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# Air pollution measurement errors: is your data fit for purpose?

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**Table S1. Research grade instrumentation used for this study.**

| Analyte | Manchester | | | York |
|---|---|---|---|---|
| **$NO_2$** | *Teledyne T500U (CAPS) | **Teledyne T200U (Chemiluminescence) | **Teledyne T200U (Chemiluminescence) | ---------- |
| **$O_3$** | *Thermo 49i (UV photometry) | **Thermo 49i (UV photometry) | **2B (UV photometry) | ---------- |
| **$PM_{2.5}$** | ---------- | ---------- | ---------- | *Met One BAM 1020 (Beta attenuation) |

*Instruments permanently deployed at the site.

**Instruments temporarily deployed as part of the QUANT study.

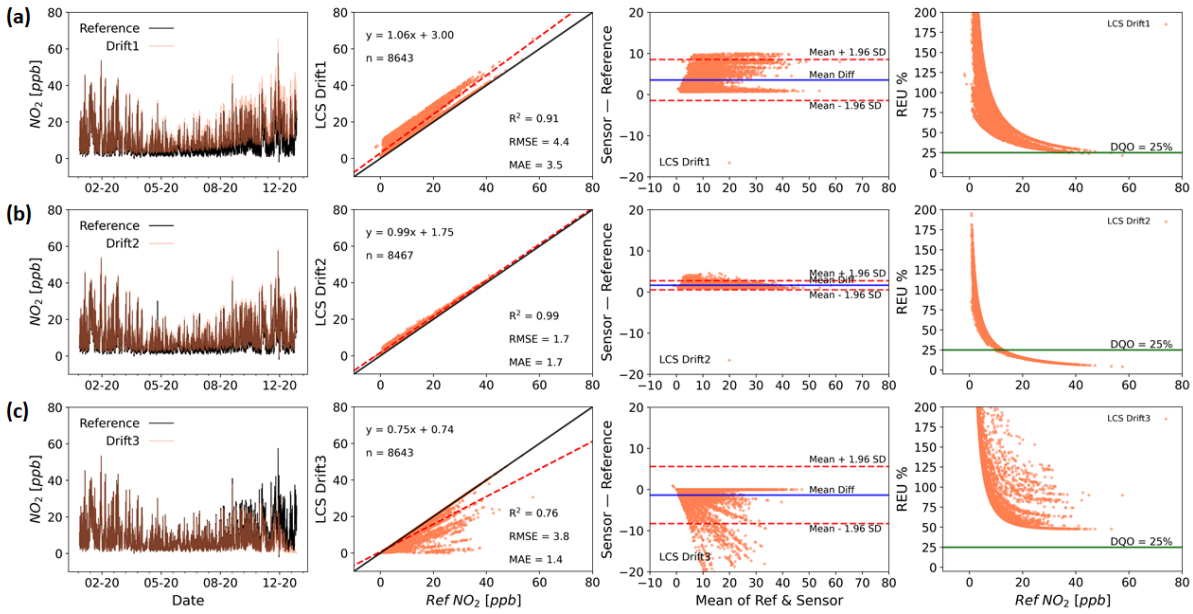


**Figure S1. Time series (left panels), regression plots (middle-left panels), Bland-Altman plots (middle-right panels) and REU (right panels, DQO for $NO_2$ = 25%) for baseline drift (a-panels), temperature interference drift (b-panels), and instrument sensitivity drift (c-panels) simulated errors.**

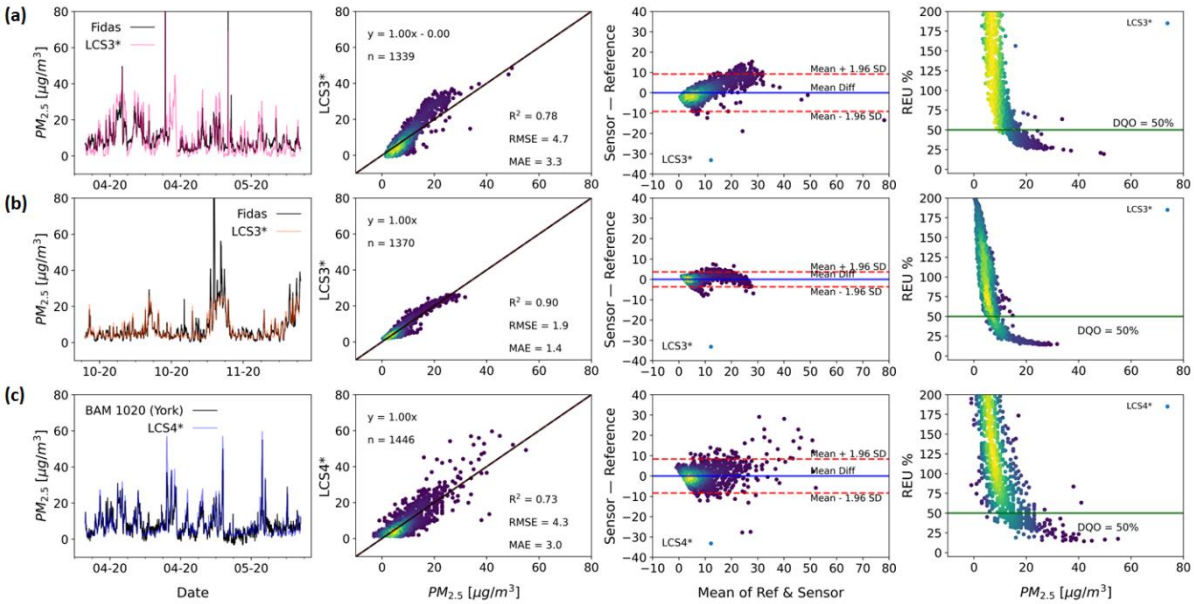


**Figure S2. Two bias corrected LCS systems (LCS3 & LCS4, same brand) measuring PM2.5 (Time res 1 h). While LCS3 is shown for the same location (Manchester) but unfolded in two different seasons (a-panels: Apr to May 2020; b-panels: Oct to Nov 2020), LCS4 is at a different location (c-panels: York, Apr to May 2020). Time series (left panels), regression plots (middle-left panels), Bland-Altman plots (middle-right panels) and REU (right panels; $DQO_{PM2.5}$ = 50%) are used to characterise the device's error structure. All but the time-series plots have been coloured by data density (darker colours denote lower density and lighter colours denote higher density).**

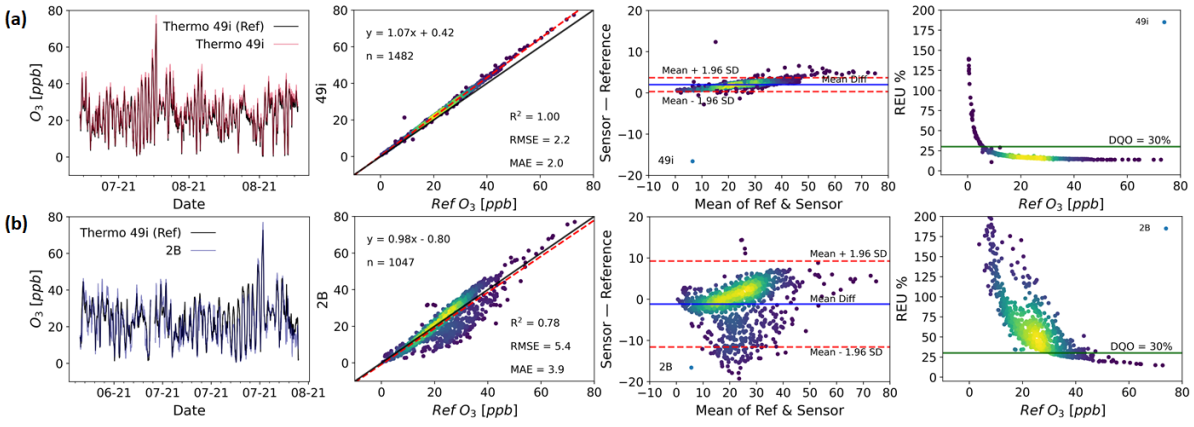


**Figure S3. Time series (left panels), regression plots (middle-left panels), Bland-Altman plots (middle-right panels) and REU (right panels, DQO for $O_3$ = 30%) for two ozone research grade instruments (1hr time res): a Thermo 49i (a-panels, July & August 2021) and a 2B (b-panels, June and July 2021). All but the time-series plots have been coloured by data density (darker colours denote lower density and lighter colours denote higher density).**