

What have we learned from Earth System Models?

Dr. Andrew MacDougall, Climate & Environment, St. Francis Xavier University.

Abstract: The largest contributor to human-caused climate change is emission of CO₂ from the burning of fossil fuels and land use changes. However, only about half of the CO₂ emitted to the atmosphere stays in the atmosphere, with the remaining half partitioned between the oceans and the land biosphere. These carbon sinks greatly mitigate the effect of CO₂ emissions on climate change but whether they will continue to operate in the future is a matter of great scientific and social concern.

To address these concerns climate model developers have spent the past 20 years integrating representation of the global carbon cycle into existing atmosphere-ocean general circulation models to create Earth System Models. In this talk I will detail the principle findings from Earth system modelling, summarize some of my recent research in the field, and outline the frontiers in Earth System Model development.

