are about to get 2 groups from CReSIS and BESS recovery using the basler and twin otter this week. Population in the camp is now 40.

### IV. WEATHER

- A. Weather was fine at the start of the week. We had a storm Thursday-Friday with 21-26 knots winds and blowing snow. Temperature was between -12 and -25C.

### V. FLIGHTS

- A. We had 5 flights this week. The last one is flight #27, which is past the middle point. Next week, we expect only 3 LC-130 flights due to the holiday. We are expecting the Basler and 2 twin otters to station here for a few days, as early as the weather allows.

### VI. CAMP ACTIVITIES

- A. The building of the winter berms has started. The camp staff spent 2 days tidying the camp before the storm and cleaning up the drifts. Friday, we got a much needed tanker mission. We have 7794 gallons of fuel now. We get through 1400gal/week for the generator, 300gal/week for the vehicles and 200gal/week for heating. We will have to be able to fuel the Basler and Twin Otters next week.

In a nutshell, drilling and core processing have entered the 24hr routine. Everyone was able to take a day off this weekend. We are eager to cross sea level before Christmas!

# SITREP 8, December 27, 2009

Anais Orsi, SCO Rep

Written at WAIS Divide

Merry Christmas from the ice! We have passed sea level, and we are now drilling between 8 and 10ka BP. These are interesting times! We are definitely keeping our eyes out for surprising layers in the core. Camp is doing well; the white elephant Christmas gift exchange had some good surprises. We're now getting ready for New Year's (and the cold deck flight that should bring mail on the way in).

## I. DRILLING

- A. The drillers are producing beautiful core. It is very clear clathrate ice. We have had issues with scratches along the core (~0.3mm thick, not affecting core quality), which was resolved after changing the cutters. A more pressing issue is the inclination of the drill: It passed 5 degrees mid week (from ~3 degrees at the start of the season), and drillers paused and evaluated the strategy to get it under control. All the relevant experts were called, new pieces were machined, and we are now trying things out. From the start, the weight on bit was kept as low as possible, so that gravity would have a chance to correct the inclination, but it did not appear to be sufficient. New stabilizers were put on the top of the screen sections (above the center of mass), so as to avoid the drill flexing the wrong way in the hole under gravity (for 5 degree angle, and 15 m of drill sonde, we are talking about an arc of 2mm), and to provide a pivot for the drill to start working towards vertical. Additionally, the hole is reamed in between runs for the last 15 m (3 times at first, now 1 time) so that the cutters have some room to play.

The pitch has been reduced. It makes things slower, but it should allow the drill to recover better. Cable payout is about 1.33 mm/s. We have been noticing today that there are some marks on the core, which suggest that the drill is slightly adjusting its location. These marks are ridges less than 1mm thick on the outside of the core. They do not affect core quality. As of run #1245 the inclination is 4.7 degrees. It is too early to say whether we are truly recovering, but it seems that we are on the right path.

If you have some time, you could send a thank you message to Nicolai Mortensen. He has not been sleeping much, and has been doing a wonderful job in trying to find a solution to this problem. [nicolai.mortensen.guest@wais.usap.gov](mailto:nicolai.mortensen.guest@wais.usap.gov)

Core dog marks are getting more pronounced. Drillers are also working on it, going from 4 to 3 core dogs. We get bottom breaks pretty regularly (when the ice breaks at the bottom of the drill rather than at the core dogs).

## II. NUMBERS

- A. We started the week on a very fast pace, doing 10 to 15 runs a day, around 3.2m each. Monday and Tuesday, we drilled more than 40m of core each day. The record for the longest core was broken on Tuesday, at 3.446m. Things are a bit slower now, owing to the azimuth problem. Overall, we have drilled 59 runs and 187.7m of ice this week, and the last run #1243 has a bottom depth of 1803.86, which corresponds to 10.1ka BP (Neumann time scale).

## III. CORE LOGGING

- A. We saw a volcanic ash layer at 1586.37m (temporary depth) last week. This week, we have seen a series of "cloudy layers", which could be ash, or maybe could be wet deposition of dust? There is a series between 1703.832 and 1703.858, and another series between 1741.246 and 1741.274 meters depth. They correspond, respectively, to 9.24ka BP and 9.56ka BP. It is interesting to see several layers belonging to what appears to be several storms. As we were ready to pack the ice (24hr after logging), Peter Neff noticed that he could see more bands: the ice sublimates and gets clearer after sitting in the drying booths for a few days, which lets more cloudy bands appear. We decided to let the ice sit and sublimate for 48hr instead of 24, so that we can detect more layers with the naked eye. By the way, if any of you, readers, have a good idea of what these layers are, and where we should find more, please get in touch with us. We like to learn, and we would be able to have even sharper eyes to look for them! (Our eyes are quite sharp already though. This ice is so beautifully clear!). We are waiting for the potential of another tephra layers around 1822m, maybe tomorrow! We sent a pallet of ice on a cold deck on Monday, Dec 21st. There will be another pallet of ice going on a cold deck flight Monday, Dec 28th. This is pallet #9/11. Bess Koffman's samples will also go on the cold deck.

#### IV. ARCH TEMPERATURE

- A. The temperature is monitored around the arch using temperature loggers (hobo/stowaway). It peaks during the heart of the day 10am-1pm, and cools off at night. The amplitude is about 3 degrees Celsius. It is definitely colder on our day off, when we are not in the arch. The temperature in front of the AC units is -24 degrees Celsius, and it is -21.77 degrees Celsius at the logging table. It has come up to -19.1 degrees Celsius during a couple hours in the middle of the day. Three of the four AC units are on, and working hard, right now. The fourth unit could work, but needs an oil change. We are waiting for the technician to come.

#### V. WEATHER

- A. We have had an interesting weather this week: there was a warm front coming through on Tuesday, and the outside temperature went up to -10 degrees C. Friday, we had a cold front come through, with winds around 25 knots, blowing snow, and lots of drifting. In between, we had a chance to see a few gorgeous halos. In general, the surface definition has been low. We hope to be fully shoveled out before the next storm hits us next Wednesday.

#### VI. FLIGHTS

- A. We had 2 successful LC-130 missions (3 were scheduled). One pallet of ice was retrograded on a cold deck, as well as I-188 (CReSIS) science cargo. We had to choose between "Freshies" (fresh vegetables and fruit) and mail on Wednesday. You guess what won: Christmas Freshies. As a result, everyone is awaiting the pallets and pallets of Santa Claus mail on the next flight. The Basler MKB and Twin Otters CKB and SJB are passing by to do survey lines and install ski-ways for CReSIS. Multiple storms have prevented 2 teams of groomers to go out. The planes are based out of Byrd and will keep passing by to refuel.

#### VII. CAMP ACTIVITIES

- A. The camp has been very busy doing weather observations night and day before 11 flights were canceled this weeks, due to weather here, at McMudro, at Siple Dome and at Byrd.

The last couple days have seen a lot of grooming of the drifts around camp. Winter burms are progressing slowly, due to poor contrast.

#### VIII. HEALTH

- A. The last PAX came with a new strand of crud, and the camp is slowly getting affected. The night shift is the most affected. Everyone is watching their sleep, hydration, and basic hygiene.

#### IX. CHRISTMAS

- A. We celebrated Christmas on Friday night (25th). John White had prepared beef fillet, duck breast, vegetables and salad. It was obvious that the most desired item was the salad! Hors-d'oeuvres started at 4pm, and dinner was at 6pm. Desserts were inspired by French tradition: the Christmas log (chocolate based), and a tower of puffs called "piece montee". True to the original! Camille Frost had been working all week to prepare such a dessert! The traditional white elephant gift exchange was again a success. The most desirable item was a book, dedicated by Shackleton himself, saying "Antarctica is a harsh continent. I wish I had stayed home".

We had one day off this week, and will have another day off for New Year's next week (Friday 4pm-Saturday 4pm). The crew is in great spirits and trying to keep healthy and warm. After a week of production drilling, every one is finding their new equilibrium. We are waiting for new surprises in the ice. Another ash layer? Another cloudy band? These are interesting times!

Merry Christmas from WAIS Divide!



# SITREP 9, January 3, 2010

Anais Orsi, SCO Rep

Written at WAIS Divide

We have focused our week on trying to solve our problem with the inclination of the drill. We are progressing slowly, but our efforts are paying off and we are back in production drilling of about 10 runs, or 32 meters per day. Core quality is still excellent.

## I. DRILLING

- A. The inclination of the drill is our number 1 concern. The strategy to get it back revolves around 4 things:
  - i. Stabilizers on the top of the screen section, top of the core barrel and core dog cages. They prevent the drill from flexing under its weight. The flex of the drill is what caused the inclination to increase rapidly.
  - ii. Keeping the weight on bit as low as possible and keeping the pitch rather small (1.96mm), so that the cutting would be directed by gravity.
  - iii. Reaming the bottom 6m of the borehole, to give a chance to deviate towards vertical in between runs. It takes about 10 min to ream 6 meters.
  - iv. Adjusting the cutters to a different design, which gives them the ability to cut sideways.
- B. The inclination has been steady this week, around 4.7 degrees. Improvements will be slow. There are indications on the ice core itself that we are doing something: Ridges on the outside of the core show that the borehole is trying to realign. We have noticed slight changes (~1mm) in the diameter on the top 10 cm of the core, which also indicate the possibility of a change of direction.

## II. NUMBERS

- A. 50 runs were drilled this past week, which corresponds to 158.67m of ice core, or 26.4m/day (6 days). The bottom depth of the ice on Jan 1st was 1940.82m. We started the week around 20m/day, and progressively speeded up to 38m/day. A drill run takes about 2:15hr and is 3.2m long.

## III. ICE CORE LOGGING

- A. The core quality is excellent overall. The new cutters introduce some unusual ridges on the outside of the core, which can be a millimeter thick. They do not affect core quality.

From 1901m to 1909m, the diameter decreased by 5mm. It is likely to affect sampling. It corresponds to the time when the new cutters were introduced: There must have been some wobbling of the core barrel. The problem suddenly disappeared once the whole drill sonde reached the newly drilled borehole. We have been monitoring the diameter of the core every meter this week. Except for this excursion at 116.0mm, the diameter has been consistent at 121.7mm (+/- 0.3mm). We are watching closely for non-circularity of the core, which could be an indicator of a shift of the borehole.

#### IV. AZIMUTH

- A. The drill records the azimuth of the ice. There is a compass in the instrument package. At the end of the run, it records the orientation of the barrel, and when the drill gets to the surface, the barrel rotates so that north is pointing up. Drillers write an arrow on the bottom of the core, and core handlers write a line along the core reflecting the orientation of the ice.

Sadly, there is a problem in the software behind the orientation of the barrel, and the azimuth of one run is not necessarily consistent with the azimuth of the next run. The drillers are working on correcting the software. It's not a simple problem, and will require us to stop drilling for a day or two.

In addition to recording the driller's azimuth, core handlers have started to draw a "lifeline" along the core at the start of run 1257, 1844.36m depth. This line is an azimuth line consistent from run to run. We do not know the numerical value of the direction of the lifeline, but we will be able to get it when the software is repaired, and correct the azimuth for the ice we are drilling now.

At NICL, we will be able to draw such a lifeline on the brittle ice, and recover an azimuth over all the ice below the last rubble core.

#### V. PACKING

- A. This week we sent 2 air force pallets (AFP) of ice to McMurdo on Wednesday, 31-Dec. We have room for one more AFP to go into safe core. It will likely go out next Wednesday. After that, we will hold onto the last 8 ISC boxes to go out until the end of the season, so that most of the physical properties samples can make it to NICL. The remainder of the ice will be packed on wood skids and stored in the basement, for retro at the beginning of next season.

#### VI. ARCH TEMPERATURE

- A. The fourth AC unit is in operation and it is cold in the arch now. The temperature went from -20C to -27C. It is a good thing to have some buffer in case the AC or the power breaks down. One of the main side effects of having all four AC units working is that there is considerably more frost deposition. It snows a lot inside the arch! We have to keep sweeping the floor ~6 times per day. Core handlers make a good use of the glove heater boxes: We each have 2 pairs of gloves that we can swap every ~30min to keep our fingers warm. It is working very well.

#### VII. WEATHER

- A. The weather has been changing. It could be sunny, snowing and back to sunny in a matter of hours. We saw some cumulus clouds on 31-Dec, which is very unusual for Antarctica. Overall, it has been mild, with beautiful halos, but the forecast caused planes to be canceled.

#### VIII. FLIGHTS

- A. We completed 2 LC-130 mission, bringing in much needed fuel and taking out 2 AFPs of ice cores. The Basler MKB visited us once. The surveying twin otter CKB visited us 5 times to refuel. CKB is part of CReSIS, and specially equipped with radar antennas. Three (3) LC-130, five (5) MKB and one (1) CKB flights were canceled due to weather.

Anna McKee (artist), Todd Rampendahl (electrician) and Sridar Anandakrishnan (I-188) left for McMurdo.

#### IX. CAMP ACTIVITY

- A. Lots of weather observations for the numerous planned flights. The winter berms are finished and have started being refurbished. Camp population went up to 50 and is now back to 39.

#### X. HEALTH

- A. We are done with the crud, but the last LC-130 brought us stomach flu. It lasts 24hr and 5 people have been affected so far.

#### XI. OTHER SCIENCE GROUPS

- A. CReSIS groom team R-789 has finally departed, after waiting for 14 days for the Basler to pick them up.
- B. A-140, "BESS recovery", is a team of six scientists and two support crew whose aim is to recover the payload of a long-range balloon experiment to measure antimatter. You can learn about their project at [bess.kek.jp](http://bess.kek.jp) They arrived on 31-Dec and left on 3-Jan to their site, where they will stay for 2 weeks, and disassemble the payload so that it can fit into three Basler flights.
- C. The drillers of CReSIS I-205 have finished drilling. They left their field camp at noon on Tuesday, 29-Dec and arrived on Thursday at 2am. They brought back the broken Tucker Sno-Cat. Sridhar Anandakrishnan quickly left from McMurdo on 1-Jan. The mechanic went back to pick-up the drill and compressors. The drillers Mike Jayred and Jim Koeller are waiting for the drill to come back to WSD and get it ready for retro.

#### XII. NEW YEAR CELEBRATION

- A. We celebrated New Years' on Friday, 1-Jan with prime rib steak and other delicacies. Drillers and core handlers had a day off (Friday 3pm-Saturday 3pm). Camp staff had Saturday off, and Sunday off for those not affected by KBA flights. Charlie Virnig shaved and surprised everyone with soda wine, or champagne in a can. We celebrated each US time zone passing midnight, depending on people's origin.

Overall, we are back into production drilling. We are at about 11.6kaBP, and ready to cross the 2000m landmark. We have not seen any ash layers this week, but we keep our eyes open!

# SITREP 10, January 10, 2010

Anais Orsi, SCO Rep

Written at WAIS Divide

Drilling has been very regular this week at 32m/day. We have finished packing the ice that will be shipped back to the USA in SafeCore, and started storing extra ice in the basement. The core quality remains excellent. No noteworthy ash layer this week. Ken Taylor arrived in camp on Friday, after being delayed for 4 days in McMurdo, due to McMurdo weather.

## I. DRILLING

- A. We are proud to report a very smooth drilling operation this week. The main drilling parameters have remained unchanged, as they produce long and excellent core. We stopped reaming the hole, as benefits were negligible, which saves us 10 min per run. A run takes about 2 hours to complete, and has been 3.26m long on average. We have been completing 10 runs per day, which corresponds to 32m of core, or about 365 years. The record of the longest core was broken, at 3.482m. The inclination is improving slowly, however the azimuth is not fixed yet

## II. NUMBERS

- A. We finished the week at run number 1385, or 2172m deep, 14.1kaBP (Neumann timescale). We drilled 70 runs, 232.11m (7 days of drilling).

## III. CORE LOGGING

- A. The quality of the core is excellent overall. The diameter has been stable at 121.8mm. The only limits to core quality are some deep dog marks (from the core dogs, which catch the core on its way up) that were as deep as 1cm. We can see fractures or small chips at the run break. The length of core affected by this is never longer than 5cm.

## IV. PACKING

- A. We finished packing the ice going out this year. The last pallet is ready to get picked up. We started loading ice into the basement. We have 3 skids or 96m of core in the basement so far. There is ample room in the basement to receive all the ice we are likely to drill this year.

## V. WEATHER

- A. We have had excellent weather this week, around -12C, with 8-knot winds. However, numerous flights were canceled due to McMurdo weather.

## VI. FLIGHTS

- A. We were scheduled for a LC-130 flight on Monday, which was postponed each day due to McMurdo weather. It finally arrived on Friday, but the plane had an issue and stayed overnight for repair. The 109th launched extra missions to fly in maintenance crew and parts. The last pallet of ice to be sent back to McMurdo is still with us. We hope that it will leave on Monday, Jan 11th. We have had 5 visits of the surveying twin otter CKB, and 2 Basler MKB flights. Ken Taylor has arrived and camp population has increased from 38 to 46 people in camp.

## VII. CAMP ACTIVITIES

- A. Rick Ward and Jenny Brower went out on the traverse to pick up the CReSIS RAM drill. CReSIS drillers (I-188) made it ready for retro. They left on Friday. Rick and Jenny left again to pick up the rest of the CReSIS crew.

## VIII. FUN

- A. Dave Ferris cooked a Middle Eastern dinner for all camp on Saturday night. We had a great party, followed the next afternoon by the third annual Olympics, featuring big red twister, frisbee, beach ball and mini golf with animatronics holes! CReSIS drillers Mike Jayred and Jim Koeller gave a talk on their fieldwork. Bo Vinther gave a talk about ice core drilling at NEEM, Greenland.

Overall, we have had a very productive week. We are excited about the few new things to come: we should have a thick ash layer around 2240m (Mt Berlin, 15kaBP). We expect a large media crew to visit us on Wednesday and Thursday, and the CReSIS traverse team should be back in WAIS by the end of the week.

IX. A comment from Ken Taylor:

- A. I am very impressed by the way things are going. The camp support is great. The core quality is excellent and the production rate is reasonable. The core handling is going smoothly. All the different operations are working well together and we should end the season very close to our goal of 2,600 m. Anais is continuing her task of managing the day-to-day science operations. Krissy is head driller, and Tbird (Theresa) is camp manger, so all the lead positions are filled by women, which is a first for a deep drilling project. I am studying the whole operation looking for places where we can make improvements, making plans for next season, and working to minimize the impact of an upcoming media event.

Dave Ferris organized a raffle to raise funds for two charities in New Zealand. For prizes Dave donated the iTouch he won in the WAIS Divide outreach poster competition. Our visiting artist Anna McKee (<http://annamckee.com>) donated a painting that really pumped up the ticket sales. There were also many smaller prizes. Everyone bought chances to win and then a noisy and fun drawing was held. The result was a fun time and \$1,200 for Christchurch charities. Such a big haul from a camp of 40 people, which is almost as much as all of McMurdo brings in with the annual Women's talent show, gives you a sense of the community at WAIS Divide.

Cheers, Ken  
WAIS Divide Chief Scientist

# SITREP 11, January 17, 2010

Ken Taylor (SCO; Chief Scientist) and Anais Orsi (SCO Rep)

Written at WAIS Divide

Drilling and core handling are going well, but we did have some mechanical issues. We are encountering occasional "cloudy layers" in the ice.

## I. DRILLING

- A. We are drilling about 10 runs a day with excellent core quality. There were three mechanical problems with the drill this week. The drill head, the level wind sheave bearing, and the tower crown sheave bearing all had failures. Nicoli Mortenson and Rob Kulin were able to fix each problem in about half a day, and showed the need to have a full machine shop on site. The hole inclination has stabilized at less than 4 degrees. The azimuth sensor is not working and cannot be fixed in the field. This week we drilled 48 runs, which brought up 157.89m of ice, ending at 2330.82m. We have eight days of drilling left, and expect to end up at depth of ~2,500 m.

## II. CLOUDY (ASH?) LAYERS

- A. We were expecting an ash layer from Mt Berlin at 15kaBP (2240m on Neumann time scale). We found a series of cloudy layers, some more pronounced than others at 2251.12m (16mm), 2254.002m (1mm), 2268.634m(9mm), 2290.975m (1mm) and 2322.102m (18mm). They correspond to 15.16ka, 15.20ka, 15.37ka, 15.71ka, 16.19ka BP on the Neumann timescale. We typically take a second look at the ice 48 hours after drilling, when the surface is clearer, so that we can spot more faint layers. It seems like we will have a lot of exciting cloudy layers in the next few hundred meters.

## III. ICE CORE LOGGING

- A. The quality of the ice is excellent. The core breaks have had fractures from time to time, but nothing out of the ordinary. The only breaks in the core come from core breaks at the end of a run. It is great to see a clear fracture free ice core 3+ meters long.

## IV. ARCH TEMPERATURE

- A. To maintain the core handling arch at around -25C we need to keep all four cooling units going. The hot air from cooling units is pushed outside by an exhaust fan. We are having problems with the exhaust fan shutting down, which reduces the ability of the cooling units to cool the core handling area. The temporary fix is to monitor the temperature every half hour and manually restarting the exhaust fan. The temperature of the arch has come up to -18C on three occasions, but has never been above -20C for more than an hour. The ice core never got above -24C. We keep as much ice as possible in the basement where the temperature is below -27C.

## V. PACKING

- A. The depth of the bottom most piece of ice going to NICL this season is 1998 m. We have 9 skids of 8 boxes each packed in the basement that will be sent out next year. We

cannot send them this year because there is not enough space in the shipping containers. There will be 1,480 m of ice for the CPL this summer.

#### VI. WEATHER

- A. We had a few day storms, which broke up with a spectacular sun dog. Now we have a brilliant clear day.

#### VII. HEALTH

- A. Camp is healthy without any signs of the crud. There have been a few sprains, and people are getting worn down.

#### VIII. CAMP ACTIVITIES

- A. CReSIS (I-188) drove the 220 miles back from Thwaites Glacier in two hard and stormy days. The skidoos arrived first and it took another day and some assistance to get the heavy cargo sleds back to WAIS.

#### IX. MEDIA

- A. We were expecting a visit by 8 journalists. NSF sent them all to Pole and the Dry Valleys, and then only two of them were able to come to WAIS. Lee Hotz is reporting for the Wall Street Journal and Chaz Firestone is reporting for Nature News. They spent three days at WAIS and had lots of time to learn about what we do here and the labs back home.

#### X. FUN

- A. On Wednesday Ryan Banta gave a science lecture about the chemistry in ice cores. Saturday was our last day off (Camp staff will take off next Sunday, we won't.). Bess Koffman organized the second coffee house of the year, which showcased our local talent. Krissy Danhert offered fancy coffee to anyone who wished (mocha powder, frothed milk, syrups..). It was a very well attended event. After the coffee house, everyone had a last chance to see and photograph the shallow ash layers before they got packed. Skiing has been very good.

We are making plans and preparations for next season. Everyone is pulling together as a team and working hard, but we will be glad when this season is over.

# SITREP 12, January 24, 2010

Ken Taylor (SCO; Chief Scientist) and Anais Orsi (SCO Rep)

Written at WAIS Divide

This week highlights include, 120 ash and cloudy bands in the last 150m, a slide show by Charlie Bentley, who has been working on Antarctic glaciology for 50 years, a visit by Julie Palais and Alex Isern, and recovery of our 1,000th meter of ice for the season. We will finish drilling on Monday Jan 25th, at 3pm.

## I. DRILLING

- A. The drilling this week has been uneventful. The crown sheave was repaired last Sunday, and we have been able to drill 10 runs a day every day this week. The last set of cutters was installed, and on Saturday, Jan 23th, different types of shoes were tested. From Sunday, Jan 17th to 10am on Sunday Jan 24th, we drilled 61 runs, or 201.09m. The current bottom depth is 2531.91m, with a few more drill runs to go.

## II. ICE CORE LOGGING

- A. The ice continues to be of excellent quality. Run breaks can be rough, and created 5cm pucks on several occasions. In once instance, there was a diagonal break inside a run, not associated with the run break.

## III. CLOUDY / ASH LAYERS

- A. We have had an incredible series of ash layers over the last couple days. The record is 31 layers in one run of 3.3m. Overall this week, we have had 120 layers in the last 150m. Most of these layers are cloudy. They are a few mm thick (1-15mm). Occasionally, we get a yellow or dark ash layer, with visible particles. We have spotted 2 of these, at 2458.619m and 2487.193m. This intense series of cloudy/ash layers is right about where the "old faithful" radar layer is.

## IV. PACKING

- A. We have 16 skids of 8 ISC boxes packed in the basement. (A skid is 8 core boxes containing 32 cores, loaded on a wooden packing skid.) We hope to have one more skid ready at the end of the season. The last skid for Safecore went out on Thursday, Jan 21st, escorted by Ken Taylor.

## V. ARCH TEMPERATURE

- A. We had issues with the exhaust fan last week. The AC unit tech, Steve Mikel, and the foreman of the arch, Eric Brown, arrived on Tuesday, and took a close look at it. Wednesday, the fan of cooling unit no 3 died. The temperature was around -21C, with 3 out of 4 cooling units working. The most sensitive part of the day is 10am-1pm, when the door is in the sun. We decided to shut down some lights on the ceiling to reduce the heat load of the arch. This, in combination with decreasing temperature outside, allowed us to keep the temperature under -24C at the end of the week. The only instance when the temperature went above -20 was on Jan 19th, at 4pm. It went up to max -18.6C and was above -20C for 1:20hr.



## VI. WEATHER

- A. We have had good weather this week: winds from 9 to 13 knots, temperature between -12 and -26C. We can feel that the temperature is starting to decrease.

## VII. HEALTH

- A. No significant issues.

## VIII. FLIGHTS

- A. We received 2 LC-130 missions and 1 MKB mission. 3 LC130 were canceled: 1 due to McM weather, and 2 due to WSD forecast. Eric Brown arrived and is getting ready for the camp take-down crew who should arrive on Monday, Jan 25th. On Thursday, Ken Taylor, Matthew Kippenhan and Matthew Lazzaro left.

## IX. CAMP ACTIVITIES

- A. Matthew Lazzara (O-283) came for 2 days to raise and service the weather station. For the first time, it has been working all summer. You can follow his activities at <http://amrc.ssec.wisc.edu>

## X. FUN

- A. On Monday we had a core handler appreciation day with a beautiful chocolate Raspberry cake that Camille Frost made for us, accompanied with fancy blends of coffee. On Wednesday Lou Albershardt gave a talk on the Norwegian-American Scientific Traverse of East Antarctica. On Saturday we celebrated Charlie Bentley's seventh decade on the ice sheet, followed by a talk, related to his first expedition on the Ice in 1956-58.

## XI. ICE CORE RETRO

- A. The three new Safecore redundantly refrigerated shipping containers are on the Tern (the cargo ship) in Littleton, New Zealand. One of the units failed on the journey south. The unit is being checked by refer technicians and we are not sure if the problem is in the unit or the ship power supply. We will not use this unit unless the problem is clearly identified and fixed, and the unit operates properly from New Zealand to McMurdo. If we do not use the unit we will only be able to ship back 950 m of core, not the 1,400 m planned.
- B. Ice Core Retro Update: All three units are on the Tern heading from NZ to MCM and working well. The fix was to increase the amperage of the circuits they are on. We will see how they do on the way from NZ to MCM. Just to be sure Matthew is working on getting a refer tech on board for at least the trip from MCM to NZ. As we learn more we will update you accordingly - WAIS Divide SCO.

## XII. PERSONNEL MOVEMENT:

- A. Part of the drilling and core handling crew will leave WAIS on Monday, January 25. Ken and Matthew K left on Thursday and are in McMurdo making preparations for next season. Don Voigt is at WAIS Divide making preparations for his role as the Science Coordination Office Representative for the first half of next season.

Note: the WAIS Divide email server has been taken down so there is no more email communication with the camp this year.