

THESE TERMS GOVERN YOUR USE OF THIS DOCUMENT

Your use of this Ontario Geological Survey document (the “Content”) is governed by the terms set out on this page (“Terms of Use”). By downloading this Content, you (the “User”) have accepted, and have agreed to be bound by, the Terms of Use.

Content: This Content is offered by the Province of Ontario’s *Ministry of Northern Development and Mines* (MNDM) as a public service, on an “as-is” basis. Recommendations and statements of opinion expressed in the Content are those of the author or authors and are not to be construed as statement of government policy. You are solely responsible for your use of the Content. You should not rely on the Content for legal advice nor as authoritative in your particular circumstances. Users should verify the accuracy and applicability of any Content before acting on it. MNDM does not guarantee, or make any warranty express or implied, that the Content is current, accurate, complete or reliable. MNDM is not responsible for any damage however caused, which results, directly or indirectly, from your use of the Content. MNDM assumes no legal liability or responsibility for the Content whatsoever.

Links to Other Web Sites: This Content may contain links, to Web sites that are not operated by MNDM. Linked Web sites may not be available in French. MNDM neither endorses nor assumes any responsibility for the safety, accuracy or availability of linked Web sites or the information contained on them. The linked Web sites, their operation and content are the responsibility of the person or entity for which they were created or maintained (the “Owner”). Both your use of a linked Web site, and your right to use or reproduce information or materials from a linked Web site, are subject to the terms of use governing that particular Web site. Any comments or inquiries regarding a linked Web site must be directed to its Owner.

Copyright: Canadian and international intellectual property laws protect the Content. Unless otherwise indicated, copyright is held by the Queen’s Printer for Ontario.

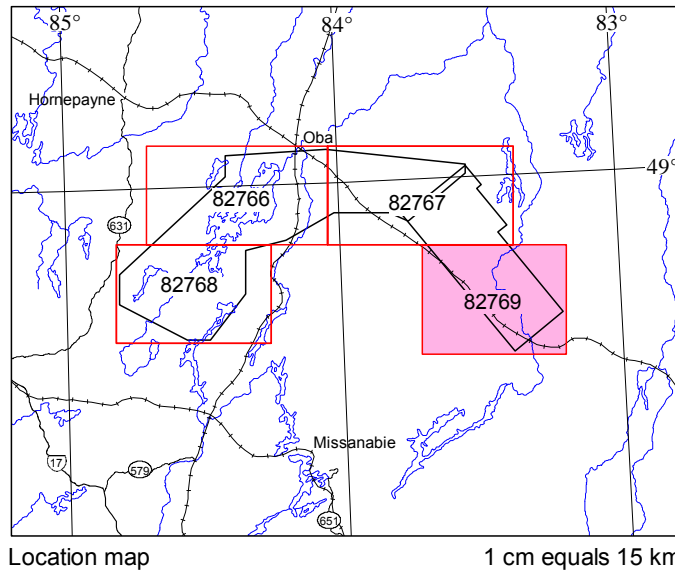
It is recommended that reference to the Content be made in the following form:

Ontario Geological Survey 2015. Airborne magnetic and electromagnetic surveys, colour-filled contours of the apparent conductivity and electromagnetic anomalies, Kabinakagami Lake area; Ontario Geological Survey, Map 82 769, scale 1:50 000.

Use and Reproduction of Content: The Content may be used and reproduced only in accordance with applicable intellectual property laws. *Non-commercial* use of unsubstantial excerpts of the Content is permitted provided that appropriate credit is given and Crown copyright is acknowledged. Any substantial reproduction of the Content or any *commercial* use of all or part of the Content is prohibited without the prior written permission of MNDM. Substantial reproduction includes the reproduction of any illustration or figure, such as, but not limited to graphs, charts and maps. Commercial use includes commercial distribution of the Content, the reproduction of multiple copies of the Content for any purpose whether or not commercial, use of the Content in commercial publications, and the creation of value-added products using the Content.

Contact:

FOR FURTHER INFORMATION ON	PLEASE CONTACT:	BY TELEPHONE:	BY E-MAIL:
The Reproduction of the EIP or Content	MNDM Publication Services	Local: (705) 670-5691 Toll-Free: 1-888-415-9845, ext. 5691 (inside Canada, United States)	Pubsales.ndm@ontario.ca
The Purchase of MNDM Publications	MNDM Publication Sales	Local: (705) 670-5691 Toll-Free: 1-888-415-9845, ext. 5691 (inside Canada, United States)	Pubsales.ndm@ontario.ca
Crown Copyright	Queen’s Printer	Local: (416) 326-2678 Toll-Free: 1-800-668-9938 (inside Canada, United States)	Copyright@gov.on.ca



SOURCES OF INFORMATION

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

Magnetic declination for the centre of the map area was
approximately 8°55'W in 2015.

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
Ministry of Northern Development and Mines, Sudbury, Ontario.

Every possible effort has been made to ensure the accuracy of
the information presented; however, the 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 publications:

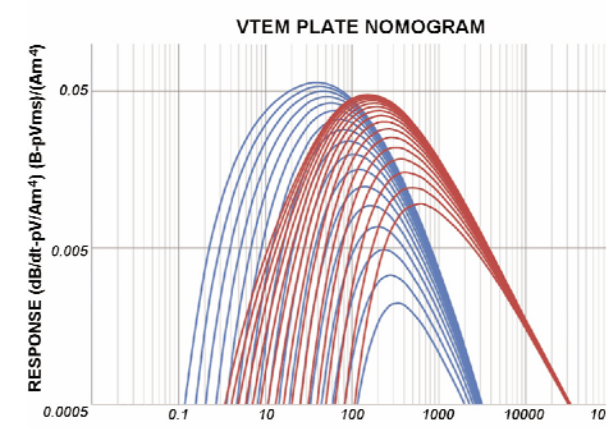
Ontario Geological Survey 2015. Ontario airborne geophysical
surveys, magnetic and electromagnetic data, grid and profile
data (ASCII format) and vector data, Kabinakagami Lake area,
Ontario Geological Survey, Geophysical Data Set 1079a.

Ontario Geological Survey 2015. Ontario airborne geophysical
surveys, magnetic and electromagnetic data, grid and profile
data (GeoTIFF format) and vector data, Kabinakagami Lake
area, Ontario Geological Survey, Geophysical Data Set 1079b.
Issued 2015.

Information from this publication may be quoted if credit is given.
It is recommended that reference be made in the following form:

Ontario Geological Survey 2015. Airborne magnetic and
electromagnetic surveys, colour-filled contours of the apparent
conductivity and electromagnetic anomalies, Kabinakagami Lake
area, Ontario Geological Survey, Map 82 769, scale 1:50 000.

VERTICAL PLATE NOMOGRAM



DESCRIPTIVE NOTES

Introduction

This survey was flown using the Geotech VTEM8Plus helicopter-
mounted magnetic and electromagnetic system. The aircraft
was also equipped with a GPS navigation system and a
digital data acquisition system.

Apparent Conductivity

Apparent conductivity was computed from the off-time
2-component data at each measurement location. The
transformation is based on the apparent resistivity transform
of Meju (1998) and TEM response from conductive half-space.
Geotech developed and implemented the program for VTEM
and depth calibrated data. This method can be expanded to
generate depth sections (CDBs). The effective depths for the
sections are derived empirically from the computed diffusion
depths resulting from forward modeling of the VTEM system.

EM Anomales

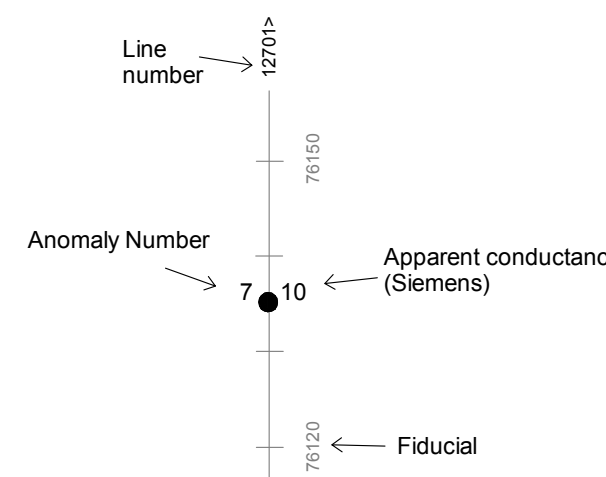
The VTEM8Plus system will respond to conductive overburden,
near-surface horizontal conducting layers, man-made sources
and bedrock conductors. Identification of natural conductors is
based on the rate of transient decay, magnetic correlation and
response shape, together with the response pattern and
topography. Man-made responses are identifiable by examining
the power line monitor and the flight track video.

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



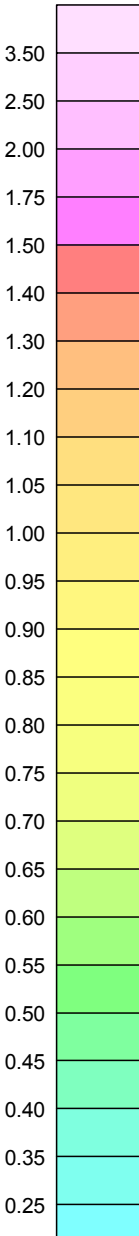
APPARENT CONDUCTIVITY

millisiemens/metre (mS/m)	
0.1 mS/m	2.5 mS/m
0.5 mS/m	Apparent conductance low

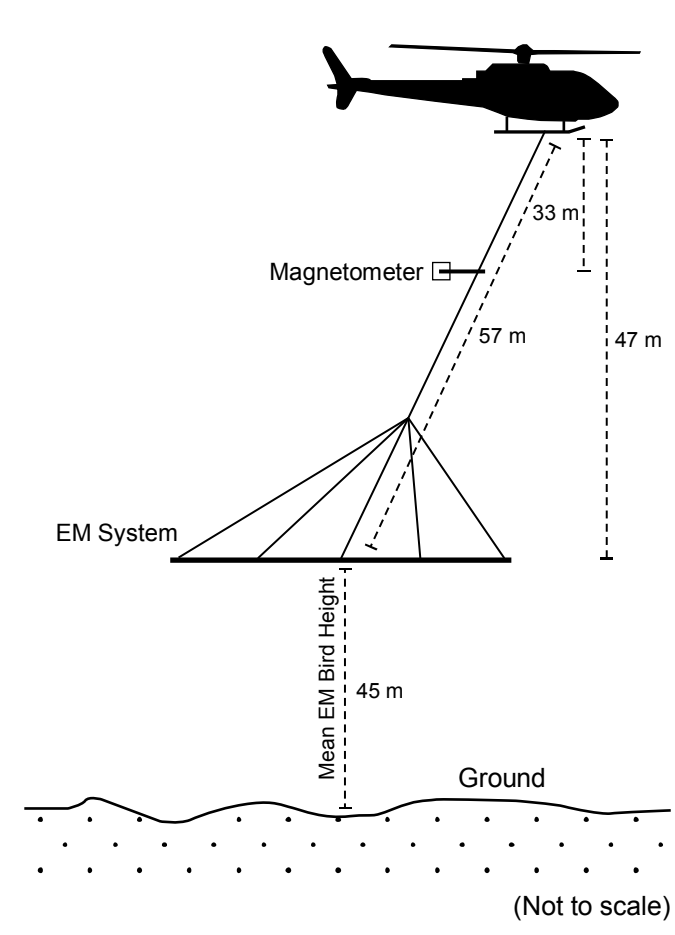
APPARENT CONDUCTIVITY GRID

millisiemens/metre

(mS/m)



SYSTEM CONFIGURATION



SURVEY PARAMETERS

AIRCRAFT

Type: AS350B3

Registration: C-GEOC

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: VTEM8Plus

Base frequency: 30 Hz

Current waveform: trapezoid

Peak dipole moment (NA): 388 640 Am²

Pulse width: 7.078 msec

Off-time: 8083 µsec

Pulse repetition: 30 cycles per second

60 pulses per second

Parameters: 2 component of dB/dt

Noise levels: 0.0005 pV/Am

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®

cesium-vapour sensor

Magnetometer sample interval: 10 readings per second

SURVEY SPECIFICATIONS

Survey date: July 18 to October 22, 2014

Nominal aircraft terrain clearance: 92 m

Traverse line spacing: 200 m

Control line spacing: 1500 m

Traverse line direction: NS for Block 1 and NE-SW for Block 2

Control line direction: EW for Block 1 and NW-SE for Block 2

CO-ORDINATE SYSTEM

Projection: Universal Transverse Mercator

Datum: NAD83

Central meridian: 87°00'W (UTM zone 16)

Central scale factor: 0.9996

False easting: 500 000 m

False northing: 0 m