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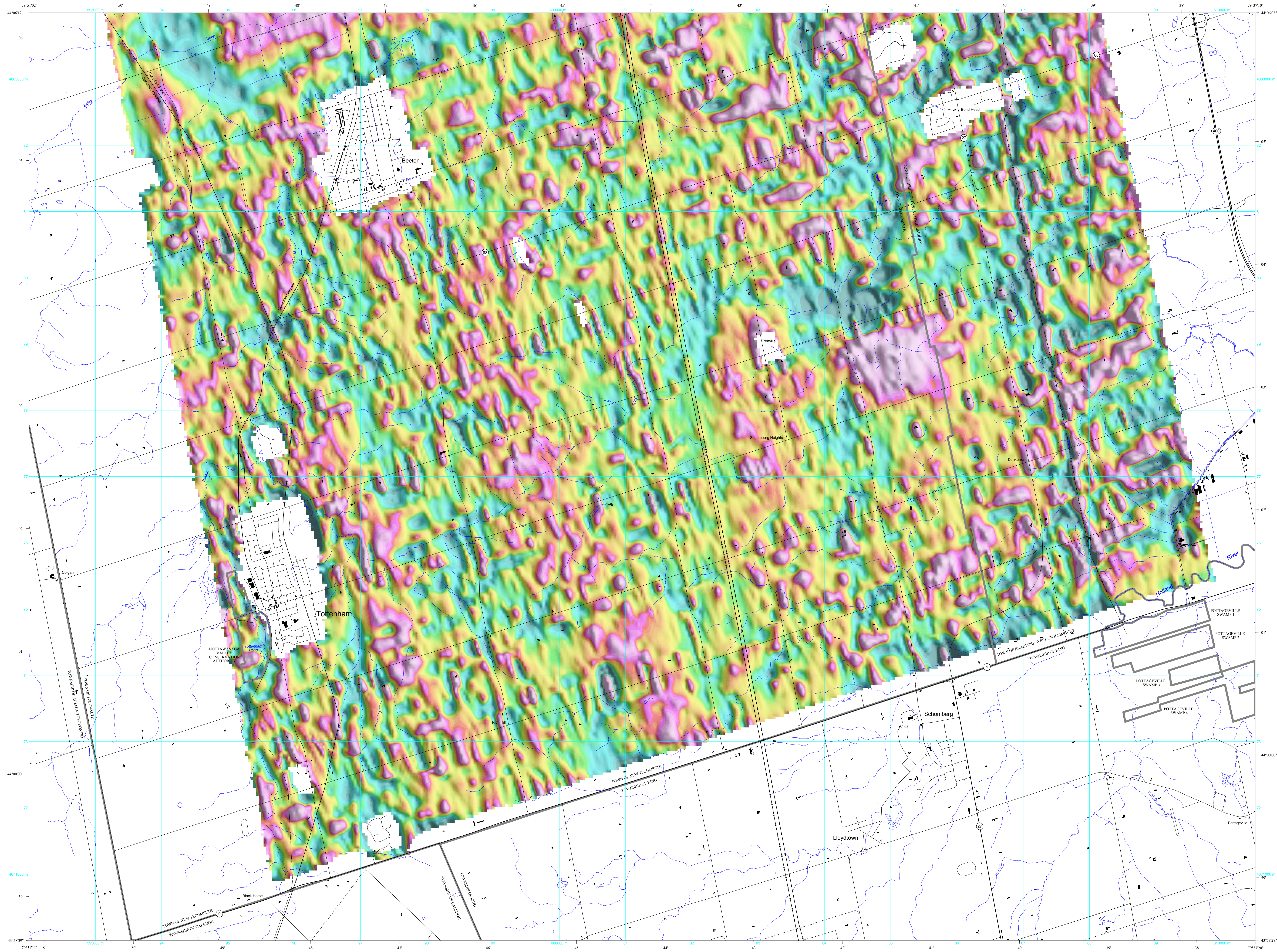
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Ontario Geological Survey 2012. Airborne magnetic and electromagnetic surveys, shaded colour image of the first vertical derivative of the residual magnetic field, south Simcoe County area; Ontario Geological Survey, Map 82 587, scale 1:20 000.

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Ontario Geological Survey

MAP 82 587

AIRBORNE MAGNETIC AND ELECTROMAGNETIC SURVEYS

Shaded colour image of the first vertical derivative of the residual magnetic field

SOUTH SIMCOE COUNTY AREA

Scale 1:20 000

500 m 0 0.5 1 km

NTS Reference: 31 D4, 31 M1/3.

SURVEY PARAMETERS

AIRCRAFT
Type: AS350 B3
Registration: C-FVFK

MAGNETOMETER
Type: Geometrics G823-A caesium-vapour
Sensitivity: 0.002 nT
Noise level: +/- 0.004 nT
Sample interval: 10 readings per second
Sensor location: 17 m below aircraft

ELECTROMAGNETIC SYSTEM
Type: Aerotec IV
Base frequency: 90 Hz
Current waveform: bipolar triangular
Peak dipole moment: 222 236 N/A
Pulse width: 1916 µsec
Off-time: 3630 µsec
Pulse repetition: 90 cycles per second, 180 pulses per second
Parameters: X and Z components of dB/dt
Noise levels: +/- 10 nT/s
Sample interval: 10 readings per second
Bird Location: 50.3 m below aircraft

NAVIGATION SYSTEM
GPS receiver: Mid-Tech RX400P
GPS sample interval: 10 readings per second
Radar altimeter: Terra TRA3000/TRI-30
Radar sample interval: 10 readings per second
Video flight path recorder: Archos 605 W/FI

BASE STATION
Magnetometer: Geometrics G823-A caesium-vapour
Magnetometer sample interval: 1 second sampling

SURVEY SPECIFICATIONS
Survey date: March 9 - March 18, 2012
Nominal aircraft terrain clearance: 97 m
Traverse line spacing: 200 m
Control line spacing: 1600 m
Traverse line direction: 72° azimuth
Control line direction: 169° azimuth

CO-ORDINATE SYSTEM
Projection: Universal Transverse Mercator
Datum: NAD83
Central meridian: 81°00'W (UTM zone 17)
Central scale factor: 0.9996
False easting: 500 000 m
False northing: 0 m

LEGEND

SHADED IMAGE SUN ANGLE

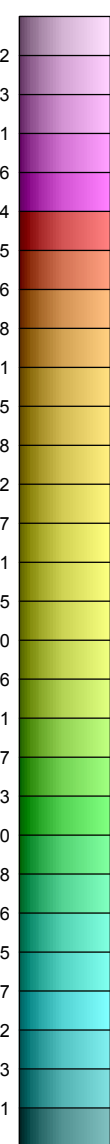
Illumination Declination = 72° Illumination Inclination = 45°

Plan view Side view

Shaded image is produced by applying an artificial sun illumination to the first vertical derivative of the magnetic field grid.

FIRST VERTICAL DERIVATIVE OF THE MAGNETIC FIELD GRID

nanoteslas per metre (nT/m)



DESCRIPTIVE NOTES

Introduction

This survey was flown using the Aerotec Aerotec IV helicopter-mounted magnetic and electromagnetic system. The aircraft was also equipped with a GPS navigation system and a digital data acquisition system.

First Vertical Derivative of the Magnetic Field

The first vertical derivative of the 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 superposed anomalies. The values for the first vertical derivative of the magnetic field were computed directly from the gridded residual magnetic intensity data using a fast Fourier transform, combining the transfer functions of the first vertical derivative and an eighth-order Butterworth low-pass filter (100 m cut-off wave-length). The low-pass filter was aimed at attenuating unwanted high frequencies enhanced by the derivative operator.

The shaded relief parameters are:
Shading inclination: 045°
Shading declination: N 72° E

SOURCES OF INFORMATION

Base map information derived from the Ontario Land Information Warehouse, Land Information Ontario, Ontario Ministry of Natural Resources, scale 1:20 000.

Magnetic declination for the centre of the map sheet was approximately 10°31'W in 2012.

CREDITS

Data acquisition, data compilation, data processing and map production by Aerotec Airborne, Mississauga, Ontario.

Project management and quality assurance by Paterson, Grant & Watson Limited, Toronto, Ontario.

Contract management, base maps and map surrounds by the Ontario Ministry of Northern Development and Mines, Sudbury, Ontario.

Base maps and map surrounds by the Ontario Ministry of Northern Development and Mines, Sudbury, Ontario.

To enable the rapid dissemination of information, this map has not received a technical edit. Every possible effort has been made to ensure the accuracy of the information presented; however, the Ontario Ministry of Northern Development and Mines does not assume liability for any errors that may occur. Users may wish to verify critical information.

Corresponding digital data for this survey are available from the following Ontario Geological Survey publication:

Ontario Geological Survey 2012. Ontario airborne geophysical surveys, magnetic and electromagnetic data, grid and profile data (ASCII and Geosoft® formats) and vector data, South Simcoe County area, Ontario Geological Survey, Geophysical Data Set 1070.

Issued 2012.

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