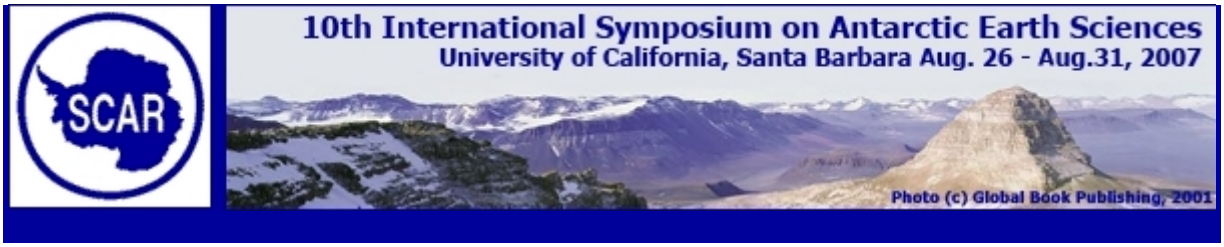

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3.A.D-3

Stable isotope composition of the basal ice from Taylor Glacier, Southern Victoria Land, Antarctica

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A tunnel excavated into the margin of Taylor Glacier revealed a basal sequence containing a thick sequence of layers of clean clear ice and debris-rich ice which contained strong deformation features, as well as units of clean bubbly ice. Analysis of the isotopic composition of the basal ice shows a strong linear relationship that plots on a slope of 8, which is usually interpreted as meteoric in origin. However, the physical appearance of the laminated ice is inconsistent with a meteoric-origin interpretation and has the outward appearance of ice usually inferred as the product of basal melt-refreeze processes like regelation. We consider this apparent tension between physical appearance and isotopic composition of the Taylor Glacier basal ice to be a limitation of the stable isotope approach, and that the technique employed here is unable to diagnose small-scale processes like regelation.