

## ***Interactive comment on “Impacts of Amazonia biomass burning aerosols assessed from short-range weather forecasts” by S. R. Kolusu et al.***

### **Anonymous Referee #2**

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The manuscript evaluates the impact of South American biomass burning aerosols on short-range weather forecasts over the region during a ~3 week period in 2012. A set of 2-day forecasts with a high-resolution limited area model and no aerosols, climatological aerosols, and fully prognostic aerosols are performed and the output is compared to observations. Differences in AOD, radiation, and meteorology among the various simulations are discussed.

The manuscript is interesting and targets an important topic. The analysis is comprehensive and the text is, in general, well written. I recommend acceptance after a minor revision.

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Comments: 1) I might be wrong, but I am not completely confident about the experimental setting: the PROG includes prognostic BBA while all the other aerosols are climatological. The difference with NOA (no aerosols at all) is thus not due only to BBA (I understand that BBA represent a large contribution to the AOD of the region (P18885), but there are other contributors too), hence the statement at P18890 L15 (and following analysis where the difference PROG-NOA is attributed to BBA aerosols) seems not completely correct.

2) Add significance test (e.g., masking out not significant areas) in the geographical maps (Figs. 2, 4, 5, etc.)

3) How representative is the specific period investigated compared to climatological mean conditions?

4) Fig. 2: it would be helpful to plot BBA AOD as contours.

4) P18885, L11: what are the “total” emissions?

5) P18893, L23: how do you infer that these changes are due to clouds?

6) P18899, L25: which variables are assimilated?

7) Fig. 6: could you explain the motivation for choosing this area?

7) Fig. 11: mask out values around 0

8) Language improvements: P18887, L3: tropospheric P18887, L4: weakened P18887, L14: provided by P18893, L5: between 10 and 20 P18893, L7: for the whole period P18893, L11: scales of one degree

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