

Reviewer #1 (Comments to Author (shown to authors)):

Please see my first review for a summary of Ort et al. While I would like to follow up on one of the comments from Reviewer #1, all other comments from the reviewers have been addressed adequately.

- Fig 2: I appreciate the thatching and other plots in SI which help to show which grid boxes in this figure are statistically relevant according to the authors. Since the statistics the authors use suggest it is a real signal, what might be the cause then of the ~200 ppbv CO in Fig 2(a) at ~10 degrees S latitude and 2.5 km altitude? I agree the RSEM looks fine for that grid box (<5%). Are multiple aircraft campaigns showing that particular grid box to be over 2-3x as high as the surrounding grid boxes, or is it all based on one aircraft campaign?

The single grid point highlighted by Reviewer #1 is strongly influenced by a biomass burning signal observed during the CAFE Africa campaign. Although more than 100 data points from multiple campaigns (CAFE Brazil, CAFE Africa, ATom) contribute to this grid cell at approximately 7.5°S and 2–3 km altitude (see Figure S1), the dedicated CAFE Africa flight, which sampled a biomass burning plume along 7.5°S with up to 300 ppbv of CO, elevated the CO median value to ~200 ppbv in Figure 2a. The strong gradient toward adjacent grid cells is likely a result of the plume being captured along a single latitude transect. This plume, originating from African biomass burning and transported over the Atlantic, was also reported by Crowley et al. (2025).

Elevated CO mixing ratios (up to 140 ppbv, on average) at comparable latitudes and altitudes were likewise observed during CAFE Brazil (Ort et al., 2024).

We have added a brief explanatory note to the manuscript to address the high CO values observed in this grid cell.

Line 189: "Highest CO is found at approx. 7.5°S and 2.5 km, a biomass burning plume originating from Africa captured along a single latitude transect during the CAFE Africa campaign (Crowley et al., 2025)."

Crowley, John N., et al. "Peroxy acetyl nitric anhydride (PAN) and peroxy acetic acid (PAA) over the Atlantic west of Africa during CAFE-Africa and the influence of biomass-burning." *Environmental Science: Atmospheres* 5.5 (2025): 620-635. DOI: 10.1039/d5ea00006h

Ort, Linda, et al. "In-flight characterization of a compact airborne quantum cascade laser absorption spectrometer." *Atmospheric Measurement Techniques* 17.11 (2024): 3553-3565. DOI: 10.5194/amt-17-3553-2024

Technical Corrections:

- There are some very minor typos (e.g., Fig 3 caption, Line 511) that the authors should fix

We have fixed the typos.

Figure 3 caption: "Same as Figure 2, for the O₃–CO ratio, but without hatching and with Θ shown as white lines."