

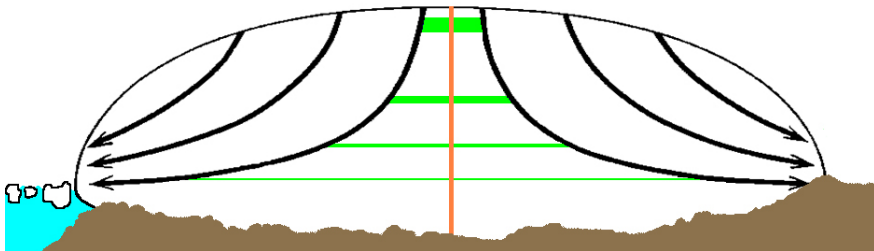
Iskerner...?

Vasileios Gkinis på vegne af CIC isotopgruppe

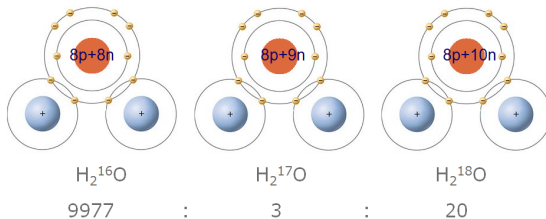
København 23. maj 2016

Hvad er nu en iskerne...???





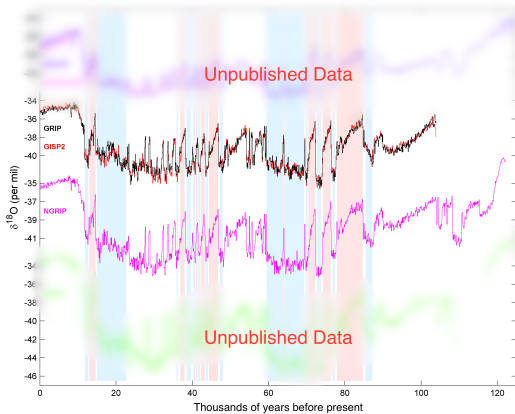
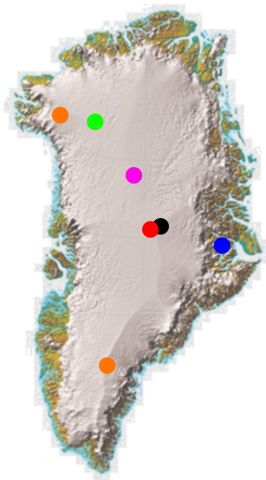
- ≈ 3 km tykkelse
- Grønland: 25 – 30 cm/år, Øst-Antarktis: 3 cm/år
- Ældste Is: 100 - 120.000 år – 800.000 år



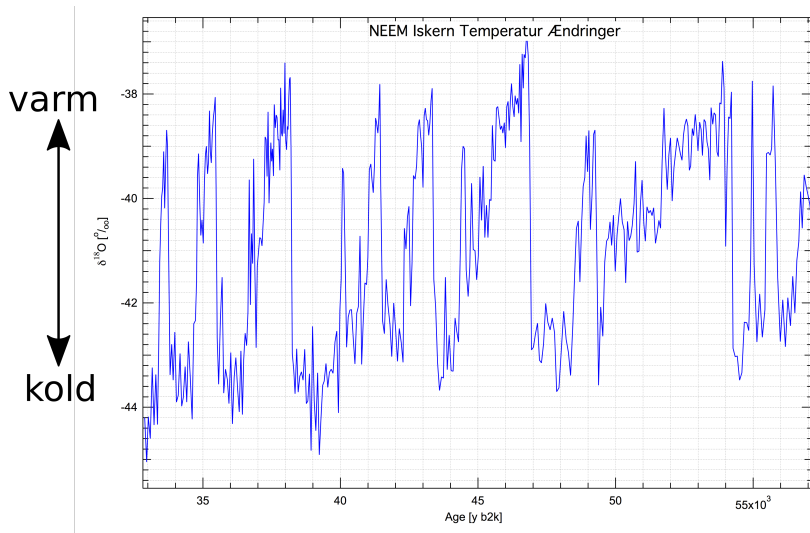
Vand isotoper fra polar isen giver temperatur information i fortiden.

In certain areas on the Greenland Ice Cap is a distinct layer formation caused by melting in the summer season. On the supposition that the character of the circulatory processes, in all essentials, have not varied over a long period of time, the above, in the opinion of this author, offers the possibility by measurements of the α , in these layers of ice to determine climatic changes over a period of time of several hundred years of the past. According to equation (11), a change in temperature of 1°C results in a variation in α , of $1.3 \cdot 10^{-4}\%$, which indicates an absolutely measurable variation. The exchange of water between the layers may constitute a source of error, which, however, may be ascertained by a closer investigation of the layers. Evaporation has hardly played any great role, particularly not in the northern regions of Greenland, which should be made the choice for investigation, as there the layers of ice are the thinnest, because of the slight annual precipitation. An investigation will be undertaken as soon as an opportunity offers.

Willi Dansgaard 1954



Abrupte Klimatransitioner under sidste istid



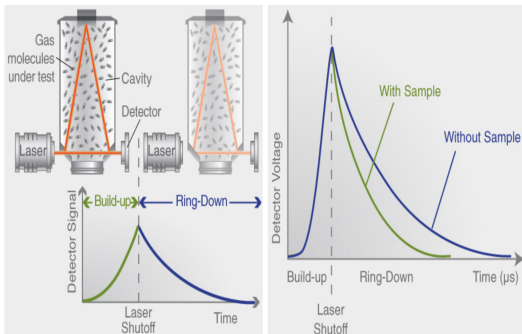


- Iskappens højde +230 m @ 128.000 år siden
- Temperatur $+8 \pm 4$ C @ 126.000 år siden

En revolution i målingsmetoder Fra masse– til laser–spektrometri (CRDS metoder) Kontinuerte online målinger



▶ [Link – Youtube](#)



Synkrone målinger af 5 isotoper ($\delta^{18}\text{O}$, $\delta^{17}\text{O}$, δD) med laserspektrometri

Collaborating to achieve high performance scientific instrumentation

Picarro's ability to deliver a high-performance isotopic water analyzer for ^{17}O -excess measurements has arisen from a collaboration between:

- Prof. Eric Steig and Andrew Schauer, IsoLab / Department of Earth and Space Sciences, University of Washington
- Dr. Vasileios Gkinis, Centre for Ice and Climate, University of Copenhagen and INSTAAR, University of Colorado Boulder
- And a team of spectroscopists and engineers at Picarro.
- Additional support was also provided by: Bo Vinther (Uni. of Copenhagen), Kyle Samek and Spruce Schoenemann (Uni. of Washington), and Bruce Vaughn (INSTAAR)



Testing of an earlier version of the instrument at the University of Washington led to significant modifications to the spectroscopy that allowed for the unprecedented level of precision to be reached. Work with our partners is ongoing, and *a paper is in progress detailing the precision and calibration of the instrument.*

Tak..!

