Review of “Design, operation and characterization of a mobile laboratory for community-scale atmospheric research,” Cliff et al., AMT (2026)

Summary

This manuscript provides a highly detailed description of a new mobile lab for in situ atmospheric observations. The English is good and the style and number of figures is appropriate. It is suitable for publication after considering the following minor revisions.

General Comments

Is data publicly available, or are there plans to make it so? If so, please provide details.

Given how detailed the description is, I think including some photos in the supplement would help readers visualize the system.

L253 mentions compressed gas cylinders. Are you required to have a DOT permit for these?

What’s the typical gas mileage?

L453: there are some new research-grade NO2 instruments that might meet your needs (e.g., https://amt.copernicus.org/articles/17/5903/2024/, https://amt.copernicus.org/articles/15/6643/2022/). No need to respond to this, just encouraging you to consider making friends instead of relying on COTS for everything.

Specific Comments

Lines 71 – 80: Suggest moving this up to be in Sect. 2 instead of 2.1.

L126: It is known that Molybdenum converters also convert other forms of NOy to NO, not just NO2 (e.g., https://www.sciencedirect.com/science/article/pii/S1352231024000505). Is it fair then to call this measurement NOx?

L130: how stable are the calibrations? I do not see any example calibrations here or in the supplement.

L207: What is the inverter efficiency? Most of the instruments probably have internal DC supplies, so I wonder what could be saved by doing a direct DC tap to those.

L245: I do not think there is any such thing as a “standard aircraft rack.” Standard for what aircraft?

L382: Have you considered performance under cold conditions (e.g., SLC in winter)?

L479-480: suggest deleting this sentence.

Technical Comments

L149: “flow rates”

L208: “after-market”

L232: might consider renaming this section to “Mechanical and Thermal”

L260: “secured on”

L265 and on: please specify whether tube diameters are ID or OD. The former is more important for flow considerations.

L285: probably worth also giving driving speeds in mph or kmph, as that’s what readers are calibrated to.

L352: replace != (which is code) with “is not equal to” or something similar.