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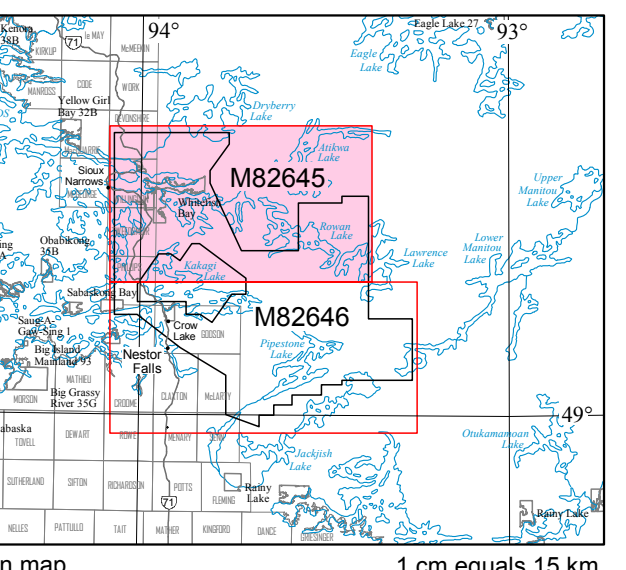
It is recommended that reference to the Content be made in the following form:

Ontario Geological Survey 2014. Airborne magnetic and electromagnetic surveys, shaded colour image of the second vertical derivative of the residual magnetic field and Keating coefficients, Nestor Falls area; Ontario Geological Survey, Map 82 645, scale 1:50 000.

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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. Keating, P.B. 1995. A simple technique to identify magnetic anomalies due to kimberlite pipes. Exploration and Mining Geology, v.4, no.2, p.121-125.

CREDITS

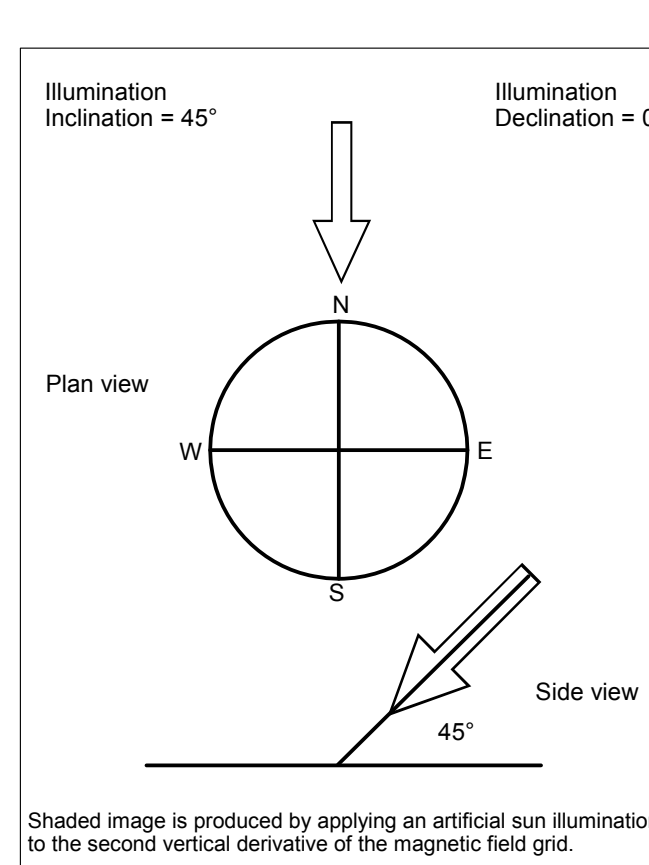
Data acquisition, data compilation and map production by Geotech Limited, Aurora, Ontario. Project management and quality assurance by Paterson, Grant and Watson Limited, Toronto, Ontario. Contract management, base maps and map surrounds by the Ontario Ministry of Northern Development and Mines, Sudbury, 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 GeoTIFF formats) and vector data, Nestor Falls area, Ontario Geological Survey, Geophysical Data Set 1076, issued 2014.

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 2014. Airborne magnetic and electromagnetic surveys, shaded colour image of the second vertical derivative of the residual magnetic field and Keating coefficients, Nestor Falls area, Ontario Geological Survey, Map 82 645, scale 1:50 000.

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

SHADED IMAGE SUN ANGLE



DESCRIPTIVE NOTES

Introduction: This survey was flown using the Geotech VTEMPlus helicopter-mounted magnetic and electromagnetic system. The aircraft was also equipped with a GPS navigation system and a digital inclinometer. Second Vertical Derivative of the Magnetic Field: The second vertical derivative values 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 second vertical derivative and a sixth-order Butterworth low-pass filter (200 m cut-off wavelength). The low-pass filter was aimed at attenuating unwanted high frequencies enhanced by the derivative operator.

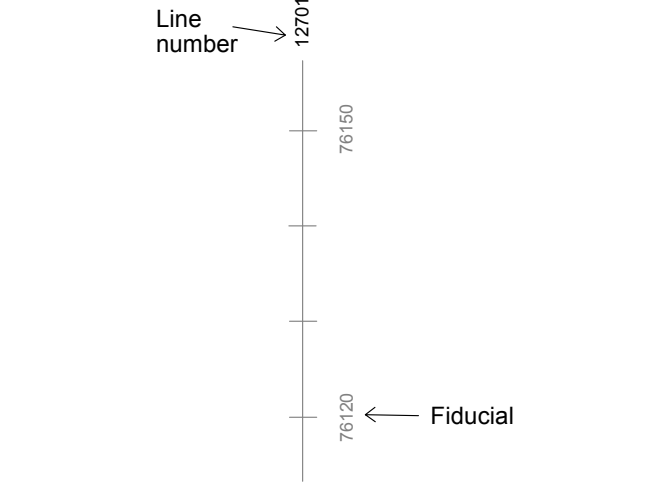
Shaded relief parameters: Shading inclination: 45° Shading declination: 0° azimuth

Keating Correlation Coefficients: Possible kimberlite targets have been identified from the residual magnetic intensity data, based on the identification of roughly circular anomalies. This procedure was automated by using a known pattern-recognition technique (Keating 1995), which consists of comparing, over a moving window, a first-order regression between a vertical cylinder model anomaly and the gridded magnetic data. Only the results where the absolute value of the correlation coefficient is above a threshold of 75% were retained. The results are depicted as circular symbols, scaled to reflect the correlation value. The most favourable targets are those that exhibit a cluster of high amplitude solutions. Correlation coefficients with a negative value correspond to reversely magnetized sources. It is important to be aware that other magnetic sources may correlate well with the vertical cylinder model, whereas some kimberlite pipes of irregular geometry may not.

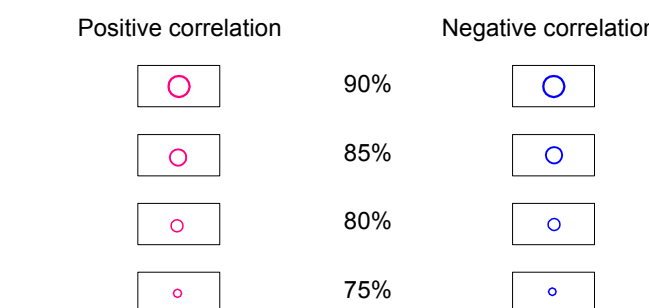
Keating model parameters: Cylinder diameter: 200 m Cylinder length: infinite Overburden thickness: 8.1 m Magnetic inclination: 74.3 degrees N Magnetic declination: 0.28 degrees E Window size: 13 x 13 cells (520 m by 520 m)

LEGEND

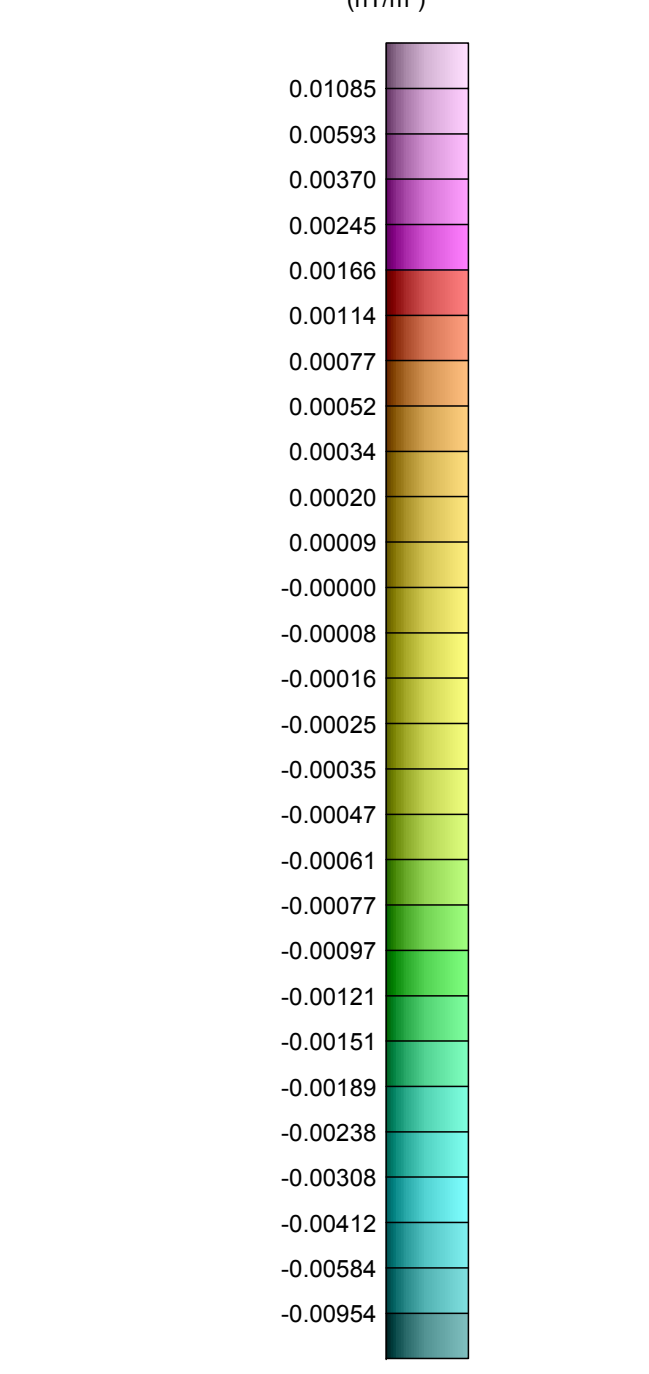
FLIGHT LINE INFORMATION



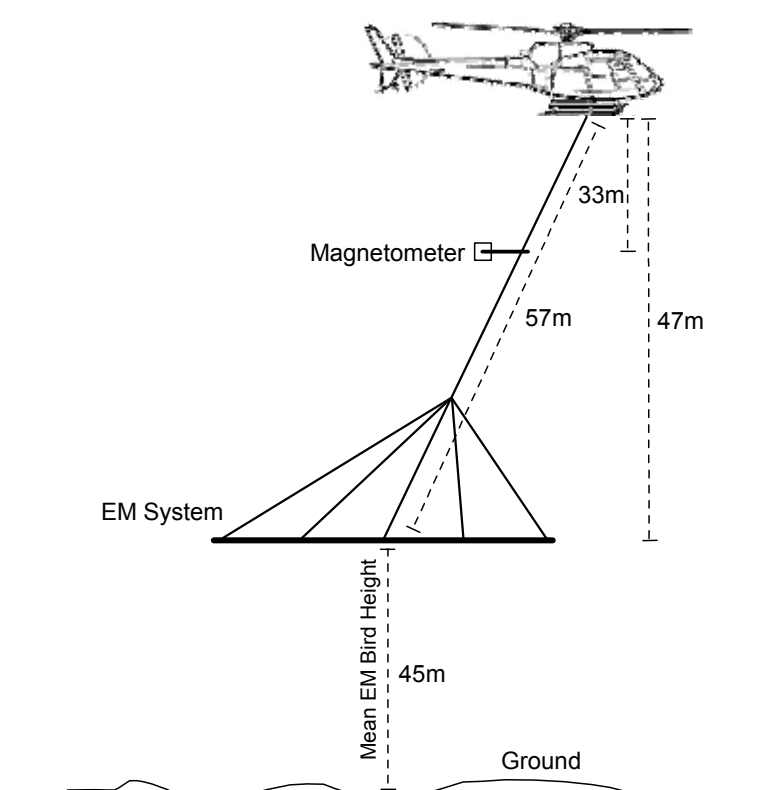
KEATING COEFFICIENTS



SECOND VERTICAL DERIVATIVE OF THE MAGNETIC FIELD GRID nanoteslas per metre²



SYSTEM CONFIGURATION



SURVEY PARAMETERS

AIRCRAFT: Type: AS350B3 Registration: G-FK0I MAGNETOMETER: Type: Geometrics® G823A cesium vapour Sensitivity: 0.02 nT Noise level: 30.00 nT Sample interval: 10 readings per second Sensor location: 33 m below aircraft ELECTROMAGNETIC SYSTEM: Type: VTEMPlus Base frequency: 30 Hz Current waveform: trapezoid Peak dipole moment (N·A): 522 430 Am² Pulse width: 4.4 msec Off time: 7030 µsec Pulse repetition: 30 cycles per second 60 pulses per second Parameters: 2 component of drift Noise levels: 0.0005 pV(A·m²) Sample interval: 10 readings per second Bird Location: 47 m below aircraft NAVIGATION SYSTEM: GPS receiver: MID-TECH® ROMA00 GPS sample interval: 5 readings per second Radar altimeter: Terra TRS3000/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: 500 m Traverse line direction: north-south Control line direction: east-west CO-ORDINATE SYSTEM: Projection: Universal Transverse Mercator Datum: NAD83 Central meridian: 83°00'W (UTM zone 15) Central scale factor: 0.9996 False easting: 500 000 m False northing: 0 m

