

## The 8th International Ice Drill Symposium



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# Analysis of Challenges Encountered in Deep-Hole Ice Drilling

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While drilling deep boreholes in Antarctica and Greenland researchers from many countries have faced serious challenges already at the depths over 2500 m, while below 3000 m these complications turned so dramatic that further penetration was almost impossible. This phenomenon was even given its proper name, i.e. 'warm ice drilling issue', as with increasing depth the ice temperature is rising. Ice melting due to cutting was considered as the main reason for this phenomenon. Analysis of 5G Deep Borehole drilling at Vostok Station shows that the main cause of such complications is formation of freon hydrates on the surface of drill cuttings causing their adhesion.

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