

The 8th International Ice Drill Symposium



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The Skytrain ice core drilling project

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In the 2018/19 austral field season, we successfully drilled an ice core to bedrock at a depth of 651 m on Skytrain Ice Rise situated at the south of the Ronne Ice Shelf, Antarctica. The team of six (for much of the season) comprised five driller/logger staff, and one person to manage the camp. The full project took place over a single field season, including setting up and tearing down of the camp and drilling infrastructure. Working in shifts of 4 hours in a 16-hour day, the bedrock was reached after 42 days of drilling. This makes it the slowest of our comparable drilling projects (for example the similar depth Fletcher drilling project took 39 days) and the reasons for this are discussed. Drilling took place from the surface using a tilting tower winch mounted on a wooden platform inside a Weatherhaven tent with a slot to accommodate the tower in the upright position. The borehole was fluid filled with a traditional Exxsol D60 fluid, which is lighter than ice density, but sufficient for a single season drilling project. This fluid was largely removed from the borehole at the end of the drilling using a bailing system. The intention was to provide a dry borehole to deploy a new design rock drill to penetrate the basal rock (described in another abstract), then to measure the borehole temperature (also described in another abstract). Problems met during the operation, and solutions, will be discussed.

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