

Felicity McCormack (Monash University)

Title: Antarctica and the anthropocene: coupled ice sheet-Earth systems modelling in a changing climate

Abstract:

Antarctic Ice Sheet mass loss is accelerating, contributing to significant uncertainty in projections of future sea level rise. Parts of West Antarctica may be already undergoing irreversible retreat in response to ocean-driven melting, and a recent study suggests that West Antarctic Ice Sheet collapse could be triggered under 1.5°C warming relative to pre-industrial mean temperatures. Antarctic Ice Sheet mass changes arise from complex dynamics of, and interactions between, the ice sheet, atmosphere, ocean, and solid Earth. Coupled Earth System-Ice Sheet models are key in better understanding and predicting the effects of future Antarctic changes. In this talk I will review key ice sheet and climate processes that cause Antarctic mass change. I will focus on how coupled Earth System-Ice Sheet models have opened new avenues to understand and predict how Antarctica will respond to climate change.