



**Mines**

**GEOCHEMICAL DATA OF MARBLES, CORNER  
BROOK AREA AND THE NORTHERN  
PENINSULA, NEWFOUNDLAND  
(NTS MAP AREAS 12A/13, 12B/09, 16,  
12H/11, 12I/09, 16 AND 2M/04)**

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**Open File NFLD/3391**

**St. John's, Newfoundland  
July, 2020**

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### *Recommended citation:*

Magyarosi, Z.

2020: Geochemical data of marbles, Corner Brook area and the Northern Peninsula, Newfoundland (NTS map areas 12A/13, 12B/09, 16, 12H/11, 12I/09, 16 and 2M/04). Government of Newfoundland and Labrador, Department of Natural Resources, Geological Survey, Open File NFLD/3391, 8 pages.



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## SUMMARY

This Open File data release contains whole-rock-geochemical analyses of 47 grab samples from the Corner Brook area (NTS map areas 12A/13, 12B/09 and 16) and the Northern Peninsula (NTS map areas 12H/11, 12I/09, 16 and 2M/04). The samples were collected during the summer of 2017. The purpose of sampling was to assess the quality of the marble deposits for building material and other industrial uses.

## NOTES ON THE DATABASE

This report consists of geochemical analyses of 47 samples collected from NTS map areas 12A/13, 12B/09 and 16 in the Corner Brook area, and 12H/11, 12I/09, 16 and 2M/04 on the Northern Peninsula (Figure 1). Sampling focused on marbles to assess their quality for potential use as building material and other industrial uses. The database includes the location of the samples in UTM coordinates in NAD27 (Zone 21), NTS map sheets, a brief description (lithology, grain size, bed thickness, colour, station notes), the name of the sampled formation and/or group, and whole-rock-geochemical analyses (Appendix A). Standards and duplicates are included in separate files (Appendices B and C). The databases are in comma-separated value (.csv) format and are available from the Geofiles website. Table 1 comprises a list of abbreviations used in this open-file data report.

All the samples were analyzed at the geochemical laboratory of the Geological Survey of Newfoundland and Labrador (GSNL) in St. John's, NL. Table 2 includes the analytical methods used for each element. Most of the major elements were analyzed with ICP-OES following borate fusion. FeO was measured by the titration method and LOI by the gravimetric method. Most of the trace elements were analyzed using ICP-MS following borate fusion and the rest using ICP-

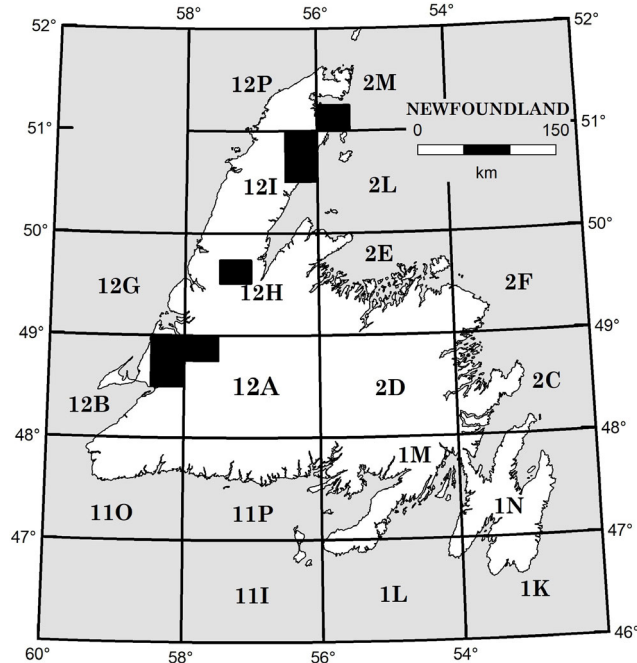


Figure 1. Location map of the study area.

OES following four-acid digestion. Silver was analyzed using ICP-OES following nitric acid digestion. Fluoride was analyzed using alkaline fusion with ion-selective electrode (ISE). The analytical procedures are given in Finch *et al.* (2018). The amount of calcite ( $\text{CaCO}_3$ ) was calculated (by the author) from the amount of CaO measured in the laboratory by first calculating the amount of Ca in each sample ( $\text{CaO (measured)} \times \text{atomic mass of Ca (40.078)} / \text{molar mass of CaO (56.077)}$ ), then calculating the amount of  $\text{CaCO}_3$  ( $\text{Ca (calculated)} \times \text{molar mass of CaCO}_3 (100.086) / \text{atomic mass of Ca (40.078)}$ ). Major elements are reported in wt. % and trace elements are reported in ppm. Negative detection limit values represent analyses below the detection limit, and -99 represents samples that were not analyzed for that element.  $\text{Fe}_2\text{O}_3\text{T}$  is the total

**Table 1.** List of abbreviations

<b>Abbreviation</b>	<b>Explanation</b>
-99	Sample not analyzed for that element
Fe <sub>2</sub> O <sub>3</sub> T	Total measured iron
Grav.	Gravimetric
ICP-MS-FUS	Inductively Coupled Plasma Mass Spectrometry following lithium metaborate/tetraborate fusion
ICP-OES-4ACID	Inductively Coupled Plasma Optical Emission Spectrometry following HF-HCl-HNO <sub>3</sub> -HClO <sub>4</sub> acid digestion
ICP-OES-FUS	Inductively Coupled Plasma Optical Emission Spectrometry following lithium metaborate/tetraborate fusion
ICP-OES-HNO <sub>3</sub>	Inductively Coupled Plasma Optical Emission Spectrometry following nitric acid digestion
ISE	Ion-selective electrode
LOI	Loss-on-ignition
negative detection limit	below detection limit
ppm	Parts per million
wt.%	Weight percent

**Table 2.** Analytical methods for the elements

<b>Element</b>	<b>Analytical Method</b>
SiO <sub>2</sub> , Al <sub>2</sub> O <sub>3</sub> , Fe <sub>2</sub> O <sub>3</sub> T, MgO, CaO, Na <sub>2</sub> O, K <sub>2</sub> O, TiO <sub>2</sub> , MnO, P <sub>2</sub> O <sub>5</sub> , Cr, Ba, Be, Sc, Zr	ICP-OES-FUS
Fe <sub>2</sub> O <sub>3</sub>	Calculation
FeO	Titration
LOI	Gravimetric
Ga, Ge, Sr, Y, Nb, Mo, Sn, Cs, La, Ce, Pr, Nd, Sm, Eu, Tb, Gd, Dy, Ho, Er, Tm, Yb, Lu, Hf, Ta, W, Tl, Bi, Th, U	ICP-MS-FUS
As, Cd, Co, Cu, Li, Ni, Pb, Rb, V, Zn	ICP-OES-4ACID
Ag	ICP-OES-HNO <sub>3</sub>
F	Alkaline fusion with ion-selective electrode

measured iron. Quality assurance and quality control (QA/QC) procedures and information on the standards are included in Finch *et al.* (2018).

### **ACKNOWLEDGMENTS**

I would like to thank Chris Finch for conducting all sample preparations and analyses at the geochemistry laboratory. Melissa Mills, Gerry Hickey and John Hinchey are thanked for their assistance during the field season. Steve Amor is thanked for reviewing the database and Joanne Rooney is thanked for typesetting.

### **REFERENCES**

Finch, C., Roldan, R., Walsh, L., Kelly, J. and Amor S.

2018: Analytical methods for chemical analysis of geological materials. Government of Newfoundland and Labrador, Department of Natural Resources, Geological Survey, Open File NFLD/3316, 67 pages.

## APPENDICES

Appendices are available as digital comma-separated files (.csv) through [this link](#).

**Appendix A:** Sample Locations, Description and Whole-rock Major and Trace Element Geochemistry

**Appendix B:** Standard Analyses

**Appendix C:** Duplicate Analyses