WINTER 2018/19

ICE BITS

Newsletter of the U.S National Science Foundation Ice Drilling Program (IDP)

Successful Support of 2018-2019 Antarctic Law Dome Project

IDP deployed engineers Tanner Kuhl and Grant Boeckmann for the jointly-supported NSF and Australian Antarctic Division (AAD) Law Dome Project. IDP worked for several years with PI Vas Petrenko and the AAD to plan for an ambitious amount of ice coring using three IDP drill systems: a Badger-Eclipse Drill, a 4-Inch Drill, and the Blue Ice Drill. Despite challenging weather conditions, over 1,000 meters of ice core was drilled across six boreholes, surpassing the original science objectives. This project also represented the first deployment of the newly-acquired Blue Ice Drill tent. Project participants report that the tent performed well, even during high winds, allowing for continued operations during inclement weather.

Interior of the new Blue Ice Drill tent. Credit: Peter Neff

Exterior of the new Blue Ice Drill tent. Credit: Tanner Kuhl

Successful Support of 2018-2019 Antarctic RAID Project

In early January, IDP engineer Jay Johnson deployed to McMurdo Station to lead planned Rapid Access Ice Drill (RAID) maintenance efforts. The team of five set-up the drill rig and completed the modifications and test objectives requested by PIs John Goodge and Jeff Severinghaus. Primary accomplishments include:

- Repair and testing of the hydraulic system
- Testing of the Fluid Recirculation System
- Documentation of operation and winterization procedures
- Installation and testing of new components
- Deployment of a new conductor casing

In addition, the team developed procedural efficiencies to reduce rig set-up and take-down time. Pack-up and module/parts organization will be completed early in the second quarter.

Loading the 10-foot-long auger stem onto the Rapid Access Ice Drill (RAID) (left). Exterior view of the RAID system (right). Credit: Jay Johnson

Subglacial Access Science Planning Workshop: March 29-30, 2019

What: U.S. Ice Drilling Program (IDP) Subglacial Access Science Planning Workshop
When: March 29-30, 2019
Where: Herndon, Virginia
Website: https://icedrill.org/subglacial-access-science-planning-workshop-2019/

The U.S. Ice Drilling Program (IDP) Subglacial Access Science Planning Workshop will take place in Herndon, Virginia, on March 29-30, 2019. The primary objective of this workshop is to provide focused feedback from the subglacial research community into the IDP Long Range Science Plan. Specifically, we seek to stimulate discussions that will yield a prioritized list of science objectives and associated targets and requirements (sampling, drilling and support needs) for the coming decade for the 2019 update to the IDP Long Range Science Plan. We will provide options for remote participation for the plenary aspects of the workshop, and also we welcome short presentations and/or written feedback from non-attendees.

We plan to have a draft white paper at the end of the workshop, and we will solicit feedback on the draft after the workshop, but before it is finalized, for inclusion in the IDP Long Range Science Plan. White papers that were written after the prior, 2016, subglacial access workshop can be downloaded here: https://icedrill.org/2016-subglacial-planning-workshop/index.shtml

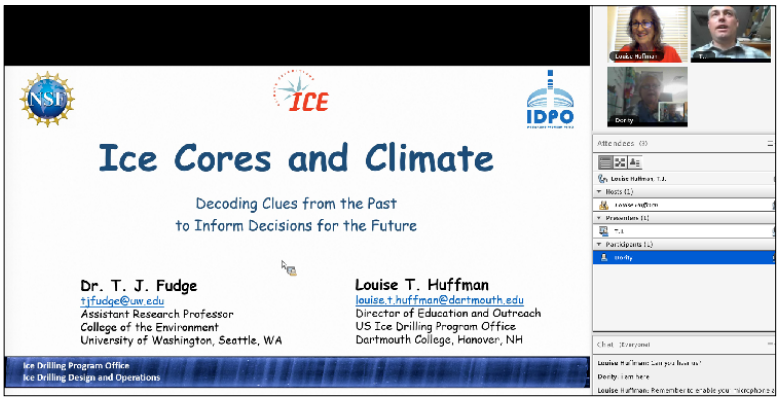
There is no registration fee for the workshop, but everyone planning to attend should register so that we will have an accurate headcount for meeting room space and catering. Further details regarding the upcoming workshop in Herndon, including registration instructions, agenda, and future updates, can be found at https://icedrill.org/subglacial-access-science-planning-workshop-2019/ .

Call for Input - Long Range Science Plan

IDP will be working with the Science Advisory Board and community members in the coming month to update the Long Range Science Plan. If you envision the need for ice drilling for your project in the coming decade, send several sentences describing the science driver and the envisioned field date and location for your project, so that your plans are voiced in this planning document. Please email your input to IceDrill at Dartmouth dot edu soon! The 2018-2028 Long Range Science Plan is available at https://icedrill.org/about/resources.shtml#scienceplan

Education and Outreach Update

This quarter has been a busy one for Education and Outreach activities. Planning for the *School of Ice* June 23-26, 2019, in Colorado is well underway with the participant cohort chosen and speakers invited. We have a few more presentation spots available for anyone interested in sharing their ice core research with college faculty and high school teachers who teach advanced science courses. Please get in touch with louise.t.huffman@dartmouth.edu.



Screenshot of the teleconference with 6-grade students. Credit: Louise Huffman

Researcher T.J. Fudge kindly accepted the invitation to connect through a teleconference with 6th-grade students in Nevada, and the teacher reported a rise in enthusiasm among her students for polar science and climate change topics afterward. Thank you, Dr. Fudge!

In January, Louise led ice core hands-on activities for visitors to the Orlando Science Museum for their Winter Science Month. About 150-200 people visited the IDP table. Thanks to Terry Huffman and four high school volunteers for the extra hands needed to run the activities!

Louise Huffman demostrares polar activities at the Orlando Science Museum. Credit: Louise Huffman

On February 27, Dr. Mary Albert and Louise Huffman presented a Master Class for the Polar Educators International (PEI) webinar series. The *Ice Core Science - Using Knowledge to Act* webinar explored understanding the evidence of past climate change from polar ice cores as well as adaptation strategies being used by communities already being affected by climate change and how to empower students to take action. Following the webinar, an optional, asynchronous online two-week discussion period about ice core science, climate change, and how to make a student or community action plan began on March 4. You can watch the recorded version of the webinar on the PEI website: https://polareducator.org/master-class/ice-core-science/ .

IDP Hosts Successful Town Hall at AGU Fall Meeting

IDP organized and led the AGU Town Hall on *Scientific Drilling in the Polar Regions* in Washington, DC (December 11, 2018). The session attracted an audience of approximately 100, and included brief presentations on a number of areas, including NSF Remarks, International Partnerships in Ice Core Sciences (IPICS), Ice Drilling Program (IDP), Subglacial Antarctic Lakes Scientific Access (SALSA), Rapid Access Ice Drill (RAID), and announcements from the audience.

Acknowledgment of IDP in Publications

If you receive any support from IDP, we kindly request that you acknowledge IDP in any resultant publications or articles with the following statement: "*We thank the U.S. Ice Drilling Program for support activities through NSF Cooperative Agreement 1836328.*" If you have any questions, please contact us at icedrill@dartmouth.edu.

Ice Drilling Support for NSF Polar Proposals

The NSF Antarctic Research program will now accept proposals at any time for solicitation ANT 18-530, and the NSF Arctic Research Opportunities program will accept proposals at any time for solicitation ARC 16-595.

Scientists who are proposing NSF research that will require ice coring or ice drilling should request field support from IDP by downloading the form for drilling support from https://icedrill.org/scientists/scientists.shtml. Scientists who seek to include IDP education and outreach activities associated with U.S. ice coring or drilling science projects should follow the directions on getting "Outreach Support for Scientists" from https://icedrill.org/scientists/outreach_support.shtml.

Scientists should send support requests to Icedrill@Dartmouth.edu at least 3 weeks before the target date for submitting your NSF proposal. Early submissions are strongly encouraged.

For further information on requesting IDP support, visit our website at http://www.icedrill.org/scientists/scientists.shtml or contact us at IceDrill@Dartmouth.edu .

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