

1 **Supplementary Material**

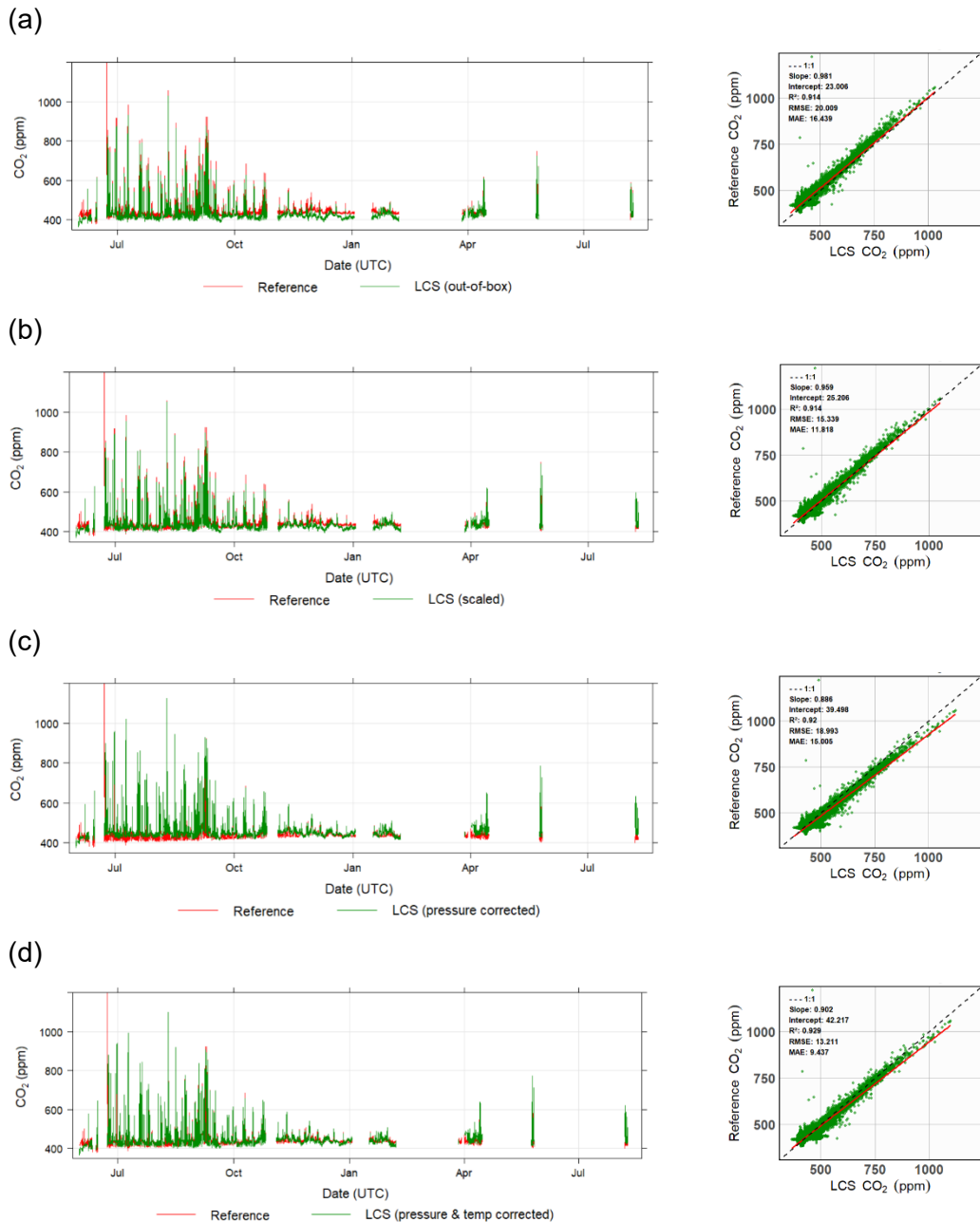
2 **Evaluating low-cost NDIR CO<sub>2</sub> for atmospheric**  
3 **observation in rural settings**

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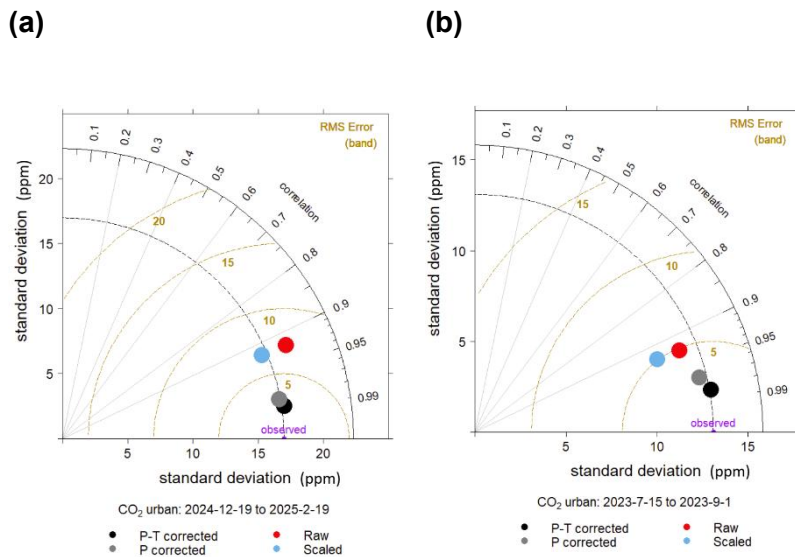


28 **Figure S1: Results of different calibration stages of LCS CO<sub>2</sub> signal for the period 22**  
 29 **May 2023 to 31 August 2024 at the rural location. (a) Factory calibration, (b) simple linear**  
 30 **calibration using a fixed period (1-18 August 2023), (c) pressure only correction of the**  
 31 **out-of-box signal and (d) pressure and temperature correction of out-of-box signal.**  
 32 **Gaps in data are due to power outage and sensor offline due to loss of Wi-Fi**  
 33 **connectivity at the rural site.**

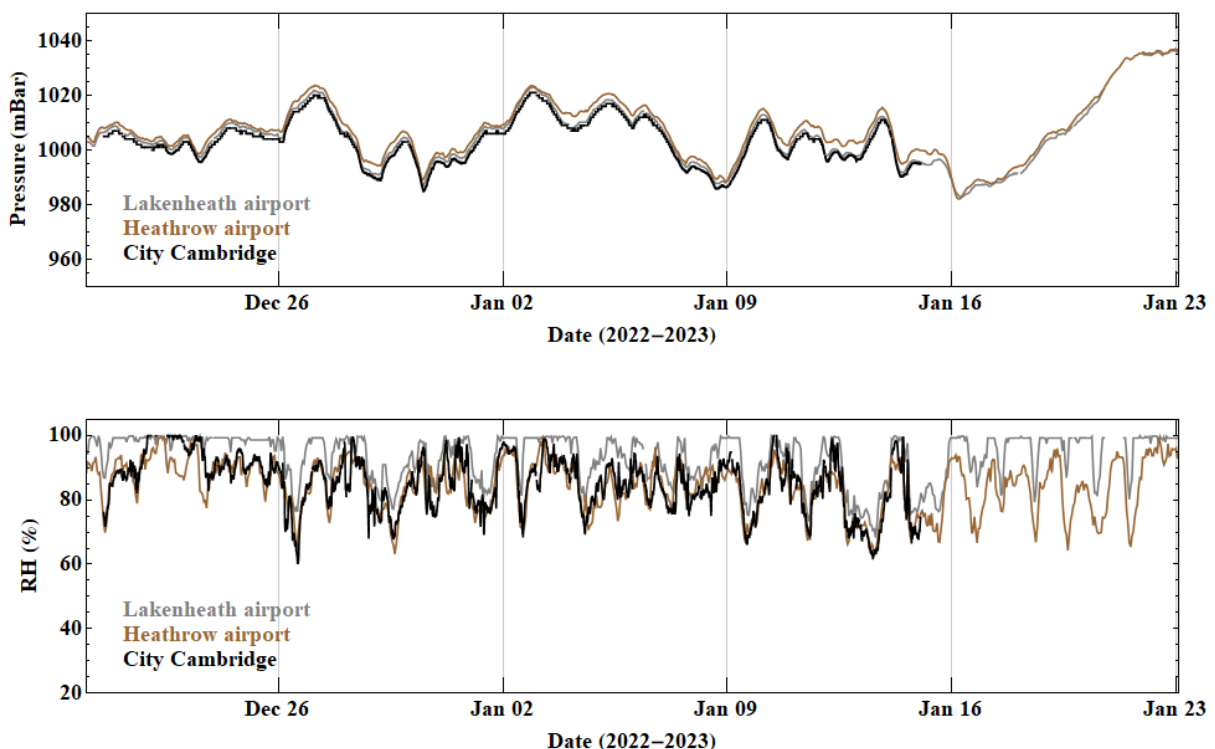
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37 **Figure S2: Taylor diagram comparing raw, scaled, pressure corrected, and pressure-**  
 38 **temperature corrected CO<sub>2</sub> measurements with co-located reference observations at**  
 39 **the urban site. Panels show results for (a) 19 December 2024-18 February 2025, and (b)**  
 40 **15 July-31 August 2023. The reference observations are shown as the solid purple semi-**  
 41 **circle (“observed”). Data points located closer to the reference indicate better**  
 42 **agreement with the reference measurements.**



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 44 **Figure S3: Ambient pressure and RH reading from two airports (Lakenheath and**  
 45 **London Heathrow) approximately 125 km apart compared to reference meteorological**  
 46 **station at the urban study location which is approximately 15 km from Lakenheath**  
 47 **airport covering the period from 20 December 2022 to 22 January 2023.**

48 **Table S1. Temperature correction fit parameters for the AirGradient (Sunrise CO<sub>2</sub>)**  
49 **sensors used in the network deployment at the rural (farm) location.**

Node ID	$A_{\text{Sunrise}}$	$B_{\text{Sunrise}}(\text{K}^{-1})$
68433	$-8.42 \times 10^{-3}$	$3.46 \times 10^{-3}$
68437	$6.60 \times 10^{-2}$	$3.30 \times 10^{-3}$
68461	$-2.35 \times 10^{-1}$	$4.33 \times 10^{-4}$
68436	$-1.28 \times 10^{-1}$	$3.88 \times 10^{-3}$

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