

SEMINAR ANNOUNCEMENT

Friday, October 12, 2007 at 2 PM

WMO Building, 7bis Avenue de la Paix, Geneva
Press Room on the ground floor

Professor Lawrence Mysak

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Glacial Inceptions: Past and Future

Determining the causes and mechanisms of glacial inceptions during the past half million years has challenged scores of climate theoreticians and modellers. After introducing the basic Milankovitch theory of glaciation, I will review a number of earlier modelling studies on past glacial inceptions which have employed high-resolution GCMs or EMICs: Earth system Models of Intermediate Complexity. Following an overview of various EMICs, including the McGill Paleoclimate Model (MPM), I will present some recent simulations of the last glacial inception (LGI) in response to orbital (Milankovitch) and radiative (atmospheric CO₂) forcing. Special attention will be given to determining the relative roles of the ocean thermohaline circulation, freshwater fluxes, orography, cryospheric processes and vegetation dynamics during the inception phase.

The talk will conclude with a discussion on the (possible) occurrence of the next glacial period. I shall present EMIC simulations of the climate for the next 100 kyr which are forced by a various prescribed atmospheric CO₂ levels, as well as insolation changes. The influence of a near-term global warming scenario on glacial inception will also be examined. Finally, the recent simulations of glacial inceptions in the Potsdam EMIC which includes an interactive carbon cycle will be described. It is not inconceivable that due to human activities, the current interglacial will last for at least another half million years.

Concerning Dr. Mysak

Lawrence A. Mysak holds the endowed Canada Steamship Lines Chair in the Department of Atmospheric and Oceanic Sciences at McGill University, Montreal, and is the past founding director (1990-96) of the McGill Centre for Climate and Global Change Research. Prior to his appointment at McGill in 1986, Dr. Mysak was Professor of Mathematics and Oceanography at the University of British Columbia, Vancouver (1967-86). He holds degrees from the Univ. of Alberta (BSc), Adelaide Univ., Australia, (MSc) and Harvard Univ. (PhD). Dr. Mysak is internationally known for his extensive applications of mathematics to physical oceanography, his basic research on natural climate variability of the Arctic, and the development and application of global earth system models to various climate phenomena. He has investigated the influence of El Nino on fish migration, and has modelled the climate of the warm dinosaur era, the cold glacial periods, and the inception of the ice ages, past and future.

Dr. Mysak has supervised the research of over 70 graduate and post doctoral students (19 of whom are now professors in 11 countries). For his supervisory work he was awarded in 2000 the McGill University David Thomson Award for Excellence in Graduate Student Supervision and Teaching. Dr. Mysak has also given over 500 lectures at scientific and educational institutions, conferences and public forums in 25 countries. Dr. Mysak has published over 150 refereed journal papers and has co-authored (with P.H. LeBlond) the widely referenced, 600-page treatise "Waves in the Ocean" (1978). This book has been translated into Russian and Chinese.

Dr. Mysak is currently Co-Editor-in-Chief of the Springer Publisher (Germany) Atmosphere and Ocean Library Series. At the 24th General Assembly of the International Union of Geodesy and Geophysics In Perugia, Italy this past July, he was elected President of the International Association for the Physical Sciences of the Oceans (IAPSO) for the four-year term 2007-2011. He is only the second Canadian to hold this position. In this capacity, he will be involved in the organization of international conferences on oceanography and climate in Montreal (2009), Melbourne (2011) and Sweden (2013). In 1986, Dr. Mysak was elected, by the Academy of Science, a Fellow of the Royal Society of Canada (FRSC), and during 1993-96 he served as president of the 900-member Academy of Science, the largest of the three academies comprising the Society. In November 1996, Dr. Mysak was appointed a Member of the Order of Canada (CM) for his distinguished contributions to science.

Dr. Mysak was elected as an inaugural Fellow of CMOS in 1999, and he is one of only a handful of Canadians who is a Fellow of both the American Meteorological Society (2000) and the American Geophysical Union (2000). He was inducted in 2000 as a Foreign Member of Academia Europaea, which is a 2000-member academy for the arts and sciences in the European Union.