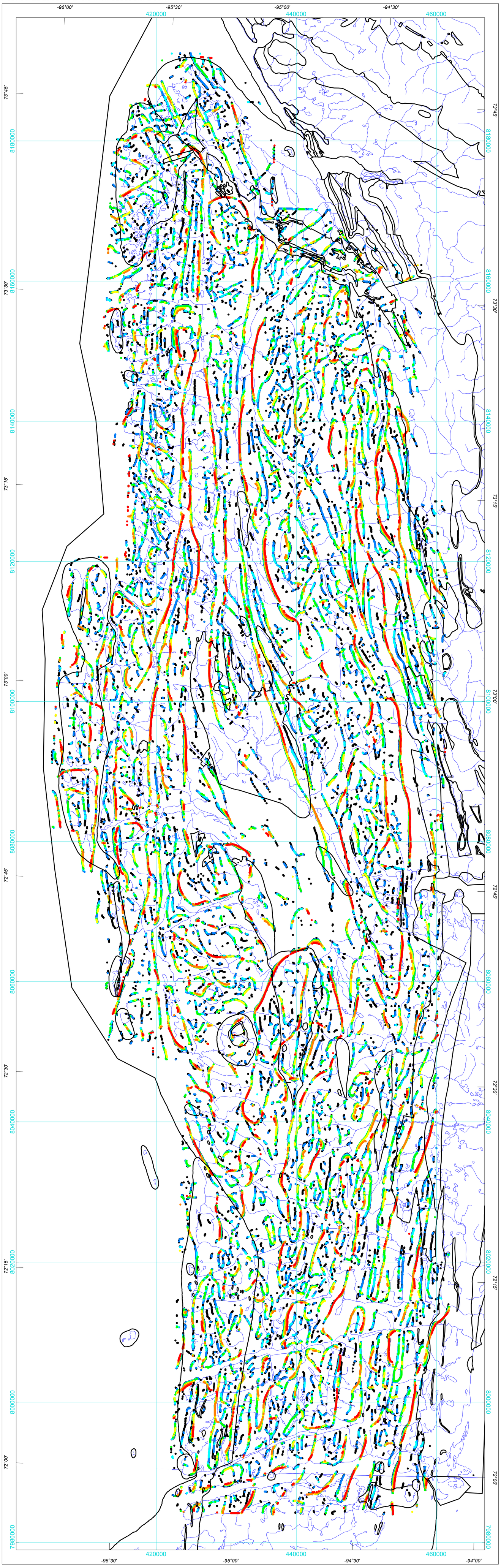
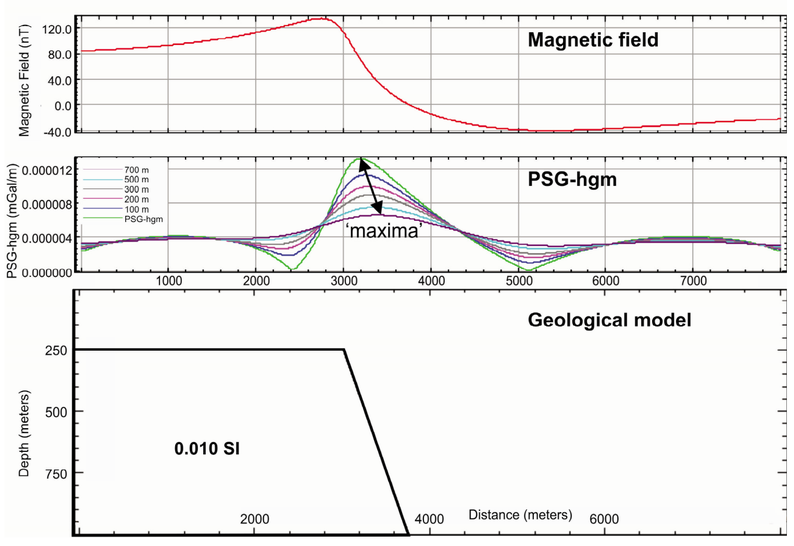
Natural Resources Canada / Ressources naturelles Canada

MULTISCALE EDGE ANALYSIS WITH GEOLOGICAL CONTACTS

GEOLOGICAL SURVEY OF CANADA / COMMISSION GÉOLOGIQUE DU CANADA





Top figure: Magnetic field (top panel), horizontal gradient of pseudogravity (PSG-hgm) and upward continued PSG-hgm grids (middle panel) and geological model (bottom panel). Geological body represents a contact dipping 45^0. Magnetic susceptibility is labelled and body is magnetized in a vertical field.

Using the horizontal gradient of the pseudogravity (PSG-hgm), multi-scale edge analysis upward continues the data to a series of heights. At each height the location of the 'maxima' of the upward continued data is calculated using the Blakely algorithm (Blakely and Simpson, 1986). Where dipping structures are present, the location of the maxima will migrate away from the anomaly in the down-dip direction giving an indication of source body dip (Archibald et al., 1999).

Left map: Maxima (coloured dots) of upward continued grids, with dot colour corresponding to upward continuation distance. Vertically dipping contacts will have maxima superimposed on one another, while dipping contacts will have maxima migrating in the down-dip direction.

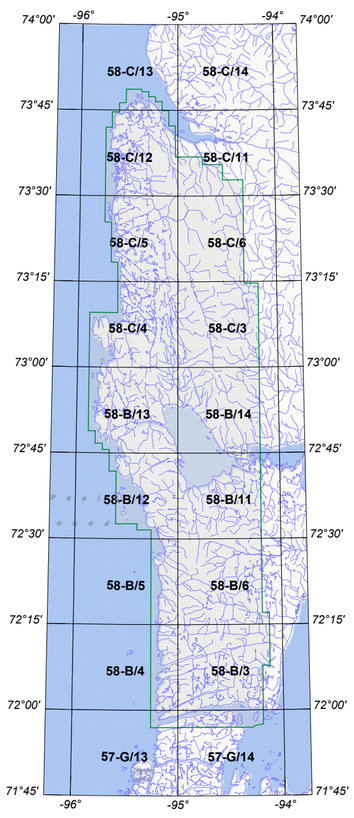
Blakely, R.J., and Simpson, R.W., 1986, Approximating edges of source bodies from magnetic or gravity anomalies. Geophysics, 51 (7), 1494-1498.

Archibald, N.J., Gow, P., and Boschetti, F., 1999, Multiscale edge analysis of potential field data. Exploration Geophysics, 30, 38-44.

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/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: infogdc@agg.nrcan.gc.ca.

Upward Continuation Maxima

- 1000 m .....
- 700 m .....
- 500 m .....
- 300 m .....
- 200 m .....
- 100 m .....
- 0 m .....



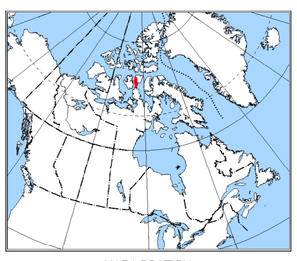
NATIONAL TOPOGRAPHIC SYSTEM REFERENCE AND GEOPHYSICAL MAP INDEX

PLANIMETRIC SYMBOLS

Drainage .....

Geological Contact .....

Geological contacts from: Harrison, J.C., Hillary, E.M., Ford, A., Stewart, W.D., Frisch, T., Mayr, U., and Thorsteinsson, R., 2013. Geology, tectonic assemblage map of Peel Sound, Prince of Wales and Somerset islands, Nunavut; Geological Survey of Canada, Canadian Geoscience Map 76 (preliminary), scale 1:500 000.



MAP LOCATION

GEOLOGICAL SURVEY OF CANADA OPEN FILE 7805

AEROMAGNETIC INTERPRETATION PRODUCTS, SOMERSET ISLAND, NUNAVUT

Parts of NTS 58-B/3, 4, 5, 6, 11, 12, 13, 14, parts of NTS 58-C/3, 4, 5, 6, 11, 12, 13, and parts of NTS 57-G/13, 14

MULTISCALE EDGE ANALYSIS WITH GEOLOGICAL CONTACTS

Scale 1:250 000

5000 0 5000 10000 15000

(metres)

WGS 84 / UTM zone 15N

Universal Transverse Mercator Projection
North American Datum 1983

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Digital topographic data from Natural Resources Canada

OPEN FILE
DOSSIER PUBLIC
7805
GEOLOGICAL SURVEY OF CANADA
COMMISSION GÉOLOGIQUE DU CANADA
2015

SHEET 4 OF 4
FEUILLET 4 DE 4

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Canada

GEM-2

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