

***Interactive comment on* “Reliable reference for the methane concentrations in Lake Kivu at the beginning of industrial exploitation” by Bertram Boehrer et al.**

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Overall the authors have presented interesting data of Lake Kivu gas content that is needed for the evaluation of the threat those gases pose to the local communities and the potential energy resource.

Comment 1: It would be helpful to reader if the data displayed in figures 3 (Temperature, Conductivity, pH, DO), 4 (CH₄/CO₂ concentrations and partial pressures), and 6 (CO₂ concentrations) could also be displayed in tabular form in a supplementary document or in an online database.

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Comment 2: The Figure 6 x-axis label should be CO₂ not CH₄

Comment 3: In section 4.3 a sentence states a quick calculation based on Henry coefficients were made. In the methods section there is a reference to other manuscripts and pK values, but it would be helpful for the reader if the authors could further clarify either the Henry coefficients used in this work or improve the description of the methods used to calculate/estimate the partial pressure contributions to the total gas pressure.

Comment 4: The authors state that:

"The major contributors were methane, carbon dioxide and nitrogen. While we had good measurements of methane and carbon dioxide, we missed data of similar quality for nitrogen: hence, we could not give a proper calculation of gas pressure from gas concentrations."

Can the authors elaborate on what issues attributed to the missing data of nitrogen?

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., <https://doi.org/10.5194/hess-2019-228>, 2019.

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