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Synchronization of ice core records via global gas records

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Polar regions of the north and the south both show millennial climate variations during glacials. However, the characteristics of these variations are different. The north exhibits fast temperature increases on the order of 10 degrees in just a few decades followed by slower decreases to again full glacial level. Such fast changes are not observed in Antarctica. Here millennial scale variations are characterized by slow temperature increases and decreases. The number and strength of the fluctuations in the north and the south suggests a climatic link between these remote areas. The synchronization of ice core records based on global climate records like CH_4 or $\delta^{18}O$ of O_2 confirms this link. The conceptual model of a bipolar see-saw gives a satisfying explanation of this phenomenon. However, longer records and additional Antarctic ice cores from the EPICA project may require an addition to this concept.