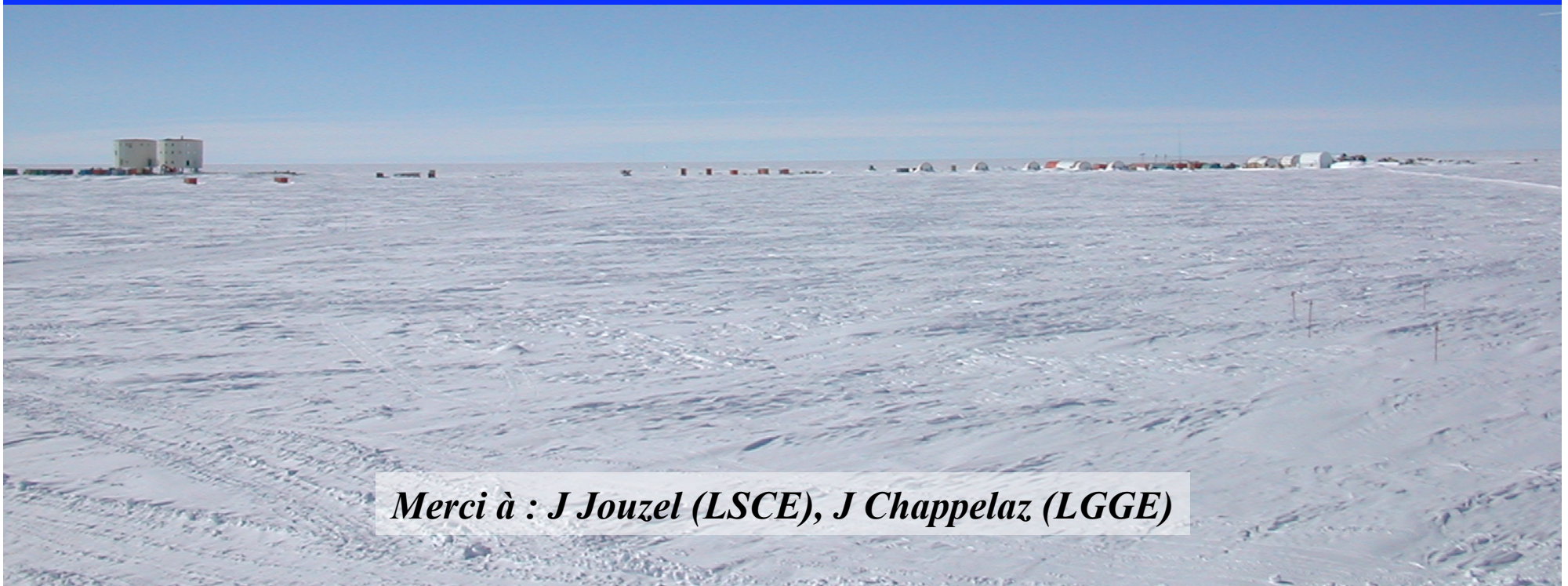


Le climat des derniers 800,000 ans dans la glace

Denis-Didier Rousseau

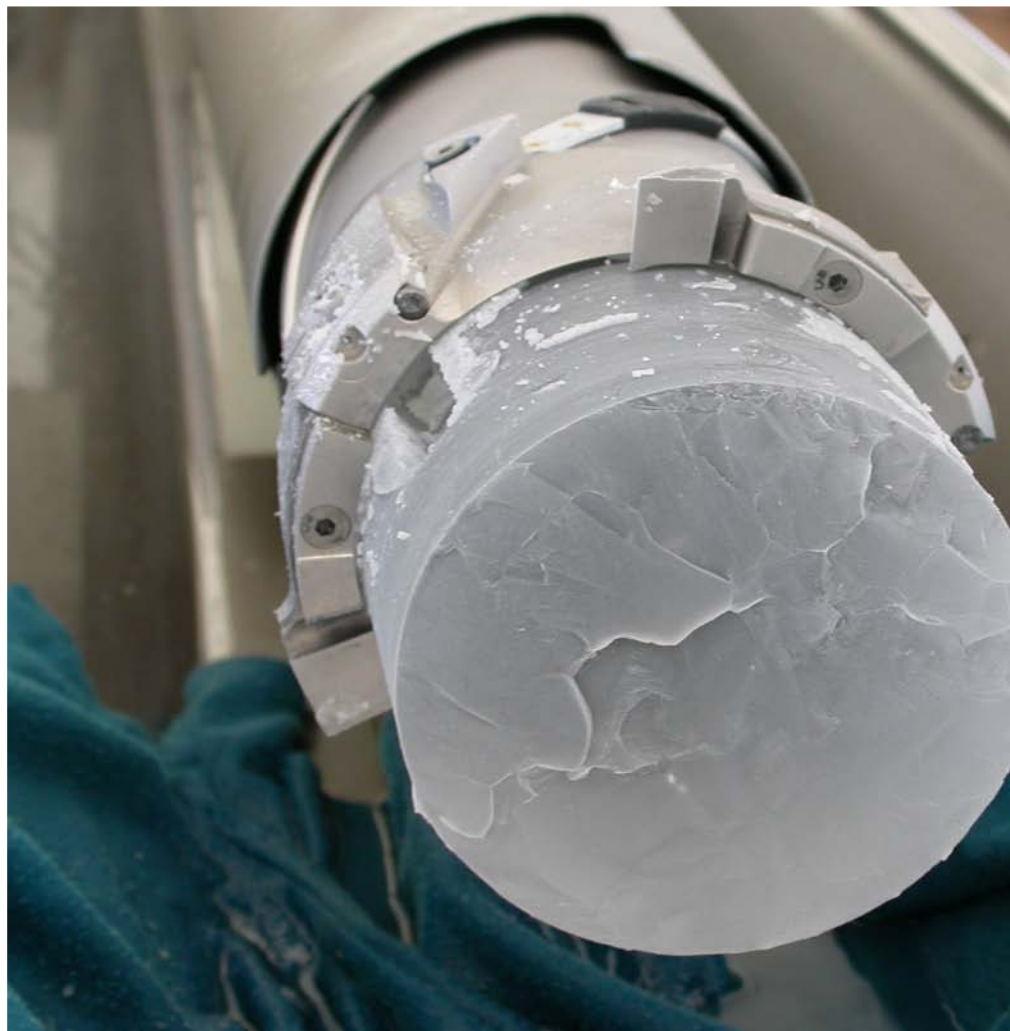
denis.rousseau@lmd.ens.fr

*** Laboratoire de Météorologie Dynamique
INSU-CNRS, ENS, UPMC, Ecole Polytechnique**

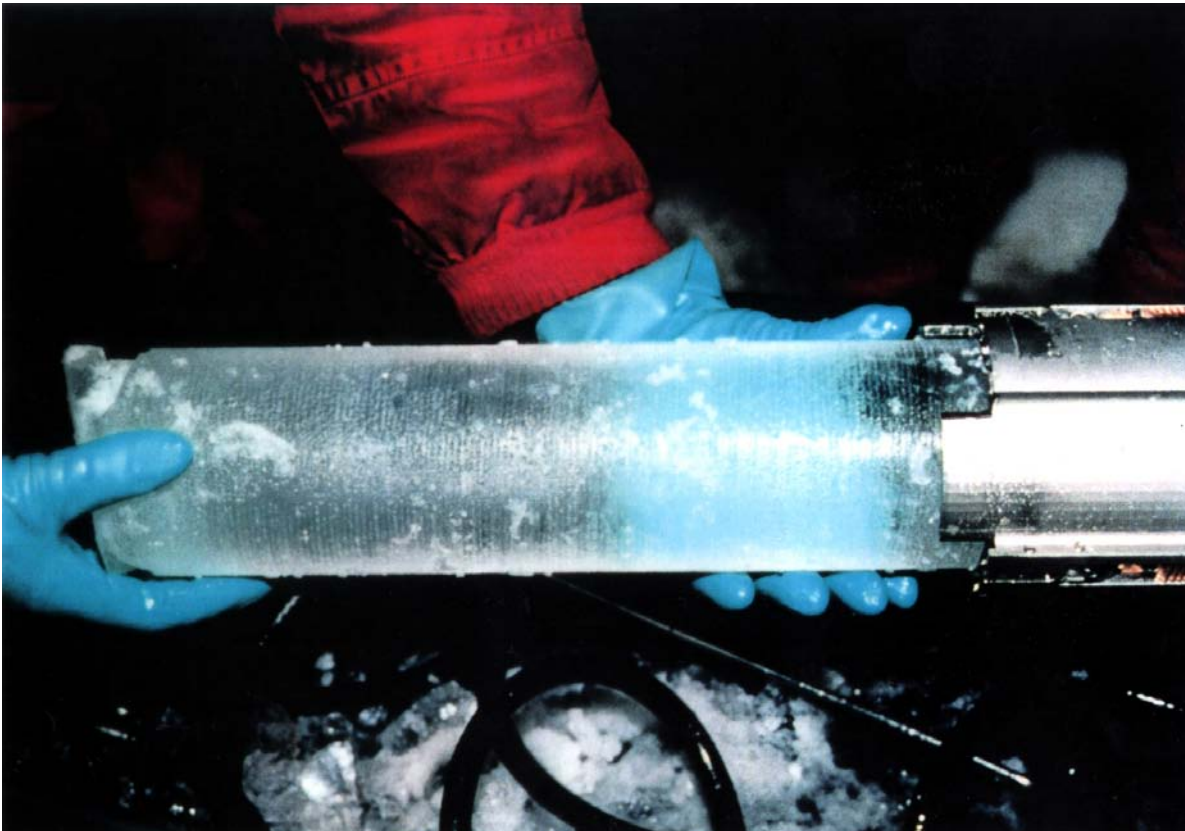


Merci à : J Jouzel (LSCE), J Chappelaz (LGGE)

Les glaces, archives du climat



Qu'apprend-on des carottes de glace ?



**Isotopic composition of the ice :
deuterium, oxygen 18**

Site and source temperatures

Air bubbles

Greenhouse gases

CO₂, CH₄, N₂O.

Paléothermométrie : $\delta^{15}\text{N}$ et $\delta^{40}\text{Ar}$

Biological activity, dating: $\delta^{18}\text{O}$ in air

Elemental ratios N₂/O₂

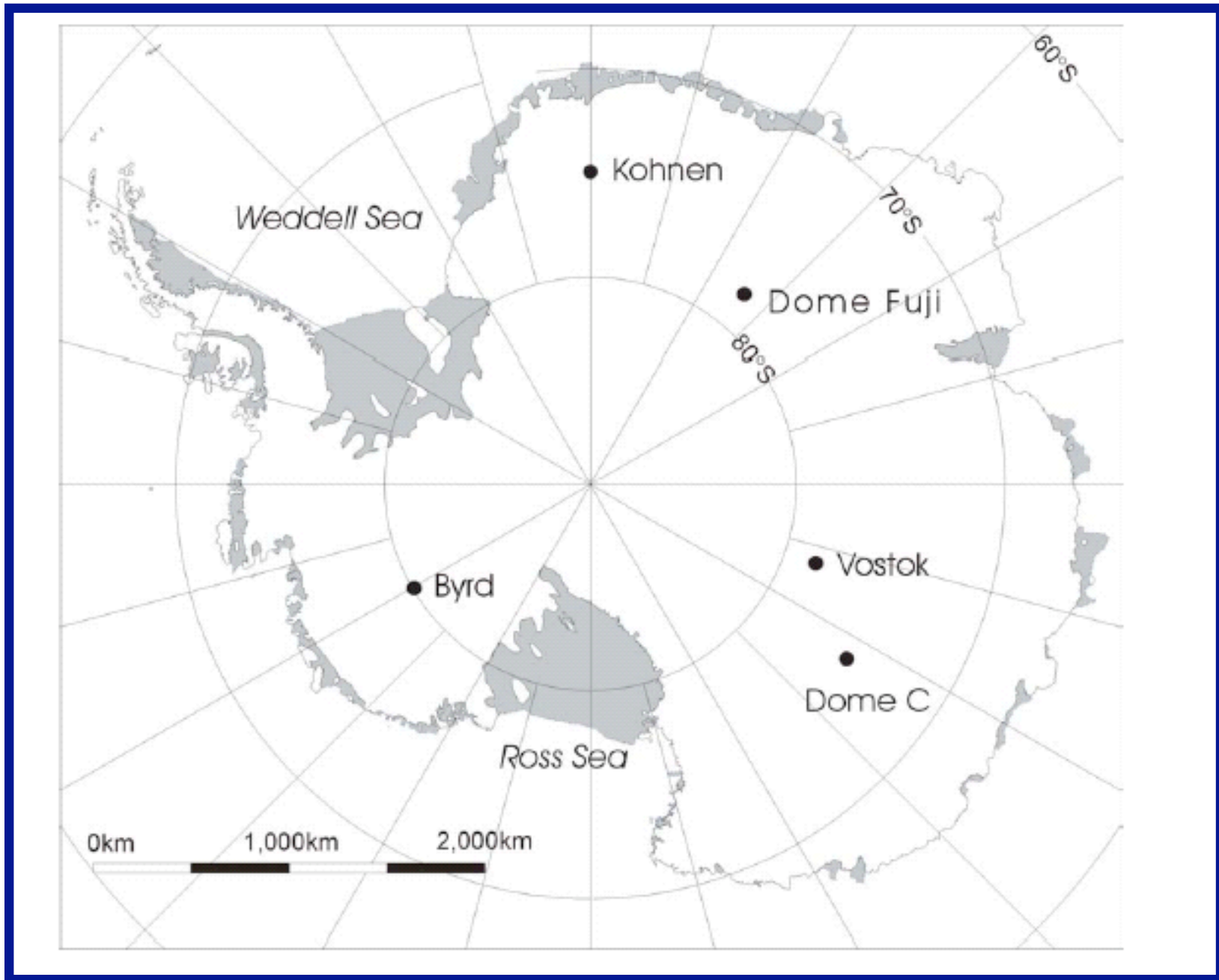
Atmospheric Chemistry & Aérosols :

Atmospheric Circulation (terrestrial
and marine aerosols), Volcanoes,

Atmospheric chemistry

Cosmogenic Isotopes

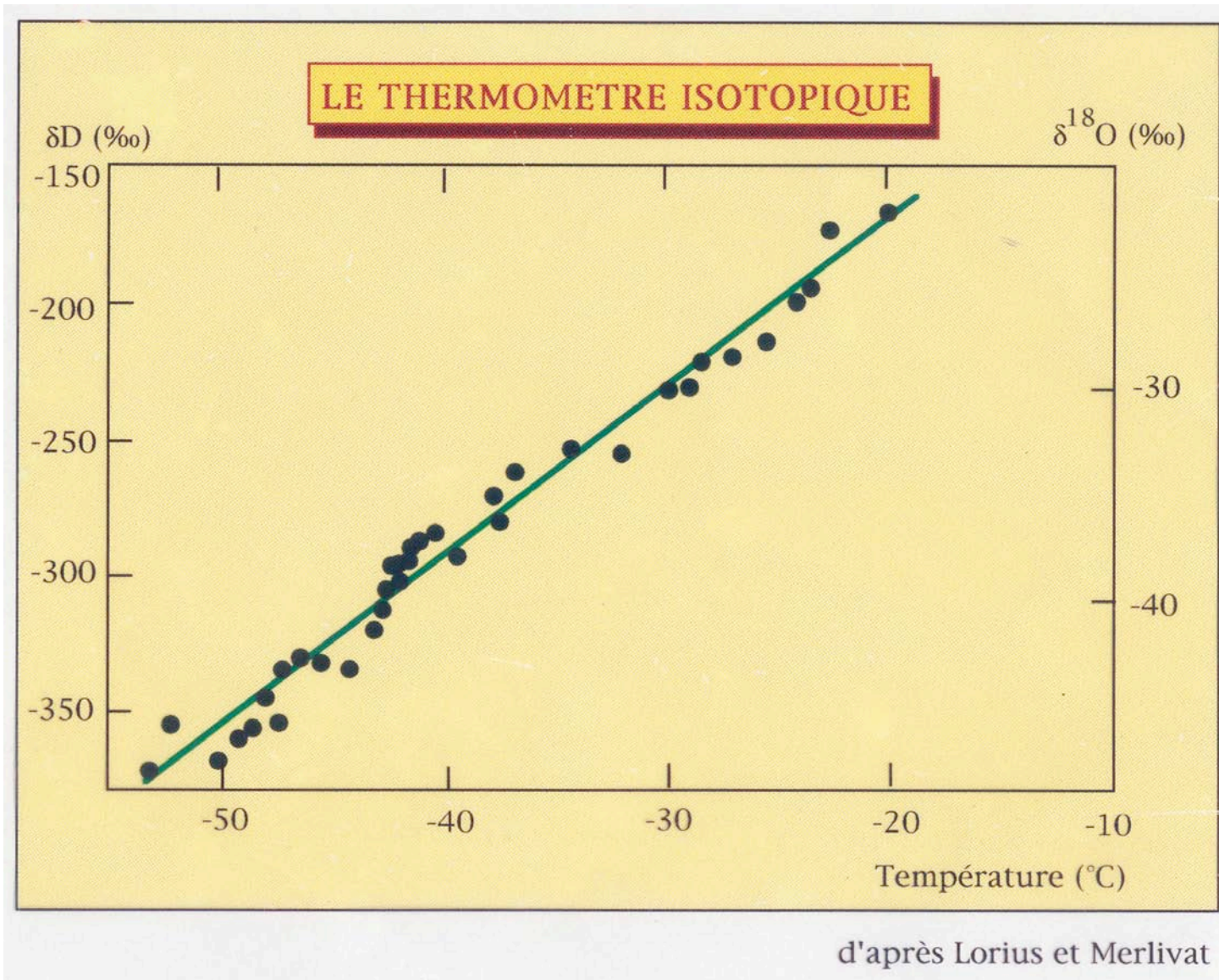




Carottes de glace > 2 km de long en Antarctique

Vostok

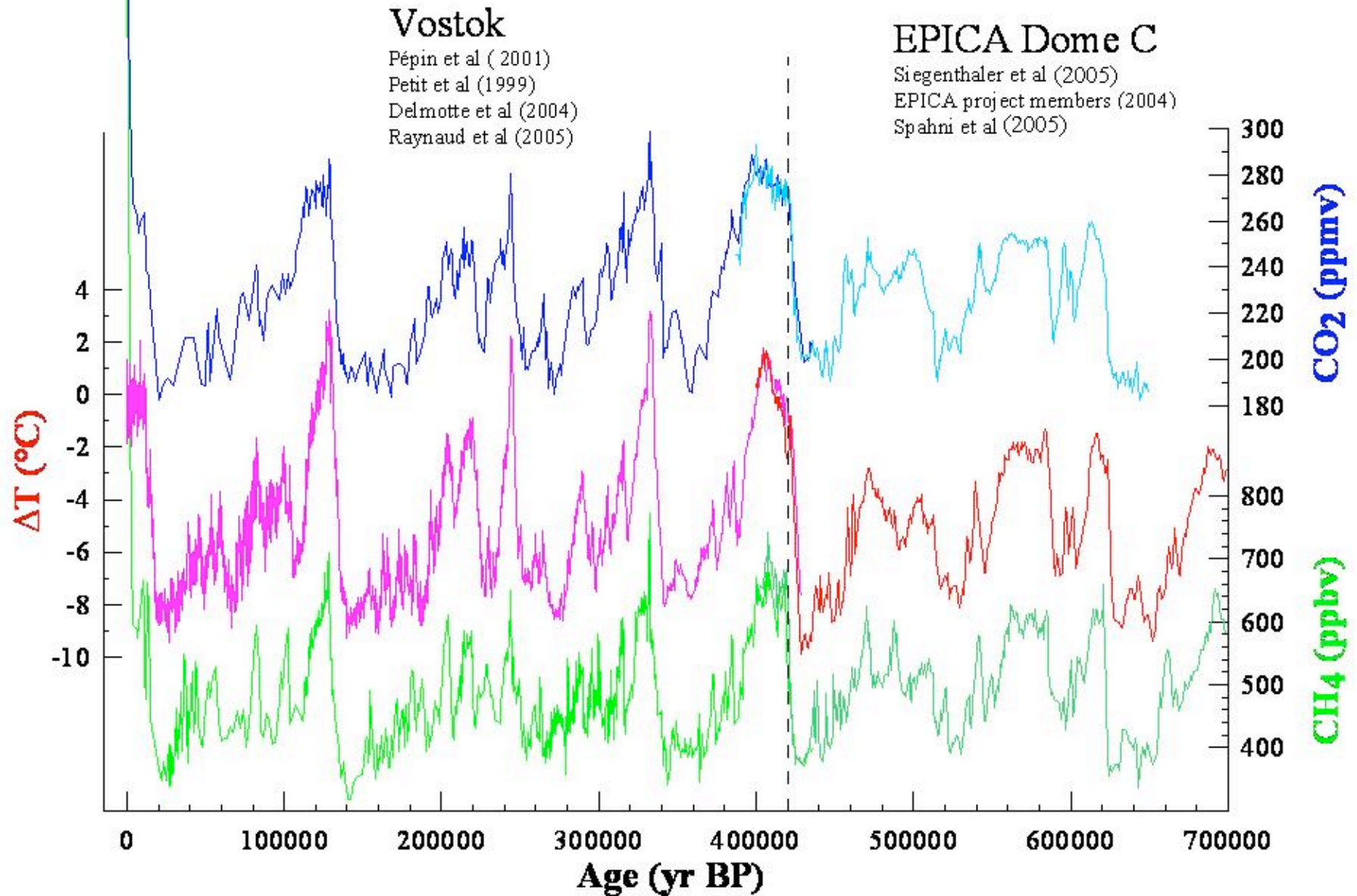




La concentration en deuterium décroît linéairement avec la temperature

Climat et gaz à effet de serre depuis 650 000 ans

1700 ppbv ☆
375 ppmv *



EPICA Consortium : carottage à Dome C



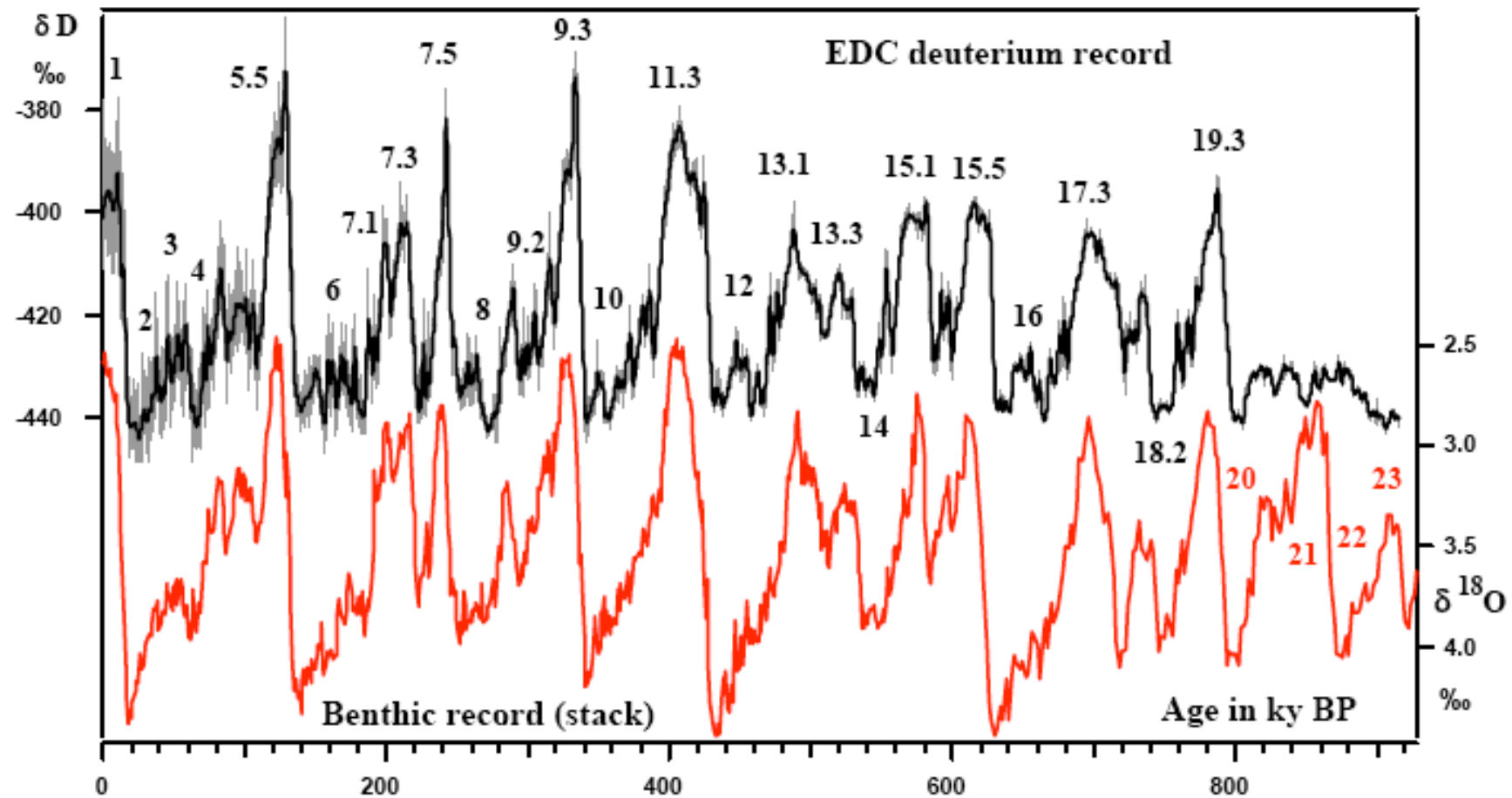
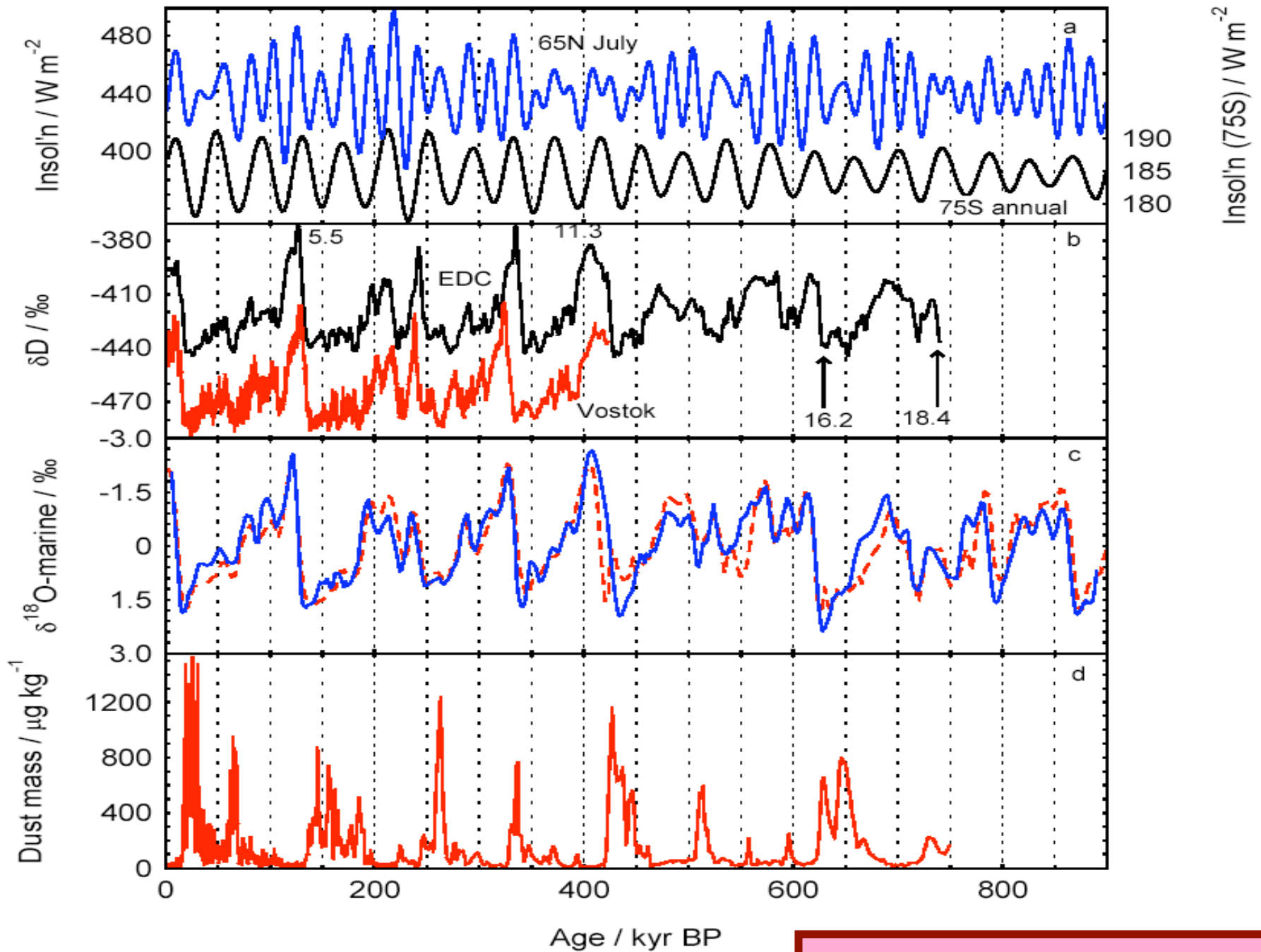


Figure 1 : Comparison of the δD Dome C record on the EDC3 timescale (with all data points in light grey and a smooth curve in black) and of the benthic oxygen 18 record on its own timescale¹⁸.



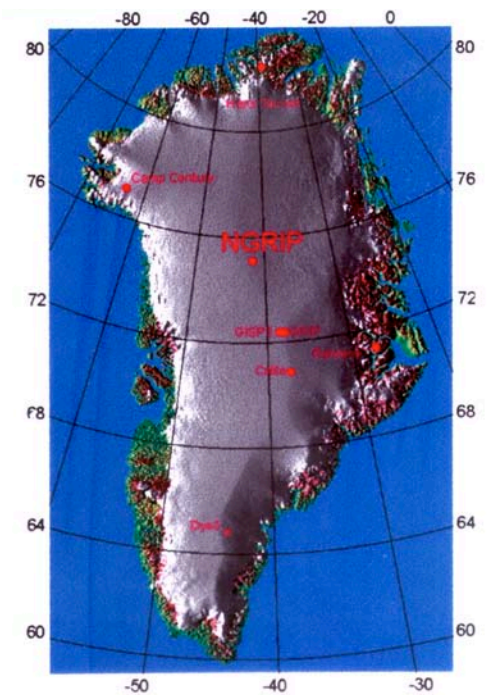
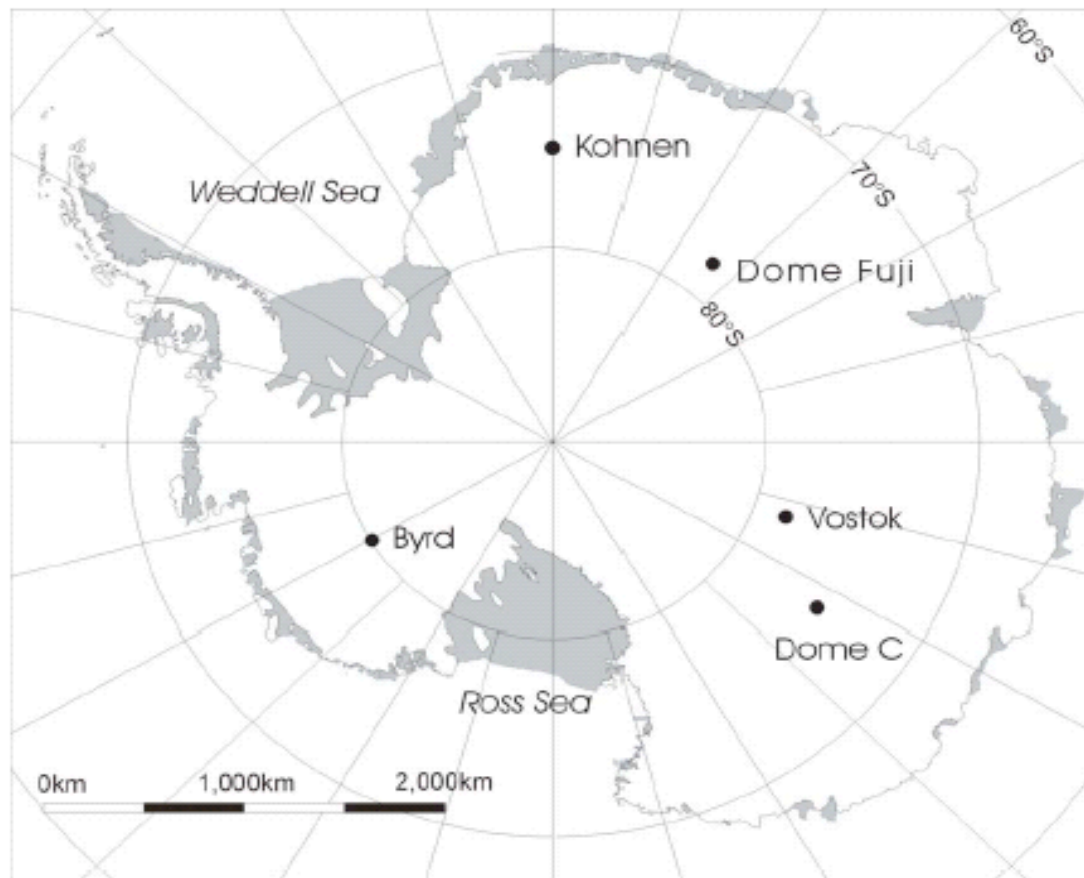
EPICA community (2004)

Carottes de glace profondes > 2 km :

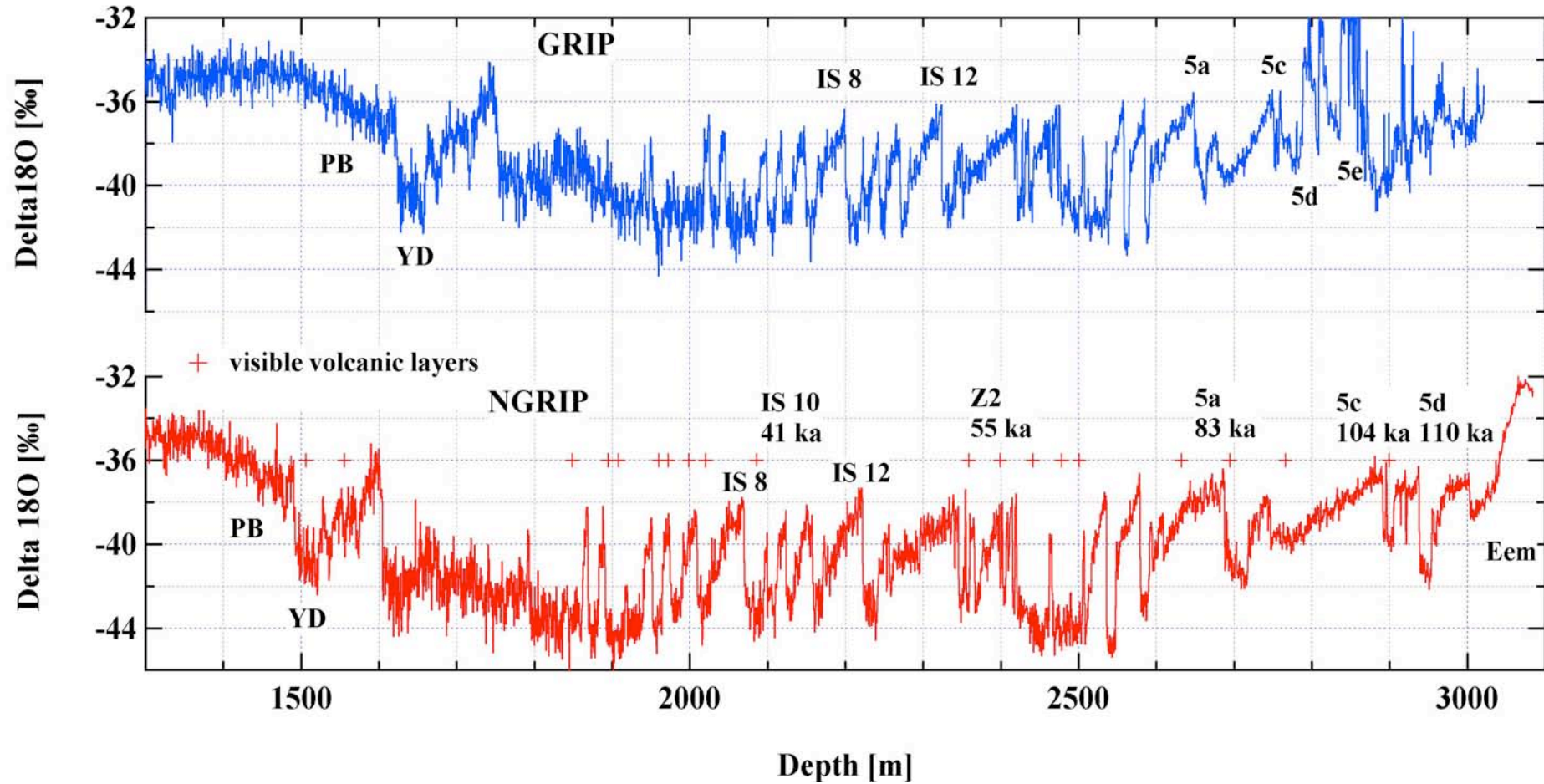
Greenland : Camp Century, Dye 3, **GRIP**, GISP 2, **North GRIP**

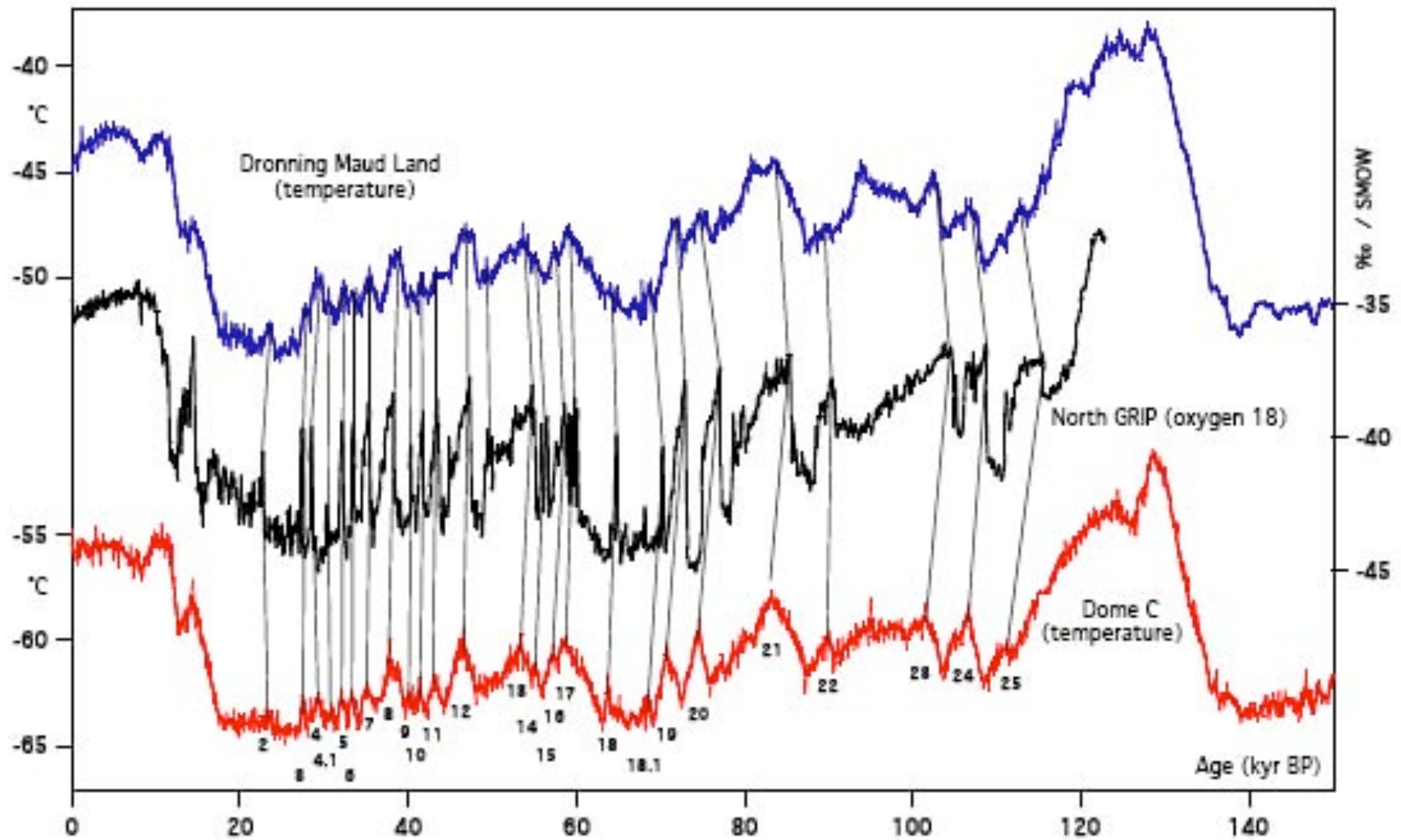
West Antarctica : Byrd

East Antarctica : **Vostok**, **Dome F**, **Dome C**, **Kohnen (DML)**



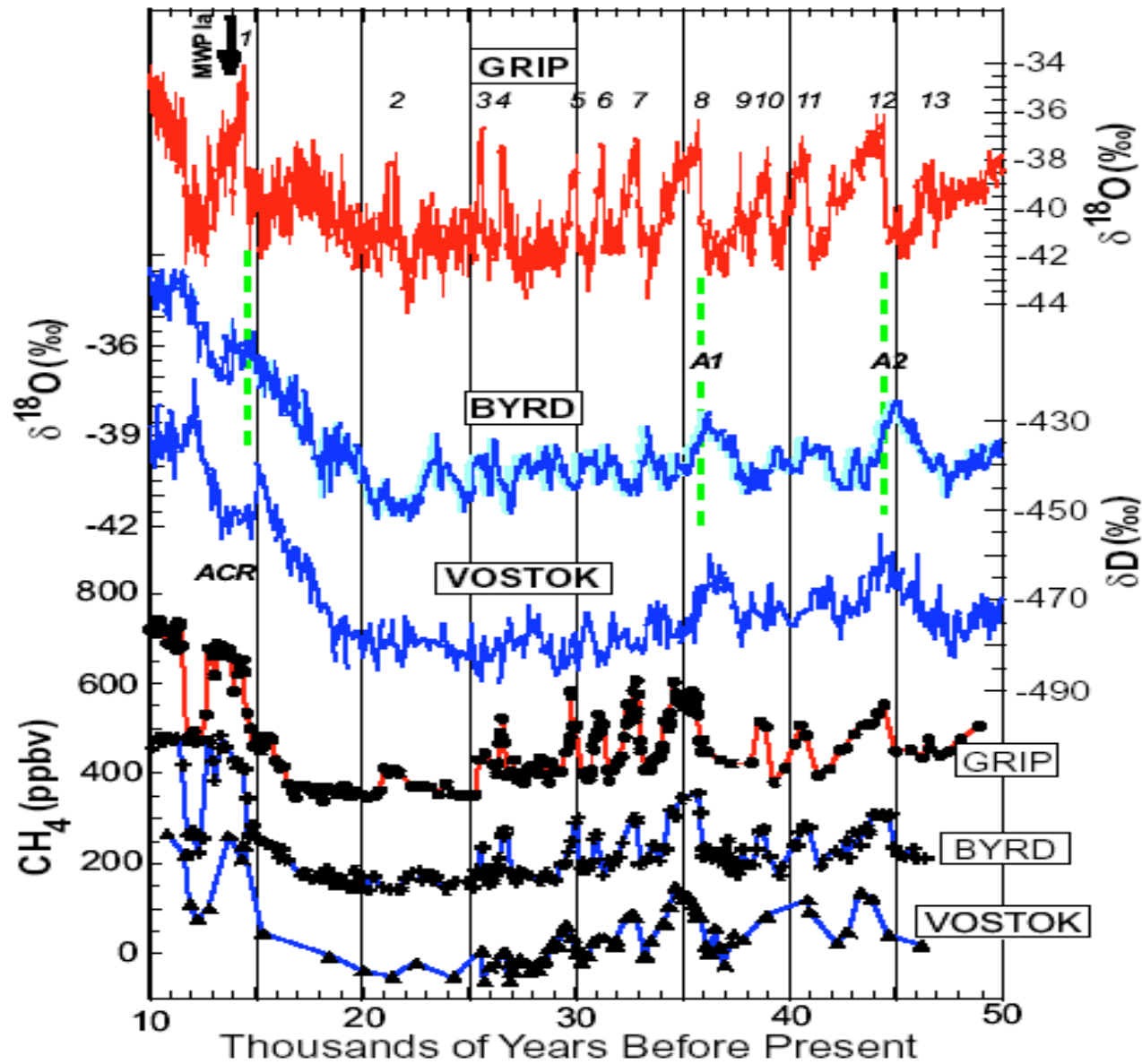
Comparaison de 2 carottes au Groenland





Correlation entre Nord et Sud

Asynchrony of Antarctic and Greenland Climate



- * Comment évoluent au cours du temps la température? la concentration en poussière?
- * Y a t'il des similitudes, particularités sachant que les deux paramètres n'ont pas les mêmes sources?
- * Les variations au Groenland et en Antarctique sont-elles comparables?

