TRACING OF INTERNAL LAYERS IN RADAR ECHOGRAMS FROM A GREENLAND STUDY REGION

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ABSTRACT

Signs of long-term glaciological processes and past ice sheet structure are preserved in the internal layer signatures of the Greenland ice sheet. Internal layer data have been collected over a considerable portion of the Greenland ice sheet using ice-sounding radar. We traced these layers along thousands of kilometers of flight lines from the ice divide toward Jakobshavn, which is the most active glacier in Greenland. We determined the traced-radar layers age at the GRIP site using the GRIP core age-depth relationship. Since the depth varies spatially for a layer of a specific dated age, an age-depth relationship for each position along the flight lines of this study can be found using the traced layers. We analyzed 31 points where flight lines crossover one another. From the flight line crossover analysis, we found a 9 m maximum difference, which is less than a 1% difference.