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### Tectonic and sedimentary processes of the West Antarctic margin of the Amundsen Sea embayment and Pine Island Bay

Gohl, K., Eagles, G., Udintsev, G., Larter, R. D., Uenzelmann-Neben, G., Schenke, H. -W., Lemenkova, P., Grobys, J., Parsieglä, N., Schlueter, P., Deen., T., Kuhn, G., Hillenbrand, C. -D.

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### Abstract

Accurate models of the geodynamic-tectonic evolution contain some of the most important parameters for understanding and reconstruction of the respective regional and global palaeo-environment. The region of the Amundsen Sea embayment and Pine Island Bay is of great importance for understanding both tectonic and sedimentary processes of West Antarctica. Tectonically, 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 seemed to have played a role as a plate boundary when the Bellingshausen Plate acted independently as a microplate until the early Tertiary. It can be assumed that the tectonic architecture with the formation of deep basins and erosional troughs laid the foundation for major glacier outflow of the West Antarctic Ice-Sheet (WAIS) into Pine Island Bay and the South Pacific since early West Antarctic glaciation.

During RV Polarstern expedition ANT-XXIII/4 (Feb-Apr 2006), and in cooperation with the RMS James Clark Ross cruise JR141 (Jan-Feb 2006), we intend to collect seismic, bathymetric, sub-bottom profiles as well as 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 first results of both expeditions.

### Citation

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