

Response to Anonymous Referee #2

(Referee comments in *italics*, my response in plain font)

We thank the reviewer for the positive and constructive comments. Our responses are given below:

MINOR COMMENTS/CORRECTIONS:

P8109, L19 (and throughout): I think “VOCs” reads better when talking about volatile organic compounds

All occurrences of “VOC” were checked and corrected where appropriate.

P8110, L5: “. . .fire season, occurring in the period from. . .”

Corrected as suggested by Reviewer 1.

P8110, L21: To clarify, is oxidation of isoprene the largest source of CO in the summer for the USA?

Actually, the largest VOC contribution comes from CH₄ (35.3% of CO sources), followed by biogenic non-methane VOCs (21.2%) among which isoprene makes by far the largest contribution (Miller et al., 2008). The text has been amended to reflect this.

P8110, L22: Is there a suitable reference for the first sentence?

Duncan et al. (2007) was added here.

P8115, L22: What is Q?

Q is the sample air flow rate.

P8116, L5: “. . .with most of the delays due to customs.”

Done.

Section 2.4: Could these locations be indicated on a map? (e.g. Fig. 1)

Done

Section 2.5: Might be easier to read if there were sub-headings for the models

Done.

P8818, L2: “. . .an ensemble of 100 particles was released . . .” (check tense throughout here too)

Done

P8818, L13: Define GOES, AVHRR and MODIS

Done.

P8821, L15: Clearer to identify the figure panels with their letters: “. . .shows (a) the distribution of fires. . .(c) the 10-day . . .”

Done.

P8122, L6: Should it be Fig 2d? (not 2f)

Corrected.

P8122, L20: ppb -> ppt (?)

Corrected.

P8122, L26: “On the other hand, the SF6 results from BARCA-B in Fig 3b support. . .”

Original text was kept.

Section 4: Check tense throughout. E.g. P8136, L1: “. . .we presented. . .analyzed”
although should be analysed if ACP uses British English (. . .does it!?)

Done

P8136, L7. “. . .Southern Hemisphere. During BARCA-B. . .Northern Hemisphere, while mid-tropospheric airmasses came from both hemispheres.”

Done

P8136, L24: “. . .residual smoldering combustion (RSC).”

Done

P8137, L13: delete “(ca. 10 ppb)” since said in previous sentence

In this sentence, the enrichment is relative to the free troposphere, while in the preceding sentence it is relative to the air entering from the Atlantic.

P8138, L2: “. . .observations, against those. . .”

Done.

P8138, L8: “. . .in models), as well as to representation of smoke injection height, the choice of model resolution, and the reliability of. . .”

Done

Figure 2, bottom panels: Could the flight tracks be made a different color, so they stand out?

We prefer them not to stand out, as that would detract from the main point of this figure, i.e., the source footprint. The flight track are shown clearly in Figure 1.

Figure 6, 8, captions: What is “SPSS convention”?

SPSS has a specific definition of outliers and extreme values, and the figures follow that definition or convention. We tried to make this more clear by changing the text to “as defined by SPSS”.