Editor Report for "The vertical distribution of biomass burning pollution over tropical South America from aircraft in situ measurements during SAMBBA" by Eoghan Darbyshire, William T. Morgan, James D. Allan, Dantong Liu, Michael J. Flynn, James R. Dorsey, Sebastian J. O'Shea, Douglas Lowe, Kate Szpek, Franco Marenco, Ben T. Johnson, Stephane Bauguitte, Jim M. Haywood, Joel F. Brito, Paulo Artaxo, Karla M. Longo, and Hugh Coe

I have reviewed the authors' responses to the reviewers' comments and find the responses and changes in the revised manuscript satisfactory overall. Going over the revised manuscript, I found a few additional issues that will require a minor revision.

1) P. 10, L 21ff: In this paragraph, the authors report some findings and interpretation that are consistent with previous work, which should be cited here (Andreae et al., 2018): a) the trapping of pollutants by the anticyclonic circulation (Fig. 4); b) the efficient removal of aerosol particles during deep convection over Amazonia (Figs. 11b and 23); c) the vertical distribution of rBC (Figs. 15 and 18); and the transport of CO to the UT by deep convection while aerosol is depleted (Fig. 23).
2) P. 11, L 7ff: The Angstrom exponent values found in SAMBBA agree with (and sometimes are higher than) the typical dry season values reported from long-term studies in Amazonia (Rizzo et al., 2013; Saturno et al., 2018), which should be referenced here.
3) There is an extended discussion both in the paper and in the responses to the reviewers about the reasons for the increase of the aerosol/CO ratios with altitude, which shows up most prominently in the eastern region. I think the authors need to consider sources outside of the basin. It has been known for quite some time that the air that enters the basin with the SE trade winds during the dry season is by no means pristine, but contains substantial amounts of biomass emissions from southern Africa (Andreae et al., 1994; Saturno et al., 2018, and references therein). During the ACRIDICON-CHUVA 2014 aircraft campaign, we found up to 2 $\mu g\ m^{-3}$ of rBC in layers at altitudes between 3 and 4 km. The savanna fires in Africa produce among the highest BC/CO ratios found anywhere (flaming dominates), and the layers observed during AC had a $\Delta rBC/\Delta CO$ of about 20. Mixing this material with the smoke generated in the Amazon can easily generate the upward positive gradient found by Darbyshire et al. This potential explanation should be addressed in their paper.

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