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Interactive comment on "Technical Note: A simple calculation algorithm to separate high-resolution CH_4 flux measurements into ebullition and diffusion-derived components" *by* M. Hoffmann et al.

Anonymous Referee #2

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The ms submitted as âĂŽTechnical note‘ addresses an important field in greenhouse gas (GHG) studies. Resulting from use of high- resolution measurements it becomes a relevant scientific question to analyse the huge amount of data to identify different pathways of emission. This is within the scope of BG. Beside the development and improvement of a new tool to analyse the data, a well-designed analysis of methane emission from a wetland was performed. Diurnal changes in CH4-emission rates along a transect give a good insight in related processes. The authors conclude their results from the view-point of their calculation tool (which was verified) and from the point of

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spatial and local variability of emission. A critical review of the techniques –the problem of micro bubbles – is involved. Unfortunately, the given link to the R-script (p12930 line 15) is not freely accessible (user id/password needed). This needs to be solved before final publication. The methods used are on the state-of-the-art. The chambers, their automatization and the high resolution measurement of methane (using Los Gatos) led to reproducible data. The laboratory experiment looks simple but is very efficient! The authors call the study site 'a shallow lake', although techniques are and can be used originated from wetland studies. This is the fixed frames of the chambers, the board-walk and accessibility of the chambers from land. To apply these chamber techniques to deeper lakes, a new technique to fix the chambers would be needed. So, although the possible usage of the techniques in deep lakes are not trivial, the data analyzing tool is important for static chambers and coming automated ones. The R-script needs an easy to go access; both offered sources, the ms in Agr Forest Meteorol nor the carbozalf.org webpage are available for all readers. The ms is based on a very good and up-to-date literature review. The new title reflects much better the content of the ms. The abstract provides a good summary of the ms, the paper is well structured. Some comments: Abstract/line 14: please, start a new sentence after "rewetting" Abstract/Line 16: please rephrase ". . ..reported by literature." Introduction /line 21: please refer to IPCC 2013 (change also reference!!); in the 2007 report freshwaters were not mentioned as natural source Introduction /line 23: Bastviken et al. 2004 mentioned 4 pathways (also storage) Page 12933/line 10: please, use only sediment temperature; here it is several times mixed between soil or sediment Page 12934/line 5: it is not convincing, that the difference in water depth, which is in total 35 cm (see methods) should be a reason for local differences in emission, as they may differ by a few centimeters! Fig 2: what is the abbreviation Los Gatos FGG for?? Is not introduced, needs explanation in legend Fig. 3: Line 5 of legend: measurement Fig 5: this fig covers too much information; letters are too small; as the way of presentation of these important data is very clever, it is recommended to split or to reduce. (please replace 'soil temperature' by sediment temperature

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After clarifying the accessibility of the script, I recommend to publish the ms in BG with some minor corrections.

Interactive comment on Biogeosciences Discuss., 12, 12923, 2015.