



High latitude records of oxygen-18 in a newly isotope enabled model

L. Sime (1), J. Tindall (2), P. Valdez (2), E. Wolff (1), and R. Röthlisberger (1)

(1) British Antarctic Survey, Cambridge, UK, (2) University of Bristol, Bristol, UK (Contact: <Louise Sime>lsim@bas.ac.uk / Fax: +44 1223 221279 / Phone: +44 1223 221662)

We present the preliminary results of work aimed at improving the reconstruction of transient paleo-climatic phases, observed through ice-cores and other paleo-archives. Ice-cores provide high resolution contemporaneous records of oxygen-18, atmospheric gas composition, and other climatological and environmental proxies. As such ice-cores, in conjunction with other records, provide invaluable paleo-data that can help discriminate between paleo-climatic states and drivers of change.

Here, we compare results from HadAM3 and ERA40 for current climate conditions, and use HadAM3 to simulate Last Glacial Maximum conditions. We present analysis of the effect of decadal climate modes (e.g. the El-Nino Southern Oscillation), seasonal cycles, and precipitation events on high latitude records of oxygen-18 in precipitation for current climate. This aids determination of the relative importance of the decadal to daily components of the hydrological cycle for present day records of precipitation. Results from Last Glacial Maximum (LGM) paleo-climate model simulations help demonstrate how the precipitation records of decadal to daily variations change between the LGM and present day climate.