

PALYNOFACIES AND SEQUENCE STRATIGRAPHY OF APTIAN-ALBIAN OF SERGIPE BASIN, BRAZIL

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In order to place the information from the palynofacies variations in a sequence stratigraphic context, the palynofacies analysis for the wells GTP-17-SE and GTP-24-SE from Sergipe Basin were integrated with the sequence stratigraphy. Previous works assigned the large-scale sequence stratigraphic framework of the succession to two second-order sequences, K50 and K60, being the last subdivided into systems tracts KM1 and KM2. By combining lithofacies data and gamma-ray logs from the studied wells with palynofacies and paleoecological data, the succession was subdivided into third-order sequences and correlated with the integrated sequence stratigraphic framework. The K50 sequence shows a slightly transgressive trend upwards. The sequence boundaries of K50 are marked by a major peak in abundance of phytoplankton, which is observed in both wells. At the boundaries a peak in amorphous organic matter (AOM) and in the gamma-ray profile are also observed. The KM1 starts below of the boundary between Muribeca and Riachuelo formations. From the K60, the KM1 sequence was subdivided into three parasequences. The first Transgressive System Tract (tm1 and am1) is supported by a marked increase in the Palynological Marine Index (PMI) and AOM values. The phytoclast particles show a progressive decrease. The upper boundaries are marked by a maximum flooding surface (mfs) characterized by high abundances of dinoflagellates, in particular of the genus *Spiniferites*. The boundaries are also marked by an abrupt decrease of phytoclasts, which is better observed in well GTP-24-SE. The High System Tract (tm2 and am2) is characterized by an increase in abundance of phytoclast particles and a clear decrease in AOM and are interpreted as HTS. The PMI is characterized by moderate values that tend to increase upwards. The upper boundary of these sequences is marked by a peak of dinoflagellates indicating a transgressive surface. In well GTP-24-SE the boundary is placed at the base of an abrupt lithological change, from calcilitites to dark shales. The second Transgressive System Tract (tm3 and am3) is interpreted based on the marked increase in PMI and AOM, together with a clear decrease in phytoclast particles. These are clearly observed in well GTP-24-SE, especially the decrease of phytoclasts. The top of these parasequences is distinguished on the basis of the peaks of PMI indicating the mfs. At the mfs of well GTP-24-SE the lowest abundances of the phytoclast group are recorded. The KM2 sequence interpreted previously as a HTS, is confirmed herein, on the basis of palynofacies.