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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Sediment records of highly variable mercury inputs to mountain lakes in Patagonia during the past millennium" *by* S. Ribeiro Guevara et al.

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We agree with the anonymous referee about the potential influence of the watershed:lake area ratio on sediment records of changes of Hg atmospheric fallout, as proposed by Swain et al. (1992). A normalization, however, requires assumptions to be made, which even if qualitatively supported by a substantial data set may well be inadequate for quantitative corrections (Meili 1995). For mountain lakes, such a data set is not available, and any normalization remains even more speculative. Nevertheless, we have made an attempt to addressed watershed influences by providing background, maximum and resent Hg fluxes in Lake Tonček normalized by the watershed:lake area

ratio, compared with values observed in other regions.

Regarding potential causes of our Hg peaks, there is currently no data to unambiguously support or discard any of the Hg sources considered, so the ancillary data we evaluated allows only a suggestion of extended fires as a potential source, and of geothermal activity as a less plausible source. We believe that this is sufficiently clearly exposed in the discussion section.

The Figure 5 will be modified in the final version, changing the position of the profiles and adding the Y-axis legend, missed in the discussion version.

Regarding element concentration profiles, we found these helpful by showing surprisingly constant values throughout the sediment cores, but we preferred to avoid including too many data of limited relevance to the discussion. Furthermore, some Lake Moreno sediment elemental concentrations are already published and cited (Ribeiro Guevara et al., 2003 and 2005).

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9, C10056–C10058, 2010

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9, C10056–C10058, 2010

Interactive Comment