



Late Campanian Sr, C, and O isotopes recorded from the *Globotruncanita calcarata* Zone (Austrian Alps)

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Stable carbon and oxygen isotopes of the temporarily well constrained *Globotruncanita calcarata* zone in the Austrian Alps were investigated. Bulk samples of fine grained pelagic marls were analyzed for their carbon and oxygen isotope distribution at high resolution (10 cm). Further, foraminifers of each sample were picked and analyzed for their stable carbon and oxygen isotope distribution. Strontium isotopes were determined to assess the diagenetic alteration and for a refinement of chronostratigraphic correlations. Further, the geochemistry of the carbonate fraction and the mineralogy was determined.

The carbonate content of the profile varies between 50 and 80% and is lower compared to other Ultrahelvetetic sections. The content of organic carbon is very low ($\sim 0.05\%$) – a typical feature of all Ultrahelvetetic sediments. Geochemical (Mn/Sr ratios) and stable isotope data in combination with Sr isotopes suggest that the geochemical alteration of the marls during diagenesis was low.

The profile has a sediment accumulation rate of 2.6 mm/kyr and its stable isotope distribution can be correlated to the El Kef section in Tunisia (Jarvis, 2002).

There is an average offset of 5 permil between bulk geochemical stable oxygen isotope data and foraminifer tests where foraminifer tests are on average lighter. This may be partly attributed to diagenesis since stable oxygen isotopes are readily affected by diagenesis. But it might also indicate a thermally stratified water column with higher $\delta^{18}\text{O}$ content caused by evaporation of surface waters. Bulk samples that mainly consist of coccoliths live close to the surface water and therefore record a higher $\delta^{18}\text{O}$ value compared to foraminifers that may cover a bigger depth interval during their

daily cycle in the water column and reach deeper levels and lighter $\delta^{18}\text{O}$ waters.

Foraminiferal tests were stepwise leached to get more precise strontium isotope values, using a dilute weak acid (0.1N and 1N CH_3COOH) which solved most of the target carbonate of the original tests of the foraminifera but only a minimum of the diagenetic calcite fillings. Our data for foraminiferal calcite of this zone (around 0.707670) confirm an age of about 73.0 Ma. Strontium isotope ratios thus indicate that the *G. calcarata* Zone can be correlated to parts of the *roemeri* and *polyplocum* zones in the chalk sections of Northern Germany.

Jarvis, I., Mabrouk, A., Moody, R. T. J, de Cabrera, S. (2002). Late Cretaceous (Campanian) carbon isotope events, sea level change and correlation of the Tethyan and Boreal realms. Palaeogeography Palaeoclimatology Palaeoecology, 188, 215-248.