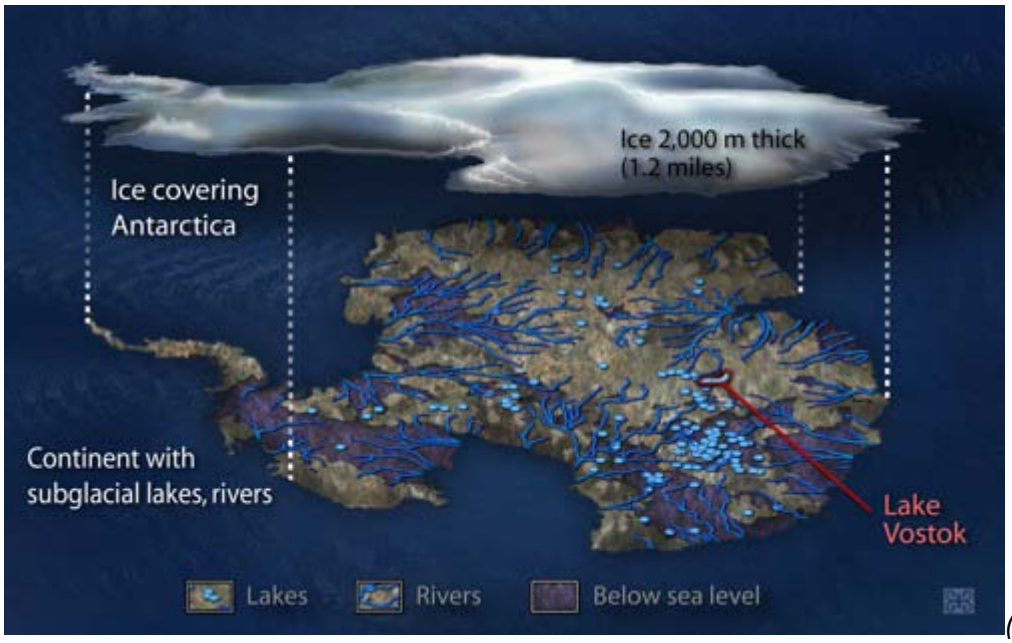
First Antarctic Subglacial Lake Entry on the Horizon



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After years of planning, strategizing, and international discussions and debate, what once seemed to be only lofty scientific ambitions are now closer than ever to becoming a reality. Ever since subglacial lakes captured the imagination of scientists and the public more than a decade ago, researchers have dreamed of entering and sampling these alien environments to unlock secrets that might guide us in the search for life elsewhere in our solar system.

The Scientific Committee on Antarctic Research's (SCAR) Scientific Research Program (SRP) on Subglacial Antarctic Lake Environments (SALE) has made significant advances on several fronts in promoting, facilitating and championing international cooperation to better understand subglacial aquatic environments in Antarctica. SALE also promotes and advances all aspects of environmental stewardship in research in and exploration of these unique settings. During the International Polar Year 2007-2008 this same group of pioneering scientists banded together under the auspices of the SALE-UNified International Team for Exploration and Discovery (SALE-UNITED).

Partnerships and cooperation among national programs that conduct studies of subglacial environments have led to yearly meetings to exchange the latest knowledge. This community has proposed three programs — one each lead by Russia, the United Kingdom, and the US — to sample subglacial systems.

A guiding principle of these programs is compliance with strict environmental protocols. The most well-known program is that by the Russian Antarctic Expedition that continues to make progress in drilling toward Subglacial Lake Vostok, the largest known subglacial lake on earth. The lake/ice interface is now believed to be less than 100 meters away.

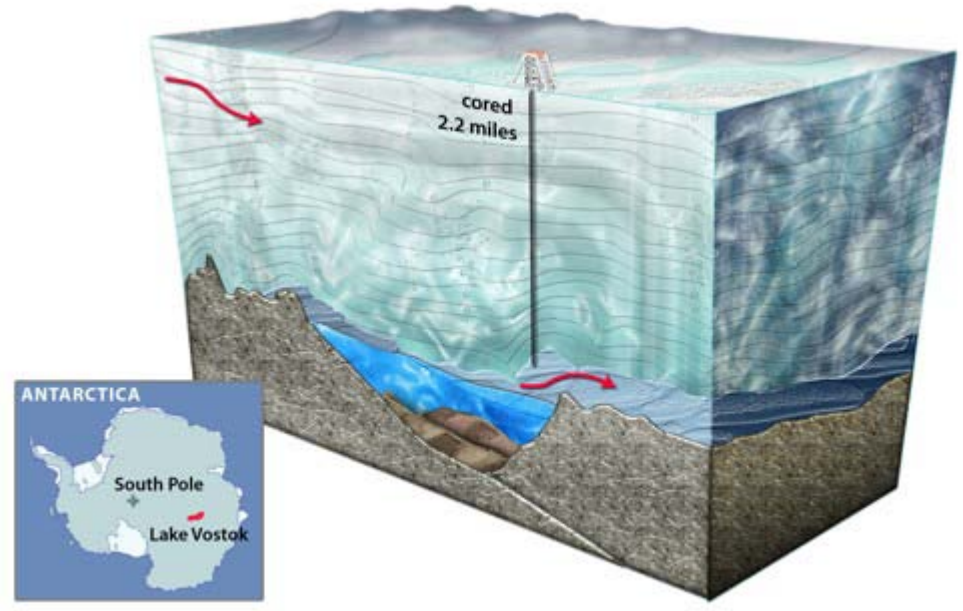
Specialists of the St. Petersburg Mining Institute have developed drilling techniques to meet the

unprecedented challenges of drilling through warm ice crystals that often exceed six feet in length. If all goes well, the first ever direct sampling of a subglacial lake beneath the vast East Antarctic ice sheet is expected to occur some time in 2009-2010.

Two programs in West Antarctica are under final consideration for funding by national programs. US scientists have proposed studies of subglacial environments beneath two West Antarctic ice streams. Direct sampling will yield information on the glaciological, geological and microbial dynamics of these environments and test the overarching hypothesis that the hydrology in these environments exerts a major control on ice sheet dynamics, geochemistry, metabolic and phylogenetic diversity, and biogeochemical transformations of major elements. If funded, the ice streams subglacial environment will be sampled some time in 2010-2011.

The second West Antarctica program involves direct access, measurement and sampling of Subglacial Lake Ellsworth. The team includes a consortium of ten UK universities and research institutes and three US institutions. The project will access the lake using hot water drilling designed to penetrate the lake's ice roof without contaminating the water body below. A probe will then enter the lake and collect measurements and samples. A gravity core will subsequently be deployed into the lake floor collecting a 2-3 m sediment core. Instrument development and testing and a comprehensive environmental evaluation will be completed within the next three years. The lake access experiment is scheduled to be conducted in 2012-2013.

These programs will be the first nodes in what is environed as a continent-wide network of study sites that international teams will use to conduct a wide array of research projects over the next decade or more exploring the influence and importance of subglacial environments in the evolution of Antarctica as a continent covered by massive ice sheets and of the biota that live and thrive in these harsh and unique ecological niches.



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SALE-UNITED web page

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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/