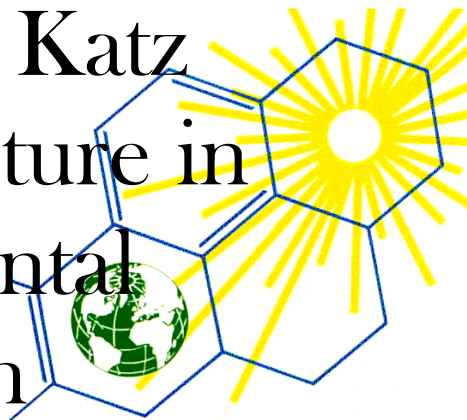


# 2012 Morris Katz Memorial Lecture in Environmental Research



**Professor Warwick F. Vincent**

Centre for Northern Studies (CEN) & Département de Biologie  
Laval University, Quebec City, QC, Canada

**Rapid Ecosystem Change Across Canada's Arctic Frontier**

Monday, May 28th, 2012  
2:30 p.m.

Senate Chamber, N940 Ross Bldg., York University  
4700 Keele Street, Toronto

*[This event is free. Please register at http://morriskatzlecture.eventbrite.ca](http://morriskatzlecture.eventbrite.ca)*





## Abstract

The Canadian Arctic contains a spectacular variety of aquatic ecosystem types including vast networks of lakes in glaciated basins, permafrost thaw lakes, large rivers discharging to the Arctic Ocean, ice shelves, lagoons and other coastal ecosystems, and perennially ice-capped, solar heated lakes. Our analyses of the molecular microbiology of these waters have revealed diverse communities in each of the three domains of microbial life, with implications for biogeography, food web structure and biogeochemical processes including greenhouse gas fluxes. The Arctic is currently warming at more than twice the global average, and some of these aquatic ecosystems have begun to experience step-like changes in their physical and ecological regimes. Over the last ten years, several types of ice-dependent ecosystems at our study sites in the High Arctic have experienced abrupt changes, resulting in complete habitat loss at some locations. To obtain a longer term perspective, we analysed coastal sediment cores taken behind the Ward Hunt Ice Shelf (Antoniades et al. 2011). The results indicate large variability in past ice conditions, however the synchronicity of its current break-up with the collapse of ice shelves in the Antarctic Peninsula region is without precedent over the last 8000 years, implying that we have entered a new phase of pole-to-pole deglaciation (Hodgson 2011). Our observations also imply that global climate change has begun to induce abrupt, discontinuous shifts in high latitude ecosystem structure and function, and that Canada's Arctic frontier is moving into a new dynamic state that we urgently need to better understand.

## Biographical Sketch

Dr. Warwick Vincent obtained his B.Sc. (hons) from the University of Auckland, New Zealand in Botany and Cell Biology and his Ph.D. in Ecology from the University of California at Davis, USA, with postdoctoral studies at the Freshwater Biological Association, United Kingdom. He was appointed to a faculty position at Université Laval in 1990.

Dr. Vincent has conducted ecological research on lakes, rivers and coastal oceans in several parts of the world including the subtropical convergence (South Pacific), Lake Titicaca (Peru-Bolivia), Lake Biwa (Japan) and the St Lawrence River. His research group has a special interest in the relationships between microscopic life at the base of aquatic food webs and physical aspects of aquatic ecosystems such as solar energy supply, temperature, mixing regimes and climate.

## The Lectureship Fund

The Morris Katz Lectureship was made possible by the establishment of an Endowment Fund created through contributions from his family, his friends, his colleagues, private companies, universities and government. It is intended that this lectureship become self sustaining. Major contributions in support of this year's lecture have been made by:

The Centre for Atmospheric Chemistry  
and  
The Ontario Ministry of the Environment

If you share in Morris Katz' enthusiasm and commitment to having a cleaner environment, please make a contribution to support this ongoing educational activity. Send your contribution in care of: The Morris Katz Memorial Lectureship, Centre for Atmospheric Chemistry, York University, 4700 Keele Street, Toronto, Ontario, M3J 1P3 Canada.

*For further information contact:*  
*Carol Weldon, (416) 736-5410 or*  
*Fax: (416) 736-5411: Email: [cac@yorku.ca](mailto:cac@yorku.ca)*  
*Web: <http://www.cac.yorku.ca>*

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