We acknowledge the editor and reviewers for providing insightful comments on the manuscript. We have addressed all of the concerns raised by the Referee #2 in the following. Original comments from the reviewer are shown in black, our responses are in blue, and updates on the manuscript are shown in italic blue.

Anonymous Referee #2

Received and published: 3 September 2018

The manuscript entitled, "Dominant contribution of oxygenated organic aerosol to haze particles from real-time observation in Singapore during an Indonesian wildfire event in 2015" by Budisulistiorini et al presents a comprehensive set of measurements on the organic and inorganic chemical composition of particulate matter in Singapore influenced by Indonesian wildfire, using both online and offline techniques. The results highlight a large fraction (50% of total OA) of oxygenated OA (OOA) during the haze episodes, indicating the importance of POA oxidation and SOA formation for wildfire haze. In general, I found this manuscript is well written, and most findings follow from the author's analysis. There is just one issue that may preclude publication of current version in ACP.

We thank the reviewer for acknowledging the worth of the study.

Major concern:

R2C1

pH calculations. The authors calculated pH using thermodynamic model ISORROPIAII with input of particle-phase concentrations of sulfate, nitrate, chloride, and ammonium. They show that the particles are highly acidic as indicated by an average pH of 1.2. This is unexpectedly low as peat burning also co-emit ammonia. However, as already noted by the authors, the unavailability of gas-phase ammonia data may largely bias the calculated pH. I also agree with Reviewer #1 that this bias is not reflected in the standard deviation. In my point of view, these pH calculations without constraints from gas-phase measurements do not add much value to this manuscript, and therefore could be removed from the manuscript. The calculated LWC, however, might be still useful as it is not sensitive to the gas-phase input.

Authors' response

We thank the reviewer for the insightful suggestion. We acknowledged that the pH estimation is lacking in several ways, especially since we were not able to constraint the gas-phase measurements. We have omitted the pH estimation from the manuscript and instead added the estimation of LWC from ISORROPIA into Table S9. The sentences have been revised as follows.

Pg 8 Lns 24-27:

"Using a thermodynamic model (ISORROPIA-II, Fountoukis and Nenes, 2007), we estimated aerosol liquid water content (LWC) to be 38.1 ± 5.6 and 41.9 ± 5.6 mol L-1, during P1 and P2 periods respectively (Table S9). Aerosol acidity estimation was omitted because we could of the lacking of NH3 and organic water in the model's input data (Budisulistiorini et al., 2017b; Weber et al., 2016)."

Technical corrections:

R2C2

Page 4 Line 2: (0.2-0.3%): should this be 20-30 %?

Authors' response

We thank the reviewer for the correction. We have revised the typos as shown in our answer for R1C9.

R2C3

Page 4 Line 14 and Line 17: symbols are not displayed correctly

Authors' response

We thank the reviewer for the correction. We have revised the typos as shown in our answer for R1C10.