Basement control and history of ice-sheet expansion in the Amundsen Sea Embayment - First results of recent RV *Polarstern* and RRS *James Clark Ross* cruises

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The Amundsen Sea embayment lies between the Palaeozoic crustal blocks of Marie Byrd Land, Ellsworth Land and Thurston Island. Its continental margin is conjugate to the passive margin of the eastern New Zealand submarine continental plateaux and Bounty Trough, which underwent major extension during Cretaceous rifting between New Zealand and West Antarctica. Later, the embayment seems to have played a role as a plate boundary while the Bellingshausen Plate acted as an independent microplate until the early Tertiary. It is likely that the tectonic architecture, through the formation of deep basins and erosional troughs, laid the foundation for major glacier outflow from the West Antarctic Ice Sheet into Pine Island Bay and the South Pacific since early West Antarctic glaciation.

During successive cruises on RRS *James Clark Ross* (cruise JR141) and RV *Polarstern* (expedition ANT-XXIII/4) in early 2006, we collected seismic, bathymetric, sub-bottom profiler and helicopter-magnetic data from the inner shelf, outer shelf, slope and deep sea of the Amundsen Sea embayment and Pine Island Bay, to address tectonic as well as sedimentary objectives. We will present preliminary results indicating the disposition of structural basement units and the role the tectonic basement and pre-glacial sediments have played as controlling parameters for ice-sheet expansion and retreat in the Amundsen Sea Embayment.