

Carbon and Oxygen Isotopic Variations of the Paleoproterozoic Itacuruba Dolostones, State of Pernambuco, NE Brazil

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Paleoproterozoic dolomite lenses near the Itacuruba village, about 450 km SW of Recife, state of Pernambuco, NE Brazil, occur in discontinuous outcrops, inserted in amphibolite facies quartz-rich gneisses. The gneiss-dolostone transition is marked by a thin band of calc-silicate rocks. The dolostone lenses are predominantly composed of dolomites with subordinate calcite ($\text{MgO} > 16\%$), silicate minerals (epidote, diopside, scapolite, paragonite, chlorite, tremolite, talc) usually do not exceeding 5%. Strong correlations between SiO_2 and Al_2O_3 , Zr, Na_2O , Fe_2O_3 , TiO_2 , Rb, K_2O , Sr and Y suggest a terrigenous detrital input during sedimentation. A negative correlation between MgO and CaO indicates that calcite was formed at the expenses of dolomite during metamorphism. $\delta^{18}\text{O}$ (-17.0 to -5.5 ‰_{PDB}) and $\delta^{13}\text{C}$ (-0.9 to +3.6 ‰_{PDB}) values for the Itacuruba dolostones lie mostly in the marine field in the $\delta^{18}\text{O}$ vs. $\delta^{13}\text{C}$ diagram for different Paleoproterozoic sedimentary environments. The presence of scapolite and paragonite suggest conditions of hypersalinity during deposition. A system of discontinuous small saline lakes in a backshore trend, inserted over a coastal plain, is assumed as the paleogeographic environment during sedimentation.