

PALEOCENE SEDIMENTARY WAVES OFFSHORE URUGUAY.

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ABSTRACT: During the last years, the relevance of contour currents in the morphology and sedimentary structuration of the Uruguayan continental margin since the Neogene has been demonstrated through seismic mapping of erosional (contouritic channels, moats, scours), depositional (drifts) and mixed features (contouritic terraces), which are interbedded with deposits product of gravitational processes, both turbidites and mass-wasting deposits. These results are consistent with high-resolution seismic and coring performed by other scientific teams. This raised the question if contour currents were as important in older geological periods. Recently plastered drifts, barchanoid dunes and sand ribbons associated with contouritic terraces and several erosional features have been reported in the Eocene sequence. In the Late Cretaceous, a complex mixed contouritic-turbiditic system was also recently described. All these findings have bearings on paleoceanographic reconstructions and also provides elements for defining new petroleum systems. However, the influence of contour currents in the Paleocene has been never assessed. The Paleocene sequence, drilled in 1976 (Lobo and Gaviotín wells, Punta del Este Basin), is the first large transgressive episode which reaches the proximal sector of the Uruguayan continental margin. Hence, it constitutes a regional seal. Lithologically this sequence includes claystones and siltstones, and subordinately fine-grained sandstones. In the distal sector of the margin the sequence thickens and become more complex. A monotonous muddy infill is inferred due to lack of strong contrast of acoustic impedance, although very recently different seismic facies have been recognized. Herein we present the result of identification and mapping of undulated and/or monticular sedimentary bodies, which can be interpreted as large sedimentary waves within the Paleocene sequence. These sedimentary waves are located between 4,500 and 6,000 meter below sea level (total depth), and they are consistent with the action of bottom currents. Preliminarily, wavelengths are between 8 and 14 km and thickness is of 250 m or more. Strong amplitude anomalies which fill the depressions among the sedimentary waves can be interpreted as sandy deposits (i.e., paleotopography influenced sand transport and deposition). The recognition of potential bottom-current reworked sands not far from Cretaceous source rocks open could have important implications in hydrocarbon exploration offshore Uruguay.

KEYWORDS: PALEOCENE, OFFSHORE URUGUAY, CONTOUR CURRENTS.