# History of the Ross Sea ice sheet based on glacial and lake records from Marshall Valley, Antarctica

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During the last glacial maximum (LGM), an extensive grounded ice sheet occupied the Ross Sea Embayment, Antarctica. The ice was fed by both the East and West Antarctic ice sheets and dammed large, proglacial lakes in several of the dry valleys adjacent to McMurdo Sound, including Marshall Valley (78°4ôS, 164°15ôE). Reconstructions of the glacial and lake deposits can afford information on past ice-sheet history. During January, we mapped the surficial deposits in Marshall Valley and logged thirteen sections of glacial and lake sediments. We also collected carbonate, gypsum, and algae samples for radiocarbon and/or U/Th dating. This work is in its very early stages, but initial radiocarbon dates of algae from ice-marginal deposits suggest that the ice reached its maximum position at ~18 ka. Preliminary U/Th dates of carbonate deposited in the former ice-dammed lakes fall into two groups ï the LGM and marine oxygen isotope stage 6. Additional dates will help to constrain further the duration and timing of the LGM and the Penultimate glaciation in the Ross Sea region and thus allow us to address questions concerning the driving mechanisms behind ice-sheet change.

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