

# Revised Surficial Geology Mapping Based on LiDAR, Halifax, Nova Scotia<sup>1</sup>

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In 1846 Louis Agassiz — en route to Boston from Europe where he developed the idea of continental glaciation — recognized the first ‘glacial markings’ in North America near Halifax Harbour. Since then, the area’s glacial geology has been mapped based on air photos and the Quaternary history developed from striae records, drumlin orientations and numerous coastal sections that cut through drumlins. Now, thanks to a LiDAR survey by the Halifax Regional Municipality, spectacular images of the area’s glacial geomorphology features, especially drumlins and flutings, allows for improved surficial mapping and new insights into the glacial history of the area.

Subtle variations in drumlin orientation and shape are clearly defined on the LiDAR imagery; variations that were not possible to discern on air photos. LiDAR allows for identification of previously unmapped features such as eskers and small drumlins that can be used to interpret the glacial history. Down-ice of one zone of drumlin-free granitic bedrock is an area of landforms transverse to ice-flow. Geomorphologically these landforms can be compared to interpretations of hummocky-active ice moraine in Finland, or Rogen moraine formed along the boundary of sliding to non-sliding ice in northern Canada.

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<sup>1</sup>In Atlantic Geoscience Society, 35th Colloquium and Annual General Meeting, Program and Abstracts, February 6-7, 2009, Moncton, New Brunswick.