

West Antarctic Ice Sheet Divide Ice Core

Climate, Ice Sheet History, Cryobiology

2009/2010 Field Season Overview

Core recovery for the 2009/2010 drilling season ended as scheduled at a bottom depth of 2560 m (driller's depth), just a day's drilling short of our goal of 2,600 m. This season's core quality was stunningly excellent with only a few mid-run breaks.

RPSC opened the camp on November 1 and provided the logistics that were the base of the operation. A set of storms reminded the put-in crew where they were and kept the IDDO drilling and NICL and SCO science crews away until November 28, which was 10 days later than planned. RPSC worked through some Sundays and postponed some work allowing us to make up some of the lost time. The SCO and NICL crew opened the arch and packed up the kilometer of brittle (and some ductile) ice that was stored in the basement. Drilling operations started on December 11 and routinely produced 30+ m per day of perfect 3+ meter long cores. At these depths the gas bubbles have been forced into the ice lattice, making the ice almost glass clear. The cores occasionally had bands of volcanic ash, some razor sharp, others diffuse, that served as welcome treats. By working many Sundays and reducing the time required to take down the camp, we were able to make up for the lost time and meet our depth goal for the season.



With only 34 days of drilling, and drilling 24 hours/day, the 2009/2010 Field Team was able to recover more than 1000 meters of ice (1049 meters to be exact). Photo: Kristina Dahnert (IDDO)

The camp had a monotonous rhythm set by the 2.5-hour cycle it takes to recover each 3 m segment of ice core. But there was always something interesting going on, a new friend to share a meal with, a talk/slide show to attend, a ski with a friend, the Winter Olympics, coffee house entertainment, a charity raffle, dazzling light shows in the sky. It never slowed down and everyone pulled together as a single team.



2009/2010 Field Team. Photo: Brian Bencivengo (USGS/NICL)

2010/2011 Science Technicians

The Science Coordination Office (SCO) has received more than 50 applications for the 7 science technician positions that will log the core and assist with the drilling during the 2010/2011 field season. We are in the process of selecting the science technicians and believe we will once again have a very strong field team. Many thanks to everyone who applied and to those people who helped advertise the position. For those of you who applied for the science technician position you will be hearing from the SCO very soon.

Core Processing at NICL

This summer's core processing line (CPL) at NICL is scheduled to begin on June 2 (see 2010 Schedule below). The plan is to process the brittle ice from 588 to 1300 meters depth and then process the ductile ice from 1300 to ~1970 meters depth. We'll stop the CPL from 3-11 July, in observation of Independence Day.

If you have any questions regarding the CPL, please contact Mark Twickler ASAP.

Annual Fall Science Meeting

This year's science meeting will once again be held at Scripps Institution of Oceanography in La Jolla, CA. The meeting will be held on September 30 and October 1 (Thursday & Friday). The meeting will have activities for all of both days and the evening of the 30th. Everyone associated with the project is encouraged to attend (PIs, technicians, students, field support staff, drillers, NICL, and Artist and Writers program participants).

On Wednesday, September 29 there will be the Executive Committee Meeting and possible to-be-determined side meetings.

We anticipate that registration for the meeting will begin in ~mid-July.

We are in the process of finalizing arrangements and will send out complete details soon. All information and updates regarding the meeting can also be found on the project web site at:

www.waisdivide.unh.edu/meetings/

Recently Funded Projects

A complete list and information about the projects funded to work on the WAIS Divide ice core is posted at <http://www.waisdivide.unh.edu/Projects/DisplayAll> . The following is a list of projects that were recently funded to work on the WAIS Divide ice core.

Collaborative Research: Establishing the Chronology and Histories of Accumulation and Ice Dynamics for the WAIS Divide Core: Taylor, Waddington, Conway

Methane Isotope Variations Covering the Holocene from the WAIS Divide Core: Sowers

Noble Gases in the WAIS Divide Ice Core as Indicators of Local and Mean-ocean Temperature: Severinghaus

Ice Drilling Design and Operations

While IDDO is waiting for the retro cargo from WAIS Divide, engineering modeling on the sheave problems is underway and should be ready for action when the cargo arrives. New sonde motor controllers are on order

for testing and the drill is being readied for drilling the warm ice. Replicate coring design is going well and the preliminary detailed mechanical design is completed and parts are on order. IDDO is also working on the 2010-2011 drill crew selection.

2010 Schedule

Date	Item
25 May	NSF/OPP: Antarctic Research Full Proposal Deadline
	This is a good year to submit proposals for borehole logging
	The replicate coring proposal is also due – contact Jeff Severinghaus for details/information
	http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5519&org=ANT&from=home
1 June	Travel day to NICL for 2010 CPL
2 June	1 st day of 2010 CPL in BRITTLE ICE (588 m – 1300 m)
	If we can average 25 meters per day we should be able to finish the brittle ice section on July 20
3-11 July	CPL break (no CPL) for 4th of July/Independence Day
26 July	1 st day of 2010 CPL in DUCTILE ICE (1300 m – ~1970 m)
	Averaging 35 meters per day we should be able to finish on August 20
20 August	Last day of 2010 CPL
29 September	Executive Committee meeting and possible to-be-determined side meetings in La Jolla, CA. One side meeting that will take place is a “Where do we deep drill next?” meeting hosted by IDPO/ICWG.
	http://www.waisdivide.unh.edu/meetings/index.html
30 Sep - 1 Oct	Annual Science Meeting in La Jolla, CA
	Everyone associated with the project is encouraged to attend (PIs, technicians, students, field support staff, drillers, NICL, Artist and Writers program participants, etc)
	http://www.waisdivide.unh.edu/meetings/index.html
1 November	Earliest potential deployment date for first wave of science technicians and drillers

Long Term Plans/Schedule

The 2010/2011 field season is the last season slated for deep drilling at WAIS Divide. The goal is to get within ~70 meters of the bed at ~3,350 meters. Don Voigt will be the SCO Field Representative for the first-half of the field season and Gifford Wong for the second-half of the field season. Given the short field season for drilling at WAIS

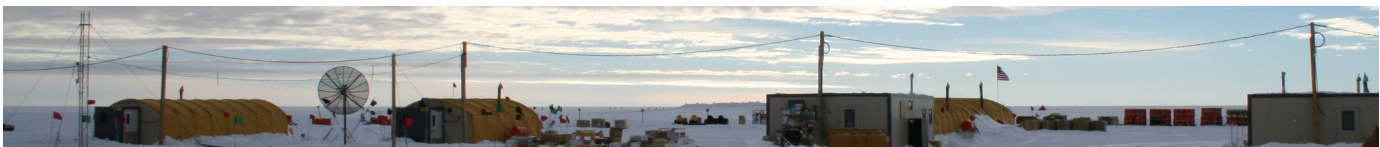
Divide and the fact that we'll be drilling in warm ice for the first time with the DISC drill it may be a challenge to reach this goal.

The SCO has submitted a proposal to continue similar office support to 2015. After 2010/2011 the SCO will not be leading the field work but will provide support for the annual meeting, data management, the web page, outreach, sample allocation, and core processing.

Jeff Severinghaus plans to submit a proposal this May to lead replicate coring at WAIS Divide.

Several logging proposals are already funded and more may be submitted in May. The logging community has selected Gary Clow as the Chief Scientist for Borehole Logging. In this capacity Gary will coordinate the borehole logging operations at WAIS Divide.

Tentative Field & CPL Schedule	
Summer 2010:	CPL for ice from 588 m - ~1970 m
2010/11:	Drill to near bed (3,350 m is goal) Ship all remaining ice back to NICL
Summer 2011:	CPL for remaining ice (~1970 m - TBD)
2011/12:	Borehole logging, arch refurbishment
2012/13:	Borehole logging, arch refurbishment
2013/14:	Borehole logging, replicate coring
2014/15:	Replicate coring, remove DISC drill
2015/16:	Extend casing, backfill trench, retrograde drilling infrastructure



WAIS Divide Ice Core Project - Science Coordination Office (SCO)
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 Mark Twickler, Manager, Univ. of New Hampshire
 Joe Souney, Operations Manager, Univ. of New Hampshire
 Don Voigt, 10/11 Field Rep., Penn State Univ.
 Gifford Wong, 10/11 Field Rep., Dartmouth College