

Sedimentary basins of southwestern Amazonian Craton: Response to the geotectonic evolution of South America

¹BAHIA, R.B.C. and ²PEDREIRA, A.J. Geological Survey of Brazil - CPRM; ¹Porto Velho and ²Salvador, Brazil.

The geotectonic evolution of the southwestern sector of Amazon, cratonized since ~1.9Ga, is recorded in the sedimentary basins of Rondônia State, Brazil: the Rondônia and Parecis basins. Rondônia Basin is an interior sag basin, filled by the Palmeiral Formation. This formation consists of sandstones and conglomerates, deposited by a braided river system. Paleocurrents show that the rivers flowed from N and NE to S and SW. The sandstones have quartzo-feldspathic petrofacies that indicate provenance of the Palmeiral Formation sediments from blocks in the interior of the continent that were uplifted during the Madeirense Event (1.4-1.25Ga); these sediments are preserved in grabens opened during the Rondoniense Event (1.0Ga). Parecis Basin is a rift-sag type basin, deposited from the Silurian to the Carboniferous periods in a rift system opened in weakness zones reactivated following Rodinia break-up (~1.0-0.75Ga). Within the rifts were deposited alluvial and deltaic fans (Cacoal Formation), followed by a marine transgression. In the Carboniferous were deposited more alluvial fans, and glacially derived sediments, such as diamictites and dropstone units (Pimenta Bueno Formation). By Late Carboniferous to Permian, the lithospheric extension ceased and the rift area flexurally subsided to form a sag basin. In this basin the Fazenda da Casa Branca Formation (desertic and fluvial systems) was deposited and, in the Mesozoic, basalts of the Anari and Tapirapuã formations, related to the opening of the Atlantic Ocean, intruded the basin. These intrusions were followed by the deposition of the Parecis Formation (Cretaceous) in a desertic environment.