

Interactive comment on “Methane Emissions from the Munich Oktoberfest” by Jia Chen et al.

Anonymous Referee #2

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General comments This is a fascinating study of an amusing but very instructive topic. The methodology of the paper is simple yet very thorough and detailed. The work should be published.

I suspect the Oktoberfest does not rank in the world's top million methane sources (or would Oktoberfest indulgers say 'shourseshs'). So in itself, the problem is not especially important and applying very diligent and thoughtful analytical effort to a small problem is using a sledgehammer to crack a peanut.

But that snap impression misses the wider value of the work – this paper is a very thorough and careful exposition of how to quantify emissions from a somewhat-disseminated local clump of sources, using fairly simple techniques and relatively inexpensive instrumentation (and a bicycle!). The methodology developed here is applicable to a very wide range of similar sources, such as clumps of poorly regulated

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tropical landfills, aggregations of cow barns, or variegated wetlands. Given that, this is potentially a very useful paper indeed.

Detailed comments Page 1 right L45 – also cite Etminan et al values? Page 2 right L84 – also give brief mention of human emissions, both eructated and flatulated? Page 3 left L12-13 – 'detection' – do you mean precision or detection threshold? Maybe rephrase this? Page 3 left L16 – I'm being pedantic but data re plural - 1 datum, 2 data – data 'are' not data 'is'. Page 3 right L59 – same pedant's comment – data were, not was. Page 4 left L19 – maybe expand this a little and rephrase? Is this a valid filtering method?- or could you be leaving out important burps of methane? Page 5 right L63 – define E here. Note – in line 74 just below, E has dimensions of g s⁻¹ but later (e.g. P7 bottom line on right) the dimensions of E also include m² – needs to be consistent. Page 9 right L40 – a huge range in the literature of human-produced methane. We've measured various communities and found great variety. Page 9 right L64. Not sure high flux means low emissions. Could also mean sudden filling of a lot of local side-ponds and water in cracks and holes, that don't flush and go anerobic, producing CH₄. Page 10 left L27 – natural gas I assume? Not CO₂ pushing the beer? Page 11 left L10-13 maybe rephrase a little – not too clear. And when you talk about 'bottom-up' emissions is this from humans? I thought the Oktoberfest was bottoms-down on seats? Page 11 left L28 One BIG omission that should be mentioned in the section of what to measure next is ISOTOPES.

Page 11 left L37 – this paper has shown that comparatively simple methods can do a great deal to quantify emissions from clumps of methane sources, for example I'd think of groups of small cow barns, or uncovered heaps in badly managed tropical landfills, or wetlands made of groups of ponds and swamps. It's a really nice study investigating that type of problem and this should be brought out in the conclusion.

Overall – nice paper, fun to read, and potentially very widespread applications. The paper should be accepted and published with minor corrections.

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