

CONTROL ID: 1668418

TITLE: The isotopic record of the Bambui Group, Brazil: Sturtian, Marinoan, and/or Early Paleozoic?

PRESENTATION TYPE: Poster Requested

CURRENT SECTION: Paleoceanography and Paleoclimatology (PP)

CURRENT SESSION: PP01. Paleoceanography and Paleoclimatology General Contributions

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ABSTRACT BODY: Carbonates and pelites of the Bambui Group overlie glaciogenic diamictites on the Sao Francisco craton, Brazil. Detrital zircon grains older than 875 Ma from diamictite matrix and the 740 ± 22 Ma Pb-Pb isochron age of cap carbonates point to the Sturtian glacial event. Conversely, ages around 610 Ma of zircon grains from pelites deposited just over cap carbonates with Sr isotope ratios of 0.7074 would suggest a Marinoan ice age. However, it seems that the puzzle is much more complex because new U-Pb analysis on detrital zircon grains from those pelites yielded ages as young as 540 Ma, pointing to an Early Paleozoic basin for the Upper Bambui Group. A hypothesis considers the cap carbonates of the Lower Bambui Group separated by a hiatus of about 200 m.y. in relation the overlying rocks of the Upper Bambui Group, which is also expressed by an abrupt shift in carbon isotope values consistently traced along the basin. Accordingly, the Bambui Group would include a Sturtian glacial-carbonate pair covered by strata much younger than the Marinoan event, an Early Paleozoic pelite-carbonate succession. This interpretation raises questions on chemostratigraphic correlations based on Sr isotopes, since carbonates younger than 540 Ma should present more radiogenic Sr ratios (~ 0.7085) than those observed in the Bambui basin. Alternatively, these anomalous Sr isotopic ratios could be related to deposition in local and restrict environments.

KEYWORDS: [1165] GEOCHRONOLOGY / Sedimentary geochronology, [1040] GEOCHEMISTRY / Radiogenic isotope geochemistry.

(No Table Selected)

(No Image Selected)

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Geochronologia
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545NO 2409001