

Name: **Christine Leclerc and Ryan Walker**

SFU faculty/major: Faculty of Environment / Physical Geography (Honours)

Title of presentation: Is climate change reversible?

Abstract

Scientists generally agree that anthropogenic greenhouse gas emissions must peak between 2010 and 2030 to constrain global warming to within 2°C of pre-industrial temperatures. Because emissions have not yet peaked, artificial removal of CO₂ from the atmosphere is increasingly discussed in scenarios to limit global warming to 1.5°C or 2°C, the climate targets in the Paris Agreement. Carbon dioxide removal (CDR) can be used to offset residual greenhouse gas emissions that are difficult to eliminate (e.g. from agriculture) or, if implemented at a large scale, to generate net removal of CO₂ from the atmosphere. But how effective is CDR? This project investigates this question by analyzing carbon cycle response to CDR using simulations with the UVic ESCM, an Earth System model of intermediate complexity.