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Biogeosciences Discussions

Interactive comment on "Sediment core fossils in ancient Lake Ohrid: testing for faunal change in molluscs since the Last Interglacial period" *by* C. Albrecht et al.

C. Albrecht et al.

christian.albrecht@allzool.bio.uni-giessen.de

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We highly appreciate the time and effort Frank Riedel invested in reviewing our MS. Here are our replies to his comments.

Comment/Reply: Page 3970 Line 24: Changed accordingly.

Comment/Reply: Page 3971 Line 16: The questionable paragraph will be deleted.

Comment/Reply: Page 3972 Line 16: Changed accordingly.

Comment/Reply: Page 3975 Line 22: Changed accordingly.

Comment: Page 3979: Dating of the last 100 years is usually conducted with the aid of Pb 210 because C14 is not very useful for the most recent history. Maybe a short comment can be given on this?

Reply: According to the referees suggestion the following paragraph could now read as follows: Lithofacies I between 0–13cm is light-brown in colour and composed of solid calcareous (CaCO3>40%) clayey silt and contains complete bivalve shells. TOC concentrations 5 of up to 2% can be explained by finely dispersed organic matter (OM) as well as small leaf and shaft fragments from Chara algae. Radiocarbon dating of plant macrofossils from Lithofacies I at 6 cm depth yielded a modern age (>1954 AD) probably as a result of contamination with recent organic and plant material from bioturbation or from disturbance during coring of these soft and water saturated uppermost sediment section. In order to get a more precise age estimate and to estimate the possible degree of contamination by recent organic material for Lithofacies I in core Co1200 210Pb dating could be applied.

Comment: Page 3982: The difference between the ESR date and the assumption that the sediments investigated had been deposited during 127-118 ka needs some explanation (dating error?). For the "warm and relatively dry climate" a reference should be given. It should be discussed why under a dry climate the site was covered by water while it was apparently not during most of the last 130 ka.

Reply: The paragraph discussing the age and paleoenvironmental conditions of the sediment succession where mollusc fossils were found and ascribed to deposition during the Last Interglacial Period, including the referee suggestions, now reads as follows: Despite the large dating error of the ESR age of 130$\pm$28 ka measured on bivalve and gastropod shells found within Lithofacies III we assume that deposition of calcareous sediments and mollusc fossils found therein took place under warm climate conditions during the Last Interglacial Period. This assumption is supported by stratigraphic and paleoenvironmental constraints by Lindhorst et al. (2010), and furthermore by investigations of sediment successions from pelagic sites at Lake Ohrid where carbonate

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sedimentation/preservation is restricted to interglacial periods (Vogel et al. 2010b). The peculiar sediment and geochemical characteristics in combination with finding of intact mollusc shells in Lithofacies III and the fact that the sediments were recovered from a submerged terrace level at a water depth of 32m point to deposition in a relatively low energy shallow water environment of the Intermediate Layer (Lindhorst et al., 2010).

Since we cannot convincingly proof that climate during deposition of Lithofacies III in core Co1200 was dry using the data presented here we decided to exclude this text passage from the above paragraph.

Comment/Reply: References: Missing reference included.

Christian Albrecht on behalf of the authors

Interactive comment on Biogeosciences Discuss., 7, 3969, 2010.