

## COSMOGENIC 10-Be AND 26-Al EVIDENCE FOR AN EARLY DEGLACIATION OF THE GREEN BAY LOBE, BEFORE 15,500 CALENDAR YEARS BP

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We collected 22 rock samples from striated granite, rhyolite, and quartzite outcrops and quarries in south-central Wisconsin to determine 10-Be and 26-Al model exposure ages and estimate the time of late Wisconsin deglaciation of the Green Bay lobe. The outcrops were chosen based on lithology, distance from late glacial maximum terminus of the Green Bay lobe, landscape position, lack of till and loess cover, presence of striae, chattermarks, grooves, and ventifaction features.

We have acquired preliminary data for 12 of the samples and use the production rate estimates of Nishiizumi et al. (1989) to calculate model ages although recent work suggests that these production rates may be as much as 20% too high and thus our age estimates may be low by a similar percentage. Stated uncertainties in exposure ages propagate analytic precision (4-6%) along with a 20% uncertainty in production rates. Any shielding by snow cover would also cause our model ages to be underestimates.

Quartzite samples from the Baraboo Hills, 10 km within the late glacial maximum position, yield 6 model ages ranging from 34.3 $\pm$ 7.3 to 73.5 $\pm$ 15.2 ky, indicating inheritance from prior exposure. Quartzite samples 60 km behind the terminus near Waterloo, Wisconsin yield 10 model ages from 13.5 $\pm$ 2.9 to 19.1 $\pm$ 4.1 ky (mean of 4 samples with replicates, 15.8 $\pm$ 0.9 ka and 15.2 $\pm$ 0.7 for 10-Be and 26-Al model ages respectively). Granite samples from Cactus Rock, WI, about 100 km behind the terminus, yielded 4 model ages from 14.0 $\pm$ 3.0 to 14.9 $\pm$ 3.1 ky (mean of 4 samples 14.5 $\pm$ 0.2 for 10Be model ages).

These results suggest deglaciation of the Green Bay lobe sometime before 15.5 10-Be/26-Al years BP. The differences between model ages at Waterloo (60 km from terminus) and Cactus Rock (100 km from terminus) suggest that about 1000 years separated ice maximum, deglaciation and deposition of sandy Horicon Till, and the readvance and deposition of the red Kewaunee Till. These data suggest that it is unlikely that the Green Bay lobe was at its maximum as late as 15,000 cal yr BP.

Key words: cosmogenic isotopes, deglaciation, Wisconsin, Green Bay Lobe