2350 Ma at 1370°C to reach a plateau equivalent to ca. 3000 Ma from 1420°C. This in accord with an event at ca. 2200 Ma seen in the SHRIMP data, where there would have been not only development of partial overgrowths but also variable loss of some radiogenic Pb from "damaged" ca. 3000 Ma zircon as well.

The IDTIMS study involved analysis of multigrain unabraded aliquots and also leached grains, now know from CL images to be structural complex. The upper concordia intercept (3055 Ma) can only be considered as an "average", indicating an important component of Mesoarchean zircons. Two leaching phases yielded close to concordant dates at ca. 2390 Ma – in agreement with the more interpretable SHRIMP indications of ca. 2200 Ma. zircon growth/thermal disturbance.

It is considered that in this complex rock it is fortuitous that IDTIMS, EVTIMS and SHRIMP results give essentially the same protholith ages. In the other cases in the literature where there have been comparative EVTIMS/IDTIMS – SHRIMP studies of geologically complex samples with structurally complex zircons, dates by the methods do not always agree. However, when geologically simple samples are dated by the different methods the results are generally in good agreement. — ( *May 24, 2002* ) .

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## C-ISOTOPE COMPOSITION OF EARLY PALEOPROTEROZOIC CARBONATES FROM THE MINAS SUPERGROUP AND THE RECORD OF THE LOMAGUNDI PHENOMENON IN BRAZIL

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The Paleoproterozoic $\delta^{13}C_{carb}$ positive excursion (2.25-2.05 Ga; Lomagundi phenomenon) has a global character, but no occurrence in South America has been registered. This study reports, by the first time, this C isotope anomaly in Brazil, in the early Paleoproterozoic, marine carbonates of the Fecho do Funil Fm., Minas Supergroup.

The 2.42 Ga-old Gandarela Fm. consists of red carbonate BIF at the base of the sequence (Minas Supergroup), gradually replaced upwards by buff dolomites, and limestones, locally stromatolitic, in light and dark-gray alternating bands. Carbonates display $\delta^{13}C_{carb}$ from $-1.6$ to $+0.4‰_{PDB}$ (n=58), the most negative values found in red dolomites in contact with the underlying, finely laminated, Cauê banded iron formations. Gandarela carbonates from the Heargraves quarry yielded $\delta^{13}C_{carb}$ from $-1.4$ to $-0.6‰_{PDB}$ (n=28).In the Cercadinho Fm., at the base of the Piracicaba Group, $\delta^{13}C_{carb}$ varies from $+3.3$ to $+4.2‰_{PDB}$ (n=10), values decreasing erratically with depth.

The Fecho do Funil dolomites ($2.11 \pm 0.11$ Ga, deformation/metamorphic age) were probably deposited within the time span for the Lomagundi positive excursion age of the Kaapval craton, Africa. The sampled section of this Formation consists, at the base, by fine-grained, stromatolite-rich white and pink dolostones, and then by fine-grained white marble. Stratigraphically collected samples show $\delta^{13}C_{carb}$ remarkably homogeneous ($+6.0$ to $+6.5‰_{PDB}$, n=47). The oxygen isotopes are also fairly constant ($-9.7$ to $-10.8‰_{PDB}$) and show a trend which is rather antipathetic to the variation in C isotopes. These high $\delta^{13}C_{carb}$ carbonates show little scatter, relatively shallow trend on $\delta^{13}C$ vs $\delta^{18}O$ diagram and are consistent with low-grade metamorphic decarbonation. The elevated C-isotope values were least reset and probably reflect their protolith composition, rather than subsequent diagenetic or metamorphic processes. This Formation is a proxy, in South America, for the global Lomagundi phenomenon.

There is no evidence for the triad early Paleoproterozoic glacial events of the ($2.45 - 2.25$ Ga interval) recognized in North America. C isotope patterns for carbonates of the Minas Supergroup suggest that the Gandarela Fm. was deposited around 2.4 Ga; the moderate C positive anomaly of the Cercadinho carbonates suggests deposition around 2.35 and the Fecho do Funil carbonates were deposited probably around 2.2 Ga. — ( *May 24, 2002* ) .

## A NEW INTERPRETATION ON THE SERGIPANO BELT DOMAIN

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This study deals with newly identified tectonic-