



A new late glacial and Holocene ice core palaeoclimate record from James Ross Island, Antarctica

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In January 2008, we recovered a new ice core penetrating 364m to the bedrock near the summit of James Ross Island, at the northern tip of the Antarctic Peninsula. The stable water isotope temperature record from the core shows clearly that the record spans through the full Holocene and into the later part of the glacial period. Initial dating suggests that the lower 6m of ice incorporates ice that perhaps extends to \sim 40kyr, though the transition from the glacial to the Antarctic Cold Reversal is restricted to such a short depth interval in the ice that we believe there may be a hiatus in the record during the transition. We discuss the dating of the core using a simple ice sheet strain model and by comparing the methane record and volcanic reference horizons with other Antarctic ice cores. The climate record from this core provides probably the northernmost palaeoclimate record from the Antarctic, and provides a natural link between Antarctic and South American climate records. We show the climate evolution of this site through the Holocene, and discuss the relevance of local changes in ice sheet altitude during the deglaciation.