GRAIN SIZE CHARACTERISTICS AND LITHOLOGY OF SEISMIC UNITS DEFINING SEDIMENT DRIFT DEVELOPMENT: AN EXAMPLE FROM THE ANTARCTIC PENINSULA PACIFIC MARGIN.

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Two ODP Leg 178 cores (Sites 1095 and 1096) at the Pacific margin of the Antarctic Peninsula were used to study grain size variability in response to drift development. Detailed compilation of all available grain size data allow their precise correlation with the seismic stratigraphic units that define the $\text{Drift-growth Stage}^\uparrow$ ($15\text{Ma to } 5\text{Ma}$) and $\text{Drift-maintenance Stage}^\uparrow$ ($5\text{Ma to present}$) of Drift 7. These stages of drift growth were classified in the depositional model of Rebesco et al. (1997). The more proximal, shallower (3152 mbsl) Site 1096 is located on the top of the gentle, northeast-facing slope of Drift 7 near the crest while Site 1095 is more distal, located in deeper water (3840 mbsl) on the upper part of the northwestern flank bordering the deep-sea channel system that separates Drift 7 from the continental rise.

Results show lateral differences in grain size, between Sites 1096 and 1095, which indicate that the drift sediments coarsen distally, with increases in the sand (>63 $\mu$m), silt (4-63 $\mu$m) and coarser clay (2-4 $\mu$m) fractions oceanwards. This suggests that the sediments at Site 1096 consist of fine-grained components of turbidity currents that have become entrained in a nepheloid layer within the ambient southwesterly bottom contour currents. Those at Site 1095, however, consist of the coarser components of the turbidity currents that flow over the lower flanks of the drift.
The drift-growth stage (Seismic Units 4 and 3) is marked by a notable increase in the amount of medium to coarse silt. During the latter part of the drift maintenance stage (Seismic Unit 1, 2.5 Ma to present) the amount of coarse material (sand) being deposited at both sites increases. The greatest increase is observed at Site 1095. This could suggest that the increase is related to the continued supply of glacial sediment to the shelf edge and a more intensive supply of coarse sediment from turbidity currents rather than a change in bottom contour current activity.

These results are the input parameters for a numerical model to simulate drift development Ú an international project: Alfred Wegener Institute, Bremerhaven; RCOM, University of Bremen; Osservatorio Geofisico Sperimentale, Trieste.