IMPACT OF RELATIVE SEA LEVEL ON THE ARCHITECTURE OF DEPOSITS ALONG THE SANTOS BASIN (BRAZILIAN MARGIN): AN ATTEMPT TO DATE SEQUENCES DURING THE LAST 2.6 MA

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Oral

RESUMO: This study focuses on the Late Quaternary evolution of the Santos Basin on the southern Brazilian Margin. The architecture of Pleistocene deposits along the Santos Basin is the combined result of eustasy, sediment supplies and subsidence. Here, we show results from single-channel, very high-resolution seismic reflection profiles (Sanba experiment) coupled with analysis from core KF-18 to reconstruct in more details and revise the chronology of shelf Pleistocene deposits in the Santos Basin. Two major stratigraphic sets were identified as Set I and Set II. The seismic sequences Set I and Set II are separated by a major angular unconformity S1 that has been correlated to the Mid-Pleistocene Revolution at 1 Ma (Million year). Within the sequence Set II, five seismic sequences, separated by six reflectors (S1 to S6) were related to “4th-order” eustatic sea level changes (100 ka). Each of the boundaries S2, S3, S4, S5 and notably the unconformity S1 are associated with paleo-pockmarks and acoustic wipeouts. Each of these boundaries are interpreted as paleo-seafloor. The subsidence rates from the shelf to the continental slope were estimated based on the geometry and age of angular unconformity S1 (1 Ma). This Pleistocene subsidence shows a seaward tilt with a mean rate of 0.08°/Ma. Between the seismic sequence limits S3 and S4 (with the seismic sequence 3) between 300 to 800 meter water depth, buried wavy morphologies are distinguished. In this area, the average sedimentation rate (about 18 cm/ka), is almost two times higher than in the adjacent areas (about 10 cm/ka). This suggests that the wavy echoes area is the maximum sedimentation zone. This also implies that the processes characterizing this area promote the maximum sedimentation on the continental slope.

PALAVRAS-CHAVE: SANTOS BASIN, PASSIVE MARGIN, MID-PLEISTOCENE REVOLUTION, UNCONFORMITY, GLACIO-EUSTATIC CYCLES, HIGH RESOLUTION SEISMIC, SUBSIDENCE.