

We kindly thank Anonymous Referee #2 for your helpful review.

This study presents the development and validation of a novel portable CO<sub>2</sub> measuring system suitable for operations onboard small-sized UAVs. This system has a fast response time (1 Hz) and a relatively high precision ( $\pm 2$  ppm  $1\sigma$  at 1 Hz) to make it have the capacity to monitor emission plumes, and characterize their spatial and temporal distribution. Our revision following the two reviewers' comments tends to reinforce our statements about the importance of careful tests and calibrations to obtain measurements of sufficient precision.

Please find the detailed reply to each comment below.

P2L43: add ground-based remote sensing observations to the list. TCCON – Wunch et al., 2011 and COCCON – Frey et al., 2019.

We will add ground-based remote sensing observations and references in the revised version.

P1L25: please expand IPCC, add a reference to the report of 2021 and 2018 (line29)

We will add a reference “Khangaonkar et al., 2019” to line 29.

P3L73: the reference of Reuter et al. (2021) is not listed

The reference Reuter et al. (2021) will be listed in the revised version.

P15L312: -314: this is a particularly important message; perhaps the authors can put more emphasis on this in the main section of the paper and suggest some recommendations for future users.

The sentences “Therefore, it is essential to perform both temperature and pressure sensitivity tests for individual sensors to obtain their individual correction equations against temperature and pressure changes. Here, we highly recommend to characterize every individual sensor at least once before any use. We also recommend to repeat regularly (e.g. annually) these tests as sensor performances tend to change over time” will be added in the main section (line212-line216) in the revised version.