

Gunter K. Muecke

Education	1959 - 1963	University of Alberta	Edmonton, AB
	B.Sc.(First Class Honours)		
	▪ Geology		
	1963 – 1964	University of Alberta	Edmonton, AB
	M.Sc.		
	▪ Structural Geology		
	1964 - 1969	Oxford University	Oxford, England
	D.Phil		
	▪ Geochemistry		
Professional experience	1960 - 1963	Shell Oil of Canada Ltd.	Calgary, AB
	Field Geologist (summers)		
	1968 - 1970	Oxford University	Oxford, England
	Lecturer in Mineralogy		
	▪ University College		
	1970 - 1976	Dalhousie University	Halifax, NS
	Assistant Professor		
	▪ Department of Geology		
	1976 - 1985	Dalhousie University	Halifax, NS
	Associate Professor		
	▪ Department of Earth Sciences		
	1985 - 1998	Dalhousie University	Halifax, NS
	Associate Professor		
	▪ cross appointment in:		
	▪ Department of Earth Sciences		
	▪ School of Resource and Environmental Studies		

2004-1

1998 – present Dalhousie University Halifax, NS

Associate Professor (Research)

- Post-retirement appointments:
- Director, Geographic Information Systems, Faculty of Sciences
- Adjunct Professor School of Resource and Environmental Sciences

Awards received

- Gold Medal in Geology, University of Alberta, 1963
- Woodrow Wilson Fellowship, 1964
- COMINCO Post-Graduate Fellowship, 1964
- Shell Oil Post-Graduate Fellowship, 1965-1968
- Alexander von Humboldt Foundation Research Fellowship, 1977-1978, 1983
- Endowment Fund for the Future, Distinguished Visitor, University of Alberta, 1982

Teaching

Courses taught include: Introduction to Geology; Introductory and Advanced Metamorphic Petrology; Mineralogy; Introductory and Advanced Geochemistry; Analytical Geochemistry; Isotope Geochemistry; Igneous Petrology; Economic Geology; Environmental and Resource Geology; Hydrogeology; Enhanced Environmental Geology; Mining and the Environment; Geoscience Information Management; GIS Applications to Environmental and Geological Sciences; Environmental Remote Sensing
Undergraduate advisor for Department of Earth Sciences (1988 to 1998)

Organized and supervised establishment of computer teaching laboratories for Dept. of Earth Sciences & Biology 1992-1997; Geographic Information System (GIS) Undergraduate Laboratory, 1997- present.

Committees

Numerous departmental and faculty committees including:

2004-2

Postdoctoral Fellowship Committee; Presidential SLOWPOKE II Reactor Committee; Dalhousie Radiation Safety Committee; Geology representative to the Dalhousie Faculty Association; Department of Earth Sciences Curriculum Committee (chair); Faculty of Science Curriculum Committee; Dalhousie University Computer User Group (executive member); Northern Studies Committee (chair); member of the University Tenure Panel; councilor on the Association of Canadian Universities for Northern Studies

Publications and Reports

- Over 45 publications in national and international journals (see attached list of recent contributions)
- approximately 60 presentations at national and international meetings of professional societies (see attached list of recent contributions)
- co-authored article in Scientific American, January 1988 & authored natural history articles for popular magazines
- organizer of Mineralogical Society of Canada short course on Neutron Activation Analysis in the Geosciences, 1980
- co-author of a metamorphic geological map of Nova Scotia
- editor of two undergraduate readers:

Environmental Geology of Uranium Exploration and Mining, 1982

Environmental and Resource Geology: A Canadian Reader, 1997

Additional professional activities

- Drilling supervisor and chief scientist-on-site, Azores Geothermal Drilling Project, 1972
- Guest lecturer, Environmental Planning Course, Nova Scotia College of Arts and Design, Halifax, NS, 1980, 1981
- Consultant geologist, Guysborough Project, Nova Scotia Department of Mines and Energy, under contract September - November 1982
- Consultant geochemist, Hahn-Meitner Institute of Nuclear

2004-3

Studies, Berlin, West Germany, June - July, 1983

- Principal of TURNKEY SOLUTIONS, Computer Consulting Services, established in 1986
- member of the editorial board of Lanthanide and Actinide Research (an international interdisciplinary technical journal)
- appointed member of Federal-Provincial Environmental Assessment Panel reviewing the Kelly's Mountain Coastal Superquarry Project, Jan. 1991
- Seminars and graduate student advisor for School of Resource and Environmental Studies

Community activities

- Advisor on environmental matters to CBC-TV documentary series Land and Sea
- Executive member of Amaranth - Good Cheap Foods Cooperative (until 1986)
- Member of the Board and member of various committees for Ecology Action Centre, Halifax, NS, 1987-1991
- Executive member of Aylesford Lake Properties Owner Society
- Member and technical advisor of the Kings County Lakes Monitoring Committee

Interests and hobbies

Classical symphonic music and opera; photography - as an art form and social comment; orchid cultivation and outdoor gardening; mountain hiking.

2004-4

Recent Published Research Contributions:

Bannerjee, N.R., Robinson, P.J. and Muecke G.K. (1997) Water-rock interaction in the lower oceanic crust. Geol. Assoc. Can. Annual Meeting, Program with Abstracts, v. 22, A1243.

Cameron, B.I. and Muecke, G.K. (1996) Permian alkaline basalts associated with formation of the Sverdrup Basin, Canadian Arctic. Can. J. Earth Sci., v.33,1462-1473.

Parsons, M.B. and Muecke, G.K. (1995) Geochemistry and petrogenesis of Late Cretaceous bentonites from the Kanguk Formation, Axel Heiberg and Ellesmere Islands, Canadian High Arctic, Geol. Assoc. Can. Annual Meeting, Program with Abstracts, v. 20.

Muecke, G.K., Reynolds, P. H., MacRae, R.A.. and Nunez-Betelu, L.K. (1994) $^{40}\text{Ar}/^{39}\text{Ar}$ geochronology of Late Cretaceous volcanic events in the Canadian Arctic Islands: Arctic biotic heterochroneity revisited. 8th International Conf. on Geochronology, Cosmochronology and Isotope Geology, Berkeley, Calif.

Nunez-Betelu, L.K., MacRae, R.A.. Hills, L.V. and Muecke, G.K. (1994) Uppermost Albian-Campanian palynological biostratigraphy of Axel Heiberg and Ellesmere Islands (Canadian Arctic). Proceed. International Conference on Arctic Margins, p. 135-140.

Muecke, G.K. and Hinds, S.J. (1992) Multivariate data sets, icons, and the correlation of volcanic flows: Application to the Early Cretaceous basalts of the Isachsen Formation, Sverdrup Basin, Canadian Arctic Islands. Geol. Assoc. Can. Annual Meeting, Program with Abstracts, v.17, A80.

Williamson, M.-C., Okulitch, A.V., and Muecke, G.K. (1992) Cretaceous magmatism and rift propagation across the Sverdrup Basin, and the opening of the Canada Basin, Arctic Ocean. Geol. Assoc. Can. Annual Meeting, Program with Abstracts, v.17, A118.

MacRae, R.A., Hills, L.V., and Muecke, G.K. (1992) Palynology of the Cretaceous Bastion Ridge and Strand Fiord

2004-5

formations, Axel Heiberg Island, N.W.T.: implications for stratigraphy, paleoenvironment, and NYKTERICYSTA taxonomy. Geol. Assoc. Can. Annual Meeting, Program with Abstracts, v.17, A71-72.

Muecke, G.K. (1992) Tectonomagmatic history of the Sverdrup Basin, Canadian Arctic Islands: pertinence to circum-Arctic event correlation. Int. Conference on Arctic Margins, Anchorage, Alaska, ICAM Abstract, p.39.

Nunez-Betelu, L.K., MacRae, R.A., Hills, L.V., and Muecke, G.K. (1992) Albian-Campanian palynological biostratigraphy of Axel Heiberg and Ellesmere islands (Canadian Arctic). Int. Conference on Arctic Margins, Anchorage, Alaska, ICAM Abstract, p.45.

Williamson, M.-C., Muecke, G.K., and Okulitch, A.V. (1992) Cretaceous magmatism in the Canadian Arctic Islands and the opening of the Canada Basin, Arctic Ocean. Int. Conference on Arctic Margins, Anchorage, Alaska, ICAM Abstract, p. 64.

Muecke, G.K., Williamson, M.-C., and MacRae, R.A. (1991) Recognition and significance of invasive flows in the Strand Fiord Formation volcanics, Axel Heiberg Island, Canadian Arctic Archipelago. Geological Association of Canada, Annual Meeting, Program with Abstracts, 16, p. A109.

Muecke, G.K. (1990). Secular and spatial evolution of extensional basin magmatism: development of the Sverdrup Basin, Canadian Arctic Islands. International Volcanological Congress, Mainz, F.R.G., Abstracts, p. 74.

MacRae, R.A., Muecke, G.K. and Reynolds, P.H. (1990). Palynology, stratigraphy, and radiometric age of an Upper Cretaceous sedimentary - volcanic sequence, Emma Fiord, NW Ellesmere Island, Canadian Arctic. Geological Association of Canada, Annual Meeting, Program with Abstracts, 15, p. A80-81.

Muecke, G.K., Reynolds, P.H. and Avison, H.A. (1990). $^{40}\text{Ar}/^{39}\text{Ar}$ geochronology of episodic magmatism during the late phases of Sverdrup Basin development, Canadian Arctic Islands. Geological Association of Canada, Annual Meeting, Program with Abstracts, 15, p. A93.

Ritcey, D.H. and Muecke, G.K. (1990) Chemistry and petrogenesis of mid-Carboniferous Audhild basalts, NW

2004-6

Ellesmere Island, Arctic Canada. Geological Association of Canada, Annual Meeting, Program with Abstracts, 15, p. A111.

Merrett, D.C. and Muecke, G.K. (1989). Preliminary observations on the volcanics of Phillips Inlet, Ellesmere Island: the last phase of Cretaceous volcanism in the Sverdrup Basin. *The Musko*, 37, p. 28-38.

Clarke, D.B., Cameron, B.I., Muecke, G.K. and Bates, J.L. (1989) Early Tertiary basalts from the Labrador Sea floor and Davis Strait region. *Canadian Journal of Earth Sciences*, 26, p. 956-968.

Muecke, G.K. and Williamson, M.-C. (1989) Tectonomagmatic evolution of the Sverdrup Basin, Canadian Arctic Archipelago. *EUG, Strassbourg, April 1989; Terra Abstracts*, 1, p.21.

Williamson, M.-C. and Muecke, G.K. (1989) Petrology of igneous rocks from the east-central Sverdrup Basin, Canadian Arctic Archipelago. Geological Association of Canada, Annual Meeting, Program with Abstracts, 14, p. A96.

Clarke, D.B., Cameron, B.I., Muecke, G.K., and Bates, J.L. (1989) Petrology and geochemistry of basalts from ODP Leg 105, Site 647A, Labrador Sea, and the Davis Strait area. *Proceedings of the Ocean Drilling Program, Scientific Results*, 105, p. 863-884.

Merrett, D.C. and Muecke, G.K. (1989) Late Cretaceous / Tertiary volcanism on northern Ellesmere Island, Canadian High Arctic. Geological Association of Canada, Annual Meeting, Program with Abstracts, 14, p. A96.

Williamson, M.-C. and Muecke, G.K. (1989) Tectonic significance of Cretaceous igneous events in the east-central Sverdrup Basin, Canadian Arctic. *Exploration Update 1989*, Calgary, Alta.

Muecke, G.K., Elias, P. and Reynolds, P.H. (1988) Hercynian / Alleghanian overprinting of the Acadian terrane: $^{40}\text{Ar}/^{39}\text{Ar}$ studies in the Meguma Zone, Nova Scotia, Canada. *Chemical Geology (Isotope Geoscience Section)*, 73, p.153-167.

Muecke, G.K. and Moller, P. (1988) The not-so-rare earths. *Scientific American*, 256, p. 72-77.

2004-7

Reynolds, P.H., Elias, P., Muecke, G.K. and Grist, S. (1987) Thermal history of the southeastern Meguma Zone, Nova Scotia, from an $^{40}\text{Ar}/^{39}\text{Ar}$ - fission track dating study of intrusive rocks. Canadian Journal of Earth Sciences, 24, p.1952-1965.

Cameron, B.I. and Muecke, G.K. (1988) Petrochemistry and origin of Permian basalts, Esayoo Formation, Sverdrup Basin, Arctic Canada. Geological Association of Canada, Annual Meeting, Program with Abstracts, 13, p.A17.

Williamson, M.-C., Muecke, G.K., and Clarke, D.B. (1987) Petrology of rift-related continental basalts, Sverdrup Basin, Arctic Canada. Geological Association of Canada, Annual Meeting, Program with Abstracts, 12, p.101.

Muecke, G.K., Williamson, M.-C., Bates, J.L., and Cameron, B. (1987) Ancient volcanism in the Canadian Arctic Islands. The Canadian Arctic Islands: Canada's Missing Dimension, National Museum of Natural Sciences, Ottawa, Nov. 1987, Program with Abstracts, p.28-29.

Clarke, D.B. and Muecke, G.K. (1985) Review of the petrochemistry and origin of the South Mountain Batholith and associated plutons, Nova Scotia, Canada. IN: High Heat Production (HHP) Granites, Hydrothermal Circulation, and Ore Genesis. The Institution of Mining and Metallurgy, London, p. 41-54.

Chatterjee, A.K., Strong, D.F., Clarke, D.B., Robertson, J., Pollock, D. and Muecke, G.K. (1985) Geochemistry of the granodiorite hosting uranium mineralization at Millet Brook. IN: Guide to the Granites and Mineral Deposits of southwestern Nova Scotia. Eds. A.K. Chatterjee and D.B. Clarke, Nova Scotia Dept. of Mines & Energy, Paper 85-3, p. 64-114.

Clarke, D.B., Muecke, G.K., and Chatterjee, A.K. (1985) The South Mountain Batholith: geology, petrology, geochemistry. IN: Guide to the Granites and Mineral Deposits of southwestern Nova Scotia. Eds. A.K. Chatterjee and D.B. Clarke, Nova Scotia Dept. of Mines & Energy, Paper 85-3, p. 1-14.

Clarke, D.B. and Muecke, G.K. (1985) Review of the petrochemistry and origin of the South Mountain Batholith and associated plutons, Nova Scotia, Canada. IMM Conference

2004-8

on High Heat Production (HHP) Granites, Hydrothermal Circulation and Ore Genesis, St. Austell, Cornwall, Sept. 1985.

Recent Theses Supervised:

Cook, L.-A. (1998) Pre-feasibility study for Underground Thermal Energy Storage (UTES) at Dalhousie University, Halifax, Nova Scotia. B.Sc. Honours thesis, Dalhousie University, Halifax, 109 p.

Harding, J. (1996) The Highway 101 landfill - what have we learned? B.Sc. Honours thesis, Dalhousie University, Halifax, NS, 86 p.

Parsons, M.B. (1994) Geochemistry and petrogenesis of Late Cretaceous bentonites from the Kanguk Formation, Axel Heiberg and Ellesmere Islands, Canadian High Arctic. B.Sc. Honours thesis, Dalhousie University, Halifax, NS, 131 p.

Henry, A.S. (1991) The petrochemistry and origin of the Bourne Complex, northwestern Ellesmere Island, Canada. B.Sc. Honours thesis, Dalhousie University, Halifax, NS, 120 p.

Hinds, S.J. (1991) The correlation and $^{40}\text{Ar}/^{39}\text{Ar}$ age dating of the Early Cretaceous Walker Island Member basalts, Axel Heiberg Island, Canadian Arctic. B.Sc. Honours thesis, Dalhousie University, Halifax, NS, 94 p.

MacRae, R.A. (1989) Palynology and stratigraphy of an Upper Cretaceous sedimentary - volcanic sequence, northwest Ellesmere Island, N.W.T., Canada. B.Sc. Honours thesis, Dalhousie University, Halifax, NS, 206 p.

Ritcey, D. (1989) A geochemical study of the Carboniferous Audhild volcanics, northwestern Ellesmere Island, Arctic Canada: initial volcanism in the Sverdrup Basin. B.Sc. Honours thesis, Dalhousie University, Halifax, NS, 94 p.

Cameron, B. (1989) Petrochemistry and origin of altered Permian basalts in the Sverdrup Basin, Arctic Canada. M.Sc. thesis, Dalhousie University, Halifax, NS, 391 p.

2004-9

Williamson, M.-C. (1988) The Cretaceous igneous province of the Sverdrup Basin, Canadian Arctic: field relations and petrochemical studies. Ph.D. thesis, Dalhousie University, Halifax, NS, 417 p.

O'Reilly, G. (1988) Geology and geochemistry of the Sangster Lake and Larrys River plutons, Guysborough County, Nova Scotia. M.Sc. thesis, Dalhousie University, Halifax, NS, 240 p.

Avison, H. (1987) $^{40}\text{Ar}/^{39}\text{Ar}$ age studies of mafic volcanics from the Sverdrup Basin, Arctic Canada. B.Sc. Honours thesis, Dalhousie University, Halifax, NS, 88 p.

Jollimore, W. (1986) Analysis of dyke swarms within the Sverdrup Basin, Queen Elizabeth Islands. B.Sc. Honours thesis, Dalhousie University, Halifax, NS, 54 p.

Elias, P. (1986) Thermal history of the Meguma terrane: a study based on ^{40}Ar - ^{39}Ar and fission track dating. Ph.D. thesis, Dalhousie University, Halifax, NS, 290 p.

Recent Reports and Submissions:

Underground Thermal Energy Storage: Procedures for Environmental Impact Assessment. Working Report for Annex 8 of the International Energy Agency, Energy Conservation Through Energy Storage Implementing Agreement, May 1997, 83p.

An Evaluation of the Kings County Lake Capacity Study. Submitted to the Council of the Municipality of the County of Kings on behalf of Aylesford Lake Properties Owners Society, February 1997.

Geological and Environmental Evaluation of the Proposed Quartzite Quarry, Vernon Kynock Property. Submitted to the Nova Scotia Utility and Review Board on behalf of the Hammonds Plains Residents Association, March 1993.

2004-10