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Biogeosciences Discussions

Interactive comment on "Evolution of ancient Lake Ohrid: a tectonic perspective" *by* N. Hoffmann et al.

Anonymous Referee #2

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Comment on "Evolution of ancient Lake Ohrid: a tectonic perspective" by N. Hoffmann et al.

This is an interesting paper and a good contribution to understanding the Tectonic evolution of Ohrid area. In my opinion, this paper can be accepted for publication. However, I think you can do the relevance of your data better.

I have some general questions and suggestions:

Maybe it will be better to present a figure which will show the tectonic history of Ohrid Basin (it's my opinion but it will be also your choice). I think that the extension is a consequence of the westward migration of continental subduction plates but something it's not clear: If the hole area is affected by uplifting, we cannot talk about subsidence in

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different places, but about different rate of uplifting in different places to be accompanied by extension. The present situation of the roll back or slab retreat and slab break off also presented in the figure 3 don‘t explain very well the altitude increasing through the time and the boundary between compressional and extensional regime presented in the figure. Maybe you need to modify this figure. Quality figures with excellent details. As a suggestion: maybe you have to put the orientation in the photos. Concerning the Figure 6B, I think that the limestones where moved down and you have to change the sense of movement (you have just to check).

The previous works concerning the Ohrid area to be taken in consideration are:

1. Tagari, D., Vergely, P. Aliaj, S. 1993. Tectonique polyphasée plio-quaternaire en Albanie orientale (région de Korça–Progradeci). Bulletin de la Société Géologique de France, 164, 727–737. I don't know if you can use it because is in French.

2. In the northern part of Ohrid the structural data constrained tectonic regime of Mirdita and Korabi zone are reported by Kilias et al. 2001.

3. Muceku et al. 2008 or 2006 also report the combination of thermocronological data (apatite and zircon fission tracks and (U-Th)/He ages) and provide the timing and amplitude of rocks exhumation in eastern-north Albanide near Macedonia boundary, also in the same geological and structural units. The links between the timing of exhumation and the motion on specific faults or formation of extensional basins could be a strong conclusion regarding control of tectonic regime of this area.

Minor specific comments:

2) Section 2, line 19: "During Palaeozoic, a regional foliation developed in the Cambrian and Devonian units ... etc." Are you sure that we have only Palaeozoic deformation? Maybe you should have put a reference.

3) Section 2, line 13: "Burchfiel (2006) reports recent slip-rates of not more than 2 mm/a with a very high uncertainty due to imprecise GPS data". Who is the sense of

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movement?

4) Section 3, line 6: I' am not sure that Ohrid - Korca region area had the highest seismic hazard in Albania, maybe you have to check that to be sure.

5) Section 3, line 6: In what time has been taken place the thrusting of Korabi zone over the Jurassic Ophiolites?

6) Section 3, line 9: you have mentioned there "The geodynamic setting with the Palaeozoic thrusting and today extensional regime ...". I think that the thrusting is registered later than Palaeozoic also.

7) Section 3.2, line 20: After Bebien et al. (1998) the igneous ophiolites of the Shebeniku complex show a possible continuity between eastern and western ophiolites (supra subduction and Mid-ocean ridge affinities).

Interactive comment on Biogeosciences Discuss., 7, 4641, 2010.