



NGRIP methane record and its relation to Greenland temperature

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During the last glacial cycle, Greenland temperature showed many rapid temperature variations, the so called Dansgaard-Oeschger (DO) events. The past atmospheric methane concentration closely follows these temperature variations, which implies that the warmings recorded in Greenland were probably hemispheric in extent. Here, we present 931 new methane measurements along the North Greenland Ice Core Project (NGRIP) ice core. We therefore substantially extend and complete the NGRIP methane record from Termination 1 back to the end of the last interglacial period in high resolution. We relate the amplitudes of the methane increases associated with DO events to the amplitudes of the temperature increases derived from stable nitrogen isotope ($\delta^{15}\text{N}$) measurements, which have been performed along the same ice core (see poster by P. Kindler). We find the sensitivity to oscillate between 5 and 20 ppbv/ $^{\circ}\text{C}$ with the approximate frequency of the precessional cycle. A remarkable high sensitivity of 26 ppbv/ $^{\circ}\text{C}$ is reached during Termination 1. Conservative analysis of the timing of the fast methane and temperature increases reveals significant lags of the methane increases for the DO events 5, 9, 10, 11, 13, and 15.