Vortex (Vortex IoT) PM2.5

Contents

Device Information 2
Equations Used 2
Comparison Plots 3

Device Information

The calibration(s) were completed on:

- 29/11/21
- no second calibration

Equations Used

$$\text{cRMSE(R, L)} = \sqrt{\text{mean}(L_i - R_i - \overline{L} + \overline{R})^2}$$

- R_i = reference measurement at time i for measurements 1 to n
- L_i = LCS (low cost sensor) measurement at time i for measurements 1 to n
- $\overline{L}$ = mean LCS measurement
- $\overline{R}$ = mean reference measurement

$$\text{RMSE}(R,\ L) = \sqrt{\text{mean}(R_i - L_i)^2}$$

- R_i = reference measurement at time i for measurements 1 to n
- L_i = LCS (low cost sensor) measurement at time i for measurements 1 to n
- n = number of measurements

$$\text{Bias}(R,\ L) = |\overline{L} - \overline{R}|$$

- $\overline{L}$ = mean LCS measurement
- $\overline{R}$ = mean reference measurement

Comparison Plots

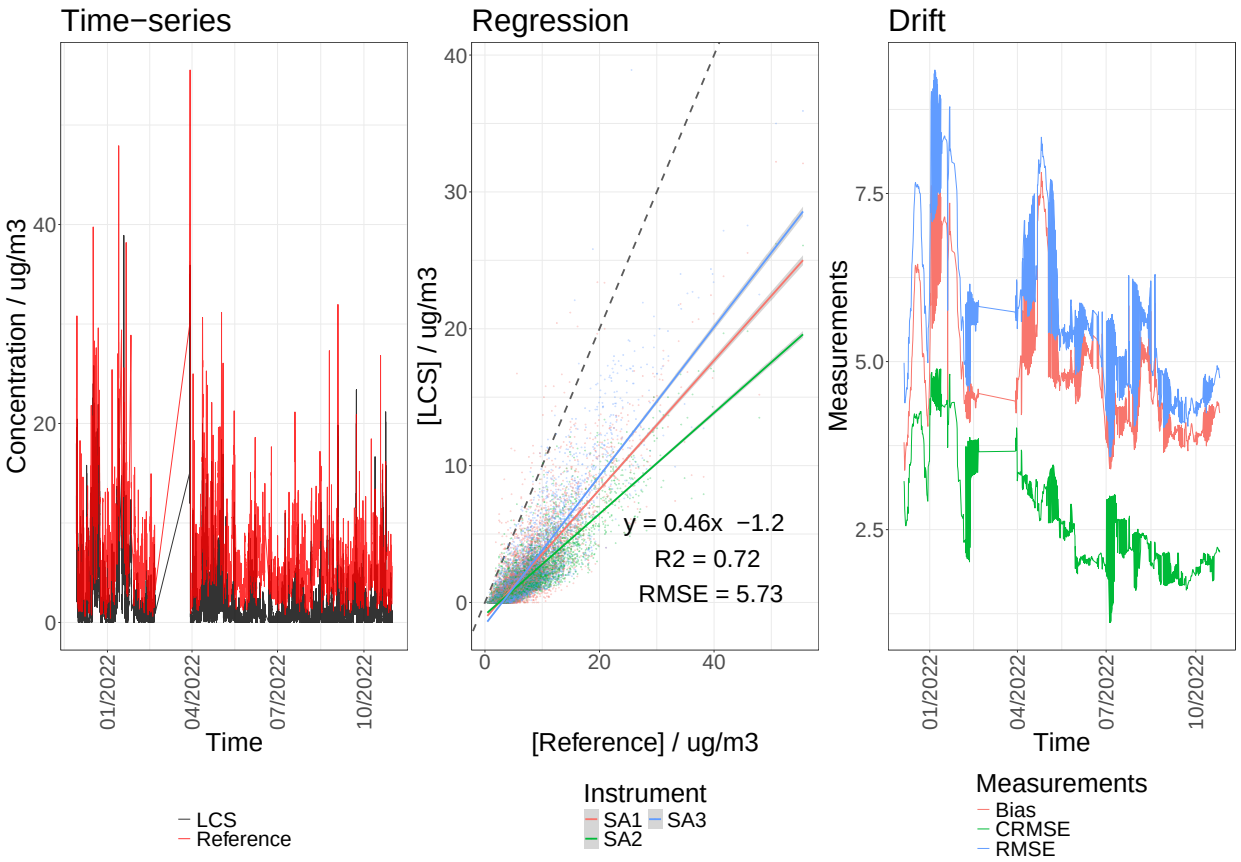

Figure 1: Quantiative evaluation. Column 1: Time-series plot of the LCS measurements (black line) vs the reference measurements (red line). Column 2: Regression plot against reference data. The grey dashed line represents y=x. Column 3: Measure of drift plot (blue line indicates root mean squared error, the red line represents the mean bias and the green line shows the centered root mean squared error).