INTRODUCTION

The aim of this study is to document the ostracod assemblages present in Cenozoic strata of Pelotas basin in order to trace depositional sea level changes during the Late Neogene to Quaternary.

Exploratory wells drilled by PETROBRÁS (Petróleo Brasileiro, S. A.) in seven locations from the Pelotas basin, southernmost Brazil, contain diverse microfossil assemblages, including foraminifers (Closs, 1967, 1970; Fernandes, 1975, Thiersen, 1977), palynomorphs (Daemon, 1969), calcareous nanoplankton (Gomide, 1989) and ostracods (Sanguinetti, 1979, 1980; Sanguinetti et al., 1991, 1992). Data from these groups has been used to established a biostratigraphic schemes as well as for a paleoenvironmental interpretations of the basin during the Mesoozoic and early Cenozoic.

According with the distribution of ostracods, four assemblages were recognized by Carreño et al. (1997). The latest Miocene to early Pliocene Bradleya pelotensis Zone (Discostafer quinqueramus to the Reticulofenestra pseudumbilica zones), whereas the Cyprideis posteroinflata, Coquimba bertelsae, Argenticyptheretta laevidipectata zones as well as two unnamed interzones were situated into the Pliocene-Pleistocene and younger strata.

RESULTS

Ostracodes recovered from seven onshore boreholes within the Pelotas basin, allowed recognition of seven characteristic assemblages distributed throughout the upper Neogene and Quaternary sequence. These assemblages indicate quite continuous nearshore environments and at least four brief transgressive-regressive cycles (Fig. 1).

1. Discussion and conclusions

Villwock & Tomazelli (1995) suggest that during the Pliocene at the Rio Grande do Sul coastal plain, actually the onshore part of the Pelotas basin, a first regressive event took place. According with these authors this regression is indicated by the progradation of an alluvial fan system over the Miocene marine strata, and would reached its maximum in the lower Pleistocene. After this major event, Villwock & Tomazelli (1995) also propose four distinct transgressive-regressive cycles in a barrier-lagoon depositional system, for the last 400 ka. These cycles, originated after the maximum transgression and preserved after the regressions of the shoreline, were controlled by glacio-eustatic sea level changes.

The data on ostracode recovered from the boreholes 2-MO-1-RS, 2-CA-1-RS and 2-Cl-1-RS, show seven characteristic ostracod assemblages. These assemblages represent at least four transgressive-regressive cycles! This interpretation is also based on sharp changes of sedimentology recorded throughout the interval herein studied. In spite of the sparse ostracod faunas recovered of the boreholes 2-PJ-1-RS, 2-PS-1-RS, 2-GA-1-RS and 2-PN-1-RS, considering the different facies observed, it is possible to establish a correlation with reasonable confidence.

Additionally, the presence of the transgressive-regressive cycles is also supported by the micropaleontological information previously published (Daemon, 1969; Closs, 1967, 1970; Fernandes, 1975; Thiersen, 1977).

The data reported herein support the model for transgressive-regressive cycles suggested by Villwock & Tomazelli (1995), at least for the Pliocene-Pleistocene times. These authors documented a first maximum transgressive event at ±400 ka, a second at ±325 ka, a third at ±120 ka (with a maximum regressive event at ±17 ka). But the fourth transgressive event at ±5 ka, as well as the Holocene regression, weren’t recorded in the boreholes herein studied.
It is also suggested that either some epeirogenic uplift occurred during this time, or that the global sea level was higher than in the early Quaternary as was noted by Clapperton (1993). This condition seems to indicate that, tectonically, the coastline of Brazil was not as stable as previously assumed. It appear that there were substantial vertical movements of the shelf, at least within the last 400,000 years.

**Figura 1.** Upper Miocene to Quaternary transgression-regression cycles, Pelotas basin, Brazil (depth are given in meters).

**REFERENCES**


