



This aeromagnetic survey and the production of this map were funded by the Geological Survey of Canada. The map has been produced through a collaboration between the Geo-Mapping for Energy and Minerals (GEM) and Targeted Geoscience Initiative-4 (TGI-4) programs being delivered by Natural Resources Canada.

Ce levé aéromagnétique et la production de cette carte ont été financés par la Commission géologique du Canada. Cette carte est le produit d'une collaboration entre le programme Geo-Mapping for Energy and Minerals (GEM) et l'initiative géoscience ciblée 4 (quatrième phase) (TGI-4), qui sont des programmes au sein des sciences de la Terre, Ressources naturelles Canada.



GEM

Canada

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Data acquisition, data compilation and map production by  
Goddard Airborne Survey, Saskatoon, Saskatchewan.  
Cartographic work and map compilation by  
the Geological Survey of Canada, Ottawa, Ontario.

### FIRST VERTICAL DERIVATIVE OF THE MAGNETIC FIELD DÉRIVÉE PREMIÈRE VERTICALE DU CHAMP MAGNÉTIQUE

AEROMAGNETIC SURVEY OF THE SOUTH RAE CRATON  
LEVÉ AÉROMAGNÉTIQUE DE LA PARTIE SUD DU CRATON DE RAE

NTS 75 A/3, 4, 5, 6 / SNRC 75 A/3, 4, 5, 6  
NORTHWEST TERRITORIES / TERRITOIRES DU NORD-OUEST

Scale 1:100 000 - Echelle 1/100 000  
(metres)  
NAD83 / UTM Zone 13N

Universal Transverse Mercator Projection  
Projection transversale universelle de Mercator  
Other Map is the Queen's Right of Canada 2012  
Digital geographic data provided by Geomatics Canada, Natural Resources Canada  
Données géographiques numériques fournie par Geomatics Canada, Ressources naturelles Canada

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L'acquisition des données, ainsi que la production des cartes,  
ont été effectuées par Goddard Airborne Survey, Saskatoon, Saskatchewan.  
La cartographie et la préparation des cartes ont été effectuées par la Commission géologique du Canada, Ottawa (Ontario).



MAP LOCATION - LOCALISATION DE LA CARTE

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 flown by Goddard Airborne Surveys from January 4 and March 23, 2012. The data were recorded using split-beam magnetometers (C-GEM) and two Piper Navajo aircraft (C-GJBA and C-GJBB). The nominal traverse and control line spacings were, respectively, 400 m and 1 km. The survey was conducted along a series of roughly north-south oriented orthogonal control lines. The flight path was recovered post-flight differential corrections to the Global Positioning System (GPS) data. The survey was conducted at an altitude of 1,000 m above ground level. The survey was flown on a pre-determined flight surface to minimize differences in magnetic values at the intersections of control and traverse lines. The data were collected at an altitude of 1,000 m above ground level. The data were then levelled to a height of 2,400 m above sea level. The levelled values were then interpolated to a 100 m grid. The International Geomagnetic Reference Field (IGRF) defined the magnetic field of the Earth's core, produces a residual component related entirely to magnetism within the 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 superimposed anomalies, a property of these derivative maps.

A digital version of this map, corresponding digital profile and gridded data, and similar data for adjacent aeromagnetic and gamma-ray spectrometric surveys can be downloaded, at no charge, from Natural Resources Canada's Geoscience Data Centres. Geological Survey of Canada, 615 Booth Street, Ottawa, Ontario, K1A 0E6; telephone: (613) 953-5326, email: [geoscience@nrcan.gc.ca](mailto:geoscience@nrcan.gc.ca).

A digital version of this map, as well as corresponding digital profile and gridded data, may also be obtained from the Northwest Territories Geoscience Office, 4601-B 52 Avenue, Yellowknife, Northwest Territories, X1A 2R3. Telephone: (867) 699-2626; email: [nwtgso@nrcan.gc.ca](mailto:nwtgso@nrcan.gc.ca). Additional data presented east of W105°30' longitude on this map are provided by the Northwest Territories Geoscience Office and are presented in a separate digital publication (C-5, Lord Northern Geoscience Centre and the Geological Survey of Canada, 2004).

Detailed description of the map

Cette carte de la dérivée première verticale du champ magnétique a été dressée à partir de données acquises lors d'un levé aéromagnétique exécuté par la société Goddard Airborne Surveys pendant la période de 4 janvier au 23 mars 2012. Les données ont été enregistrées à l'aide de magnétomètres à double bras (C-GEM) et deux avions Piper Navajo, immatriculés C-GJBA et C-GJBB. Les intervalles nominaux de tracés et de lignes de contrôle étaient respectivement de 400 m et 1 km. Le survol a été effectué suivant une série de lignes基本上南北走向的正交控制线。航路是在飞行后通过差分GPS数据恢复的。航路是在一个预定的飞行表面上飞行的，以尽量减少控制线和航路线之间的磁值差异。数据是在地面以上1,000米的高度收集的。数据然后被水准到2,400米的海平面高度。水准后的值然后被插值到100米网格上。国际地磁参考场（IGRF）定义了地球核心的磁场，产生一个完全与地壳内的磁性相关的残余成分。

La dérivée première verticale du champ magnétique représente le taux auquel varie le champ magnétique suivant la verticale. Le calcul de la dérivée première verticale supprime les composantes de grande longueur d'onde du champ magnétique et améliore la résolution des anomalies étroitement espacées et superposées, une propriété de ces cartes de la dérivée première verticale.

On peut télécharger gratuitement, depuis l'entrepôt de données géoscientifiques de Ressources naturelles Canada à l'adresse Web <http://leda.mrnc.nrcan.gc.ca/>, une version numérique de cette carte, des données numériques correspondantes au format profil et en format grille, et des données géoscientifiques des survols adjacents dans des niveaux de résolution gamma-adjacents. On peut se procurer les mêmes produits moyennant des frais, en contactant le Bureau géoscientifique des territoires du Nord-Ouest, 4601-B avenue 52, C.P. 0500, Yellowknife, Territoires du Nord-Ouest, X1A 2R3. Téléphone : (613) 953-5326; e-mail : [geoscience@nrcan.gc.ca](mailto:geoscience@nrcan.gc.ca).

On peut également se procurer une version numérique de cette carte, ainsi que des données numériques correspondantes en format profil et en format grille, auprès du Bureau géoscientifique des territoires du Nord-Ouest, 4601-B avenue 52, C.P. 0500, Yellowknife, Territoires du Nord-Ouest, X1A 2R3. Téléphone : (613) 953-5326; e-mail : [nwtgso@nrcan.gc.ca](mailto:nwtgso@nrcan.gc.ca).

Les données aéromagnétiques représentées sur cette carte à l'est de 105°30' de longitude ouest sont fournies par le C.S. Lord Northern Geoscience Centre et le Geological Survey of Canada, 2004.

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