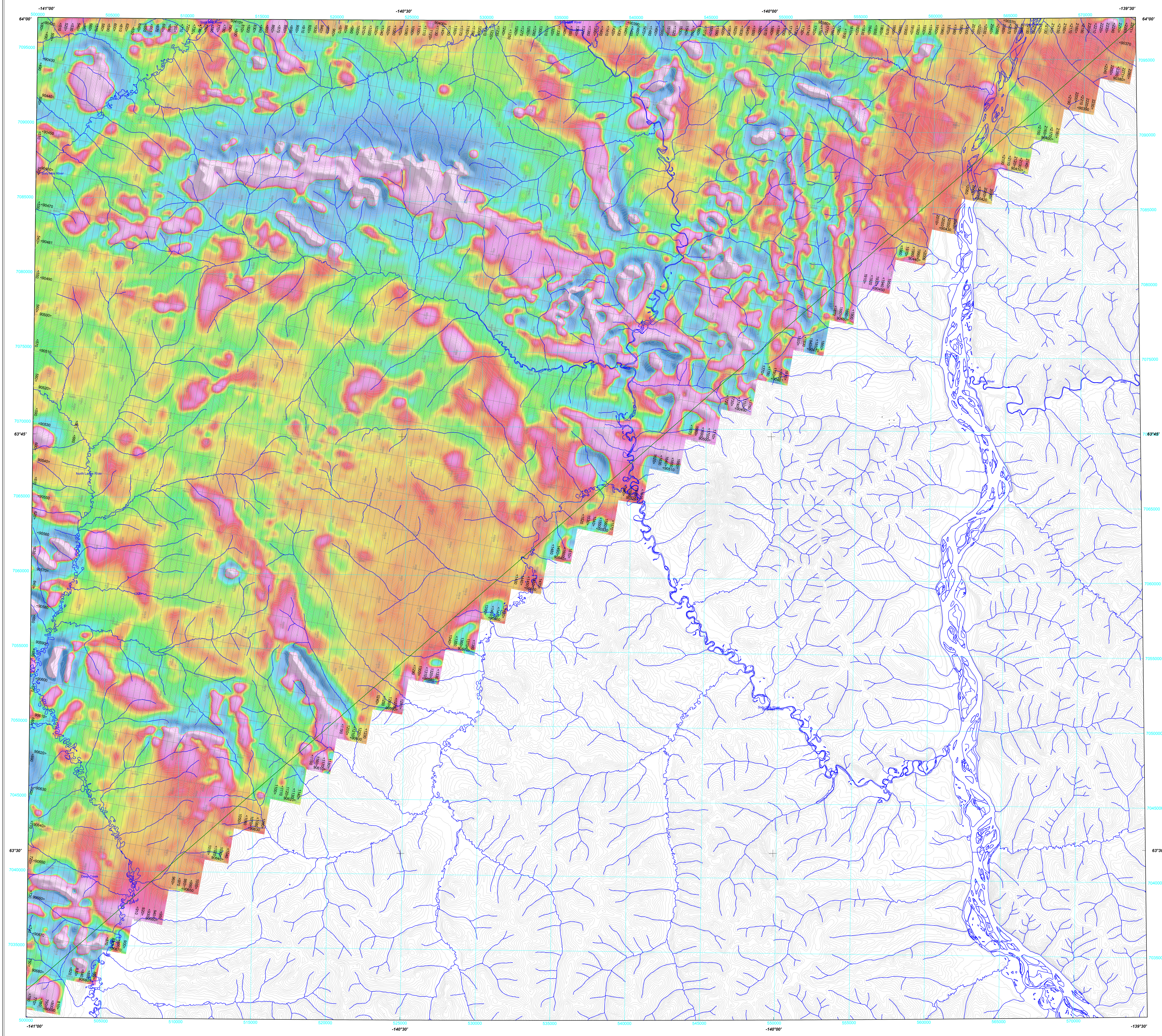




FIRST VERTICAL DERIVATIVE OF THE MAGNETIC FIELD



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 Global Airborne Surveys from February 17 to March 21, 2014. The data were recorded using split-beam cesium vapour magnetometers (sensitivity = 0.005 nT) mounted in each of the tail booms of two Piper Navajo aircraft (C-CUBS and C-CUBC). The nominal traverse and control line spacings were, respectively, 400 m and 2400 m and the aircraft flew at a nominal terrain clearance of 125 m. Traverse lines were oriented at N10°E with orthogonal control lines. The flight path was recovered following post-flight differential corrections to the raw Global Navigation Satellite System (GNSS) 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-analyzed 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 1152.3 m for the year 2014.17 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.

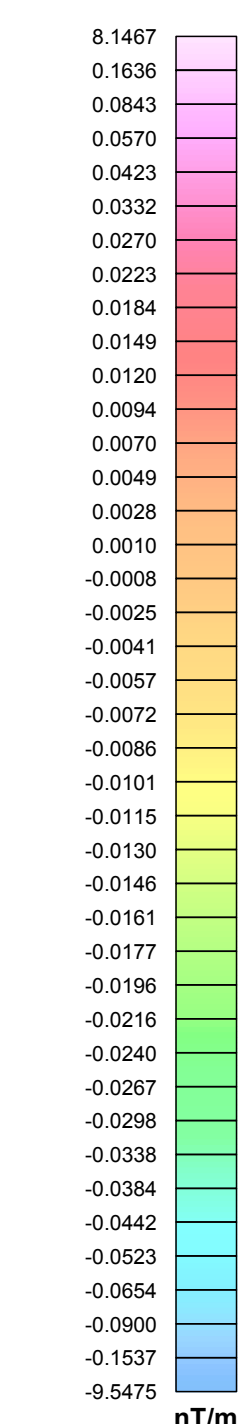
The first vertical derivative of the magnetic field is the rate of change of the magnetic field in the vertical direction. Computation of the first vertical derivative removes long-wavelength features of the magnetic field and significantly improves the resolution of closely spaced and superposed anomalies.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

A digital version of this map can be downloaded, at no charge, from Natural Resources Canada's Geoscience Data Repository (MIRAGE) at [http://apps1.gdr.nrcan.gc.ca/mirage/mirage\\_index\\_e.php](http://apps1.gdr.nrcan.gc.ca/mirage/mirage_index_e.php). 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.gdr.nrcan.gc.ca/index\\_e.html](http://gdr.gdr.nrcan.gc.ca/index_e.html). The same products are also available for a fee from the Geophysical Data Centre, Geological Survey of Canada, 615 Booth Street, Ottawa, Ontario K1A 0E9. Telephone: (613) 995-5326, email: [info@gdr.nrcan.gc.ca](mailto:info@gdr.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 2703 (K102), Whitehorse, Yukon, Y1A 2C6. Telephone: (867) 667-3201, email: [geology@gov.yk.ca](mailto:geology@gov.yk.ca), Web site: <http://data.geology.gov.yk.ca/>.

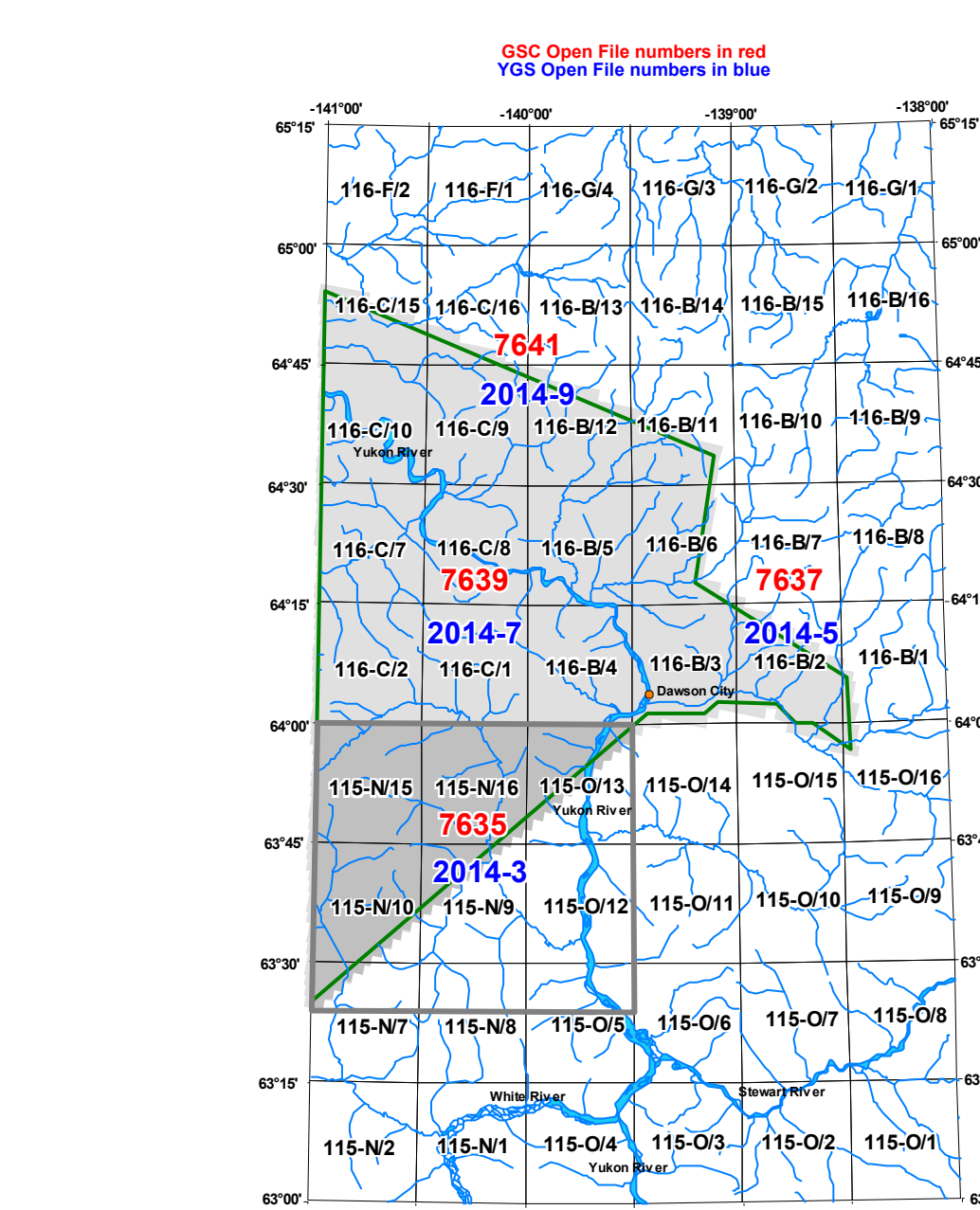
References

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



PLANIMETRIC SYMBOLS

Topographic contour	
Drainage	
Root	
Figural	
Building	
Piquet line	



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GEOLOGICAL SURVEY OF CANADA OPEN FILE 7635  
YUKON GEOLOGICAL SURVEY OPEN FILE 2014-3

TOPOGRAPHIC CONTOUR INTERVAL: 30 METRES

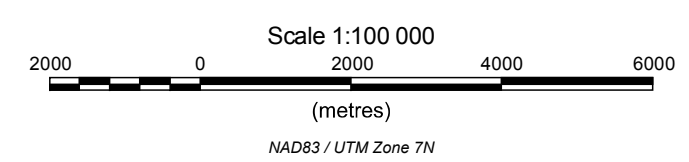
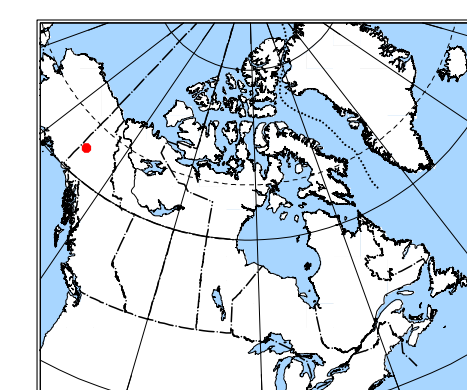
FIRST VERTICAL DERIVATIVE OF THE MAGNETIC FIELD

AEROMAGNETIC SURVEY OF THE DAWSON AREA

Authors: F. Kiss and M. Coyle

Date acquisition, data compilation and map production by  
Global Airborne Surveys, Saskatoon, Saskatchewan.  
Contract and project management by  
the Geological Survey of Canada, Ottawa, Ontario.

NTS 115-N/15 and parts of 115-N/7, 115-N/9, 115-N/10, 115-N/16 and 115-O/13  
YUKON



Scale 1:100 000  
RAJED2 / UTM Zone 17N  
Unmagnetized Transverse Mercator Projection  
North American Datum 1983  
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Digital topographic data from Natural Resources Canada

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Yukon Geological Survey, Open File 2014-3,  
Scale 1:100 000.