Antarctica's Sedimentary Archives of Past Glacial History: Tools for Understanding Climate Change

Julia Wellner[1]

[1]University of Houston, Houston, TX

Abstract

During times of past extensive glaciations, the Antarctic ice sheet extended from its current position, reaching across the continental shelf. As the ice sheet retreated to its modern extent, the shrinking ice sheet left be-hind seawater, rather than ancient ice, leaving behind a sedimentary signature of deglacial history.

Marine geophysical survey data, including 3.5 kHz profiles and multibeam swath bathymetry, combined with sediment cores, are used to map the extent of past ice, estimate the speed at which it was flowing, and understand the style of retreat. Radiometric dating gives ages of retreat and allows compari-son to other global archives. Past periods of glacial retreat, which tend to be diachronous, are compared to the modern day retreat, which is happening across large areas in a short period of time. Ongoing work is targeting records from times of past high CO2 conditions, like those predicted in our future.