

The 8th International Ice Drill Symposium



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Greenland deep boreholes inform on sliding and deformation of the basal ice

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Repeated measurements of the deformation of the deep boreholes on the Greenland ice sheet informs on the basal sliding, near basal deformation and in general on the horizontal velocity through the ice. Results of the logging of the boreholes at Dye3, GRIP, NGRIP, NEEM and Camp Century through the last 40 years by the Danish Ice and Climate group will be presented and discussed. The results on the flow will be compared with the information on ice properties, impurity load and bedrock entrained material from the deep ice cores and the radio echo sounding images near the drill sites.

The results show that the basal movement often happens in an impurity rich zone above the bedrock while pure basal sliding is limited even in the presence of basal water and significant basal melt.

Most of the deep ice core sites are located close to ice divides where the surface velocity is limited so significant basal sliding is not expected. Exceptions are the surface velocities at Camp Century and Dye 3, both being 13 m/yr.

Finally, the ongoing deep drilling at EGRIP will shortly be presented where we are drilling in the center of the North East Greenland Ice Stream (NEGIS).

Primary author: Prof. DAHL-JENSEN, Dorthe (University of Copenhagen)

Presenter: Prof. DAHL-JENSEN, Dorthe (University of Copenhagen)

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