



Newsletter of the Utah Geological Association

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June UGA Luncheon Meeting

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Drilling at the bottom of the world – Adventures on a frozen continent

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Abstract

In conjunction with the International Polar Year (2007-8), two drilling campaigns took place in the Ross Sea, Antarctica, near the US Antarctic Base McMurdo Station, under the auspices of the international ANDRILL (ANtartic Geologic DRILLing) program. The program's goals are to understand the evolution of the Antarctic cryosphere through continent-proximal records. The first drilling season

occurred during the Austral summer of 2006-7, and the second occurred this past Austral summer (2007-2008).

I participated as a borehole geophysicist during the most recent drilling campaign. The first season collected 1285 m of continuous core under the Ross Ice Shelf for a high-resolution record of the past 10 my while this past season collected 1130 m of continuous core under the multi-year ice for a high-resolution record of the mid-Miocene, covering the onset of widespread continental glaciation in East Antarctica. Together, the two cores are



being used to put together a record of glaciation and basin development within the Victoria Land Basin to understand the controls and frequency of Antarctic glacial expansion and retreat. This is of particular importance in this day and age as we enter a time of global warming. A complete collapse of the

Antarctic ice sheets would raise sea levels by >70 m, with disastrous affects to coastlines and populations worldwide. By trying to understand the factors that led to ice sheet expansion during the mid-Miocene, and its behavior since, we hope to be able to model how the ice sheet may respond to present circumstances.

While the detailed science is only just beginning, I will present some preliminary data which suggest that the ice sheet has not been as stable as distal marine records originally indicated. In addition, I am aware that many people who come to Antarctic talks, despite the academic interest, want to see pictures of glaciers and penguins, so I will show lots of pictures of “the ice” as well.



Playing frisbee at -25° F!



Three Adélie penguins.

Biography: I received my Ph.D. in geophysics from the University of Utah in 2003, using geophysical methods to study Neogene sedimentation on the margins of the Southern Ocean. I conducted much of my research on two cruises of the Ocean Drilling Program, one offshore New Zealand, the other offshore Prydz Bay, Antarctica (the dent in the East Antarctic coast where India would fit). Prior to that, I received my M.S. at the University of Utah on cosmogenic isotope dating of paleo-fault scarps in Nevada and Utah. Currently I am employed by TerraTek, A Schlumberger Co. in Salt Lake working on core- and log- based modeling of reservoir and mechanical properties of tight-gas shale and sand reservoirs, mostly in the US and Canada. I took development leave from my position with Schlumberger to participate in ANDRILL.

***** **LUNCHEON LOCATION** *****

The June luncheon meeting will be at 12:00 noon, **Monday, June 9th**, 2008, at the Department of Natural Resources, 1594 W. North Temple, Salt Lake City. The DNR building is just east of the intersection of Redwood Road and North Temple. Luncheon attendees can park anywhere there is space available, including the visitor parking area in front of the main entrance and the employee's parking area. The luncheon will be held in room 1050.

Please make your reservations (537-3300) no later than 4:00 p.m. on Friday, June 6th.

Click to make reservations for the Luncheon Meeting by sending email to reservations@utahgeology.org.

Lunch at 12:00 noon. Meeting begins at 12:30. Cost: \$10.00 w/ reservations; \$5.00 for students. Cash or Checks only please.