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Title: Species Correlation Measurements in Turbulent Flare Plumes: Considerations for Field Measurements

Authors: Seymour, S.P.; Johnson, Matthew R.

Response to Comments by Referee

The authors addressed all the specific comments and technical corrections by the reviewers and improved the manuscript accordingly. Some of their answers were supported with additional graphics and discussion. They included arguments in their response to clarify between their experimental technique and other experimental techniques (aircraft-based mainly), giving more context to their results.

An additional brief paragraph about the variability of BC/H₂O and BC/CO₂ ratios was included, and they justify the development and main features of optical attenuation measurements to support the experimental technique. In addition, a brief paragraph related to crosswind conditions was included in the manuscript.

I recommend publication of the manuscript after addressing the following minor technical corrections.

We thank the referee for their review of our manuscript and their acknowledgement of our strengthened discussion following comments from the reviewers. We have implemented the remaining technical corrections, as suggested.

Technical corrections

Figure 3. Please correct the Figure. q_{amb} appears twice, and q_{col} is missing

Figure 8. Perhaps add “aggregated” in the Figure’s description to be in correspondence with the wording in Table 2.

Ln 219. Change “meant” to “means”

Ln 362. Change “minimum required samples size” to “minimum sample sizes”

Ln 383. Consider changing “interrogates” for another word

Ln 384. Change “etc” to something like “among others”

Ln 401. Consider removing “perfectly-”