



**GEOLOGICAL SURVEY OF CANADA
OPEN FILE 5986**

**Preliminary Geochemical Database of the Buchans-Robert's
Arm Belt, central Newfoundland**

A. Zagorevski

2008



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Preliminary Geochemical Database of the Buchans-Robert's Arm Belt, central Newfoundland

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The following report presents a preliminary compilation of the geochemical data collected in the course of the Buchans-Robert's Arm belt project, which is funded under the auspices of the 2005-2010 Targeted Geoscience Initiative 3 Program (TGI3). The Buchans-Robert's Arm belt historically constitutes the most important base metal mineralized portion of the Newfoundland Appalachians, hosting several past producing mines (Buchans deposits, Gullbridge, Crescent Lake), as well as numerous known mineral deposits and occurrences. Detailed knowledge of the local and regional structure, stratigraphy and tectonic setting is important for the success of present and future exploration programs and hence, the socio-economic development of central Newfoundland.

The geochemical data presented herein provides significant assistance in the regional correlation of units, as well as for the determination of their tectonic setting. It complements previously released geochemical databases for central Newfoundland (e.g., Davenport et al., 1996; Jenner, 2002; Rogers, 2004; Fig. 1). The report is constructed to provide the user with access to the essential geochemical data, whilst providing additional background information for evaluation of the dataset, if so desired. Four tables are included and described below: location table, description table, chemistry and complete tables.

Location Table: The location table contains the sample location data in the UTM, easting and northing (zone 21; NAD83) format. The majority of the location data was determined by GPS. Locations for diamond drill holes were compiled from the Geological Survey of Newfoundland and Labrador Geoscience Resource Atlas (<http://gis.geosurv.gov.nf.ca/>) and converted to UTM zone 21, NAD 83 format. In addition to the exact position for each sample, an overall sense of the location of the sample can be deduced from the NTS map sheet number. This table also includes the name of the principle geologist for each particular sample (contact details are provided in the file contacts.doc) and the laboratory, with year, in which the chemical analysis was conducted. The abbreviations used throughout for the various laboratories are explained in the file Contacts.doc, along with the contact information for each one.

Description Table: The description table contains the lithological information for each sample. This data is presented in a hierarchical system of type (volcanic, hypabyssal, plutonic or sedimentary) and subtype (mafic, intermediate or felsic; this column is blank for sedimentary rocks), followed by a brief, free-form rock-type description (e.g., rhyolite, pillow basalt, etc.). Formational information is not included in this database as the regional stratigraphy has not yet been formally presented/adopted and, as such, is still liable to revision.

Chemistry Table: The chemistry data file is presented as Microsoft Excel[®] worksheet and tab-delimited text files which contain location, description, and whole-rock geochemical analytical data. Major elements are recorded as weight percentages of their oxides. Where the oxidation state was determined, iron is presented as FeO and Fe₂O₃, otherwise it is represented as

Fe₂O₃(total). Volatiles are represented as LOI (loss-on-ignition). The minor, trace and rare earth elemental compositions are presented in parts per million. Major element analysis was mostly via XRF (x-ray fluorescence) of fused beads, although some samples were determined by ICP-ES (inductively coupled plasma - emission spectrometry) following lithium borate fusion. The minor, trace and rare earth elements were analysed by a combination ICP-MS (inductively coupled plasma - mass spectrometry), ICP-ES and XRF. Details of the analytical procedures as provided by the various laboratories are presented in the background information folder. Where an element was analysed using multiple methods the value determined by the method that appears most reliable is presented. The method used for each elemental analysis, and any discrepancies between the various analytical methods and repeat analyses can be reviewed by referring to the background information folder. Elements not determined are left blank, whereas element analyses that are below or above the detection limits are presented as -1. The detection limits for the various laboratories and methodologies are presented with the analytical procedures.

Complete Table: This file combines location, description and chemistry tables.

The background information is presented as Adobe Acrobat[®], Microsoft Word[®] documents or Microsoft Excel[®] tables, as required, with the data type indicated by the file names. The type of background information included are analytical procedures and detection limits for the various laboratories used, and the unfiltered data tables as produced by the laboratories (these tables include repeats, standards, etc.).

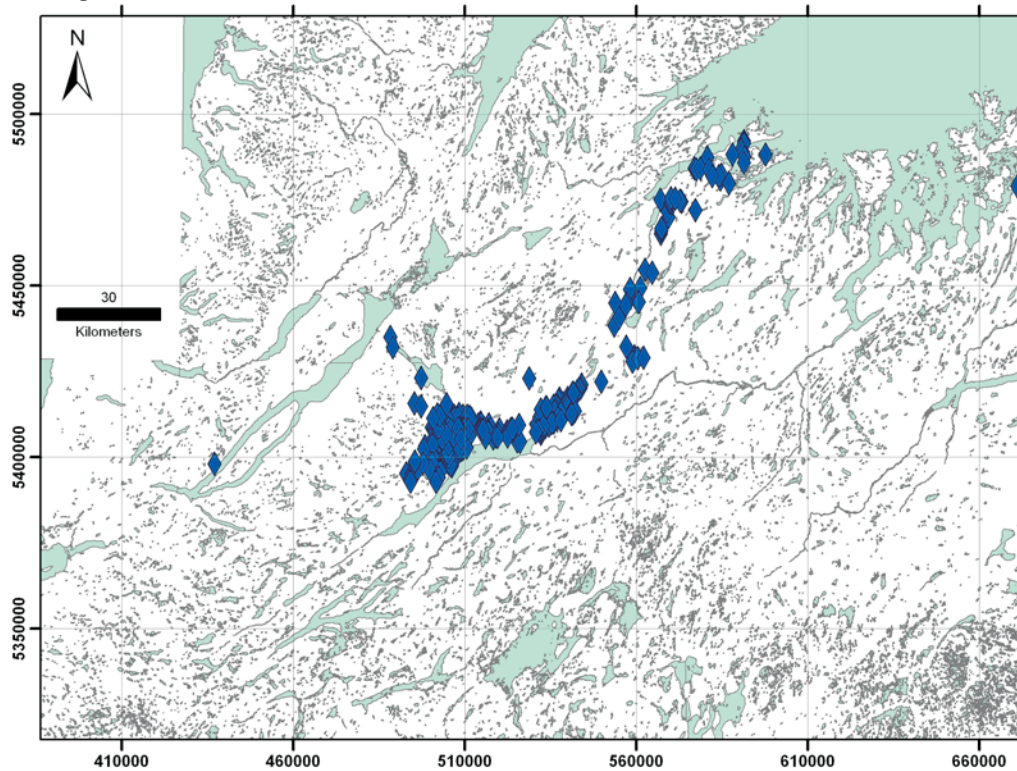
Acknowledgements

This is a contribution to the Targeted Geoscience Initiative (TGI) 2005–2010.

References

- Davenport, P. H., Honarvar, P., Hogan, A., Kilfoil, G., King, D., Nolan, L. W., Ash, J. S., Colman-Sadd, S. P., Hayes, J. P., Liverman, D. G. E., Kerr, A., and Evans, D. T. W., 1996, Digital geoscience atlas of the Buchans-Robert's Arm belt, Newfoundland Newfoundland Geological Survey Branch.
- Jenner, G. A., 2002, Assessment report on geochemical exploration for 2001 submission for fee simple grants volume 1 folios 61-62 and for second year supplementary, fourth year supplementary, fifth year, sixth year supplementary, seventh year and ninth year supplementary assessment for licence 4805 on claim 16398, licence 4823 on claims 16431-16432, licence 4867 on claims 16397, 16400-16401, 16424-16426 and 17688, licence 4868 on claim block 6648, and licences 5576M, 5649M, 5668M, 6003M, 7420M, 8295M, 8312M and 8444M on claims in the Buchans area, central Newfoundland: Newfoundland and Labrador Geological Survey, Assessment File 12A/1008, p. 131.
- Rogers, N., 2004, Red Indian Line geochemical database: Geological Survey of Canada Open File 4605.

Zagorevski, 2008



Rogers, 2004

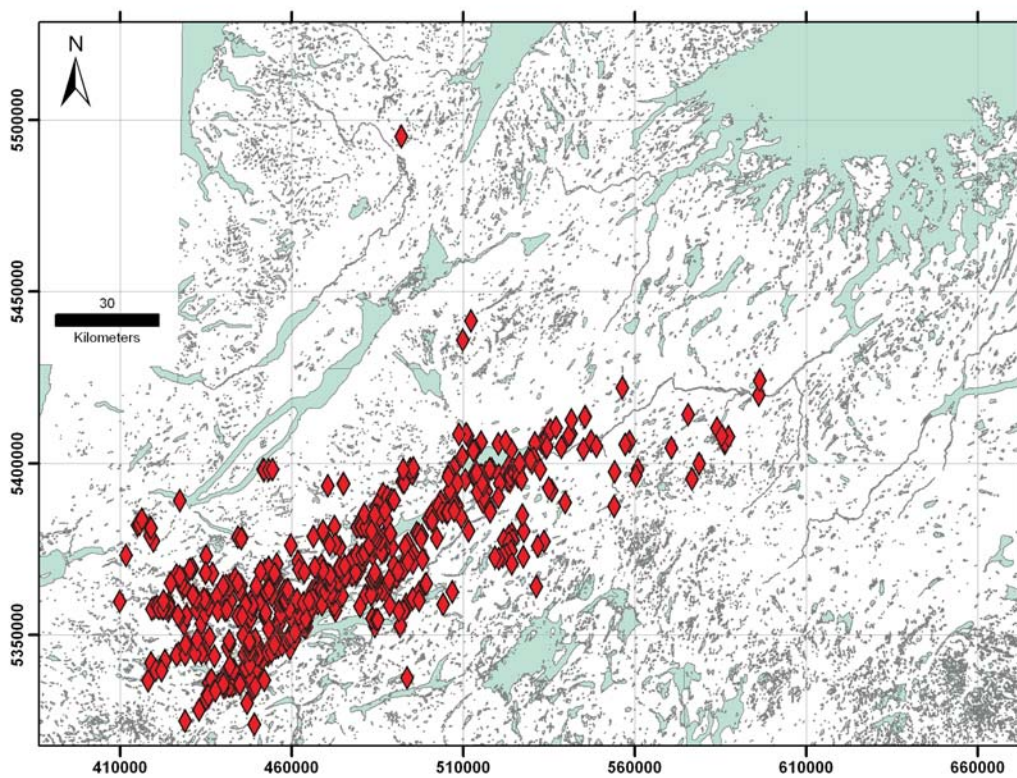
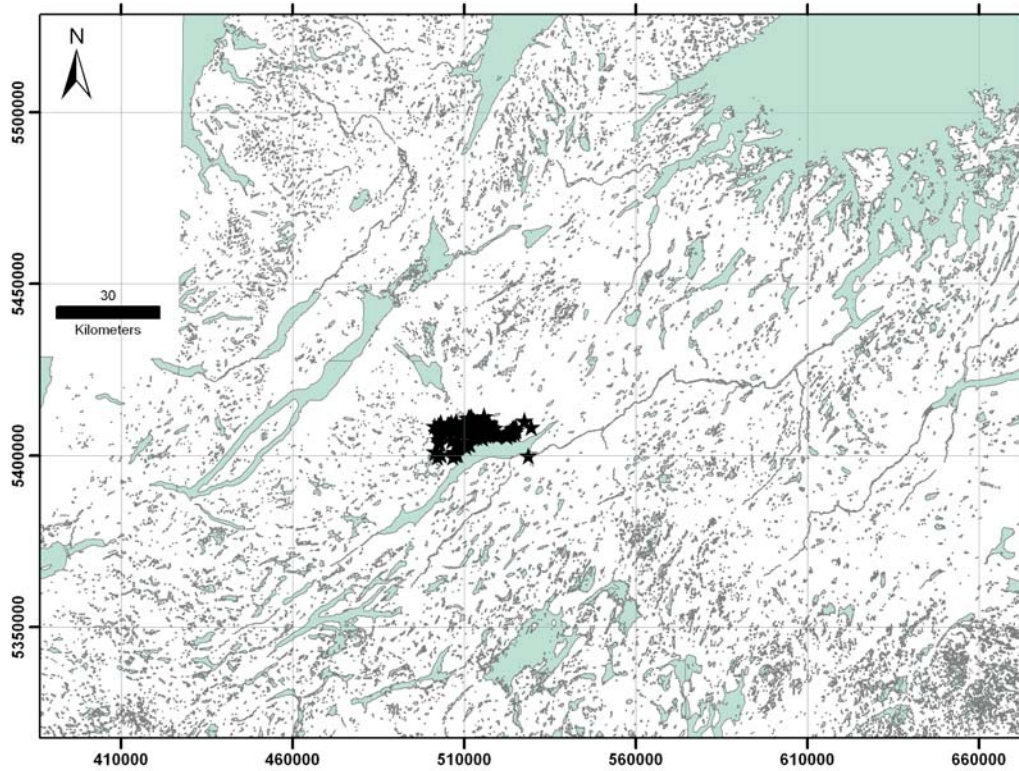


Figure 1: Spatial distribution of whole-rock geochemical data in central Newfoundland

Jenner, 2002



Davenport et al., 1996

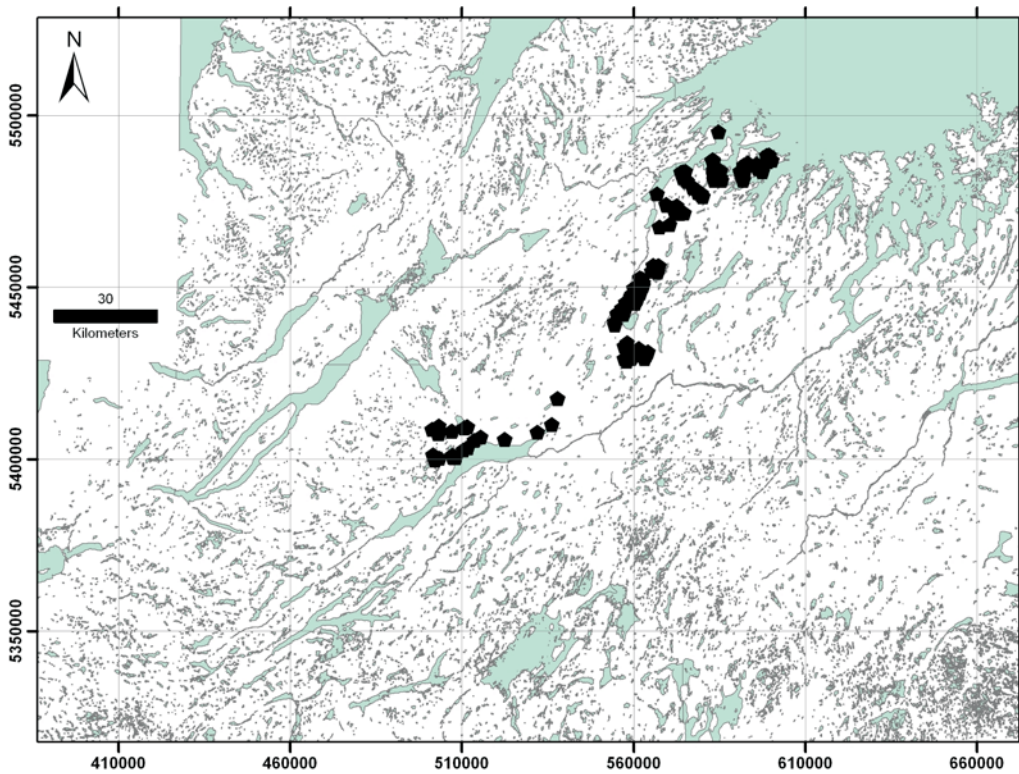


Figure 1 (continued)

Contents

Readme.txt – *contents of the CD-ROM and file structure.*

TGI3 Geochemical Database.pdf – *summary document outlining the database.*

Contacts.pdf – *contact information of principle geologists and laboratories.*

Licence.pdf – *formal end-user licence agreement for digital data.*

Primary Data Files

Complete.xls – *complete table including location, description and chemistry*

Complete.txt – *complete table including location, description and chemistry*

Location.xls – *location of samples included in this open file*

Location.txt – *location of samples included in this open file*

Description.xls – *description of the samples included in this open file*

Description.txt – *description of the samples included in this open file*

Chemistry.xls – *geochemical data*

Chemistry.txt – *geochemical data*

Background Information

Analytical Procedures

Acme.pdf

GSC.pdf

McGill.pdf

OGS.pdf

Unprocessed Analytical Data

ACME2007_A700558 (a).xls

ACME2007_A700558 (b).xls

ACME2008_VAN08003281.xls

GSC2007_07006ET.xls

GSC2007_07006MS.xls

GSC2007_07006XRF.xls

GSC2007_07007ET.xls

GSC2007_07007XRF.xls

GSC2007_07007MS.xls

GSC2008_07018ET.xls

GSC2008_07018MS.xls

GSC2008_07018XRF.xls

McGill2007_Rog01171.xls

McGill2007_Rog01173.xls
OGS2006-0499IM100A.csv
OGS2006-0499IM-101.csv
OGS2006-0499imOR.xls
OGS2006-0499MS-3787.xls
OGS2006-0499MS-3788.xls
OGS2006-0525IM100A.csv
OGS2006-0525IM-101.csv
OGS2006-0525imOR.xls
OGS2006-0525MS-3787.xls
OGS2006-0525MS-3788.xls