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A SHALLOW WET DRILL FOR IMPROVED CORE QUALITY IN BLUE ICE AREAS

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The U.S. National Science Foundation (NSF) Ice Drilling Program (IDP) has encountered challenges in consistently recovering high-quality ice cores with dry electromechanical drills from shallow depths in Blue Ice Areas (BIAs), such as the Allan Hills in Antarctica. These difficulties are attributed to elevated internal stresses within the ice sheet and the frequent presence of rocks and sediments. To address these issues during the 2025-2026 Antarctic field season, IDP is developing a "Shallow Wet Drill"system.

This specialized system integrates components from several existing IDP drills into a single system capable of retrieving 1-meter-long, 98-mm-diameter ice cores from fluid-filled boreholes up to 700 meters deep. Despite its capabilities, the system remains lightweight and compact enough to be transported on just one to two Twin Otter flights.

The Shallow Wet Drill will be deployed to extract a 400-meter ice core at the Allan Hills during the 2025-2026 season. Core quality will be carefully evaluated to determine whether wet drilling offers a viable solution for improving core quality at sites with challenging drilling conditions.

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