

***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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This is a technically important paper for the study of Lake Kivu, since the lake contains a large amount of CH₄ and CO₂ dissolved in the deep water. The local community is anxious about a possible limnic eruption as happened in Lakes Nyos and Monoun in Cameroon in mid-80s. Regular and frequent monitoring of CH₄ and CO₂ concentrations in the lake is the only way to assess the possibility of limnic eruption in the future. For this reason, this manuscript supplies a reliable method for the gas measurement. Since the lake is located in a remote area of Africa, regular and frequent monitoring of CH₄ and CO₂ concentrations in the lake has to be carried out by local scientists.

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I hope parts of the equipment are easily available and not too expensive for the local scientists.

The authors say that the possibility of limnic eruption at Lake Kivu is not high, because the CH₄ profiles obtained by the authors do not show appreciable change when compared with those in the literatures. This view needs to be confirmed by further measurements, hopefully performed by the local scientists.

The manuscript contains analyses of trace elements in lake water. Unfortunately, such data do not play an important role in the current manuscript. The reviewer feels that the section for trace elements is not necessary, and suggests to delete it from the manuscript. Probably this is the way to make the manuscript more impressive and effective for the authors' main objective.

The reviewer's comments were embedded in the manuscript using PDF's annotation function.

Please also note the supplement to this comment:

<https://www.hydrol-earth-syst-sci-discuss.net/hess-2019-228/hess-2019-228-RC1-supplement.pdf>

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

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