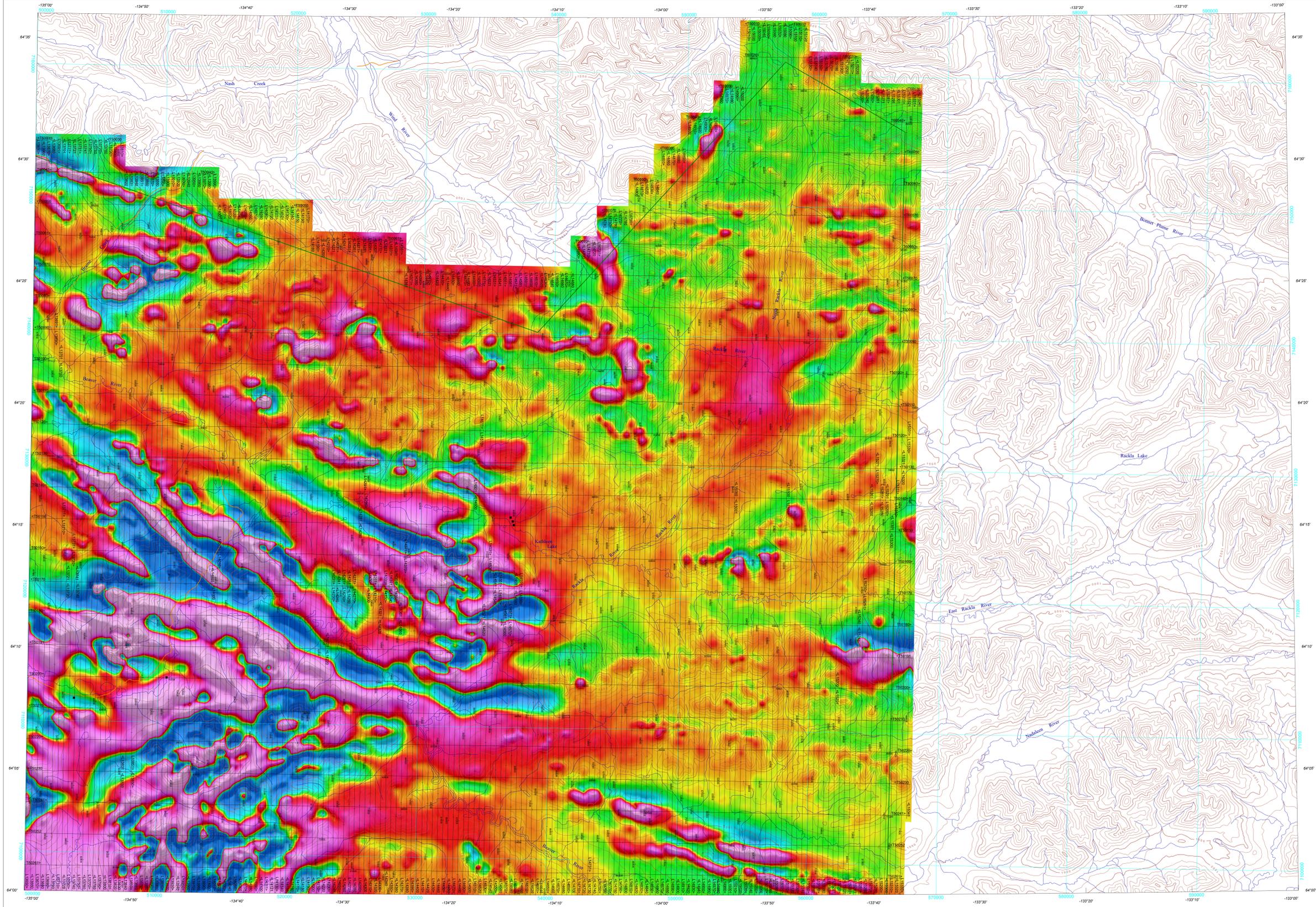


FIRST VERTICAL DERIVATIVE OF THE MAGNETIC FIELD



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 (SB) fluxgate magnetometer (model 1000-RT) mounted in the tail boom of a Beechcraft King Air aircraft (C-440B). 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 N70°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 compared and analyzed to obtain a multiply leveled set of magnetic data. The leveled values were then reprojected to a 100 m grid. The International Geomagnetic Reference Field (IGRF) defined at the average GPS altitude of 630 m for the year 2020, was then removed. Removal of the IGRF, representing the magnetic field of the Earth's core, produces a residual component related entirely to magnetization within the Earth's crust.

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 GEOCAN (<http://geocan.nrcan.gc.ca>). Corresponding digital profile and gridded data as well as similar data for adjacent aeromagnetic surveys are available from Natural Resources Canada's Geoscience Data Repository for Aeromagnetic data at <http://gdr.nrcan.gc.ca>. For more information about this survey, please contact the Geoscience Data Centre, Geological Survey of Canada, 601 Booth Street, Ottawa, Ontario K1A 0E8. Telephone (613) 995-5326, email nrcaninfo@nrcan.gc.ca.

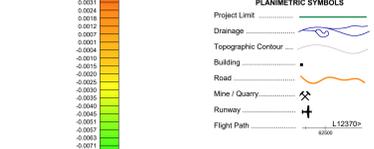
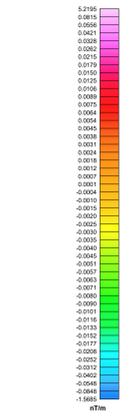
Copies of this map may also be obtained from the Yukon Geological Survey, Energy, Mines and Resources, Government of Yukon, P.O. Box 2713 (6-102), Whitehorse, Yukon, Y1A 2C6. Telephone (867) 667-3201, email geology@yukon.ca, website <http://www.geology.yukon.ca>.

Reference

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

Acknowledgements

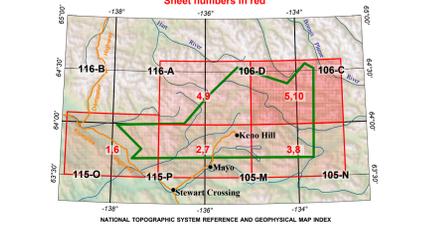
The author thanks the field crew chief, Salah Elmoussouli (Geo Data Solutions GDS Inc.) for his cooperation and for his able technical assistance for the duration of this survey contract. Douglas Oreshchuk (GSC) for his cartographic design expertise and Mark Pilgriam (GSC) for his helpful comments and suggestions to improve the map.



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

GSC Open File 8728
YGS Open File 2020-7
Sheet numbers in red



AEROMAGNETIC SURVEY OF THE NASH CREEK AREA
YUKON

<p>OPEN FILE / DOSSIER PUBLIC 8728</p> <p>GEOSCIENTIFIC DATA CENTRE 2020</p> <p>SHEET 10 OF 10 / FEUILLET 10 DE 10</p>	<p>Publications in this series have not been indexed. They are available as described by the author.</p> <p>Les publications de cette série n'ont pas été indexées. Elles sont disponibles telles que publiées par l'auteur.</p>	<p>OPEN FILE / DOSSIER PUBLIC 2020-7</p> <p>YUKON GEOLOGICAL SURVEY COMMISSION GEOLOGIQUE DU YUKON 2020</p> <p>Sheet 10 of 10 / Feuille 10 de 10</p>
---	--	---

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 106-C, D

Author: F. Kiss
Data acquisition and data compilation by Geo Data Solutions (GDS) Inc., Laval, Quebec
Contract and project management by the Geological Survey of Canada, Ottawa, Ontario
Digital cartography by D. Oreshchuk, Geological Survey of Canada
Permanent link: <https://doi.org/10.4095/526147>



© Her Majesty the Queen in Right of Canada, as represented by the Minister of Natural Resources, 2020
Base map at the scale of 1:250 000 from Natural Resources Canada, with modifications
Elevations are in metres above sea level

This aeromagnetic survey and the production of this map were funded by phase 2 of the Geo-Mapping for Energy and Minerals program (GEM-2) of the Lands and Minerals Sector, Natural Resources Canada.



Recommended citation
Kiss, F., 2020.
Aeromagnetic Survey of the Nash Creek Area, Yukon, Parts of NTS 105-M, N, 106-C, D, 115-P and 116-A. Geological Survey of Canada, Open File 8728. Yukon Geological Survey Open File 2020-7. Scale 1:100 000. <https://doi.org/10.4095/526147>