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Deformation and folds of the basal ice under the Greenland ice sheet

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Improvement of the depth sounding radio echo sounding over Greenland Ice Sheet has made it possible to map the near basal layers that have not been 'seen' earlier due to the very high demand of attenuation needed to reach through more than 3000m of ice.

The basal 10% of the ice thickness reveals very disturbed layering in the central and north parts of the Greenland ice sheet. The onset of the disturbances very often seem to coincide with the ice from the climatic inception from the Eemian period to the Last Glacial period around 115.000 years before present.

Studies of the ice rheology and deformation tests of the ice reveals big changes of ice crystal size and orientation at this boundary and very different deformation properties in the ice from the warm and cold climatic periods.

Based on the different flow properties of the interglacial ice and the glacial ice models are used to simulate the formation of folds in ice.