



$\delta^{18}\text{O}$ and MSA Variability in an Antarctic Coastal Ice Core

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A 100 deep ice core was drilled on Fimbulisen Ice Shelf in Dronning Maud Land (DML) during NARE 2000/01. It was dated annually back to 1737 using a combination of ECM, DEP and $\delta^{18}\text{O}$. The $\delta^{18}\text{O}$ record shows a significant increasing trend since about 1920, something that is also evident in other available ice core data from coastal DML. During this period the accumulation appears to have decreased in coastal DML implying a change in atmospheric circulation and/or increased sublimation. From about 1740 to 1940s there are great similarities between the coastal $\delta^{18}\text{O}$ record and data from the DML polar plateau at 3500 m asl, despite the difference in both distance and elevation. However, the coastal core shows a significant increasing trend after 1920, which is absent in the high altitude plateau record.

The MSA spectrum shows some periodicities that seem to dominate the spectrum. One can clearly discern the variability at 17-18 yrs, 8-9 yrs and at about 4 yrs. The MSA and maximum sea ice extent records from 1978 to 2000 show essentially positive although statistically insignificant positive correlation about 0.4. This may indicate a potential role of sea ice in MSA formation over the ice-free water surface and subse-

quent deposition in the snow pack, in agreement with previous studies from eastern Antarctica. We will further explore possible connections to the atmosphere and ocean through various climatic indices.