CURRICULUM VITAE

DONALD MACKAY

Professor Emeritus

Environmental and Resource Studies,

Director

Canadian Environmental Modelling Centre,

TRENT UNIVERSITY

Peterborough, Ontario, Canada K9J 7B8
Telephone: (705) 748-1011 ext.1489
Fax: (705) 748-1080
E-mail: DMACKAY@TRENTU.CA

also

Professor Emeritus

Department of Chemical Engineering and Applied Chemistry
University of Toronto

Toronto, Ontario, Canada M5S 1A1

September 2006

PLACE AND DATE OF BIRTH:	Glasgow, Scotland October 30, 1936
CITIZENSHIP:	Canadian
MARITAL STATUS:	Married with two children (boys born 1965 and 1968)

EDUCATION:

1940-54	Eastwood School, Glasgow
1954-58	Royal Technical College and University of Glasgow B.Sc. in Applied Chemistry, 1958 ARCST in Chemical Technology, 1958
1958-61	Royal College of Science and Technology and University of Glasgow Ph.D. in Chemical Engineering, 1961 Thesis Title: “Mass Transfer in Gas Absorption Columns”

POSITIONS HELD:

1954-58	Various temporary summer positions in a wool mill, whisky distillery and gas works tar distillation plant.
1961-64	National Research Council Postdoctoral Fellow at the Department of Chemical Engineering and Applied Chemistry, University of Toronto. Research on high temperature gas phase reactions in a shock tube with Professor 0. Trass
1963-64	Part-time lecturer, Ryerson Polytechnic Institute, Toronto
1964-67	Research Chemical Engineer with the Heavy Organic Chemicals Division of Imperial Chemical Industries Ltd., Billingham, Co., Durham, England.
1967-95	Assistant Professor, Department of Chemical Engineering and Applied Chemistry, University of Toronto. Graduate Secretary 1967-73, Associate Professor, 1970-76, Professor 1976-1995. Cross appointed to Institute of Environmental Sciences and Engineering (now the Institute for Environmental Studies), including two years as Associate Director 1971-95, Chair, Chemical Option of the Division of Engineering Science 1983-89, Cross appointed to Dept of Pharmacology, 1986-93.
1995 - 2002	Professor, Environmental and Resource Studies, Trent University, Peterborough, Canada
2002 - present	Professor Emeritus, Trent University

Present position is Director of the Canadian Environmental Modelling Centre at Trent University. This position is supported by NSERC and a consortium of chemical companies. The principal activities are (i) compilation of physical chemical data on organic contaminants, (ii) development of models describing the environmental fate and effects of chemical contaminants and (iii) various studies relating to policies for chemical management in the environment. For details see www.trentu.ca/cemc.

PROFESSIONAL MEMBERSHIPS, ACTIVITIES AND HONOURS:

Memberships

Member, Association of Professional Engineers of Ontario
Member and Fellow (1972), Chemical Institute of Canada and Canadian Society for Chemical Engineering
Member, American Chemical Society
Member, International Association for Great Lakes Research
Member of the Editorial Board of the following journals at various times
- Environmental Science and Technology
- Chemosphere
- Journal of Hazardous Materials and Oil and Chemical Pollution
- Journal of Soil and Sediment Contamination
- Ambio
- Environmental Reviews

Selected Professional Activities

Member, Canadian Environmental Advisory Council (1983-1986), an advisory council to the Federal Minister of Environment
Member, Board of Directors of the Society for Environmental Toxicology and Chemistry (1984-1987) and member of Board of Directors SETAC Foundation 1989-1993
Member of a number of groups or committees acting for the Canadian Federal and Provincial Governments and the International Joint Commission and the US Environmental Protection Agency
Canadian Co-chairman, Technological Committee of the Science Advisory Board of the U.S.-Canada International Joint Commission (1987-1991)
Advisor to Continental Shelf Institute, Trondheim, Norway
President of DMER Ltd. (D. Mackay Environmental Research Ltd.), Peterborough
Member, Municipal Industrial Strategy for Abatement (MISA) Advisory Committee. - A committee providing advice to the Ontario Minister of the Environment. (1986-92)
Member, various committees of the Natural Sciences and Engineering Research Council, Ottawa
Member, Technical Advisory Panel on Nuclear Safety of Ontario Hydro 1998 - 1999
Member, Canadian Standards Association, Committee on Household Hazardous Wastes 2000-2001

Awards

Association of Environmental Engineering Professors, Distinguished Lecturer, 1983

Excellence in Research Award of the Ontario Ministry of the Environment, 1988

Spirit of Engineering Science Award, 1988

Award for Outstanding Contributions to Great Lakes Research, International Association for Great Lakes Research, 1990

The Chandler-Misener Award of the International Assocn for Great Lakes Research, 1990

Francis W. Karasek Award of the University of Waterloo, 1990

Founders Award, SETAC, 1990

Editor's Award, Journal of Great Lakes Research, June 1991

McLean Visiting Professor in Environmental Studies, Trent University, 1992

Varian Lecturer, Carleton University Dept. of Chemistry, 1993

International Association for the Exchange of Students for Technical Experience, Award in recognition of outstanding service. 1998.

Mellanby Review Award, Elsevier Science Publishers / Environmental Pollution, 2000.

Professional Engineers of Ontario (PEO), Engineering Medal for Research and Development, 2001.

Honda Prize for contributions to eco-technology, Honda Foundation, 2001.

The NSERC Award of Excellence, 2001.

Emeritus Member, Society of Environmental Toxicology and Chemistry 2002

Kalev Pugi Award, Society of Chemical Industry - Canadian Section, 2003.

Wendell W. Kilgore Distinguished Achievement Award, University of California, Davis, 2003.

Order of Ontario. Appointed 2003; Invested March 2004.

Officer of the Order of Canada. Appointed October 2003; Invested October 2004.

Distinguished Speaker. National Water Research Institute, Canada Centre for Inland Waters, Burlington, 2005.

Peter Robinson Award, City of Peterborough, Ontario. September 2005.

RESEARCH INTERESTS:

(i) Environmental Fate of Toxic Substances

This research program involves studies of numerous partitioning and transport processes in the environment, the focus being on organic contaminants. The processes include, volatilization, atmospheric deposition, sediment-water exchange, bioconcentration, leaching, degradation processes in soils, measurement and correlation of physical-chemical properties and modelling of various systems, especially using the fugacity approach devised in our group. Much of this work is directed towards the issue of Great Lakes water quality and Arctic conditions. Recent work has included the extension of the environmental models to include food uptake and pharmacokinetic processes, the use of Quantitative Structure Activity Relationships (QSARS).

(ii) Environmental Impact of Oil

A number of studies has been undertaken since 1970 on various aspects of oil pollution in Arctic and temperate waters and on land. This has included work on the evaporation, dispersion, stranding on shore, emulsification and spreading of oil spills; interactions of oil with ice; oil spill modelling, including calculation of oil concentrations and effects near production areas and accidental oil spills; the behaviour and restoration of oil spills on lakes in the Arctic and Ontario; studies of oil boom deflector systems, chemical dispersion and burning. Several conference proceedings on this general topic have been edited.

(iii) Phase Equilibrium Thermodynamics

This has involved various studies of vapor-liquid and liquid-liquid equilibrium primarily in systems of environmental interests, for example: Phenol extraction from water and the solubility and partitioning behaviour of hydrophobic organic chemicals.

(iv) Miscellaneous

Other projects which have been undertaken, and are largely in abeyance, include the chemical kinetics of high temperature gas phase reactions of hydrocarbons, oxidation and disinfection of waste waters, studies of engineering employment, industrial innovation, energy and environment issues in general, and the synthesis and utilization of non-hydrocarbon fuels such as methanol.

PUBLICATIONS

Author or co-author of over 600 research papers, articles, book chapters and technical reports, including over 300 peer-reviewed publications and author, editor or co-editor of 12 books. Details are available on request.