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# ABSTRACT BOOK

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# The Santos Channel Depositional Evolution (Santos Basin, Brazil): Incision, Filling and Migration

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The role of oceanic circulation in submarine relief construction is a matter of debate among many geoscientists, even though the action of strong, laterally-confined bottom currents still are the most accepted explanation for the existence of deep-water contourite channels. Palaeocirculation information, such as velocity and current flow, can be implied based on sedimentary structures and depositional stacking patterns of the contourite channels. However, the response to changes in the circulation patterns, throughout geological time, mainly caused by morphologic configuration, eustatic fluctuations and tectonic activities, is not always recorded or can not be easily assessed from seismic profiles and core sampling. In this context, this work proposes that boundary current oscillations were preserved in the vertical sedimentation and depositional evolution of the Santos Countourite Channel (northern portion of the Santos Basin). Seismic attributes Cosine Phase and RMS Amplitude were applied in 2D post-stack seismic data. Four incision-infill stages were mapped for the main channel axis, based on the seismic reflection pattern such as continuity, amplitude and terminations. All incision-infill stages showed good correlation with the basin deposition cyclicity and with seismic horizons chronostratigraphically calibrated for the region. The fluctuations in current intensity were interpreted based on the infilling pattern associated with the seismic-facies recognition. The first two channel infilling stages, dated from early to middle Miocene (~20-11Ma), comprise the main period of reworking action of the contour currents, which is signed by high-frequency infilling reflections configuration, occurred during interglacial highstands. The other two infilling stages are marked by discrete current activity features, delimited respectively by an aggradational stacking pattern and chaotic reflections. The seismic analysis showed that the channel's axis position is primarily controlled by ancient geomorphological factors. Active halokinesis and palaeophysiography of the margin induced the lateral restriction of the stream action increasing its energy and triggered the incipient incision on the continental slope. Subsequently, sediment accommodation faults promoted a new constraint for the flow position and a preferential depositional relief. The analyses of the channel geometry and the identification of an erosion surface migration pattern towards the upper slope suggested a previous northward flow relative to SW-NE circulation, in accordance with previous palaeocirculation studies performed in the study area and with the formation of the Ekman Boundary Layer for the Southern Hemisphere.