Glacial history and landform genesis in the Lac de Gras area, Northwest Territories

Anna (Snowy) Haiblen

The Quaternary geology of the Lac de Gras area was studied by 1:20 000 surficial geology mapping of 770 km² and investigating the genesis of enigmatic landforms. Three distinct flow directions of the Laurentide Ice Sheet are recorded: flow to the southwest, then west, and finally to the west northwest. Digital mapping with high-resolution orthoimagery and a 30 cm lidar DEM provides insight into the deglacial history. ‘Subglacial meltwater corridors’ are prominent in the area. These are tracts that roughly parallel the final ice-flow direction, where basal till has been eroded, bedrock is exposed, and glaciofluvial sediments have been deposited; enigmatic, glaciofluvial mounds composed of sandy diamicton are common. These mounds have highly variable morphologies and occur in groups. They are typically 50 m wide and rise up to 15 m above the surrounding topography. Subglacial meltwater corridors and enigmatic mounds likely formed when supraglacial lakes drained catastrophically during deglaciation.