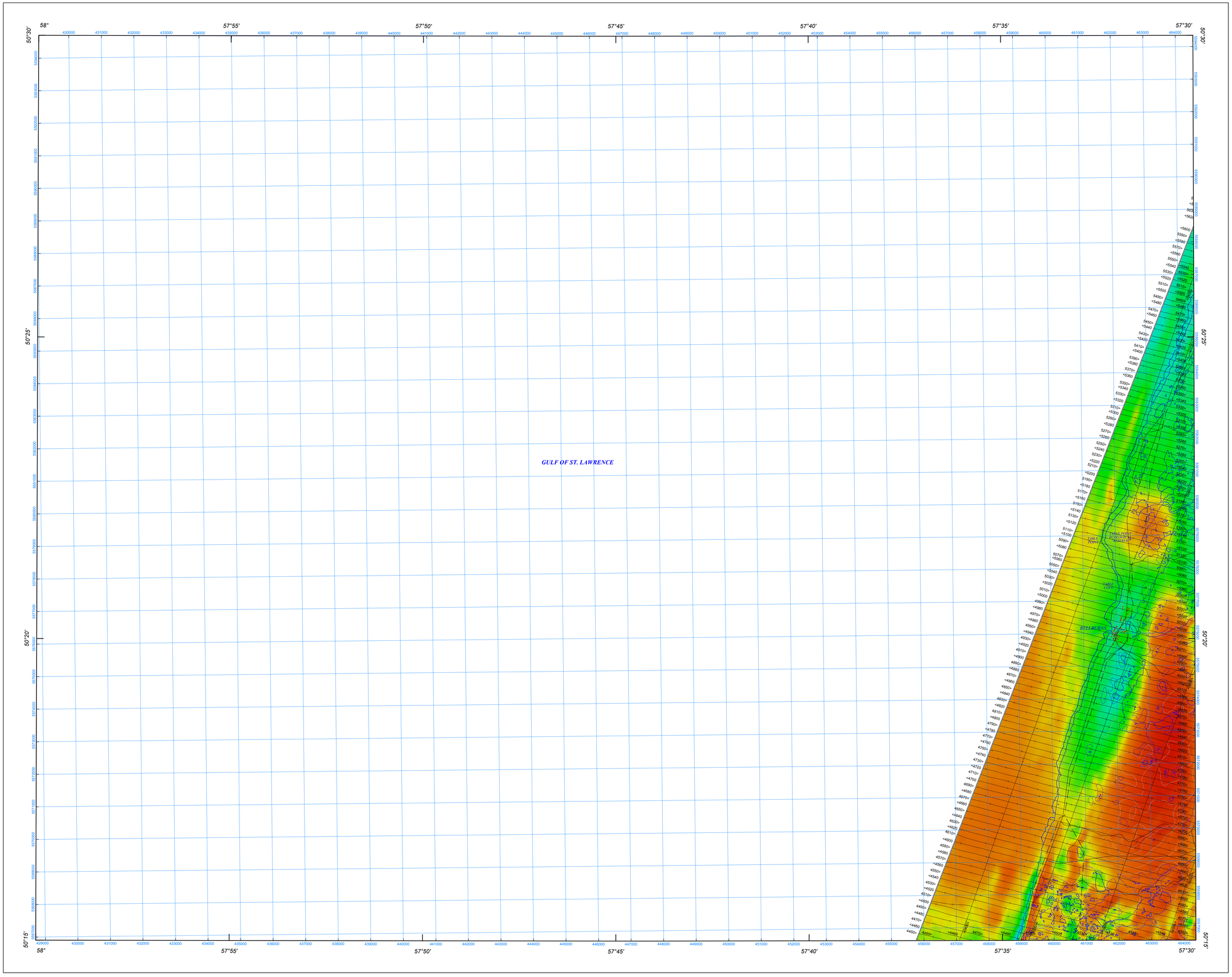

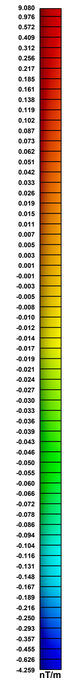

Newfoundland Labrador

Natural Resources

FIRST VERTICAL DERIVATIVE OF THE RESIDUAL MAGNETIC FIELD
Bellburns Map Area

12I/05

MAP 2009-78
OPEN FILE NFLD/3076

L.A. Cook and G.J. Kilfoil

First Vertical Derivative of the Residual Magnetic Field

This map was derived from data acquired during an aeromagnetic survey carried out by NOVATEM Inc. The survey was flown during the period October 1st, 2008 to May 16th, 2009, using a Cessna-185 aircraft C-FARU. The aircraft was equipped with two Geometrics cesium vapour magnetometers with a sensitivity of 0.005 nT, installed in wingtip pods. Total field data were sampled at 10 Hz. The nominal traverse and control-line spacing were, respectively, 200 m and 2000 m, and the aircraft flew at a nominal terrain clearance of 90 m. Traverse lines were oriented N75°W with orthogonal control lines. The flight path was recovered following post-flight differential corrections to the raw Global Positioning System data and inspection of ground images recorded by a vertically mounted video camera. The survey was flown on a pre-determined flight surface to minimize differences in magnetic values at the intersections of control and traverse lines. These differences were computer-analyzed to obtain a mutually levelled set of flight-line magnetic data. The levelled values were then interpolated to a 50 m grid.

The first vertical derivative of the residual magnetic field is the rate of change of the magnetic field in the vertical direction. Computation of the first vertical derivative removes long-wavelength features of the magnetic field and significantly improves the resolution of closely spaced and superimposed anomalies. A property of the first vertical derivative maps is the coincidence of the zero-value contour with vertical contacts at high magnetic latitudes (Hood, 1965).

Digital versions of this map can be downloaded, at no charge, from the Newfoundland and Labrador Resource Atlas (http://gis.geosurv.gov.nl.ca/), and from the Geological Survey of Newfoundland and Labrador On-Line Open File page:
http://www.nr.gov.nl.ca/mines&en/geosurvey/publications/openfiles/.
Corresponding digital profile and gridded data for this survey, as well as for airborne surveys flown over adjacent areas, are also available from the Newfoundland and Labrador Resource Atlas.

Printed copies of this map may be obtained from the Geoscience Publication and Information Section, Geological Survey, Department of Natural Resources, Government of Newfoundland and Labrador, P.O. Box 8700, St. John's, NL, Canada, A1B 4J6.

Nalcor: http://www.nalcorenergy.com/
Department of Natural Resources: http://www.nr.gov.nl.ca/nr/
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Geological Survey: http://www.nr.gov.nl.ca/mines&en/geosurvey/
E-mail: pub@gov.nl.ca

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Hood, P.J.
1965: Gradient measurements in aeromagnetic surveying. Geophysics, vol. 30, p. 891-902.

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2009: Aeromagnetic survey - Gros Morne to Port au Choix area. Government of Newfoundland and Labrador, Department of Natural Resources, Geological Survey, Open File NFLD/3076, (First vertical derivative of the residual magnetic field , NTS area 12I/5, Map 2009-78, scale 1:50 000).

Maps released as part of Open File Open File NFLD/3076 are (refer to index map below):

Map Area (NTS)	Residual Magnetic Field	First Vertical Derivative of the Resid. Mag. Field
Gros Morne (12H/12)	Map 2009-71	Map 2009-72
St. Paul's Inlet (12H/13)	Map 2009-73	Map 2009-74
Indian Lookout - Portland Creek (12I/03 east, 12I/04 west)	Map 2009-75	Map 2009-76
Bellburns (12I/05)	Map 2009-77	Map 2009-78
Bellburns (12I/06)	Map 2009-79	Map 2009-80
Torrent River (12I/10)	Map 2009-81	Map 2009-82
Port Saunders (12I/11)	Map 2009-83	Map 2009-84
St. John Island - Castors River (12I/14 east, 12I/15 west)	Map 2009-85	Map 2009-86

Note

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PLANIMETRIC SYMBOLS

Topographic Contour .....
Power Line .....
Drainage .....
Road .....
Flight Line ..... < 14104

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nalcor energy OIL AND GAS

MAP 2009-78

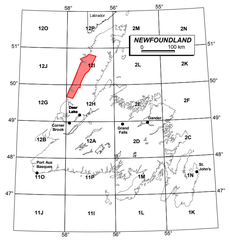
BELLBURNS - NTS 12I/05

Scale 1: 50 000

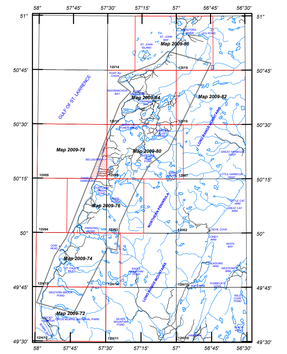
kilometres 1000 0 1000 2000 3000 4000 5000 kilometres

NAD83 / UTM zone 21N

Digital Topographic Data provided by Geomatics Canada, Natural Resources Canada



INDEX MAP



NATIONAL TOPOGRAGHICAL SYSTEM REFERENCE AND GEOPHYSICAL MAP INDEX

AEROMAGNETIC SURVEY - GROS MORNE TO PORT AU CHOIX AREA