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DESCRIPTIVE NOTES

INTRODUCTION

The data comprising this map are derived from the results of an airborne magnetic gradiometer and gamma-ray spectrometric survey carried out by Terraquest Ltd. The survey was flown using 3 aircraft: 1 Piper PA-31-325 Navajo and 2 Cessna Caravan 208B's. The aircraft were equipped with Geometrics and Scintrex magnetic sensors, Exploranium and Radiation Solution gamma-ray spectrometers, a GPS navigation system and a digital data acquisition system.

TERNARY RADIOELEMENT MAP

The ternary radioelement image was prepared by modulating the red, green and blue (RGB) components of the colour spectrum using the normalized radioelement counts of potassium (K), equivalent thorium (eTh) and equivalent uranium (eU), respectively. Prior to image generation, individual radioelement grid points were normalized using a modified radioelement sum (K + U + Th/4) followed by histogram equalization. Brighter areas display zones of higher count levels and tend to outline unit boundaries and structure.

The gamma-ray spectrometer response represents radioactivity emanating from the upper 30 cm of the earth's surface. The surface concentrations are influenced by varying amounts of outcrop, overburden, vegetation cover, soil moisture and surface water.

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 11°43'W in 2016.

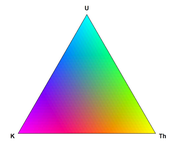
LEGEND

FLIGHT LINE INFORMATION

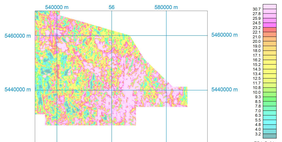
Line number — ←Line direction

← Fiducial

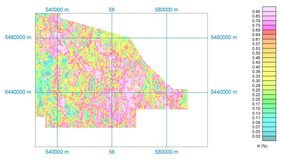
TERNARY RADIOELEMENT IMAGE



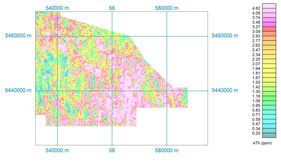
TOTAL COUNT (natural air absorbed dose rate, nGy per hour)



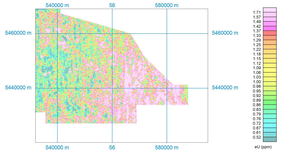
K (potassium concentration, %)



eTh (equivalent thorium, ppm)



eU (equivalent uranium, ppm)



Ontario

Ontario Geological Survey

MAP 82 837

AIRBORNE MAGNETIC GRADIOMETER AND GAMMA-RAY SPECTROMETRIC SURVEYS

Ternary radioelement image

SMOOTH ROCK FALLS AREA

Scale 1:50 000

1 km 0 1 2 km

NTS References: 32 E/4, 5; 42 H/1, 8

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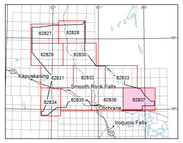

Location map 1 cm equals 35 km

SURVEY PARAMETERS

AIRCRAFT
Type: Piper PA-31-325 Navajo, Cessna Caravan 208B
Registration: C-GXKS, C-GSGV, C-GSGW

MAGNETOMETER
Type: Scintrex CS-3 single cell cesium vapour (C-GXKS), Geometrics G-822A (C-GSGV, C-GSGW)
Sensitivity: 0.0006 nT (C-GXKS), 0.005 nT (C-GSGV, C-GSGW)
Noise level: 0.2 nT (C-GXKS), 0.0005 nT (C-GSGV, C-GSGW)
Sample rate: set - 10 readings per second
Sensor locations:
wingtips (transverse separation for C-GXKS: 14.6 m; for C-GSGV, and C-GSGW: 19.03 m);
tail stinger (longitudinal separation for C-GXKS: 9.2 m; for C-GSGV, and C-GSGW: 12 m)
Compensation:
RMS DAARC500 (C-GXKS),
Sander Geophysics-AirComp (C-GSGV, C-GSGW)
Data acquisition:
RMS DAARC500 (C-GXKS),
SGDAS (C-GSGV, C-GSGW)

GAMMA-RAY SPECTROMETER SYSTEM
Type:
Radiation Solution RS-500 (C-GXKS)
Exploranium GR-820 (C-GSGW)
RS-601 with crystal detector packs RSX-5 (C-GSGV)
Downward-looking crystal volume: 33.6 L
Upward-looking crystal volume: 8.4 L
Number of channels: 256 (C-GSGW, C-GXKS), 1024 (C-GSGV)
Sample interval: 1 reading per second
Sensor location: near centre of aircraft
Potassium window: 1370 to 1570 keV
Uranium window: 1660 to 1860 keV
Thorium window: 2410 to 2810 keV
Total count window: 410 to 2810 keV

NAVIGATION SYSTEM
GPS receiver:
AgNav Inc, LINav P151 (C-GXKS),
NovAtel OEMV-3 (C-GSGV, C-GSGW)
GPS sample interval: 10 readings per second
Radar altimeter: King KRA-10A
Radar sample interval: 10 readings per second
Barometric altimeter:
Honeywell PPT0025AWN2VA-C (C-GXKS)
Sensotec Digital Barometric Pressure Sensor (C-GSGV, C-GSGW)
Barometric sample interval: 10 readings per second
Video flight path camera:
Allied Vision Technology PROSILICA GT2450C (C-GXKS)
SGDIS-Data Toys ES80 Bullet Camera (C-GSGV, C-GSGW)
Navigation acquisition:
RMS DAARC500 (C-GXKS), SGDAS (C-GSGV, C-GSGW)

BASE STATION
Type: Scintrex CS-3 single cell cesium vapour (C-GXKS)
Geometrics G-822A (C-GSGV, C-GSGW)
Magnetometer sample interval: 1 reading per second
GPS sample interval: 1 reading per second

SURVEY SPECIFICATIONS
Survey date: August 16 to November 15, 2015
Nominal aircraft terrain clearance: 100 m
Traverse line spacing: 200 m
Control line spacing: 2000 m
Traverse line direction: North-south
Control line direction: East-west

CO-ORDINATE SYSTEM
Projection: Universal Transverse Mercator
Datum: NAD83
Central meridian: 81°W (UTM zone 17N)
Central scale factor: 0.9996
False easting: 500 000 m
False northing: 0 m

CREDITS

Data acquisition, data compilation and map production by Terraquest Ltd., Markham, Ontario.

Project management and quality assurance by Paterson, Grant and Watson Ltd., 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 on this map; 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 2016. Ontario airborne geophysical surveys, magnetic gradiometer and gamma-ray spectrometric data, grid and profile data (ASCII format) and vector data, Smooth Rock Falls area; Ontario Geological Survey, Geophysical Data Set 1082a.

Ontario Geological Survey 2016. Ontario airborne geophysical surveys, magnetic gradiometer and gamma-ray spectrometric data, grid and profile data (Geosoft® formats) and vector data, Smooth Rock Falls area; Ontario Geological Survey, Geophysical Data Set 1082b.

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