



Revised North American deglaciation maps

An updated deglaciation map sequence for North America (cf. Dyke and Prest, 1987; Geological Survey of Canada Map 1703A) is needed to support new postglacial rebound modelling, which will use a finer spatial scale than previous efforts and a 500 year time step. A chronological database, mainly radiocarbon dates with varve and tephra dates, was assembled. Dated sites are shown by coloured dots. The point in time represented by each map is given in two time scales in the lower right corner: in thousands of radiocarbon years (e.g., 12 °C ka BP), and in thousands of calendar years (e.g., 14.1 cal ka BP). The dates constrain ice margin positions and shorelines of large glacial lakes. Dates on problematic materials such as marl, freshwater shells, lake sediment with low organic carbon content, marine sediment, bulk samples with probable blended ages, and most deposit feeding molluscs from calcareous substrates are excluded. These culled samples, many of which were used in previous reconstructions of deglaciation, yield ages that are too old. The residual data set contains ca 4000 dates. Marine shell dates, a major component, are adjusted for regionally variable marine reservoir effect based on a large new set of radiocarbon ages on live-collected, pre-bomb molluscs from Pacific, Arctic, and Atlantic shores. These corrections range from 800 years in the Pacific Ocean and Champlain Sea to 450 years in the SW Gulf of St. Lawrence, and hence are larger than the previous conventional correction, a uniform 400 years. Deglaciation ages are correspondingly diminished.

The net effect is that deglaciation is delayed in most places by 1000-2000 years with respect to the Dyke and Prest (1987) reconstructions. However, the spatial pattern of ice recession resembles earlier reconstructions, being guided by the patterns on the Glacial Map of Canada. Major changes of interpretation of last glacial maximum ice extent in the Canadian Arctic Archipelago and the Atlantic Provinces are incorporated.

The maps were reviewed by numerous regional experts and particularly valuable comments were provided by John Clague for the Cordillera, by Jim Teller and Harvey Threlson for the Lake Agassiz region and, by Mike Lewis for the Great Lakes region. Woodrow Thompson provided a radiocarbon database for Maine and selected ice margin positions. The 32 maps are also available separately as GSC Open File. The database containing the ca 4000 dates is available on CD-ROM.

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DEGLACIATION OF NORTH AMERICA