



## **The seasonal signal of the East Greenland area – a perspective through the water stable isotopes of ice cores from Renland**

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The water stable isotope signal (e.g.  $\delta^{18}\text{O}$ ) archived in ice cores provides an insight into the past climate. In this study, the seasonal  $\delta^{18}\text{O}$  signals of the past 4000 years from three ice cores drilled on Renland (East Greenland) are analyzed. Renland's high accumulation rate of 0.48 m ice/yr makes it possible to distinguish between summer maxima and winter minima, thus making it an ideal place for analyzing the seasonal signal of water stable isotopes. By comparing the time series of the three cores it is found that they have coherent variability. The records are therefore stacked in order to increase the signal-to-noise ratio. The variability of the stacked seasonal record is compared with instrumental temperature records from Iceland and the Greenlandic coast. Results show that the winter averaged  $\delta^{18}\text{O}$  series covaries with the regional winter temperature. This study investigates the possibility of utilizing this covariance to reconstruct past winter temperatures of the past 4000 years. Furthermore, the connection between Fram Strait sea ice export and its imprint on the seasonal isotopes are investigated. Finally, an analysis of the NAO variability's relation with the seasonal water isotope signals is carried out.