

***Interactive comment on “Stratigraphic analysis of
lake level fluctuations in Lake Ohrid: an
integration of high resolution hydro-acoustic data
and sediment cores” by K. Lindhorst et al.***

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Received and published: 7 October 2010

We would like to thank the referee for some valuable comments and reply as follows:

One major point of uncertainty concerns the fact that Lake Ohrid corresponds to an active graben and tectonically-driven geometrical modifications cannot be ruled out. Reply: The authors are aware of the fact that Lake Ohrid is a tectonically active basin that experienced subsidence and fault activity since its existence. Subsidence and tectonic activity was also a major concern of the referee Michi Strasser. For that reason we

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included a paragraph in the discussion section discussing while Lake Ohrid Bay area is still suitable to study Lake Level Fluctuations without being influenced by subsidence or tectonics within considered time span (back to the penultimate glacial period).

Generally speaking, paleo-precipitations reconstructions are very few with respect to paleo-temperature investigations; and long-lasting lacustrine systems – as Lakes Ohrid and Prespa – represent highly valuable records of hydrological changes.

Formal remarks - “karst lake” may not be the most adequate term as it suggests the lacustrine space/volume was created by karstic process (dissolution); Lake Ohrid depression seems basically from tectonic origin. As underlined by the authors, water supply, at Present, comes mainly (50 %) from karstic circulations – Reply: We changed the sentence within the Abstract and it reads now: Ancient Lake Ohrid is a steep-sided, oligotrophic, karst lake that was tectonically formed most likely within the Pliocene and often referred to as a hotspot of endemic biodiversity. Lake Ohrid at its present stage is an oligotrophic, karst lake and we agree that it was not clear that its origin is of tectonic activity.

Suggested possible title: “Water level fluctuations in Lake Ohrid (F.R. of Macedonia): stratigraphic analysis based on high-resolution hydro-acoustic imagery and sediments cores” Reply: We do not see the need to change the title because in our opinion we showed that we integrated seismic stratigraphy methods with data obtained from sediment cores that were taken along seismic profiles to analyze Lake Level Fluctuation within Lake Ohrid.

- p. 3662, line 14: I prefer “bio-induced calcite” rather than “authigenic” – Reply: We changed “authigenic” into “bio-induced calcite” accordingly.

p. 23-24, attributing mass movement (or deeper redeposition) to low stand situation is part of marine sequence stratigraphy concepts at large scale and I agree, for the described case, with the need to discuss a punctual sedimentary process. The lack of grain size vertical evolution may point out a temporal grain flow driven by bottom current

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if the sediment lacks fine matrix; if there is a fine grain matrix, an instantaneous event of reworking must be envisaged depending on content provenance. – Reply: We do not fully understand the comment as given by the referee at this point. He is pointing to sentences within the result part of the manuscript where the authors are just describing what they have observed without giving any interpretation. The abrupt change within the Lithofacies of the cores are discussed in a later part of the manuscript.

Figure 7. I understand the presentation of B/C correlation is convenient as of reduced size. However, the major point to be demonstrated is the statement of these correlation, and may be the complete profile should be presented ? The possible deep prolongation of subaqueous landslides could be also checked. Reply: We described the method on how to track seismic reflections through Ohrid Basin. For that we not only used one profile but all available multichannel seismic profiles that have crossing points with each other. Figure 7 shows Clinofolds in the southern area and sedimentary structures covering these clinofolds. Prominent seismic reflections are marked and one example how we correlated these seismic reflections with reflections within thick succession of sediments of the central basin.

Interactive comment on Biogeosciences Discuss., 7, 3651, 2010.