



## Isotopic shift of $\delta^{13}\text{C}$ in early degradation of alkenones

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The aim of the study was to determine the carbon isotopic compositions of long chain unsaturated methyl ketones ( $\text{C}_{37}$ -Alkenones) against the background of early diagenesis. For Alkenones, early diagenesis takes place in the water column and also in younger sediment. For this reason surface water samples, sediment trap samples and sediment samples were taken from the subtropical North Atlantic focused on the Madeira Basin, localised around  $33^\circ\text{N}/22^\circ\text{W}$ . The sample groups were verified by statistic groups. The mean values from the resulting different depth intervals were compared. The mean values of the surface water samples (from different growth phases of the coccolithophorid blooms) show carbon isotopic ratios of  $-28.1\%$ , for the  $\text{C}_{37:3}$ -Alkenon and  $-26.3\%$ , for the  $\text{C}_{37:2}$ -Alkenon. From the sediment trap samples, carbon isotopic ratios occur from  $-26.2\%$ , for the  $\text{C}_{37:3}$ -Alkenon and  $-25.0\%$ , for the  $\text{C}_{37:2}$ -Alkenon. Finally, from the sediment samples, carbon isotopic ratios occur from  $-26.5\%$ , for the  $\text{C}_{37:3}$ -Alkenon and  $-23.9\%$ , for the  $\text{C}_{37:2}$ -Alkenon only in the younger sediment. According to distinct Alkenon degradation, the early diagenesis pattern of long chain unsaturated methyl ketones ( $\text{C}_{37}$ -Alkenones) shows an interesting isotopic shift of carbon isotope values ranging between  $-23\%$ , and  $-29\%$ , which will be discussed in detail.