



REF. 3145

STRATIGRAPHY OF THE PACIFIC MARGIN OF WEST ANTARCTICA: A CONTRIBUTION TO THE CASP PROJECT

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ABSTRACT:

Some of the key parameters in modelling palaeoclimate over long time-scales are the palaeobathymetry of the ocean basins and the palaeotopography of the continents. Sedimentary thicknesses, rates and formation processes are essential ingredients for deriving the palaeobathymetry. As part of the Circum-Antarctic Stratigraphy and Palaeobathymetry (CASP) project, we derive the stratigraphic conditions for the Pacific part of the Southern Ocean along the West Antarctic margin, using pre-existing and recently collected multichannel seismic data. We link the network of seismic lines from the Antarctic Peninsula to the Bellingshausen and Amundsen Sea. Some of the seismic lines are re-interpreted, and new horizons are identified and mapped. Additional information from ice-sheet models and DSDP/ODP boreholes are used to match the stratigraphy across the regional datasets. The resulting stratigraphic compilation contributes to the CASP mapping project, which focuses on creating a continuous series of seamless circum-Antarctic palaeoceanographic and palaeosedimentary seafloor maps that span from the Cretaceous to present.

Key Words: palaeobathymetry, antarctica, reflection seismic, southern ocean, stratigraphy