

## NIGEL ROULET



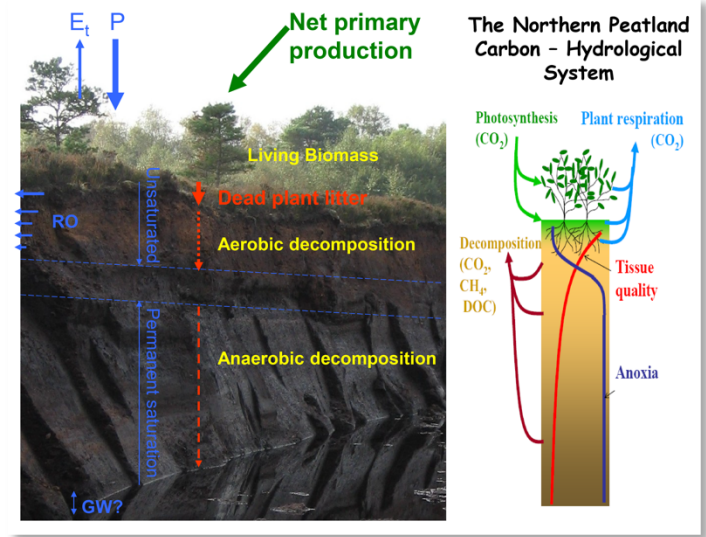
### Biography

Dr. Nigel T. Roulet is a Distinguished James McGill Professor of Biogeosciences and Chair of the Department of Geography, McGill University. He was the Director of the McGill School of Environment (2003 – 2008) and the Director of the Centre for Climate and Global Change Research (1996-2002) and the Director of the Global Environmental and Climate Change Research Centre (2011-2014) at McGill University. Nigel's research interests focus on the interactions among hydrology, climatology, and ecosystems processes in peatlands and forested catchments of the temperate, boreal, and Arctic regions. He has published over 200 scientific papers, book chapters and monographs and was a contributing author to the 2<sup>nd</sup> through 4<sup>th</sup> scientific assessments of climate change by the United Nation's Intergovernmental Panel on Climate Change that won the 2007 Nobel Peace Prize. He served as a member of the Ontario Far North Act Science Advisory Panel from 2010 to 2014. He is currently an Associate Editor of [Global Biogeochemical Cycles](#), and [Ecosystems](#). In 2014, Nigel was elected to the Academy of Science of the Royal Society of Canada.

# Northern Peatlands, Carbon Cycling and Climate Change

### Abstract

Northern peatlands contain approximately 15 to 20% of the world's terrestrial biological carbon (C). Peatlands accumulate C because their physical and biogeochemical setting inhibits the decomposition of plant litter. A present, most northern peatlands are small sinks for atmospheric CO<sub>2</sub> and small to significant sources of atmospheric CH<sub>4</sub>. The presence of water mediates the ecological and biogeochemical processes in peatlands. The hydrology of peatlands can vary naturally or directionally altered by climate and/or land-use change leading to significant changes in their role in C cycling. However, recent research has shown that many peatlands appear to be complex self-regulating systems because of negative feedback between water storage and plant production and the decomposition of plant material. Self-regulation results in system-level resilience and indicates the factors critical for ecosystem restoration.



**SPEAKER  
SERIES**

DEPARTMENT OF  
**Geography &  
Environment**

Open to all interested individuals

Date: Friday, November 19<sup>th</sup>, 2021

Time: 3-4pm

Location: Zoom, option to watch in  
SSC 2032

Meeting ID: 920 1911 8555

Passcode: SPEAKER