

The 8th International Ice Drill Symposium



Contribution ID: 24

Type: Oral

Drilling the new 5G-5 branch hole at Vostok Station for collecting a replicate core of old meteoric ice

Tuesday 1 October 2019 09:00 (20 minutes)

Recent studies have shown that stratigraphically disturbed meteoric ice bedded at Vostok Station between 3318 and 3538 m dates back to 1.2 Ma BP, and possibly beyond (Lipenkov et al., 2019). As part of the VOICE (Vostok Oldest Ice Challenge) initiative, in the 2018/19 austral season, a new deviation from parent hole 5G-1 was made at depths of 3266-3291 m with the aim of obtaining a replicate core of the old ice. The deviation operation was performed using the standard KEMS-132 electromechanical drill routinely used for deep ice coring at Vostok, without significant changes in its initial design. Here we describe the method and operating procedures for replicate coring at a targeted depth in an existing slant hole, which imply using a cable-suspended electromechanical drill. A design of the drill cutter head suited to the deviation operation is presented. The performance characteristics and the experience of drilling two branch holes, 5G-2 and 5G-5, at Vostok are described and discussed.

Primary author: Mr TURKEEV, Alexey (Arctic and Antarctic Research Institute)

Co-authors: Mr VASILEV, Nikolay (Saint-Petersburg Mining University); Mr LIPENKOV, Vladimir (Arctic and Antarctic Research Institute); Mr BOLSHUNOV, Alexey (Saint-Petersburg Mining University); Mr EKAYKIN, Alexey (Arctic and Antarctic Research Institute); Mr DMITRIEV, Andrei (Saint-Petersburg Mining University)

Presenter: Mr TURKEEV, Alexey (Arctic and Antarctic Research Institute)

Session Classification: Session 3