EXPERIMENTAL COLOUR COMPILATION
(HIGH RESOLUTION AEROMAGNETIC VERTICAL GRADIENT)

PROVINCE OF NOVA SCOTIA
DEPARTMENT OF MINES AND ENERGY
MINERAL RESOURCES DIVISION

DEPARTMENT OF ENERGY, MINES AND RESOURCES
GEOLOGICAL SURVEY OF CANADA

PARTS OF 11 E/8, 11 E/9, 11 F/5, 11 F/12

C 40, 080 G "PARTS OF 11 E/16, 11 F/13"

C 40, 078 G "PARTS OF 11 E/7, 11 E/8, 11 E/9, 11 E/10"

LEGEND

PALEOZOIC

CARBONIFEROUS

UPPER CARBONIFEROUS

PICTOU GROUP

uCP — *Sandstone and minor conglomerate*

CUMBERLAND GROUP

uCNG — *NEW GLASGOW CONGLOMERATE: conglomerate and sandstone*

RIVERSDALE GROUP

uCPH — *PORT HOOD FORMATION: sandstone and conglomerate*

CANSO GROUP (ICHT–UCL)

uCL — *LISMORE FORMATION: sandstone, siltstone and conglomerate*

uCPQ — *POMQUET FORMATION (UCPQ): siltstone and sandstone*

ICHT — *HASTINGS FORMATION (ICHT): shale, siltstone and minor limestone*

LOWER CARBONIFEROUS

WINDSOR GROUP (ICWU, undivided)

ICHI — *HOOD ISLAND FORMATION: siltstone, sandstone, limestone, dolostone and minor gypsum*

ICW / ICA — *ADDINGTON FORMATION (ICA): siltstone, gypsum, anhydrite and thin carbonate beds*

ICWU — *WALLACE BROOK FORMATION (ICW): limestone, minor dolostone, siltstone, sandstone, gypsum and anhydrite*

LAKEVALE FORMATION (ICL): conglomerate, gypsum, anhydrite and minor carbonate

ICHH — *HARTSHORN FORMATION (ICHH): halite, anhydrite, siltstone, minor sylvite and carnallite (subsurface only)*

ICB — *BRIDGEVILLE FORMATION (ICB): anhydrite, gypsum and limestone*

ICGR — *GAYS RIVER FORMATION (ICGR): limestone and minor dolostone*

ICM — *MACUMBER FORMATION (ICM): limestone and limestone breccia*

ICWB — HORTON GROUP *WILKIE BROOK FORMATION: conglomerate, sandstone, shale and limestone*

DEVONIAN AND CARBONIFEROUS

DCS — *Conglomerate, sandstone, shale and limestone (minor volcanic rocks south of Stewart Lake)*

DEVONIAN

MIDDLE AND UPPER DEVONIAN (?)

DC, DV, DB — *Dc, conglomerate, mudstone, and sandstone; Dv, basalt, rhyolite, tuff, sandstone, siltstone; Db, diabase, possibly younger*

MIDDLE DEVONIAN

mDM — *McARAS BROOK FORMATION: conglomerate, sandstone and shale, basalt*

LOWER DEVONIAN

IDK — *KNOYDART FORMATION: mudstone, siltstone and sandstone*

SILURIAN AND DEVONIAN

UPPER SILURIAN AND LOWER DEVONIAN

ARISAIG GROUP (USD - SDS)

SDS — *STONEHOUSE FORMATION: sandstone and siltstone*

SILURIAN

uSM — *MOYDART FORMATION: mudstone, sandstone, siltstone and minor limestone*

mSMA — *McADAM FORMATION: mudstone, sandstone and limestone*

mSF — *FRENCH RIVER FORMATION: sandstone and mudstone*

ISR — *ROSS BROOK FORMATION: mudstone and sandstone*

ISB — *BEECHHILL COVE FORMATION: sandstone and siltstone*

ORDOVICIAN AND SILURIAN

OSD — *DUNN POINT VOLCANICS: rhyolite, tuff, andesite and breccia*

CAMBRIAN AND ORDOVICIAN

€Og — *Granite, syenite and granodiorite*

€Od — *Diorite and gabbro*

€Ogd — *Granodiorite and syenodiorite*

BROWNS MOUNTAIN GROUP (HC - €OBR)

€OBR — *BRIERLY BROOK FORMATION: andesite, tuff, breccia, dacite, greywacke and argillite*

€OBB — *BAXTER BROOK FORMATION: siltstone, argillite, tuff and minor andesite*

€OK — *KEPPOCH FORMATION: dacite, rhyolite, minor breccia, tuff, quartzite and phyllite*

HADRYNIAN AND CAMBRIAN (undivided)

HC — *Sedimentary and volcanic rock*

PROTEROZOIC

WESTERN EDGE OF ANTIGONISH HIGHLANDS

WINDSOR GROUP (ICHB - ICCV)

ICCV — *CHURCHVILLE FORMATION: sandstone, shale and limestone*

ICFL — *FORBES LAKE FORMATION: shale, sandstone, conglomerate, gypsum and minor limestone*

ICB / ICHB — *BRIDGEVILLE FORMATION (ICB): gypsum, anhydrite, minor limestone and dolostone*
HOLMES BROOK FORMATION (ICHB): limestone and dolostone

HORTON GROUP (ICH - ICC)

ICC / ICH — *CHEVERIE FORMATION (ICC): sandstone, siltstone, shale and conglomerate*
Undivided (ICH): shale, siltstone and sandstone

ARISAIG GROUP (undivided)

SA — *Shale, siltstone and limestone*

NORTHERN ANTIGONISH HIGHLANDS

Pg — *Granite*

Py — *Syenite*

ICb — *Gabbro*

CAMBRIAN AND ORDOVICIAN

IRON BROOK GROUP (ICBJ - IOF)

IOF — *FERRONA FORMATION (IOF): ironstone, quartzite and tuff*

ICLH — *LITTLE HOLLOW FORMATION (ICLH): limestone and shale*

ICAU / ICAI — *BLACK JOHN FORMATION (ICBJ): conglomerate, sandstone and shale*

McDONALDS BROOK GROUP (ICMC - ICAU)

ICBJ / ICMC — *ARBUCKLE BROOK FORMATION (ICAI, lower; ICAU, upper): basalt, rhyolite, tuff, shale and limestone*
MALIGNANT COVE FORMATION (ICMC): conglomerate, sandstone and shale

?Cg — *JAMES RIVER PLUTON: granite*

HADRYNIAN

Hg — *Alaskite*

HGC — *GREENDALE COMPLEX: appinite, lamprophyre, pegmatite, microgranite, basalt and marble*

GEORGEVILLE GROUP (HCB - HSR)

HSR — *SOUTH RIGHTS FORMATION: mudstone, minor greywacke and basalt*

Hc — *CLYDESDALE FORMATION: basalt, mudstone and greywacke*

HLC / HJRU / HJRI — *LIVINGSTONE COVE FORMATION (HLC): conglomerate and mudstone*
JAMES RIVER FORMATION (HJRI, lower; HJRU, upper): conglomerate, mudstone,greywacke and minor basalt

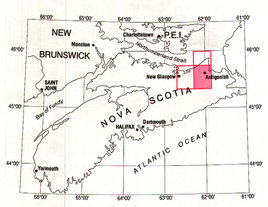
HMR / HMB — *MAPLE RIDGE FORMATION (HMR): mudstone and minor greywacke*
MORAR BROOK FORMATION (HMB): mudstone, minor chert and limestone

HCB — *CHISHOLM BROOK FORMATION (HCB): basalt and marble*

Geological boundary (approximate, assumed)
Fault (approximate)
Thrust fault (approximate)

Geology compiled by J. D. Keppie, Nova Scotia Department of Mines and Energy, from: Bell, W. A. (1941) New Glasgow map area, Pictou County, Nova Scotia, Geological Survey of Canada, Map 616A (in Memoir 225); Benson, D. G. (1967) Geology, Hopewell map area, Nova Scotia, Geological Survey of Canada, Map 1215A (in Memoir 343); Benson, D. G. (1970) Geology, Antigonish (east half) and Antigonish and Cape George (west half) map areas, Nova Scotia, Geological Survey of Canada, Maps 2-1970 and 3-1970 (in Paper 70-8); Benson, D. G. (1973) Geology, Lochaber map area and Merigomish and Malignant Cove map areas, Nova Scotia, Geological Survey of Canada, Maps 1360A and 1361A (in Memoir 376); Boehner, R. C. and Giles, P. S. (in press) Geological map of the Antigonish Basin, Nova Scotia, Nova Scotia Department of Mines and Energy; Giles, P. S. (in press) Geological map of the Eureka area, central Nova Scotia, Nova Scotia Department of Mines and Energy (in Paper 82-3); Maehl, R. H. (1961) Geology of eastern Pictou county, Nova Scotia, Nova Scotia Department of Mines, map – figure 2 in Memoir 4; Murphy, J. B., Keppie, J. D. and Hynes, A. (in press) Geological map of the northern Antigonish Highlands, Nova Scotia Department of Mines and Energy; and Schiller, E. A. (1961) Geology, Guysborough map area, Nova Scotia, Geological Survey of Canada, Map 27-1961

Geological cartography by the Geological Survey of Canada



INDEX MAP

EXPERIMENTAL COLOUR MAP

This map was compiled using the following computer automated techniques. Aeromagnetic digital data values were interpolated from the flight line data at the nodes of a regular grid covering the survey area. Each grid cell was .08 cm square. A colour code was assigned to each cell according to the amplitude of the aeromagnetic value within the cell using the colour scale shown in the legend. The data matrix was output on an Applicon colour jet plotter to produce a colour field map identical to the one above. To permit colour printing colour separations were made with the plotter to produce the red, yellow and blue components of the map on separate sheets.

The Geological Survey of Canada would appreciate your comments concerning the merits of this type of compilation.

Please address your comments to:

Re: Experimental Aeromagnetic Colour Map
The Director General,
Geological Survey of Canada,
601 Booth Street,
Ottawa, Ontario,
K1A 0E8
Canada.

Canada

EXPERIMENTAL COLOUR COMPILATION
(HIGH RESOLUTION AEROMAGNETIC VERTICAL GRADIENT)

MAP C 40,079 G

PARTS OF 11 E/8, 11 E/9, 11 F/5, 11 F/12

NOVA SCOTIA

Scale 1:50,000

Miles 1: 0 1 2 3
Metres 1000: 0 1000 2000 3000 4000
Yards 1000: 0 1000 2000 3000 4000

Funds for the flying operation were provided jointly by the Canada Department of Regional Economic Expansion, the Geological Survey of Canada, and the Nova Scotia Department of Mines and Energy. Publication of the maps was funded by Geological Survey of Canada through the Canada-Nova Scotia Co-operative Mineral Program 1981-84.

PUBLISHED 1982

This map has been compiled from digitally-recorded high-sensitivity aeromagnetic data obtained by two self-orienting rubidium-vapour magnetometers installed in twin tail booms mounted on the GSC Beechcraft B80 aircraft. The magnetometers are vertically separated by a distance of 2.08 metres with each measuring the total magnetic field to a resolution of 0.005 gammas.

Flight altitude was 150 m above ground at 300 m average flight line spacing. Double control lines were flown at an average spacing of 12 kilometres.

The vertical gradient values, which approximate closely to the first vertical derivative of the earth's total field, are obtained by dividing the difference between the total field readings of the two magnetometers by their vertical separation.

The vertical gradient data was filtered with a digital operator to remove instrument noise. The vertical gradient data from the control lines was not used in the compilation of the map. The data was edited, compiled, levelled and gradient values interpolated onto a square grid (0.25 cm grid spacing at the published map scale) by automatic computer processes. The survey data used to compile this map is available in digital form from the Geological Survey of Canada at the cost of retrieval and copying.

Airborne survey and digital compilation was carried out by Resource Geophysics and Geochemistry Division, Geological Survey of Canada. The survey operations took place in October and November 1977 and October 1978 using Beechcraft Queenair 65-B80 aircraft C-FWZG.

The topography for this map was reproduced from 1:50,000 topographical map sheets, published by the Department of Energy, Mines and Resources, Ottawa.

Copies of this map may be obtained from the Mineral Resources, Nova Scotia Department of Mines, Halifax, or from the Geological Survey of Canada, Ottawa.

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MAP C 40,079 G
PARTS OF 11 E/8, 11 E/9, 11 F/5, 11 F/12
NOVA SCOTIA

7.000
5.000
4.000
3.000
2.000
1.500
1.000
0.800
0.600
0.500
0.400
0.300
0.200
0.150
0.100
0.075
0.050
0.025
0.000
-0.025
-0.050
-0.075
-0.100
-0.150
-0.200
-0.300
-0.400
-0.500
-0.600
-0.800
-1.000
-1.500
-2.000
-3.000
-4.000
-5.000
-7.000
-10.000

GAMMAS/METER

(1 gamma = 1 nanotesla in SI units)