

# ***Interactive comment on* “Estimation of waste water treatment plant methane emissions: methodology and results from a short campaign” by C. E. Yver-Kwok et al.**

## **Anonymous Referee #3**

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The paper addresses methodological aspects of the determination of CH<sub>4</sub> emissions of a waste water treatment plant in Valence, France. These systems have a minor contribution (roughly 2%) to the national methane sources, but are poorly constrained. The paper presents different methods to get a better estimate of the sources related to waste water treatment plants.

Already the first sentence of the abstract shows that the paper is a “potpourri” of methodological ideas to quantify the sources with a lack of coherence. It is well known that state of the art analyzers such as FTIR and CRDS do measure precisely with a high temporal resolution. But they measure concentrations and not fluxes. The issue

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is do use them in a proper way to estimate emission fluxes.

The presented methods with a variety of chambers and C<sub>2</sub>H<sub>2</sub> tracer release are individually interesting and demonstrate the potential to get ideas on emission strength of the different compartments within the plant.

To assess the CH<sub>4</sub> source strength on a regional scale the <sup>222</sup>Rn tracer method is applied. I am not too familiar with this approach, but I can follow the approach for e.g. stable nocturnal boundary conditions where both <sup>222</sup>Rn and CH<sub>4</sub> are accumulating and from the ratio of the increase the CH<sub>4</sub> source can be estimated in case the <sup>222</sup>Rn source is known. The application in neutral and instable conditions is less convincing, especially in case the CH<sub>4</sub> source is extremely inhomogeneous and a superposition of many individual plumes. A time interval from 12pm (noon?) to 8pm on 18th September was used. In opposition to the statement on lines 5 and 6 page 9203 the wind is coming from roughly 200° thus not from north. The explanation why the station is sampling along a transect of 90km is missing.

The bombastic introduction is not balanced by the content of the rest of the paper. It is a compilation of several pilot studies over a very short time to identify CH<sub>4</sub> sources in the treatment plant. Unfortunately the main sources was not properly identified and it remains a hypothesis that the solid sludge pile is the main contributor. It seems not a big effort to directly measure this e.g. with a chamber.

I cannot recommend the paper for acceptance in AMT, but suggest to resubmit a better structured version.

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Interactive comment on Atmos. Meas. Tech. Discuss., 6, 9181, 2013.

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