BOTTOM CURRENT INFLUENCED SEDIMENTATION IN THE ARGENTINE BASIN AND ON THE ARGENTINE CONTINENTAL MARGIN REFLECTED IN HIGH RESOLUTION SEISMIC DATA

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Sediment deposition and distribution in the western Argentine Basin and along the Argentine continental margin is strongly influenced by deep water current activity, i.e. the Antarctic Bottom Water (AABW), spreading northward along the continental margin below 4000 m, the southward flowing North Atlantic Deep Water (NADW) between 1500 and 3500 m and the northward oriented Antarctic Intermediate Water (AAIW) between 700 and 1100 m. Furthermore the Argentine continental margin is characterised by numerous deep incisions and channels, supporting vertical gravity driven sediment transport.

In January 2000 and February 2001 cruises with R/V Meteor in the western South Atlantic Ocean, performed as part of the former Bremen Special Research Project 261 (Cruise M46/3) and as an ODP pre-site survey (Cruise M49/2), provided high resolution seismic information on the internal structure of these complex sedimentary structures.

The south west Argentine Basin is covered by the huge Zapiola sediment drift, which reaches a sediment thickness of up to 3 km and is draped by extended fields of sediment waves. High resolution seismic profiles across the western part of the drift deposits allow a closer inspection of the onset and growth of the sediment wave coverage, which starts at 400 ms below seafloor. The data also suggest a movement of the western drift crest to the south west during the growth of the drift.

Drift deposits, showing evidence of strong bottom water activity, are also a widespread
feature along the deeper Argentine continental margin, especially in vicinity of deeply incised channels. These deposits are often associated with topside or embedded sediment layers showing a wavy topography. Further upslope indications for bottom current erosion can be identified as well as downslope sediment transport forming thick slump deposits.