Date screening and data correction

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Data screening for hourly data

Valid data will be averaged due to the purpose of the analyses.

LCS
1 min data

- Hourly data : diurnal variation, AQI etc.
- Daily data : seasonal variation etc.
- Monthly data : trend analysis etc.

Approach of data screening for raw data

Dr. Misaka has explained it in previous.

Approach of data screening for hourly, daily, monthly data

Checking **Data Completeness**

Checking a **temporal variation from the figure**

Checking a **troubles on LCS**

Data with LCS trouble or noise should be removed before you analyze the data.

Data screening for hourly data

Data completeness

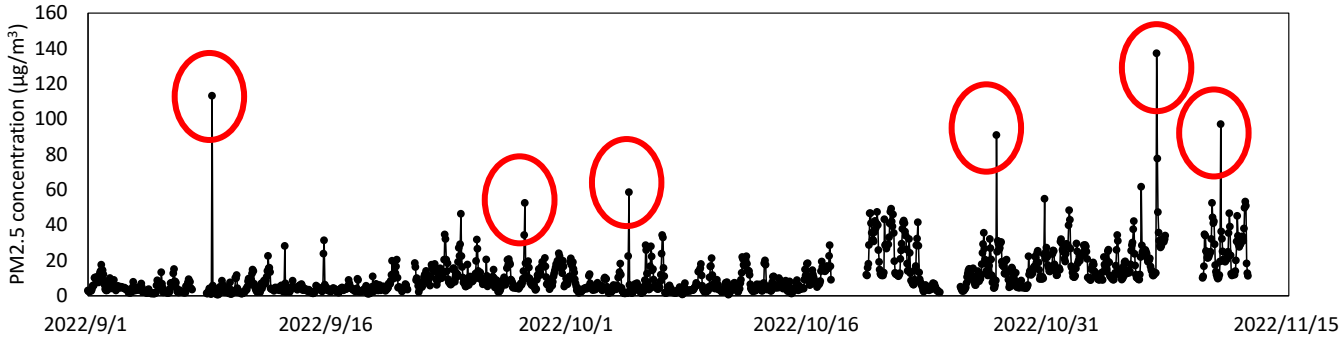
Air quality monitoring for Environmental Quality Standard has the criteria of data completeness.

Network	Data completeness
EANET	≧ 70%
AQM in Japan	≧ 20 hour for daily average ≧ 250 days for annual average

Data of LCS with low completeness should be remove in advance.

Temporal variation and remove noise

Drawing the figure of temporal variation



Several spikes are obtained from LCS data.

If the spikes comes from the noise or local emission like a waste burning near LCS, the spikes should be removed.

Correction of LCS data

LCS is reasonable, but its precision and accuracy are lower than the reference level materials.

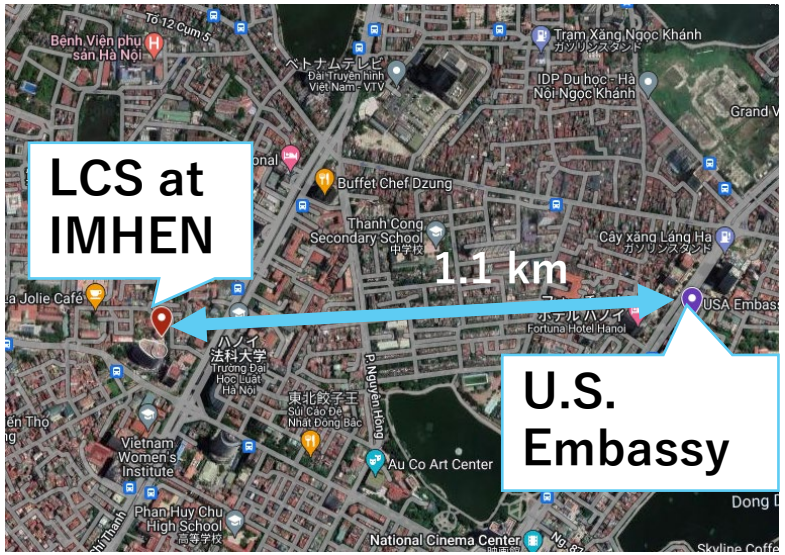
LCS data should be corrected to improve its accuracy using the comparison between reference level monitor and LCS.

Ozone

Compared with ozone monitor in IMHEN

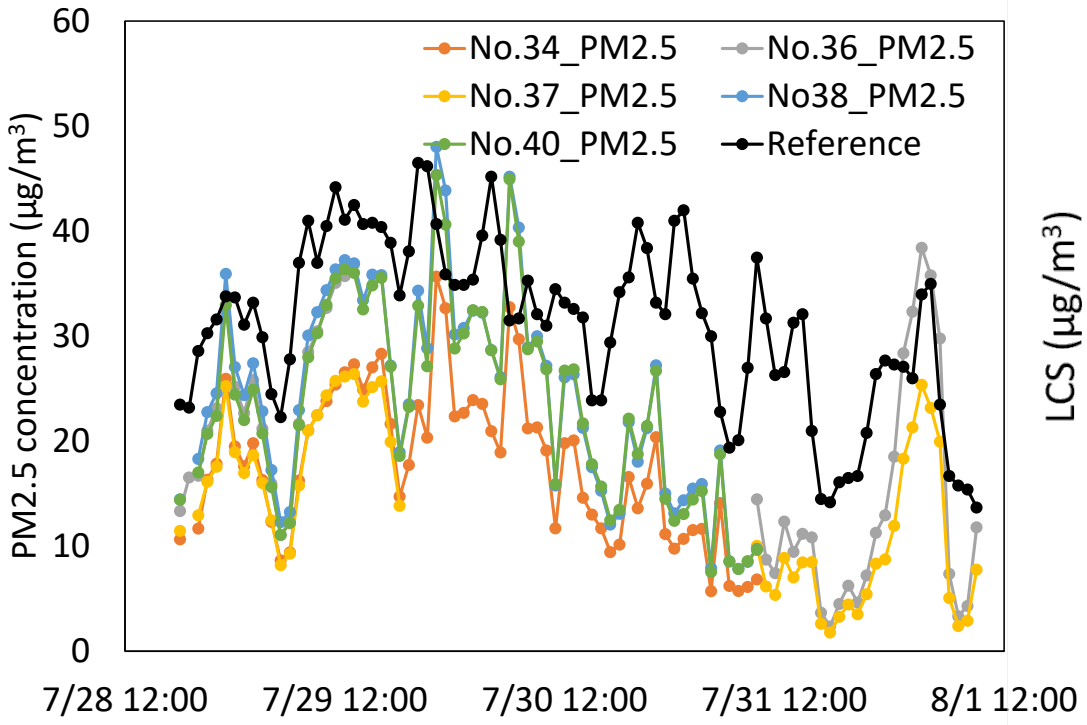
PM2.5

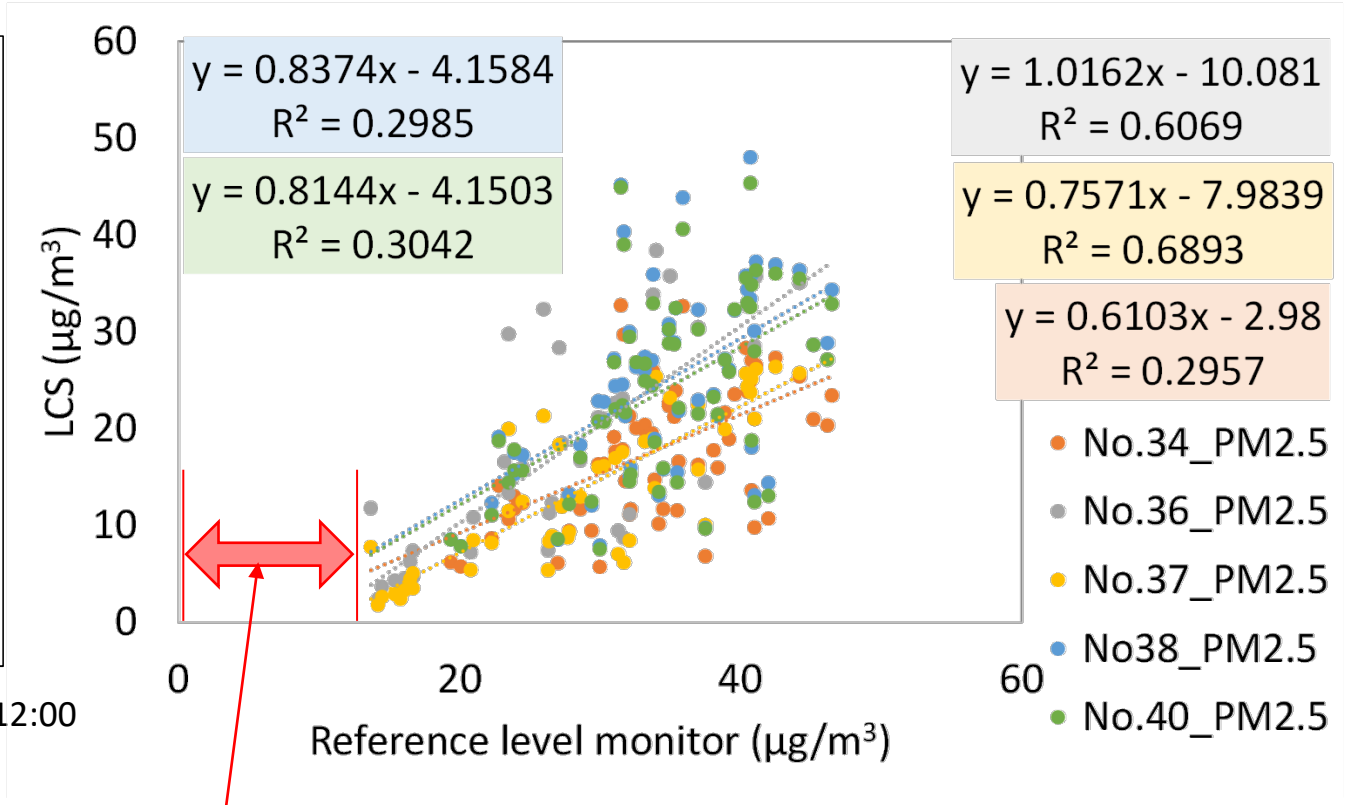
Compared with PM2.5 monitor in U.S. Embassy



Correction of LCS data

PM2.5

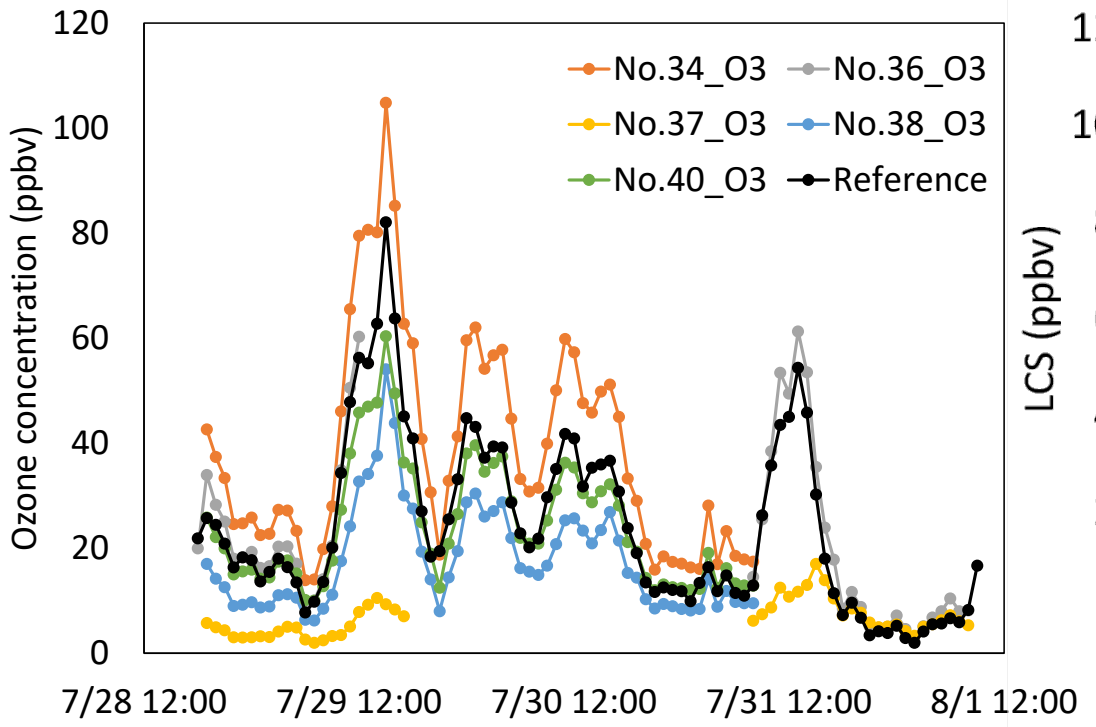


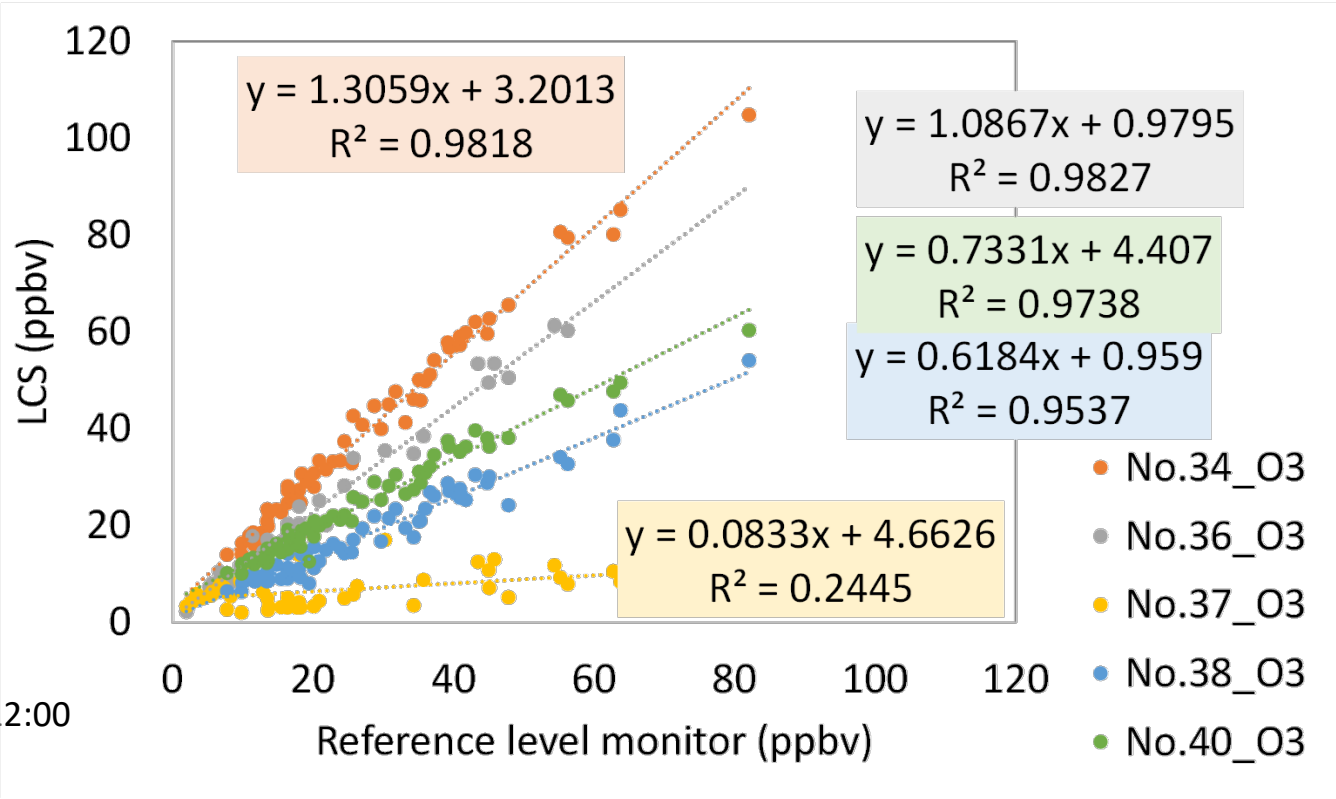


[Points to be considered]
U.S. Embassy data showed a bias of about 10 μg/m^3

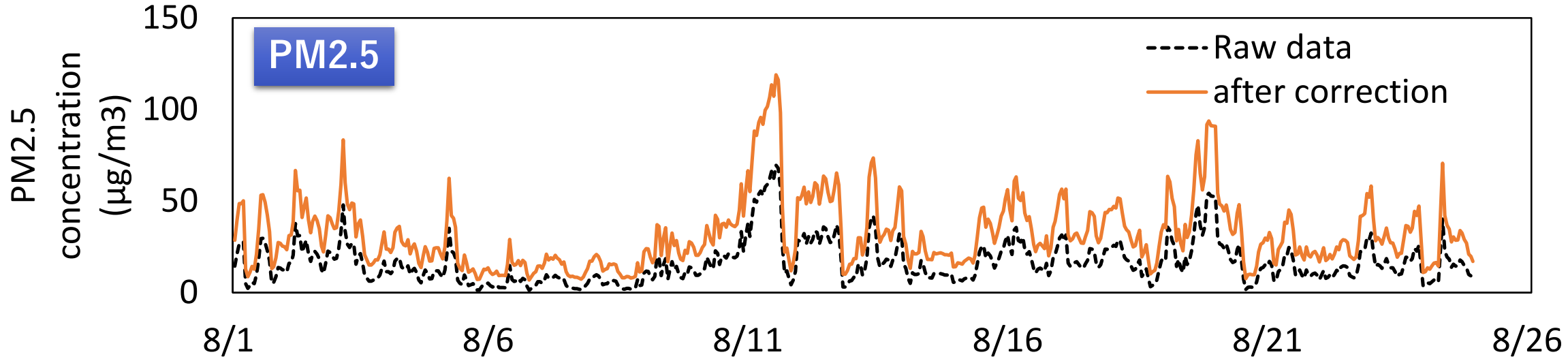
Correction of LCS data

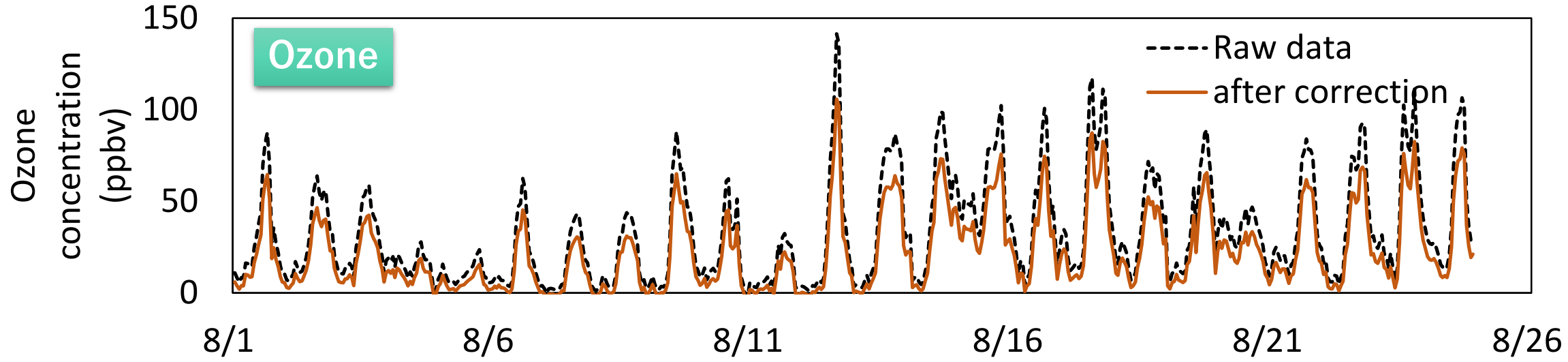
Ozone



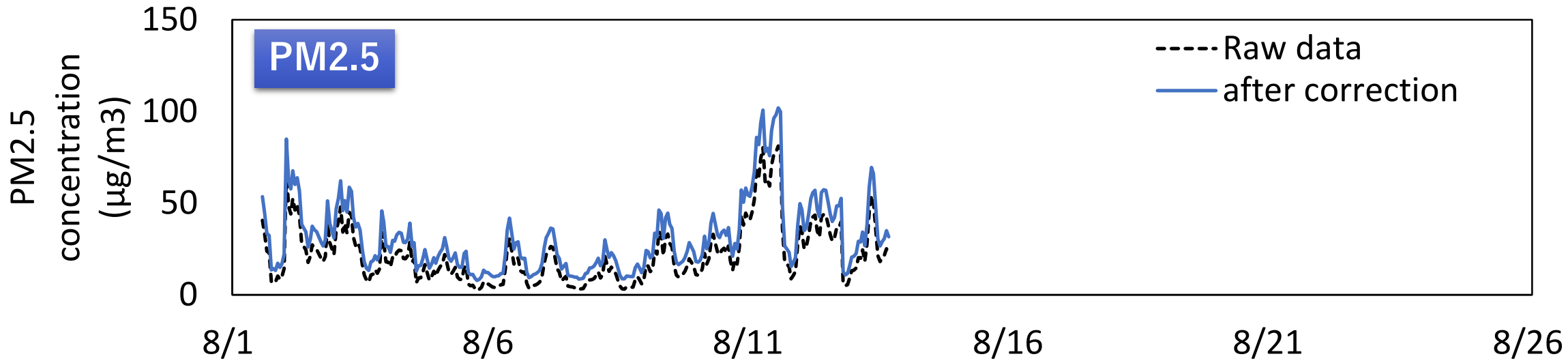


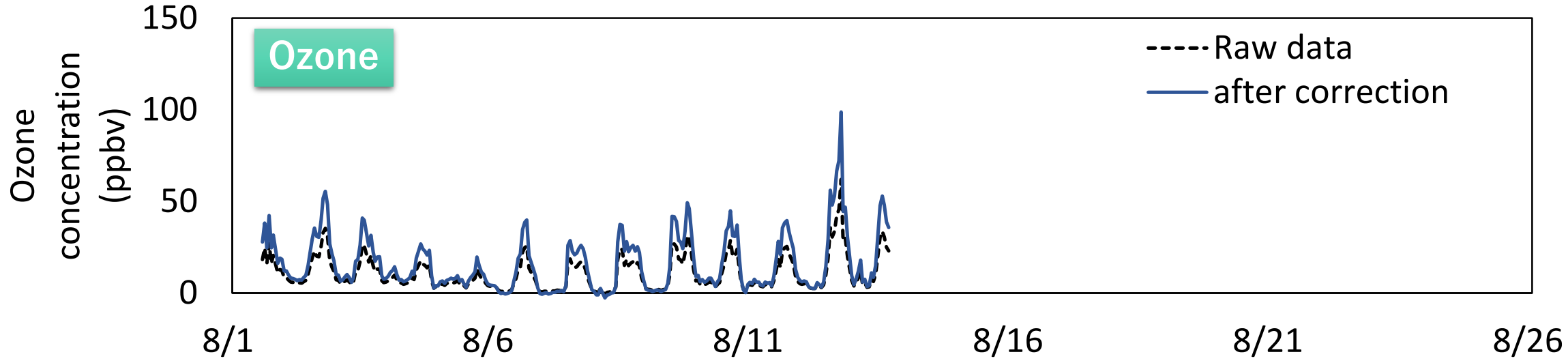
Corrected data of LCS No. 34 at Trung Yen



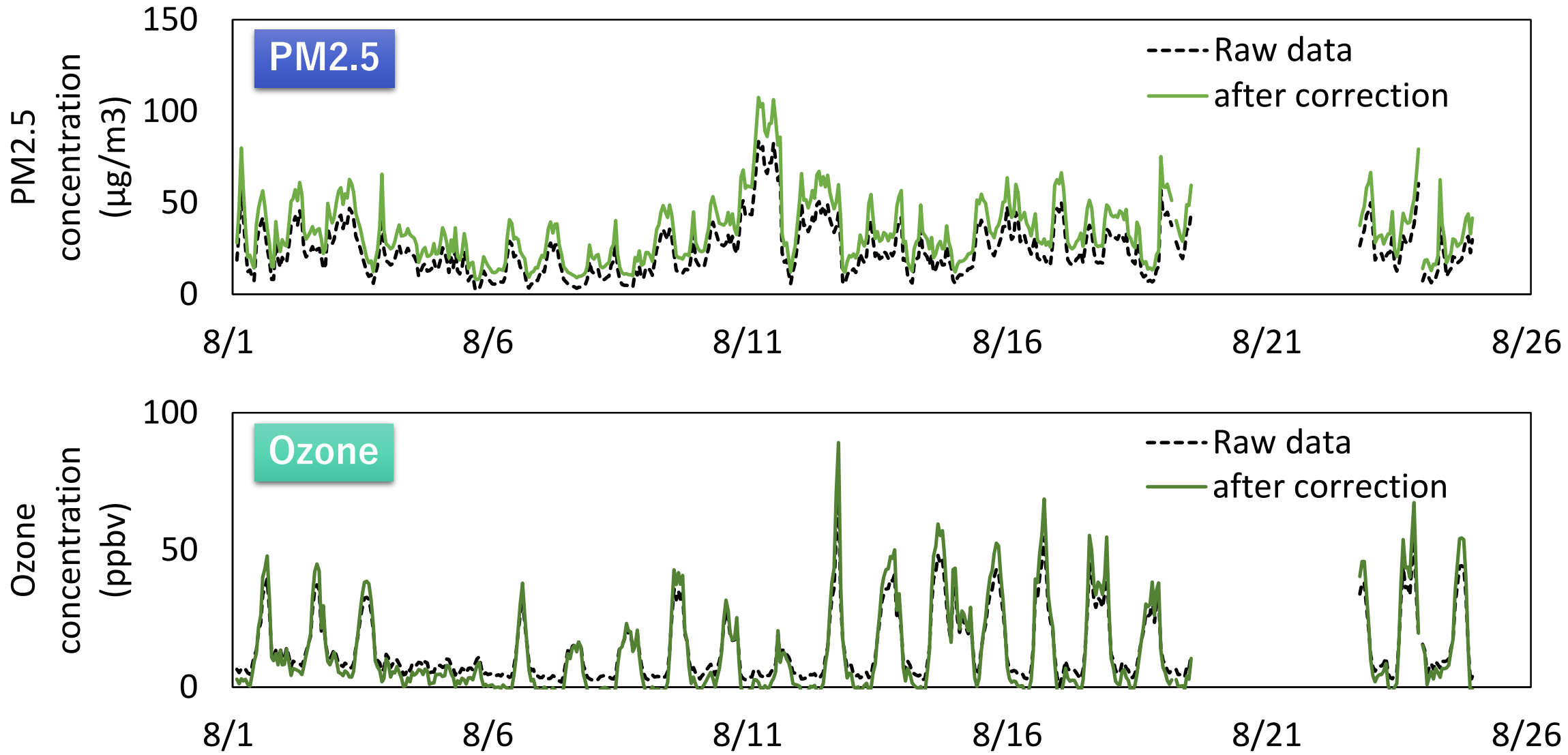


Corrected data of LCS No. 38 at Tay Ho Tay



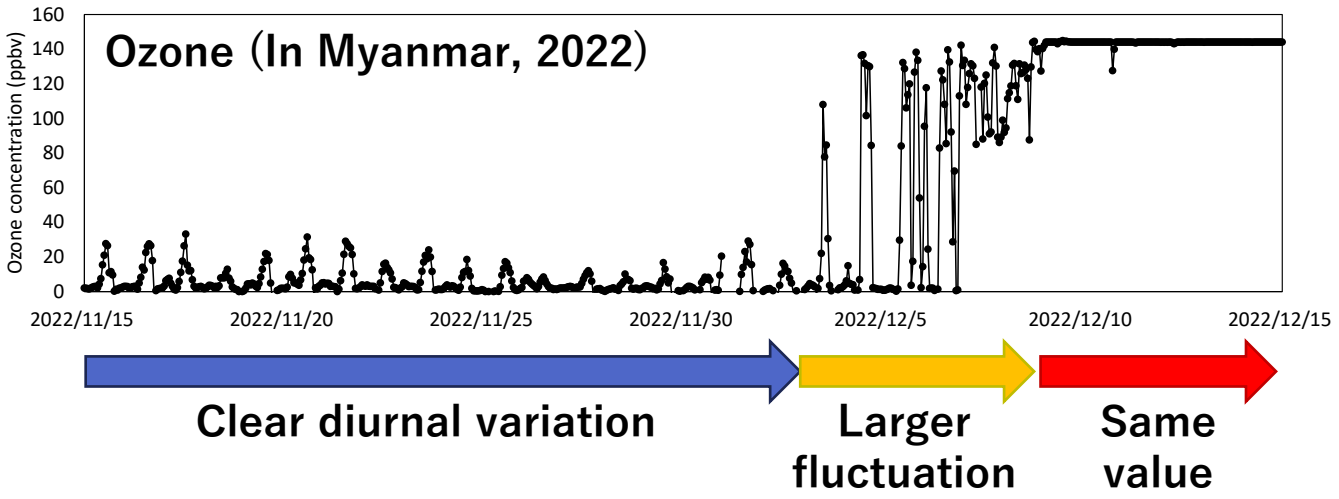


Corrected data of LCS No. 40 at Minh Khai



Troubleshooting

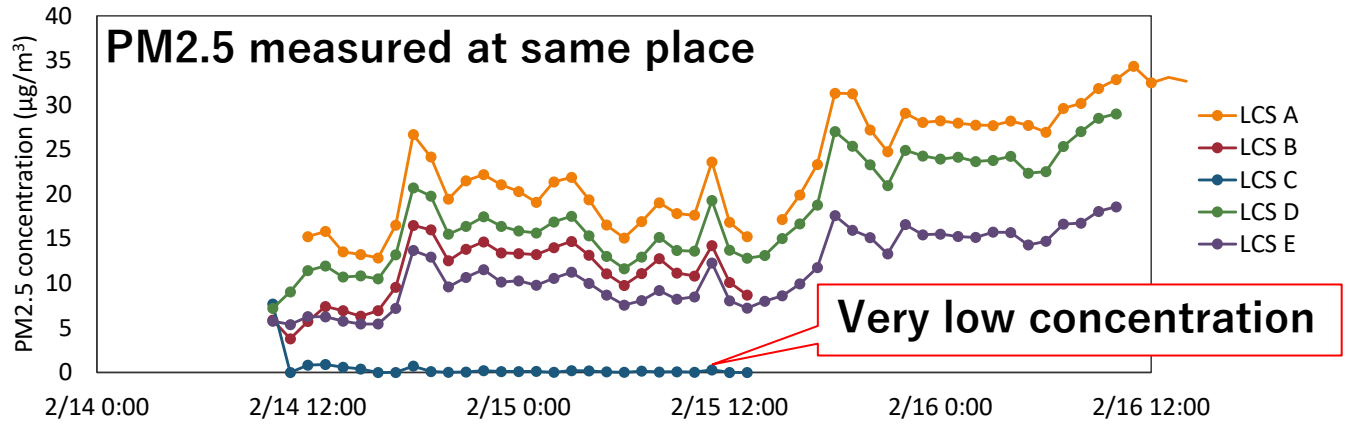
Unstable ozone sensor



According to the discussion with the manufacturer, it seems that ozone sensor had been broken.

Need to be replace the sensor.

Low concentration than others



It seems that PM2.5 sensor was not set vertically.

Need to confirm the position of LCS setting.

Summary

- Data screening should be done after averaging the data and before analyzing data.
- Checking data completeness, drawing figure of temporal variation are useful to pick up the unrealistic data.
- The communication among the manufacturers and users is necessary when finding out unusual data.
- Technical support from the manufacturer is also important point when you choose LCS.