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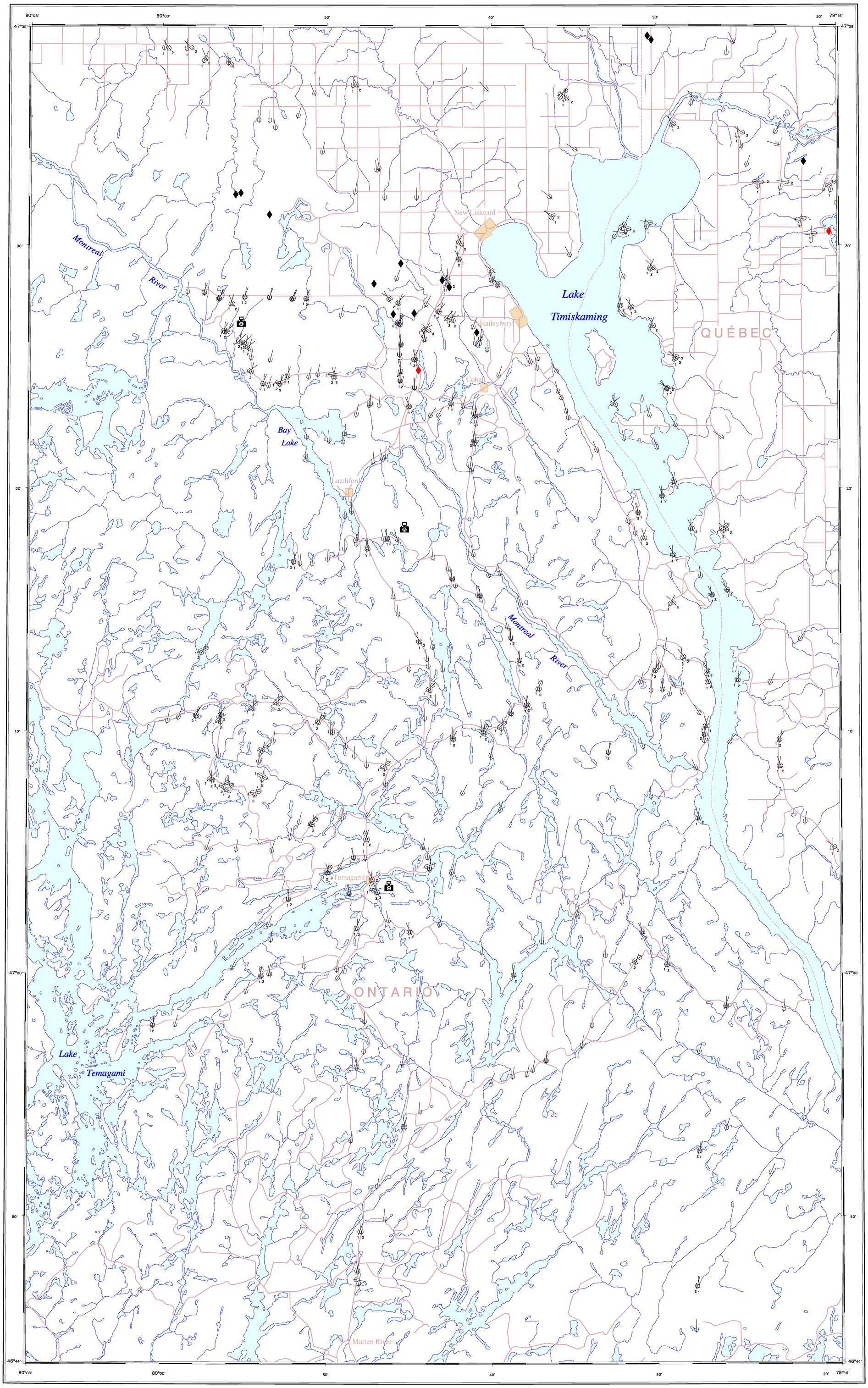
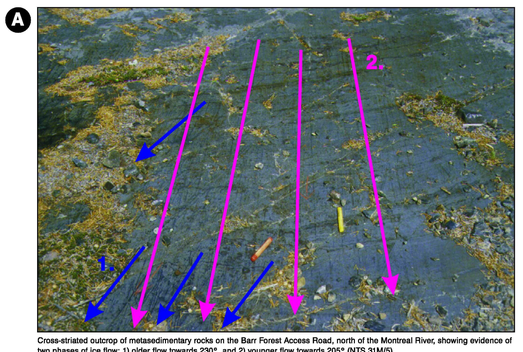
GEOLOGICAL SURVEY OF CANADA | COMMISSION GÉOLOGIQUE DU CANADA

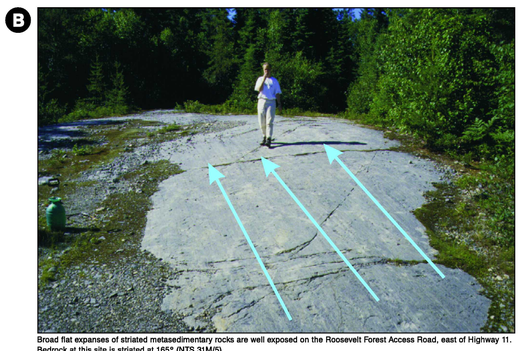


A



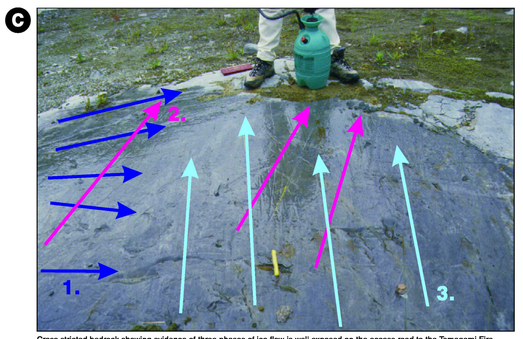
Cross-striated outcrop of metasedimentary rocks on the Barr Forest Access Road, north of the Montreal River, showing evidence of two phases of ice flow: 1) older flow towards 230°, and 2) younger flow towards 205° (NTS 31M/5).

B



Broad flat expanses of striated metasedimentary rocks are well exposed on the Roosevelt Forest Access Road, east of Highway 11. Bedrock at this site is striated at 165° (NTS 31M/5).

C



Cross-striated bedrock showing evidence of three phases of ice flow is well exposed on the access road to the Temagami Fire Tower: 1) oldest flow oriented towards 255°; 2) intermediate flow towards 180°; and, 3) youngest flow trending 155° (NTS 31M/4).

SUMMARY

The Geological Survey of Canada (GSC) and the Ontario Geological Survey (OGS) have conducted regional kimberlite indicator mineral surveys using till (GSC) and stream sediments (OGS) in the area south of the known Timiskaming kimberlites (New Liskeard to Marten River). These surveys will potentially identify new targets for diamond exploration. As part of the regional sampling program, existing ice flow data for the region (Veillette, 1986; Veillette and McClenaghan, 1996) were compiled with new data collected in the summer of 2000. These data, combined with the existing knowledge of the Quaternary geology and history of the region (Veillette,1996), provide explorationists and prospectors with a reasonable ice flow model for drift prospecting.

Striated bedrock records ice flow patterns across the region, showing three major ice flows. The oldest flow (phase 1) was towards the southwest. This flow likely was associated with the main phase of the Laurentide ice sheet. During deglaciation, ice flow shifted southward (phase 2). During final deglaciation of the area, local ice tongues from the main ice sheet occupied the structural depressions of the Montreal River and Lake Timiskaming giving rise to ice flows towards the southeast (phase 3). All three phases of flow are associated with erosion, and transportation and deposition of till in the region. The main carriers of glacial debris, however, were the two oldest ice flows. A large dispersal train of Paleozoic limestone derived from upper Lake Timiskaming trends south-southwest across the area (Veillette, 1996), but has been truncated in its proximal part by the last southeast ice flow (Veillette, 1989; 1996). This situation has to be taken into consideration in the interpretation of dispersal trains formed by the three major ice flows.

Three striated sites, showing various combinations of the three ice flow phases, are shown in Photos A to C, the locations of which are indicated on the map with a solid black camera symbol. The three sites are highlighted on the map because they display well preserved striations and are easily accessible to geologists and prospectors working in the region.

REFERENCES

Veillette, J.J.
1986: Surficial geology, Haileybury, Ontario-Quebec; Geological Survey of Canada, Map 1642A, scale 1:100 000.

1989: Ice movements, till sheets and glacial transport in Abitibi-Timiskaming, Quebec and Ontario; *in* Drift Prospecting (ed.) R.N.W. DiLabio and W.B. Coker; Geological Survey of Canada, Paper 89-20, p. 139-154.

1996: Géomorphologie et géologie du Quaternaire du Témiscamingue, Québec et Ontario; Geological Survey of Canada, Bulletin 476, 269 p.

Veillette, J.J. and McClenaghan, M.B.
1996: Sequence of ice flow in the Abitibi-Timiskaming region: implications for mineral exploration and dispersal of carbonate rocks from the Hudson Bay Basin, Quebec and Ontario; Geological Survey of Canada, Open File 3033, scale 1:500 000.

Glacial striae (direction of flow known, unknown)

Cross striae (1=oldest)

Kimberlite

Kimberlite boulder in esker sediments

Location of field photograph with corresponding Figure number

Geology by M.B. McClenaghan and J.J. Veillette

Digital cartography by M. Proulx and L. Robertson, Earth Sciences Sector Information Division (ESS Info)

This map was produced from processes in conformance with the Cartographic Services Section Quality Management System, Ottawa, registered to the Quality System ISO 9001: 1994 standards

Any revisions or additional geological information known to the user would be welcomed by the Geological Survey of Canada

Digital base map from data compiled by Geomatics Canada, modified by ESS Info

Mean magnetic declination 2001, 11°53'W, increasing 1.7' annually. Readings vary from 11°19'W in the SW corner to 12°27'W in the NE corner of the map

OPEN FILE 3385

SURFICIAL GEOLOGY

ICE FLOW INDICATORS FOR THE NEW LISKEARD-TEMAGAMI AREA

ONTARIO

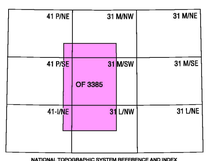
Scale 1:100 000/Échelle 1/100 000

kilometres 2 0 2 4 6 8 kilomètres

Universal Transverse Mercator Projection
North American Datum 1983
© Her Majesty the Queen in Right of Canada, 2001

Projection transverse universelle de Mercator
Système de référence géodésique nord-américain, 1983
© Sa Majesté la Reine du chef du Canada, 2001

LOCATION MAP



NATIONAL TOPOGRAPHIC SYSTEM REFERENCE AND INDEX TO ADJOINING GEOLOGICAL SURVEY OF CANADA MAPS

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COMMISSION GÉOLOGIQUE DU CANADA
OTTAWA
07/2001

Recommended citation:
McClenaghan, M.B. and Veillette, J.J.
2001: Surficial geology, Ice flow indicators for the New Liskeard-Temagami area, Ontario; Geological Survey of Canada, Open File 3385, scale 1:100 000.

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