Measuring the Retreat Velocity of the Laurentide Ice Sheet by Cosmogenic Nuclides? ^{10}Be Dating of Glacial Features in New York's lower Hudson Valley

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The Laurentide Ice Sheet (LIS) covered New York during the Last Glacial Maximum (LGM) and carved the present topography. Glaciated bedrock surfaces and erratic boulders were exposed by the LIS retreat. Urbanization has led to the modification of much of the present landscape, but the New York City and lower Hudson Valley area still retains evidence of the glacial activity, in particular the terminal moraines on Long Island, glacially polished surfaces in Central Park, and erratic boulders in Harriman State Park and Black Rock Forest.

The surface exposure dating method, using the cosmogenic nuclide ^{10}Be, is applied to date glacially transported erratic boulders and scoured bedrock in two areas, Black Rock Forest and Harriman State Park, in the lower Hudson Valley. We compare these ^{10}Be dates with numerous ^{10}Be dates from the terminal moraine on Long Island (Harbor Hill Moraine) and its extension in Connecticut (Charlestown Moraine). The goal of this project is to develop a chronology of the recessional ice margin. A comparison of ^{10}Be dates from the terminal moraine at Long Island with those located in the lower Hudson Valley region yields a first order measure of the retreat rate of the LIS.