

$\delta^{13}\text{C}$ ISOTOPE CURVE IN THE LOWER TRIASSIC FROM SHALLOW WATER CARBONATES IN JAPAN, PANTHALASSA REALM

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In the Jurassic accretionary wedges in Japan, exotic blocks that have been deposited in the Panthalassa Ocean have been incorporated. Most of the blocks are pelagic cherts; rarely, shallow water carbonates are present, too. We present a $\delta^{13}\text{C}$ study on the Lower Triassic of a shallow water carbonate succession that was deposited on a mid-ocean seamount in the Panthalassa Ocean, accreted in the Chichibu Belt, Japan. Two sections have been sampled at Kamura, central Kyushu Island. The carbon isotope curve shows depleted values across the Permian-Triassic boundary (PTB) followed by an increase to heavier values towards the Dienerian, culminating to a maximum of almost +4‰ V-PDB, before a steep drop. Lower values with an ascending trend follow in the Smithian, of which only a part is present. In the Spathian, isotopically depleted values continue and rise to enriched $\delta^{13}\text{C}$ values exceeding +3.5‰ near the Lower/Middle Triassic boundary. The observed trend of the stable carbon isotope curve from Japanese sediments mirrors the curve derived from sections in the Tethys (e.g., China, Italy, Iran). The results give proof that the derived curve represents a global trend, although some distinct features are absent due to erosion/gaps at the base and top of the Smithian. The profound variations of the carbon isotope curve now globally indicate severe changes in the Lower Triassic carbon cycle, which can be counted among the reasons for a delayed biotic recovery after the PTB. Large amounts of carbon were shifted between the carbon reservoirs, most probably between shallow and deep ocean waters, and /or ocean and sediment. Observed anoxia in the Panthalassa Ocean followed by overturn of the ocean water masses may have been the mechanism to quickly alter ecological conditions in the ocean leading to variable availability of nutrients, oxygen and isotope composition of the available carbon in the surface waters that was incorporated in the precipitated carbonate.