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Interactive comment on "CO_2 emissions from German drinking water reservoirs estimated from routine monitoring data" *by* H. Saidi and M. Koschorreck

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reply to referee 2

The reviewer raised similar points as reviewer one. Here we address those points which are not included in our reply to reviewer 1.

To discuss the issue of diurnal fluctuations of CO2 we would need high frequency pCO2 data. Such data are available for a number of well studies systems. We also have such data from one of the studied reservoirs. It does not make much sense to address this point when relying only on the monitoring data presented in this manuscript. In a revised version we would include an error estimate based on assumed reasonable

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daily pCO2 amplitudes.

The reviewer is right that our discussion of the relative importance of inflow versus reservoir internal processes is not supported by data. In a revised version of the manuscript we could use water quality data from the reservoir inflows to assess the effect of catchment export on pCO2 in the reservoir.

The sediment is indeed a source of CO2. However, this translates not in a direct effect on the surface flux. Our reservoirs are stratified during most time of the year and sediment derived CO2 accumulates in the hypolimnion over summer. Part of this CO2 gases out after autumn mixing. This effect is accounted for in our study and is the reason for elevated fluxes in autumn.

The reviewer is probably right that we miss some emissions directly after ice off. In a revised manuscript we will analyze this point by having a closer look on winter pCO2 data.

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