Geophysical Research Abstracts, Vol. 7, 08929, 2005
SRef-ID: 1607-7962/gra/EGU05-A-08929

δ^{18}O and δ^{13}C time-series from living (stained) benthic foraminifera from two Skagerrak fjords, Sweden

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The composition of oxygen and carbon isotopes in foraminifera is one of the most important tools in paleoceanography. The main application is usually the analysis of δ^{18}O and δ^{13}C in planktonic or deep-sea foraminifera. But in this study we wanted to investigate the short-term seasonal fluctuations of oxygen and carbon isotopes in living (stained) foraminifera. In a previous 16-month seasonal study on living (stained) benthic foraminifera from two fjords on the Swedish west coast, it was reported that foraminifera proliferated in response to phytodetritus input; the strongest response came from the opportunistic species *Stainforthia fusiformis*. In the present study our objective was to find out if that phytodetritus input resulted in a change in the carbon isotopic composition of the foraminiferal tests. We also wanted to examine if variations in salinity and temperature (due to seasonality or deep-water exchanges) were reflected in the δ^{18}O values. From *S. fusiformis* that were obtained in Havstens Fjord (20m) and Gullmar Fjord (119m) during the 16-month study, we developed time-series of δ^{18}O and δ^{13}C. After the spring blooms in Havstens Fjord and Gullmar Fjord, decreases of about 0.2 to 0.3‰ in the foraminiferal δ^{13}C values were noted; in Gullmar Fjord after the autumn blooms decreases of the same order were also noted. Using calculated values of δ^{18}O, together with the measured ones, we noticed that *S. fusiformis* in Gullmar Fjord seems to calcify close to equilibrium with respect to oxygen isotope. In Havstens Fjord, however, the water temperature was relatively high during the autumn, and foraminiferal abundance in the fjord was high after a phytodetritus input; but the measured δ^{18}O values do not reflect these higher temperatures. Various mechanisms explaining this apparently contradictory combination of results will be discussed.