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Greenland ice cores tell tales on past climate changes (Louis Agassiz Medal Lecture)

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Greenland ice cores contain very highly resolved climate records reaching 128.000 years back in time. When dated and matched they tell tales on very abrupt climate changes especially during the glacial period demonstrating that internal energy exchange in the climate system can cause dramatic and fast changes with no external forcing.

When the water stable isotope records from the six deep ice cores are compared they inform on both temperature changes and elevation changes of the Greenland ice sheet during glacial and interglacial periods. The temperature and elevation changes during the last 128.000 years are presented and the knowledge gained is used to discuss how this knowledge can be used to predict the future volume change of the Greenland ice sheet. This knowledge can improve estimates of future sea level rise predictions and is a demonstration of how knowledge from the past can be used to predict the future.