



入江研究室

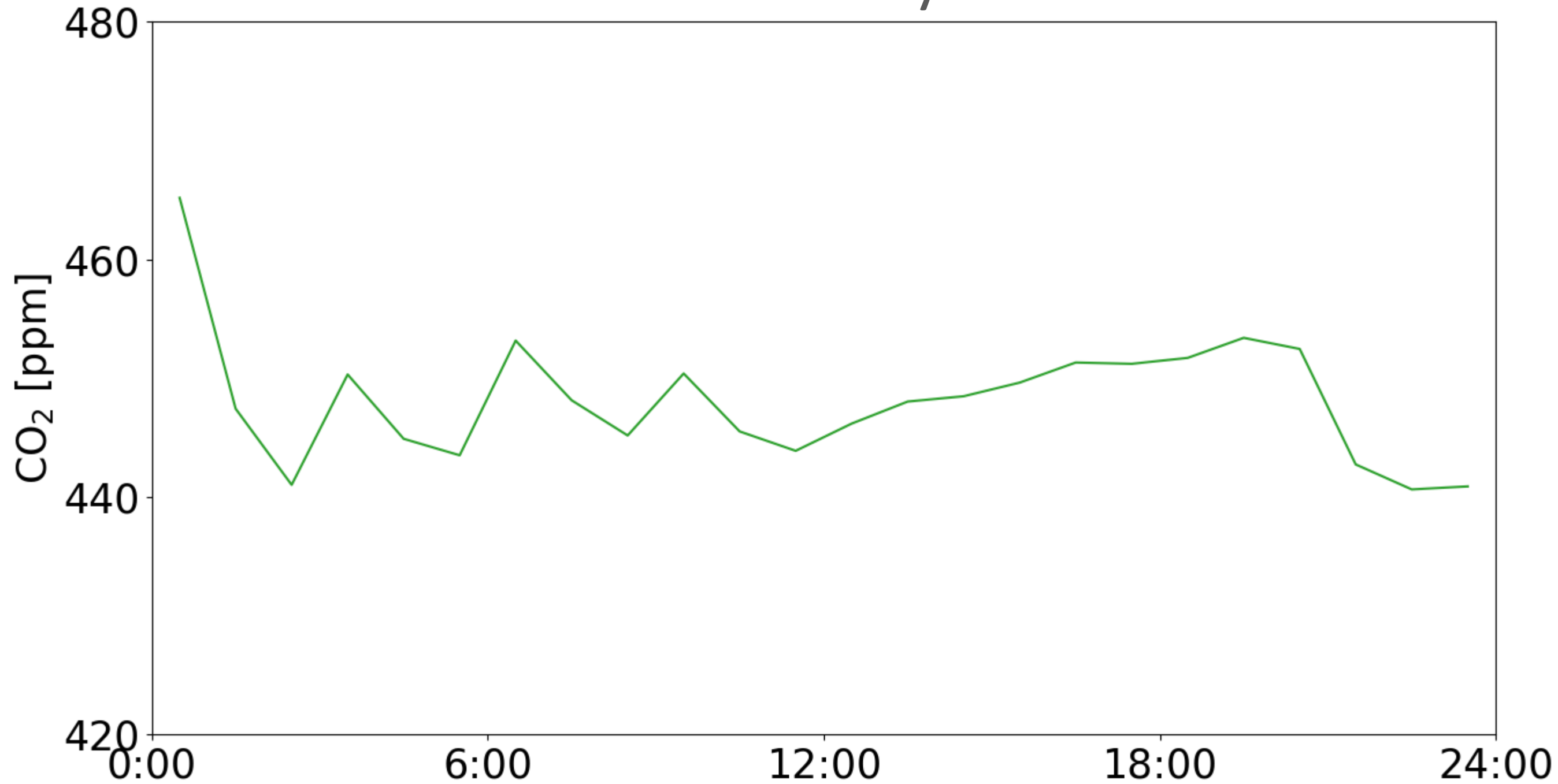
千葉大学環境リモートセンシング研究センター

# Chiba Campaign 2023

M1 野本真孝

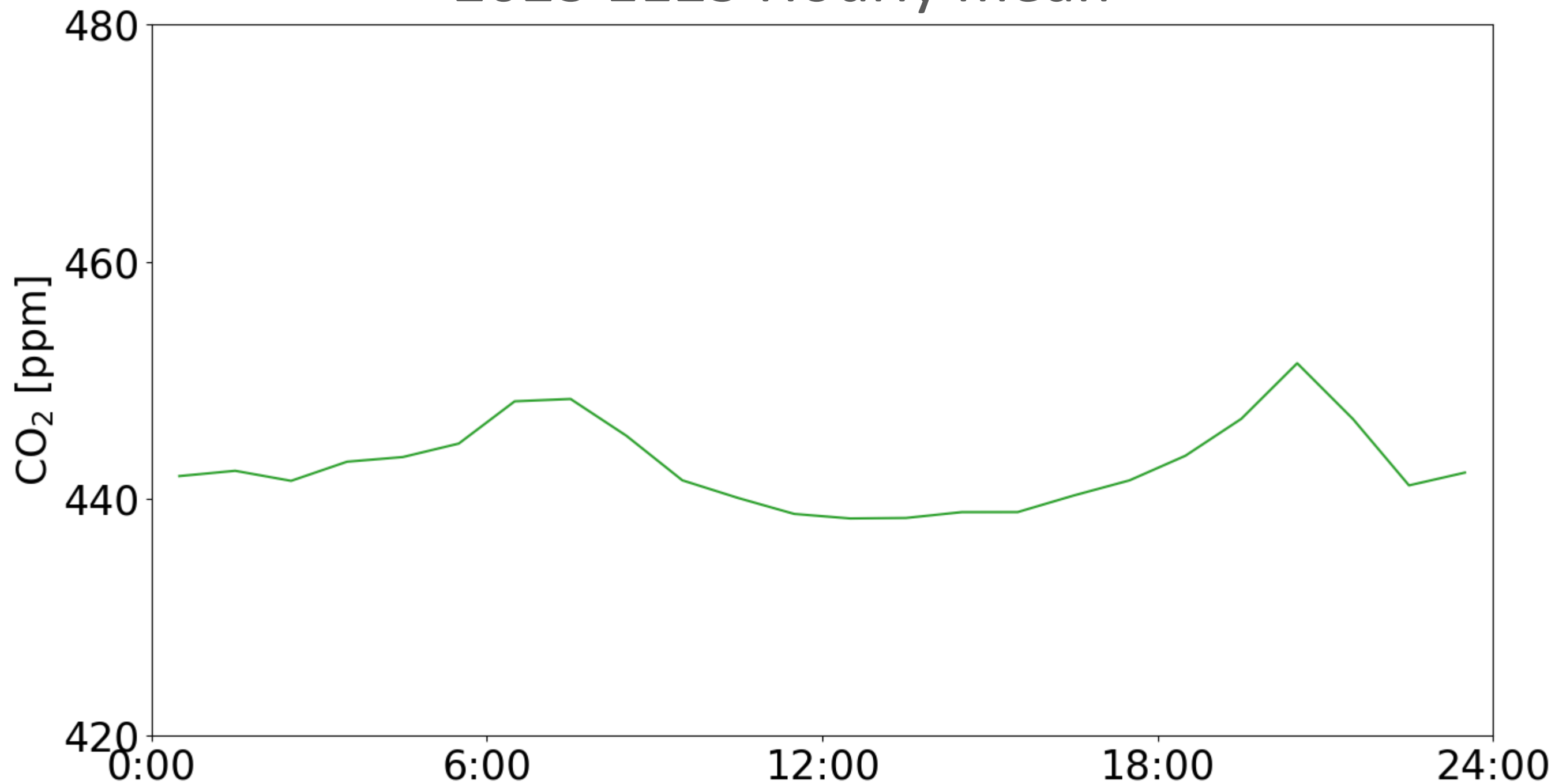


## 2023 1124 Hourly mean



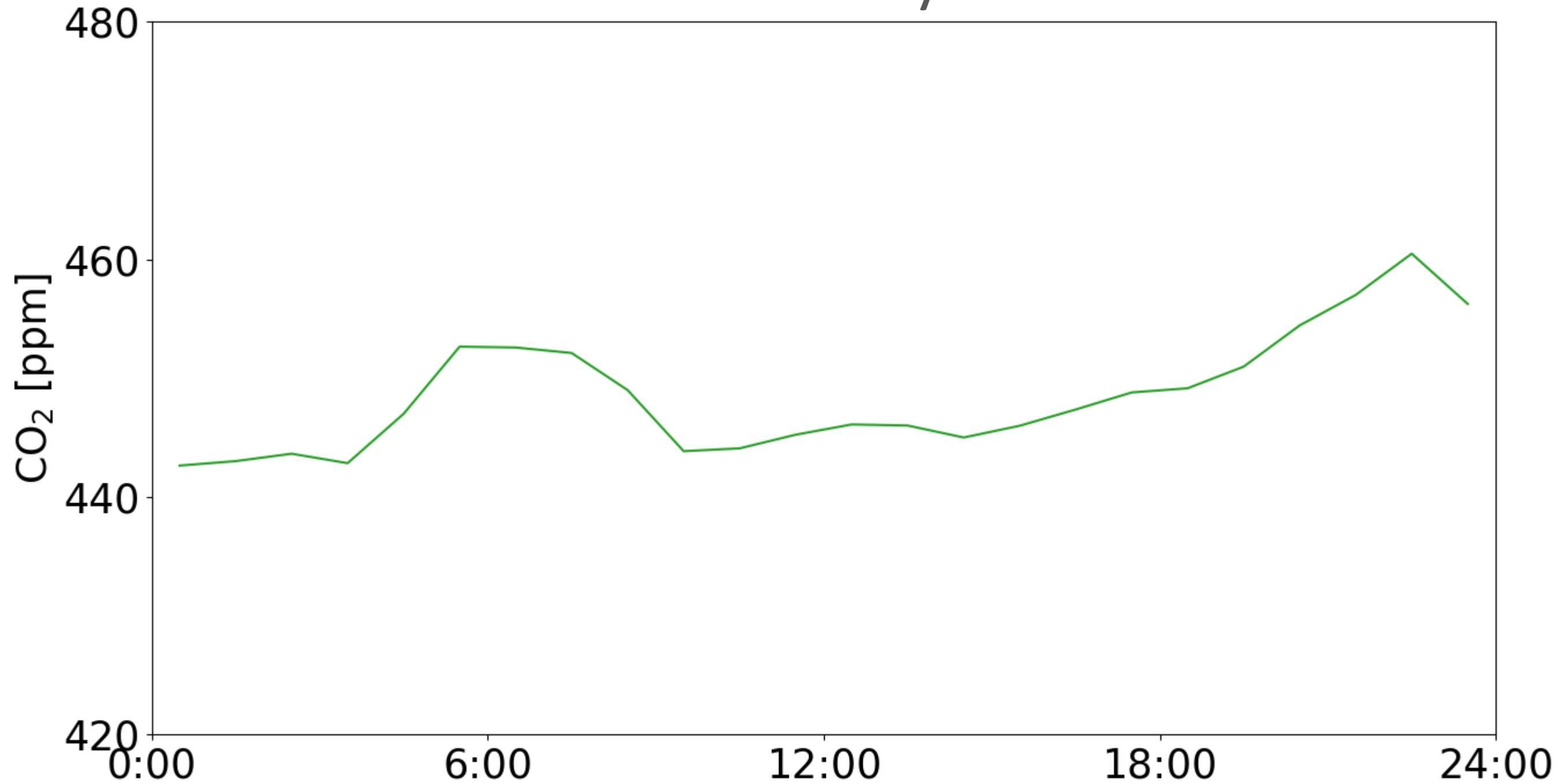
| CO <sub>2</sub> (ppm) |            |
|-----------------------|------------|
| <b>count</b>          | 24.000000  |
| <b>mean</b>           | 448.133987 |
| <b>std</b>            | 5.377347   |
| <b>min</b>            | 440.634418 |
| <b>25%</b>            | 444.641240 |
| <b>50%</b>            | 448.081621 |
| <b>75%</b>            | 451.232665 |
| <b>max</b>            | 465.178765 |

## 2023 1125 Hourly mean



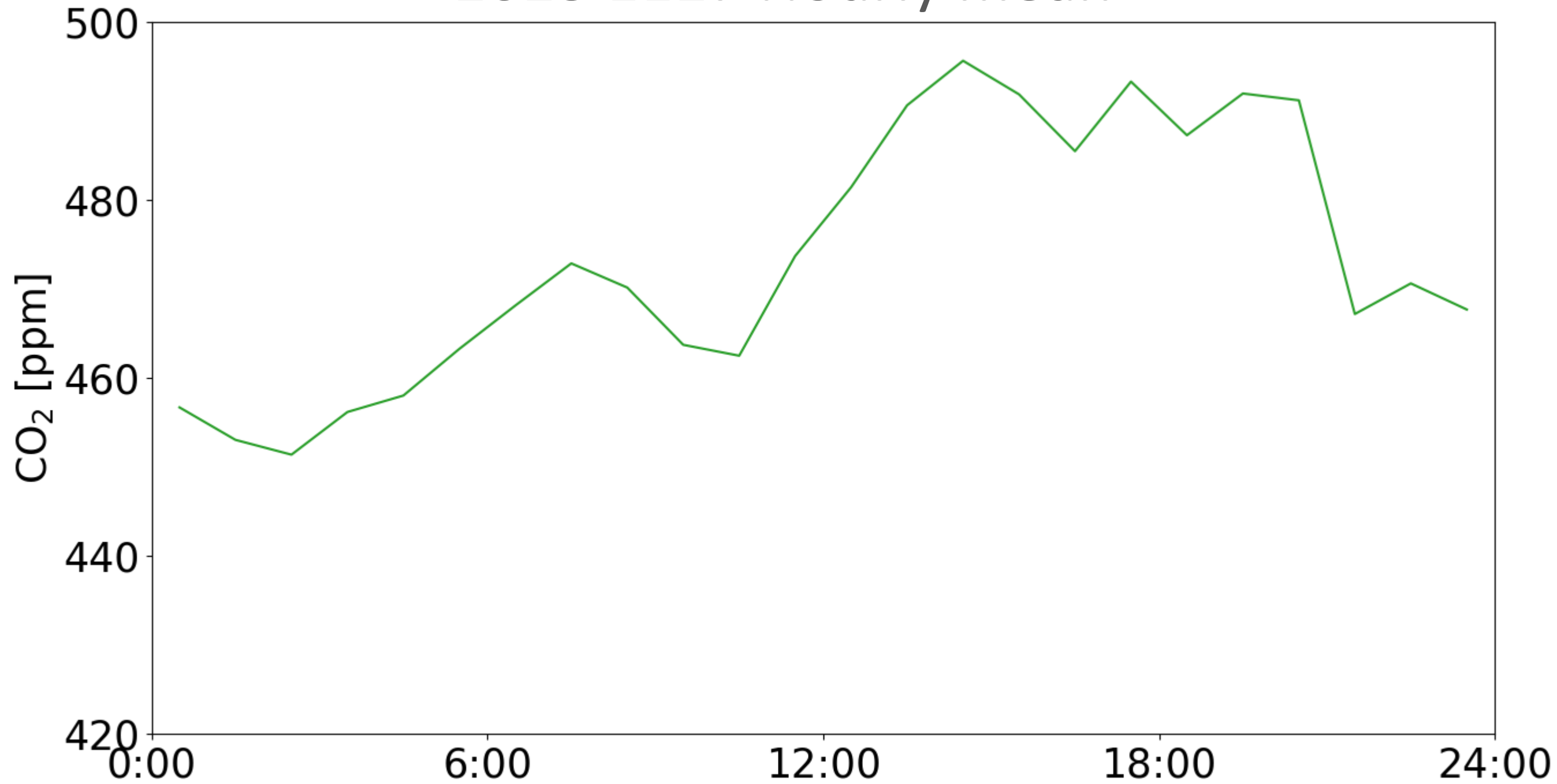
| CO2(ppm)     |            |
|--------------|------------|
| <b>count</b> | 24.000000  |
| <b>mean</b>  | 442.810428 |
| <b>std</b>   | 3.532777   |
| <b>min</b>   | 438.335893 |
| <b>25%</b>   | 440.216972 |
| <b>50%</b>   | 442.056951 |
| <b>75%</b>   | 444.816435 |
| <b>max</b>   | 451.429280 |

## 2023 1126 Hourly mean



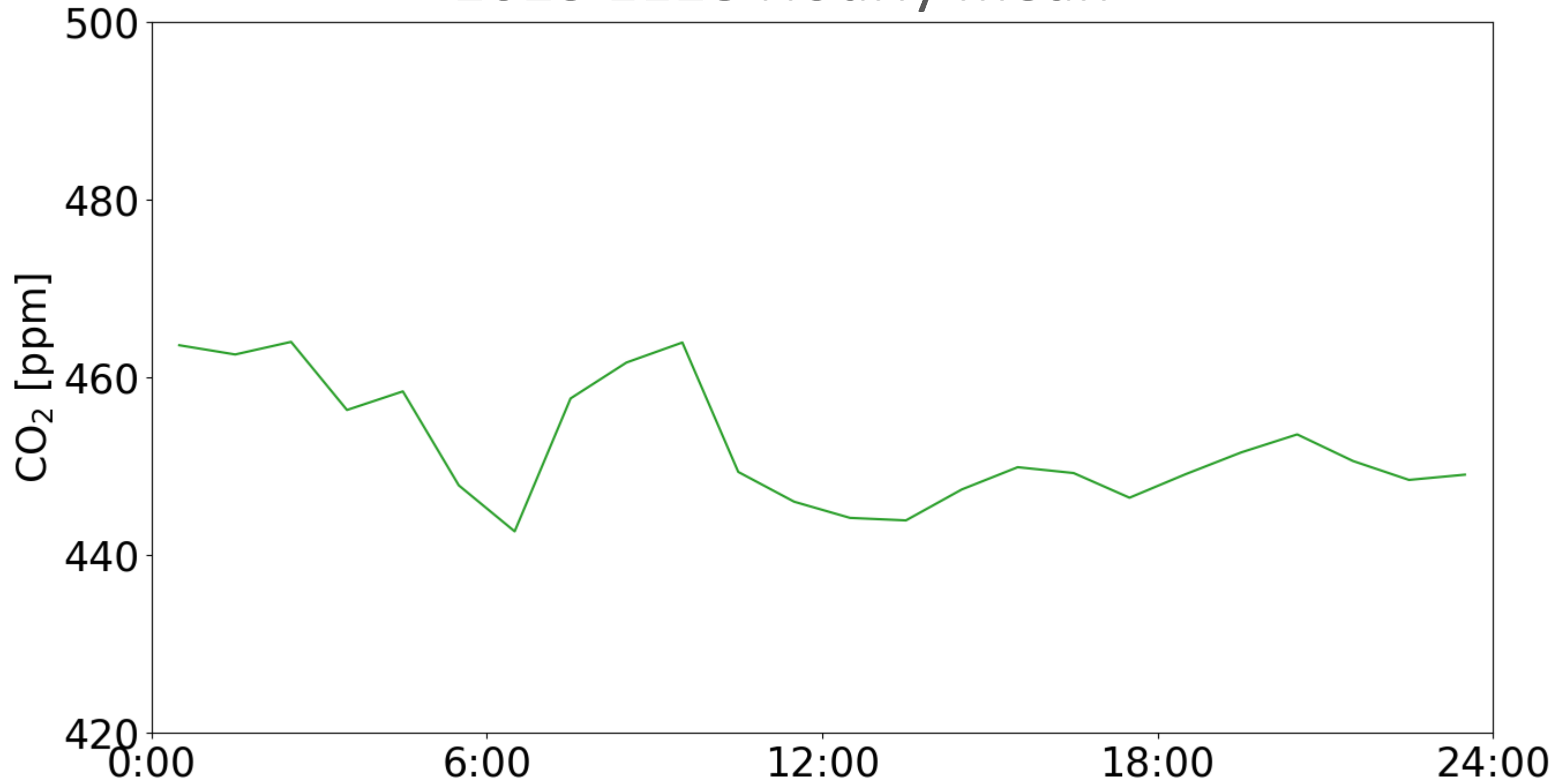
| CO2(ppm)     |            |
|--------------|------------|
| <b>count</b> | 24.000000  |
| <b>mean</b>  | 448.590865 |
| <b>std</b>   | 4.979468   |
| <b>min</b>   | 442.640493 |
| <b>25%</b>   | 444.773754 |
| <b>50%</b>   | 447.178710 |
| <b>75%</b>   | 452.231290 |
| <b>max</b>   | 460.474735 |

## 2023 1127 Hourly mean



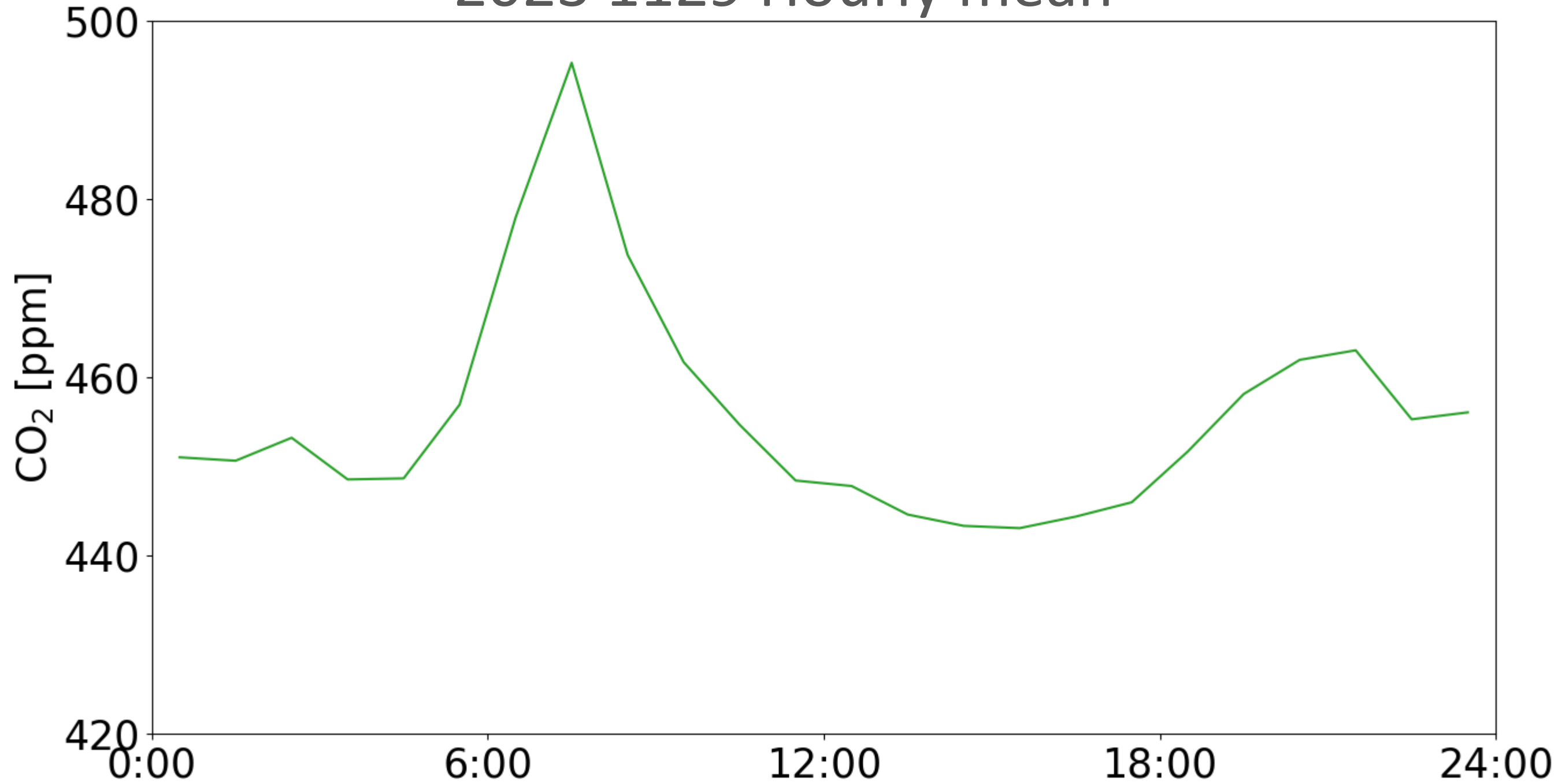
| CO <sub>2</sub> (ppm) |            |
|-----------------------|------------|
| <b>count</b>          | 24.000000  |
| <b>mean</b>           | 473.524866 |
| <b>std</b>            | 14.355293  |
| <b>min</b>            | 451.400173 |
| <b>25%</b>            | 463.100737 |
| <b>50%</b>            | 470.416311 |
| <b>75%</b>            | 488.144826 |
| <b>max</b>            | 495.674798 |

## 2023 1128 Hourly mean



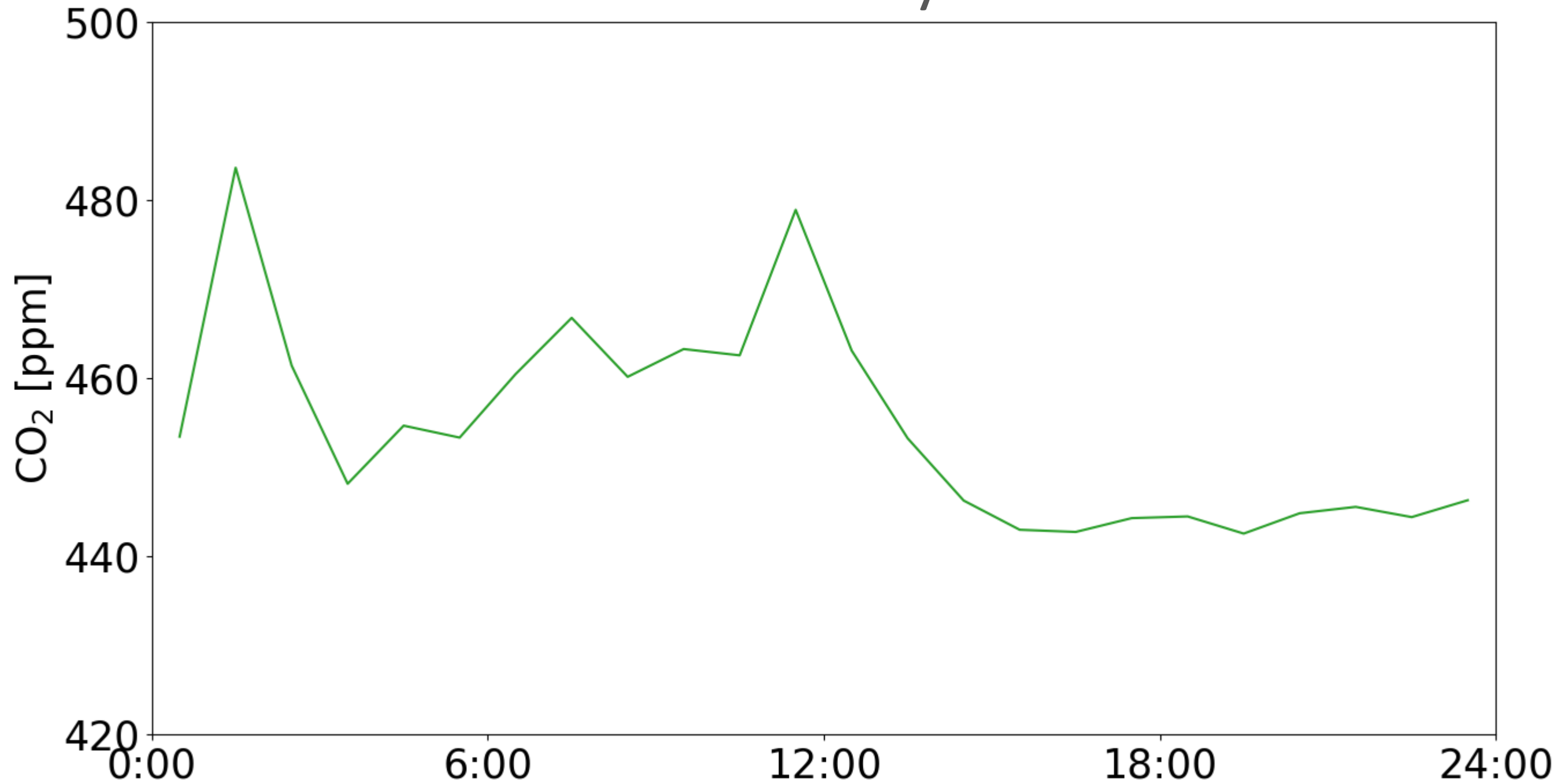
| CO <sub>2</sub> (ppm) |            |
|-----------------------|------------|
| <b>count</b>          | 24.000000  |
| <b>mean</b>           | 452.417815 |
| <b>std</b>            | 6.875183   |
| <b>min</b>            | 442.689500 |
| <b>25%</b>            | 447.757051 |
| <b>50%</b>            | 449.649151 |
| <b>75%</b>            | 457.852915 |
| <b>max</b>            | 464.023357 |

## 2023 1129 Hourly mean



| CO <sub>2</sub> (ppm) |            |
|-----------------------|------------|
| <b>count</b>          | 24.000000  |
| <b>mean</b>           | 455.696148 |
| <b>std</b>            | 12.285025  |
| <b>min</b>            | 443.101107 |
| <b>25%</b>            | 448.288716 |
| <b>50%</b>            | 452.467768 |
| <b>75%</b>            | 459.046448 |
| <b>max</b>            | 495.330782 |

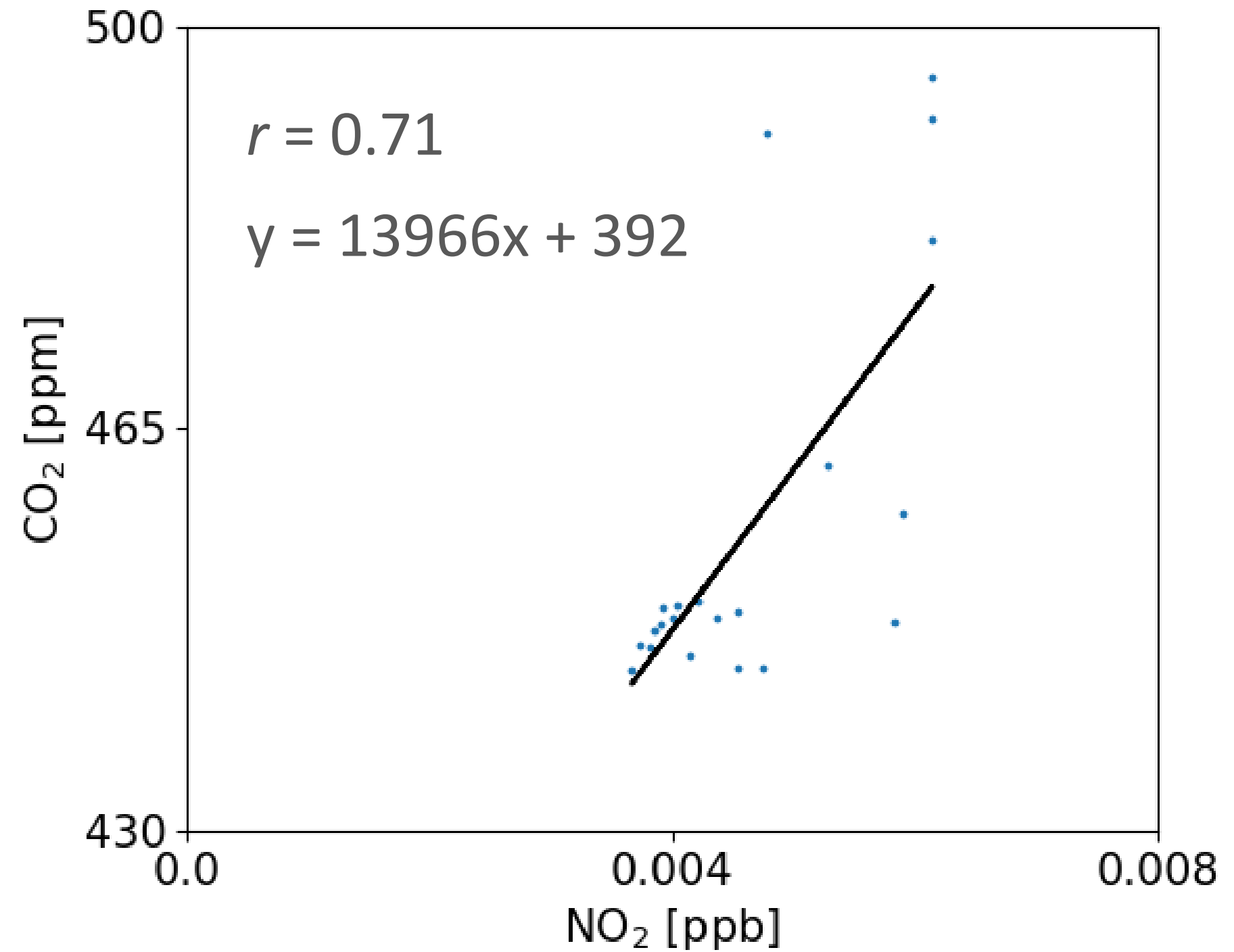
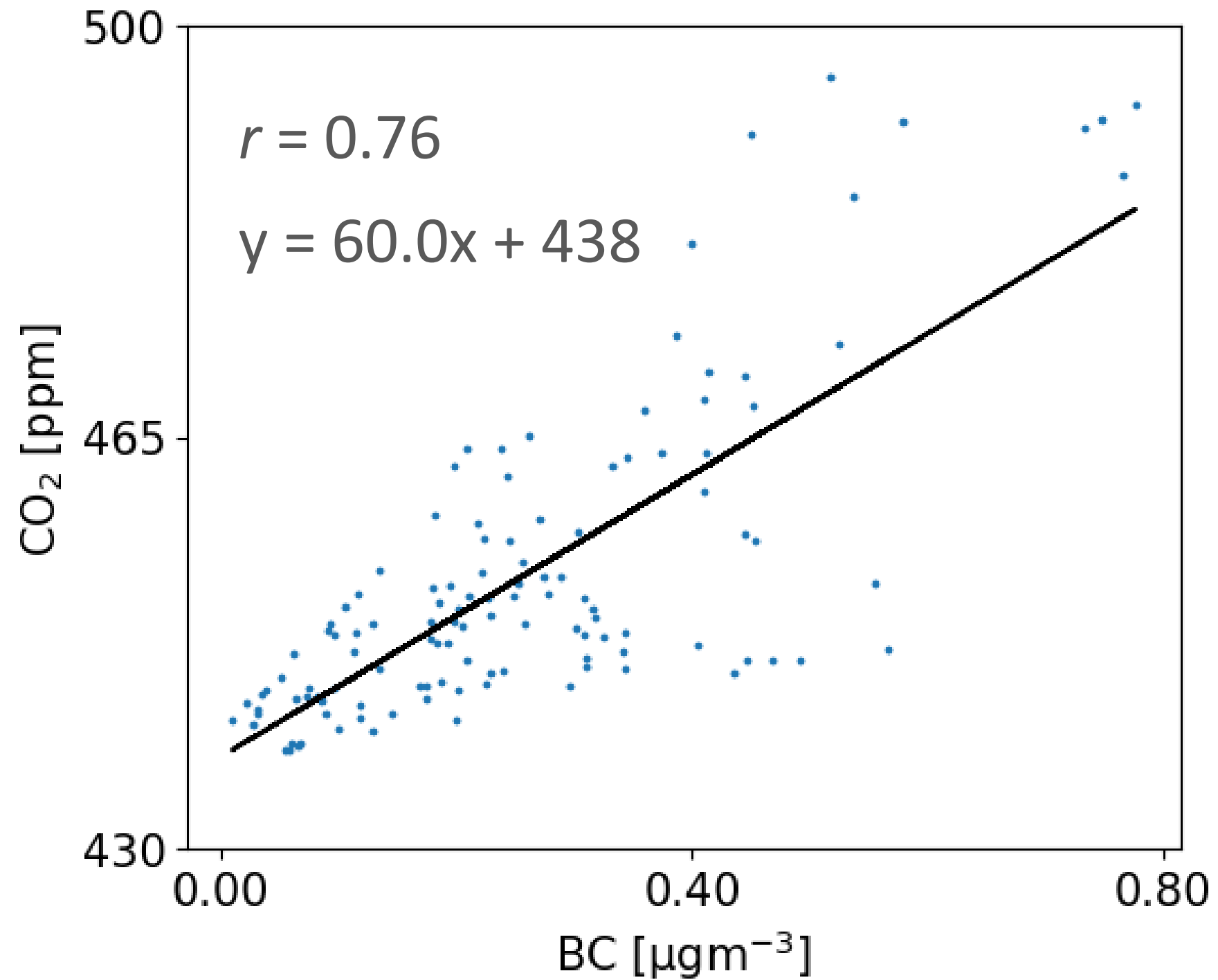
## 2023 1130 Hourly mean



| CO2(ppm) |            |
|----------|------------|
| count    | 24.000000  |
| mean     | 454.504667 |
| std      | 11.423646  |
| min      | 442.574300 |
| 25%      | 444.769798 |
| 50%      | 453.313392 |
| 75%      | 461.733526 |
| max      | 483.664477 |



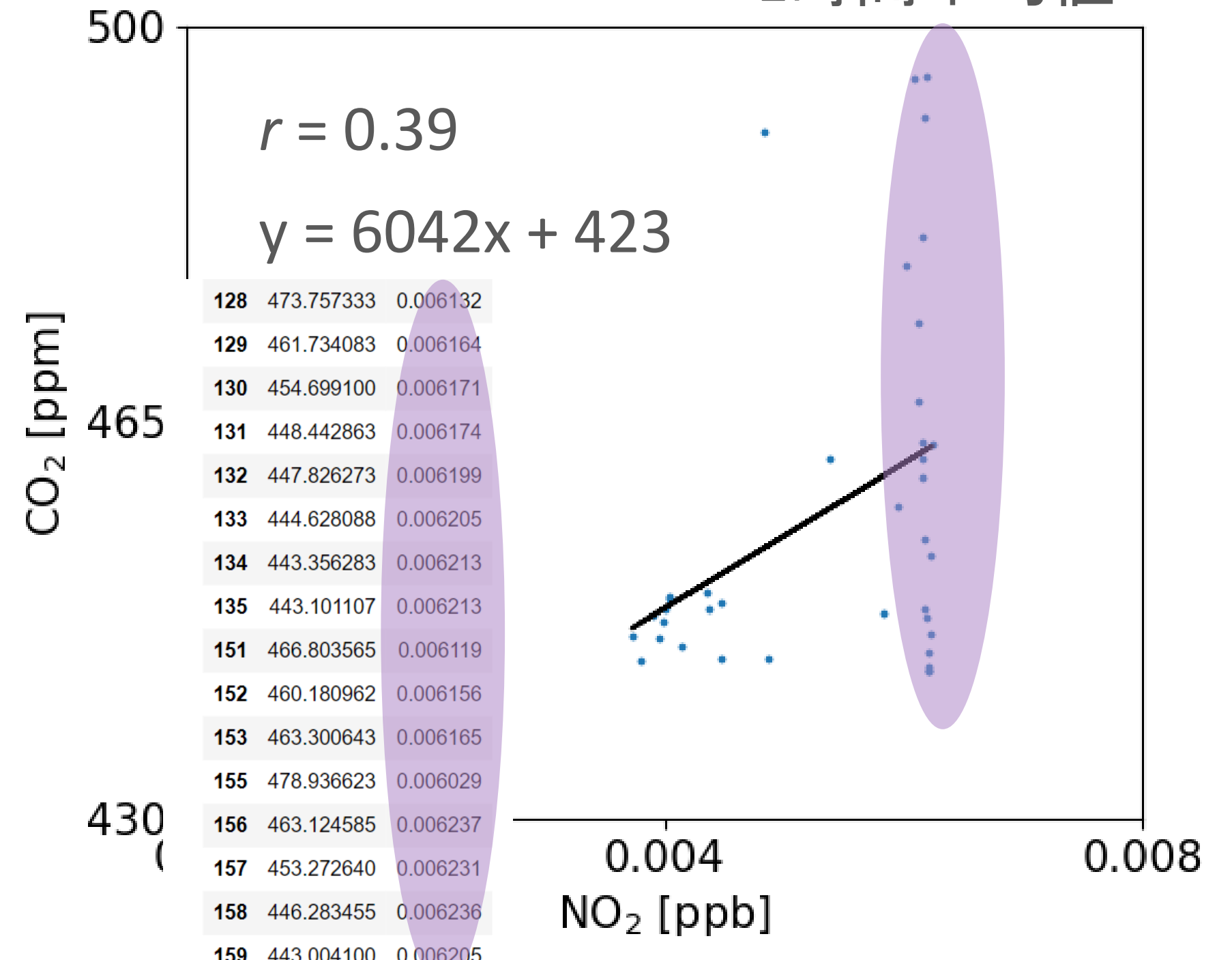
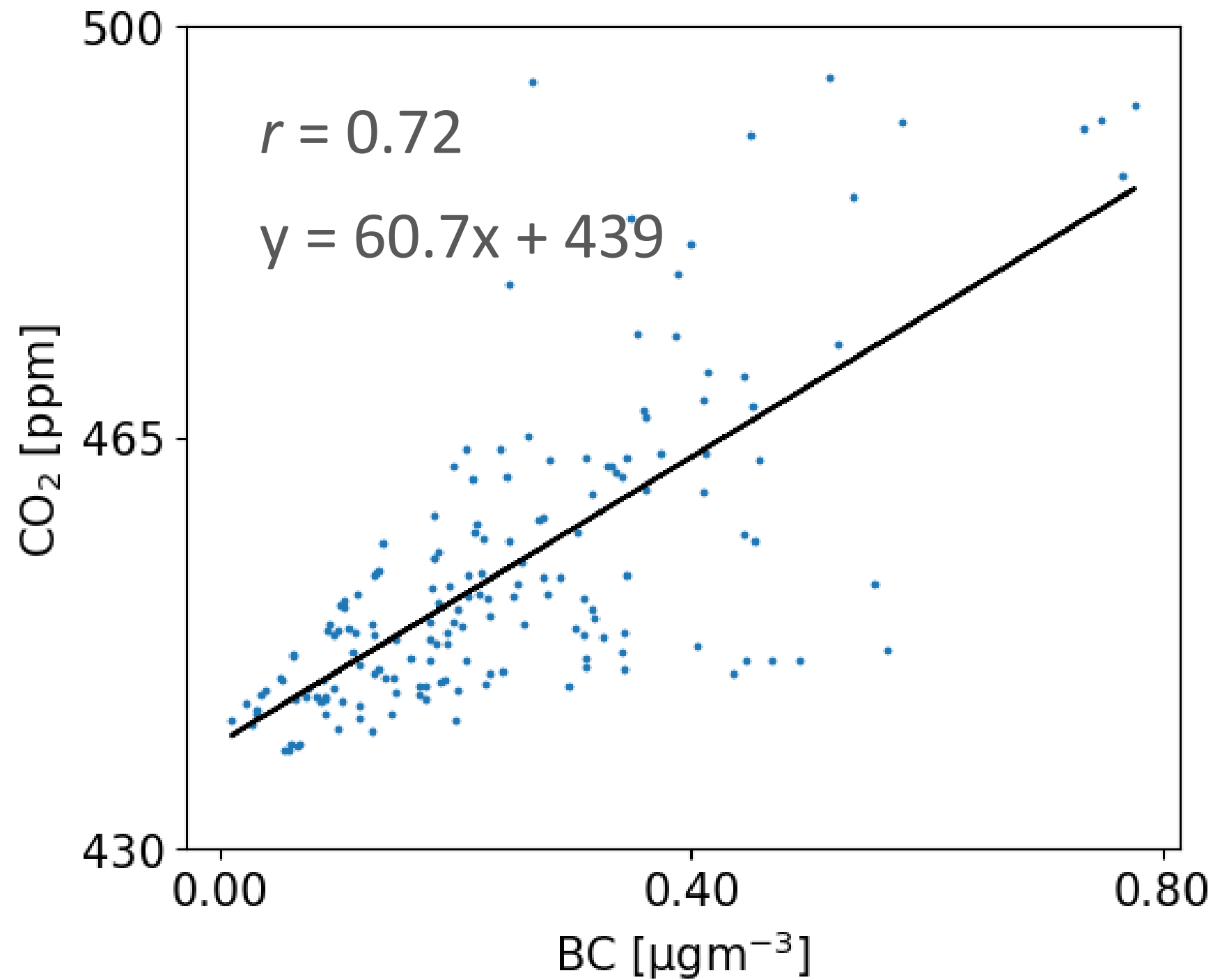
2023 1124 - 1128 Hourly mean



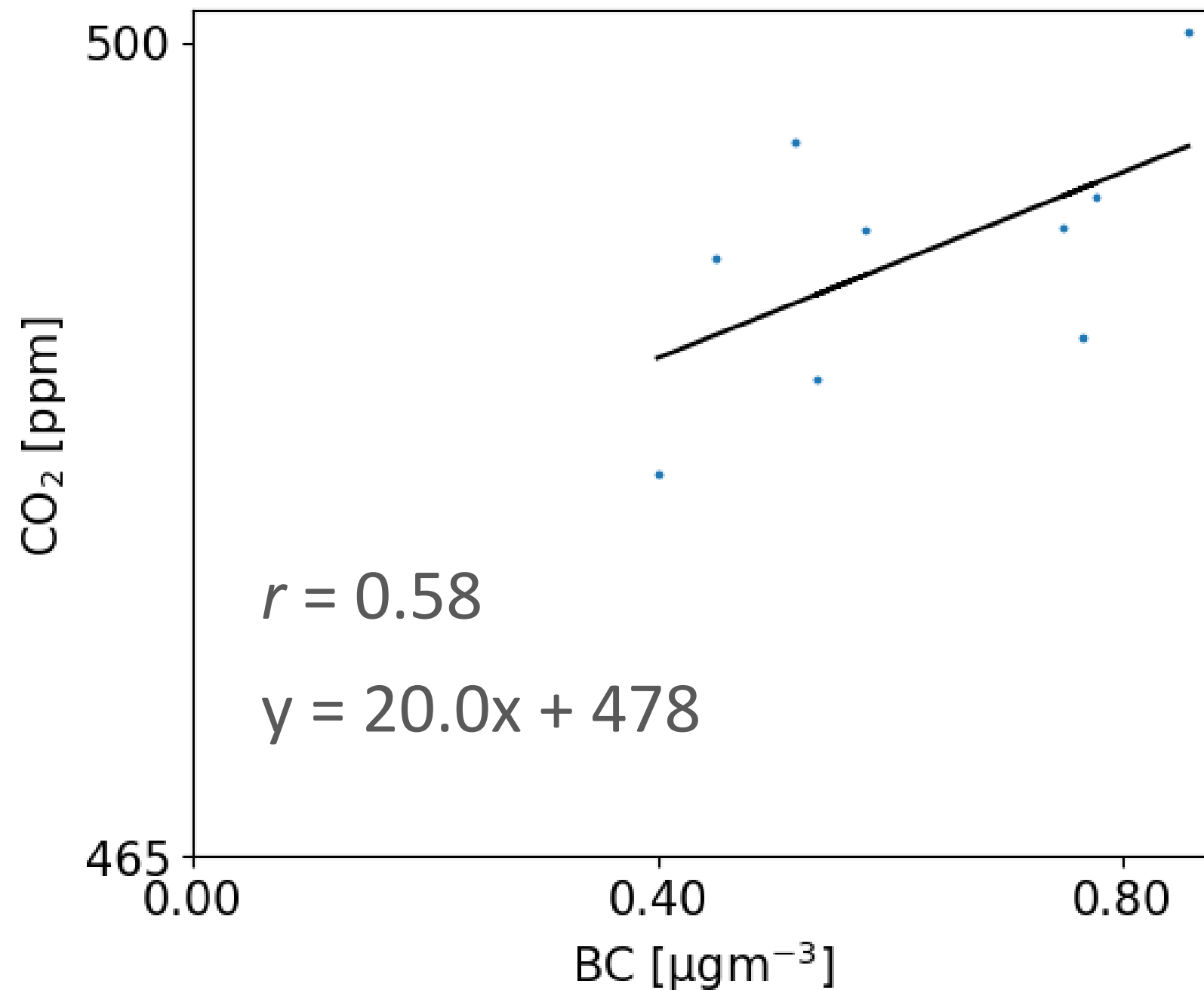
2023 1124 - 1130 Hourly mean

1129 - 30はほぼ同じ

1時間平均値



## 2023 1127 12:00 – 20:00 Hourly mean



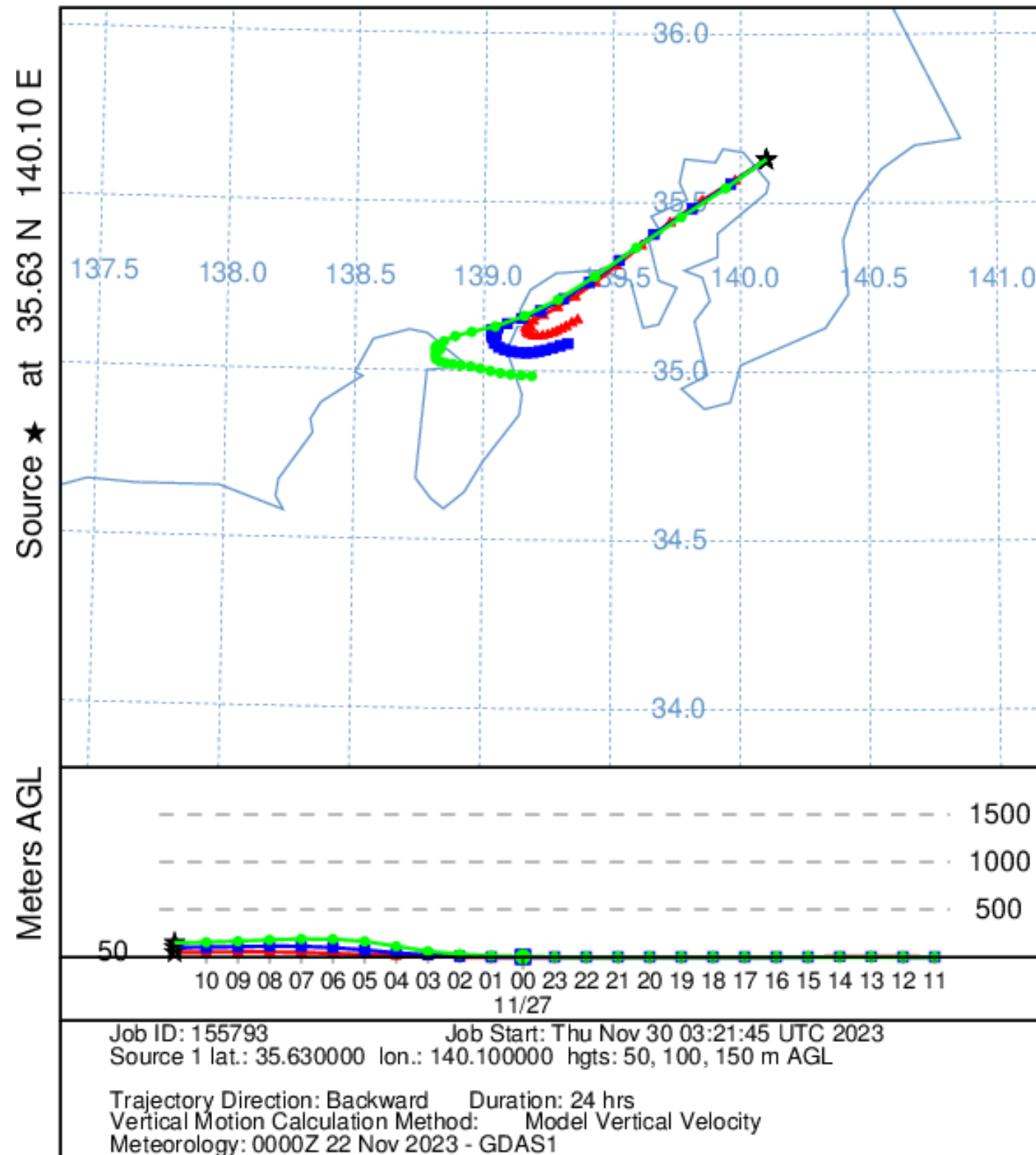
|              | CO2        | BC       |
|--------------|------------|----------|
| <b>count</b> | 9.000000   | 9.000000 |
| <b>mean</b>  | 490.917145 | 0.625717 |
| <b>std</b>   | 5.617834   | 0.163656 |
| <b>min</b>   | 481.461702 | 0.400140 |
| <b>25%</b>   | 487.303438 | 0.518043 |
| <b>50%</b>   | 491.897257 | 0.579486 |
| <b>75%</b>   | 493.328522 | 0.766138 |
| <b>max</b>   | 500.413350 | 0.856453 |

27日の高濃度  
時間帯を解析

BCとは大きな相関が  
見られず。



NOAA HYSPLIT MODEL  
Backward trajectories ending at 1100 UTC 27 Nov 23  
GDAS Meteorological Data



20:00時点では、空気塊が南西から輸送されてきた。

千葉みなとの工場方面からの大気輸送。観測されたCO<sub>2</sub>は人為起源の可能性が考えられる。



[ARL Home](#) > [READY](#) > [Transport & Dispersion Modeling](#) > [HYSPLIT](#) > [HYSPLIT Trajectory Model Results](#)



### HYSPLIT MODEL RESULTS FOR JOB NUMBER 113143

**Model Status:**

```
*****  
*****  
The model has crashed. Check the HYSPLIT Message file for  
further information.  
*****
```

If the message above says **Unable to find file:**, the file is probably being updated and will be available shortly (try your run again in a few minutes). If the message above says **\*ERROR\* metpos: start point not within (x,y,t) any data file**, your starting location is not in the meteorological domain or the starting time is not in the meteorological file. Look at the HYSPLIT message file or any further information mentioned below for other possible reasons for the failure.

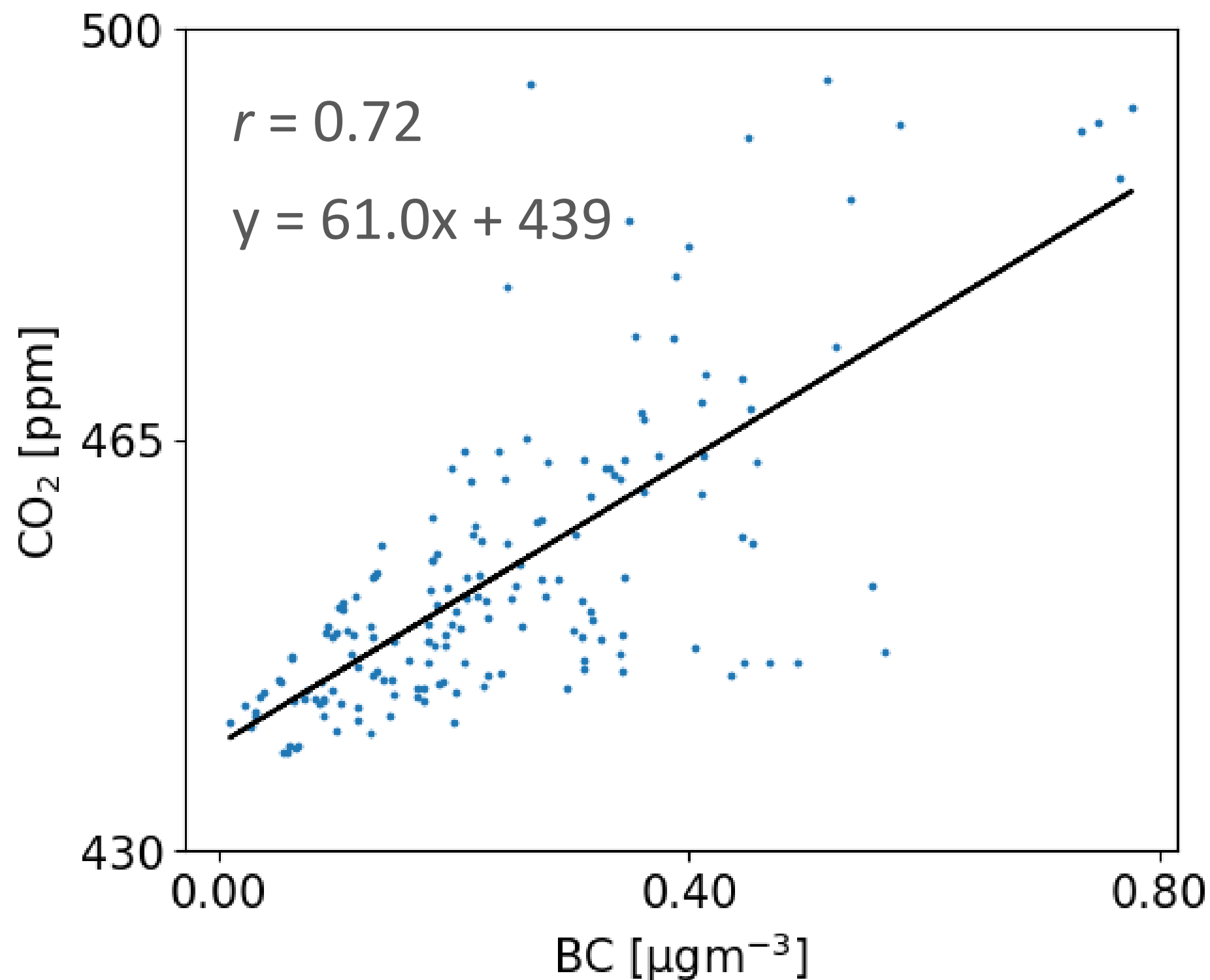
- [HYSPLIT SETUP file.](#)
- [HYSPLIT CONTROL file.](#)
- [HYSPLIT MESSAGE \(diagnostics\) file.](#)
  - [MESSAGE file format help \(pdf\)](#)

[Return to main menu \(keep user inputs\)](#)

[Return to main menu \(clear user inputs\)](#)

29日の高濃度帯のバックトラ  
ジェクトリー解析を実行しよう  
とするも、何度もエラー表示。

2023 1124 - 1130 Hourly mean



大気境界層の高度は日内変動するため、日中(6:00 – 18:00)と夜間(18:00 – 翌6:00)で分けて解析。

左図は日中の解析結果。  
夜間はコードが上手く行かず、まだ解析できていない。

```
df_1_1 = df_1.loc[(df_1["DN"]>=328)&(df_1["DN"]<=334)]  
df_1_2 = df_1_1.loc[(df_1_1["Hour"]<=6)&(df_1_1["Hour"]>=18)]  
df_1_2
```

Out[260]:

| Year | Month | Day | Hour | DN | H2O(ppm) | CO2(ppm) | CH4(ppb) |
|------|-------|-----|------|----|----------|----------|----------|
|------|-------|-----|------|----|----------|----------|----------|

In [248]: co2\_list = []

(どなたか教えてください...)