

Reconstructing Holocene ice-marginal fluctuations with relict algal mats at Reedy and Scott Glaciers

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We report here the existence of relict lacustrine algal mats in sheltered valleys alongside Reedy and Scott Glaciers (~86° S). These algae once grew in ice-marginal ponds dammed in favorable locations alongside the expanded glaciers. The samples occur as much as 100 m above the present-day ponds and 90 m above present ice level. In order for these ice-marginal ponds to have formed, Reedy and Scott Glaciers must have been thicker than at present.

Radiocarbon dating of algal remains from both Reedy and Scott Glaciers indicate that all samples are from the Holocene and were deposited soon after initial recession from the last glacial maximum position. Those samples from Polygon Spur (Reedy Glacier) date between 2000-8800 ¹⁴C yr B.P., whereas those from Mt. Walshe (Scott Glacier) are 1600-7200 ¹⁴C yr old. The two records show evidence of thinning ice throughout the mid-Holocene, with ice reaching close to its present location by at least 2000 years ago, if not earlier. The dates, along with glacial geologic mapping, also suggest a stillstand or minor readvance in ice retreat between ~4000-6000 ¹⁴C yr B.P.