

## **Rapid Holocene Deglaciation of the Laurentide Ice Sheet**

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### **Abstract**

The retreat of the Laurentide Ice Sheet (LIS) affected regional to global climate and contributed the largest proportion of sea level rise during the last deglaciation. While its Pleistocene retreat chronology is relatively well constrained, its Holocene chronology is poorly known. Here, we use <sup>10</sup>Be ages from boulders to construct a Holocene retreat chronology for the western margin of the LIS across central Quebec. Our data indicate that following the emergence of the coastline at  $7.57 \pm 0.41$  <sup>10</sup>Be ka, this margin deglaciated rapidly  $6.80 \pm 0.20$  <sup>10</sup>Be ka. This timing indicates top-down melting as the LIS lost its accumulation area, rather than a more gradual retreat as suggested by the existing radiocarbon chronology. This rapid melting just prior to  $\sim 6.8$  ka may be recorded by a light  $\delta^{18}\text{O}$  anomaly in the Labrador Sea, and is coincident with a possible rapid sea level rise from 7.6 to 6.9 ka. Accelerated retreat of the West Antarctic Ice Sheet margin at the end of this sea level event may be a response to this rapid rise in sea level. The final deglaciation of the LIS initiated the Holocene Thermal Maximum in eastern Canada and southern Greenland, which had been delayed by the high albedo of the remnant LIS.