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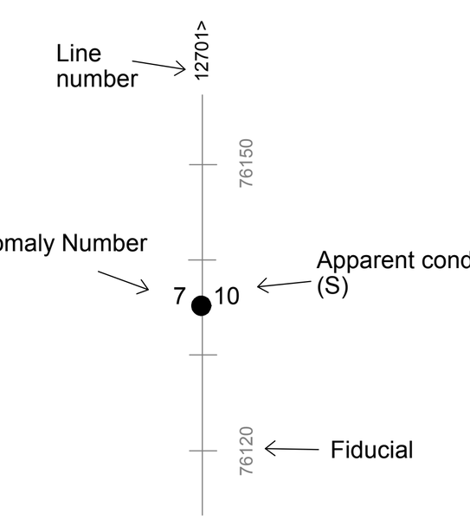
LEGEND

ELECTROMAGNETIC ANOMALY SYMBOLS

Anomaly	Conductance Classification
●	> 50 siemens
◕	35 - 50 siemens
◒	20 - 35 siemens
◔	10 - 20 siemens
⊕	5 - 10 siemens
○	< 5 siemens
⊞	cultural response

FLIGHT LINE INFORMATION



DECAY CONSTANT (TAU)

milliseconds (msec)

0.05 msec

0.25 msec

1.0 msec

Decay constant low

EM DECAY CONSTANT (TAU) GRID milliseconds

(msec)

1.253
0.799
0.530
0.341
0.201
0.121
0.081
0.058
0.046
0.039
0.035
0.032
0.030
0.028
0.026
0.025
0.023
0.022
0.020
0.019
0.017
0.015
0.013
0.011
0.009
0.007
0.004
0.001

DESCRIPTIVE NOTES

Introduction

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

EM Decay Constant

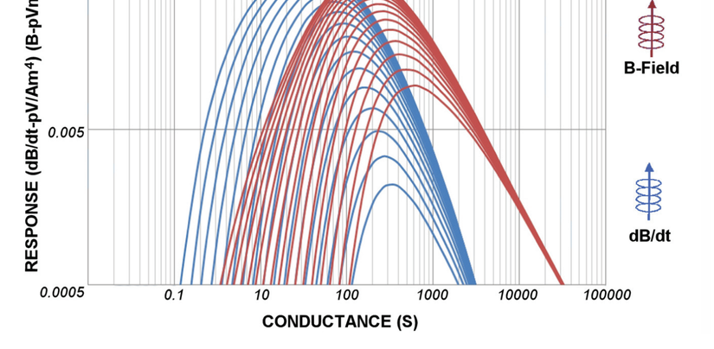
The decay constant values were obtained by fitting the amplitude data from the z-coil channels 14 to 45 (96 to 7036 µsec after turn-off) to an exponential function using least-squares linear regression. For each data sample, only those channel values exceeding a noise threshold of 0.025 pV/(A*m^4) were used. In semi-log space, the slope of this function will reflect the decay rate of the transient and therefore the conductivity. A slow rate of decay, reflecting a high conductivity, will be represented by a high decay constant value. The computed decay constant values were then microlevelled and interpolated onto a 40 m regular grid, using the minimum curvature algorithm.

EM Anomalies

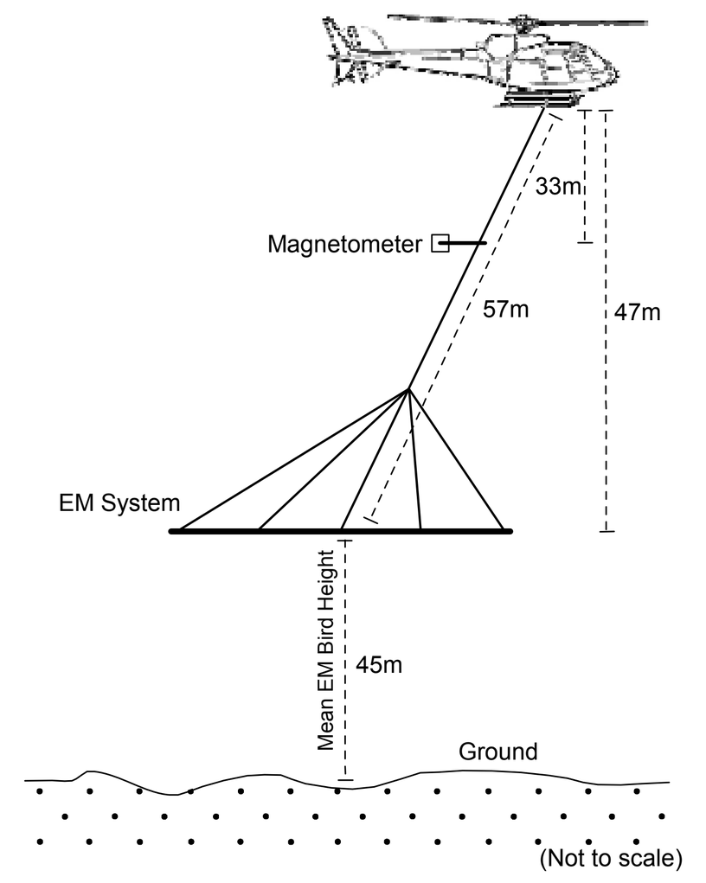
The VTEM®Plus system will respond to conductive overburden, near-surface horizontal conducting layers, man-made sources and bedrock conductors. Identification of natural conductors is based on the rate of transient decay, magnetic correlation and response shape, together with the response pattern and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

Anomalies were classified as having an inductively thin source, which produces a double-peaked (M-shaped) response with the trough centered over the conductor, or as an inductively thick source, which produces a single-peaked response centered over the conductor. The anomaly source conductance was computed assuming a 100 m by 100 m thin plate.

VERTICAL PLATE NOMOGRAM



SYSTEM CONFIGURATION



SURVEY PARAMETERS

AIRCRAFT
Type: AS350B3
Registration: C-FKOI

MAGNETOMETER
Type: Geometrics® G823A cesium vapour
Sensitivity: 0.02 nT
Noise level: ±0.004 nT
Sample interval: 10 readings per second
Sensor location: 33 m below aircraft

ELECTROMAGNETIC SYSTEM
Type: VTEM®Plus
Base frequency: 30 Hz
Current waveform: trapezoid
Peak dipole moment (NIA): 522 430 Am^2
Pulse width: 4.4 msec
Off-time: 7036 µsec
Pulse repetition: 30 cycles per second,
60 pulses per second
Parameters: Z-component of dB/dt
Noise levels: 0.0005 pV/(A*m^4)
Sample interval: 10 readings per second
Bird Location: 47 m below aircraft

NAVIGATION SYSTEM
GPS receiver: MID-TECH® RX400p
GPS sample interval: 5 readings per second
Radar altimeter: Terra TRA3000/TRI-40
Radar sample interval: 5 readings per second
Video flight path recorder: Archos™ 605 Wi-Fi

BASE STATION
Magnetometer: Geotech Base Station - Geometrics® G822B cesium-vapour sensor
Magnetometer sample interval: 10 readings per second

SURVEY SPECIFICATIONS
Survey date: January 26 to March 1, 2014
Nominal aircraft terrain clearance: 92 m
Traverse line spacing: 200 m
Control line spacing: 1500 m
Traverse line direction: north-south
Control line direction: east-west

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

Ontario

Ontario Geological Survey

MAP 82 648

AIRBORNE MAGNETIC AND ELECTROMAGNETIC SURVEYS

Colour-filled contours of the EM decay constant and electromagnetic anomalies

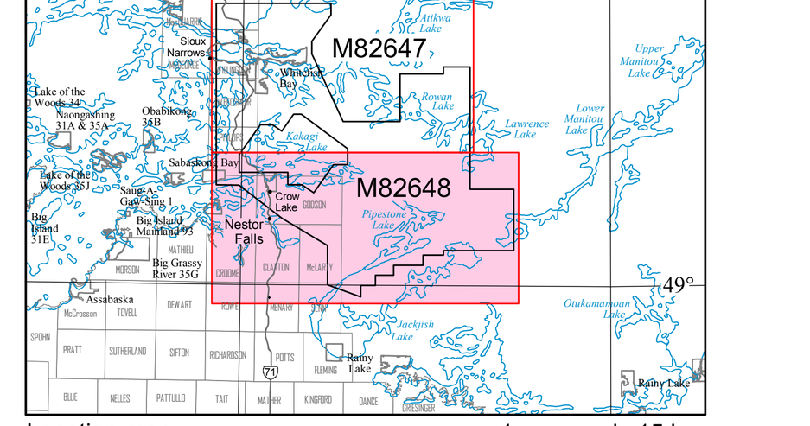
NESTOR FALLS AREA

Scale 1:50 000

500 m 0 0.5 1 km

NTS Reference: 52 C/13, 14; D/16; E/1; F/3, 4

This map is published with the permission of the Director, Ontario Geological Survey.



Location map 1 cm equals 15 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 0.1°W in 2014.

Meju, Maxwell, A. 1998. Short Note: A simple method of transient electromagnetic data analysis, Geophysics, v.63, no.2, p.405-410.

CREDITS

Data acquisition, data compilation and map production by Geotech Limited, Aurora, Ontario.

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

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

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 should 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, Nestor Falls area; Ontario Geological Survey, Geophysical Data Set 1076.

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.