入江研究室
A-SKY
Irie Lab
Air Quality & Sky Research Laboratory
千葉大学環境リモートセンシング研究センター

Chiba Campaign 2023

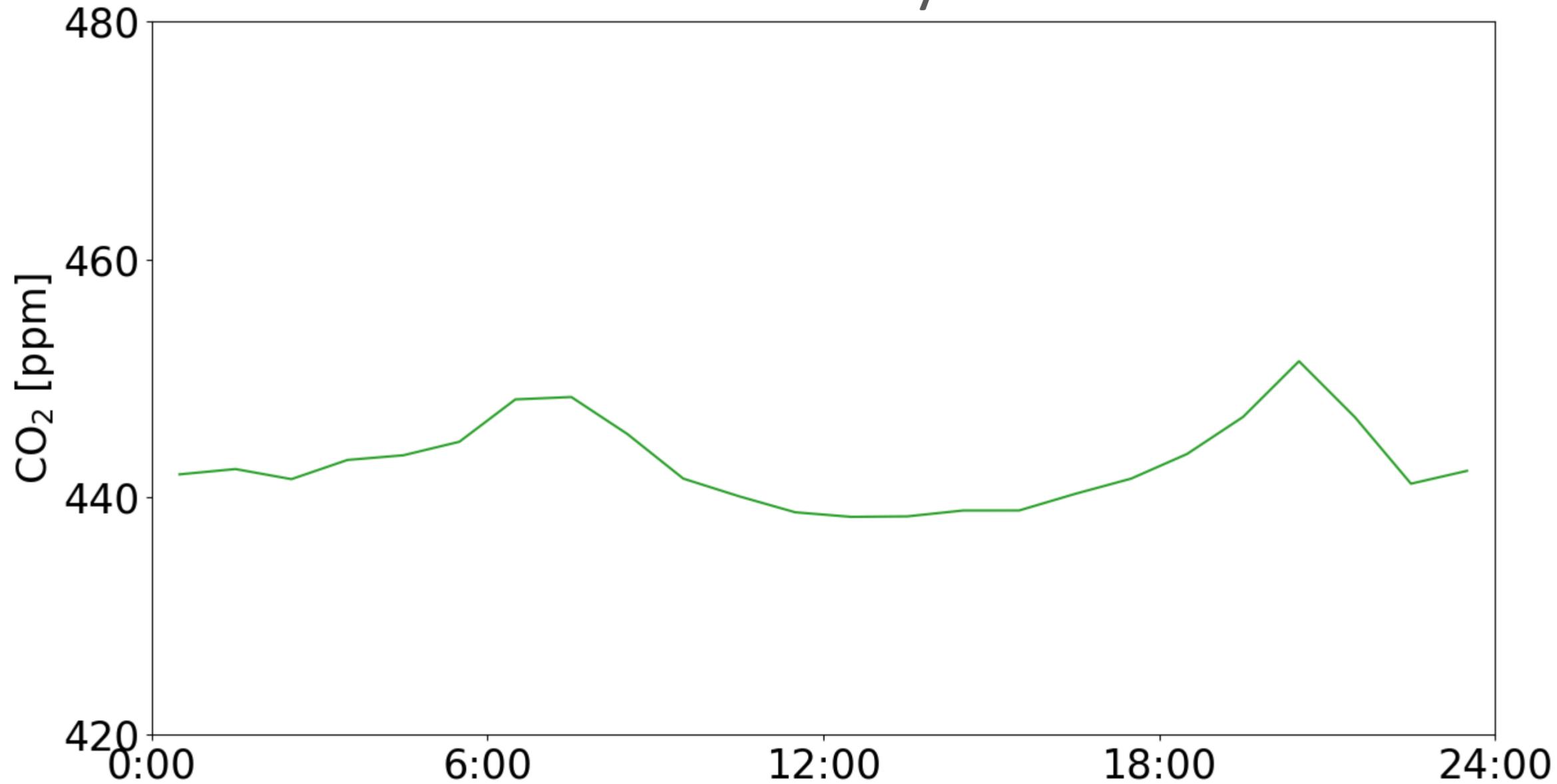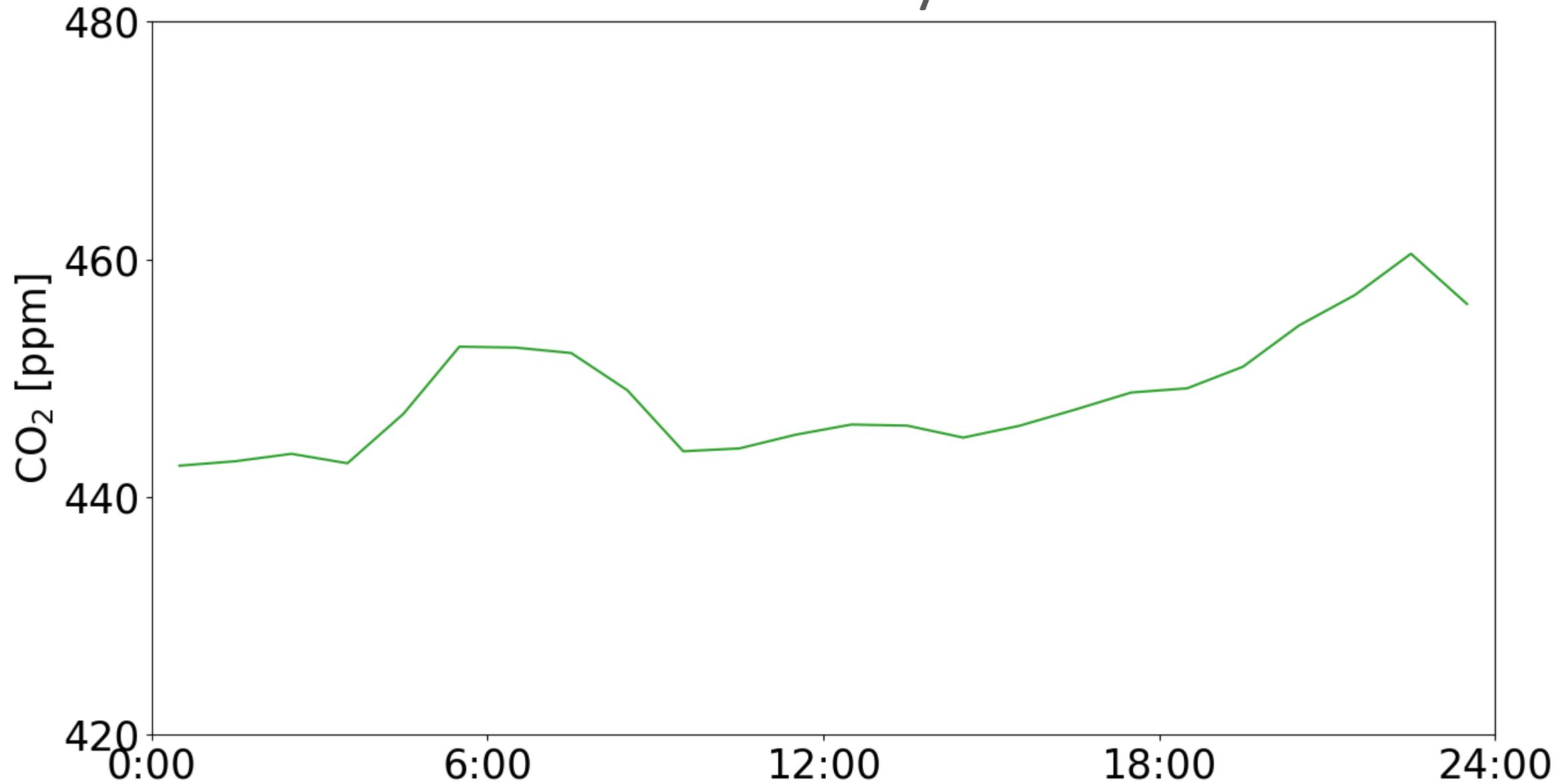M1　野本 真孝

2023 1124 Hourly mean
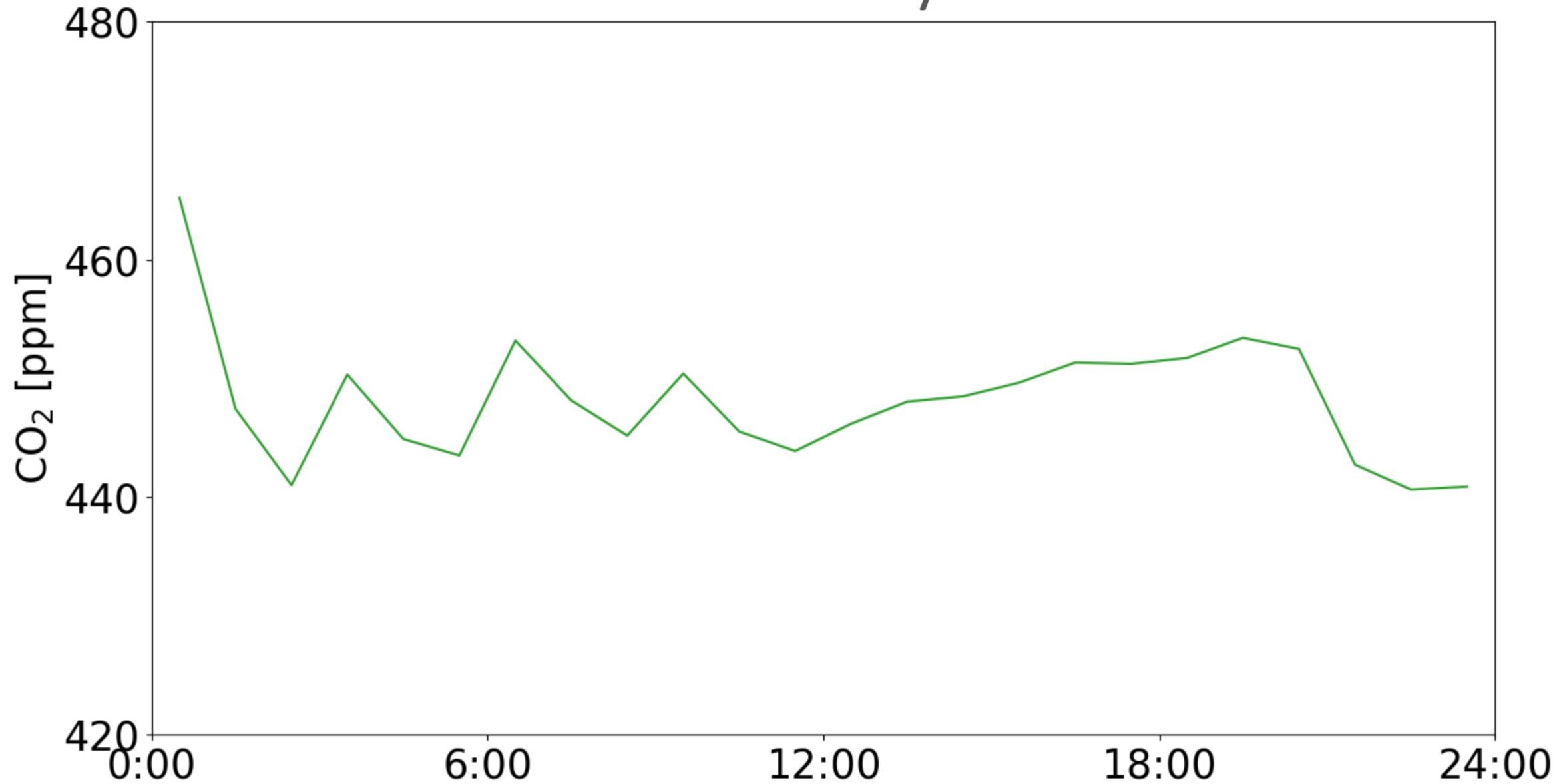
	CO2(ppm)
count	24.000000
mean	448.133987
std	5.377347
min	440.634418
25%	444.641240
50%	448.081621
75%	451.232665
max	465.178765

2023 1125 Hourly mean

	CO2(ppm)
count	24.000000
mean	442.810428
std	3.532777
min	438.335893
25%	440.216972
50%	442.056951
75%	444.816435
max	451.429280

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2023 1126 Hourly mean

	CO2(ppm)
count	24.000000
mean	448.590865
std	4.979468
min	442.640493
25%	444.773754
50%	447.178710
75%	452.231290
max	460.474735

2023 1127 Hourly mean
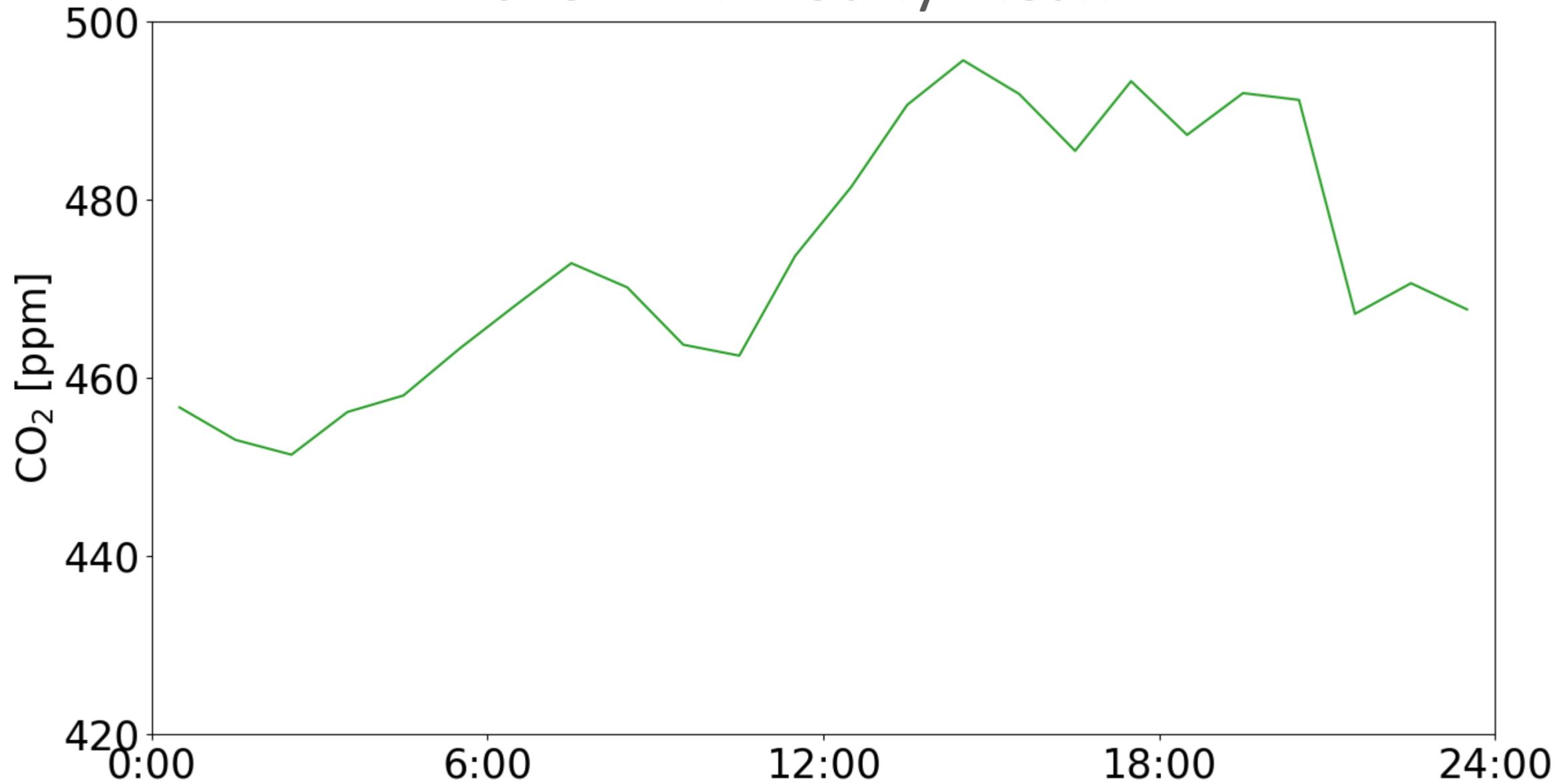
	CO2(ppm)
count	24.000000
mean	473.524866
std	14.355293
min	451.400173
25%	463.100737
50%	470.416311
75%	488.144826
max	495.674798

2023 1128 Hourly mean
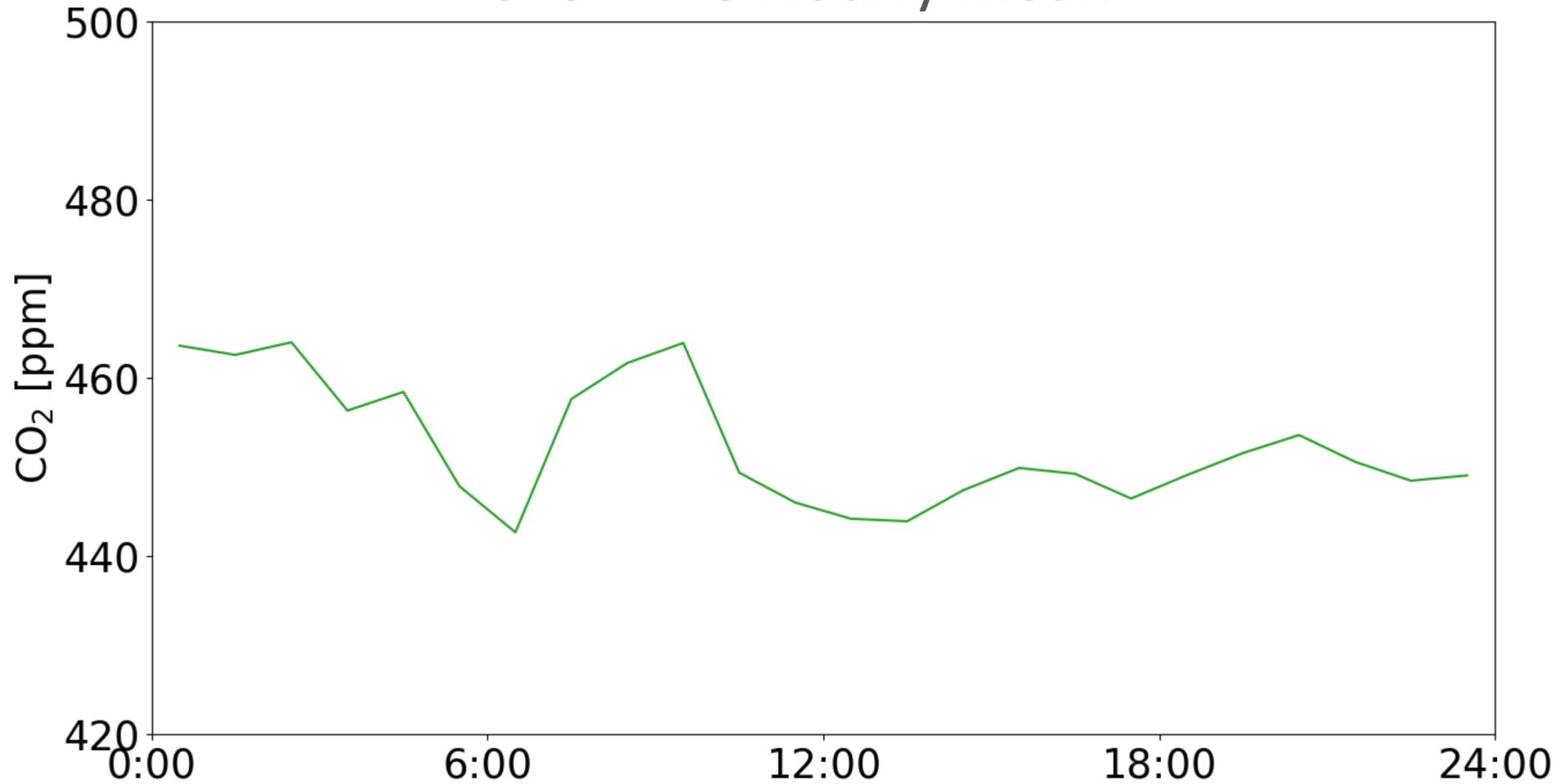
	CO2(ppm)
count	24.000000
mean	452.417815
std	6.875183
min	442.689500
25%	447.757051
50%	449.649151
75%	457.852915
max	464.023357

2023 1129 Hourly mean
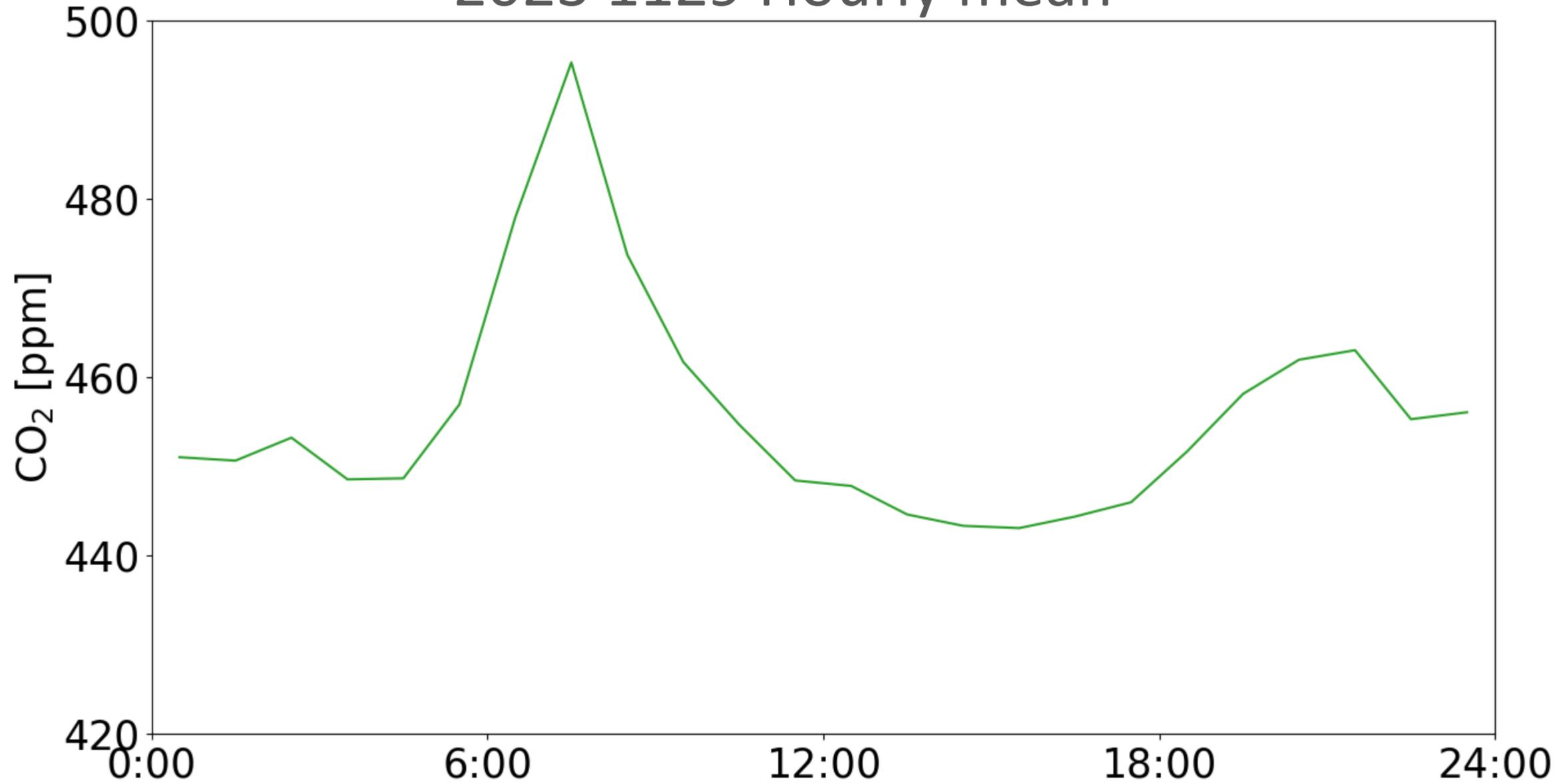
	CO2(ppm)
count	24.000000
mean	455.696148
std	12.285025
min	443.101107
25%	448.288716
50%	452.467768
75%	459.046448
max	495.330782

2023 1130 Hourly mean
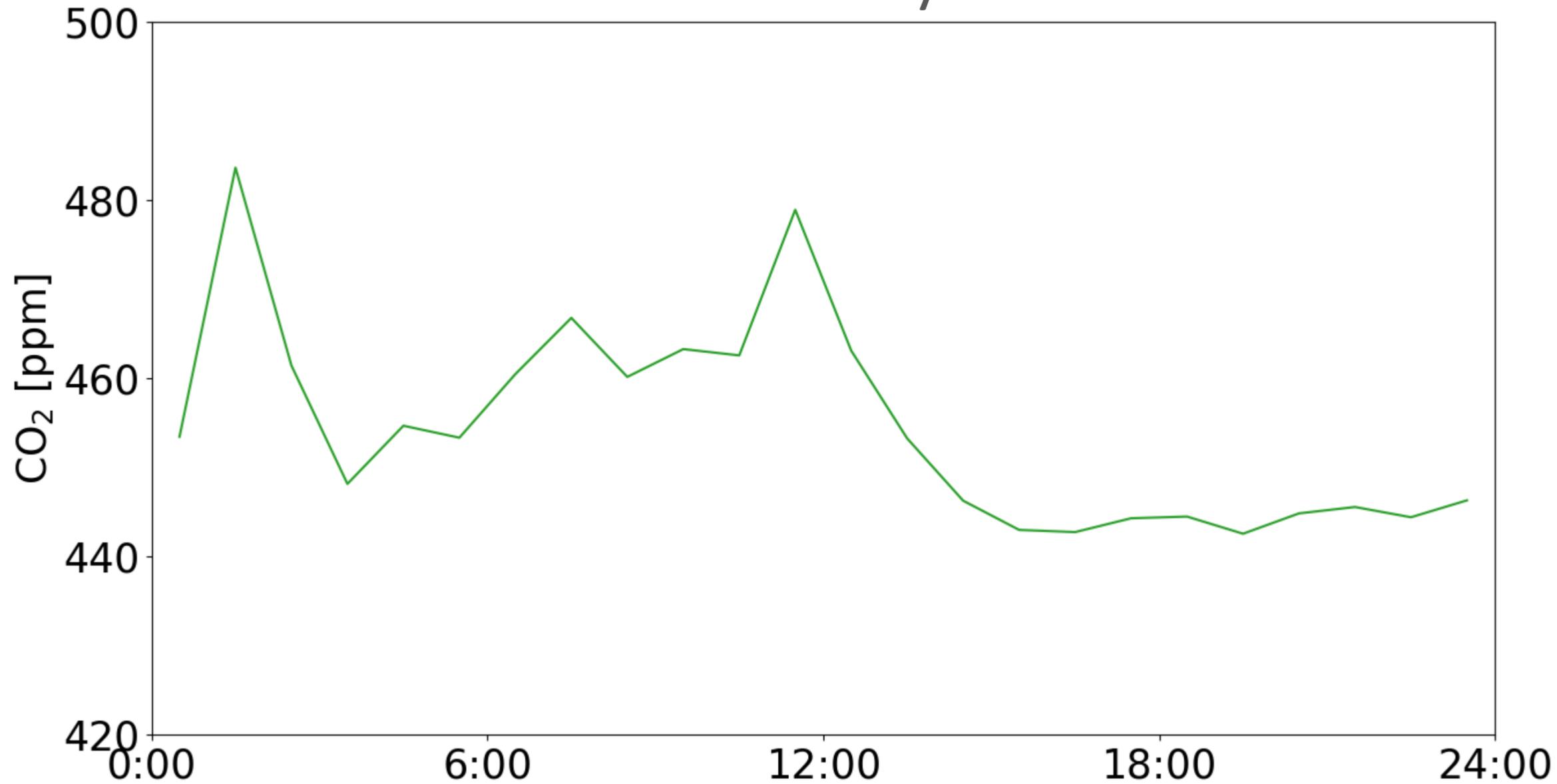
	CO2(ppm)
count	24.000000
mean	454.504667
std	11.423646
min	442.574300
25%	444.769798
50%	453.313392
75%	461.733526
max	483.664477

2023 1201 Hourly mean
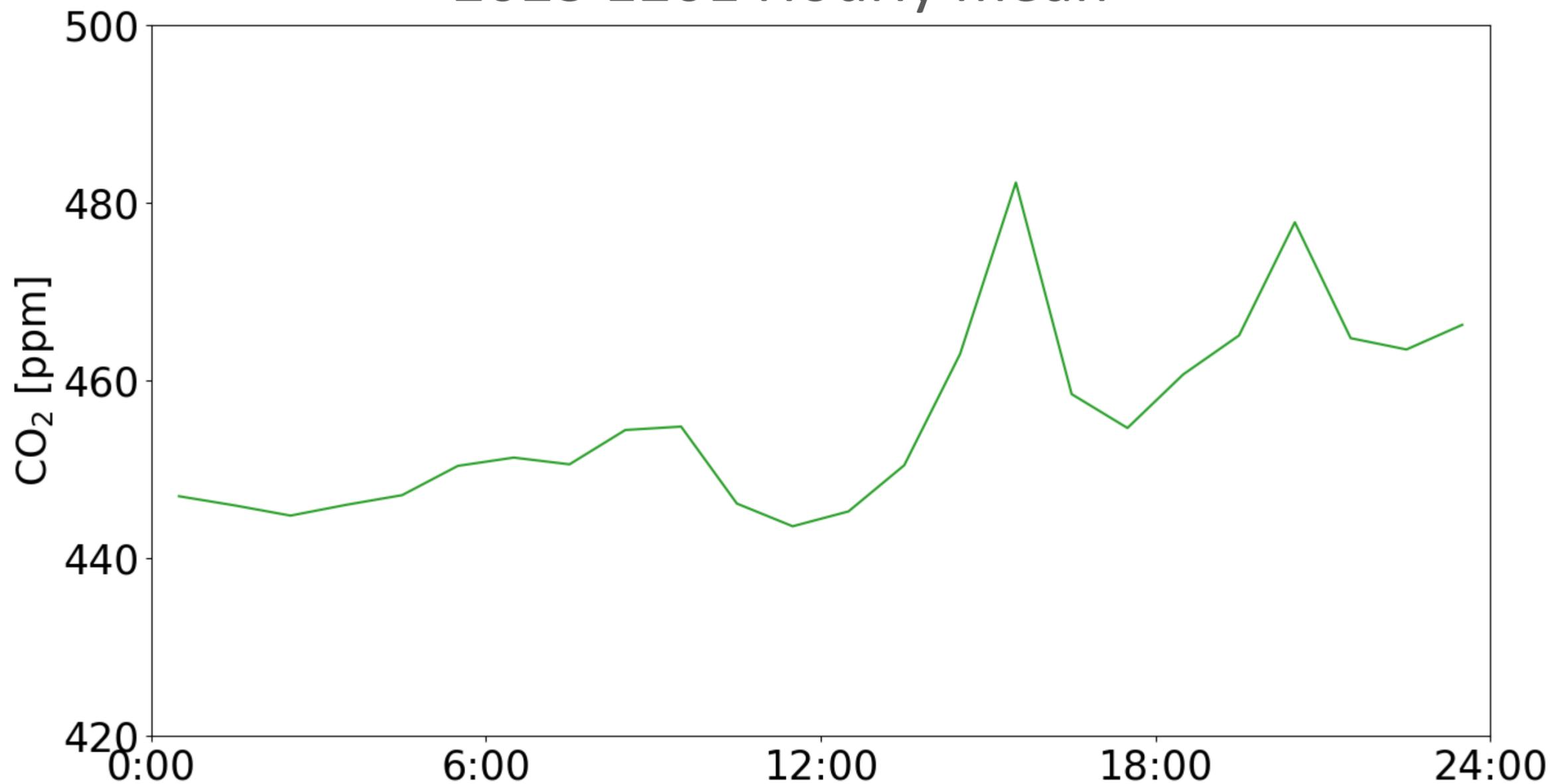
	CO2(ppm)
count	24.000000
mean	455.620617
std	10.493484
min	443.618767
25%	446.793455
50%	452.901021
75%	463.133205
max	482.307408

CO$_2$時系列プロット

2023 1202 Hourly mean
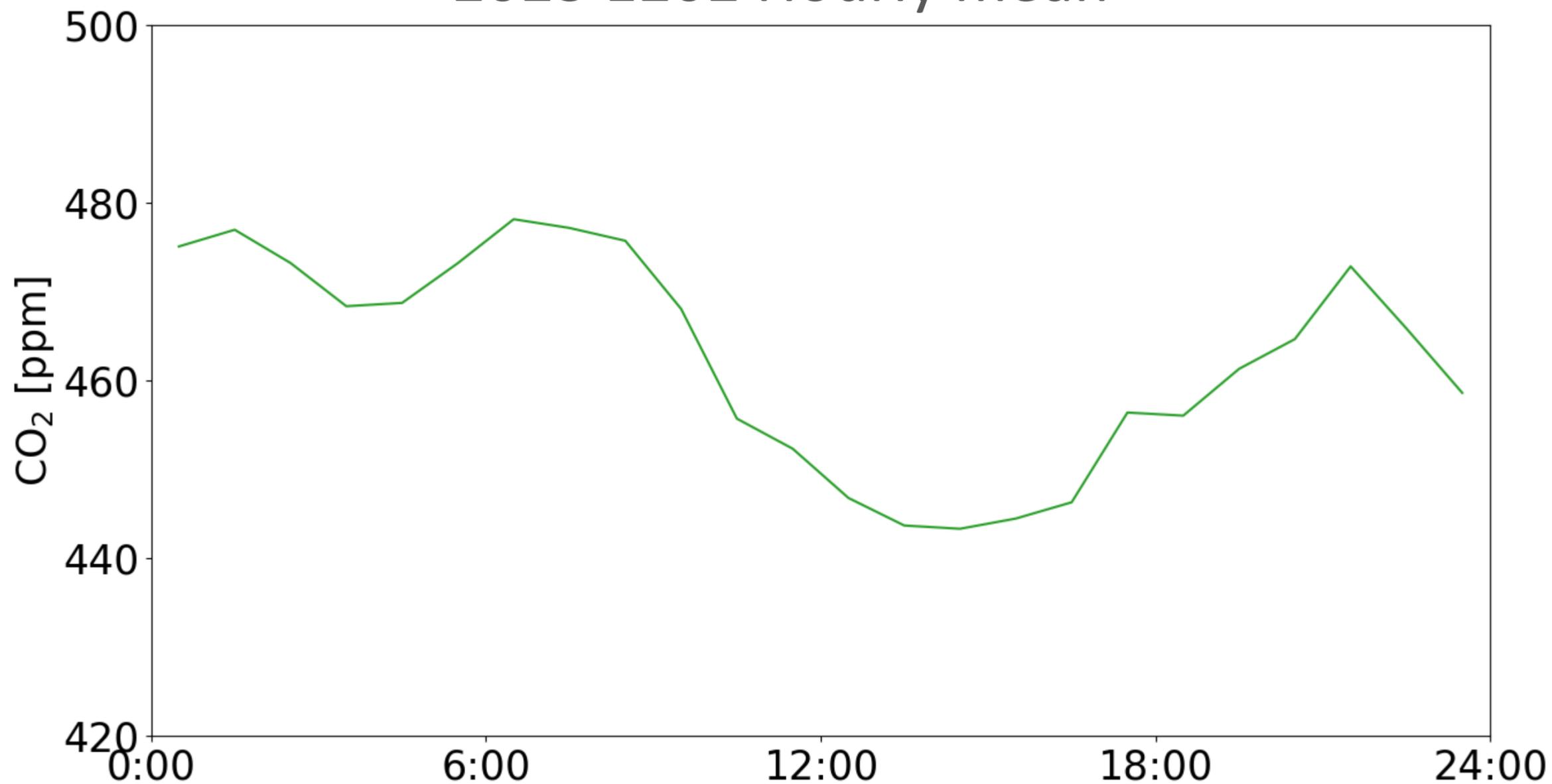
	CO2(ppm)
count	24.000000
mean	462.649504
std	11.909576
min	443.338305
25%	454.887539
50%	465.282727
75%	473.241704
max	478.180140

2023 1203 Hourly mean
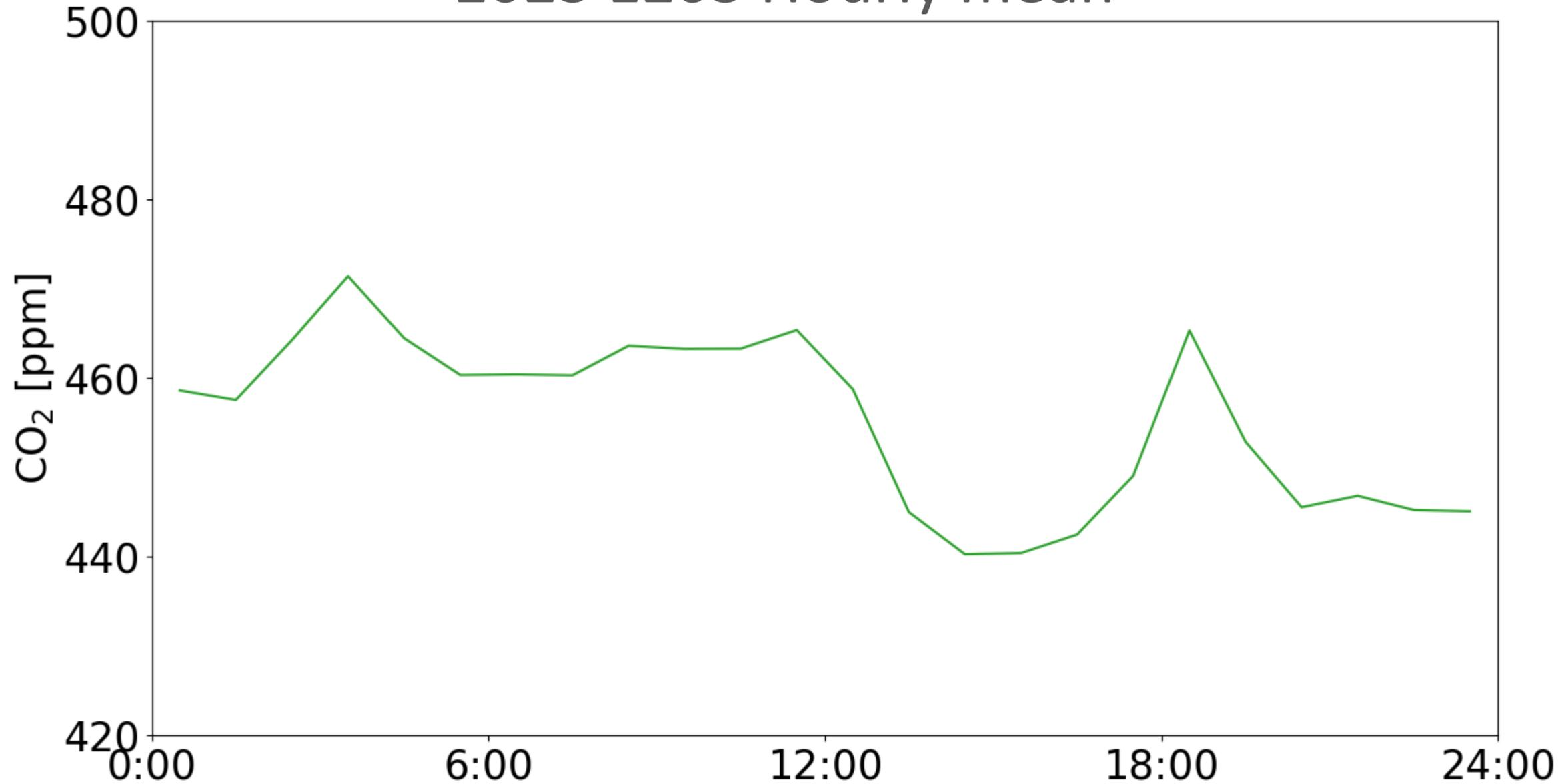
	CO2(ppm)
count	24.000000
mean	455.420503
std	9.471257
min	440.285757
25%	445.476283
50%	458.703387
75%	463.389089
max	471.426312

2023 1204 Hourly mean
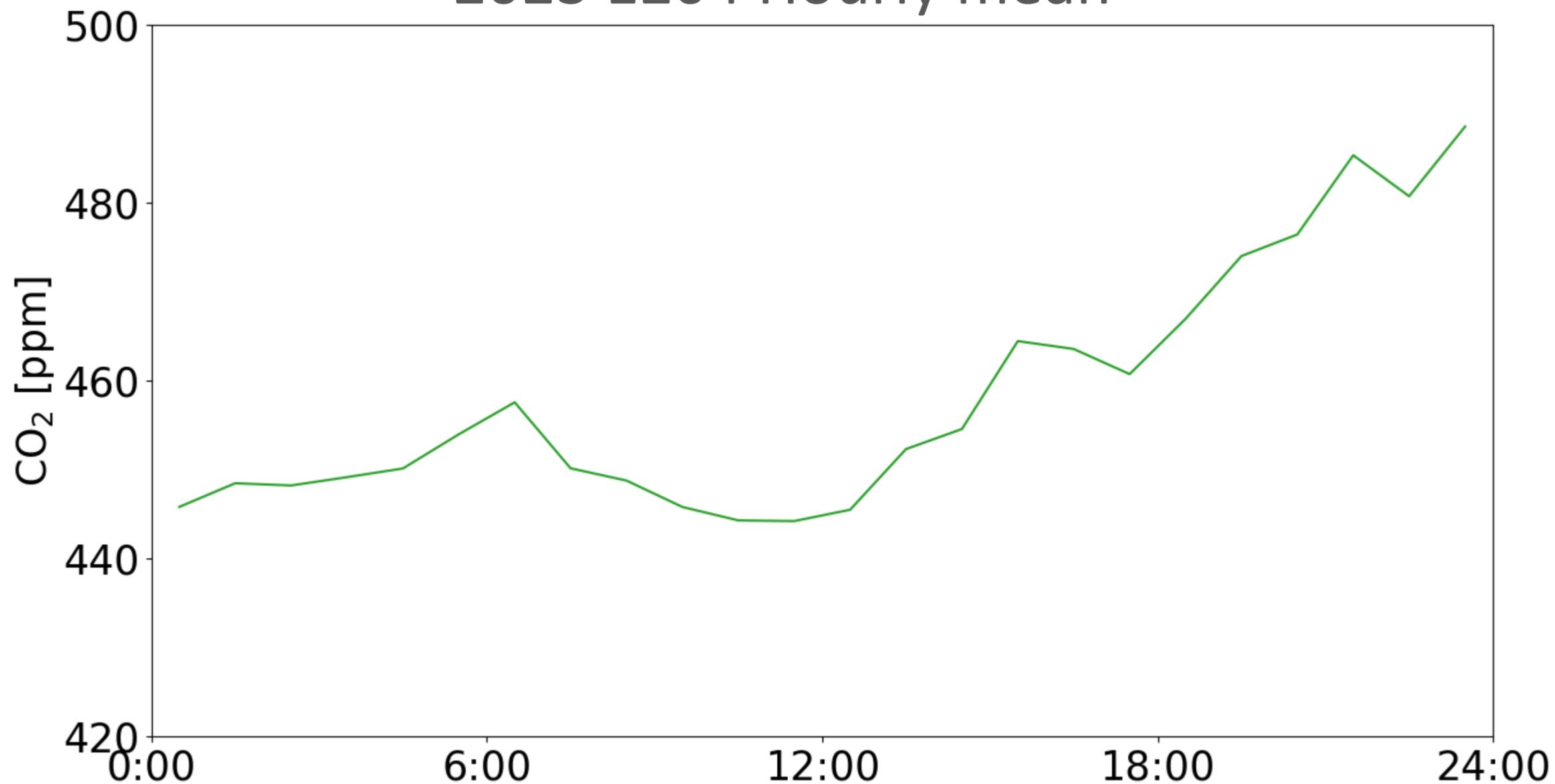
	CO2(ppm)
count	24.000000
mean	458.341306
std	13.706154
min	444.233905
25%	448.423878
50%	453.158713
75%	465.096699
max	488.594927

2023 1205 Hourly mean

1日を通してここ数日では高濃度
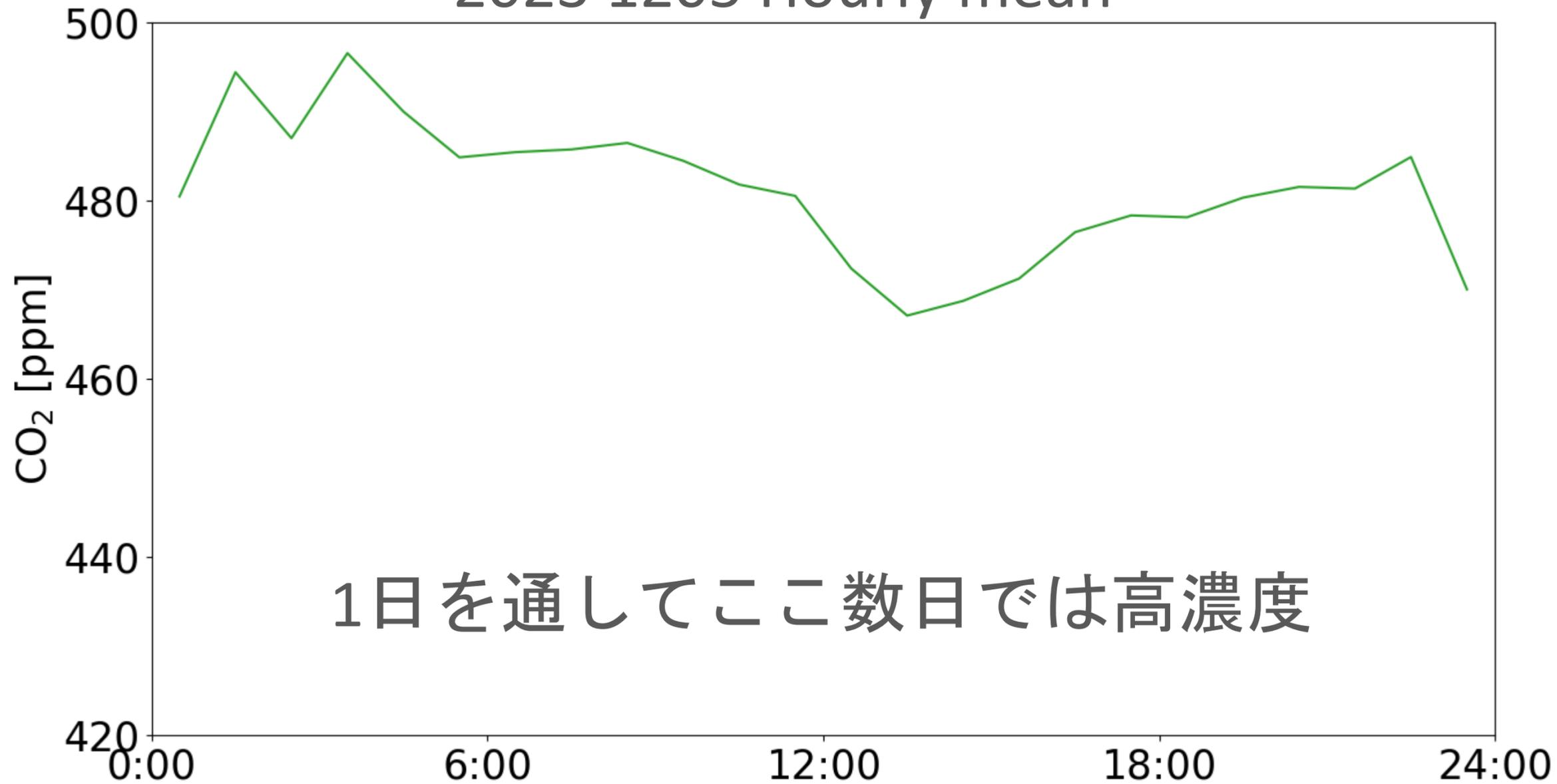
	CO2(ppm)
count	24.000000
mean	481.212219
std	7.586103
min	467.124110
25%	477.743435
50%	481.479092
75%	485.549740
max	496.586645

CO$_2$時系列プロット

2023 1124 -1205 Hourly mean
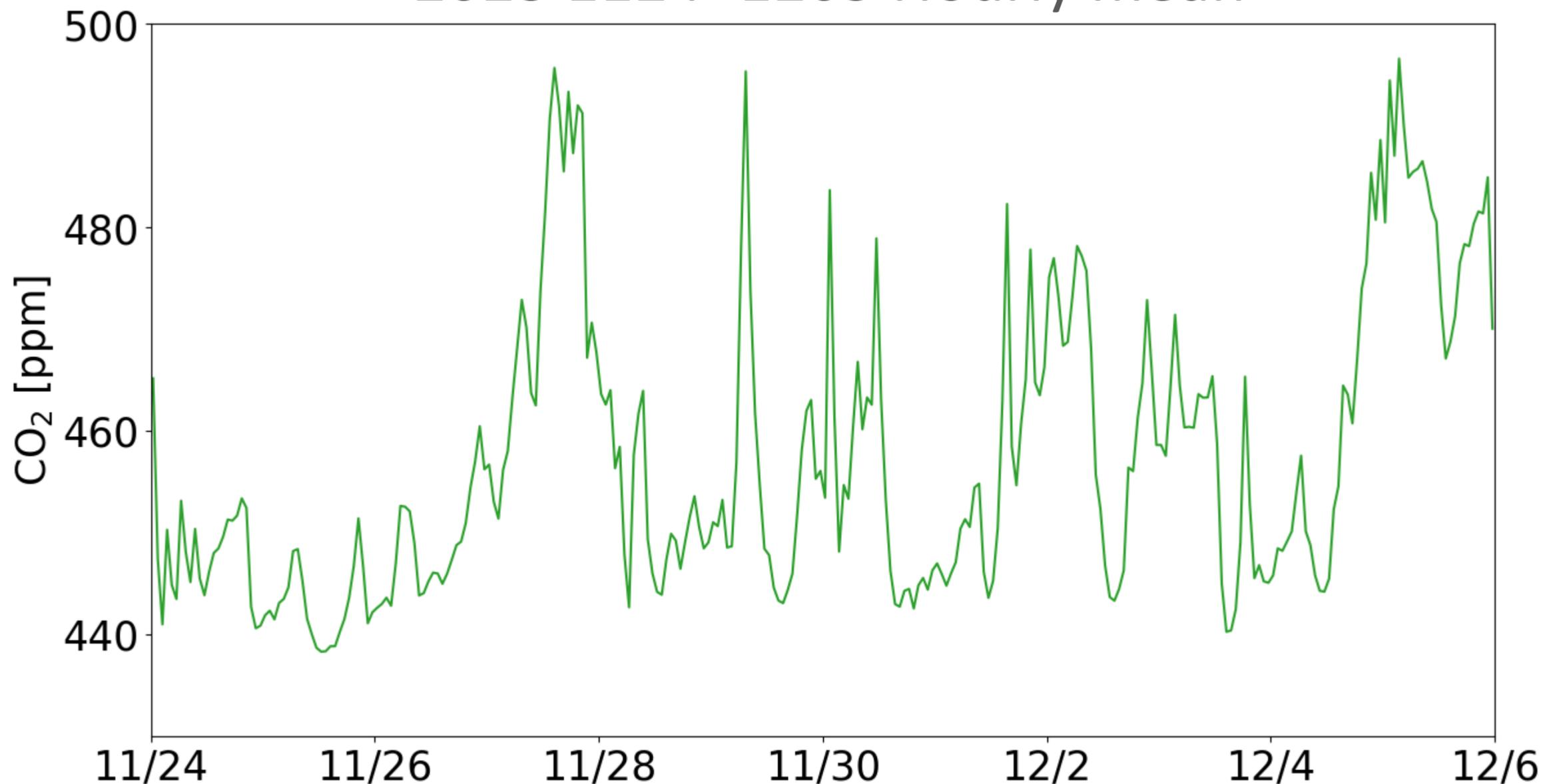
	CO2(ppm)
count	288.000000
mean	457.410244
std	14.206545
min	438.335893
25%	446.007067
50%	452.972416
75%	464.867374
max	496.586645

2023 1124 - 1128 Hourly mean

CO$_2$ × BC, NO$_2$

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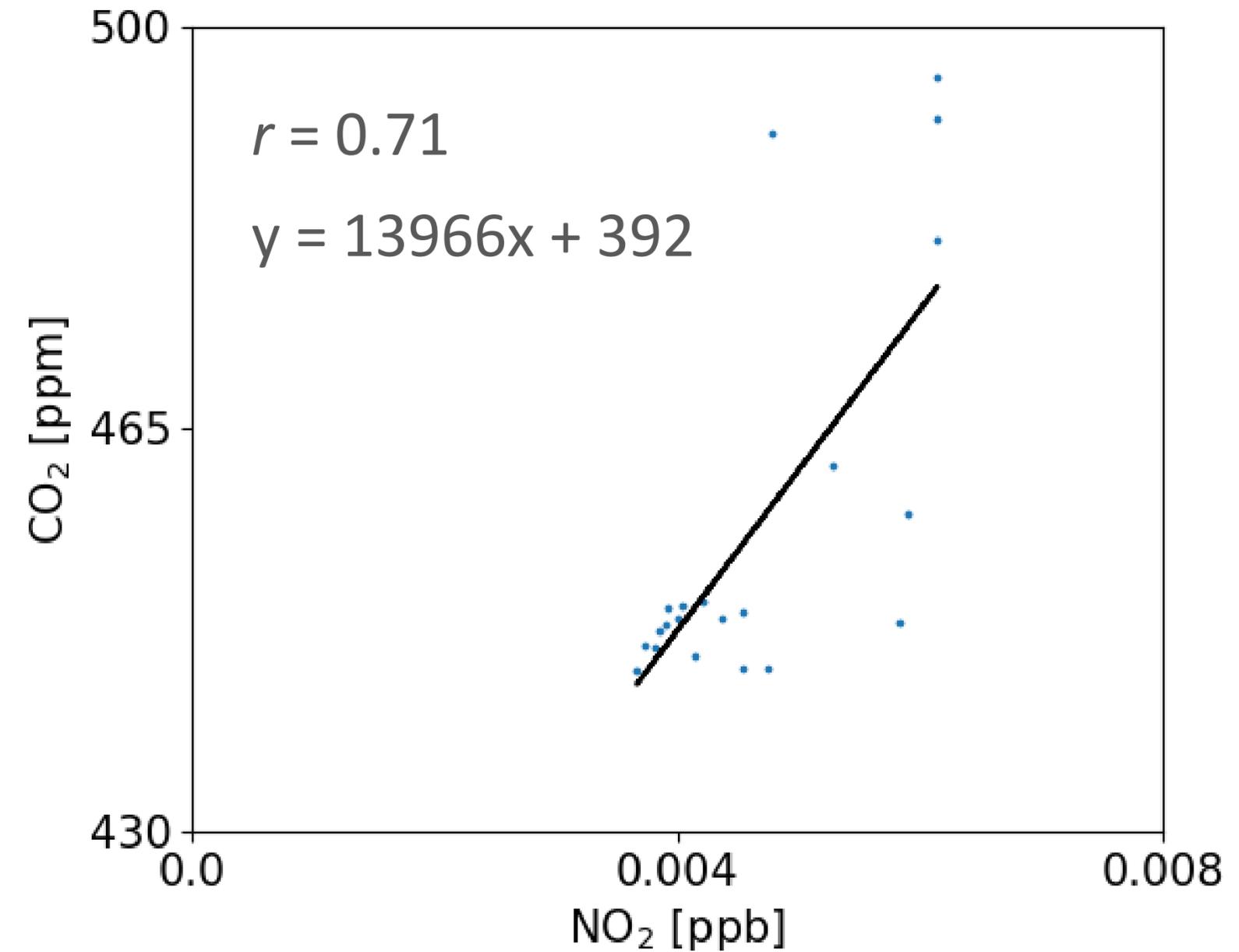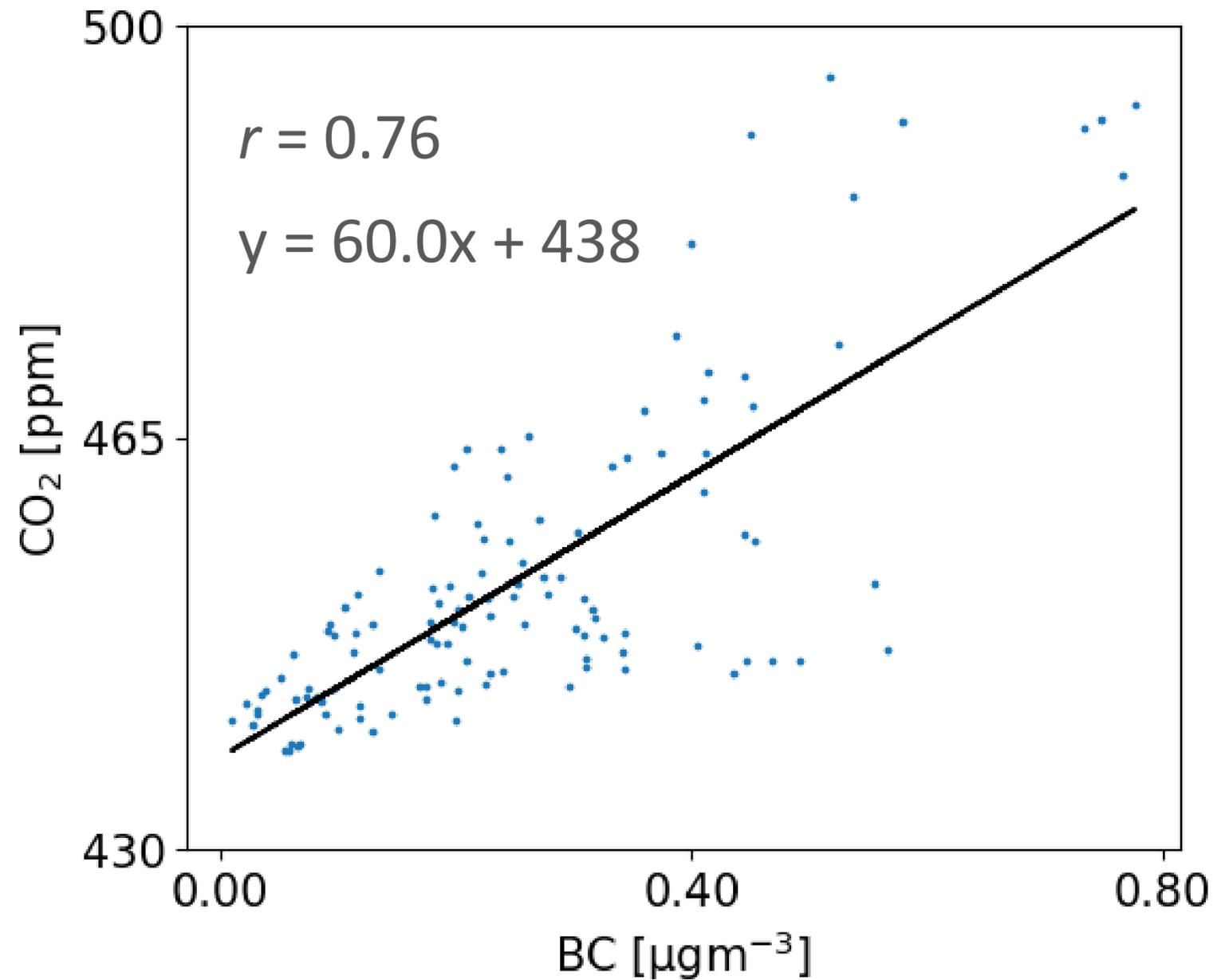
2023 1124 - 1130 Hourly mean

1129 – 30はほぼ同じ

1時間平均値

r = 0.72

y = 60.7x + 439

CO$_2$ [ppm]

500

465

430

0.00   0.40   0.80

BC [μgm^{-3}]

r = 0.39

y = 6042x + 423

CO$_2$ [ppm]

500

465

430

128	473.757333	0.006132
129	461.734083	0.006164
130	454.699100	0.006171
131	448.442863	0.006174
132	447.826273	0.006199
133	444.628088	0.006205
134	443.356283	0.006213
135	443.101107	0.006213
151	466.803565	0.006119
152	460.180962	0.006156
153	463.300643	0.006165
155	478.936623	0.006029
156	463.124585	0.006237
157	453.272640	0.006231
158	446.283455	0.006236
159	443.004100	0.006205

0.004   0.008

NO$_2$ [ppb]

2023 1124 - 1204 Hourly mean

$r = 0.74$

$y = 50.1x + 442$

$r = 0.21$

$y = 3111x + 440$

解析のコードは過去と変えていないが、全く同じ値がいくつも出てくる。なぜ？

2023 1127 12:00 – 20:00 Hourly mean

r = 0.58

y = 20.0x + 478
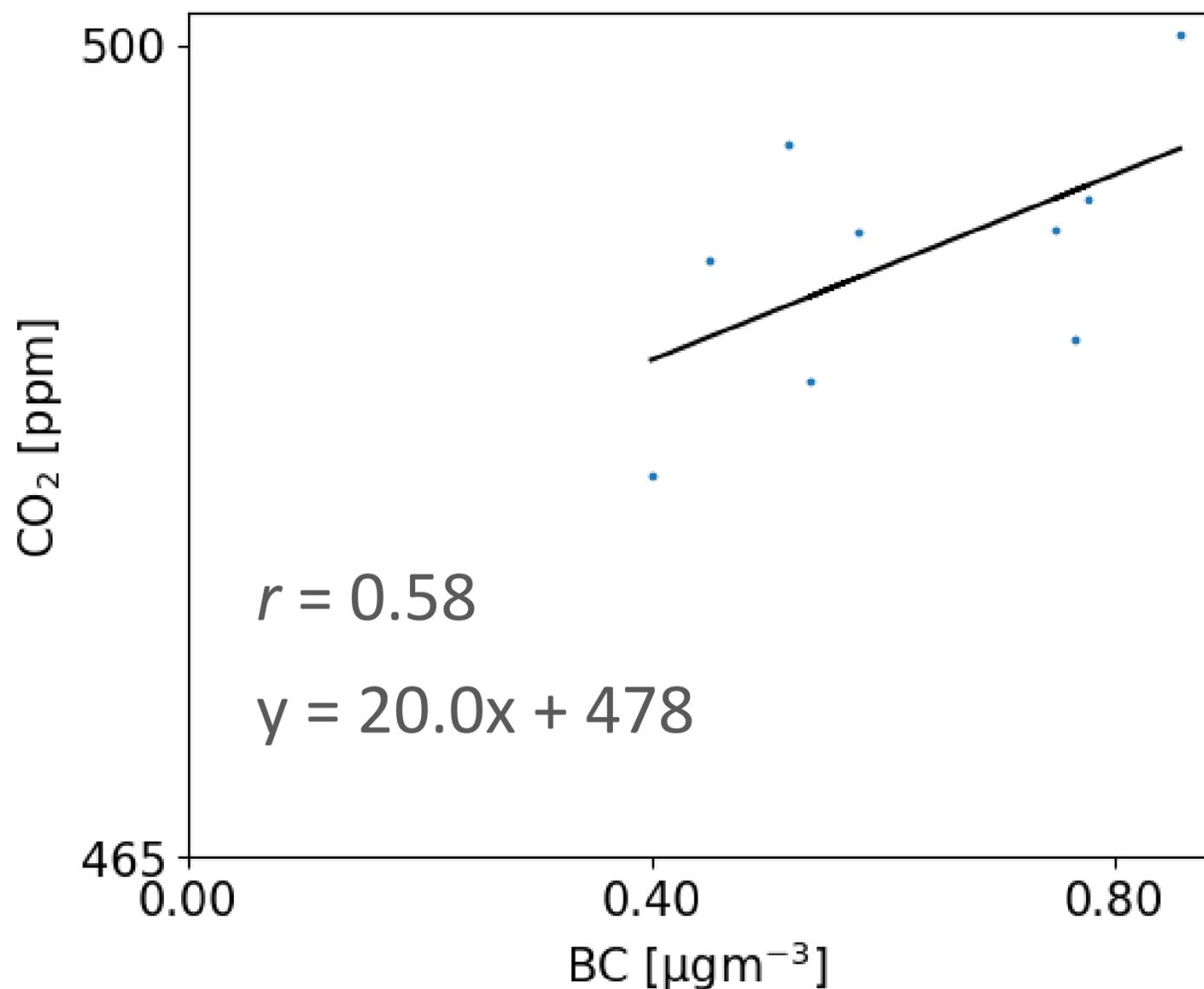
	CO2	BC
count	9.000000	9.000000
mean	490.917145	0.625717
std	5.617834	0.163656
min	481.461702	0.400140
25%	487.303438	0.518043
50%	491.897257	0.579486
75%	493.328522	0.766138
max	500.413350	0.856453

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
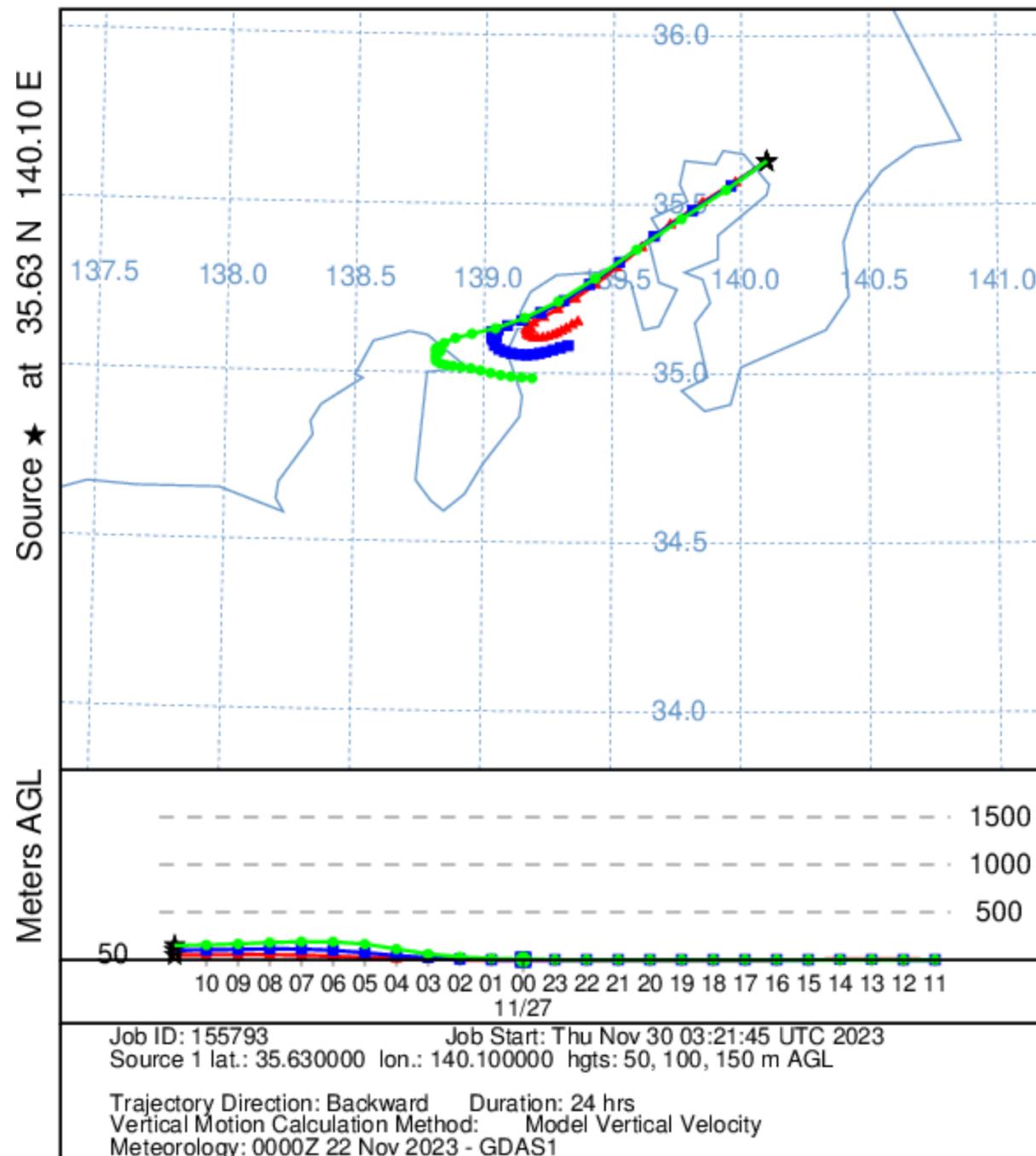
20:00時点では、空気塊が
南西から輸送されてきた。

千葉みなとの工場方面からの
大気輸送。観測されたCO$_2$は
人為起源の可能性が考えられる。

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 - 1204 Hourly mean

$r = 0.69$

$y = 66.3x + 437$
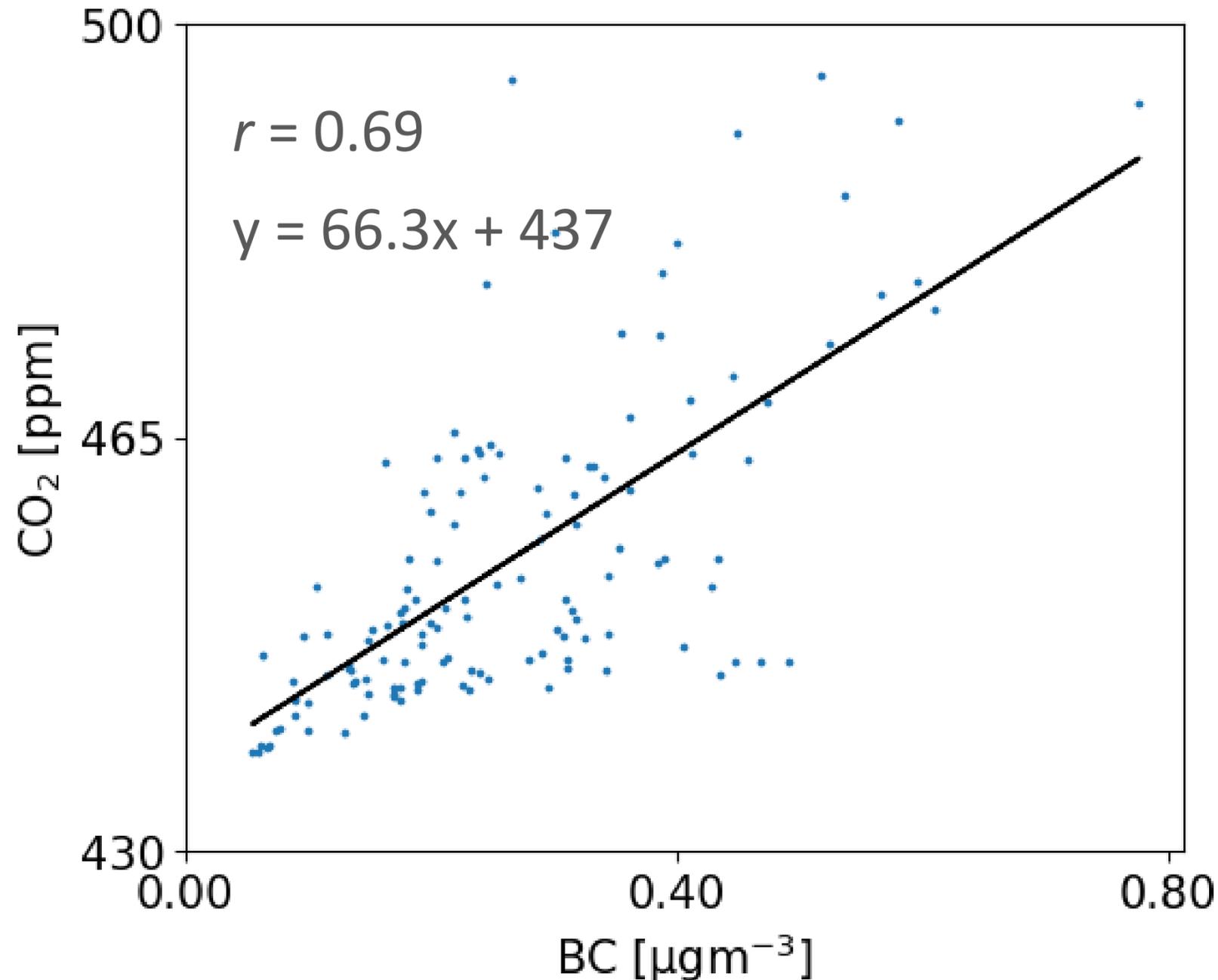
大気境界層の高度は日内変動するため、日中$(6:00-18:00)$と夜間$(18:00-翌6:00)$で分けて解析。

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。

12/06：追記
まだできません…色々調べては試していますが難航しております