



Correlation potential of Middle Triassic hemipelagic carbonate successions using carbon isotopes

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Stable isotope studies of the marine Triassic have previously focused on two intervals, the Permian/Triassic and Triassic/Jurassic boundaries. The potential of stable carbon and oxygen isotopes as chemostratigraphic correlation tools, however, is largely untapped for Triassic carbonate successions. The present study was launched to explore the usefulness of carbon isotope data in correlating Middle Triassic deep-water, hemipelagic carbonate sediments of the Livinallongo Formation of the Dolomites (Southern Alps, Northern Italy).

The samples come mostly from the Knollenkalke Member consisting of greenish-grey, bioturbated, nodular limestones. We analyzed the micritic calcite within individual nodules and compared its composition to that of matrix calcite as well as late diagenetic calcite veins.

Thin-section examination aided by cathodoluminescence petrography and scanning electron microscopy suggest that the fine grained calcite cement in the nodules formed near the sediment-water interface and has not been diagenetically altered since then. Its carbon isotopic composition therefore most likely reflects the initial seawater isotopic composition.

The carbon isotope data from the Knollenkalke Member show a secular trend of increasing values upsection which coincides with a similar trend in biostratigraphically correlated sections in eastern Romania (Atudorei et al., 1997) and Oman (Hauser et al., 2001). These preliminary results suggests the presence of a possibly Tethys-wide chemostratigraphic marker in the Middle Triassic.

Hauser M. et al., 2001, *Eclogae geol. Helv.*, 94, 29-62

Atudorei V. et al., 1997, Extended scientific report of the project 95-32 "The Triassic of north-Dobrogea", Geological Museum, Lausanne, Switzerland.