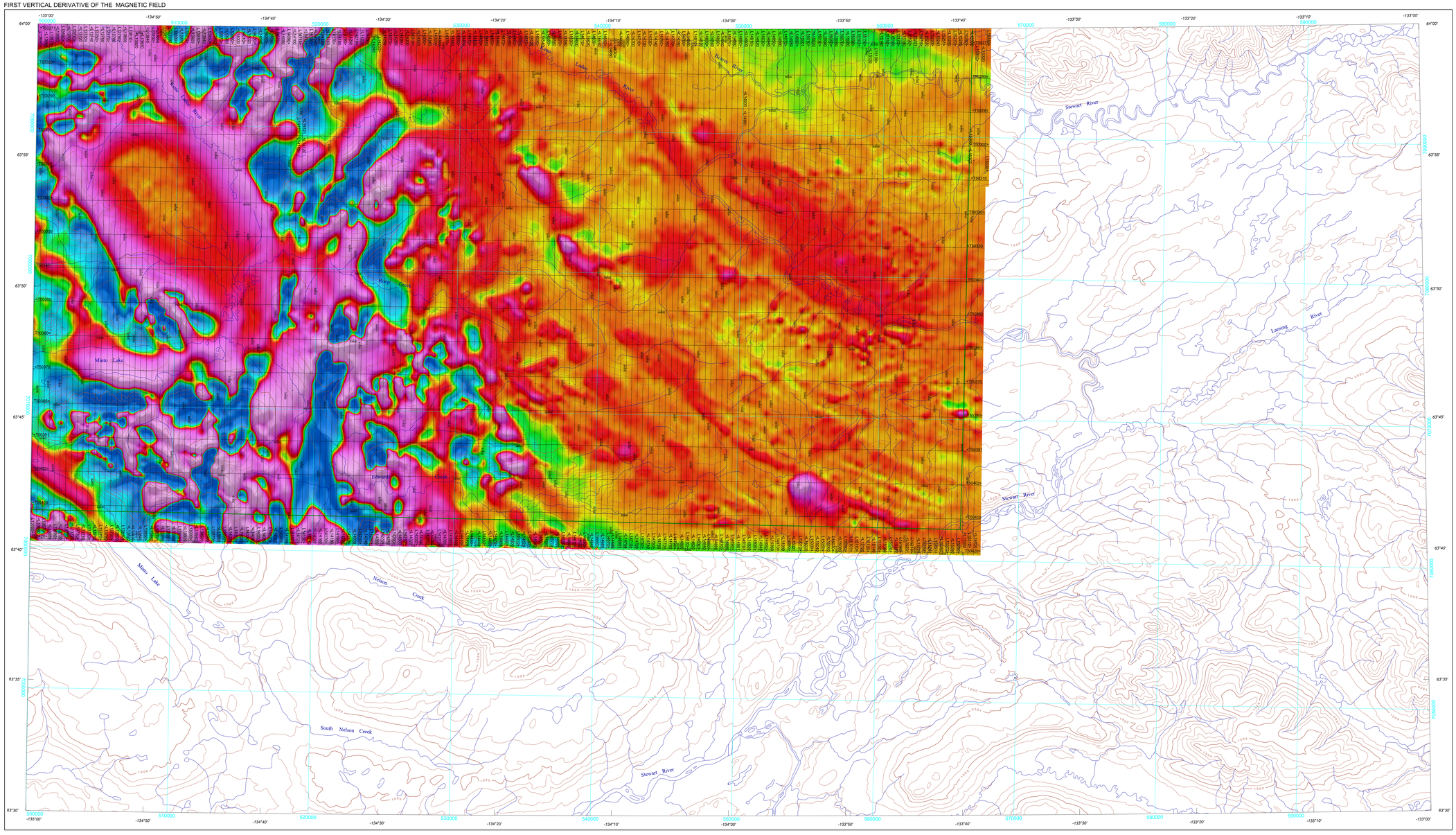
Natural Resources Canada / Ressources naturelles Canada

FIRST VERTICAL DERIVATIVE OF THE MAGNETIC FIELD



First Vertical Derivative of the Magnetic Field

This map of the First Vertical Derivative of the Magnetic Field was derived from data acquired during an aeromagnetic survey carried out by Geo Data Solutions (GDS) Inc. from January 19, 2020 to March 28, 2020. The data were recorded using a split-beam cesium vapour magnetometer (sensitivity = 0.005 nT) mounted in the tail boom of a Beechcraft King Air aircraft (C-FLRB). The nominal traverse and control line spacings were, respectively, 400 m and 2400 m, and the aircraft flew at a nominal terrain clearance of 150 m. Traverse lines were oriented N0°E with orthogonal control lines. The flight path was recovered following post-flight differential corrections to the raw Global Positioning System (GPS) data and inspection of ground images recorded by a vertically-mounted video camera. The survey was flown on a pre-determined flight surface to minimize differences in magnetic values at the intersections of control and traverse lines. These differences were computer-analysed to obtain a mutually levelled set of flight-line magnetic data. The levelled values were then interpolated to a 100 m grid. The International Geomagnetic Reference Field (IGRF) defined at the average GPS altitude of 1630 m for the year 2020.2 was then removed. Removal of the IGRF, representing the magnetic field of the Earth's core, produces a residual component related almost entirely to magnetizations within the Earth's crust.

The first vertical derivative of the magnetic field is the rate of change of the magnetic field in the vertical direction. Computation of the first vertical derivative removes long-wavelength features of the magnetic field and significantly improves the resolution of closely spaced and superposed anomalies. A property of first vertical derivative maps is the coincidence of the zero-value contour with vertical contacts at high magnetic latitudes (Hood, 1965).

This publication is available for free download through GEOSCAN (http://geoscan.nrcan.gc.ca). Corresponding digital profile and gridded data as well as similar data for adjacent airborne geophysical surveys are available from Natural Resources Canada's Geoscience Data Repository for Aeromagnetic data at http://gdr.agg.nrcan.gc.ca. For more information about this survey, please contact the Geophysical Data Centre, Geological Survey of Canada, 601 Booth Street, Ottawa, Ontario K1A 0E8. Telephone: (613) 995-5326, email: nrcan.infogdc-infocgi.rncan@canada.ca.

Copies of this map may also be obtained from the Yukon Geological Survey, Energy, Mines and Resources, Government of Yukon, P.O. Box 2703 (K-102), Whitehorse, Yukon, Y1A 2C6. Telephone: (867) 667-3201, email: geology@gov.yk.ca, website: http://www.geology.gov.yk.ca.

Reference

Hood, P.J., 1965. Gradient measurements in aeromagnetic surveying; Geophysics, v. 30, p. 891-902.

Acknowledgements

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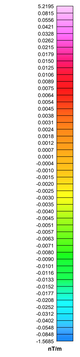

PLANIMETRIC SYMBOLS

Project Limit .....
Drainage .....
Topographic Contour .....
Building .....
Road .....
Mine / Quarry.....
Runway .....
Flight Path ..... L12370>
52500

MAP SHEET SUMMARY

Sheet 1: Residual Total Magnetic Field, parts of NTS 115-P (north half) and 116-A (south half)
Sheet 2: Residual Total Magnetic Field, parts of NTS 105-M (north half) and 115-P (north half)
Sheet 3: Residual Total Magnetic Field, parts of NTS 105-M, N (north halves)
Sheet 4: Residual Total Magnetic Field, parts of NTS 116-A (south half) and 106- D
Sheet 5: Residual Total Magnetic Field, parts of NTS 106-C, D
Sheet 6: First Vertical Derivative of the Magnetic Field, parts of NTS 115-P (north half) and 116-A (south half)
Sheet 7: First Vertical Derivative of the Magnetic Field, parts of NTS 105-M (north half) and 115-P (north half)
Sheet 8: First Vertical Derivative of the Magnetic Field, parts of NTS 105-M, N (north halves)
Sheet 9: First Vertical Derivative of the Magnetic Field, parts of NTS 116-A (south half) and 106- D
Sheet 10: First Vertical Derivative of the Magnetic Field, parts of NTS 106-C, D

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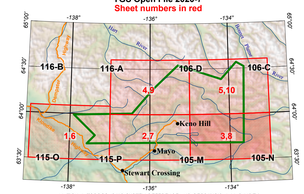
YGS Open File 2020-7
Sheet numbers in red



NATIONAL TOPOGRAPHIC SYSTEM REFERENCE AND GEOPHYSICAL MAP INDEX

AEROMAGNETIC SURVEY OF THE NASH CREEK AREA YUKON

Author: F. Kiss

Data acquisition and data compilation by
Geo Data Solutions (GDS) Inc. Laval, Quebec

Contract and project management by the
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Permanent link: https://doi.org/10.4095/326147

GEOLOGICAL SURVEY OF CANADA OPEN FILE 8728
YUKON GEOLOGICAL SURVEY OPEN FILE 2020-7

AEROMAGNETIC SURVEY OF THE NASH CREEK AREA
YUKON
PARTS OF NTS 105-M, N, 106-C, D, 115-P AND 116-A

FIRST VERTICAL DERIVATIVE OF THE MAGNETIC FIELD
PARTS OF NTS 105-M, N (NORTH HALVES)

Scale 1:100 000

2 0 2 4 6
Kilometres

NAD83(CSRS) / UTM zone 8N

Universal Transverse Mercator Projection
North American Datum 1983

Base map at the scale of 1:250 000 from Natural Resources Canada, with modifications
Elevations are in metres above sea level

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MAP LOCATION

OPEN FILE DOSSIER PUBLIC
8728
GEOLOGICAL SURVEY OF CANADA
COMMISSION GÉOLOGIQUE DU CANADA
2020
SHEET 8 OF 10
FEUILLET 8 DE 10

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YUKON GEOLOGICAL SURVEY
COMMISSION GÉOLOGIQUE DU YUKON
2020
Sheet 8 of 10 / Feuillet 8 de 10

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Canada Yukon