

D13C ISOTOPE STRATIGRAPHY OF THE PROTEROZOIC SEDIMENTARY SEQUENCES OF THE SÃO FRANCISCO BASIN, CENTRAL BRAZIL

MARTINS, M. Petrobras, Rio de Janeiro, Brazil

Data from 8 published works were selected for the study of spatial and temporal variations in $\delta^{13}\text{C}$ compositions of Mesoproterozoic (Paranoá Group) and Neoproterozoic (São Francisco Supergroup) sedimentary sequences in São Francisco Basin. These sequences are composed of mixed carbonate-siliciclastic sedimentary rocks. Each of the carbonate-bearing sequences presents a characteristic isotopic signature $\delta^{13}\text{C}$. Mesoproterozoic carbonates are commonly near 0‰. A negative excursion (-5.0‰) marks neoproterozoic basal carbonates, followed by a continuous rise in $\delta^{13}\text{C}$, reaching 5.0‰. Extremely positive values occur in the upper mixed lithologies, after an abrupt rise to 10‰. The isotopic patterns can be superimposed on a global curve of carbon isotopic variation, allowing the recognition of a major depositional hiatus between the Paranoá and São Francisco megasequences. This comparison to an established global curve suggests that the glaciation that led to the formation of the diamictites of the Jequitai Formation took place most probably around 800 Ma. This constrains the deposition of the São Francisco Megasequence to the interval 800-600 Ma. A minor depositional hiatus (700-680Ma) was also identified within the São Francisco Megasequence separating the basal sequence (carbonate ramp with a distal scarp) from the upper one (stacked homoclinal ramps with mixed sedimentation). Isotopic data suggest that from this moment on new paleoceanographic and paleogeographic (more restriction) environments were established, probably associated to a global first order event, and that prevailed throughout the deposition of the upper Neoproterozoic sequence.