

## ***Interactive comment on “Tephrostratigraphy and tephrochronology of lakes Ohrid and Prespa, Balkans” by R. Sulpizio et al.***

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Reply on: Interactive comment on “Tephrostratigraphy and tephrochronology of lakes Ohrid and Prespa, Balkans” by R. Sulpizio et al.

We wish to thank Massimo Pompilio for its useful suggestions/comments to the manuscript. The reviewer rose some points that will be explained or corrected in the following.

- Number of cores: we fixed the problems with number of studied cores, and we added the description of core Co 1216 as paragraph 3.6. We specified in the paragraph 2.1 that published tephrostratigraphy is available only for two cores. - Composition of tephra layers and alteration: this issue is crucial in tephrostratigraphy, and has been

debated in a number of papers. We are well aware of the potential effects of glass alteration, which are discussed in a pair of recent papers by the same authors (Vogel et al., 2010; Sulpizio et al., 2010). We are confident about the good quality of our EDS analyses because: 1) the analyses are performed on the central part of cut and polished particles. Therefore, surface alteration cannot influence analyses; 2) we monitor the content of Cl in each analysis in case of pervasive glass alteration. Cl is a large cation that is easily mobilised in case of glass alteration; 2) we routinely calibrate the EDS, which performs high-quality analyses that are closely similar to WDS. Comparison of EDS and WDS micro-analyses carried out on the same samples has shown differences less than 1% for abundances greater than 0.5 wt% (e.g. Cioni et al., 1998). Some other comparisons of micro-analyses carried out with WDS microprobes at GeoForschungsZentrum (GFZ, Potsdam, Germany), at CAMPARIS service (CMP, Paris, France) and from Saclay (France; Cioni et al., 1998) on basalt to rhyolite glass shards confirmed the full comparability of EDS analyses from the Pisa laboratory and data from WDS microprobes. Some of these comparisons are already summarised in Table 1 of the manuscript. We specified the type of ICP-MS analyses (bulk) in the reply to the referee Anthony Newton. - Description of tephra layers: we agree that the change in grain size of the whole core sediments can be indicative of mass wasting processes. This is crucial in interpreting sedimentology of the studied cores, and is contained in the lithologic description reported in the supporting papers cited in the main text. However, the present study is neither focused on sedimentology of the cores nor on sedimentation behaviour of tephra layers, but only on their major (and in some cases minor) element characterisation and on their correlation to the regional tephrostratigraphy. In this light, the sedimentary processes responsible of tephra layer emplacement have secondary importance with respect to the occurrence of a discrete volcanic bed in the core stratigraphy. In other words, it is not crucial to know how the tephra layer deposited (e.g. by gentle settling through the water column or by sin-sedimentation mass wasting processes) but the occurrence of the tephra layer, which indicates the arrival of the volcanic particles in the area. However, we added qualitative grain size description

for all tephra layers (cryptotephra are not applicable) in the main text. - Correlation to proximal deposits and other distal archives: we think this point reflects more the writing style than the data presentation. The point was not rose by the two English-spoken reviewers, therefore we decided to not change the sentences. We deleted the statement at page 3943 line 25 - Figure 2: we changed the figure following the recommendation of the referee. - Figure 8: we redrawn the figure, whic now contains 12 different maps. - Tables we specified in table caption that the literature data in Table 4 are normalised to 100%

On the behalf of the Authors Roberto Sulpizio

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Interactive comment on Biogeosciences Discuss., 7, 3931, 2010.

**BGD**

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## Interactive Comment

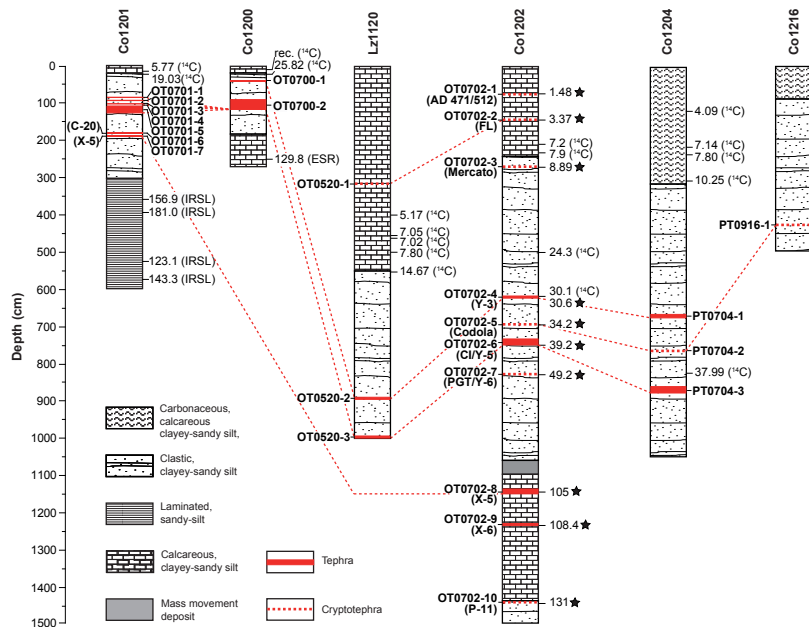


Fig. 1.

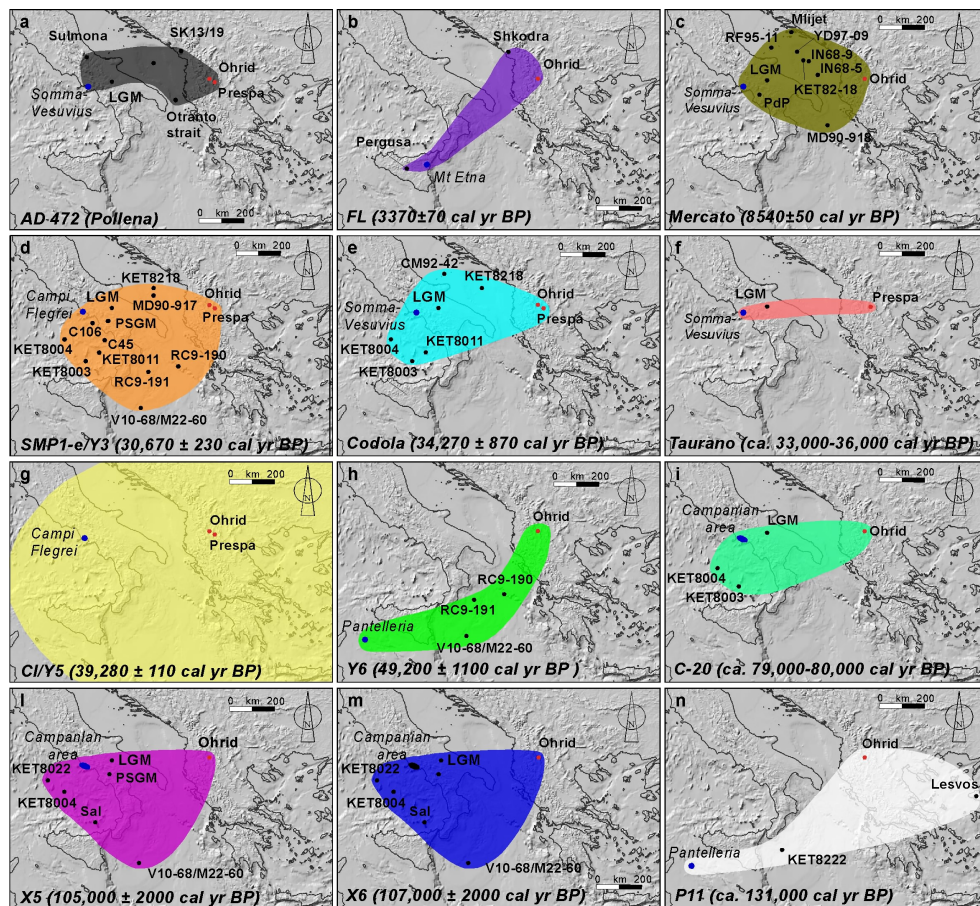


Fig. 2.

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