acp-2016-342: Model simulations of cooking organic aerosol (COA) over the UK using estimates of emissions based on measurements at two sites in London

We thank the reviewer for their very supportive comments. We respond to each comment individually below. The reviewer's comments are in italics and blue font, our responses are in normal text.

Anonymous Referee #2

This is a well written manuscript that describes an important contribution to the organic aerosol scientific literature. It describes a method that can be used to include food cooking primary organic aerosol emissions within regional chemical transport models. The method is well thought. The paper also clearly articulates the uncertainties in the measurement-based quantification of cooking organic aerosol. The paper describes the series of model runs that were developed to simulate the observations and thus derive a best-estimate of the cooking emissions. The tables and figures are of very good quality and easy to read and interpret.

I only have one technical correction and one suggested improvement.
Page 11, Line 4. Change "2,2" to "2.2"

Response: Done.

The authors introduce the prior literature studies and use the COA/OA percent ratio as the metric to compare (Page 2, Line 22-32). It would be helpful to include this study's model and measurement estimate of the COA/OA percent ratio in the abstract, so that the research community can conveniently compare to other studies.

Response: Agreed, we have added the percentage contribution of our COA to total measured OA to the abstract text:
"The modelled annual average contribution of COA to ambient particulate matter (PM) in central London was between 1–2 μg m^{-3} **(~20% of total measured OA_1)** …"