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Contourite depositional and erosional features along the Uruguayan continental margin

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For the first time, a multidisciplinary approach to evaluate the influence of bottom currents in the Uruguayan continental margin is presented. Bathymetric data and multichannel 2D and 3D seismic reflection profiles are used to construct a morphosedimentary map to interpret and decode sedimentary and oceanographic processes along the margin [1]. Based on these results an extensive contourite depositional system on the margin is described. This system contains an extensive array of large erosive, depositional (drifts) and mixed (terrace) features, which have been generated primarily by the near-bottom flows associated with water masses of Antarctic and subantarctic origin. From the Eocene-Oligocene boundary up to present time, the long-term influence of of near-bottom currents from higher southern latitudes, in combination with down-slope sedimentary processes have strongly controlled the overall margin morphology. Most of the features described here, were formed during the middle/late Miocene epoch due to paleoceanographic circulation changes that include the arrival of Antarctic Intermediate Water along the margin, which in combination with deeper Antarctic Bottom Water (AABW) are fundamental for the margin´s evolution. In combination with Quaternary climatic and relative changes in sea level, fluctuations of the Brazil–Malvinas Confluence subsequently influenced glacial and interglacial stages as recognized in sedimentary features along the upper and middle slope of near-bottom currents defined here. These paleoceanographic changes controlled the sedimentary stacking pattern and the locations of high amplitude reflections (HARs) along the contourite terraces. These HARs of near-bottom currents could be associated with sandy deposits and therefore, might imply good reservoir deposits. A more detailed understanding of the margin will improve interpretations of variations in the South Atlantic subtropical gyre and further constrain of general climatic and ocean circulation models.

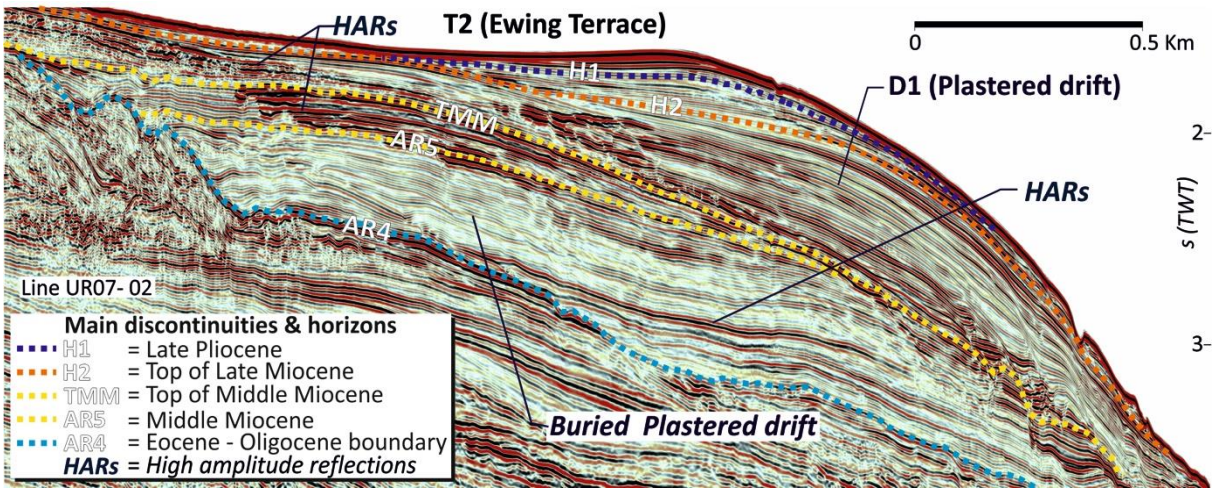

Figure 1: Example of a MCS reflection profiles showing T2, D1, and the main stratigraphic horizons and discontinuities.

References:

[1] Hernández-Molina, F.J., et al. (2015)., *Marine Geology*, doi:10.1016/j.margeo.2015.10.008