

The Evolution and Climate of the Greenland Ice Sheet as seen in Ice Core $\delta^{18}\text{O}$

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During the past five decades deep ice cores have been drilled at six locations on the Greenland Ice Sheet: Camp Century, DYE-3, GRIP, GISP2, NGRIP and NEEM. All these cores have provided records of $\delta^{18}\text{O}$ from the past. Hence $\delta^{18}\text{O}$ records from southern, central and north-western Greenland locations can now be interpreted. Furthermore several $\delta^{18}\text{O}$ records from ice cores drilled on small ice caps in the vicinity of the Greenland Ice Sheet are available. An inter-comparison of the Holocene sections of the ice cores has suggested that both climate change and ice sheet elevation change played major parts in determining the millennial scale evolution of the $\delta^{18}\text{O}$ signals seen in the records [Vinther et al. 2009]. While all glacial $\delta^{18}\text{O}$ records show very prominent abrupt climate change in the form of Dansgaard-Oeschger cycles it is interesting to note that long term trends in glacial $\delta^{18}\text{O}$ differ between the records. A significant part of these differences are likely to be a consequence of different elevation histories in the different areas of the Greenland Ice Sheet during the glacial period.

References

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