

Sgmo = 095094L

## The carbon and oxygen isotope record of neoproterozoic carbonate rocks of the Paraguay fold belt (Central South America).

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The Paraguay Fold Belt, formed in the Pan-African-Brasiliano event, comprises a folded metasedimentary sequence along the southeastern border of the Amazon craton in central South America. In this region, Neoproterozoic carbonate rocks are exposed in Paraguay (Itapucumi Group) and, in Brazil the states of Mato Grosso do Sul (Corumbá Group) and Mato Grosso (Araras Formation). Studies presently underway show that these units exhibit distinct stratigraphic contexts.

The Corumbá Group consists of lower terrigenous units (Cadiueus and Cerradinho Formations), middle dolomitic and phosphatic rocks (Bocaina Formation), and upper limestones with Vendian fossils (*Corumbella* and *Cloudina*) of the Tamengo Formation, overlain by shales of the Guaicurus Formation. These units are considered a typical post-Varanger sequence, derived from the rift-drift of the Rodinia supercontinent.

Carbonate rocks of the Araras Formation are characterized by limestones and black shales covered by dolomitic rocks in a shoaling upward sequence with little lateral variation of facies. This unit was deposited in a restrict sea during an early stage of evolution of the Alto Paraguai Foreland Basin, related to the Brazilian deformation of the Paraguay Fold Belt.

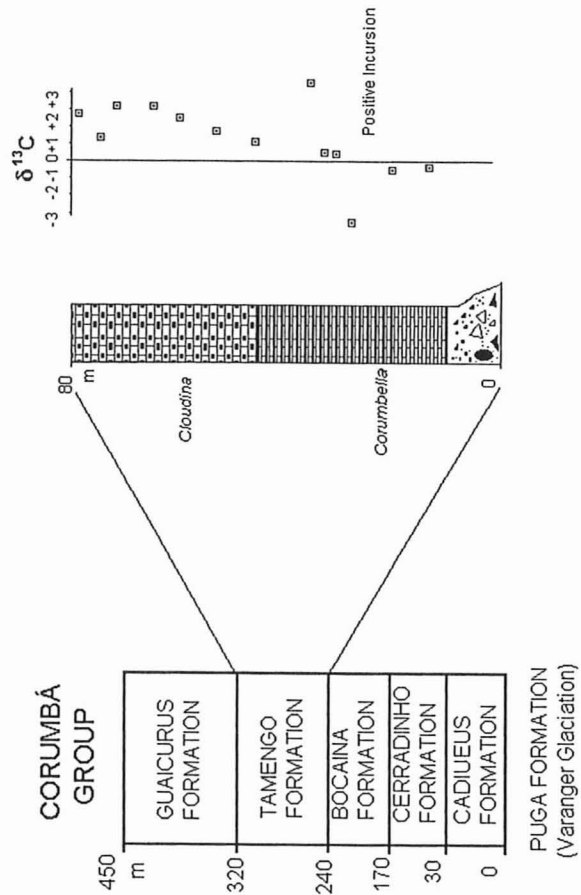
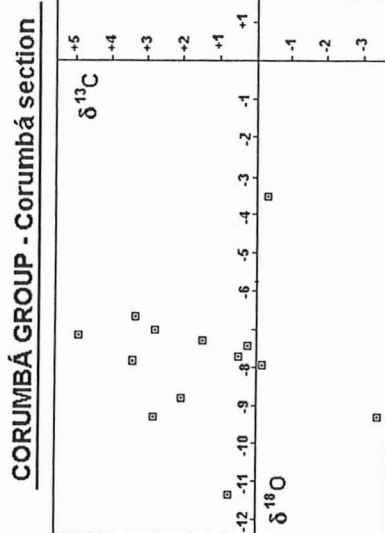
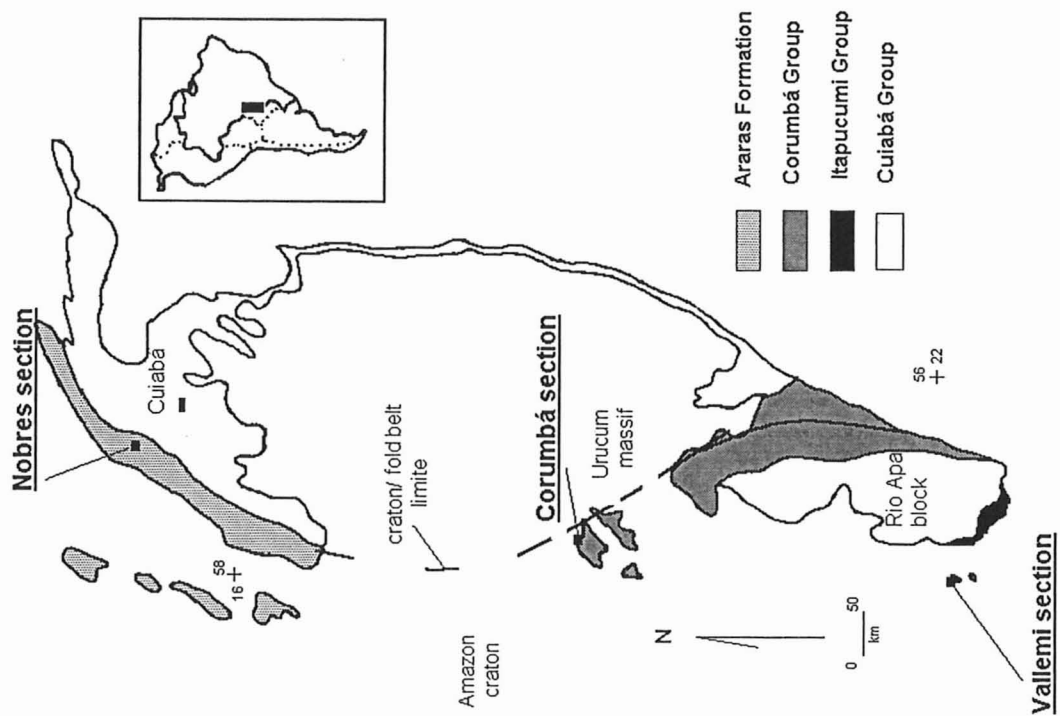
The sedimentary facies of the Itapucumi Group were formed in a different paleoenvironmental context than the Corumbá Group and Araras Formation and lacks any stratigraphic correlation with these units.

Carbon- and oxygen-isotopes of the least-altered portions of selected samples from these three units, do not show similar distribution. In the Corumbá Group, the Bocaina Formation, a post-glacial "cap dolostone", shows low  $\delta^{13}\text{C}$  values and the Tamengo Formation has a positive excursion related to occurrence of *Corumbella*<sup>1,2</sup>.

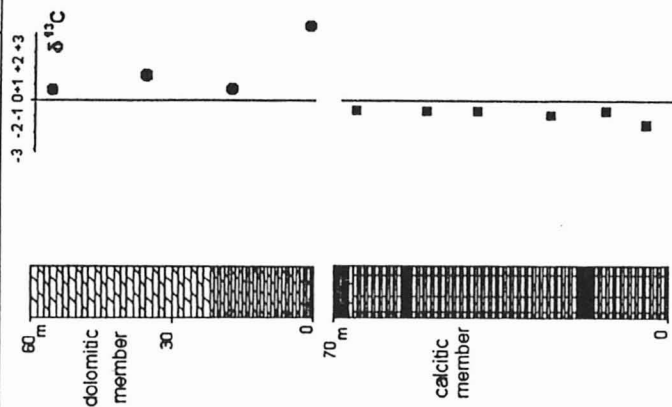
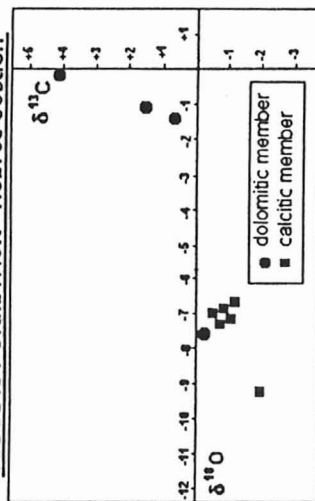
The Araras Formation has an homogeneous distribution, in which negative values prevail in the lower calcitic member and positive values in the upper dolomitic member. The lower member, with rhythmically alternating limestone and bituminous shale, was probably deposited in deeper,  $^{13}\text{C}$ -depleted, anoxic water. Evaporative, shallow-water conditions, evidenced by stromatolites, oncoids, tepee structures, ooids, probably caused the positive excursion of  $\delta^{13}\text{C}$  and  $\delta^{18}\text{O}$  values in the upper dolomitic member.

Possible alteration (tectonic deformations and basaltic dykes) of the Vallemi section of the Itapucumi Group limits the site for the collection of appropriate samples. This section contains purple and green marls beneath ooid-grainstones with dolostone inserted in both rock types.  $\delta^{13}\text{C}$  data present no variation with positive values by the section, where the absence of paleontologic indicators makes it difficult to determine its precise chronologic position.

1. Boggiani, P.C. & Coimbra, A.M. *Anais da Acad. Bras. de Ciências*, **68**: 595-596(1996).
2. Chang, H.K.; Kawashita, K.; Zaine, M.F. *Internacional Sedimentological Congress*, **14**, Abstracts, Recife, IAS, p. G-21 1994).



# ARARAS FORMATION - Nobres section



# ITAPUCUMI GROUP - Vallemi section

