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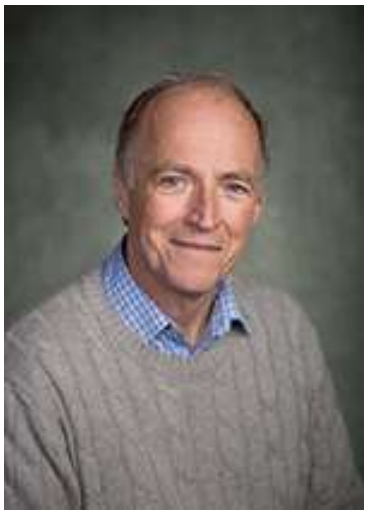
School of Arts and Sciences

Department of Statistics

JOINT SEMINAR BETWEEN DEPARTMENT OF STATISTICS & INSTITUTE OF EARTH, OCEAN, AND ATMOSPHERIC SCIENCES



Francis Zwiers

Pacific Climate Impacts Consortium
University of Victoria

On the Challenge of making reliable inferences about extreme precipitation events

April 23, 2019
12:00 – 1:00pm
Light refreshments will be served
110 Frelinghuysen Road
Hill Center, Room 552

Abstract: The design, management and adaptation of infrastructure to a changing climate makes extensive use of estimates of the expected frequency and intensity of extreme precipitation events. Such information is also used for disaster response planning, land use planning and regulation, and many other purposes. The primary source of information that is used to meet this requirement is from meteorological stations that are irregularly scattered across the landscape and have operated for variable periods of time measured in years to multiple decades. While many methods have been proposed to extract as much information as possible from the available data about the far righthand tail of the precipitation distribution at a given location, the limitations to our ability to well-constrain estimates of high quantiles and whether they are changing over time, as might be expected in a warming climate, are not well appreciated. The advent of large ensemble climate simulations with global, and now higher resolution regional climate models, allows us to develop an improved appreciation of the amount of observational data that may be required to estimate high quantiles well, and to determine how and why they are changing. This talk will provide an overview of work undertaken in collaboration with my group on extreme precipitation and its possible future change. Topics will include (i) an assessment of difficult to test stability assumptions that are made as a matter of course in the analysis of extreme precipitation, (ii) quantification of how much information is required to reliably constrain non-stationary models of extreme precipitation, and time permitting, (iii) a proposed approach to the estimation of probable maximum precipitation – a quantity that is often used in dam design.

Bio: Dr. Francis Zwiers is director of the Pacific Climate Impacts Consortium (PCIC) at the University of Victoria. His former roles include chief of the Canadian Centre for Climate Modelling and Analysis and director of the Climate Research Division, both at Environment and Climate Change Canada. As a research scientist, his expertise is in the application of statistical methods to the analysis of observed and simulated climate variability and change. Dr. Zwiers is a Fellow of the Royal Society of Canada and of the American Meteorological Society, a recipient of the Patterson Medal and President's Prize, has served as an IPCC Coordinating Lead Author of the Fourth Assessment Report and as an elected member of the IPCC Bureau for the Fifth Assessment Report.