

Atmos. Chem. Phys. Discuss., referee comment RC2  
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## Comment on acp-2021-978

Anonymous Referee #2

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Referee comment on "Observational constraints on methane emissions from Polish coal mines using a ground-based remote sensing network" by Andreas Luther et al., Atmos. Chem. Phys. Discuss., <https://doi.org/10.5194/acp-2021-978-RC2>, 2022

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This is an interesting and well written paper. My comments are not on the method, as the other reviewer's questions and comments address this topic. Instead, I focus on the broader implications of the work.

Line 45: "The setup largely mimics previous network deployments for quantifying urban greenhouse gas emissions in Berlin (Hase et al., 2015), Paris (Vogel et al., 2019), St. Petersburg (Makarova et al., 2020), Munich (Dietrich et al., 2021), Indianapolis (Jones et al., 2021) and other places."

This statement makes me ask:

What were the major findings from these deployments?

As shown in the previous deployments, what are the strengths and limitations of your methodology for constraining emissions?

Have you addressed the limitations that were identified in previous deployments? That is, is your setup better than earlier setups?

Is there anything new or novel about your setup relative to the previous ones?

Is the importance of this manuscript mainly in the application of the setup to a new

emissions source?

Last paragraph of Section 6: Discussion and Conclusions

Since this setup has been used before, how feasible (e.g., from a cost perspective) would it be to use this setup to quantify major emission sources around the world? That is, could it be easily commercialized? Or is this setup primarily for scientific research? My motivation for these questions is the need for affordable options for constraining CO<sub>2</sub> and methane emissions given that satellites, especially for observing CO<sub>2</sub>, have limitations that do not always allow for reliable space-based constraints.

In the vein of satellites, have you compared your results to space-based constraints, especially for methane? Could your method be used to validate satellite emission constraints?