



The last deglaciation of the Irish Ice Sheet

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We summarize over 120 ^{14}C and in-situ cosmogenic ages that now provide a well-constrained geochronology for the Irish Ice Sheet (IIS) since the Last Glacial Maximum (LGM) that can be linked to climate changes in the North Atlantic region. Our data provides a robust means to date glacial events because similar-age events can be identified from widely spaced sites, they are consistent with stratigraphy, and they can be related to large changes in the configuration of a dynamic ice sheet. The following events are recognised. (1) AMS ^{14}C ages and ^{10}Be and ^{36}Cl ages suggest that the last maximum advance of the IIS occurred between ~ 24.5 and 20.0 cal ka. (2) Subsequent deglaciation began first in the Irish Sea Basin at ~ 22 cal ka. Subsequent widespread deglaciation during the Cooley Point Interstadial is well constrained from sites around Ireland as having begun ≥ 20 cal ka B.P. AMS ^{14}C ages suggest that the Cooley Point Interstadial continued until ≤ 18.2 cal ka B.P. During this interstadial, retreat of the margin into the northern Irish Sea Basin indicates that the IIS may have lost up to two-thirds of its mass. (3) The Cooley Point Interstadial was terminated by ice readvance during the Clogher Head Stadial at ~ 18.2 cal ka. (4) The Linns Interstadial was a brief interval (≥ 17.0 - ≥ 16.5 cal ka B.P.) of ice recession following the Clogher Head Stadial that is identified from marine sediments in eastern and northern Ireland and cosmogenic ages elsewhere in Ireland. (5) The subsequent Killard Point readvance reached its maximum extent ~ 16.5 cal ka B.P., indicating that the readvance began sometime earlier, and retreat began by ~ 15.5 cal ka. (6) Readvance of cirque glaciers in western Ireland occurred during the Younger Dryas.