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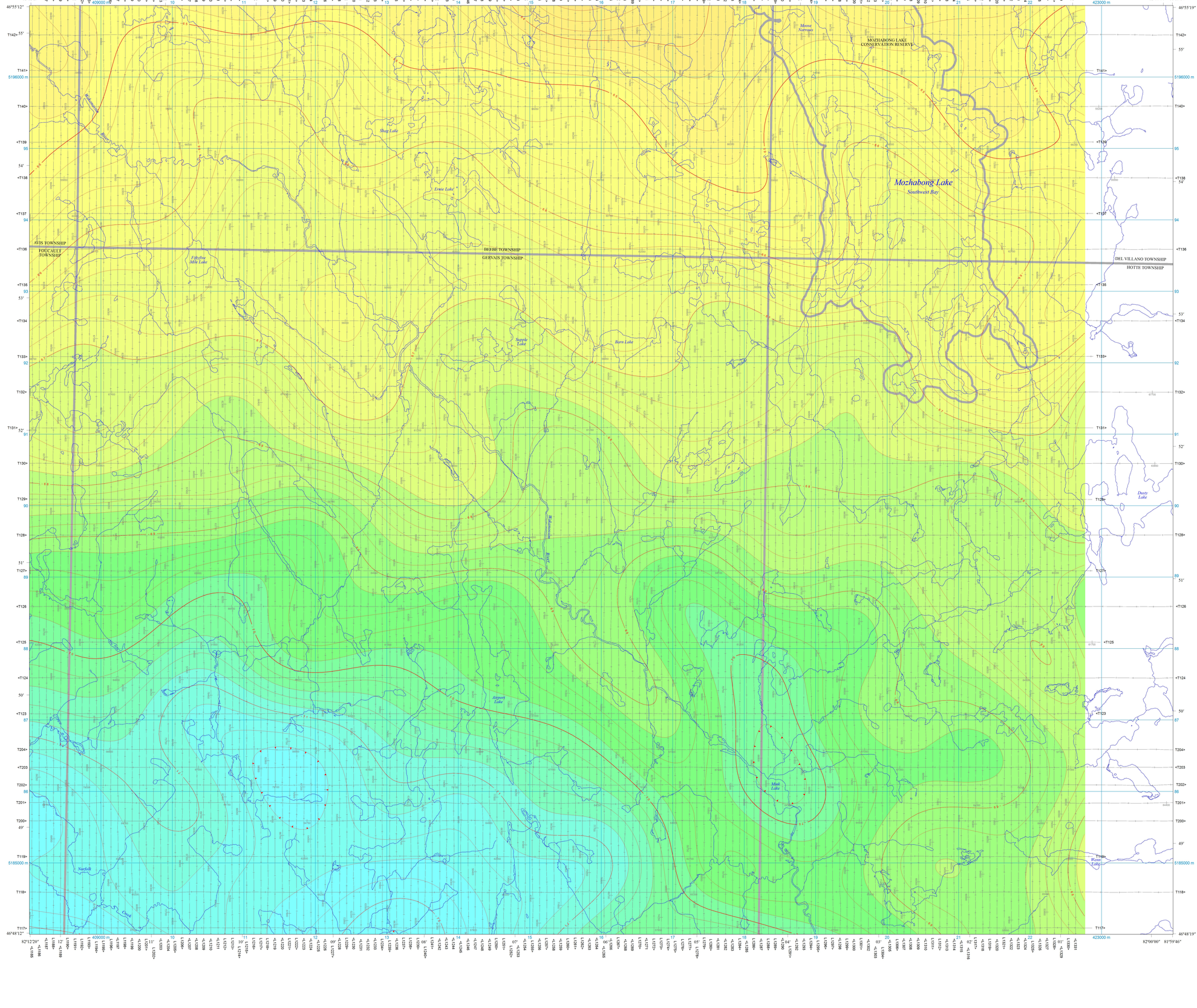

SURVEY PARAMETERS

AIRCRAFT
Type: Britten-Norman® BN2B-21 Islander
Registration: C-GSGR and C-GSGX

MAGNETOMETER
Type: Geometrics Ltd. G-822A cesium split beam
Sensitivity: 0.005 nT
Noise level: 0.0005 nT
Sample interval: 10 readings per second
Sensor location: tail stinger
Compensation: Sander Geophysics Ltd. AIRComp
Data acquisition: SGDAS

AIRBORNE GRAVIMETER SYSTEM
Type: Sander Geophysics Ltd. AIRGrav
Initial sample interval: 128 readings per second
Final sample interval: 2 readings per second
Noise level: <0.2 mGal, with half sine wave resolution of 1.8 to 2 km

NAVIGATION SYSTEM
GPS receiver: NovAtel® OEMV®
GPS sample interval: 10 readings per second
Laser altimeter: Measurement Devices Ltd. ILM-1500-HR
Radar altimeter: Bendix King® KRA-10A
Radar sample interval: 10 readings per second
Barometric altimeter: Honeywell Sensotec digital barometric pressure sensor
Barometric sample interval: 10 readings per second
Video flight-path camera: Datatoys Video Systems™ E600
Navigation acquisition: SGDAS

BASE STATION
Type: Geometrics Ltd. G-822A cesium split beam
Magnetometer sample interval: 10 readings per second
GPS sample interval: 10 readings per second

SURVEY SPECIFICATIONS
Survey dates: April 27, 2016 to March 2, 2017
Nominal aircraft terrain clearance: 70 m
Traverse-line spacing: 100 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: 81°W (UTM zone 17N)
Central scale factor: 0.9996
False easting: 500 000 m
False northing: 0 m

LEGEND

FLIGHT LINE INFORMATION

Line number → 12100 ←Line direction
5000 ← Fiducial

GRAVITY CONTOURS

milligal (mGal)

0.2 mGal contour
1.0 mGal contour
5.0 mGal contour
Gravity depression

BOUGUER GRAVITY GRID

milligal (mGal)

-57.6
-58.6
-59.2
-59.6
-60.0
-60.6
-61.2
-61.6
-62.2
-62.8
-63.4
-64.2
-64.8
-65.2
-65.8
-66.4
-67.0
-67.8
-68.6
-69.2
-69.8
-70.4
-70.8
-71.2
-71.6
-72.6
-73.2
-74.2

Ontario

Ontario Geological Survey

MAP 60 529

AIRBORNE MAGNETIC AND GRAVIMETRIC SURVEYS

Colour-filled contours of the terrain-corrected Bouguer gravity

MOZHABONG LAKE AREA

Scale 1:20 000

500 m 0 0.5 1 km

NTS References: 41 I/13; J/16

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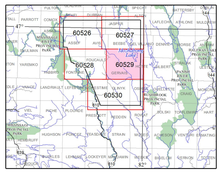

Location map 1 cm equals 10 km

DESCRIPTIVE NOTES

INTRODUCTION

The data comprising this map are derived from the results of an airborne magnetic and gravimetric survey carried out by Sander Geophysics Ltd. The survey was flown using a Britten-Norman® BN2B-21 Islander aircraft. The aircraft was equipped with a Geometrics Ltd. magnetic sensor, a Sander Geophysics Ltd. AIRGrav airborne gravity system, GPS navigation system and a digital data acquisition system.

TERRAIN-CORRECTED BOUGUER GRAVITY MAP

Gravity data were recorded at 128 Hz. Accelerations were filtered and decimated to match GPS measurements using specially designed filters to avoid biasing the data. Gravity was calculated by subtracting the GPS derived aircraft accelerations from the inertial accelerations. In survey flying, accelerations in an aircraft can reach 0.1 g, equivalent to 100 000 mGal. Data processing must extract gravity data from this very dynamic environment. This was achieved by modelling the movements of the aircraft in flight by extremely accurate GPS measurements. The calculated gravity was corrected for the Eötvös effect and normal gravity and the sample interval was reduced to 2 Hz.

The following standard corrections were applied to the gravity data to calculate the Bouguer anomaly data:
Eötvös correction
Normal gravity (g)
Free air correction (g_{fa})
Bouguer correction (g_{bc})
Curvature correction (g_{cc})
Terrain correction (g_t)
Static correction (g_{sc})
Level correction (g_{lc})

Thus, the Bouguer anomaly = $G - g_e - g_{fa} + g_{bc} + g_{cc} + g_t - g_{sc} - g_{lc}$, where G is the calculated gravity adjusted for Eötvös effect and normal gravity.

SOURCES OF INFORMATION

Base map information derived from the Land Information Ontario Data Warehouse, Land Information Ontario, scale 1:50 000, with modifications by staff of the Ministry of Northern Development, Mines, Natural Resources and Forestry.

Magnetic declination, for centre of the map area, was approximately 9°10.8' W in 2021, and was calculated using the International Geomagnetic Reference Field (IGRF-13, version December 2019).

ACKNOWLEDGMENT

The geophysical data that comprise this survey were generously donated by the Nuclear Waste Management Organization (NWMO). The survey was flown for the NWMO under the original name of "Elliot Lake and Blind River Survey Area".

CREDITS

Data acquisition and data compilation by Sander Geophysics Ltd., Ottawa, Ontario for Nuclear Waste Management Organization, Toronto, Ontario.

Data reprocessing and map production by Scott Hogg and Associates Ltd., Toronto, Ontario.

Contract management, base maps and map surrounds by the Ministry of Northern Development, Mines, Natural Resources and Forestry, 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, Mines, Natural Resources and Forestry does not assume liability for 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 2021. Ontario airborne geophysical surveys, magnetic and gravimetric data, grid and profile data (ASCII and Geosoft® formats) and vector data, Mozhabong Lake area; Ontario Geological Survey, Geophysical Data Set 1251.

Issued 2021.

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