

The 8th International Ice Drill Symposium



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Deep Ice Core Drilling at EastGRIP, Greenland

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In this presentation we will describe the four seasons spent for set-up and drilling at EastGRIP, including a description of some new innovations and their effect on drilling performance and core quality. The first challenge at EGRIP was adapting the drilling to the sub-surface trenches that were created using a so-called balloon technique, which has some advantages over traditional trench construction techniques, but also creates an environment that presents new challenges for installing drilling and maintaining infrastructure. The core handling at EGRIP was optimized for the protection of brittle ice using a rigid core extraction system assembled in a temperature controlled environment in order to minimize both mechanical and thermal shock to the cores. Core quality through the brittle zone at EGRIP was much improved over previous deep drillings in Greenland. Other highlights and challenges include the attempt to develop a new communication protocol between surface and downhole electronics sections via GRIDCOM modems (which was ultimately abandoned), the development of new motor control and control software, the demonstration of directional drilling, which was achieved in an effort to control borehole inclination and provides a potential means for replicate coring, and the use of a chips melter for drill fluid recycling. EGRIP also served as a training and testing grounds for teams and hardware to be used for the coming Beyond EPICA-Oldest Ice project in Antarctica.

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