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LATE QUATERNARY GLACIAL HISTORY AND SEDIMENTARY PROCESSES ON THE CONTINENTAL SHELF AND SLOPE IN THE AMUNDSEN SEA: PRELIMINARY RESULTS FROM RECENT CRUISES OF RRS *JAMES CLARK ROSS* AND RV *POLARSTERN*

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The Amundsen Sea embayment is the least studied sector of the Pacific margin of West Antarctica. Even though >40% of the area of the West Antarctic Ice Sheet (WAIS) drains towards the SE Pacific Ocean, very little is known about the history of the major glacial systems on this flank of the ice sheet. This sector of the WAIS includes Pine Island and Thwaites glaciers, which exhibit the most rapid ice thinning and grounding-line retreat in present-day Antarctica. It has been suggested that this area is the most likely site for initiation of collapse of the two million km^2 WAIS, a marine ice sheet with large parts of its ice grounded below sea level. The marine record of Quaternary deglaciations in the Amundsen Sea embayment, coupled with ice sheet models, will provide important clues to understanding the stability and climate sensitivity of the WAIS. However, the only part of the SE-Pacific margin of the WAIS for which a chronology of ice retreat has been proposed is Pine Island Bay, in the southeastern corner of the Amundsen Sea, and this chronology is based on only a small number of radiocarbon dates with large uncertainties. Preliminary results will be presented from RRS *James Clark Ross* Cruise JR141 and RV *Polarstern* Expedition ANT-XXIII/4, on which glacial history and sedimentary processes on the Amundsen Sea continental shelf and slope were investigated using multibeam bathymetry data, high-resolution seismic reflection profiles, sub-bottom acoustic profiles, and sediment cores. These data will be used to determine the maximum extent of the WAIS during the last glacial period, controls on the locations of rapid ice flow, the history of glacial retreat, variability in sedimentary processes on the slope, and whether the last ice sheet and its deglaciation are representative of events during earlier Quaternary glacial cycles. Because of a high concentration of sea ice remaining over the eastern part of the shelf during the early part of the season, work on JR141 focussed on the western part of the embayment. New multibeam bathymetry and seismic data from this area illustrate how the structure of the sea floor influenced the flow of grounded ice across the continental shelf.