Biogeosciences Discuss., 11, C372–C373, 2014
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Interactive comment on "Uptake of algal carbon and the synthesis of an "essential" fatty acid by *Uvigerina* ex. gr. *semiornata* (Foraminifera) within the Pakistan margin oxygen minimum zone: evidence from fatty acid biomarker and ^{13}C tracer experiments" *by* K. E. Larkin et al.

Anonymous Referee #1

Received and published: 16 March 2014

Dear authors, Several of my earlier mentioned remarks (in my first referee report) are not adjusted in the current version of the manuscript. see also p 257 l 3 how was this second question addressed? - l5 p 258: more details on the labelling technique are required: duration of the labelling? growth condition of the diatoms? did they go through the exponential growth phase? how dense were they when they were harvested? the incorporation of the label (13C) may differ substantionally according to the growth phase, see literature on that issue. - l 21p259: natural foraminifera: what is

the origin of these specimens? same species? use the term control instead of natural throughout the text - l 21 p 260: -20 °C is not the best for FA analyses, preferably -80°C should be used. This (the unstability of FA) should be stated in the discussion - part 3.1 very strange to report these observations in a study with biomarkers/trophic tracers. this raises the question whether the foraminifers were starved prior to the FA extractions? in other words, were you measuring the diatoms inside their tissue and not the assimilated carbon of the diatoms in the foraminifers? this is an extremely important issue for the entire study. - see also p 263 l 25: consumed differs from assimilated! - p 264 l1: 14:0 and 16:0 are NOT indicative for a particular source, they are omnipresent, they are not biomarkers, so they should not be discussed throughout the study. - p 264, l 16: another ESSENTIAL point: how did diatoms build in the 13C? a figure of the 13C levels in their FA is absolutely necessary to understand the pattern in the consumer. It is missing on Fig 2, see also l 379. Compound-specific SIA is needed here. - legend fig 2: FA nomenclature should be mentioned in the Materials and methods and not in the legend. - p 266 l 29 and following: you need to explain better what FA are typical for bacteria - what could trigger them to synthesise FA? the lab conditions? - common terminology for FA (eg EPA, DHA, ARA) would be appropriate - I regret that the already limited part on FA conversion is even shorter in this version of the manuscript (p. 267 l 15). It is an essential issue when using FA as biomarkers and you want to be critical towards the obtained data and results.

Interactive comment on Biogeosciences Discuss., 11, 251, 2014.