

The 8th International Ice Drill Symposium



Contribution ID: 52

Type: **Poster**

IDP Rock Coring Drills

Tuesday 1 October 2019 18:08 (4 minutes)

Two drills capable of coring rock beneath ice have been developed by the U.S. Ice Drilling Program (IDP) for the U.S. National Science Foundation. The design of the systems leverages existing exploration drilling equipment to create drills capable of recovering ice and rock core. The Agile Sub-Ice Geological (ASIG) Drill is capable of collecting ice cores at any target depth and up to 10 meters of rock beneath as much as 700 meters of ice. The IDP Winkie Drill is capable of collecting ice cores at any target depth up to 100 meters and up to 10 meters of rock core. The systems were developed and tested from 2016 through 2019. The new drill systems integrate several new mechanical sub-systems including custom packer and casing systems, fluid filtration systems to remove both ice and rock cuttings, and custom drill bits. The systems were successfully deployed in multiple Antarctic seasons recovering, in total, tens of meters of rock core from depths to approximately 150 meters beneath the ice. This poster presents details of both the design of the drills and their performance in the field.

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Session Classification: Session 4