Introduction

Within the Andean orogen, the Eastern Cordillera forms a distinct geologic province. Precambrian and Paleozoic rocks are widespread in southern Bolivia. In places, this sequence is discontinuously overlain by Cretaceous and Palaeocene strata of the Neogene-Quaternary grabens. The Cretaceous and Palaeocene deposits occur mainly in the Potosi region, the Otavi- and Camargo synclines, in the Altiplano and the Titicaca/Alto Cocha areas (fig. 1).

The latter deposits were accumulated in the Potosi basin. To the south, it is connected with the Salta rift system in northwestern Argentina (Seckler, 1993). Interaction of tectonic uplift and subsidence caused increased sediment supply controlled the sedimentation patterns within the basin, causing lateral facies changes. The sedimentary sequence is grouped into the Phase Group and parts of the Corocoro Group (Lorenzi & Braccini, 1982, Seckler, 1993, 1995).

The present-day basin region of the Central Andes was integrated into continent-wide rifting processes during the Late Mesozoic and Early Tertiary times. The sedimentary structures of sedimentary basins are strongly influenced by subsequent compressional deformation. We investigate the Cretaceous to Palaeocene sequence of the Potosi Basin with emphasis on its palaeoecological development. This study attempts to evaluate the stratigraphy and facies of the basin center deposits versus their marginal equivalents. It contributes new data to the general discussion concerning the evolution of the Potosi basin.

We selected five well exposed sections, La Palca, Otavi, Culpina, Sarcarca, and Tarija, for a detailed facies analysis. They were measured and described using lithostratigraphic methods.

Conclusions

The southern part of the Potosi Basin is sandwiched between the "San Pablo de Llata" structural high in the west, and the "Subandean" foreland high in the east. The subdivision of the Cretaceous to Palaeocene sequence into a synrift and a post-rift phase is evident.

The oldest Cretaceous synrift deposits are confined to a graben segment between the "Subandean" foreland high in the east and the "San Pablo de Llata" structural high in the west. The break-up of Gondwana, related to the formation of the South Atlantic (Wolfe et al., 1985). Only since during the Cretaceous synrift, high marine stands reached the northern part of the graben. Otherwise fluviolacustrine and playa environments predominated (fig. 4).

A major change during the basin-evolution took place, when widespread subsidence integrated previous parts of non-deposition (fig. 5, 6). Presumably Senonian/ Campanian sediments considerably onlap onto the Palaeocene basin. They show a marked facies differentiation into a western marginal facies, a basin center facies, and an eastern marginal facies. The basin shows an asymmetrical shape with a steeper gradient in the west, relative to the east. Both marginal facies contain clastic fluvial and deltaic sediments, while the central basin shows a transition from fluviolacustrine and playa environments to widespread aggradational sediments of the El Molino Formation (fig. 5, 6, 7). The eastern part of the Santa Lucia basin shows an asymmetric basin representing a transition from fluviolacustrine to lacustrine conditions during the Early Palaeocene.

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The authors in the field.