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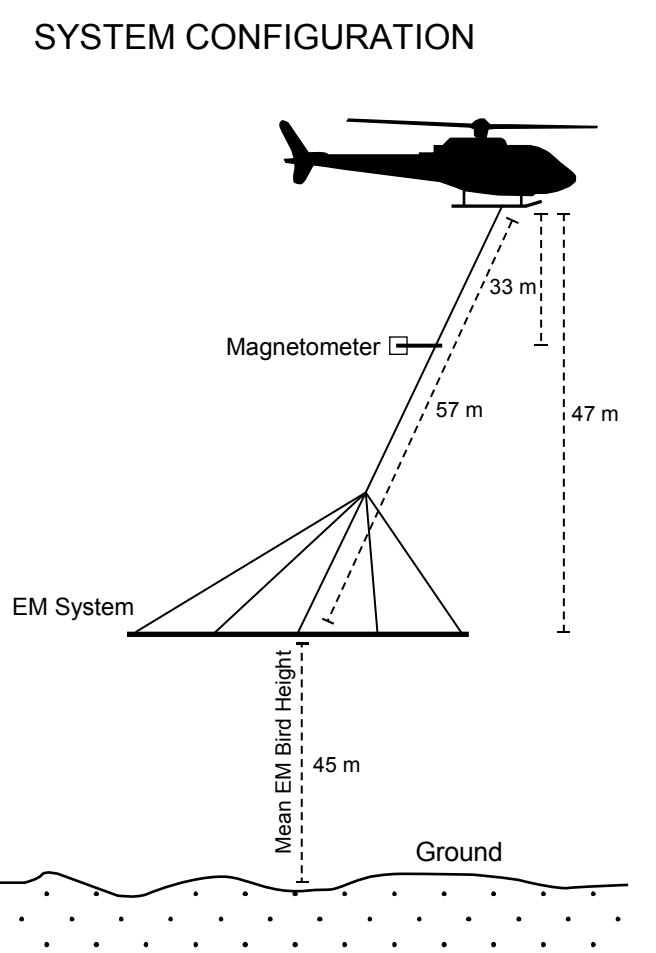
Ontario Geological Survey 2015. Airborne magnetic and electromagnetic surveys, residual magnetic field contours with electromagnetic anomalies and Keating coefficients, Kabinakagami Lake area; Ontario Geological Survey, Map 82 740, scale 1:20 000.

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## KABINAKAGAMI LAKE AREA

Scale 1:20 000  
0 0.5 1 km  
NTS Reference: 42 B/13, C/16; F/1, G/4  
(Not to scale)© Queen's Printer for Ontario, 2015.  
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## SURVEY PARAMETERS

AIRCRAFT  
Type: AS350B3  
Registration: C-GECG

MAGNETOMETER  
Type: Geometrics® GR23A cesium vapour  
Sensitivity: 0.02 nT  
Noise level: 0.005 nT  
Sample interval: 10 readings per second  
Sensor location: 33 m below aircraft

ELECTROMAGNETIC SYSTEM  
Type: VTEM®  
Base frequency: 30 Hz  
Current waveform: trapezoid  
Pulse amplitude: 100 A/m, 388 640 Amf  
Pulse width: 7.078 msec  
Off-time: 8083 sec  
Pulses per second: 60 cycles per second  
Parameters: Z=600 ohms, 100 ohm load  
Noise levels: 0.0005 pV/Am²  
Sample interval: 10 readings per second  
Bird height: 45 m above aircraft

NAVIGATION SYSTEM  
GPS receiver: MID-TECH® RX400p  
GPS sample interval: 5 readings per second  
Radio altimeter: 100 ft  
Radar sample interval: 5 readings per second  
Video flight path: Archos® 605 Wi-Fi

BASE STATION  
Magnetometer: Geotech Base Station, Geometrics®  
Magnetometer sample interval: 10 readings per second

SURVEY SPECIFICATIONS  
Survey date: October 22, 2014  
Nominal aircraft terrain clearance: 32 m

Traverse line spacing: 200 m

Control line spacing: 500 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  
Projected: Universal Transverse Mercator

Datum: NAD83

Central meridian: 87° W (UTM zone 16)

False easting: 500 000 m

False northing: 0 m

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.

RESIDUAL MAGNETIC FIELD MAP

The contours of residual magnetic intensity were generated from control data and were corrected for the effects of the survey aircraft. The data were corrected for normal variations, levelling to the control lines and interpolated onto a 40 m regular grid using the minimum curvature method.

Field (IGRF) correction was applied to the total magnetic field data at survey altitude using the 2010 model extrapolated to Sept. 2014. This correction removed the effect of the Earth's magnetic field to the Ontario Master Aeromagnetic Grid.

Magnetic declination from July 19, 2014 to October 22, 2014 for the centre of the survey area was 8.9° W. Magnetic inclination was 68.2°. The magnetic dip angle for the centre of the survey area was 74.2° N. Magnetic field strength was 56900 nT (calculated using IGRF).

EM ANOMALIES

The VTEM®Plus system will respond to conductive overburden, near-surface conductive anomalies and magnetic sources and to magnetic anomalies. Identification of natural conductors is based on the rate of transient decay, magnetic correlation and response to changes in terrain, geology and topography. Man-made responses are identified 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 (Marconi-shaped) response, or an inductively thick source, which produces a single-peaked response centered over the conductive source. Conductance was computed assuming a 100 m by 100 m thin plane.

KEATING CORRELATION COEFFICIENTS

Keating correlation coefficients have been identified for the residual magnetic anomalies based on the identification of roughly circular anomalies. The procedure was automated by using a vertical cylinder model and the VTEM®Plus software, which consists of computing, over a moving window, a first-order regression between a vertical cylinder model anomaly and the measured data. The correlation coefficient is the ratio of the value of the correlation coefficient above a threshold of 75% were the correlation coefficient is considered significant. The value is scaled to reflect the correlation value. The most favourable targets are those that exhibit a cluster of high amplitude solutions. Current theory suggests that conductive anomalies are often reverse magnetized sources. It is important to be aware that overburden conductors may correlate well with the vertical cylinder model, whereas some kimberlite pipes of irregular geometry may not.

CYLINDER MODEL PARAMETERS:

Cylinder diameter: 6.0 m

Cylinder length: 6.0 m

Overburden thickness: 6.0 m

Magnetic declination: 8.45 degrees N

Window size: 13 x 13 cells (520 m by 520 m)

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

Every possible effort has been made to ensure the accuracy of the information contained in this map. 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 survey, magnetic and electromagnetic, gridded 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, gridded and profile data (ASCII format) and vector data, Kabinakagami Lake area; Ontario Geological Survey, Geophysical Data Set 1079b.

Issued 2015.

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