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Mapping Greenland glacial climate using ice cores and models

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Greenland ice cores allow us to investigate the past climate conditions at the Greenland Ice Sheet. The number of deep ice core drillings in recent years have allowed a deeper insight into the glacial conditions and the characteristics of D-O events. In particular the improved spatial distribution of ice core locations provide possibilities for a deeper investigation of how the signatures of D-O events varies across the Greenland Ice Sheet.
In this study we combine information from ice core records with a set of model simulations of glacial climate conditions from The Norwegian Earth System Model (NorESM). Ice cores provide records of total air gas content, accumulation and water isotopes. Using information from ice cores and the Greenland climate conditions from models we create maps of the elevation and accumulation during glacial conditions. This aid to constrain the background state of Greenland glacial climate conditions.
This makes it possible to investigated whether models and ice core data paint a consistent picture of the Greenland climate conditions during D-O events and create the potential to explore the dynamics of the D-O events, as recorded by Greenland ice cores, in greater detail.