

GEOLOGICAL SURVEY OF CANADA  
COMMISSION GÉOLOGIQUE DU CANADA  
DEPARTMENT OF ENERGY, MINES AND RESOURCES  
MINISTÈRE DE L'ÉNERGIE, DES MINES ET DES RESSOURCES

# GEOLOGICAL MAP OF THE CENTRAL AND SOUTHERN ANTIGONISH HIGHLANDS

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Mapping & Compilation by J.B. Murphy, assisted by

K. Bellefontaine, D. Cameron, J. Campbell, P. Campbell, M. Gilles, M. Gurney, D. Hatchette, W. McNeil, E. Myketyn, and S. Sears.

## SYMBOLS

- Rock Outcrop  
Granite, Granodiorite  
Outcrop of volcanic rock (mafic, intermediate, dacite, felsic)  
Geological boundary (defined, approximate, assumed)  
Bedding, tops known (horizontal, inclined, vertical, overturned)  
Bedding, tops unknown (inclined, vertical)  
Cleavage (inclined, vertical)  
Minor-fold (arrow indicates plunge)  
Fault (defined, approximate, assumed)  
Anticline (defined, arrow indicates direction of plunge)  
Syncline (defined, arrow indicates direction of plunge)  
Fossil locality  
Pyrite occurrence

## MARGINAL NOTES

THESE GEOLOGICAL MAPS DESCRIBE THE DISTRIBUTION OF PRE-DEVONIAN ROCKS OF MAPSHEETS 11E09 AND 11E08 OF THE CENTRAL AND SOUTHERN ANTIGONISH HIGHLANDS; THESE MAPS ADJOIN THAT OF MURPHY ET AL. (1982) OF THE NORTHERN HIGHLANDS. TWO MAJOR SEQUENCES PREDOMINATE; THE GEORVILLE GROUP WHICH IS LATE PRECAMBRIAN IN AGE AND THE ARISAIG GROUP WHICH IS UPPERMOST URDOVICIAN TO SILURIAN IN AGE. PLUTONIC ROCKS RANGE FROM LATE PRECAMBRIAN TO DEVONIAN.

THE GEORVILLE GROUP CONSISTS OF RHYOLITE (HKA, FLOWS, IGNI-MBRITES AND TUFFS), BASALTIC ANDESITES (HKC) AND BASALTS (HKB), WHICH WERE SUBAERALLY DEPOSITED, OVERLAIN BY SIMILAR VOLCANICS THAT ARE INTERLAYERED WITH MUDSTONES AND ARE SUBMARINE DEPOSITS (HKD). THIS IS FOLLOWED BY GREYWACKES AND SLATES (HG, HMR, HJR, HSR).

IN GENERAL THE CONTACT BETWEEN THE VOLCANIC DOMINATED SEQUENCE AND THE SEDIMENT DOMINATED SEQUENCE IS GRADATIONAL IN THE WEST AND UNCONFORMABLE IN THE EAST. THE STRATIGRAPHY RECORDS THE PROGRESSIVE OPENING OF A SEDIMENTARY BASIN. THE GEOCHEMISTRY OF THE VOLCANIC ROCKS INDICATES A COMPLEX MAGMATIC HISTORY. IT ALSO INDICATES THAT THE BASIN WAS FLOODED BY OCEANIC OR STRETCHED CONTINENTAL CRUST. THE BASALTS, BASALTIC ANDESITES AND RHYOLITES APPEAR TO BE RELATED TO THREE SEPARATE PARENTAL MAGMAS. THE BASALTS ARE ALKALIC, THE BASALTIC ANDESITES ARE TRANSITIONAL BETWEEN CALC ALKALIC AND THOLEIITIC, OCEANIC AND ISLAND ARC. THE RHYOLITES APPEAR TO BE RELATED TO CRUSTAL ANATXIS.

THE BASALTIC ANDESITES ARE VERY SIMILAR TO THOSE OF THE CHISHOLM BROOK FORMATION OF THE NORTHERN HIGHLANDS (SEE MURPHY ET AL. 1982) AND ARE AT A SIMILAR STRATIGRAPHIC POSITION.

THE BASIN CLOSED IN LATE PRECAMBRIAN RESULTING IN POLYDEFORMATION AND COMPLEX FOLDING PATTERNS NORTH OF THE BROWNS MOUNTAIN FAULT. IN THE SOUTH, DEFORMATION WAS LOCALISED ALONG FAULTS.

THE ROCKS WERE THEN DEFORMED BY APINITES (EDEN LAKE COMPLEX, HGC), ALASKITE (HA) IN THE LATEST PRECAMBRIAN, AND BY GRANITE EITHER IN THE LATEST PRECAMBRIAN OR BY THE MIDDLE CAMBRIAN. MANY OF THESE INTRUSIONS ARE ADJACENT TO FAULTS, SUGGESTING THEY MAY HAVE UTILISED THE FAULTS AS A MEANS OF INTRUSION.

CAMBRIAN TO LOWER URDOVICIAN SEQUENCES OF THE NORTHERN ANTIGONISH HIGHLANDS DO NOT OCCUR IN THE MAP AREA.

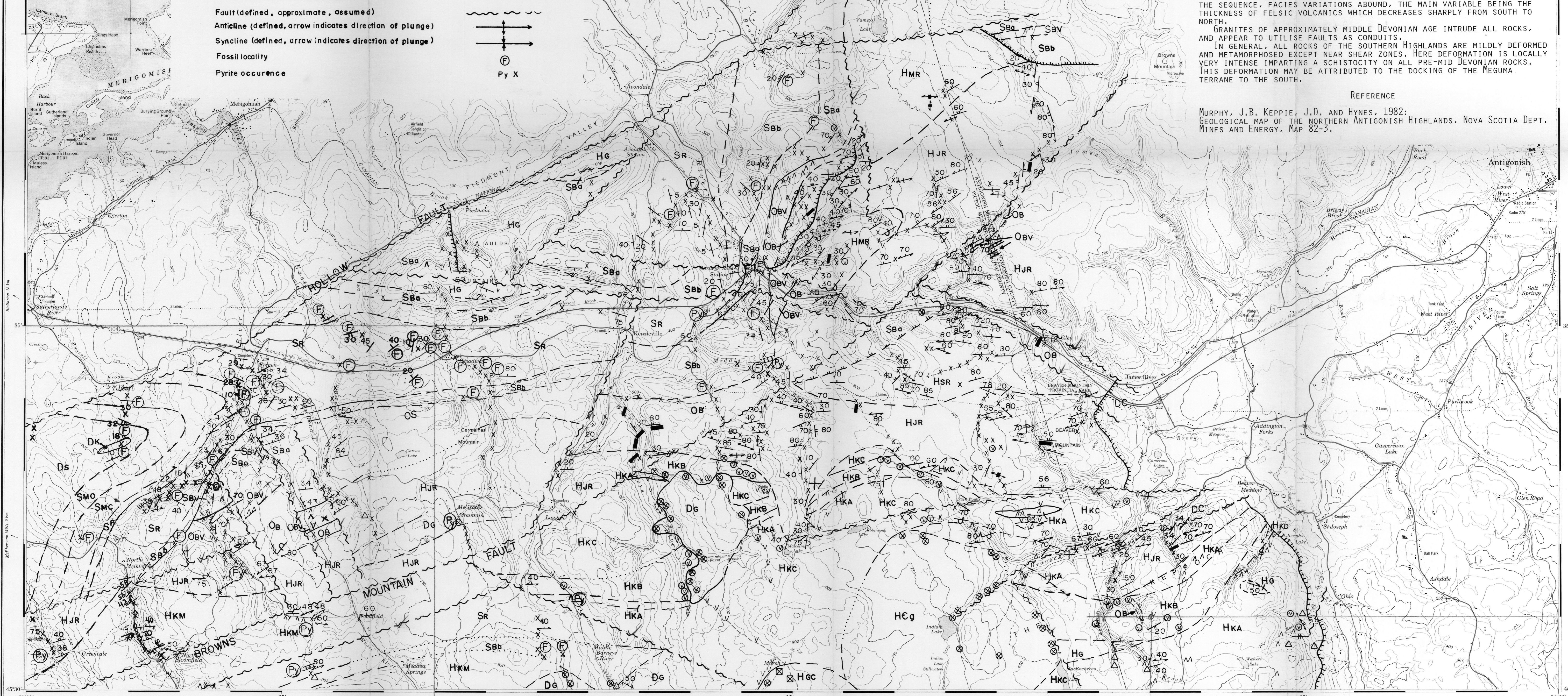
UPPERMOST URDOVICIAN TO LOWER SILURIAN ROCKS CONSIST OF RED CONGLOMERATES AND ARKOSES INTERLAYERED WITH BIMODAL VOLCANICS OVERLAIN BY SHALLOW MARINE FOSSILIFEROUS CLASTIC ROCKS. IN THE LOWER PART OF THE SEQUENCE, FACIES VARIATIONS ABOUND, THE MAIN VARIABLE BEING THE THICKNESS OF FELSIC VOLCANICS WHICH DECREASES SHARPLY FROM SOUTH TO NORTH.

GRANITES OF APPROXIMATELY MIDDLE DEVONIAN AGE INTRUDE ALL ROCKS, AND APPEAR TO UTILISE FAULTS AS CONDUITS.

IN GENERAL, ALL ROCKS OF THE SOUTHERN HIGHLANDS ARE MILDLY DEFORMED AND METAMORPHOSED EXCEPT NEAR SHEAR ZONES. HERE DEFORMATION IS LOCALLY VERY INTENSE IMPARTING A SCHISTOCITY ON ALL PRE-MID DEVONIAN ROCKS. THIS DEFORMATION MAY BE ATTRIBUTED TO THE DOCKING OF THE MEGUMA TERRANE TO THE SOUTH.

## REFERENCE

MURPHY, J.B., KEEPIE, J.D. AND HYNES, 1982: GEOLOGICAL MAP OF THE NORTHERN ANTIGONISH HIGHLANDS, NOVA SCOTIA DEPT. MINES AND ENERGY, MAP 82-3.



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### MERIGOMISH NOVA SCOTIA

Scale 1:50 000 Échelle

Information concerning location and precise elevation of bench marks can be obtained  
by writing to the Geodetic Survey, Survey and Mapping Branch, Ottawa.

CONTOUR INTERVAL, 50' ± 1m  
Elevations in feet above Mean Sea Level  
North American Datum 1927  
Transverse Mercator Projection

On peut obtenir des renseignements sur le lieu et l'altitude exacte des repères de nivellement en écrivant aux Levés géodésiques, Direction des levés et de la cartographie, Ottawa.

ECHELLE DE CONVERSION DES ALTITUDES

Metres 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290 300 310 320 330 340 350 360 370 380 390 400 410 420 430 440 450 460 470 480 490 500 510 520 530 540 550 560 570 580 590 600 610 620 630 640 650 660 670 680 690 700 710 720 730 740 750 760 770 780 790 800 810 820 830 840 850 860 870 880 890 900 910 920 930 940 950 960 970 980 990 1000 1010 1020 1030 1040 1050 1060 1070 1080 1090 1100 1110 1120 1130 1140 1150 1160 1170 1180 1190 1200 1210 1220 1230 1240 1250 1260 1270 1280 1290 1300 1310 1320 1330 1340 1350 1360 1370 1380 1390 1400 1410 1420 1430 1440 1450 1460 1470 1480 1490 1500 1510 1520 1530 1540 1550 1560 1570 1580 1590 1600 1610 1620 1630 1640 1650 1660 1670 1680 1690 1700 1710 1720 1730 1740 1750 1760 1770 1780 1790 1800 1810 1820 1830 1840 1850 1860 1870 1880 1890 1900 1910 1920 1930 1940 1950 1960 1970 1980 1990 2000 2010 2020 2030 2040 2050 2060 2070 2080 2090 2100 2110 2120 2130 2140 2150 2160 2170 2180 2190 2200 2210 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