

CO₂ in the ancient atmosphere

Reconstructions of atmospheric CO₂ concentrations revealed significant changes on glacial-interglacial time scale but also on shorter intervals like over the present warm period. Concentration measurements do not give any information about the processes responsible for these changes in CO₂ concentrations. Here the isotopes of carbon have been proven to be useful. The carbon isotope signatures of the major carbon reservoirs (ocean, biosphere, sediments and atmosphere) diver. Therefore the $\delta^{13}\text{C}$ of CO₂ in combination with its concentration reveals variations in the C fluxes between those reservoirs.

We have a working system to measure concentration and isotopic composition of CO₂ extracted from ancient air trapped in the polar ice sheets. In the frame of collaborative ice core drilling projects in Antarctica samples need to be measured and interpreted. This will be the topic of a master project that is available immediately.

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