

ANDRILL Education and Outreach Efforts Help to Bring Science to the Public

Written by [Louise Huffman](#)

February 20, 2009 The multinational ANDRILL (ANtarctic geological DRILLing) program, involving scientists, engineers, students, and educators from Germany, Italy, New Zealand, and the United States, has contributed exciting scientific results during the International Polar Year (IPY). In addition to the science outcomes there has been a focused effort to expand education and public outreach activities. These activities have engaged teachers, students and the general public.

ANDRILL successfully implemented two scientific drilling expeditions during the IPY, one in the austral spring and summer of 2006 and one in the austral summer of 2007. These expeditions recovered long sediment and rock cores that preserve the geologic and paleoclimatic record of Antarctica from the the McMurdo Sound region over the past 20 million years and set records as the two deepest holes ever drilled into the subsurface of Antarctica beneath the ice. These sediment and rock cores contain valuable new evidence of how Antarctica's ice sheets and climate have changed over time. Scientists use this information to learn what is likely to happen to Antarctica's ice masses in the future and determine how these changes might affect the world's climate and sea level.

As part of the effort to study the 1,285 meters of sediment and rock core recovered in 2006 by the ANDRILL McMurdo Ice Shelf (MIS) Project, which represents more than 13 million years of Earth's history, more than 50 top international polar scientists gathered at Victoria University of Wellington in New Zealand last week to discuss their cutting-edge climate change research (see press release at: <http://www.andrill.org/news>).

The focus of the recent meeting was on reviewing ANDRILL data that can be used in establishing models that explain how Antarctica's ice sheets have behaved in Earth's recent past and explore how they may change in the future. Initial observations and measurements made on the recovered cores by the team of scientists were published in 2007 in the journal *Terra Antarctica* (Volume 14, No. 3) and more recent outcomes will be published in the coming months in leading scientific journals. Scientists spent the four days sharing results and debating models and interpretations. A key aim was to establish a strategy to deliver key results to the broader scientific community, general public, and policy makers.

The initial results of the second ANDRILL expedition, the Southern McMurdo Sound (SMS) Project, are being prepared for publication in the journal *Terra Antarctica* within the next few months. The ANDRILL SMS project recovered 1,138 meters of sediment and rock core reaching back over 20 million years and providing insights into conditions during the middle Miocene. The middle Miocene has long been held as one of the fundamental time intervals in development of the modern Antarctic ice sheets. It encompassed a change from a warm climate optimum approximately 17 million years ago to the onset of major cooling approximately 14 million years ago, and the formation of a quasi-permanent ice sheet on East Antarctica (see press release at: <http://www.andrill.org/news>).

In parallel with these scientific efforts, ANDRILL has been engaged in a focused campaign to expand the education and outreach outcomes of the international ANDRILL program through a series of initiatives (see: <http://www.andrill.org/education>):

- (1) an immersion program for educators known as ARISE (ANDRILL Research Immersion for Science Educators) Program, which seeks to transfer the science and technology of sediment and rock core drilling to non-technical audiences through the direct participation of educators in ANDRILL field projects;
- (2) the Project Iceberg website, which hosts a wide range of educational resources (e.g., blogs, podcasts, and videos) based on ANDRILL science;
- (3) the Antarctica's Climate Secrets project, a partnership with ANDRILL funded by the U.S. National Science Foundation, that has produced the Flexhibit, a series of banners (translated into several languages), an activity book for students focused on the five Flexhibit themes, podcasts and other online resources;
- (4) the ANDRILL Project Circle, an online learning community that promotes collaboration among teachers and students in international classrooms;
- (5) a pilot project entitled C2S2 (Climate Change Student Summit), that provides teacher professional development training and student involvement in learning about climate change in the polar regions and beyond; and,
- (6) an Italian initiative known as Progetto Smilla, which provides educational resources and brings classrooms together in Italy.

Together these activities have raised the profile of ANDRILL's research, education and outreach activities in multiple areas and have provided much needed information on climate change to a variety of age groups in a diverse range of learning environments.

General information about all of ANDRILL's activities can be found on the ANDRILL website at: <http://www.andrill.org>

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The ANDRILL (ANTarctic geologic DRILLing) Program is a multinational collaboration between the Antarctic Programs of Germany, Italy, New Zealand and the United States. Antarctica New Zealand is the project operator and has developed the drilling system in collaboration with Alex Pyne at Victoria University of Wellington and Webster Drilling and Exploration. The U.S. Antarctic Program (USAP) and Raytheon Polar Services Corporation (RPSC) supported the science team at McMurdo Station and in the Crary Science and Engineering Laboratory, while Antarctica New Zealand supported the drilling team at Scott Base. Scientific studies are jointly supported by the U.S. National Science Foundation, N.Z. Foundation for Research, the Italian Antarctic Research Program, the German Science Foundation and the Alfred Wegener Institute.

On February 25th 2009, the IPY Joint Committee will release a report on 'The State of Polar Research'. In the lead-up to this event, major IPY research projects are releasing information for the press, and making themselves available for media enquiries. A wide range of projects will be profiled reflecting the diversity of IPY. For more information, please visit http://www.ipy.org/index.php?ipy/detail/feb09_projects/