PROJECT SITUATION REPORT
SPICE Project, South Pole Antarctica 2015-16

Project:	NSF# I-164	UW# 8341			
Project Principal Investigator:		Murat Aydin			
Report No: 1	**for period**	11/14/16	**Through**	11/20/16	
Prepared by:	Jay Johnson		**Date:**	11/20/16	

IDDO Personnel on Site:	Jay Johnson Josh Goetz

ACTIVITIES DURING PERIOD

- Travel from Madison to McMurdo Station
- We arrived at McMurdo Station on Saturday, Nov 19
- Bag drag for the flight to the South Pole
- Picked up the sat phone and data loggers

SAFETY

-

COMMENTS (Problems, Concerns, Recommendations, Etc.)

- We are scheduled to fly to the South Pole on Monday, Nov 21

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SPICE Project, South Pole Antarctica 2015-16

Project:	NSF# I-164	UW# 8341			
Project Principal Investigator:		Murat Aydin			
Report No: 2	**for period**	11/21/16	**Through**	11/27/16	
Prepared by:	Jay Johnson		**Date:**	11/27/16	

IDDO Personnel on Site:	Jay Johnson Josh Goetz
SCO Personnel on Site:	Murat Aydin - UC-Irvine Joe Souney - UNH Emma Kahle - U. Washington

ACTIVITIES DURING PERIOD

- Flights to pole were canceled on both Monday and Tuesday due to weather in MCM.
- I completed the Antarctic Field Safety (AFS) refresher course on Monday; The course is required for me to visit the RAID test later in the season
- The five of us flew to pole on Wednesday, departing Willey Field at 11:45 and arriving South Pole at 14:45
- ASC had the drill site cleared of snow and all buildings in place by the time we arrived; The generator was powered up on Wednesday
- Scott Borg (NSF Head of Antarctic Infrastructure and Logistics), Vladimir Papitashvili (Antarctic Astrophysics and Geospace Sciences Program Director), Bill Coughran (summer site manager), Wayne White (Winter site manager), and Leah Street (Our program manager) were given a tour of the SPIce Core site on Thursday
- Attended snowmobile safety training on Thursday
- Organized the MECC
- Opened up the drill tent doors and removed the internal straps that were in place to stabilize the building over the winter
- Re-mounted the core tray rail system and aligned the core processing line
- Powered up the drill tent ventilation and vacuum systems
- Helped with moving the ice core boxes out of the core storage trench on Friday
- Installed the winch control system
- Installed components removed for the winter from the control room ERV system and powered it up

SAFETY

- Three fire extinguishers were issued by the fire department; Two were placed in the drill tent and one in the MECC

COMMENTS (Problems, Concerns, Recommendations, Etc.)

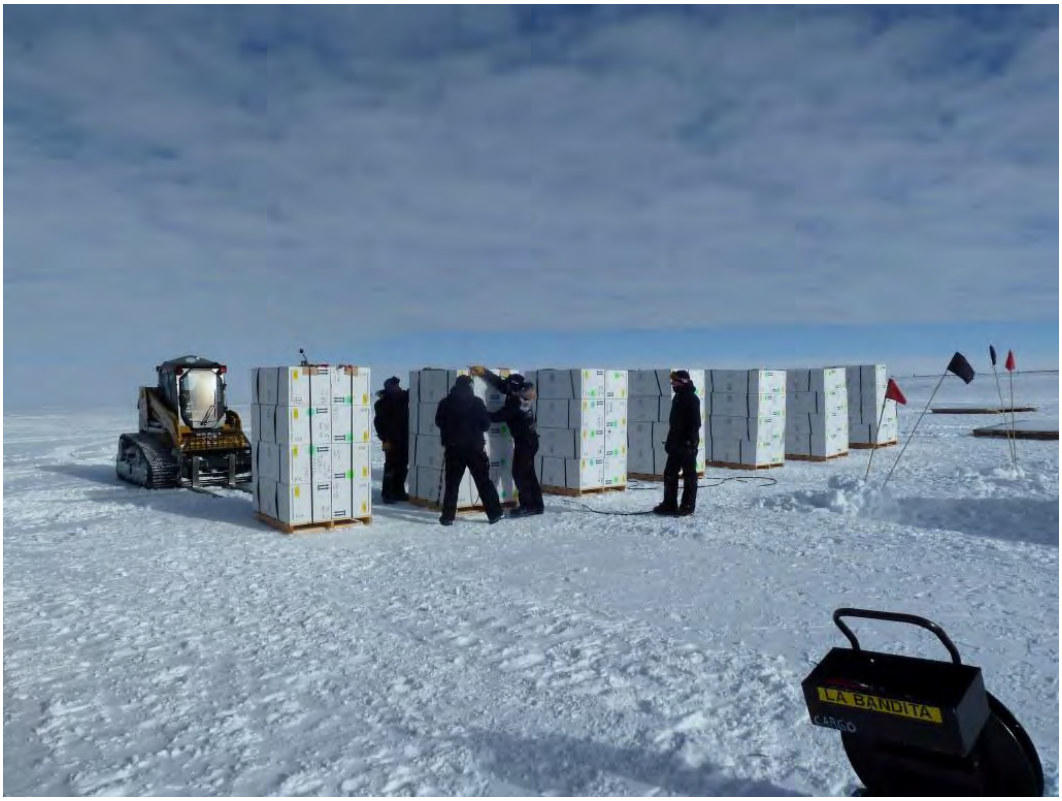
- The drill tent had a strong Estisol smell after being closed up for the winter despite the cold air temperatures
- The drill tent wintered over very well and did not sustain any damage
- A sizable drift formed inside the drill tent over winter; the snow entered a small opening around the vent hose for the glove dryer.
- The winch control system has two issues that we are working with Zack to resolve; The sonde hard limit switch is not working properly and the winch motor rotates in the wrong direction

SPIce Core team in front of Mt Erebus at Willey Field - McMurdo Station

SPIce Core drill site

First view inside the drill tent, note the drift in the foreground that formed over the winter

Adding temperature loggers to the core boxes in the core storage trench



Banding skids of ice core boxes

Blanketed pallets of ice core boxes in safe storage under the arches awaiting a cold deck flight back to McMurdo Station
(Second pallet is not in view)

DV tour of SPIce Core site

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Project:	NSF# I-164	UW# 8341			
Project Principal Investigator:		Murat Aydin			
Report No: 3	**for period**	11/28/16	**Through**	12/05/16	
Prepared by:	Jay Johnson		**Date:**	12/05/16	

IDDO Personnel on Site:	Jay Johnson
	Josh Goetz
SCO Personnel on Site:	Murat Aydin - UC-Irvine
	Joe Souney - UNH
	Emma Kahle - U. Washington
I-194, Borehole logging:	Ryan Bay

ACTIVITIES DURING PERIOD

- Resolved the two issues with the winch control system; The sonde hard limit switch was found to be wired incorrectly (the spare was wired correctly) which held the system in an E-stop condition; The level wind would not enable because it was receiving the wrong voltage, 24 VDC, from the E-stop system; The E-stop system had been redesigned between seasons and was not able to be fully tested with the level wind since it was at pole; The issue was resolved by supplying the enable circuit 12 VDC
- Eric Saltzman (Antarctic Sciences Section Head), Colene Haffke (Science Assistant) Visited the SPIce Core site on Monday afternoon
- Ryan arrived on Tuesday
- A group from the National Science Review Board came to the South Pole for a short visit on Tuesday; Murat gave a brief presentation about the SPIce Core project at the station along with short presentations from the other science groups; Due to their short visit, we brought an ice core to the station for the board members to view at the station entrance
- Terminated the winch cable with the GOI logging tool cable head
- The borehole fluid level is at 118.11 m; It was last measured at 119.22 m on 1/28/16, so the level went up 1.11 m over the winter
- Josh wrote a LabView program to sync and record the logging tool data with the payout data from the winch
- Completed two temperature logs; One using a thermistor type probe and the other using an RTD type probe. Both logs were run at 5 cm/s down and 15 cm/s on the way up
- Fabricated replacement brushes and centralizers for the dust logger; see more details in the comments section
- On Friday the first two pallets of ice were flown to MCM on a cold deck flight
- Started organizing and packing unneeded parts and clothing

- Murat gave a science lecture on Sunday evening about the SPIce core project and some of the preliminary data
- Set up the IDD logging winch to run the dust logger on Monday; It was placed behind the drill winch so the tower could be utilized; See the comments section for more details
- Core processing and packing was completed on Monday
- Started disassembly of the core processing line
- Assembled the borehole camera

SAFETY

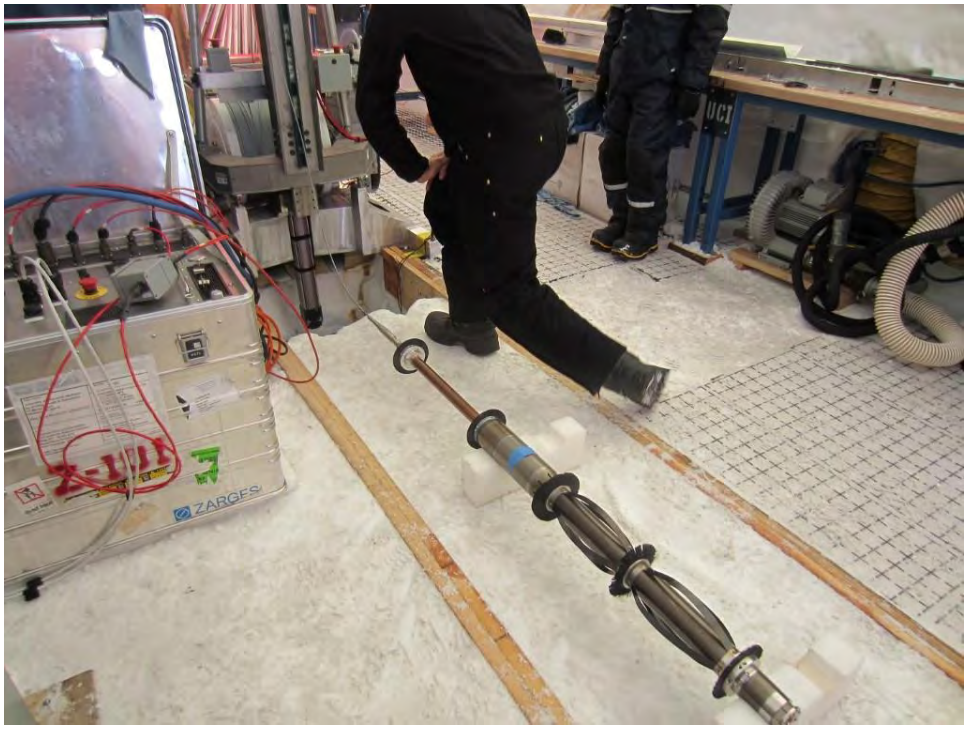
- none

COMMENTS (Problems, Concerns, Recommendations, Etc.)

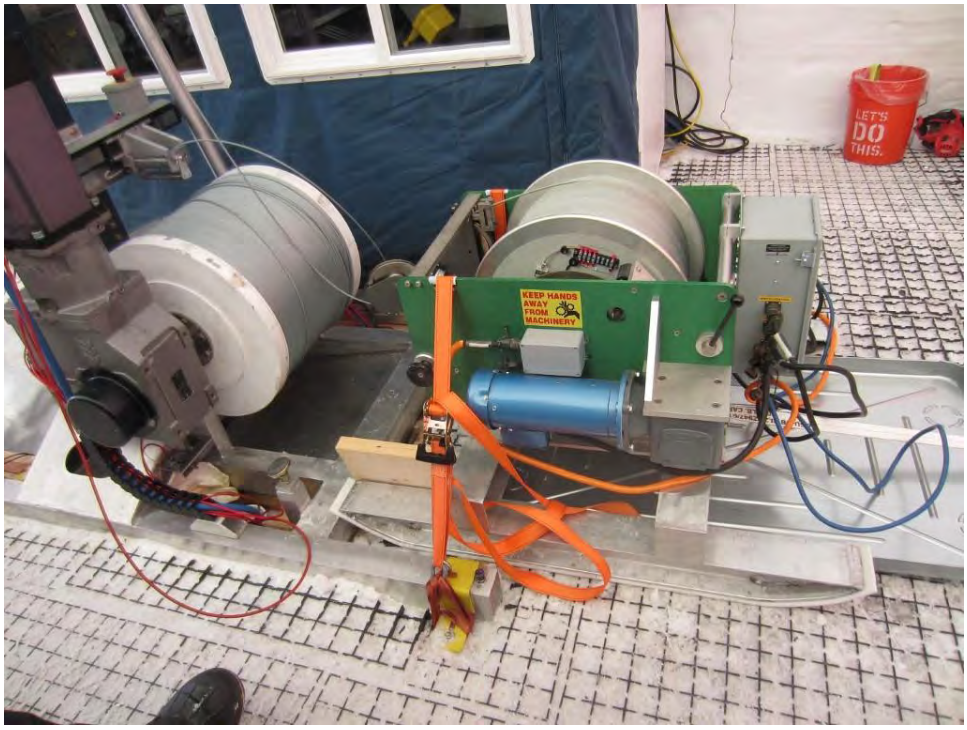
- Ryan had one piece of cargo that was lost in the cargo system for several days; It was eventually found and showed up at pole on Monday; However, in the meantime contingency plans to fabricate new centralizers and brushes to replace those that were in the missing case, and need to run the dust logger, were put into motion.
- The drill winch cable has two internal shorts; After installing the logging tool cable head, I ohmed it out and measured 84 K ohms between the red wire and cable jacket; This wire was not used to run the temperature logging tools, but is required to run the dust logger; A high voltage test, up to 370 VDC, was run on the cable before connecting the dust logger; The red wire initially drew current and then was fine; On Monday when we tried to apply power to the tool over the cable the current just climbed; Inspection of the cable revealed both the red wire and one of the clear wires are conducting to the jacket making the cable unusable
- On Sunday night generator 251 stopped running due to an over speed fault, which looks to have been caused by cracked and missing wire insulation on the speed sensor; The camp buildings were well below freezing by Monday morning; The backup generator reluctantly started and we were back up and running without further issue

An LC-130 is being unloaded while a pallet of ice cores waits to be loaded at the left. SPIce Core camp is the black dots on the horizon to the right of the ice core pallet.

Temperature logging probe



Dust logging tool being tested on the logging winch cable



Logging winch set up behind the IDD drill winch

The last of the ice core packed into ice core boxes


Starting disassembly of the core processing line

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Project:	NSF# I-164	UW# 8341			
Project Principal Investigator:		Murat Aydin			
Report No: 4	**for period**	12/06/16	**Through**	12/13/16	
Prepared by:	Jay Johnson		**Date:**	12/13/16	

IDDO Personnel on Site:	Jay Johnson
	Josh Goetz
SCO Personnel on Site:	Murat Aydin - UC-Irvine
	Joe Souney - UNH
	Emma Kahle - U. Washington
I-194, Borehole logging:	Ryan Bay

ACTIVITIES DURING PERIOD

- Ryan completed two logs of the borehole with his dust logger; He was able to reach a depth of 1,587 m using the IDD logging winch
- Completed a video log of the borehole
- The remaining ice core boxes were removed from the ice core storage trench and palletized for shipment on Tuesday
- We had a meeting with Leah S. (Science Project Manager), Scotty S. (Construction Manager), Brian C. (Logistics Supervisor), Ian M. (Ops Manager), and Josiah H. (Heavy Equipment Operations Supervisor) from ASC to plan and coordinate closing out the South Pole Ice Core site
- Packed all remaining equipment in the drilling tent
- The drill tent was taken down on Friday, the cover was taken to the station on Saturday, and was laid out to dry in the gym on Monday and packed in the case by the end of the day
- Delivered Ryan's cargo and the logging winch to the cargo department on Saturday
- The drill trench was backfilled around the casing on Monday; The top of the casing is about four feet above the snow surface
- ASC removed the wooden walls and roof of the core storage trench; the hole remained to be filled in by the time we departed
- All drill cargo has been moved back to the station and the cargo department is processing it to return to MCM in time to go on the vessel
- Six of us flew from pole to MCM on Tuesday afternoon; Emma is staying behind to fly as the escort on the final ice core cold deck flight that is scheduled for tonight (Tuesday night)

SAFETY

- none

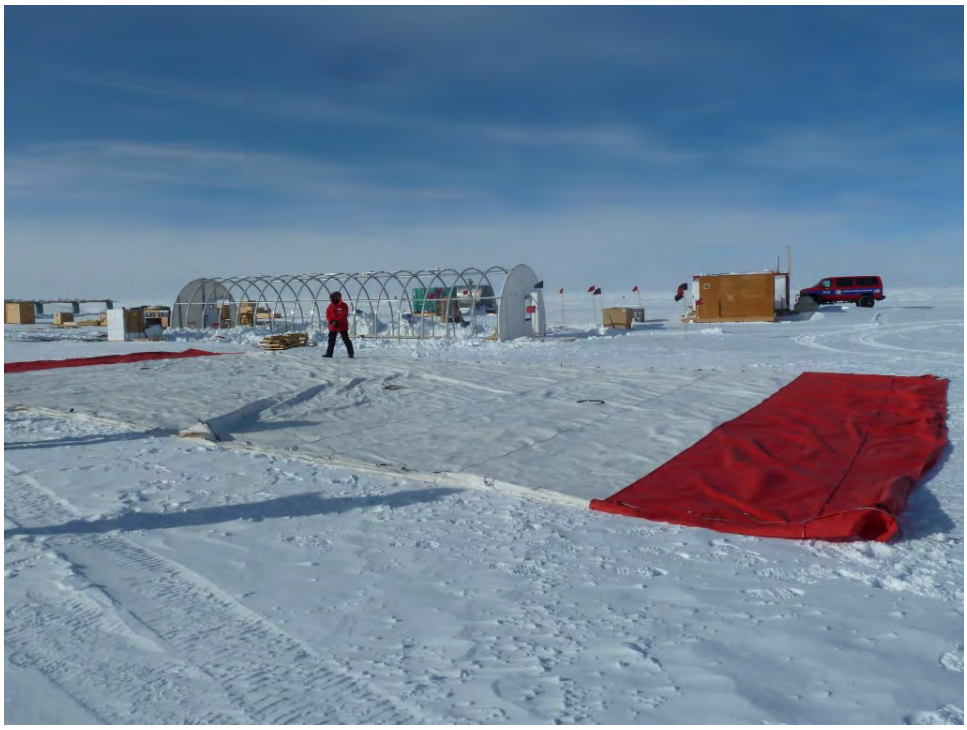
COMMENTS (Problems, Concerns, Recommendations, Etc.)

- The LCI-90i freezes up and reads the wrong payout speed when run with the drilling winch; However, it works perfectly fine when run with the logging winch; This leads us to believe the winch drive emitting electrical noise that is effecting the LCI-90i

South Pole Ice Core group photo at the South Pole

Ryan running his dust logging tool

Packing in the drill tent completed


Taking down the drill tent

Drying the tent canvas in the South Pole gym

The ice core storage trench after the walls and roof has been removed. The extended borehole casing is in the center upper part of the picture.