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Ontario Geological Survey 2014. Airborne magnetic and electromagnetic surveys, colour-filled contours of the residual magnetic field and electromagnetic anomalies, Burchell Lake area—Purchased data; Ontario Geological Survey, Map 60 403, scale 1:20 000.

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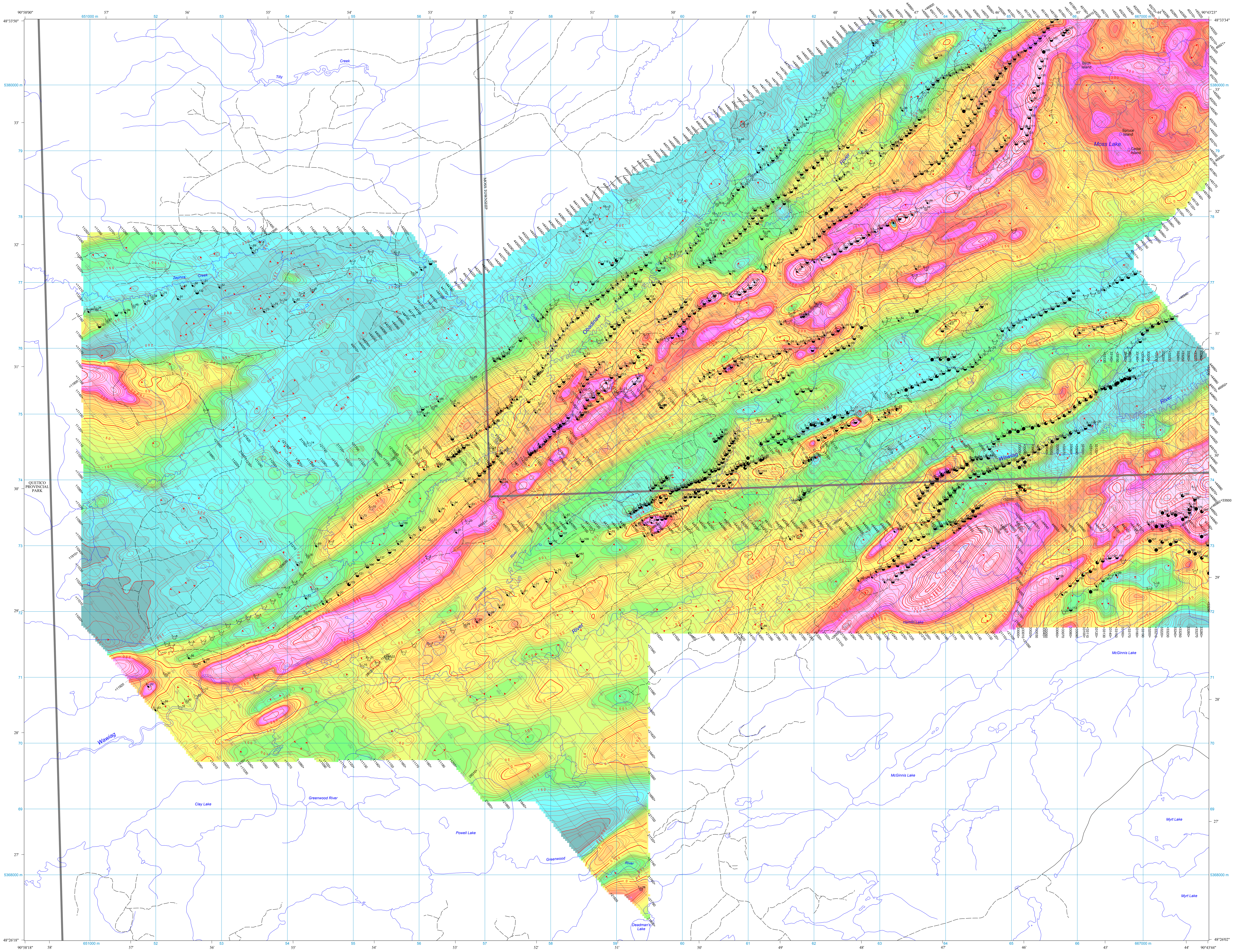


DESCRIPTIVE NOTES

Introduction

This map was compiled from multiple proprietary airborne surveys purchased by the Ontario Ministry of Northern Development and Mines. These surveys were flown using the Geotech VTEM helicopter-borne magnetic and electromagnetic system. The aircraft were also equipped with GPS navigation systems and digital data acquisition systems.

Residual Magnetic Field Map

The contours of residual magnetic intensity were generated from digitally recorded data. The magnetic data were corrected for diurnal variations, levelled to the control lines and interpolated onto a 30 m regular grid, using the bi-cubic algorithm. An International Geomagnetic Reference Field (IGRF) correction was applied to the total magnetic field data at survey altitude using the 2005 model year extrapolated to the mean survey date of 2004.28 (April 10, 2004). A regional correction was applied to level the magnetic field to the Ontario Master Aeromagnetic Grid.

Magnetic declination on March 10, 2004 for the centre of the survey area was 1.5°W and magnetic inclination was 75.5°N. Magnetic field strength was 58 002 nT (calculated using IGRF).

EM Anomalies

The VTEM system will respond to conductive overburden, near-surface horizontal conducting layers, man-made sources and bedrock conductors. Identification of natural conductors is based on the rate of transient decay, magnetic correlation and response shape, together with the response pattern and topography. Man-made responses may be identified by examining the power line monitor.

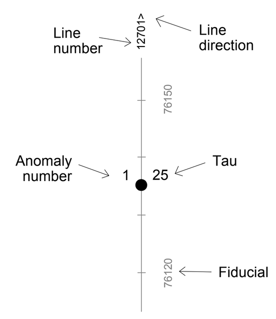
Anomalies were classified as having an inductively thin source, which produces a double-peaked (M-shaped) response with the trough centred over the conductor, or as an inductively thick source, which produces a single-peaked response centred over the conductor. Where possible, a single EM anomaly pick has been positioned over the conductor axis, even for double peaked responses.

LEGEND

ELECTROMAGNETIC ANOMALY SYMBOLS

Anomaly	Decay Constant Classification
●	> 200 microseconds
◕	150 - 200 microseconds
◒	100 - 150 microseconds
◔	50 - 100 microseconds
⊕	25 - 50 microseconds
○	< 25 microseconds
⊞	cultural response

FLIGHT LINE INFORMATION



MAGNETIC CONTOURS

nanoteslas (nT)

10 nT contour
50 nT contour
250 nT contour
1000 nT contour
Magnetic depression

RESIDUAL MAGNETIC FIELD GRID

nanoteslas (nT)

940
580
460
380
320
270
230
190
160
120
80
50
20
0
-20
-40
-60
-80
-90
-110
-120
-140
-150
-170
-180
-200
-220
-250

SURVEY PARAMETERS

AIRCRAFT
Type: Aerospatiale AS350B-2 (Blocks 1, 5, 6, 8)
Aerospatiale AS350BA (Blocks 2, 3, 7)
Aerospatiale AS350B+ (Block 4)
Registration: C-FQNS (Blocks 1, 5, 6, 8)
C-GHSM (Block 2)
C-GLNE (Blocks 3, 7)
C-GCYE (Block 4)

MAGNETOMETER
Type: cesium-vapour
Sensitivity: 0.02 nT
Sample interval: 10 readings per second
Sensor location: 10 m below aircraft (Blocks 1, 6, 8)
15 m below aircraft (Blocks 2, 3, 4, 5, 7)

ELECTROMAGNETIC SYSTEM
Type: VTEM (Blocks 1, 2, 4, 5, 6, 8)
Type: Dreamcatcher (Blocks 3, 7)
Base frequency: 30 Hz
Current waveform: trapezoid
Peak dipole moment (NIA): 250 000 Am² (Blocks 1, 6, 8)
230 000 Am² (Block 2)
147 800 Am² (Blocks 3, 7)
424 800 Am² (Blocks 4, 5)
Pulse width: 7400 µsec (Blocks 1, 6, 8)
7600 µsec (Blocks 2, 4, 5)
8333 µsec (Blocks 3, 7)
Off-time: 18 533 µsec (Blocks 1, 6, 8)
18 133 µsec (Block 2, 4, 5)
16 667 µsec (Blocks 3, 7)
Parameters: Z-component of dB/dt
Sample interval: 10 readings per second
Bird location: 45 m below aircraft (Blocks 1, 3, 4, 5, 6, 7, 8)
35 m below aircraft (Block 2)

NAVIGATION SYSTEM
GPS receiver: Novatel® OEM4-G2-3151W
GPS sample interval: 5 readings per second
Radar altimeter: Terra 3000/TRI-40
Radar sample interval: 5 readings per second
Guidance system: Geotech
Digital acquisition system: Geotech

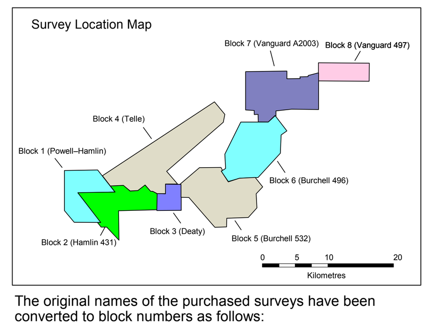
BASE STATION
Type: Geometrics® cesium-vapour
Magnetometer sample interval: 1 reading per second
GPS sample interval: 1 reading per second

SURVEY SPECIFICATIONS
Survey dates:
December 17, 2004 to December 20, 2004 (Blocks 1, 6)
February 21, 2004 to February 22, 2004 (Block 2)
February 11, 2003 to February 16, 2003 (Block 3)
May 20, 2005 to June 7, 2005 (Blocks 4, 5)
February 11, 2003 to February 12, 2003 (Block 7)
December 10, 2004 to December 18, 2004 (Block 8)

Nominal aircraft terrain clearance: 75 m (Blocks 1, 6, 8)
65 m (Blocks 2)
80 m (Blocks 3, 7)
85 m (Blocks 4, 5)
Traverse line spacing: 150 m (Blocks 1, 6)
100, 200 m (Block 2)
100 m (Blocks 3, 4, 8)
200 m (Block 5)
150/100 m (Block 7)
Control line spacing: 2000 m (Blocks 1, 8)
2200 m (Blocks 2, 6)
single line only (Block 3)
1500 m (Block 4)
2800 m (Block 5)
2600 m (Block 7)
Traverse line direction: N39°W (Block 1)
E51°S (Block 2)
North - south (Blocks 3, 7, 8)
N140°E (Blocks 4, 5)
N35.2°W (Block 6)
Control line direction: N52.7°E (Block 1)
N50°E (Blocks 2, 5)
East - west (Blocks 3, 8)
N57°E (Block 4)
N55.2°E (Block 6)
N85°E (Block 7)

CO-ORDINATE SYSTEM
Projection: Universal Transverse Mercator
Datum: NAD83
Central meridian: 93°00' W (UTM Zone 15N)
Central scale factor: 0.9996
False easting: 500 000 m
False northing: 0 m
Ellipsoid: GRS80

Data purchased from:
East West Resource Corp. and Maple Mineral Corporation. (Blocks 1, 2, 6)
East West Resource Corp. (Blocks 3, 4, 5)
Canadian Golden Dragon Resources Corp. (Blocks 7, 8)



The original names of the purchased surveys have been converted to block numbers as follows:

Block 1: Powell–Hamlin
Block 2: Hamlin (431)
Block 3: Deaty
Block 4: Telle
Block 5: Burchell (532)
Block 6: Burchell (496)
Block 7: Vanguard (A2003)
Block 8: Vanguard (497)

Ontario

Ontario Geological Survey

MAP 60 403

AIRBORNE MAGNETIC AND ELECTROMAGNETIC SURVEYS

Colour-filled contours of the residual magnetic field and electromagnetic anomalies

BURCHELL LAKE AREA

Purchased Data

Scale 1:20 000

500 m 0 0.5 1 km

NTS References: 52 B/7, 10

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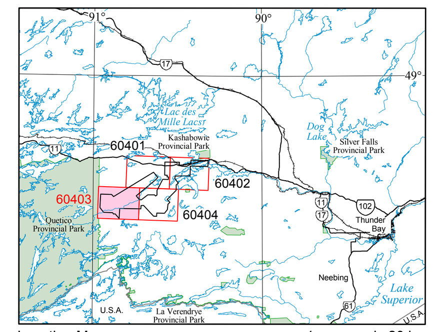

Location Map 1 cm equals 20 km

SOURCES OF INFORMATION

Base map information derived from the Land Information Ontario Data Warehouse, Land Information Ontario, Ontario Ministry of Natural Resources and Forestry, scale 1:50 000.

Magnetic declination for the centre of the map area was approximately 2°25.1'W in 2014.

Bagrianski, A. 2003. Report on a helicopter-borne time domain electromagnetic geophysical survey, Norton Lake, Linsey Bay, Deaty Creek blocks, Thunder Bay area, Ontario; unpublished report for East West Resource Corp. by Geotech Ltd.

Bagrianski, A. 2003. Report on a helicopter-borne time domain electromagnetic geophysical survey, Vanguard property, Kashabowie area; Thunder Bay area, Ontario; unpublished report for Canadian Golden Dragon Resources Corp. by Geotech Ltd.

Bagrianski, A. 2004. Report on a helicopter-borne time domain electromagnetic geophysical survey, Hamlin Property, Kashabowie area, Ontario; unpublished report for East West Resource Corp. and Maple Minerals Inc. by Geotech Ltd.

Orta, M. 2005. Report on a helicopter-borne time domain electromagnetic geophysical survey, Vanguard East block, Ontario; unpublished report for Canadian Golden Dragon Resources Corp. by Geotech Ltd.

Orta, M. 2005. Report on a helicopter-borne time domain electromagnetic geophysical survey, Telle and Burchell-2 blocks, Ontario; unpublished report for East West Resource Corp. by Geotech Ltd.

Orta, M. 2005. Report on a helicopter-borne time domain electromagnetic geophysical survey, Powell–Hamlin and Burchell blocks, Ontario; unpublished report for Maple Minerals Corp. and East West Resource Corp. by Geotech Ltd.

CREDITS

Data acquisition, data compilation by Geotech Limited, Aurora, Ontario, for East West Resource Corp., Maple Minerals Inc. and Canadian Golden Dragon Resources Corp., Vancouver, British Columbia.

Data reprocessing and map production by CGI Controlled Geophysics Inc., Thornhill, Ontario.

Contract management, 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 2014. Ontario airborne geophysical surveys, magnetic and electromagnetic data, grid and profile data (ASCII and Geosoft® formats) and vector data, Burchell Lake area—Purchased data; Ontario Geological Survey, Geophysical Data Set 1241.

The geophysical data on this map were purchased from the private sector. The original data acquisition was neither supervised by the Ontario Geological Survey (OGS) nor carried out to OGS technical specifications. However, the purchased data do meet a pre-defined valuation criteria set out by the OGS. Some quality assurance and quality control checks have been carried out on the digital data.

Issued 2014.

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Users of OGS products are encouraged to contact those Aboriginal communities whose traditional territories may be located in the mineral exploration area to discuss their project.