

Interactive comment on “Lipid biomarkers in Holocene and glacial sediments from ancient Lake Ohrid (Macedonia, Albania)” by J. Holtvoeth et al.

Anonymous Referee #3

Received and published: 30 July 2010

General Comments:

Holtvoeth et al present lipid biomarker data from nine samples taken from two sediment cores taken from Lake Ohrid in Macedonia. This study enhances the existing palaeoenvironmental data available for this lake and is the first biomarker study of this lake. While the purpose of the study was to assess the use of biomarker composition as an aid to palaeoenvironmental reconstruction in this setting from the glacial through the Holocene to the present day, it would have good to see a few more samples used, especially from the glacial period (currently only one sample). However, this is a good paper and the authors do not make sweeping statements based on their limited sample set but instead report the changes seen in their samples and discuss the probable origins of the biomarkers that they have identified.

C2119

Specific comments:

Page 4626 – can the authors expand on why the glacial sample contains more signs of algal productivity based on the C22 n-alkanol compared to other times such as the 8.2 event, especially when the glacial sample and 8.2 samples are similar in other aspects? Section 4.2. – in the results the authors state that the glacial sample has a higher percentage of n-alkanes and that this is also seen in the 8.2ka samples – what is the explanation for this? The identification of coprostanol in the Holocene sediments is intriguing, suggesting a significant human population before the documented human occupation during the Neolithic in a neighbouring Basin. My concern is that coprostanol is not identified in any of the other samples except the surface sample so are we to believe there was no human occupation during this time around the Ohrid basin or could the coprostanol derive from another source. Is there any archaeological evidence of human occupation in the Ohrid Basin? Figure 4 – It would have been nice to see all 9 samples, along with the n-alkane distributions.

Technical comments:

Page 4610 – line 14 Vogel et al 2010 – need to specify which paper as there are 3 in the reference list with this date (last one needs a ‘c’ after it). FA’s is not grammatically correct – should be FAs Page 4615 – line 20 van Bergen et al. 1998 is not in the reference list Page 4616 – line 4 Haddad et al 1991 in text but 1992 in reference list Page 4620 – line 1 Volkman et al 2005 not in reference list only as Volkman 2005 – is this a different reference – also appears elsewhere in text and table 2 Page 4626 – line 1 van Bergen et al 1997 and 1998 not in reference list Page 4628 – line 16 Winkler et al 2006 is 2001 in reference list Table 2 – Ahlgren et al 1991 is 1992 in reference list Table 2 – Volkman et al 1986 and 2005, not as et al in reference list

Interactive comment on Biogeosciences Discuss., 7, 4607, 2010.

C2120