



Interpreting insolation signals in ice core records

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High resolution East Antarctica stable water isotope ice core records are inversely related to Southern Hemisphere summer insolation intensity at the precession and obliquity timescales. Because Southern Hemisphere summer insolation varies directly out of phase with that in the Northern Hemisphere, this has lead to the suggestion that global climate is controlled by some measure of Northern Hemisphere summer insolation intensity. Here we present results from a snow metamorphism model and an isotope enabled GCM suggesting that the East Antarctic isotope ice core variations in the precession and obliquity bands may instead be caused by post-depositional processes that are modulated by changes in local insolation. This likely also applies to other ice core records and has implications for the interpretation of global climate change at these orbital periods.