



# IDP OPERATIONS UPDATE

SPRING 2026

KRISTINA SLAWNY – IDP DIRECTOR OF OPERATIONS

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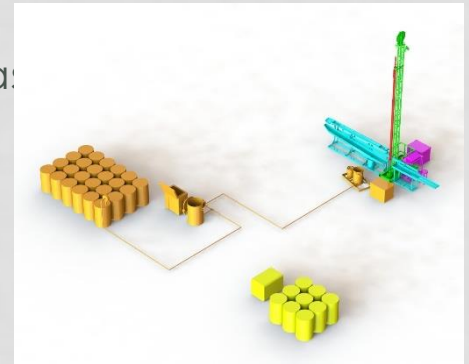
**Ice Drilling Program**

# EQUIPMENT DEVELOPMENT

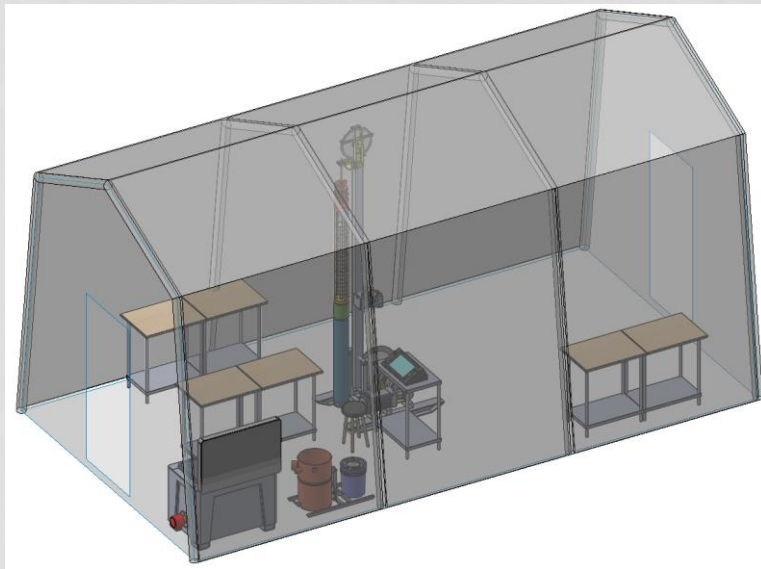
Spring 2026

# SHALLOW WET DRILL

- Drill system had to be developed within a 12-month period.
- The Shallow Wet Drill is not a stand-alone system and cannot be fielded concurrently with the 700 Drill or the Foro 1650.
- To meet this deadline, IDP used existing designs and subsystems as follows:
  - 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.



# 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.

# 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.



In other Hot Water Drill news, Joel Harper's and Neil Humphrey's hot water drill is now at IDP in Wisconsin. Our thanks to Joel and Neil for visiting in October to walk us through the system!

# MAINTENANCE & UPGRADE

Spring 2026

# 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.

## 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.

# MAINTENANCE & UPGRADE

## 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.

## Prairie Dog

- Existing Prairie Dog equipment is aging beyond its useful life, as it currently relies on old PICO Hand Auger parts.
- Planning to build up a new Prairie Dog that uses a 3-inch or 4-inch IDDO Hand Auger, which would allow us to use the available inventory of newer core barrels, cutter heads, cutters, core dogs, etc.
  - The 4-Inch Hand Augers are heavier and are not often requested.
  - Any community concerns with transitioning to a 3-inch Prairie Dog?
- The Prairie Dog is generally used in warm/wet conditions, but it could also be used to improve core collection/quality in blue ice areas and may get requested more often with these upgrades.

# RECENT FIELDWORK

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# COLDEX – ALLAN HILLS

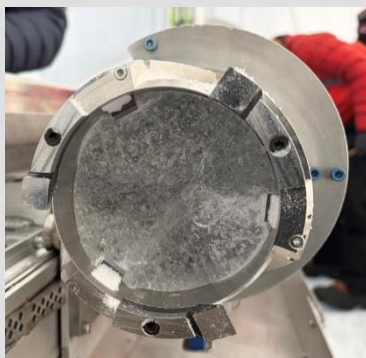
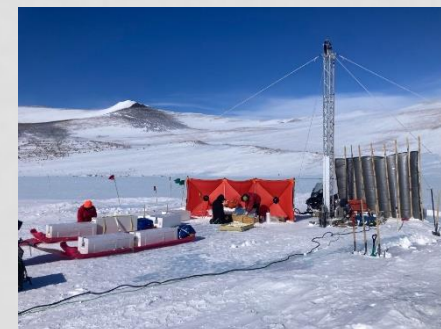
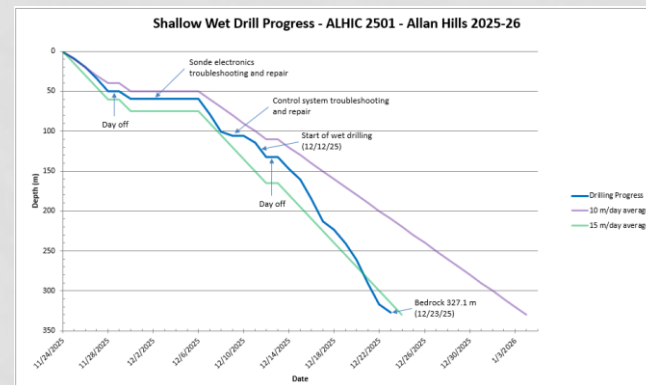
## **Blue Ice Drill, Shallow Wet Drill, IDDO 3” Hand Auger, & Sidewinder V2**

- 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

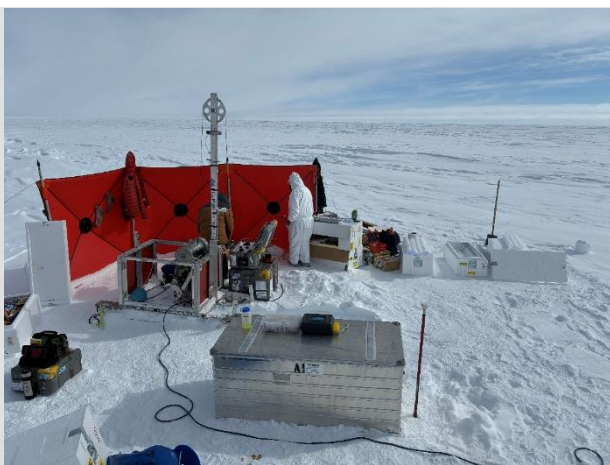
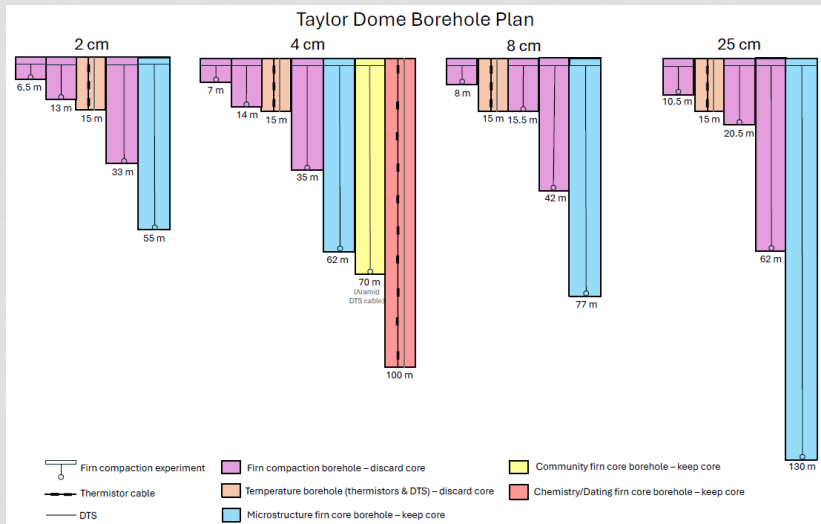
## • Challenges:

- 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.



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# 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.

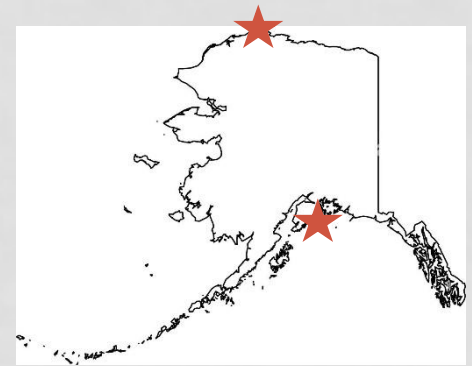


# UPCOMING FIELD PROJECTS

Spring 2026

# 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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<https://icedrill.org/>