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A bipolar perspective on MIS2 climate and water cycle

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This presentation will be dedicated to the comparison of sets of information on polar climate extracted from an array of deep ice cores from Greenland (GISP2, GRIP, NGRIP, NEEM) and from East Antarctica (EDML, EDC, Vostok and TALDICE). This comparison will benefit from the synchronised AICC2012/GICC05 chronologies which have recently been established (Bazin et al, Clim. Past, submitted). It will rely on water stable isotope records, estimates of past accumulation rates derived from ice core chronologies, and estimates of past Greenland Summit temperature change derived from firn gas fractionation.

The sequences of events between Greenland and Antarctic temperature, d18O, deuterium excess and accumulation will be investigated and discussed. The inter-ice core spread will be assessed throughout the time period from 30 to 11 ka, in order to extract the common climatic signals and the local deposition noise.

The timing of the coldest period in polar temperature, water stable isotopes, and deuterium excess will be compared to the timing of the driest period as indicated by estimates of past accumulation rates.

The bipolar sequence of events including changes in moisture sources and changes in polar climate will be identified and discussed in relationship with information on past changes in sea level, marine circulation and atmospheric composition.