



IDP OPERATIONS UPDATE

FEBRUARY 2026

KRISTINA SLAWNY – IDP DIRECTOR OF OPERATIONS

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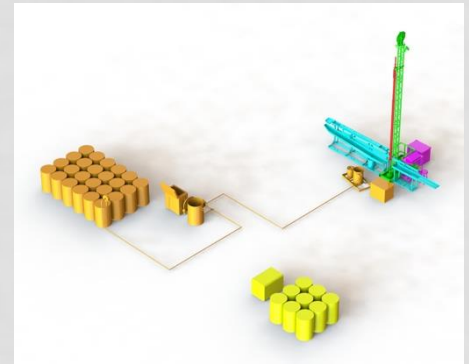


Ice Drilling Program

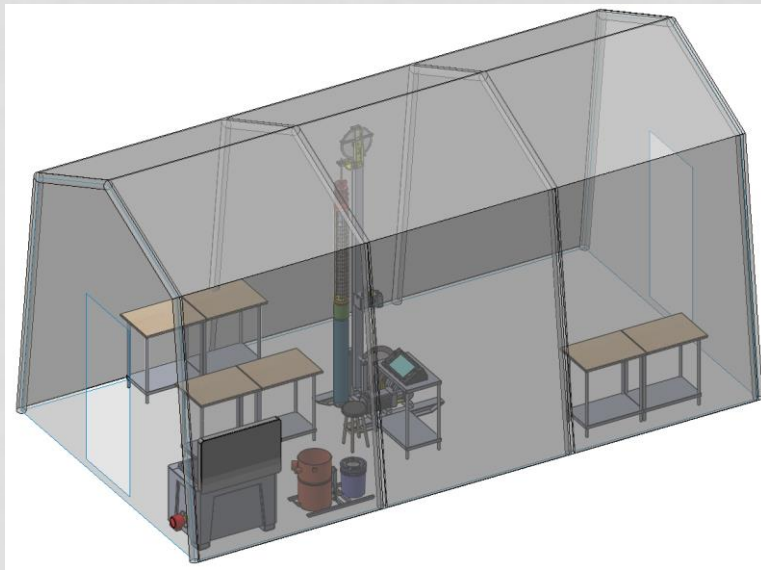
EQUIPMENT DEVELOPMENT

SHALLOW WET DRILL

- Drill system had to be developed within a 12-month period.
- To meet this deadline, IDP used existing designs and subsystems as much as possible:
 - Winch / Tower
 - Borrowed equipment from the 700 Drill.
 - Anti-Torque Section
 - Borrowed equipment from the Foro 400.
 - Motor Section
 - Borrowed equipment from the Foro 1650.
 - Designed updated electronics for use with 700 Drill control system.
 - New PCBs designed and underwent benchtop/cold chamber testing.
 - 1 m Barrel Set
 - Built new barrels based on the Foro 1650 design, but with a shorter length to recover 1 m cores.
 - Cutter Head & Cutters
 - Borrowed equipment from Foro series drills.
 - Fabricated carbide insert cutters.
- The Shallow Wet Drill is not a stand-alone system and cannot be fielded concurrently with the 700 Drill or the Foro 1650 .



BOLD DRILL (BOREHOLE OF LARGE DIAMETER)



- Iterated with science community members on science requirements for a new drill.
 - 400 m wet, electromechanical cable-suspended drill.
 - 6-3/8" [162 mm] core diameter, 1 m core length
 - Tent setup viable at 18 kt.
 - Replicate core drilled within the tent.
 - 6,000 lbs. or less drill system weight.
 - Ready for 2027-2028 season.*
 - Concept is being updated based on wet drilling experiences at Allan Hills in 2025-2026.
 - 2 drillers and 1 core handler.
- Initiated and progressed a conceptual design that incorporates a new sonde design; also laid out a potential winch, tower, tent layout.
- Created and disseminated updates to community stakeholders.
- Planning to hold a design review in May.

MAINTENANCE & UPGRADE

MAINTENANCE & UPGRADE

700 Drill

- Added features to the removable core trays so they can be put on a scale for measuring ice density.
- Redesigned the drill clamp for tilting the sonde.

Foro 400 Drill

- Updated the winch drive configuration to improve the fine feed feature and resolved a winch speed fold back issue.
- Implemented a tower lifting frame and outrigger components to minimize risk during tower raising and lowering.

Hand Augers

- Received positive feedback from PI Joel Harper that the new Sidewinder-V2 (version 2) is great, small and lightweight, and is a “game changer”.
- Fabricating additional copies of the new Sidewinder kit.
- Fabricated carbide insert holders for the SIPRE hand augers.

Blue Ice Drill

- Implemented a new steel core barrel and a penetration drive for better operator feedback and drilling performance.
- Modified the crown sheave assembly for the addition of a load cell.
- Specified and ordered carbide cutter inserts after working to optimize material/coatings.
- Worked with ASC to order replacement equipment for items damaged by the Kress in MCM.

RECENT FIELDWORK

COLDEX – ALLAN HILLS

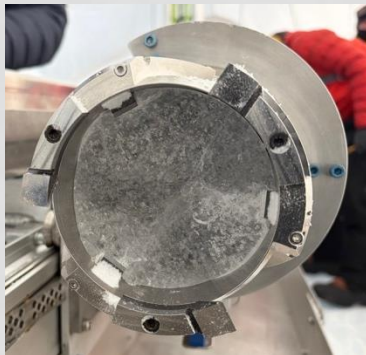
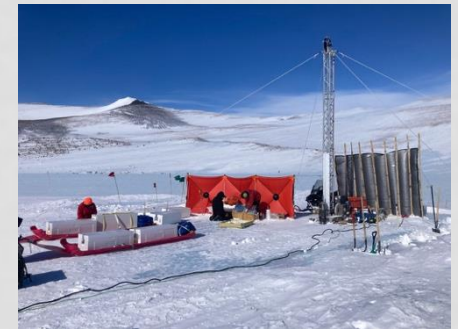
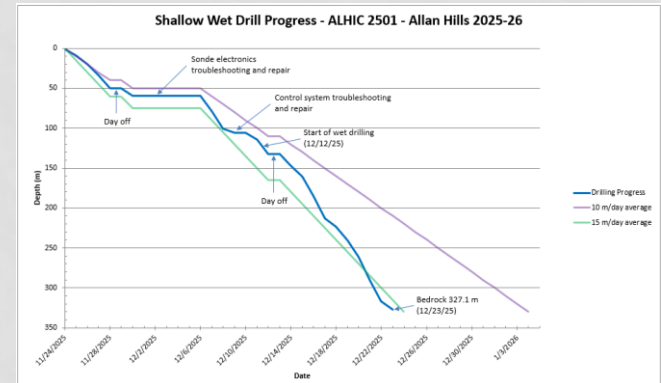
Blue Ice Drill, Shallow Wet Drill, IDDO 3” Hand Auger, & Sidewinder V2

- 51 days on site with 46 drilling-related workdays.
- Four IDP Engineers/Drillers: Dusty Brunner, Andrew Haala, Jay Johnson, Elizabeth Morton.
- Drilled one hole to bedrock at 327.1 m with the Shallow Wet Drill. The use of Estisol 140 made a dramatic improvement in core quality from the start of use at 114 m all the way to bedrock.
- Drilled two holes with the Blue Ice Drill; one to 91 m depth/bedrock and one to 25 m depth as requested.
- Successes:
 - Four IDP personnel onsite with excellent mix of experience/skills.
 - Good weather allowed the BID and Shallow Wet Drill tents to be set up during the first four days onsite.
 - Blue Ice Drill
 - Accomplished all primary and secondary drilling goals.
 - The added load cell greatly clarified whether the drill was cutting or just spinning idly.
 - Carbide cutter inserts again performed well lasting 2-4 runs per set and allowing for efficient swapping.
 - Shallow Wet Drill
 - Drilled 327 m of excellent quality core and calculated/validated fluid overburden as a solution to Allan Hills core quality issues.
 - Successfully troubleshooted a myriad of electrical issues, from winch communication issues to damaged sonde boards.

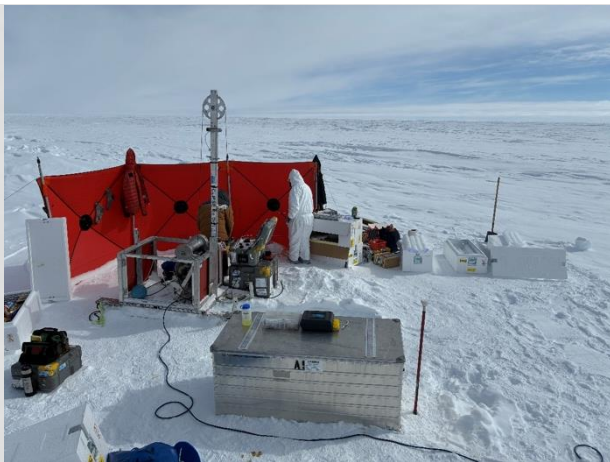
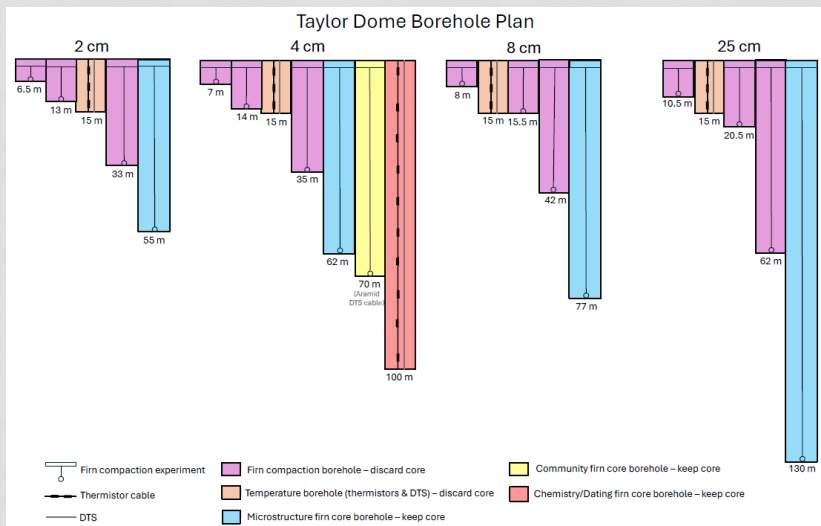
COLDEX – ALLAN HILLS

• Challenges:

- Blue Ice Drill
 - Core capture issues were prevalent at certain depth ranges, necessitating modifying core dogs on site and frequently resharping core dogs.
 - Lack of ice flights combined with the BID's fast production rate necessitated limiting coring to 10 m per day.
- Shallow Wet Drill
 - Control system bugs, particularly with the winch.
 - Thermal issues with sonde circuit boards.
- Hand Auger/Sidewinder
 - Hilti batteries struggled in the cold.
 - Chip management in blue ice is difficult, requiring dedicated chip runs to clear the hole.



ICE CORING AT TAYLOR DOME



Eclipse Drill, IDDO 3" Hand Auger, Sidewinder V2

- PI: Kaitlin Keegan; Field Team Lead: Zoe Courville
- Three IDP Engineers/Drillers: Forest Harmon, Elliot Moravec, Elizabeth Morton
- 42 days onsite at Taylor Dome.
 - 7 days camp setup and teardown
 - 28 drilling days
 - 5.5 days off due to weather
 - 1 rest day
 - 0.5 maintenance days
- All primary objectives met across four drilling sites:
 - 583 m total cored with the Eclipse Drill, averaging 20.8 m/day.
 - 172 m drilled across four access holes.
 - 411 m of ice core collected across five holes.
 - The optional 70 m community core was not completed due to time constraints.
 - Nine Hand auger holes cored for a total of 95 m drilled.

ICE CORING AT TAYLOR DOME

Successes:

- Support from Elizabeth Morton – Promptly receiving additional drilling and science support from Morton was a huge morale boost and helped get the project across the finish line.
- Eclipse Drill – The Eclipse drill provided excellent core quality and was easy to maneuver between drill sites. The system is mechanically reliable and easily field serviceable.
- Sidewinder V2 – The new Sidewinder improved both coring efficiency and operator safety. It is user-friendly and could easily be learned by new operators.
- New Snow Machines – Reliable snow machines allowed for safe and efficient transport of drill cargo and personnel.

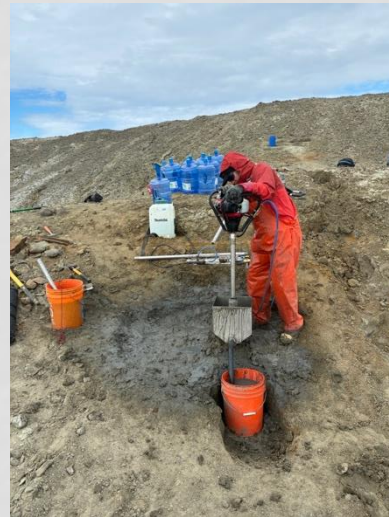
Challenges:

- Unreliable Generators – 5kW gens provided by the MEC are aging and have reliability issues. Old generators have become the mechanical Achilles heel for ice drill operation.
- Understaffing – Last minute PQ issues left the science team understaffed.

CORING SEYMOUR ISLAND

Shaw Drill (Provided by PI Tom Tobin, University of Alabama)

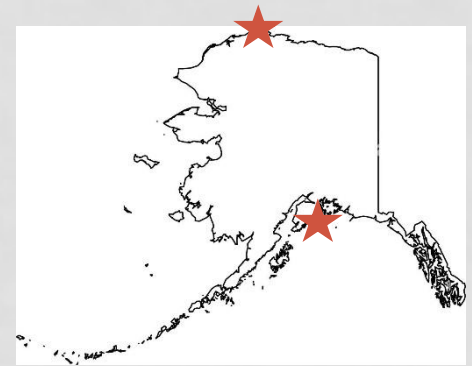
- Team deployed via Punta Arenas, Chile on the Sikuliaq R/V operated by the University of Alaska – Fairbanks.
- Two IDP Engineers/Drillers: Tanner Kuhl, Jim Koehler
- Deployed from January 5, 2026 – February 18, 2026.
- Four boreholes were completed on a short transect from approx. 10 to 15-feet deep each.
- Reasonably good, mostly continuous core was recovered from all holes.



UPCOMING FIELD PROJECTS

ARCTIC 2026

Location	IDP Equipment	Timing	# of IDP Drillers
Utqiagvik	SIPRE Hand Auger	May-Sep 2026	0
Chugach National Forest	Prairie Dog, Chipmunk	Late July 2026	2



Location	IDP Equipment	Timing	# of IDP Drillers
Ilulissat	TBD (IDDO 4" and 3" Hand Augers, Sidewinder V2)	Jul-Aug 2026	0
Summit Station	IDDO 3" Hand Auger, Sidewinder V2	June 2026	0



Location	IDP Equipment	Timing	# of IDP Drillers
Trident Plateau, Yellowstone National Park	Prairie Dog, Chipmunk	Aug 2026	1-2



THANK YOU



Don't hesitate to contact
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questions:

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<https://icedrill.org/>

HOT WATER DRILL ANALYSIS & COST ESTIMATE

- SAB consensus received on revised language for the Recommended Technology Investment; the depth requirement is now 3000 m. Pivoted to adapt to this updated tasking.
- Created a 1-page summary of existing hot water drills.
- Solicited information from British Antarctic Survey (BAS) engineers as the experts in hot water drilling.
- Created a process flow diagram (e.g. flow rates, temps, pressures) to help specify components.
- Started a cost estimate spreadsheet and started entering pricing of readily available items.
- Working with vendors to price equipment like filtration and UV components, heaters, etc.
- Working on fuel estimates.