Answers to anonymous referee #2:

The MS submitted as a technical 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 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.

Due to technical problems with the CarboZALF-webpage (www.carbozalf.de) the R-script as well as a manual, are now (04.12.2015) accessible on:

http://www.zalf.de/en/forschung/projekte/querprojekte/carbozalf/Pages/projekte.aspx

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 boardwalk 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.

Please see comment above.

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".

Done.

Abstract Line 16: please rephrase "reported by literature."

Done.

Introduction /line 21: please refer to IPCC 2013 (change also reference!!); in the 2007 report freshwaters were not mentioned as natural source.

Done.

Introduction /line 23: Bastviken et al. 2004 mentioned 4 pathways (also storage).

Implemented.

Page 12933/line 10: please, use only sediment temperature; here it is several times mixed between soil or sediment.

Done.

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!

The authors agree, wherefore the whole section was rewritten as follows: "With respect to total CH_4 emissions, neighboring chambers generally featured high differences in CH_4 fluxes, with no obvious trend along the transect. This might be explained by highly variable ebullition events, dominating the spatial variability in total CH_4 emissions (Wik et al., 2011)."

Fig 2: what is the abbreviation Los Gatos FGG for?? Is not introduced, needs explanation in legend.

Los Gatos FGG refers to a Los Gatos Fast Greenhouse Gas analyzer. This is now explainted within the figure subscript.

Fig. 3: Line 5 of legend: measurement.

Done.

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.

In accordance with raised concerns to Fig 5 by reviewer 1, Fig.5 was changed, to improve the understanding of this complex graph. Ebullition fluxes are now displayed in gray, whereas diffusive fluxes are black. In addition to made changes, Fig. 6 was added to the MS, showing the shift in diurnal variability on the basis of monthly pooled data.