

## ***Interactive comment on “Primary emissions of glyoxal and methylglyoxal from laboratory measurements of open biomass burning” by Kyle J. Zarzana et al.***

### **Anonymous Referee #2**

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#### General Comments

This paper presents glyoxal and methylglyoxal emissions measured in carefully designed and executed experiments from fire lab test burns of a wide variety of biomass types. The results show that glyoxal emissions are lower than suggested by previously measurements (using older methods with more interferences), and methylglyoxal emissions are larger than glyoxal by at least a factor of 2. These results appear to explain major discrepancies that have existed for the last several years between field measurements and earlier test burn lab measurements. The analytical methods and data workups are described with great clarity, and the goals of the project are well-justified

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in the introduction. This work will be of interest to those interested in the atmospheric effects of glyoxal and methylglyoxal or chemical transformation in smoke plumes. Only minor changes are needed before publication.

#### Specific Comments

My only concern with this paper is an inconsistency in how their results are described. On p. 14 line 23, the authors state that their reported methylglyoxal emissions should be considered lower limits, but then give non-symmetric uncertainty ranges above and below the reported values, which suggests to this reviewer that these values are not really lower limits. Elsewhere in the paper, methylglyoxal emission values are just expressed with the uncertainty ranges, and never described as lower limits. This gives me the feeling that the authors haven't quite made up their minds. If these values really are to be considered lower limits, this information / language should also be included in the abstract, and more consistently described using such language throughout the paper.

#### Technical Corrections

At a few points in the paper, the authors use the abbreviation "Th" after a molecular mass. What is this abbreviation?

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