

Author responses in red. We thank the reviewer for their time and effort in reviewing our manuscript.

Jason Miech and co-authors present a well written manuscript describing an approach at tagging biomass burning air parcels. Their method builds on prior work using short term changes in gas phase species to identify significant biomass burning compositional influence. Both the method refinements and resultant application are important. I recommend acceptance for publication after addressing a minor issue.

In the discussion of Figures 5A and 5B in Section 3.2.1, it would be helpful to add a note indicating the relative number of Thailand low altitude BB-flagged points to both 5A and 5B because it is difficult for the reader to visually discern the difference.

We thank the reviewer for their suggestion on how to better elaborate on the data shown in Figure 5A-D. We have edited the figure by separating out the altitude levels into columns, displayed the total number of points flagged for each area and altitude, and changed to denominator for each bar to be the total number of points for the specific altitude level in the area of interest as opposed to the total number of points in the area of interest. For example, Fig 5A now reads that ~30% of the high altitude Thailand data was flagged and ~15% of the low altitude Thailand data was flagged. This edited figure now more clearly illustrates that the majority of the data points collected in Chiang Mai at low altitude for the first two flights were flagged for BB. On line 232-234 we have included the number of points for each specific case, which are also displayed in Fig 5A-B “While flight 2 had the highest overall occurrence of BB (10,092 points compared to 7,725) (Fig 5B), flight 1 had more BB-influence closer to the surface (1,289 compared to 1,144) (Fig 5A).” We have also included a table in the SI displaying these point totals, Table S5, and added the following to line 270 “Percentage of points flagged for BB for each Thailand flight across the whole flight track, over Chiang Mai, and over Bangkok for above and below 1 km AGL with total number of points flagged displayed, also shown in Table S5.”