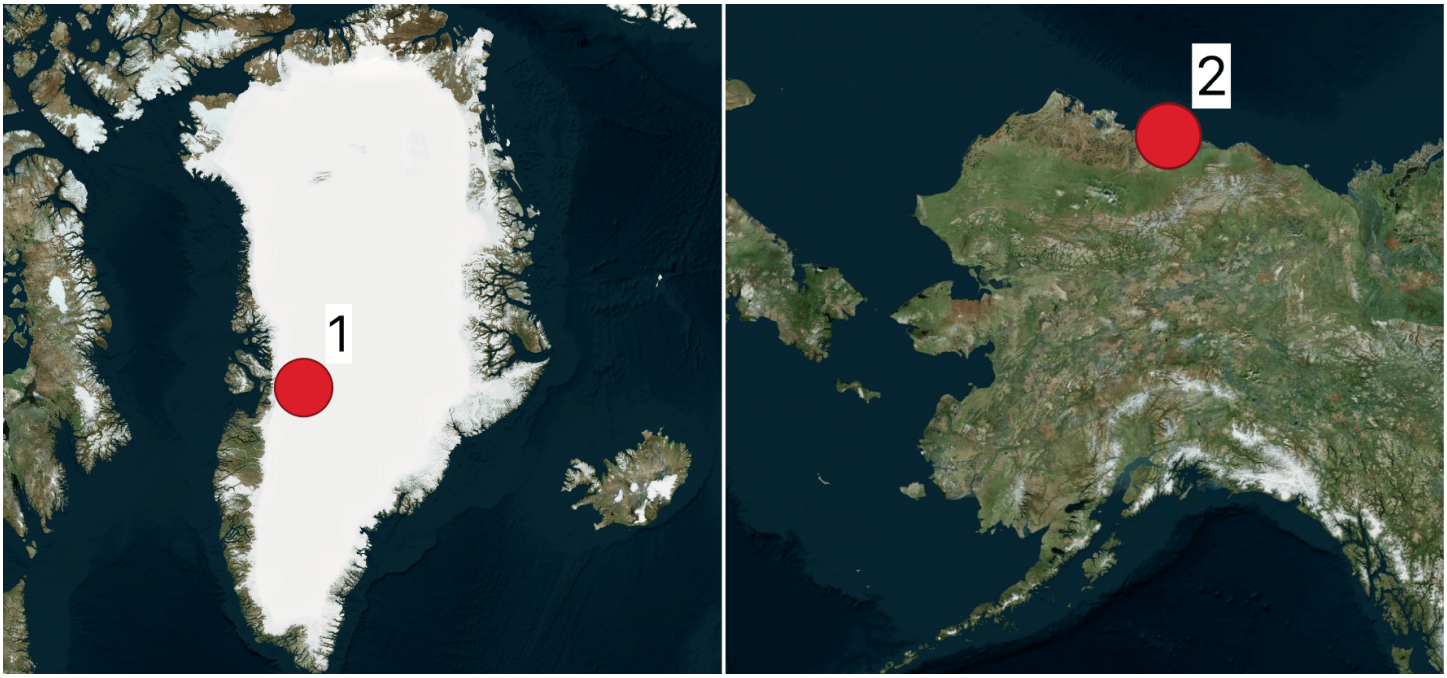
SPRING 2025

ICE BITS

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

2025 Spring/Summer Fieldwork

(1) The *Collaborative Research: AON Network for Observing Transformation of the Greenland Ice Sheet Firn Layer* project (PIs Joel Harper and Toby Meierbachtol; NSF award numbers 2113391 and 2113392) will establish a network of instrumented sites to observe the transformation of the Greenland Ice sheet's percolation zone firn layer. Using the IDDO Hand Auger and Sidewinder, repeat cores are being collected over five years to track density and ice content changes, and instrumentation installed in boreholes will monitor firn temperature evolution and compaction of the firn layer. The data from these efforts will be of high value to scientists focused on changes in storage capacity of the firn layer, process details of meltwater infiltration in cold firn, and the influence of firn compaction and melt on satellite-observed ice sheet elevation.



Map of Greenland (left) and Alaska (right) showing the locations of IDP supported 2025 spring/summer fieldwork. The numbers shown on the maps correspond to the project numbers in the text.

(2) The *CAREER: Characterizing Feedbacks in Arctic Ponds while Incorporating Next-Generation Technologies and Arctic Field Experiences in Education* project (PI Christian Andresen; NSF award number 2239038) will characterize the role of Arctic wetland ponds in regional land-atmosphere carbon exchange, estimate their contributions of methane to the atmosphere, and assess how they have changed over the past 50 years to better anticipate their future role in Arctic carbon cycling and feedbacks to climate. Wetlands represent a significant portion of the Arctic landscape and are characterized by their numerous polygonal thaw ponds. These Arctic pond habitats are hotspots for biodiversity and carbon cycling. Particularly, ponds are key emitters of methane, a potent greenhouse gas. The researchers will use a SIPRE Hand Auger to assist in setting up eddy covariance flux towers that measure methane and carbon dioxide fluxes from tundra ponds, and meteorological information.

Successful 2025 Technical Assistance Board Meeting Held in Madison

The NSF Ice Drilling Program (IDP) convenes a Technical Assistance Board (TAB) of experts on the subject of drill innovation, design, and operation. The TAB meets in-person biennially but are available regularly via email for ongoing assistance with specific technical tasks as needed. The biennial TAB meeting was held on March 5-6, 2025, in Madison, Wisconsin (WI). Discussions included updates regarding recent and upcoming IDP fieldwork, discussion of IDP drill system electronics and shallow wet drill development, an update regarding IceCube upgrade activities, an open discussion of many drilling topics (e.g., pumps/chip transport/fluids, drill tents, driller staffing issues), drilling and technology updates from the TAB members, and a tour of the IDP-WI facility. Twenty-five people participated in-person and three joined via Zoom. As with each TAB meeting, IDP gained very valuable feedback from board members on equipment development projects, ideas regarding new technologies in ice drilling and other fields, as well as input on field project logistics. The agenda and notes from the meeting are available on the IDP website.

Images of IDP engineers/drillers (Barb Birrittella (top, left), Elliot Moravec (top, right), Jay Johnson (bottom, left), and Tanner Kuhl (bottom, right)) presenting at the 2025 Technical Assistance Board (TAB) meeting held March 5-6, 2025, in Madison, WI. Discussions during the meeting included updates regarding recent and upcoming IDP fieldwork, discussion of IDP drill system electronics and shallow wet drill development, an open discussion of many drilling topics (e.g., pumps/chip transport/fluids, drill tents, driller staffing issues), and drilling and technology updates from the TAB members.

Science Advisory Board 2025 Meeting

The NSF Ice Drilling Program (IDP) convenes a Science Advisory Board (SAB) to form and update the Long Range Science Plan (LRSP) that addresses multiple aspects of ice core and other ice science and associated technology. The annual SAB meeting was held virtually on April 17, 2025. Topics included updates from IDP, the NSF Ice Core Facility (NSF-ICF), englacial and subglacial science updates, Englacial and Subglacial Access Working Group (ESAWG) plans for the future, SAB assessment of ESAWG community needs and IDP alignment, ice core science updates, Ice Core Working Group plans for the future, IDP personnel allocation and development priorities, and SAB prioritization of drilling technology development for the Long Range Science Plan. The agenda and presentations from the meeting are available on the IDP website.

The members of the SAB are:

- T.J. Fudge, Chair (University of Washington)
- Joel Harper (University of Montana)
- Matthew Siegfried (Colorado School of Mines)
- Sarah Shackleton (Woods Hole Oceanographic Institution)
- Martin Truffer (University of Alaska Fairbanks)
- Ryan Venturelli (Colorado School of Mines)
- Trista Vick-Majors (Michigan Technological University)

Englacial and Subglacial Access Working Group 2025 Meeting

A virtual meeting of the Englacial and Subglacial Access Working Group (ESAWG) was held on April 9, 2025, to discuss updates to the Long Range Science Plan (LRSP) and other ESAWG business. Discussions included updates from IDP and the NSF Ice Core Facility (NSF-ICF), discussion about an ESAWG white paper, ESAWG priorities for IPY, and ice drilling technology development priorities for the LRSP. The agenda and presentations from the meeting are available on the IDP website.

The members of the ESAWG are:

- Ryan Venturelli, Chair (Colorado School of Mines)
- Jason Briner (SUNY Buffalo)
- Brent Christner (University of Florida)
- Britney Schmidt (Cornell University)
- Jeff Severinghaus (Scripps Institution of Oceanography)
- Heidi Smith (Montana State University)
- Joseph Talghader (University of Minnesota)

Ice Core Working Group 2025 Meeting

A virtual meeting of the Ice Core Working Group (ICWG) was held on April 8, 2025, to discuss updates to the Long Range Science Plan (LRSP) and other ICWG business. Discussions included updates from IDP and the NSF Ice Core Facility (NSF-ICF), ICWG community planning, updates to the LRSP, ice drilling technology development priorities for the LRSP, and member rotations. The agenda and presentations from the meeting are available on the IDP website.

The members of the ICWG are:

- Becky Alexander, Chair (University of Washington)
- Christo Buizert (Oregon State University)
- T.J. Fudge (University of Washington)
- Alex Michaud (The Ohio State University)

- Summer Burton Rupper (University of Utah)
- Sarah Shackleton (Woods Hole Oceanographic Institution)
- Dom Winski (University of Maine)

Ice Drilling Support for NSF Polar Proposals

If you are preparing a National Science Foundation (NSF) proposal that includes any kind of support from IDP, you must include a Letter of Support from IDP in the proposal. Researchers are asked to provide IDP with a detailed support request **six weeks** prior to the date the Letter of Support is required. **Early submissions are strongly encouraged.**

Scientists who seek to include IDP education and outreach activities associated with U.S. ice coring or drilling science projects should contact Louise Huffman at Louise.T.Huffman@Dartmouth.edu during their proposal preparation stage.

For additional information on requesting IDP support, visit our website at https://icedrill.org/requesting-field-support or contact us at IceDrill@Dartmouth.edu.

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