Interactive comment on “Characterization of biomass burning smoke from cooking fires, peat, crop residue and other fuels with high resolution proton-transfer-reaction time-of-flight mass spectrometry” by C. E. Stockwell et al.

Anonymous Referee #2

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This paper presents results from the measurements of gas-phase non-methane organic compounds (NMOC) in smoke from the burning of different types of fuel. These experiments were conducted at the Fire Science Lab in Missoula, MT during the FLAME-4 Study. The gases were measured using a proton-transfer-reaction time-of-flight mass spectrometer (PTR-TOF-MS). This data was used to report many rarely measured or previously unidentified gas-phase emissions from the burning of these different types of fuel. Newly updated biomass burning emission factors (EFs) are presented and discussed.

Biomass burning is known to be the second largest source of NMOC. However, a significant portion of NMOC still remains unidentified. This paper is working towards trying to close this gap. Additionally, this paper provides new improved emissions factors that can be used for modeling biomass burning emissions. Many in the atmospheric community would be interested in this paper.

Overall, this is a good paper. It is well written and very easy to follow. The methods employed seem scientifically sound. I really just have a handful of small comments to help with the flow of the paper. These are outlined below and need to be addressed before the paper can be considered for publication.

General Comment: - The order of the references in the citations seems to vary through the paper of being in alphabetical or chronological order. Either way is actually fine, but it should be consistent throughout. I have tried to point out the ones I noticed below in my specific comments.

Specific Comments: Abstract Page 22165, Line 3 – There should be no hyphen between crop and residue
Page 22165, Line 5 – Suggest changing standards to standard
Introduction Page 22166, Lines 7-9 – The references are not in chronological order
Page 22166, Lines 23-24 – There should be hyphens in proton transfer reactions
2.3. Proton-transfer-reaction time-of-flight mass spectrometer Page 22171, Line 8 – The abbreviation VOC has not been defined
2.4. OP-FTIR Page 22171, Line 10 – The chemical formula used has not been defined
3. Results 3.1. Peak assignment Page 22174, Line 10 – The references are not in chronological order