

## NEW PALEOMAGNETIC DATA FROM THE ANTARCTIC PENINSULA AND THEIR TECTONIC SIGNIFICANCE

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The Antarctic Peninsula represents the largest of four crustal blocks within West Antarctica. Existing paleomagnetic data from the four West Antarctic crustal blocks (the Antarctic Peninsula - AP; Thurston Island - TI; Ellsworth-Whitmore Mountains - EWM; Marie Byrd Land - MBL) indicate that there has been motion between these individual blocks and relative to East Antarctica during the Mesozoic. A model for West Antarctica's Mesozoic tectonic evolution using paleomagnetic, geologic and geophysical data from West Antarctica suggests that the motion of the AP, TI and EWM blocks was linked during the mid- to Late Mesozoic to three major events in the evolution of the southern ocean basins: 1) opening of the Somali-Mozambique basins at ~ 155 Ma; 2) opening of the South Atlantic ocean basin at ~ 130 Ma; 3) change in the pole of rotation in the South Atlantic ocean basin at ~ 115 Ma (Grunow et al., 1991). The new paleomagnetic data presented here from the Antarctic Peninsula will help constrain or disprove this model and further refine the opening history of the Weddell Sea ocean basin.

Paleomagnetic poles for the AP block from the Mesozoic exist for 175 Ma, ~ 110 Ma, 100 Ma and 90 Ma and do not allow refinement of the AP block's movement history during the Late Jurassic and Early Cretaceous - the time of opening of the southern ocean basins. In order to better understand the Mesozoic plate motion history of the AP block, I collected ~ 600 paleomagnetic cores from Jurassic and Lower Cretaceous AP rocks. Stable remanent magnetizations were found after thermal and alternating field demagnetization procedures in ~ 240 samples from Upper Jurassic and lower Lower Cretaceous sedimentary, volcanic and plutonic rocks in Byers Peninsula, Snow Island and Low Island. Stable directions were also found in 160 samples of Upper Jurassic and Lower Cretaceous igneous rocks from the northern Antarctic Peninsula.

A new Antarctic Peninsula apparent polar wander path (APWP) will be

presented and compared to the APWP from East Antarctica and Thurston Island. The tectonic implications of the paleomagnetic data will be discussed.

## REFERENCES

Grunow, A.M., Kent, D.V. & Dalziel, I.W.A. (in press). New paleomagnetic data from Thurston Island, West Antarctica: Implications for the tectonics of West Antarctica and Weddell Sea opening. *Journal of Geophysical Research*.