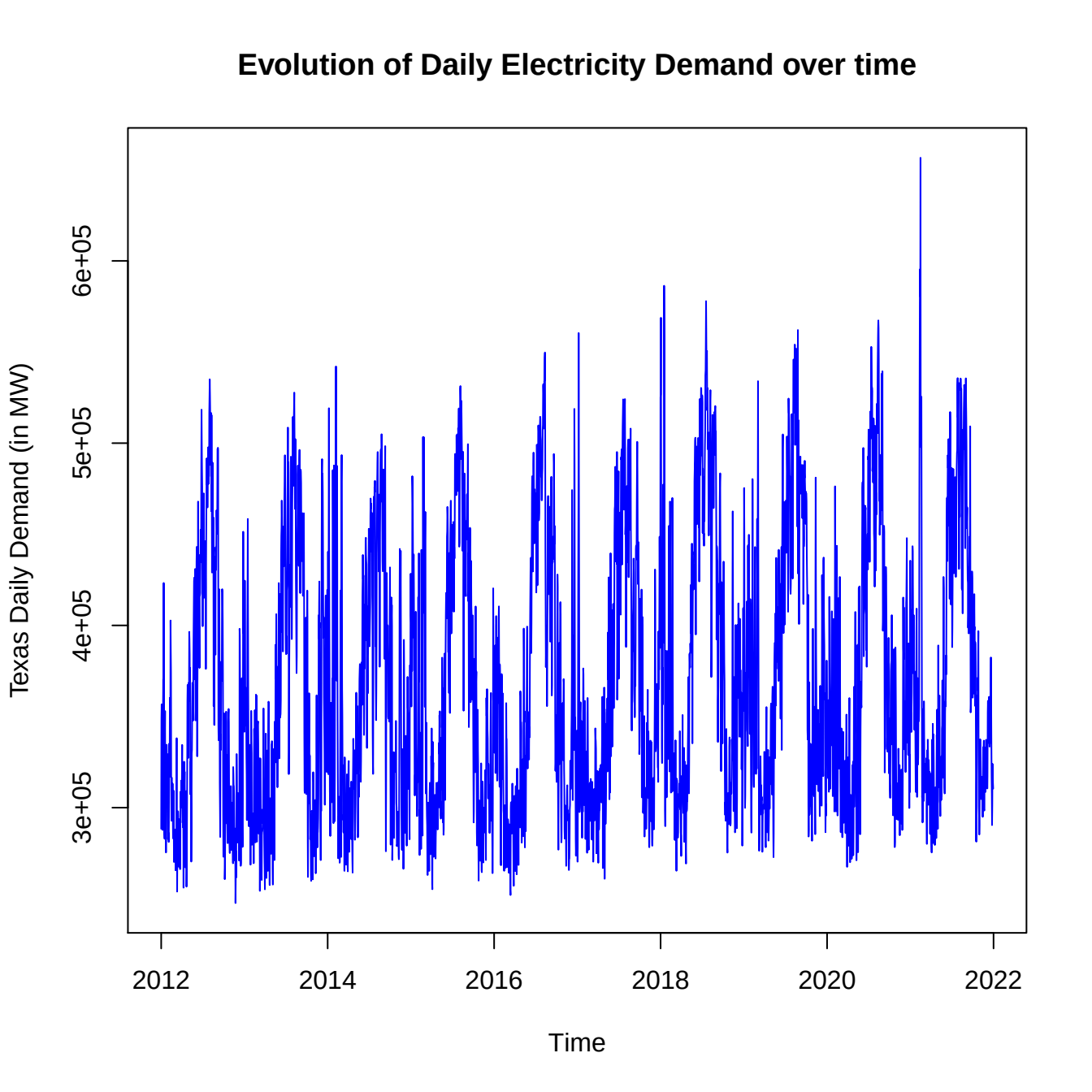
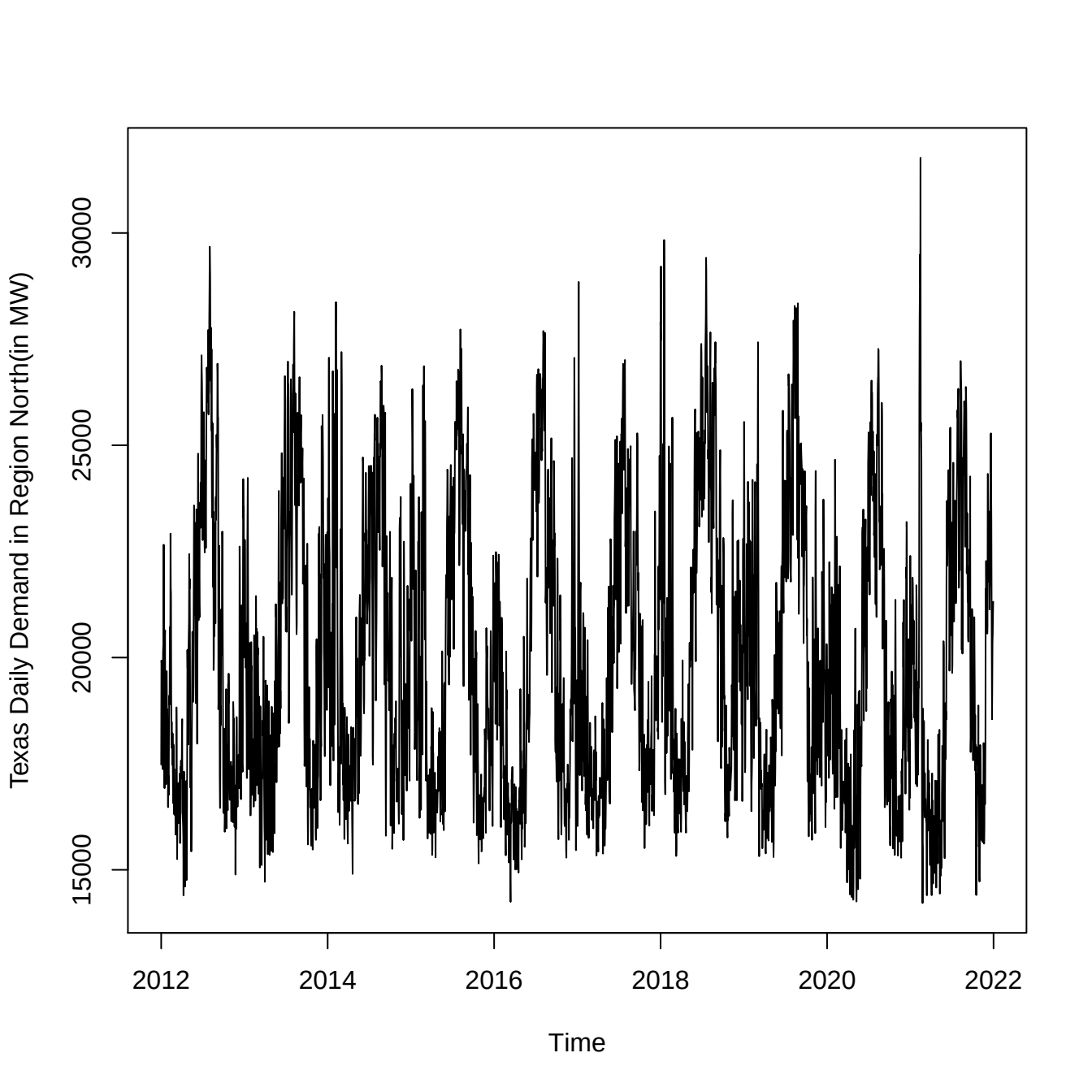
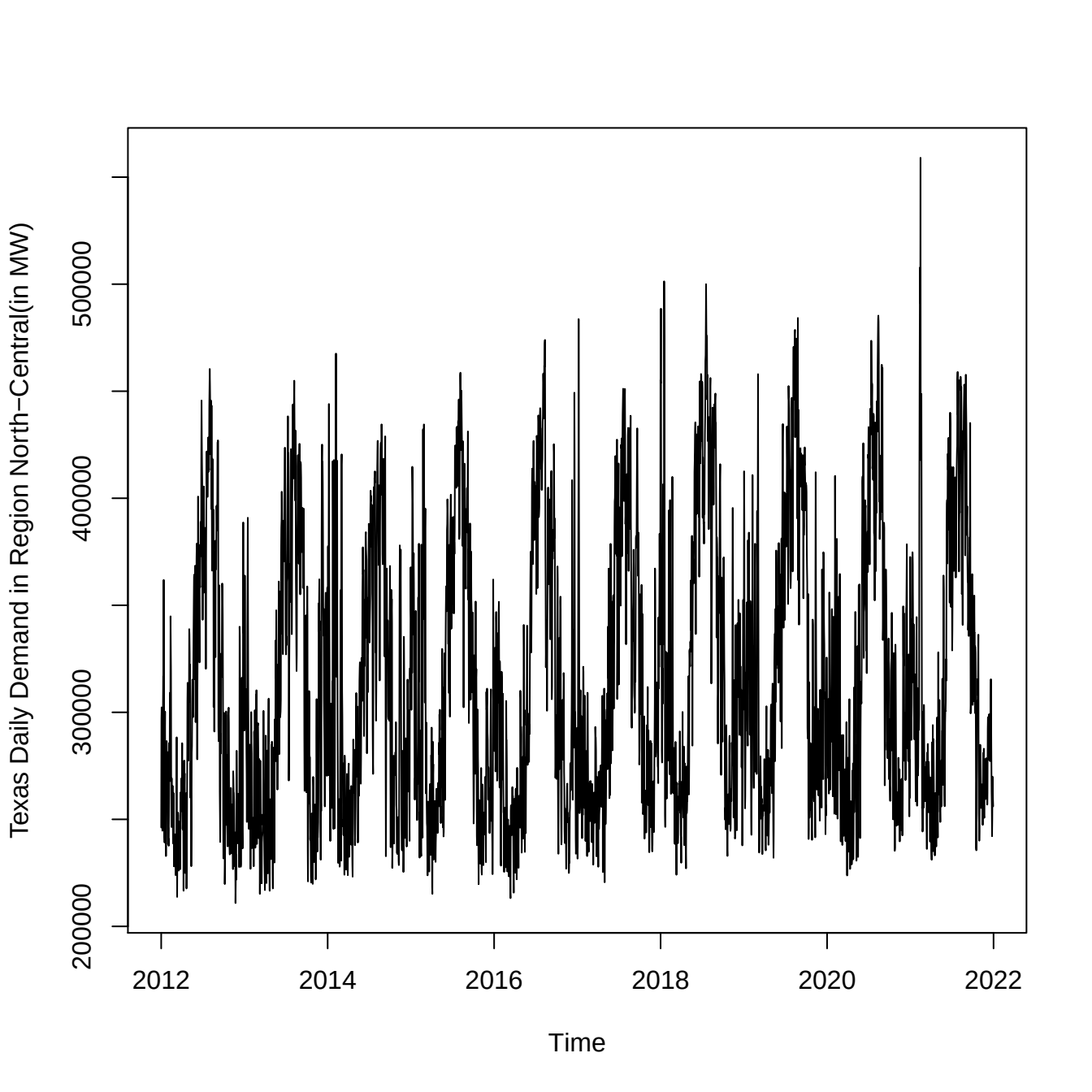
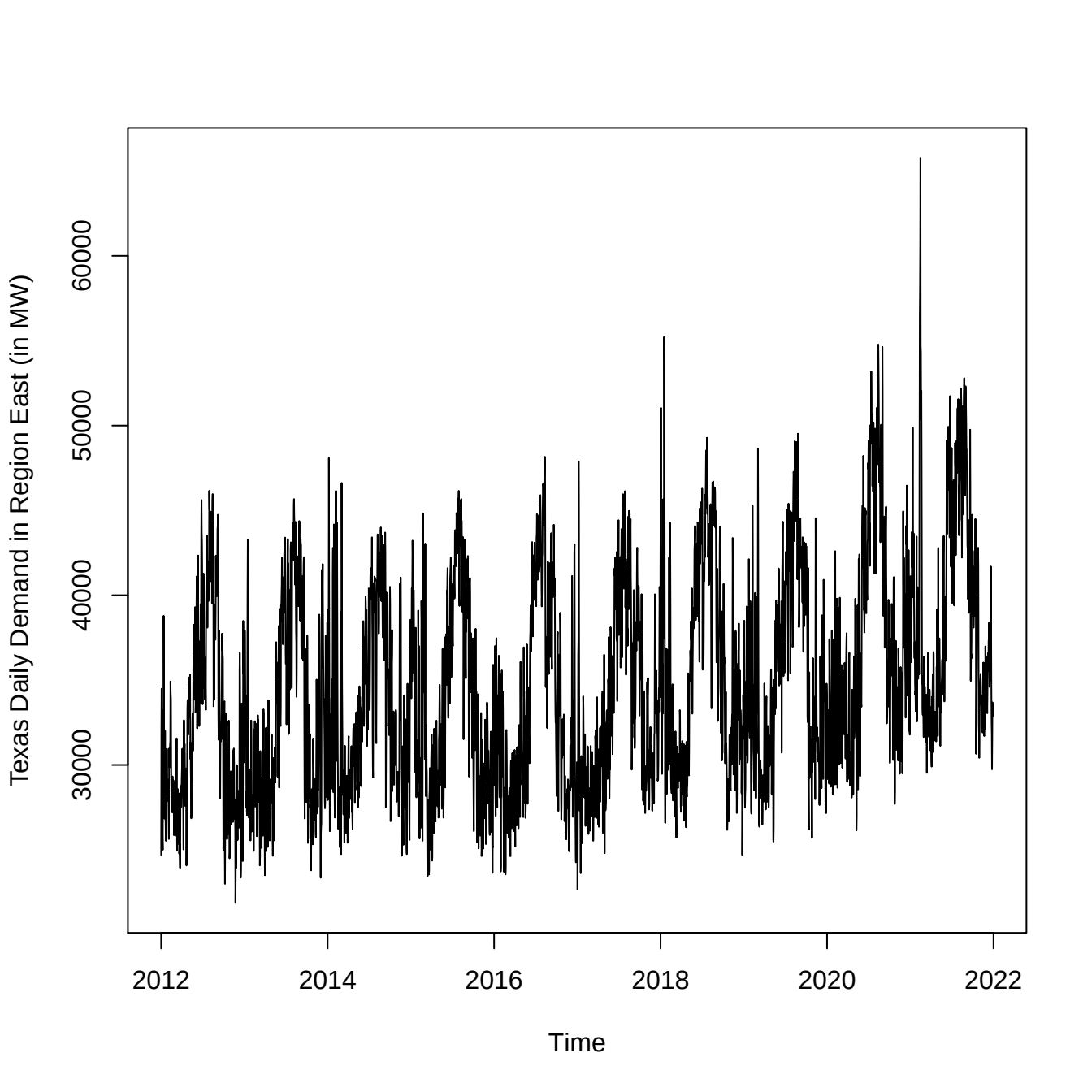
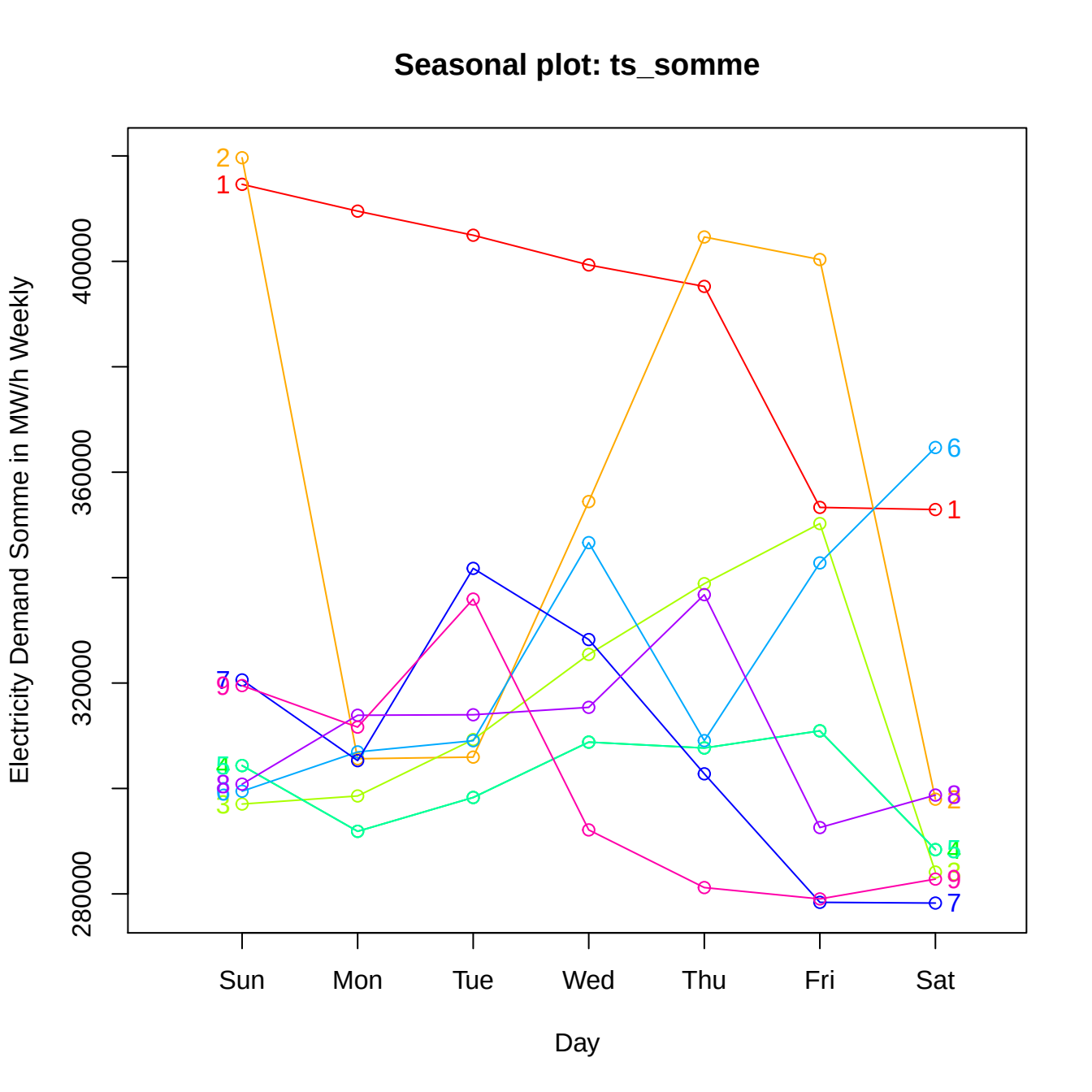
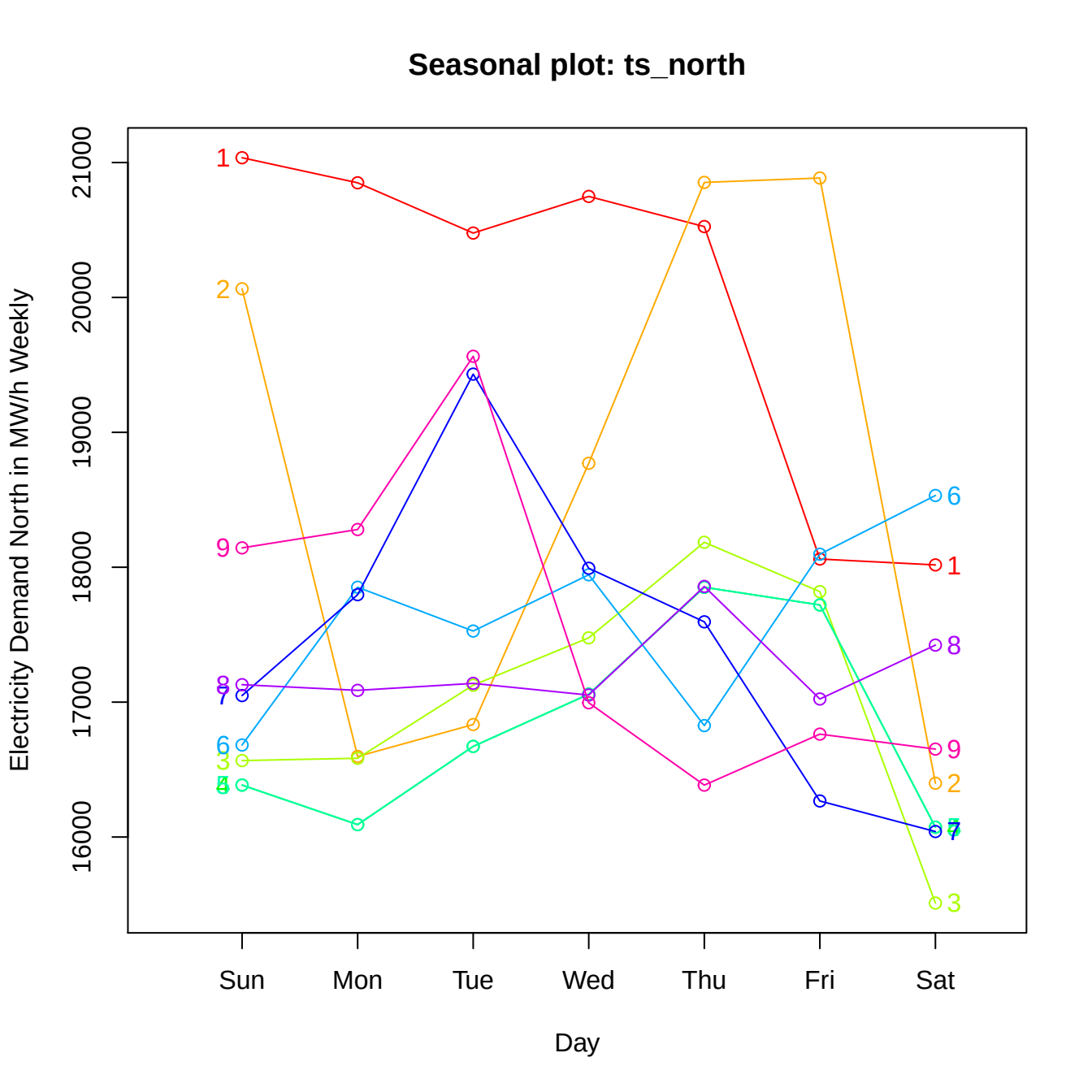

Evolution of Daily Electricity Demand over time
Texas Daily Demand (in MW)
3e+05
4e+05
5e+05
6e+05
2012
2014
2016
2018
2020
2022
Time

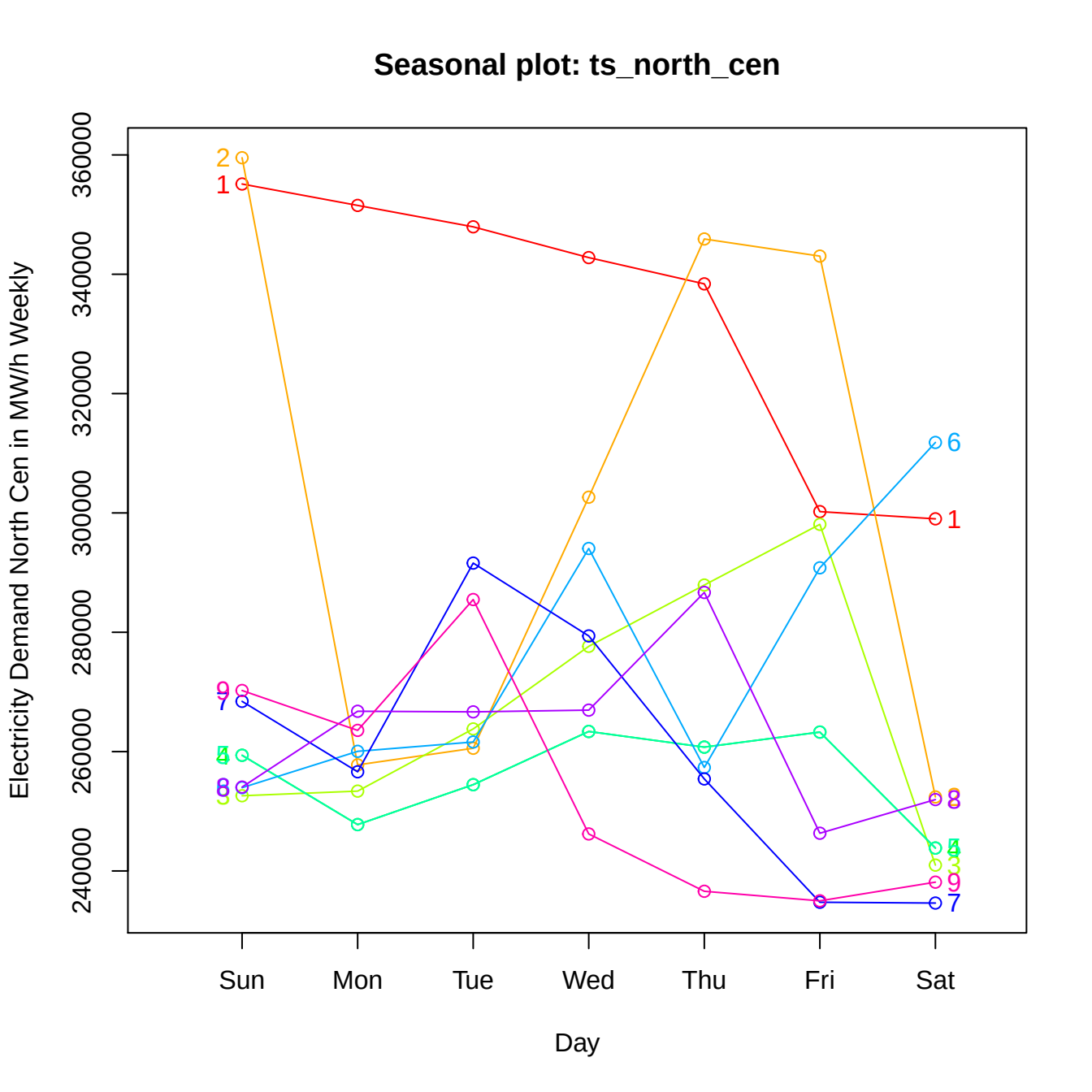

Texas Daily Demand in Region North(in MW)
15000
20000
25000
30000
2012
2014
2016
2018
2020
2022
Time


Texas Daily Demand in Region North−Central(in MW)
200000
300000
400000
500000
2012
2014
2016
2018
2020
2022
Time

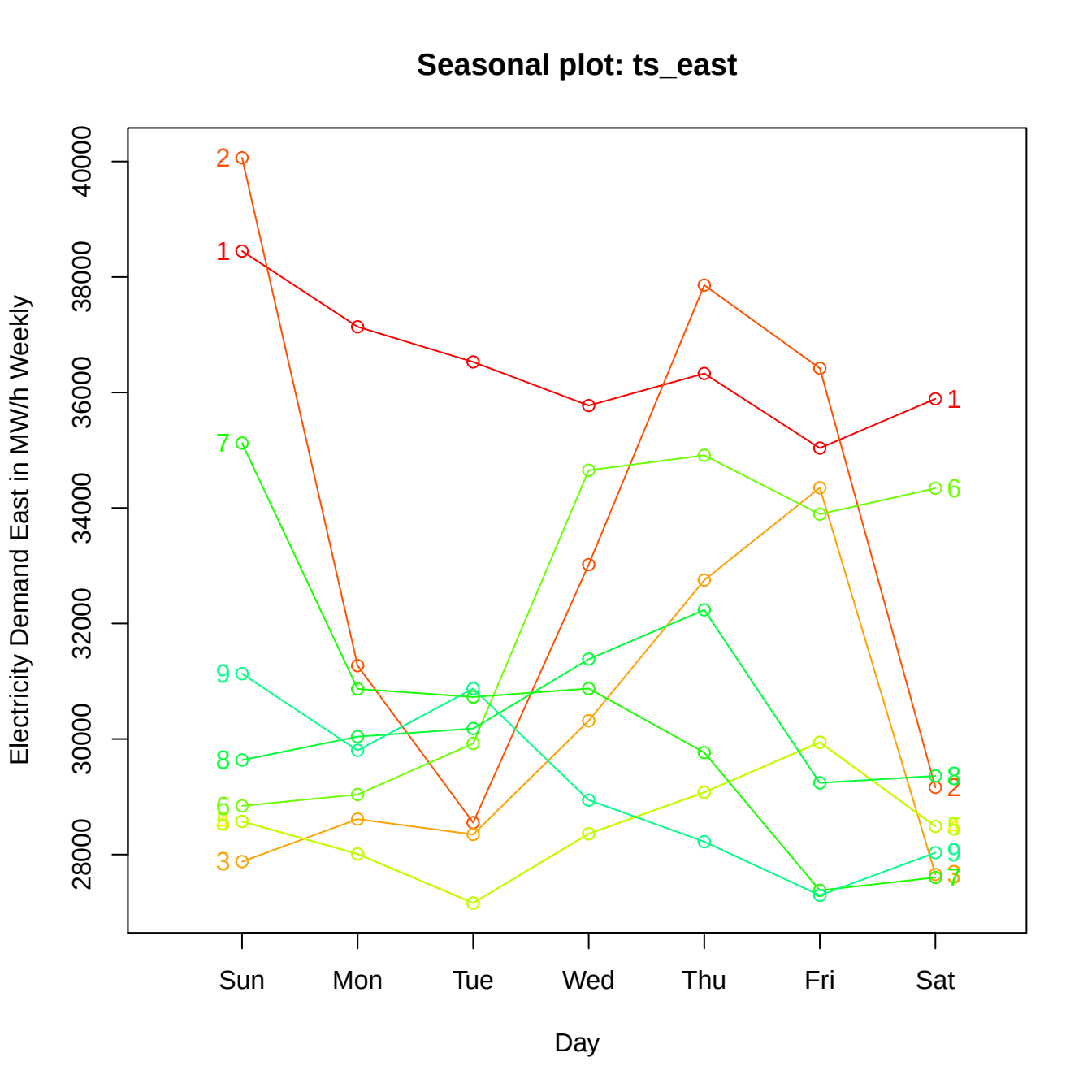

Texas Daily Demand in Region East (in MW)
30000
40000
50000
60000
2012
2014
2016
2018
2020
2022
Time

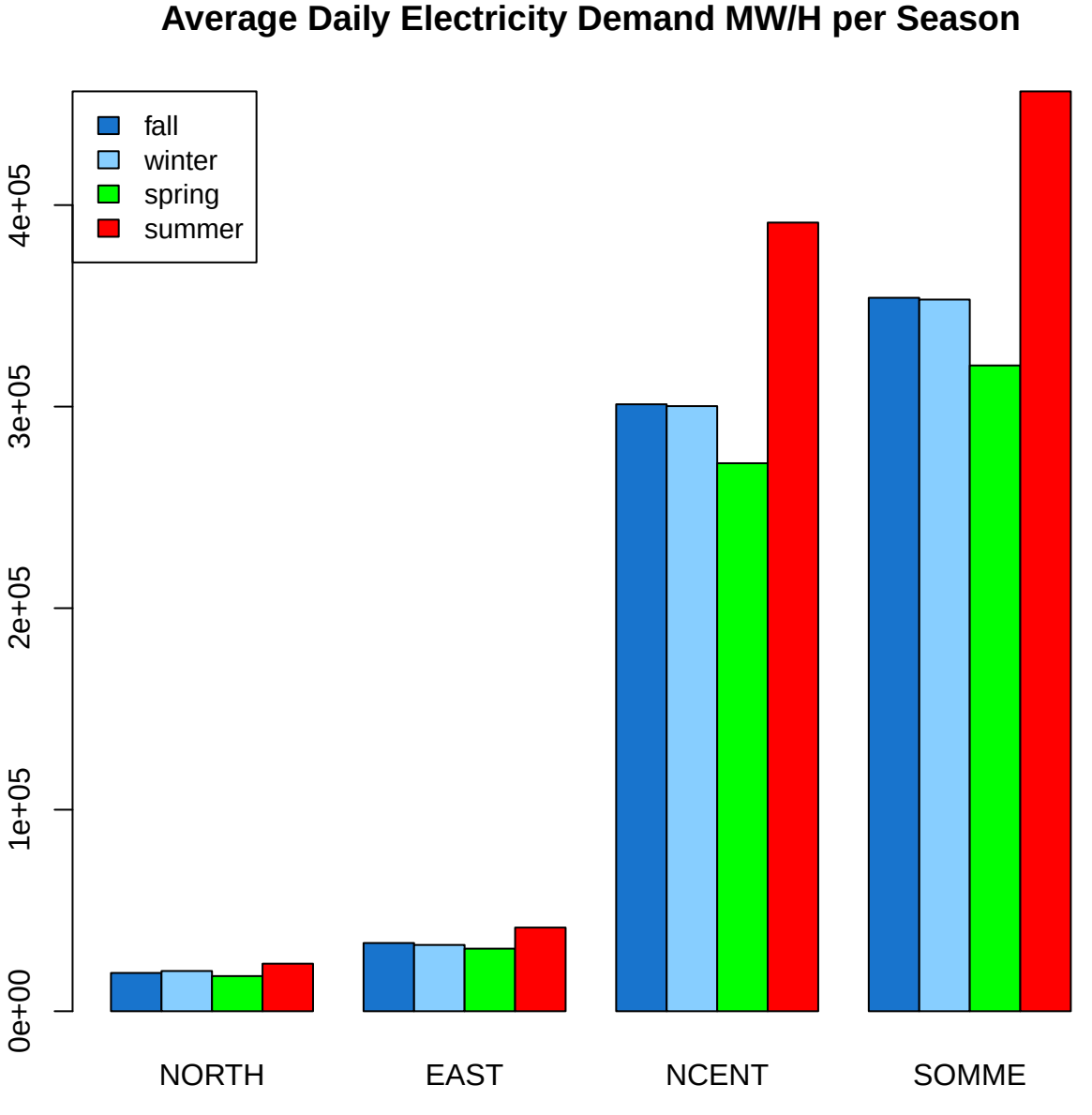

Seasonal plot: ts_somme
Electricity Demand Somme in MW/h Weekly
280000
320000
360000
400000
Sun
Mon
Tue
Wed
Thu
Fri
Sat
Day
2
1
6
1
8
9
7

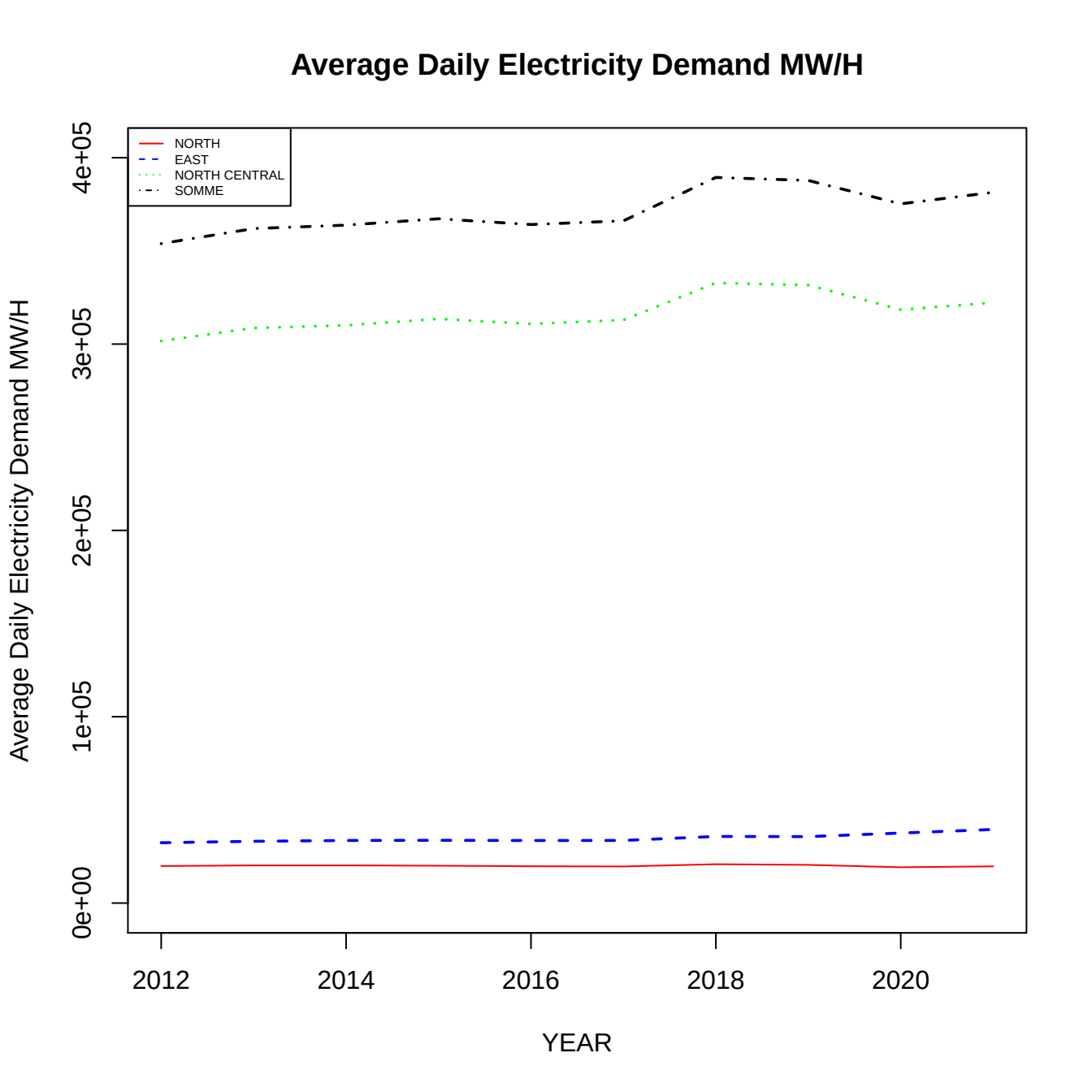

Seasonal plot: ts_north
Electricity Demand North in MW/h Weekly
16000
17000
18000
19000
20000
21000
Sun
Mon
Tue
Wed
Thu
Fri
Sat
Day
1
2
3
4
5
6
7
8
9

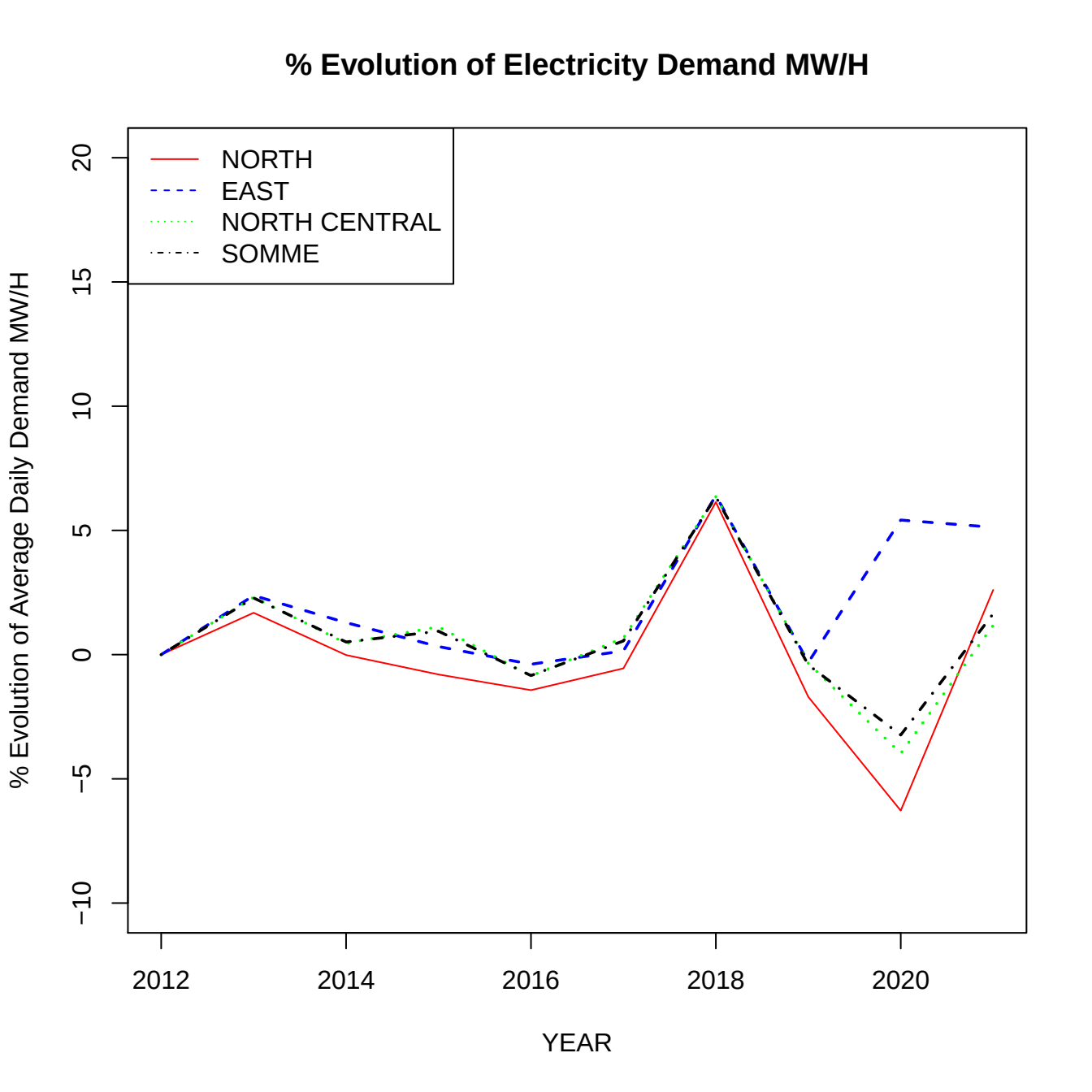


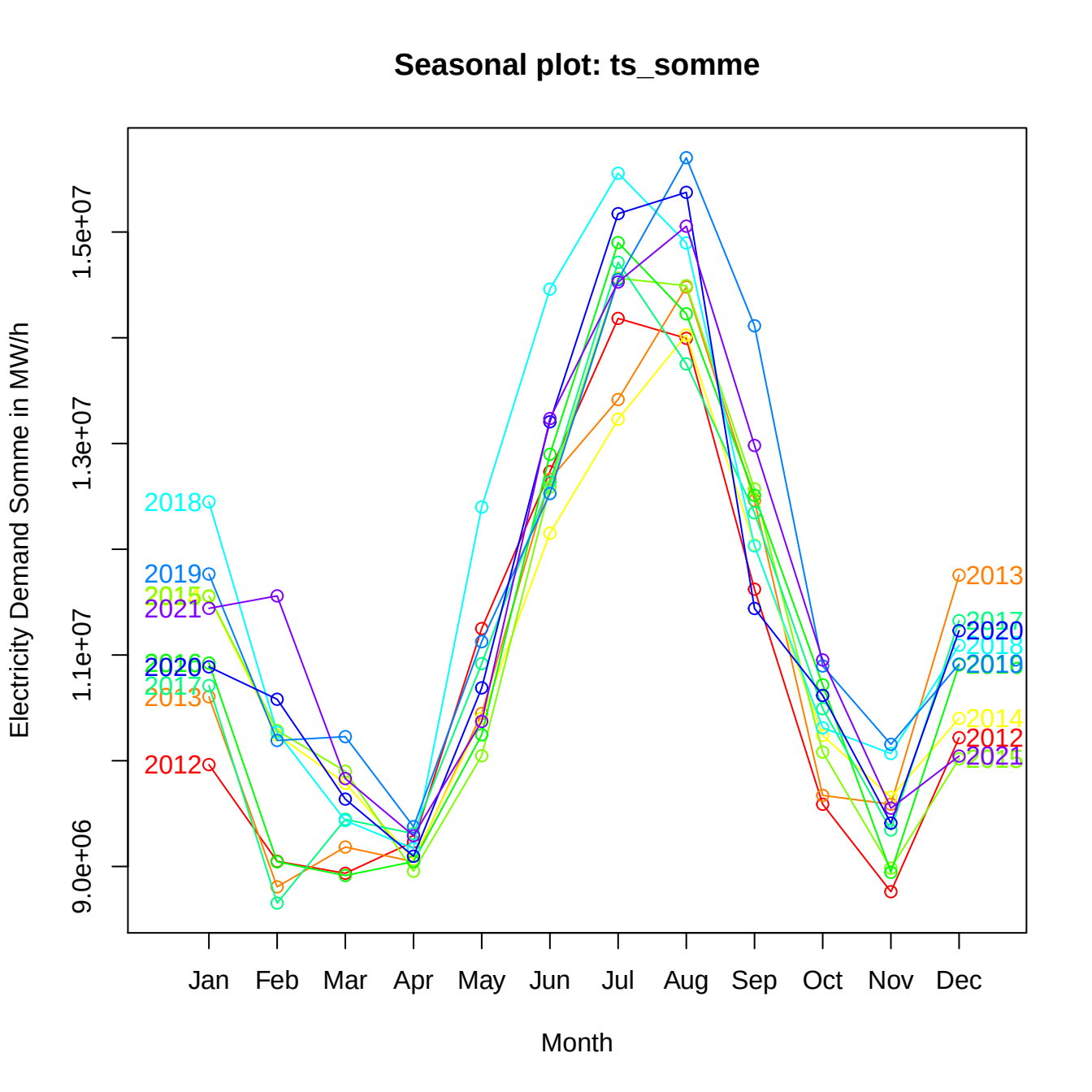
Seasonal plot: ts_north_cen
Electricity Demand North Cen in MW/h Weekly
240000
260000
280000
300000
320000
340000
360000
Sun
Mon
Tue
Wed
Thu
Fri
Sat
Day

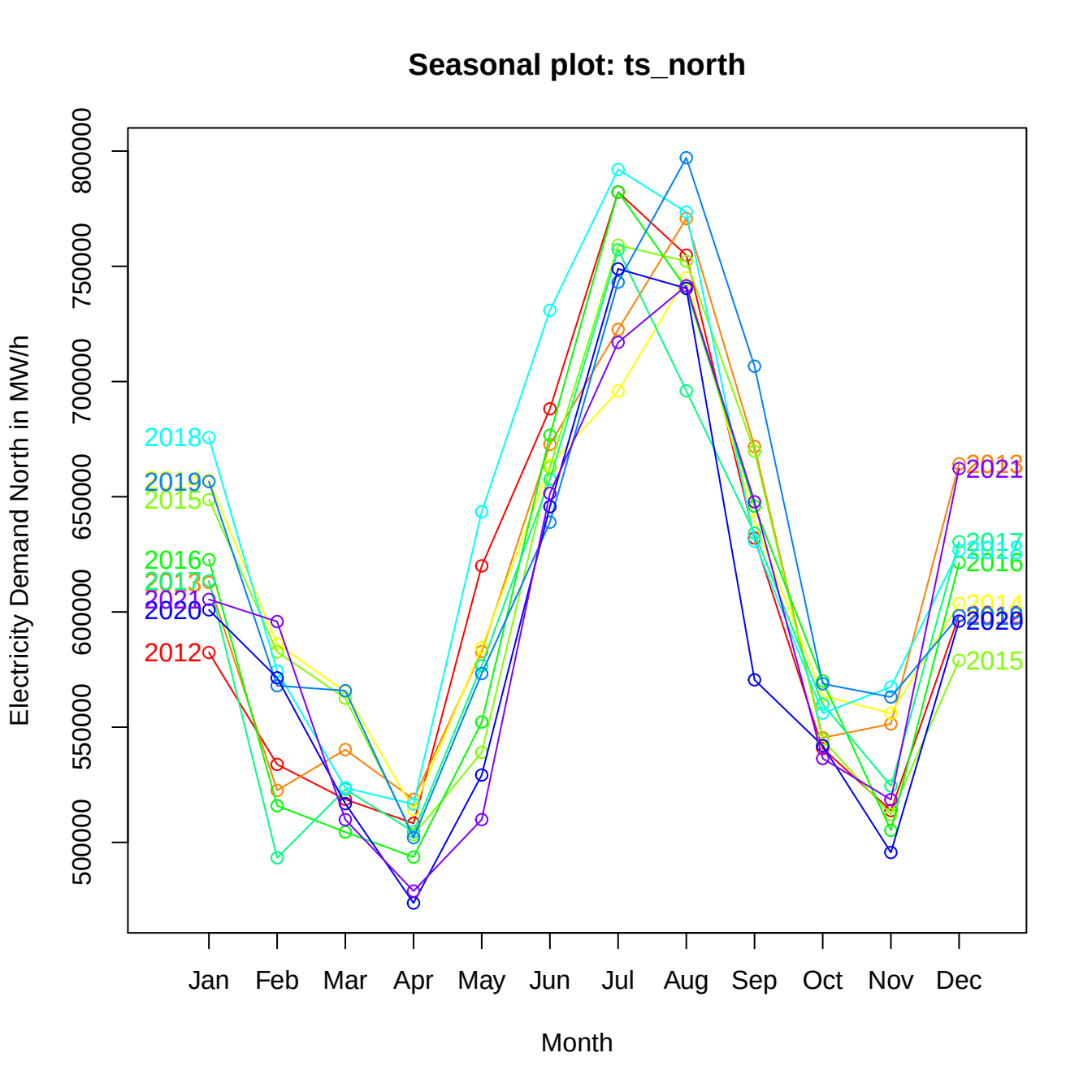

Seasonal plot: ts_east
Electricity Demand East in MW/h Weekly
40000
38000
36000
34000
32000
30000
28000
Sun
Mon
Tue
Wed
Thu
Fri
Sat
Day

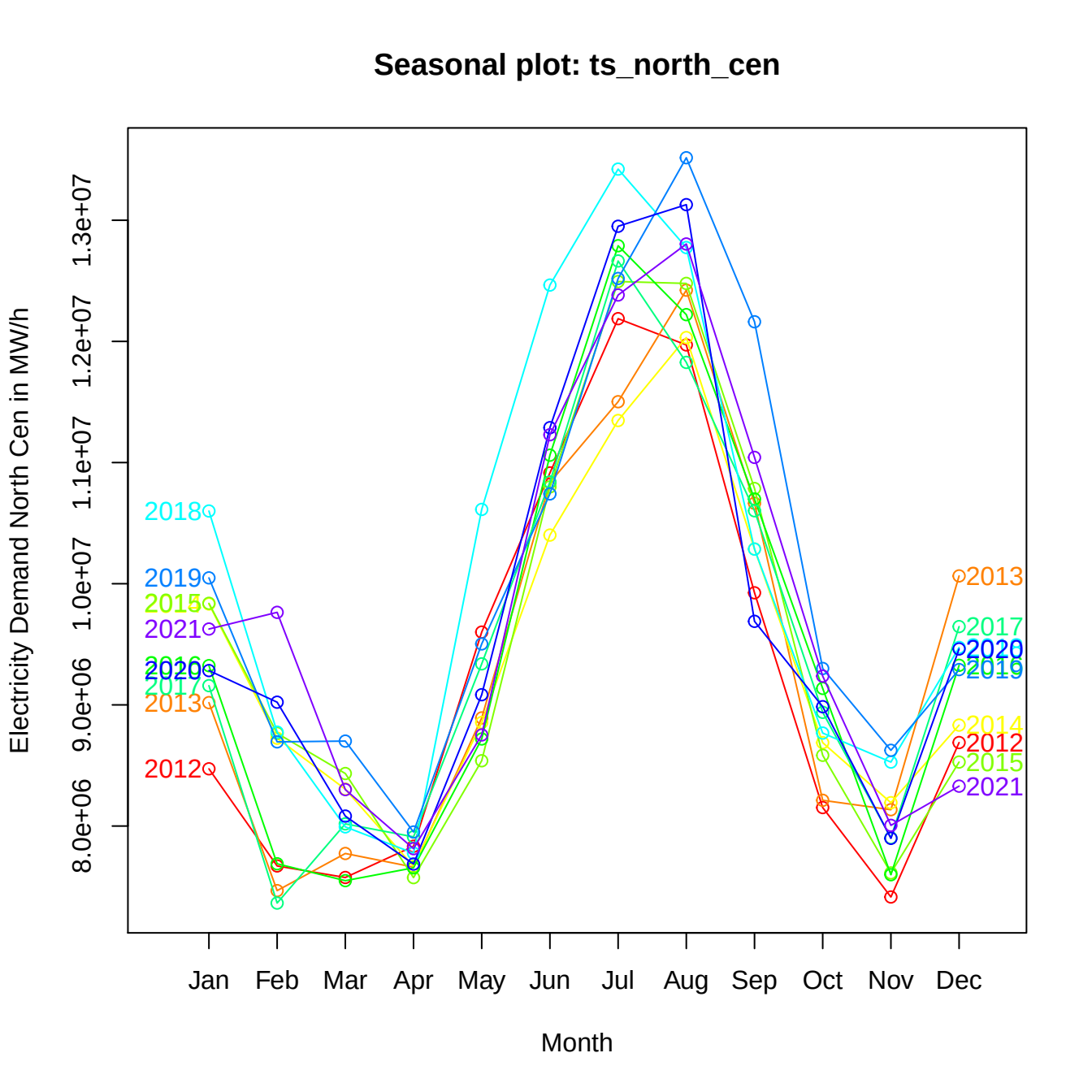

Average Daily Electricity Demand MW/H per Season
fall
winter
spring
summer
0e+00
1e+05
2e+05
3e+05
4e+05
NORTH
EAST
NCENT
SOMME

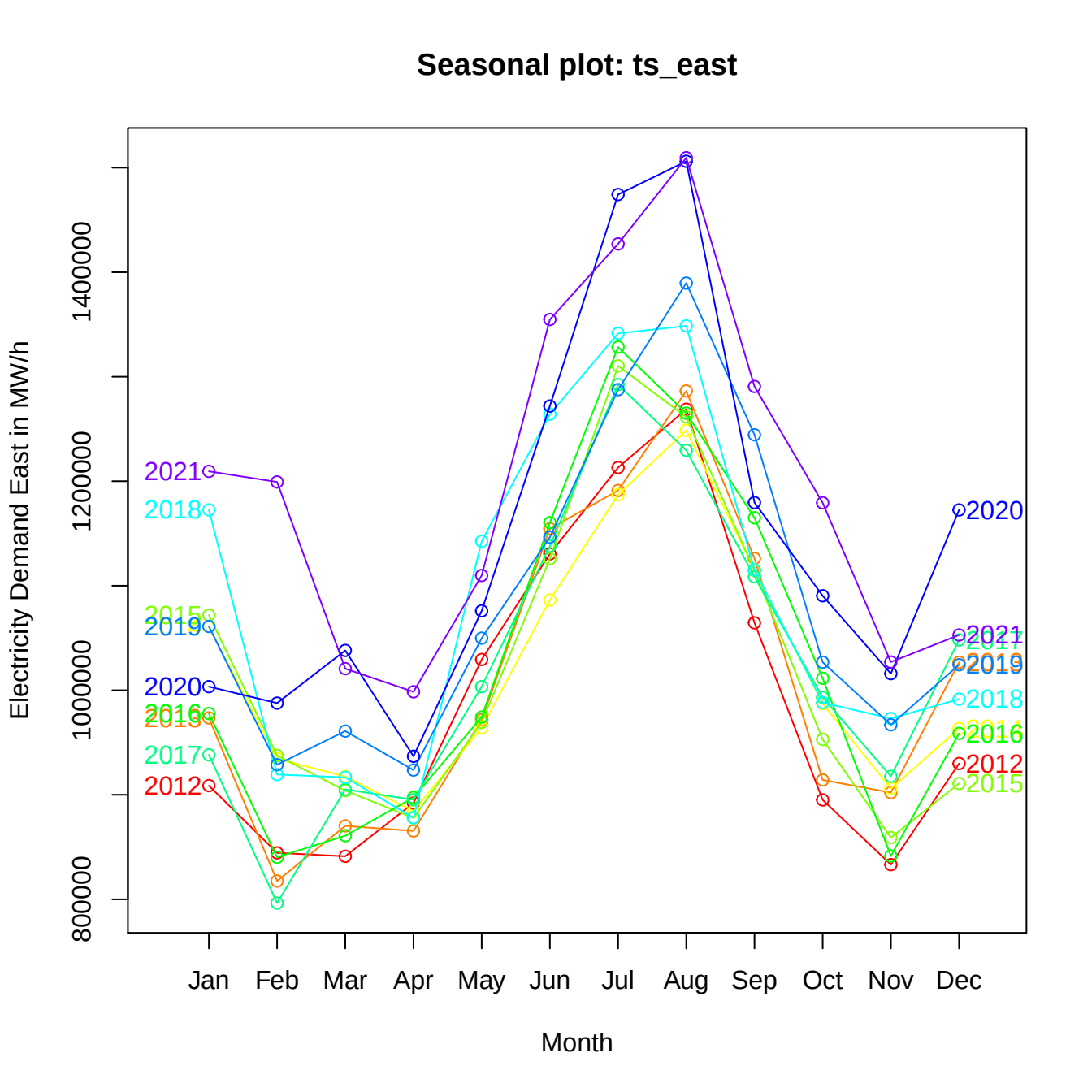

Average Daily Electricity Demand MW/H
NORTH
EAST
NORTH CENTRAL
SOMME
0e+00
1e+05
2e+05
3e+05
4e+05
Average Daily Electricity Demand MW/H
2012
2014
2016
2018
2020
YEAR

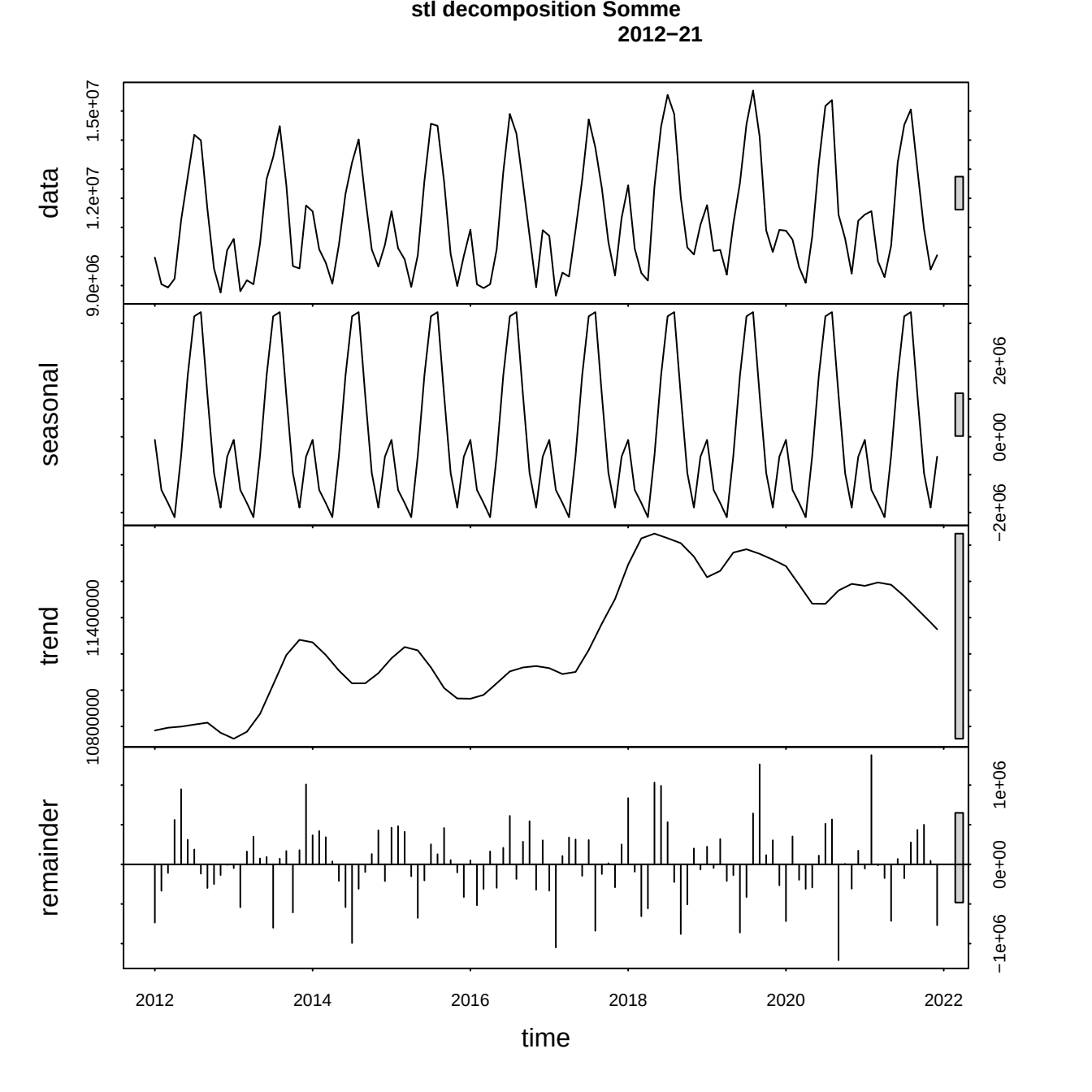

% Evolution of Electricity Demand MW/H
NORTH
EAST
NORTH CENTRAL
SOMME
% Evolution of Average Daily Demand MW/H
20
15
10
5
0
−5
−10
2012
2014
2016
2018
2020
YEAR

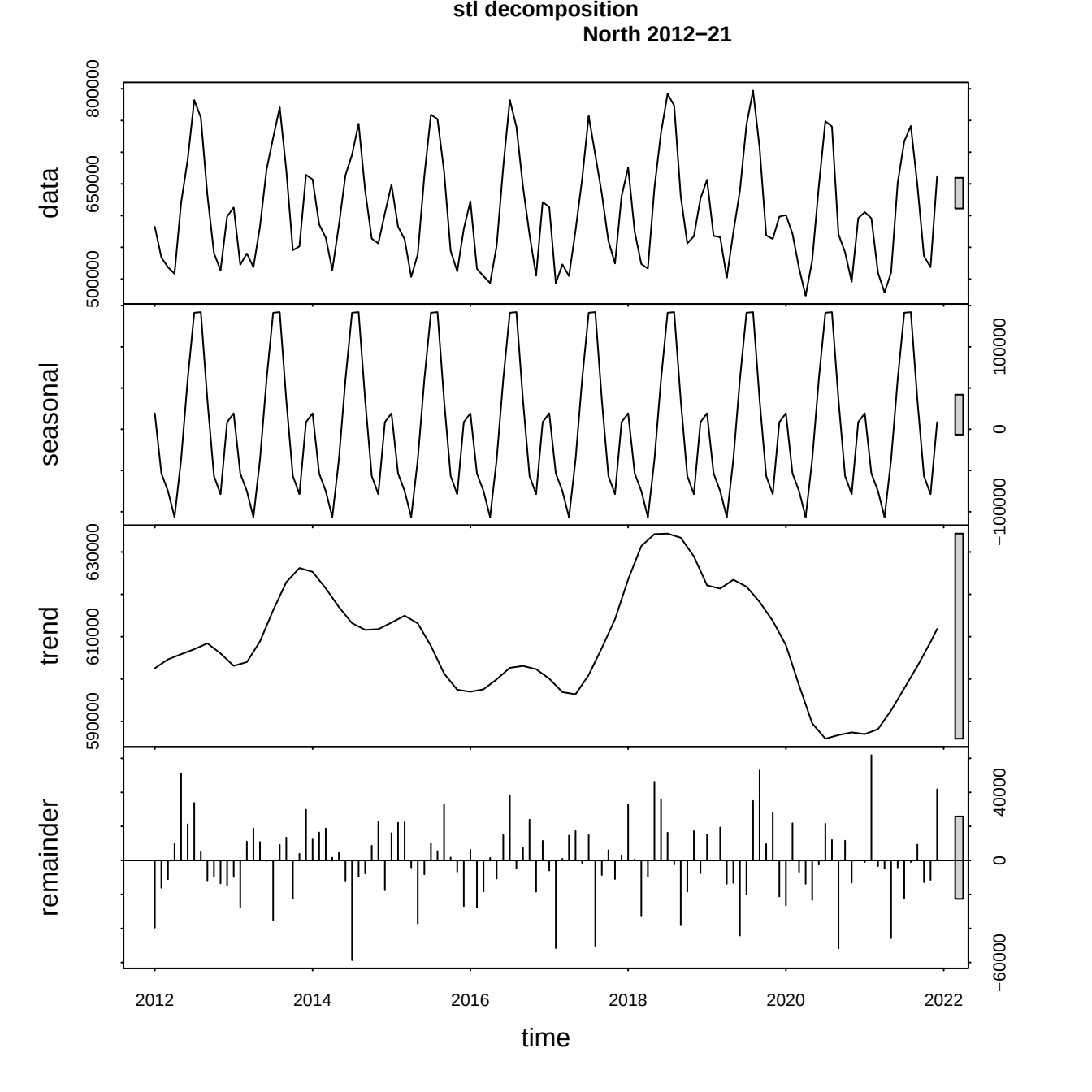

Seasonal plot: ts_somme
Electricity Demand Somme in MW/h
9.0e+06
1.1e+07
1.3e+07
1.5e+07
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Month
2018
2019
2015
2021
2020
2017
2013
2012
2013
2017
2020
2018
2019
2014
2012
2021

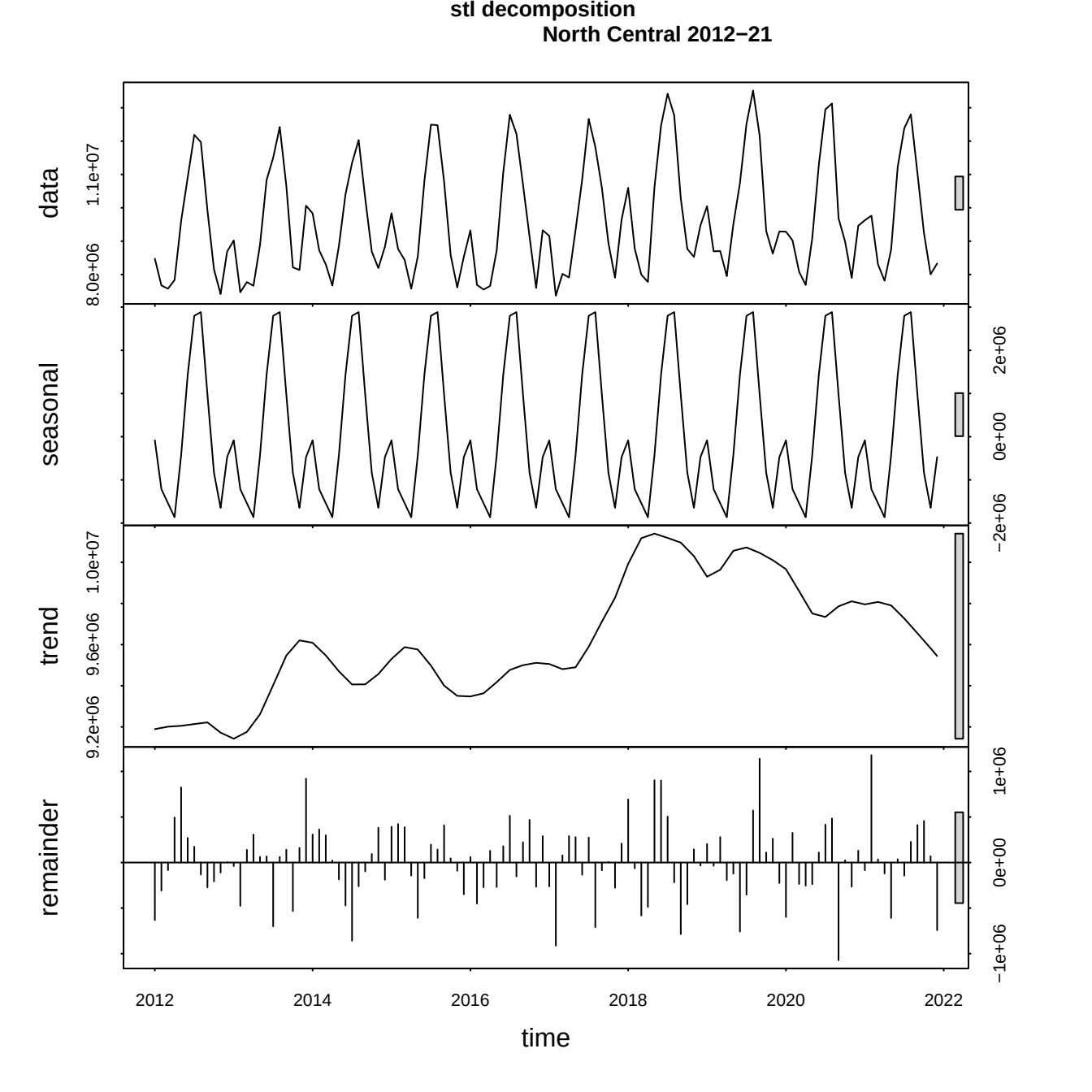

Seasonal plot: ts_north
Electricity Demand North in MW/h
500000
550000
600000
650000
700000
750000
800000
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Month
2018
2019
2015
2016
2017
2021
2020
2012
2014

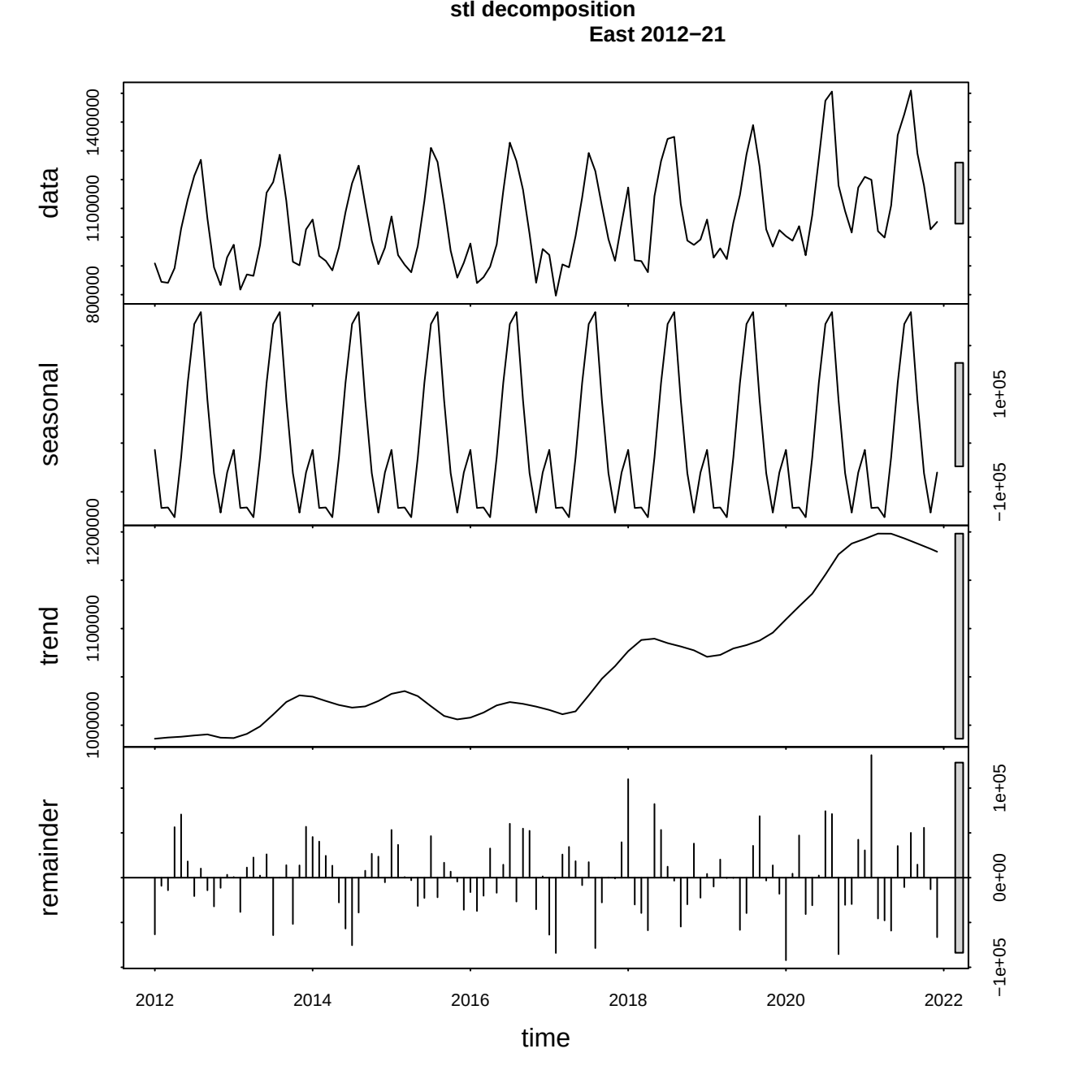

Seasonal plot: ts_north_cen
Electricity Demand North Cen in MW/h
8.0e+06
9.0e+06
1.0e+07
1.1e+07
1.2e+07
1.3e+07
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Month
2018
2019
2015
2021
2016
2020
2017
2013
2012
2013
2017
2020
2016
2019
2014
2012
2015
2021

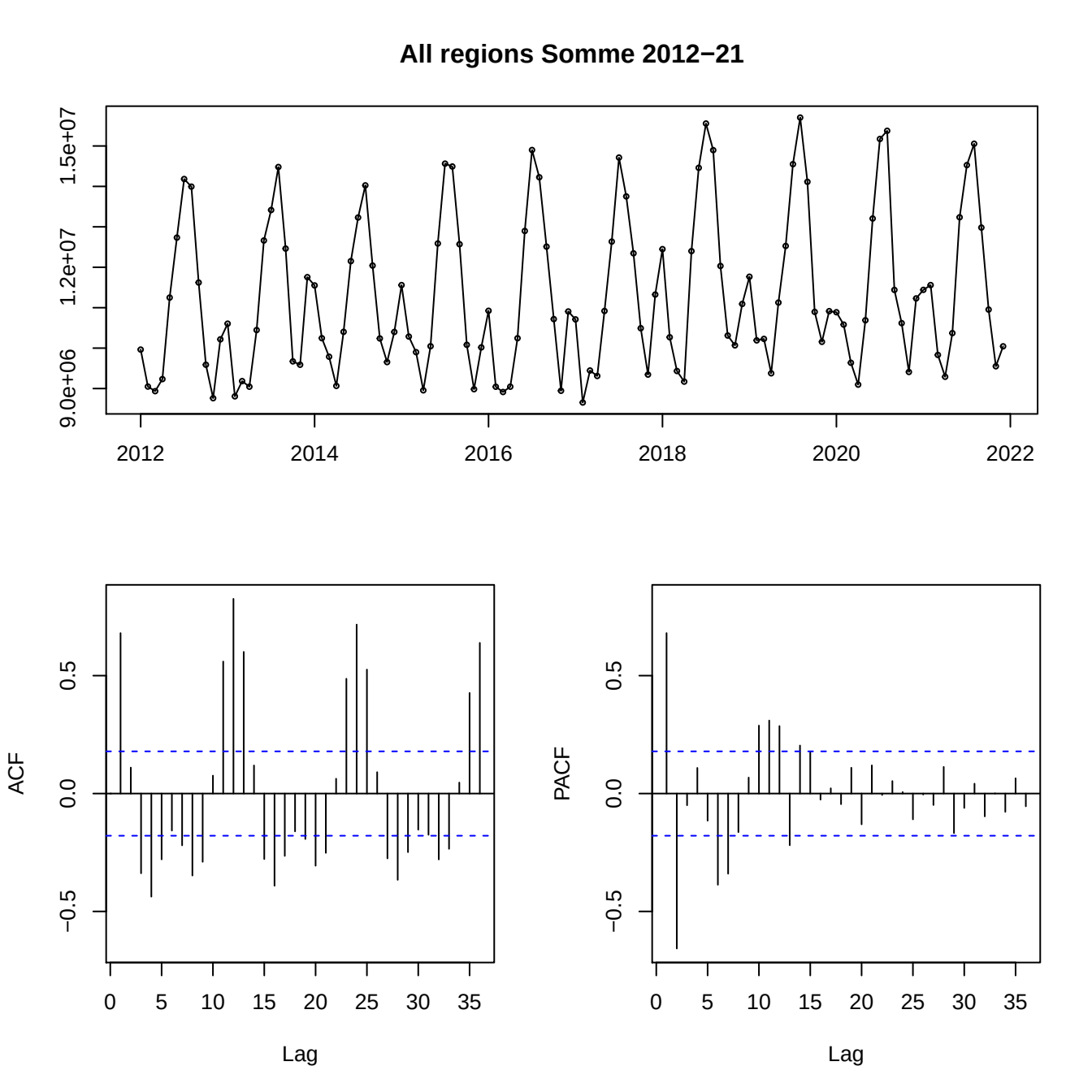

Seasonal plot: ts_east
Electricity Demand East in MW/h
800000
1000000
1200000
1400000
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Month
2021
2018
2015
2019
2020
2016
2017
2012
2020
2021
2017
2019
2018
2016
2012
2015

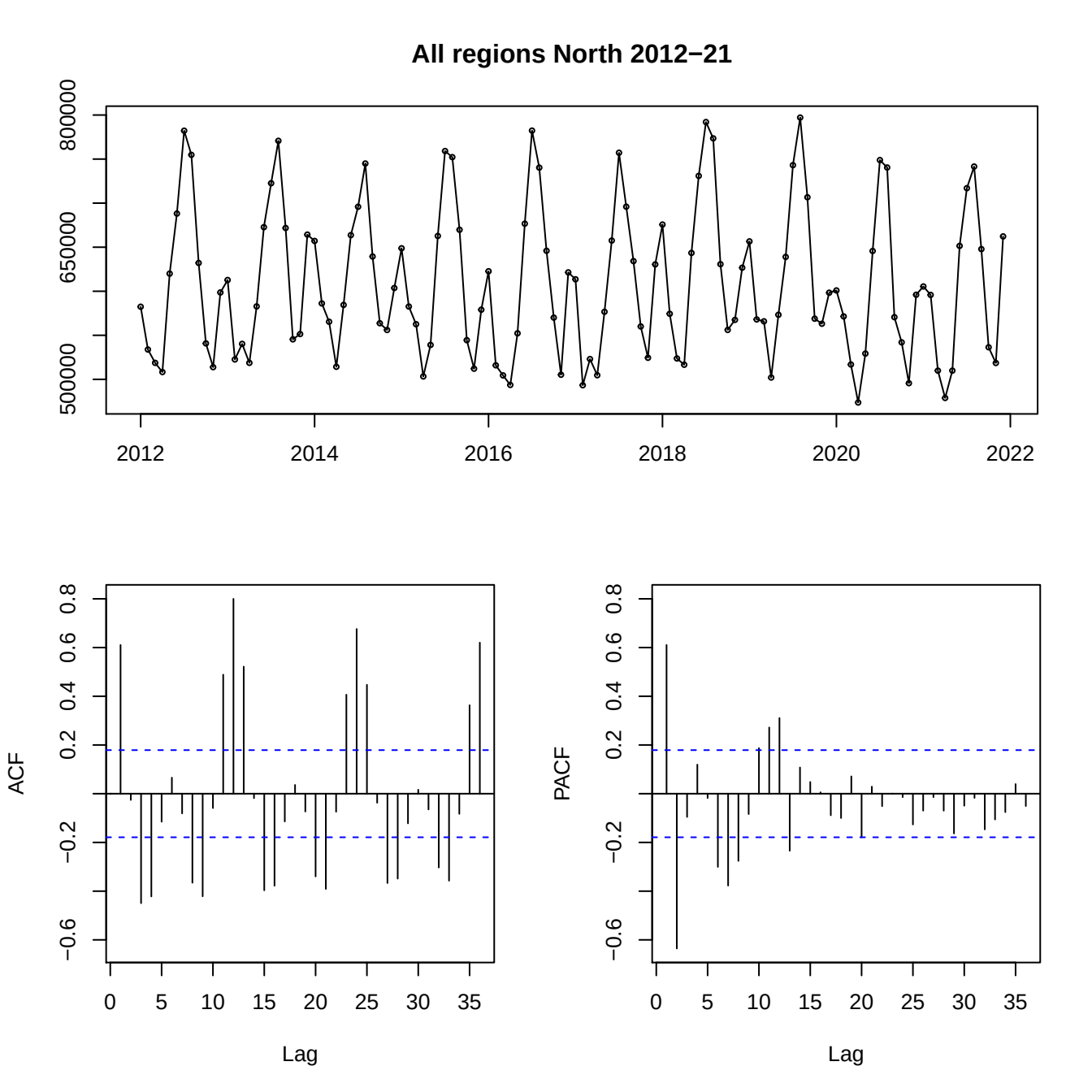

stl decomposition Somme
2012−21
data
seasonal
trend
remainder
9.0e+06
1.2e+07
1.5e+07
−2e+06
0e+00
2e+06
10800000
11400000
−1e+06
0e+00
1e+06
2012
2014
2016
2018
2020
2022
time

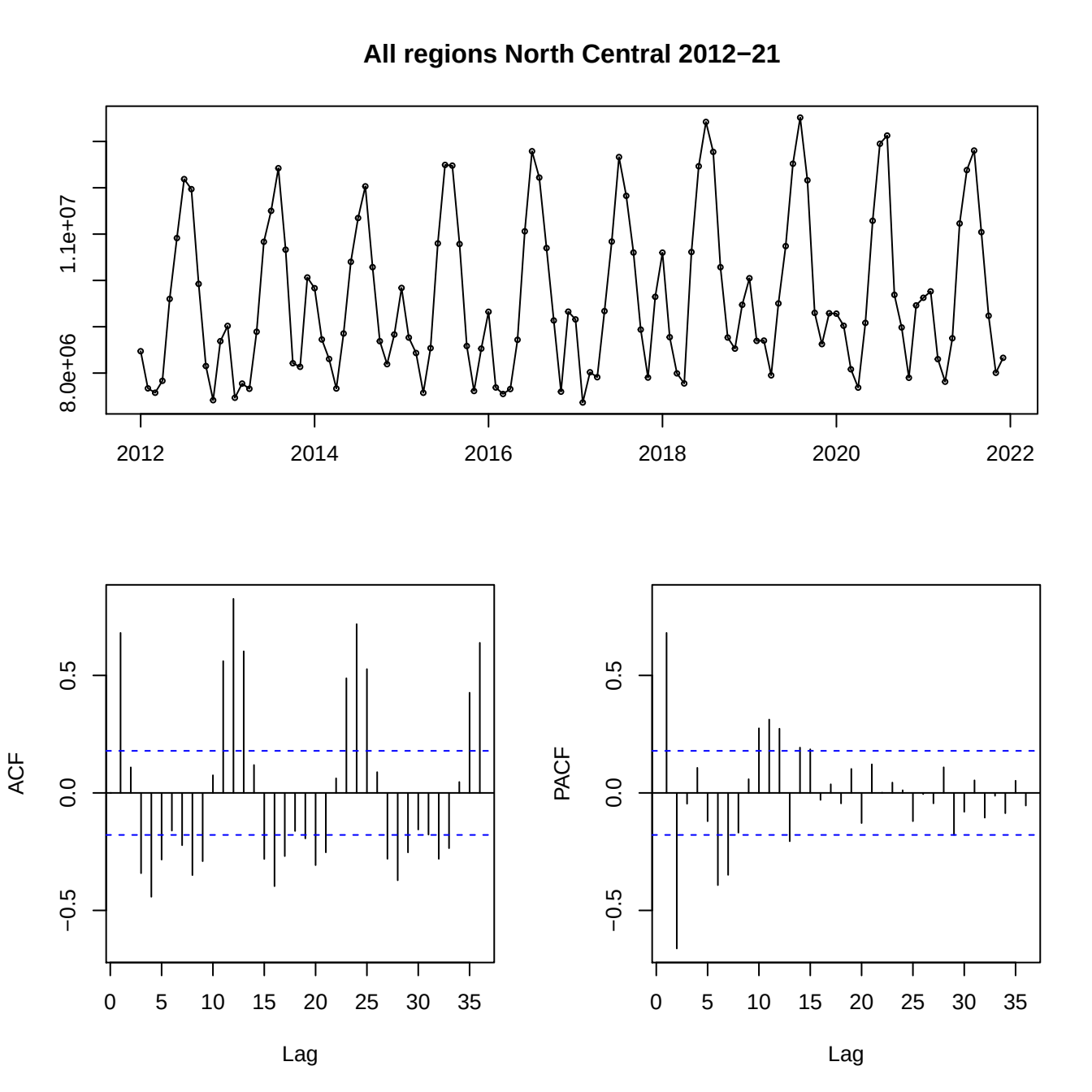

stl decomposition
North 2012−21
data
seasonal
trend
remainder
500000
650000
800000
100000
0
−100000
590000
610000
630000
40000
0
−60000
2012
2014
2016
2018
2020
2022
time

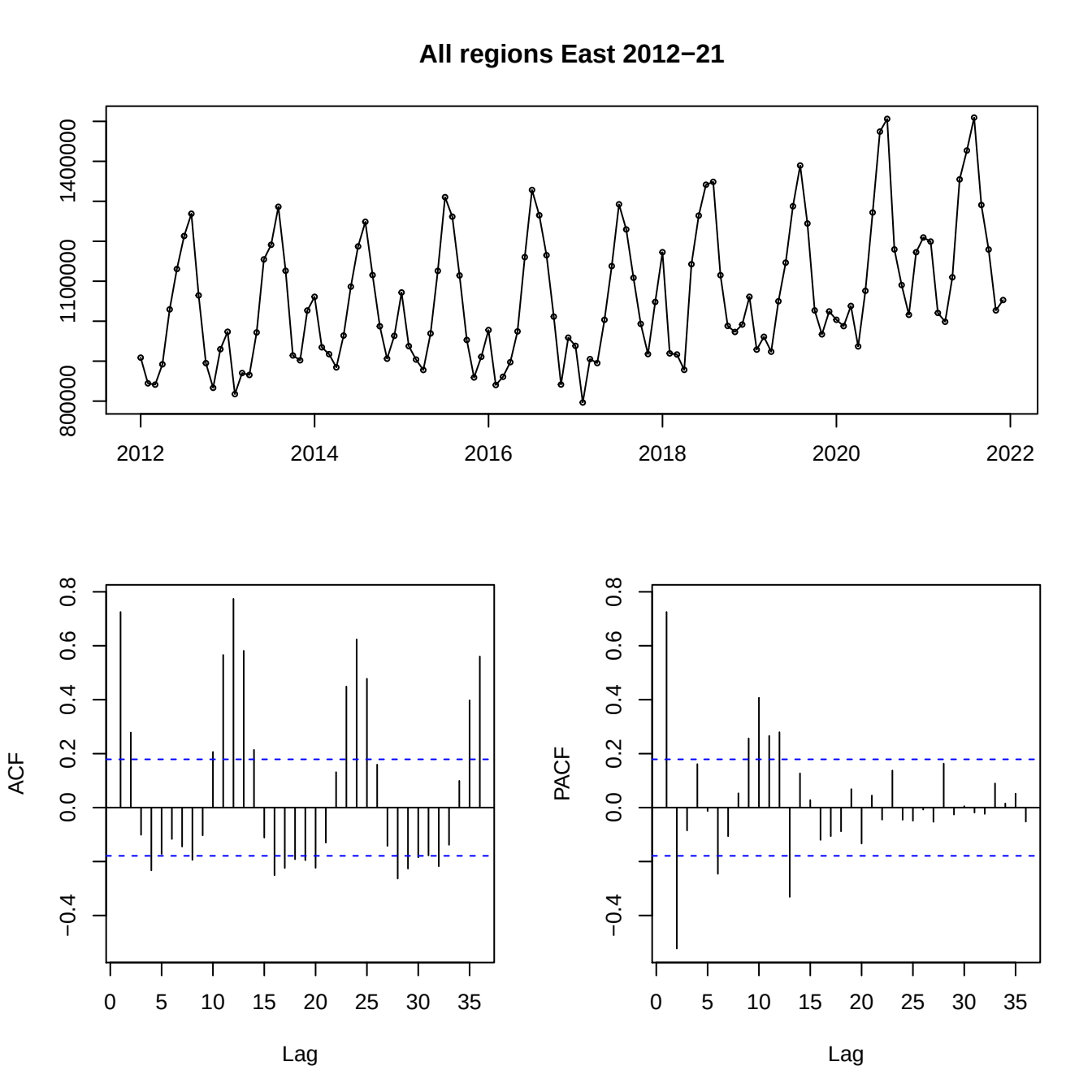

stl decomposition
North Central 2012−21
data
seasonal
trend
remainder
8.0e+06
1.1e+07
2e+06
0e+00
−2e+06
9.2e+06
9.6e+06
1.0e+07
1e+06
0e+00
−1e+06
2012
2014
2016
2018
2020
2022
time

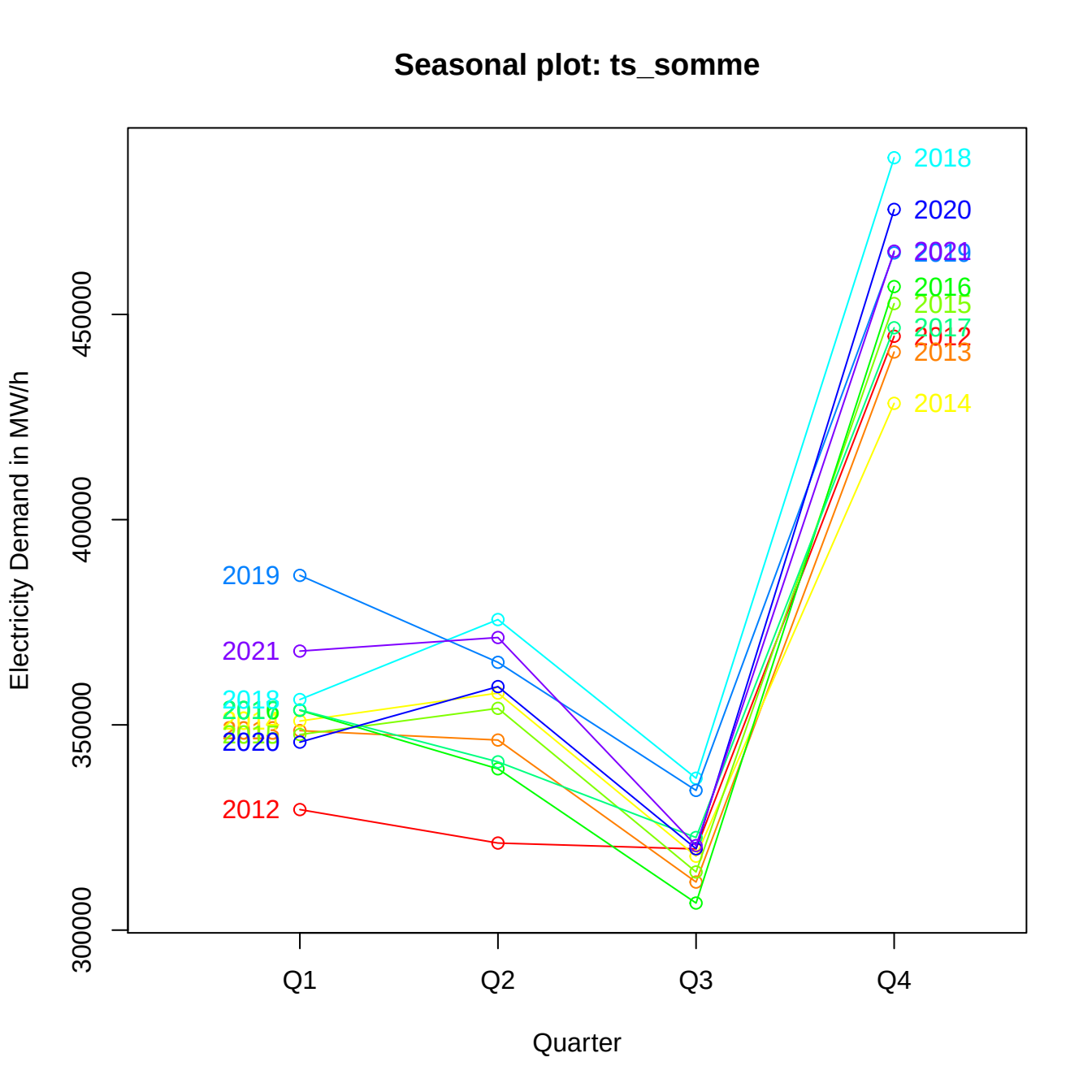

stl decomposition
East 2012−21
data
seasonal
trend
remainder
800000
1100000
1400000
1200000
1000000
1e+05
−1e+05
0e+00
2012
2014
2016
2018
2020
2022
time

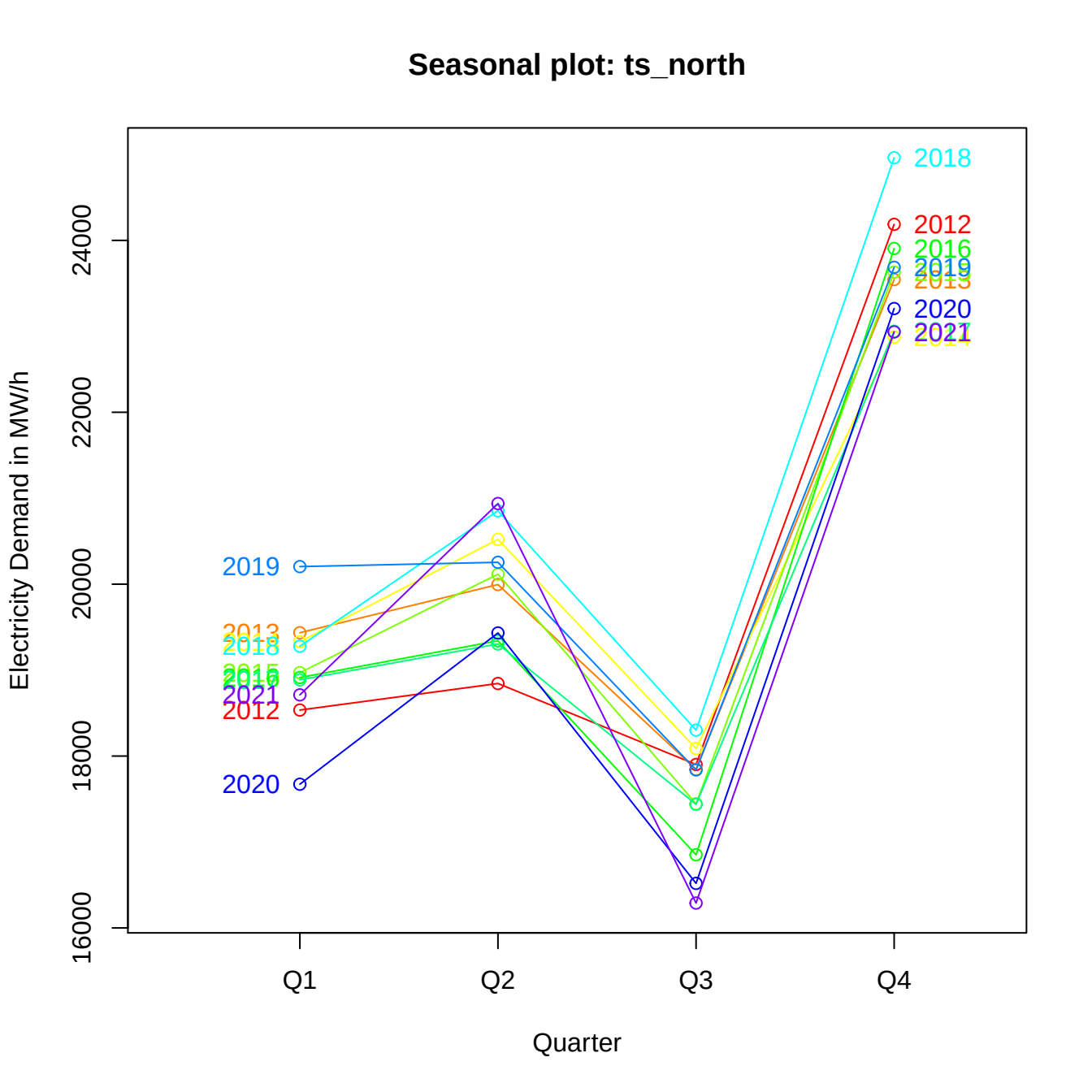

All regions Somme 2012−21
9.0e+06
1.2e+07
1.5e+07
2012
2014
2016
2018
2020
2022
ACF
0.5
0.0
−0.5
0
5
10
15
20
25
30
35
Lag
PACF
0.5
0.0
−0.5
0
5
10
15
20
25
30
35
Lag

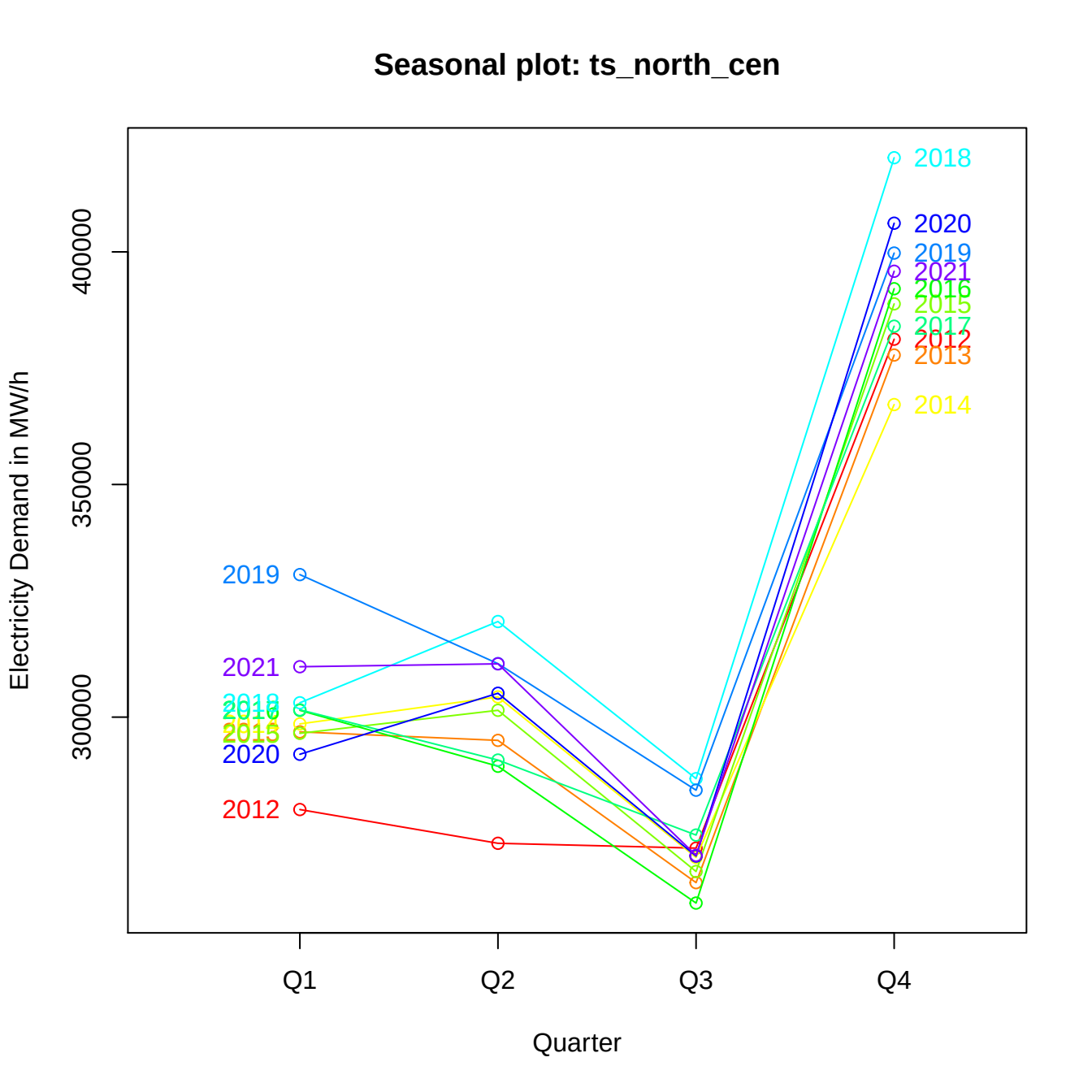

All regions North 2012−21
800000
650000
500000
2012
2014
2016
2018
2020
2022
ACF
0.8
0.6
0.4
0.2
−0.2
−0.6
0
5
10
15
20
25
30
35
Lag
PACF
0.8
0.6
0.4
0.2
−0.2
−0.6
0
5
10
15
20
25
30
35
Lag

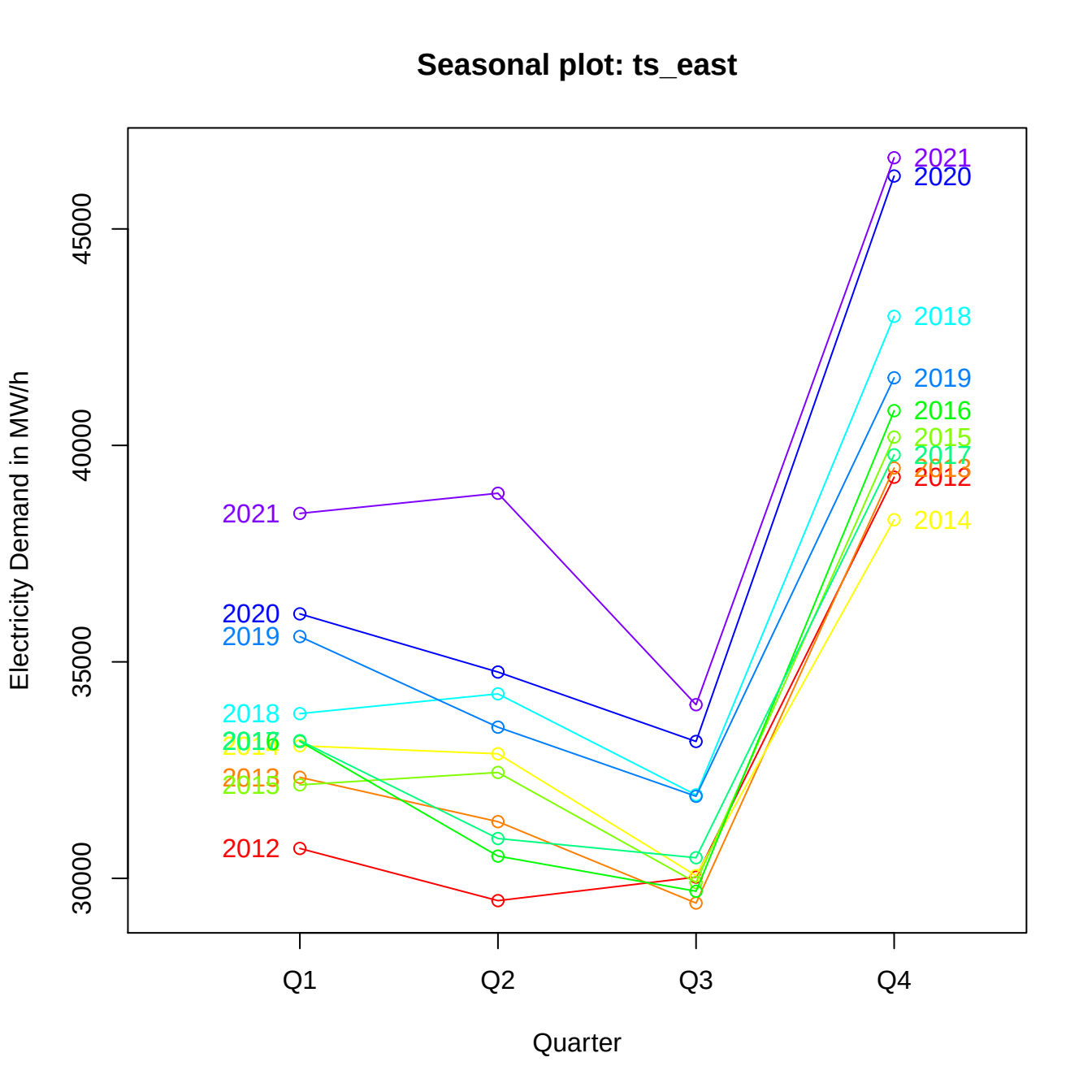

All regions North Central 2012−21
8.0e+06
1.1e+07
2012
2014
2016
2018
2020
2022
ACF
0.5
0.0
−0.5
0
5
10
15
20
25
30
35
Lag
PACF
0.5
0.0
−0.5
0
5
10
15
20
25
30
35
Lag

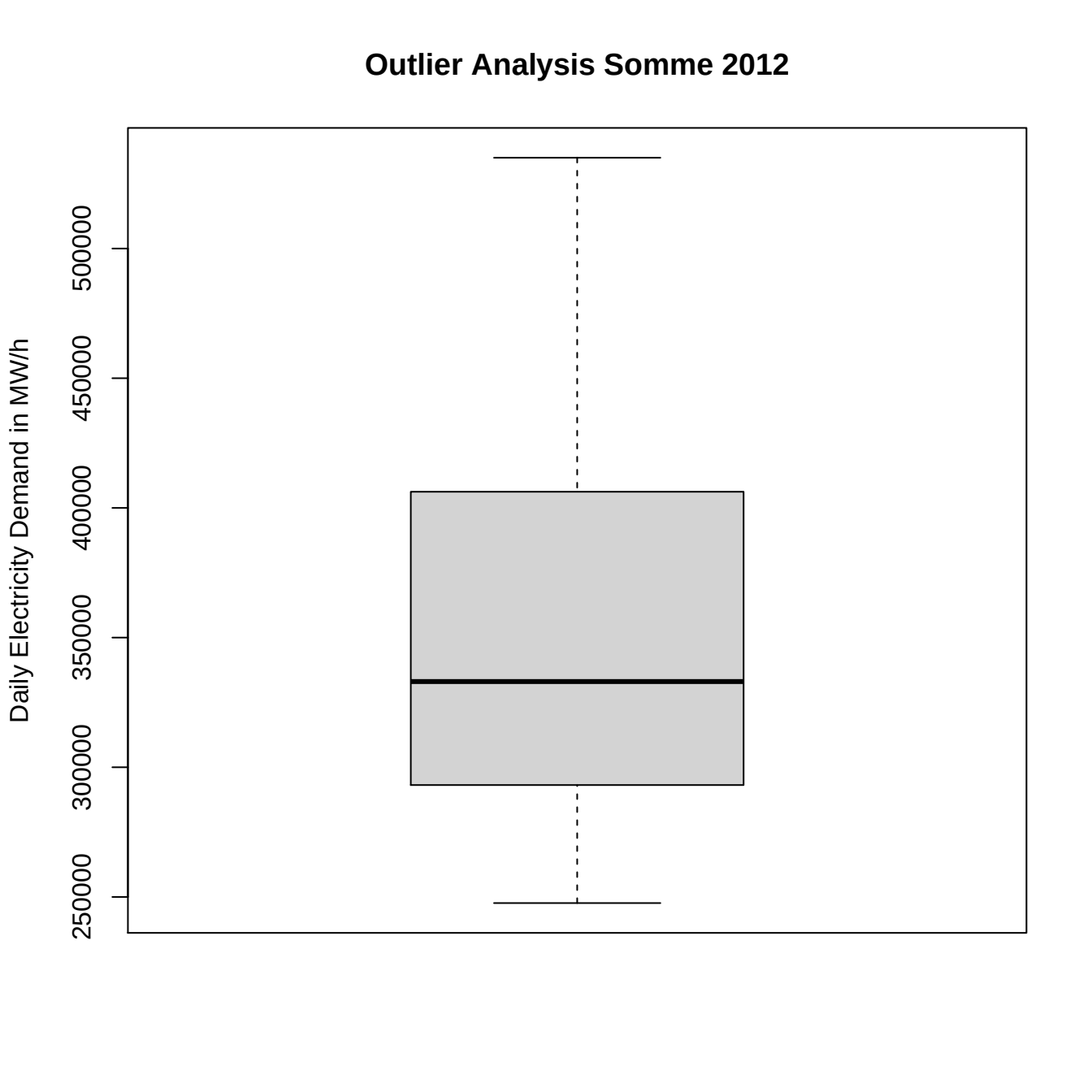

All regions East 2012−21
800000
1100000
1400000
2012
2014
2016
2018
2020
2022
ACF
PACF
−0.4
0.0
0.2
0.4
0.6
0.8
0
5
10
15
20
25
30
35
Lag
Lag

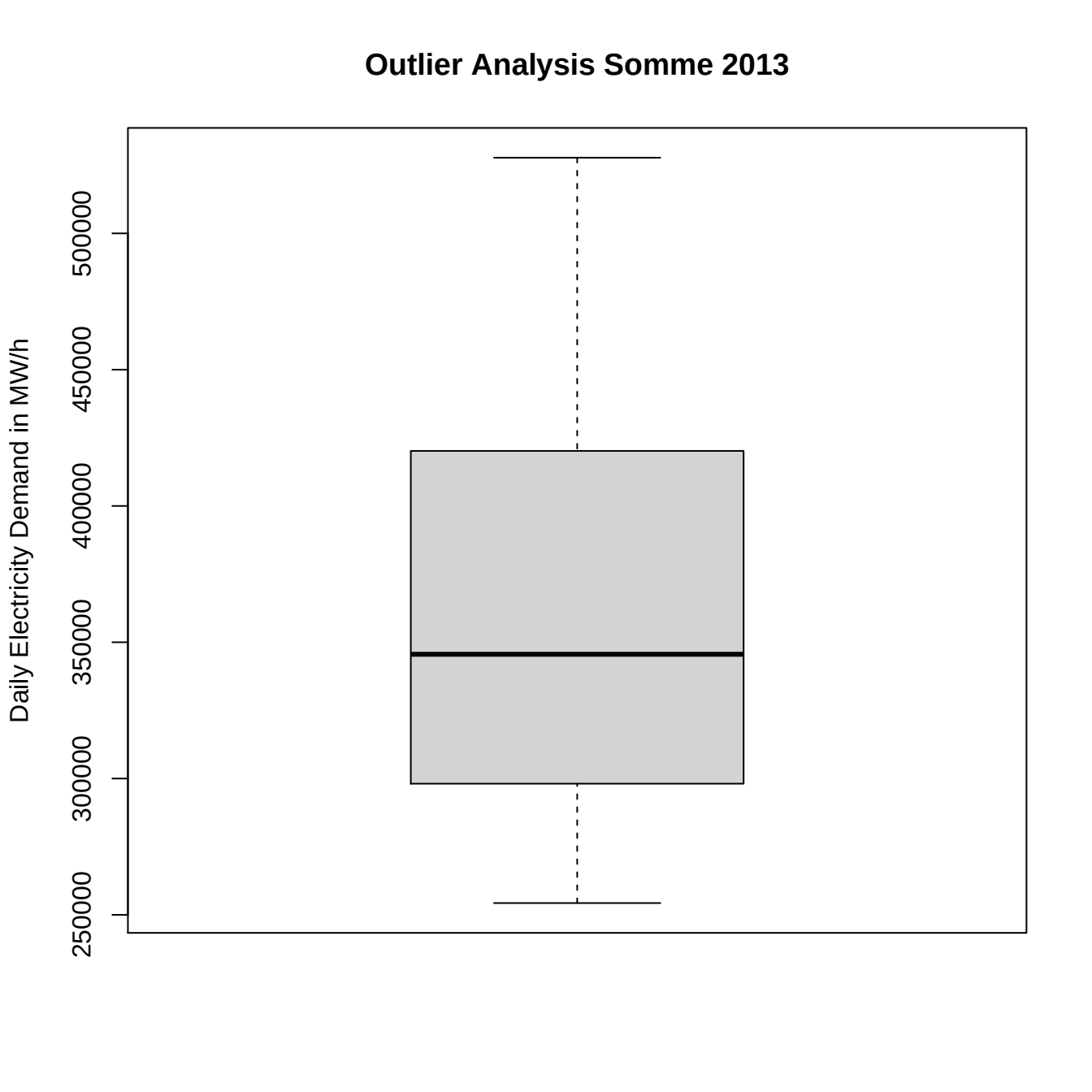

Seasonal plot: ts_somme
Electricity Demand in MW/h
300000
350000
400000
450000
Q1
Q2
Q3
Q4
Quarter
2018
2020
2019
2016
2015
2017
2012
2013
2014
2019
2021
2018
2016
2020
2012

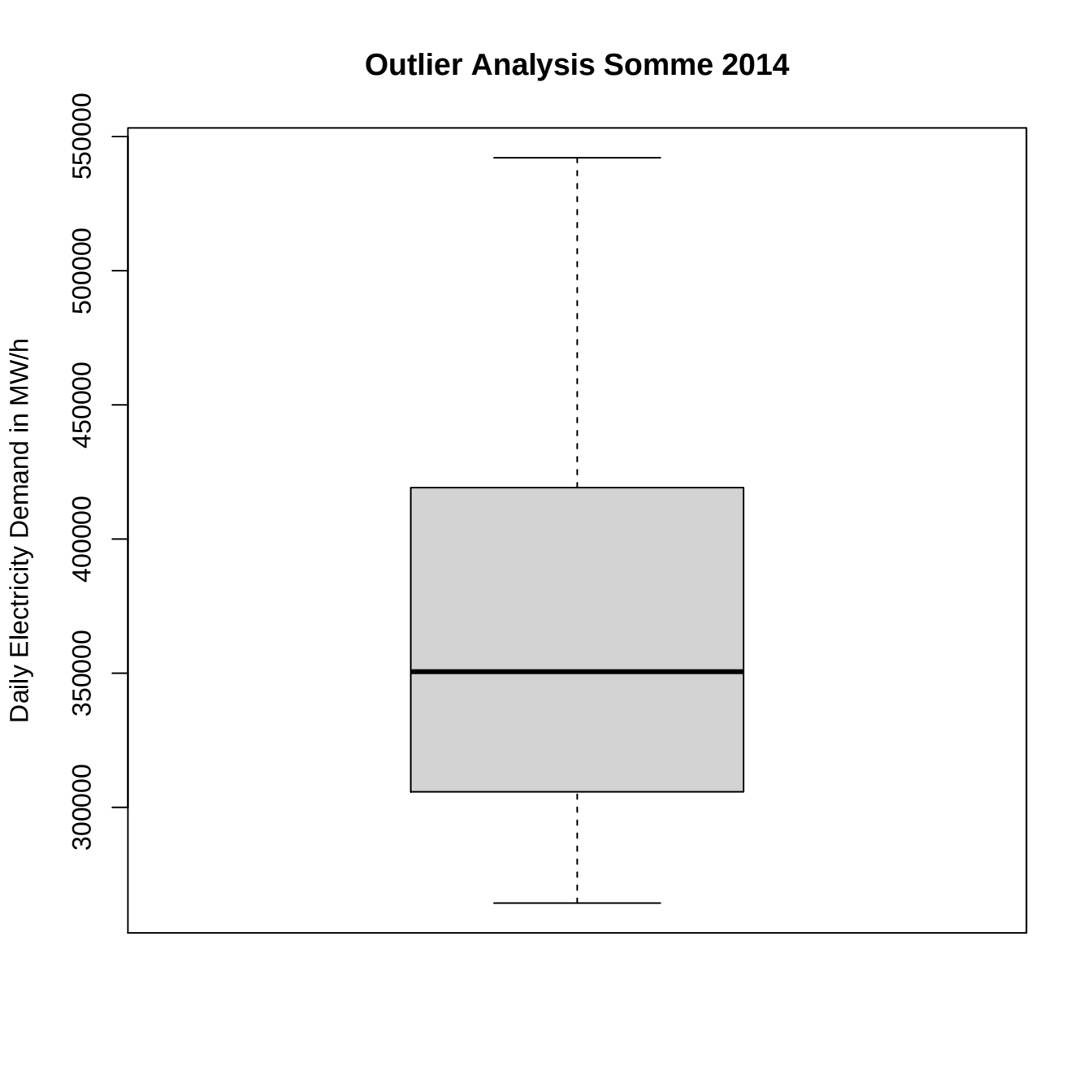

Seasonal plot: ts_north
Electricity Demand in MW/h
16000
18000
20000
22000
24000
Q1
Q2
Q3
Q4
Quarter
2019
2013
2018
2015
2016
2021
2012
2020
2018
2012
2016
2019
2013
2020
2021
2017

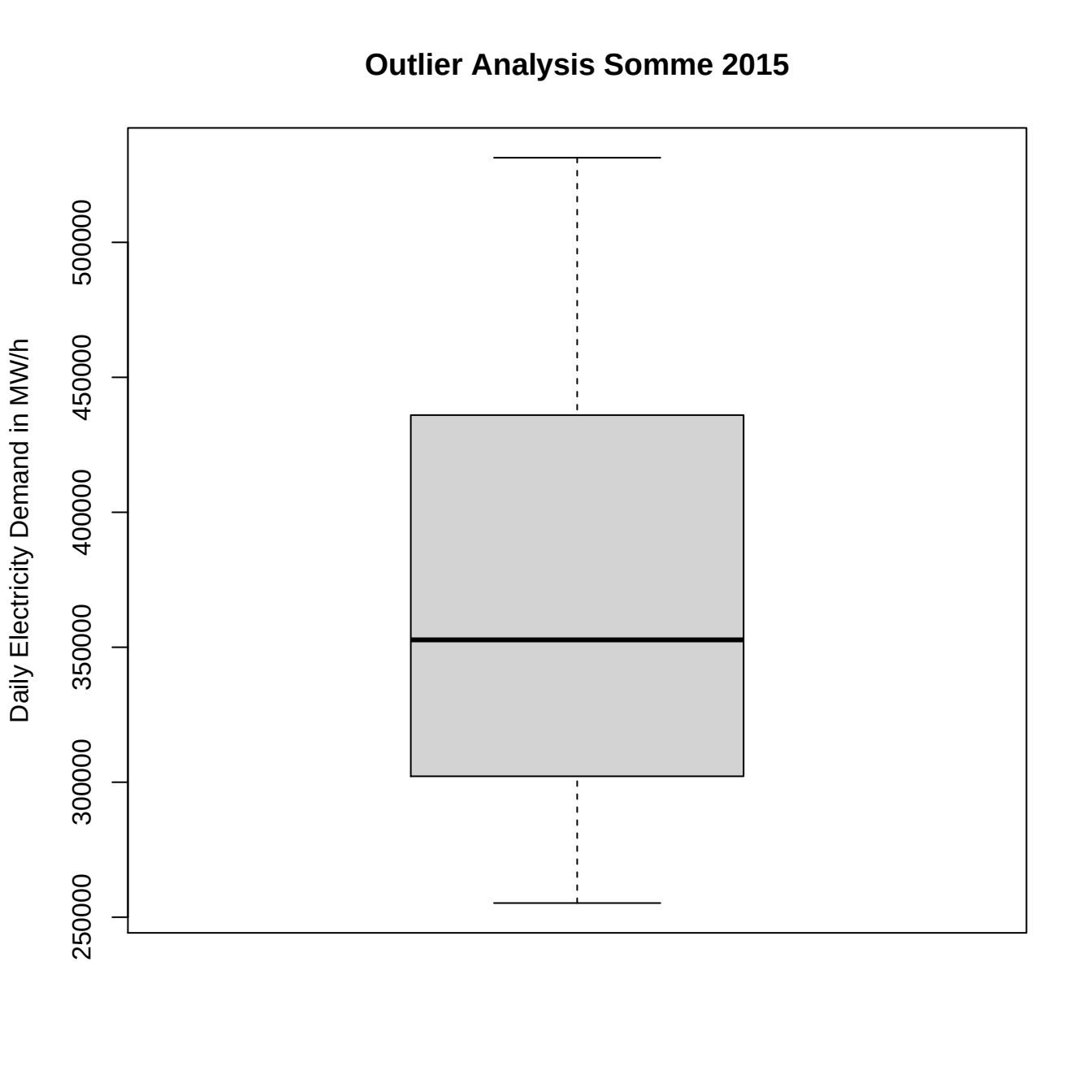

Seasonal plot: ts_north_cen
Electricity Demand in MW/h
300000
350000
400000
Q1
Q2
Q3
Q4
Quarter
2018
2020
2019
2021
2016
2015
2017
2012
2013
2014
2019
2021
2018
2016
2017
2015
2020
2012

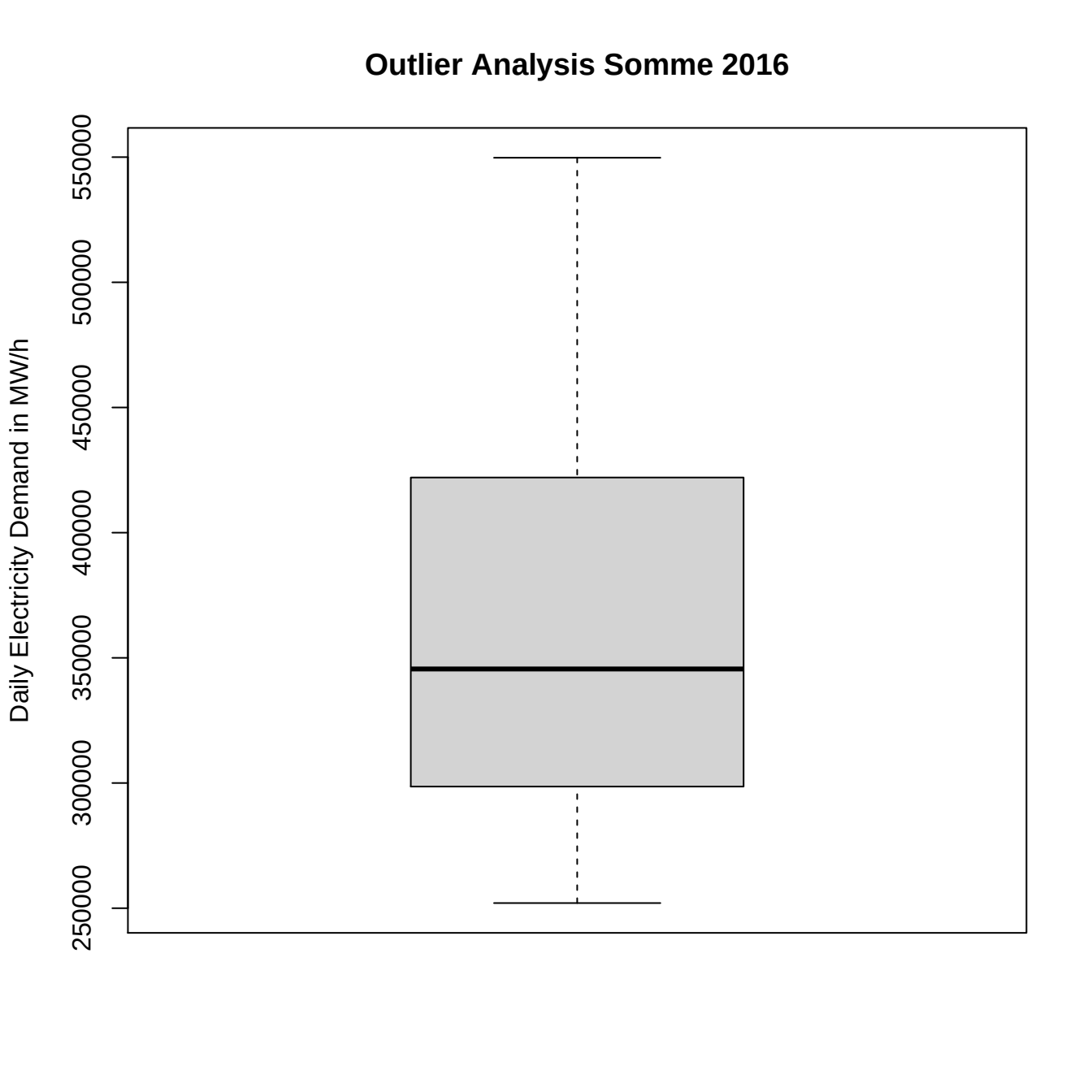

Seasonal plot: ts_east
Electricity Demand in MW/h
30000
35000
40000
45000
Q1
Q2
Q3
Q4
Quarter
2021
2020
2019
2018
2016
2015
2017
2013
2012
2014

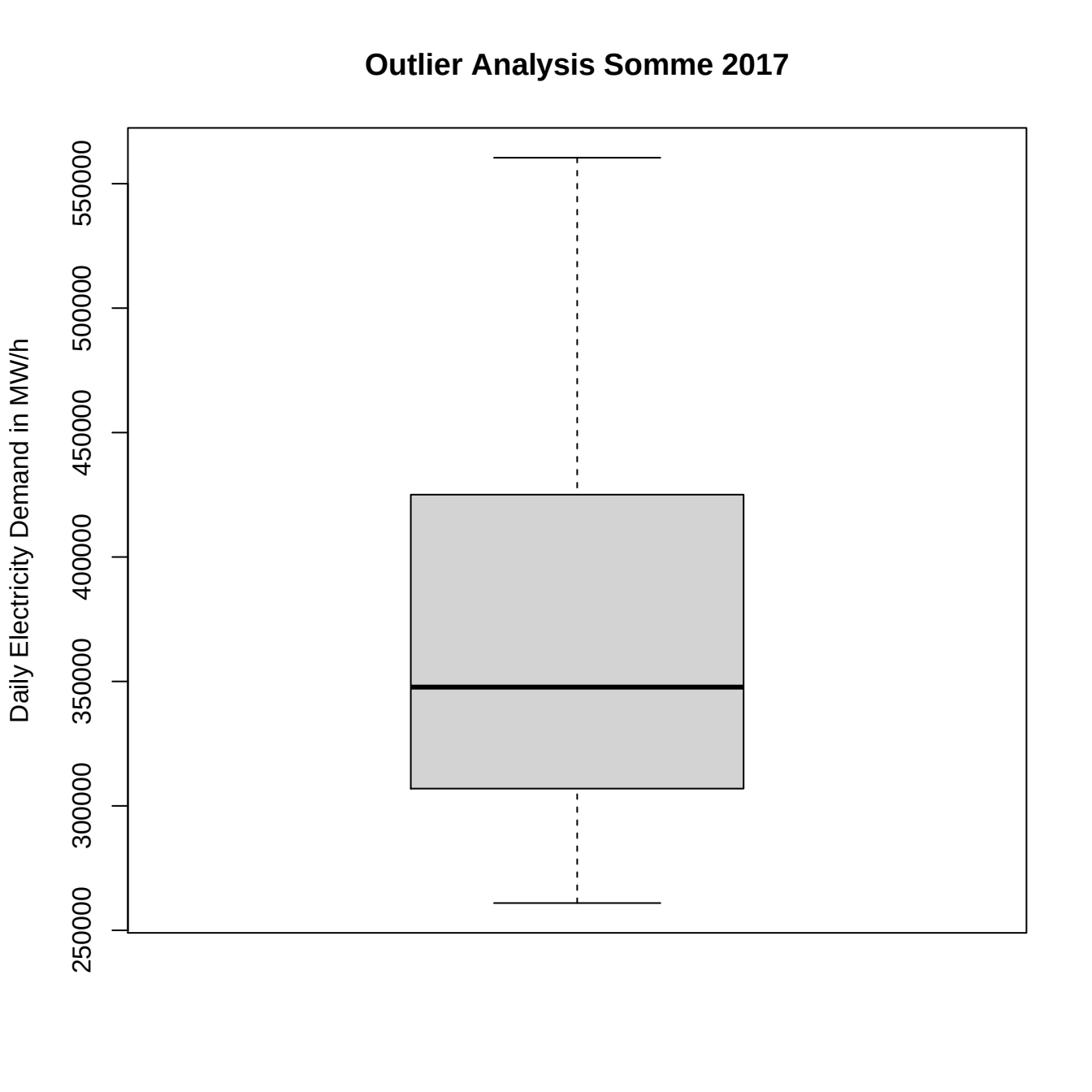

Outlier Analysis Somme 2012
Daily Electricity Demand in MW/h
250000
300000
350000
400000
450000
500000

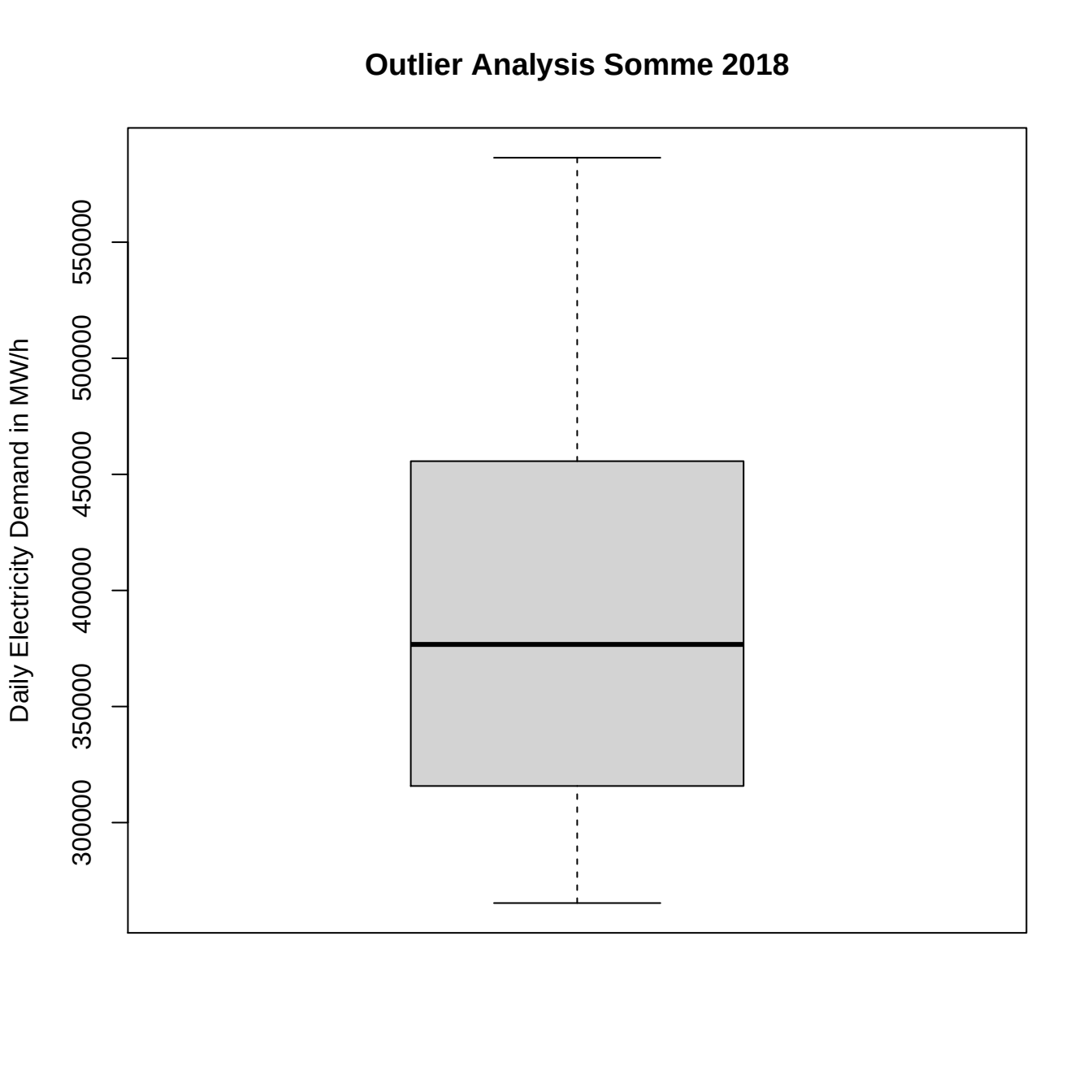

Outlier Analysis Somme 2013
Daily Electricity Demand in MW/h
250000
300000
350000
400000
450000
500000

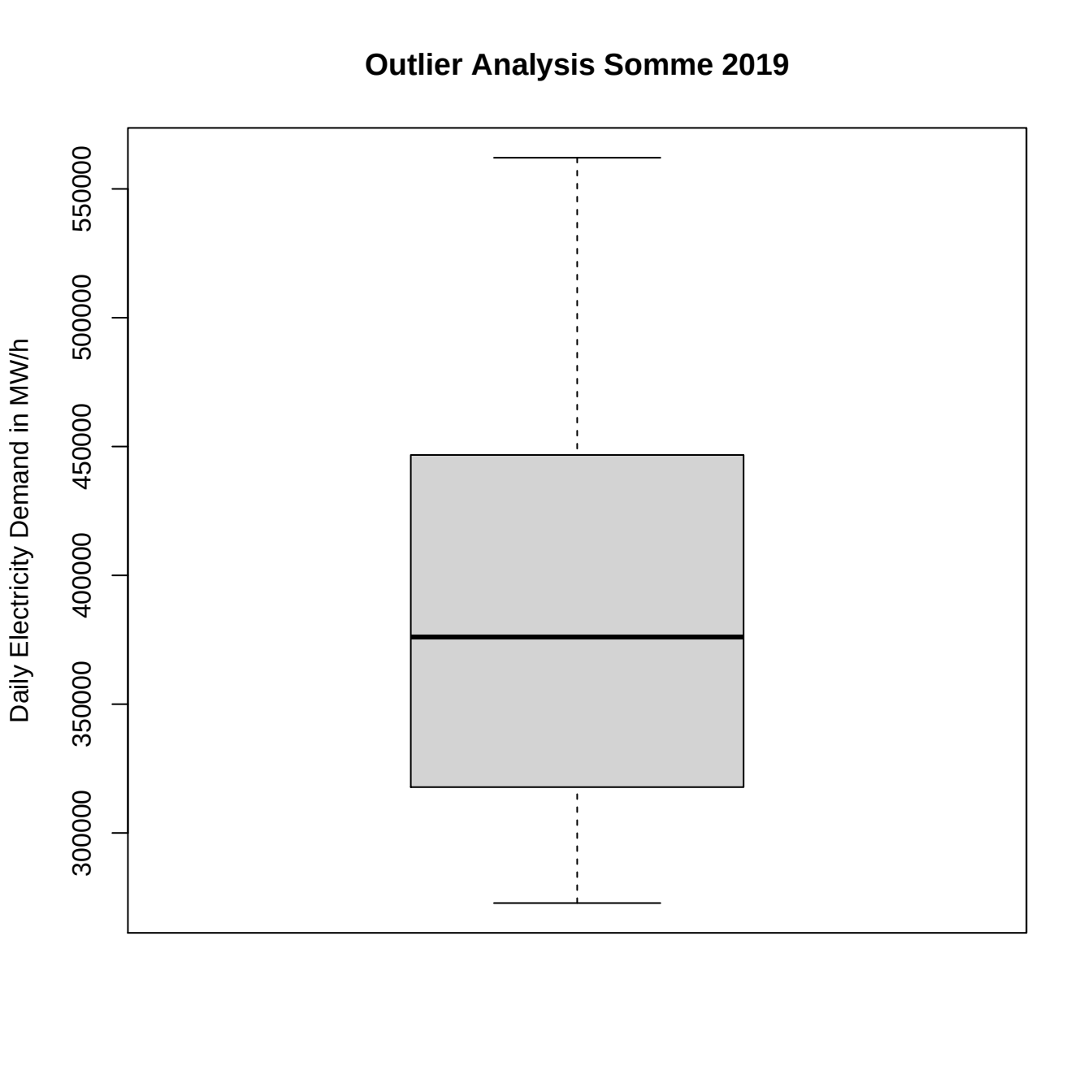

Outlier Analysis Somme 2014
Daily Electricity Demand in MW/h
300000
350000
400000
450000
500000
550000

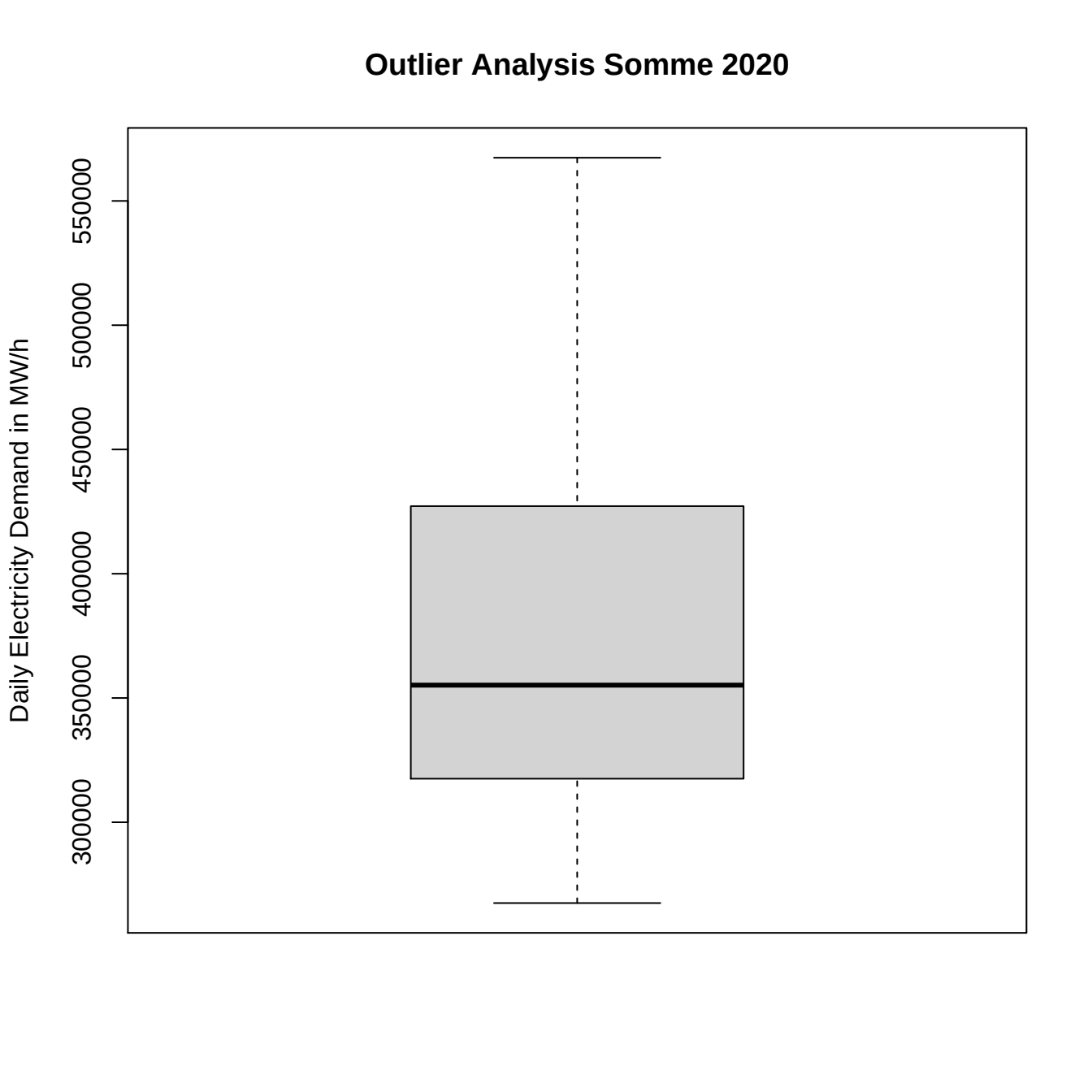

Outlier Analysis Somme 2015
Daily Electricity Demand in MW/h
250000
300000
350000
400000
450000
500000

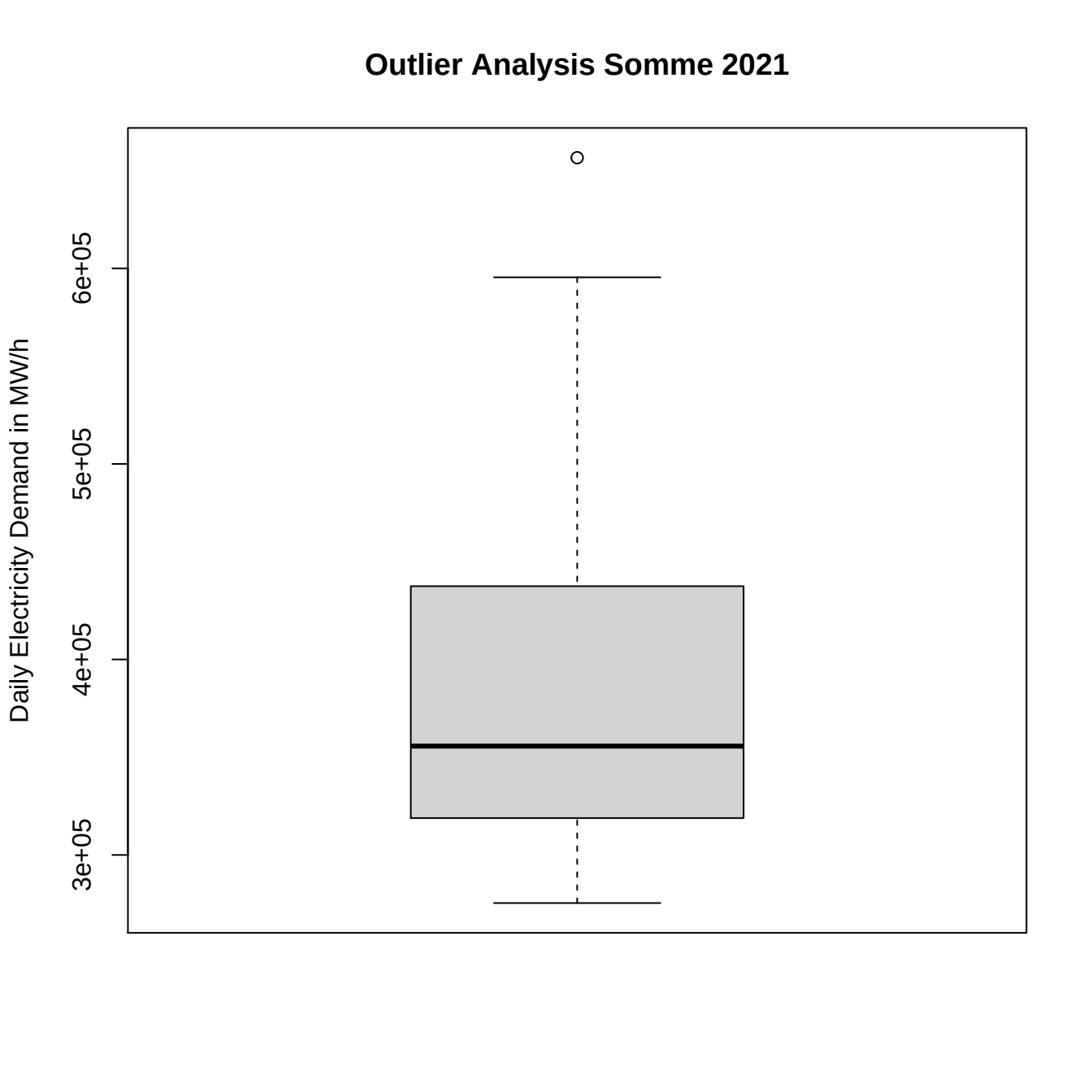

Outlier Analysis Somme 2016
Daily Electricity Demand in MW/h
250000
300000
350000
400000
450000
500000
550000

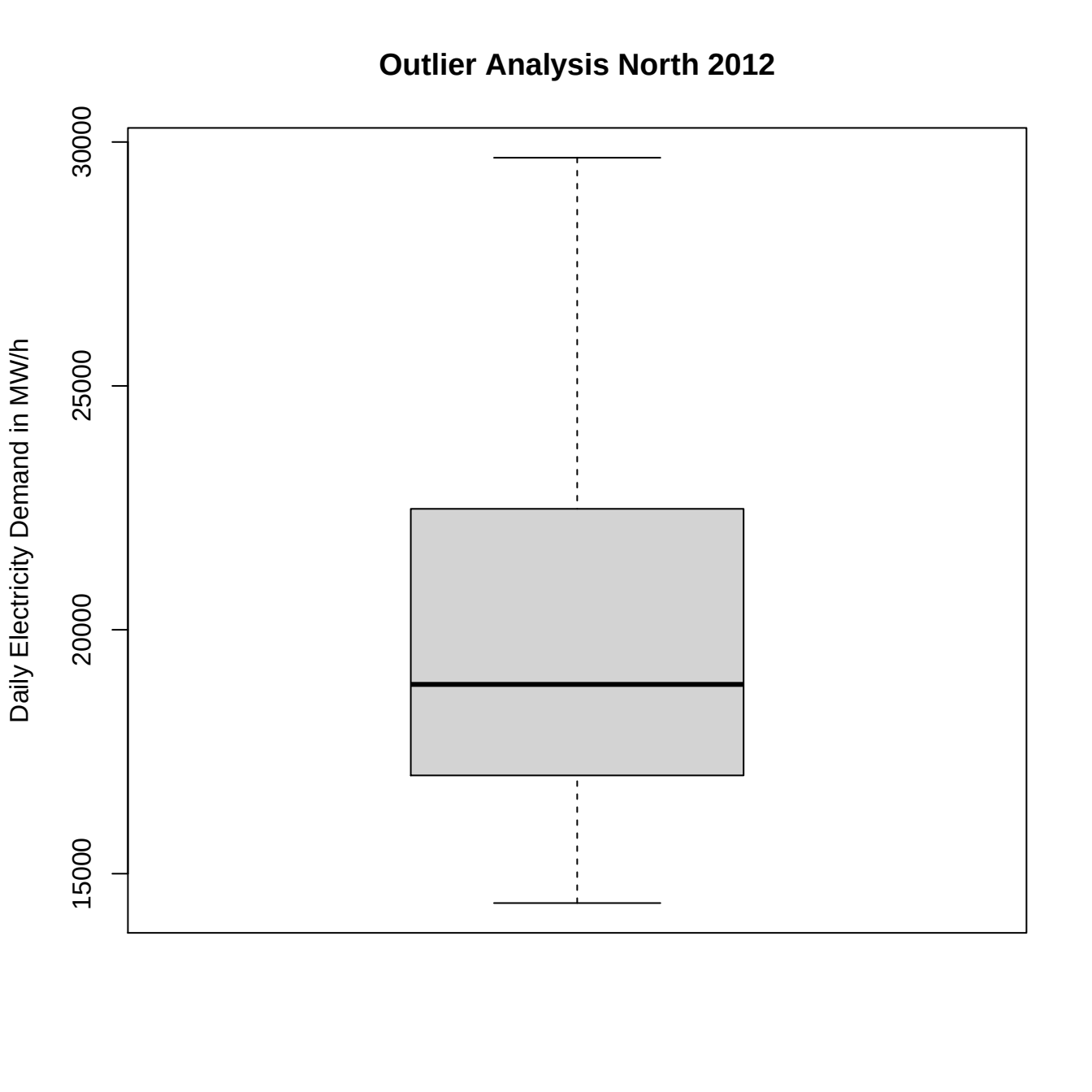

Outlier Analysis Somme 2017
Daily Electricity Demand in MW/h
250000
300000
350000
400000
450000
500000
550000

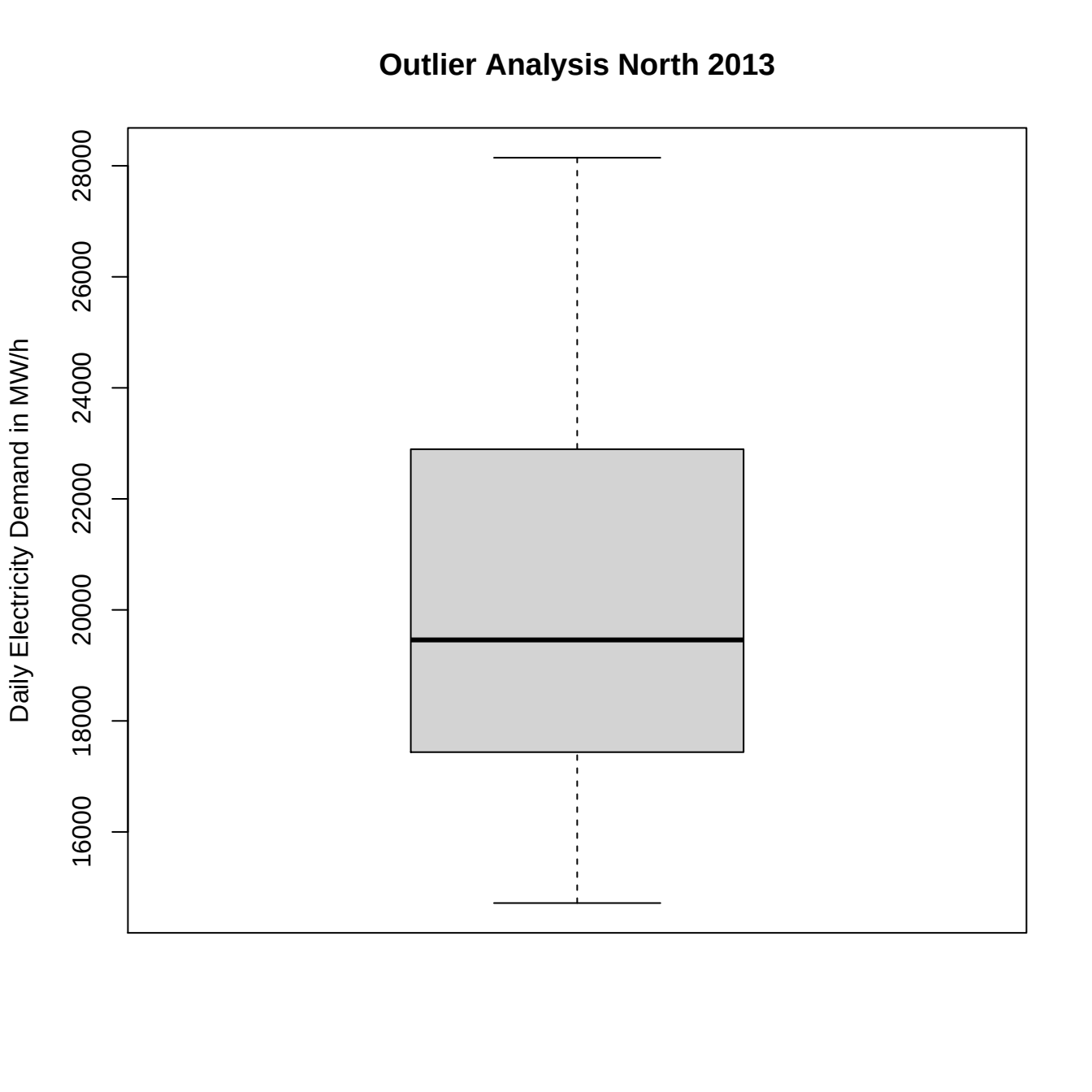

Outlier Analysis Somme 2018
Daily Electricity Demand in MW/h
300000
350000
400000
450000
500000
550000

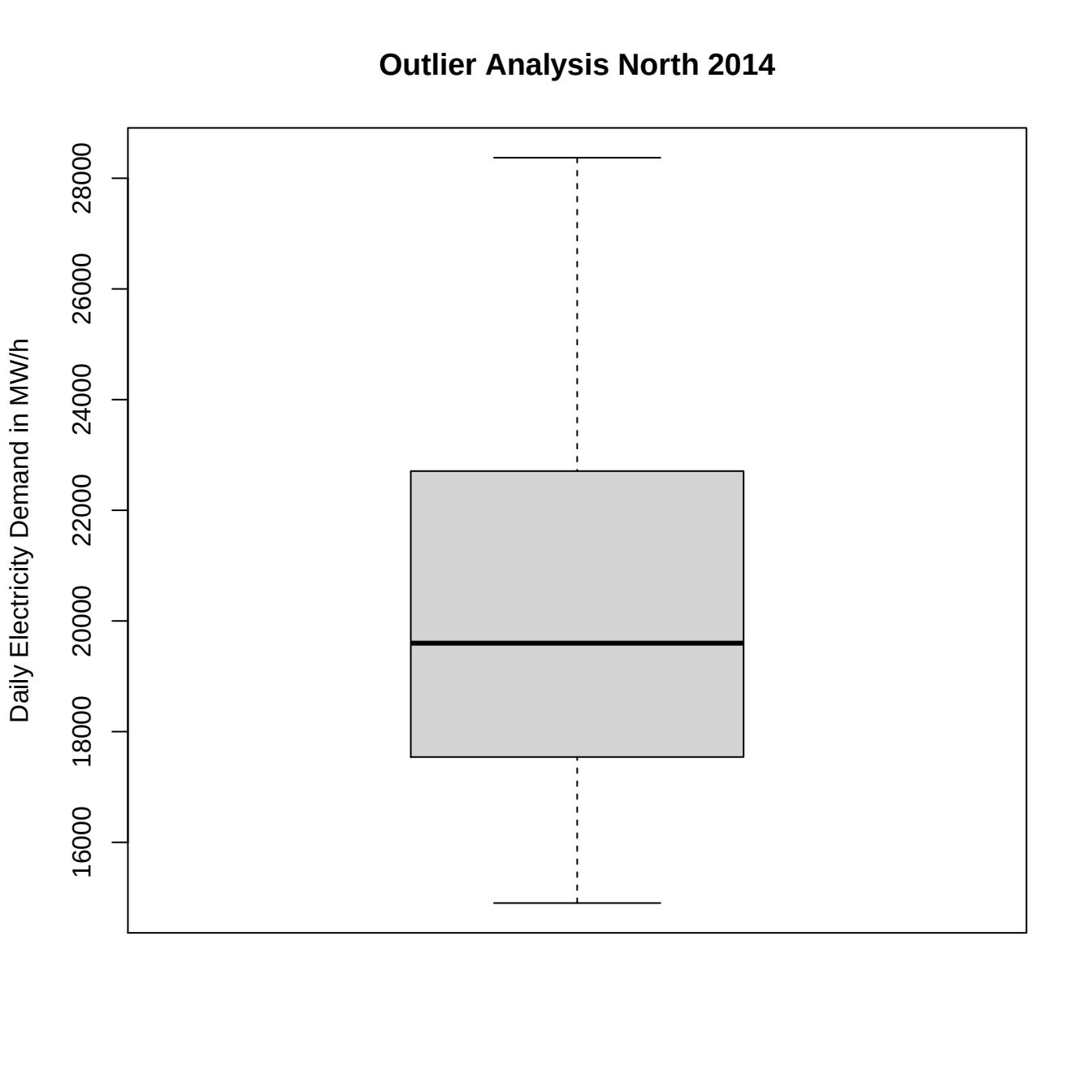

Outlier Analysis Somme 2019
Daily Electricity Demand in MW/h
300000
350000
400000
450000
500000
550000

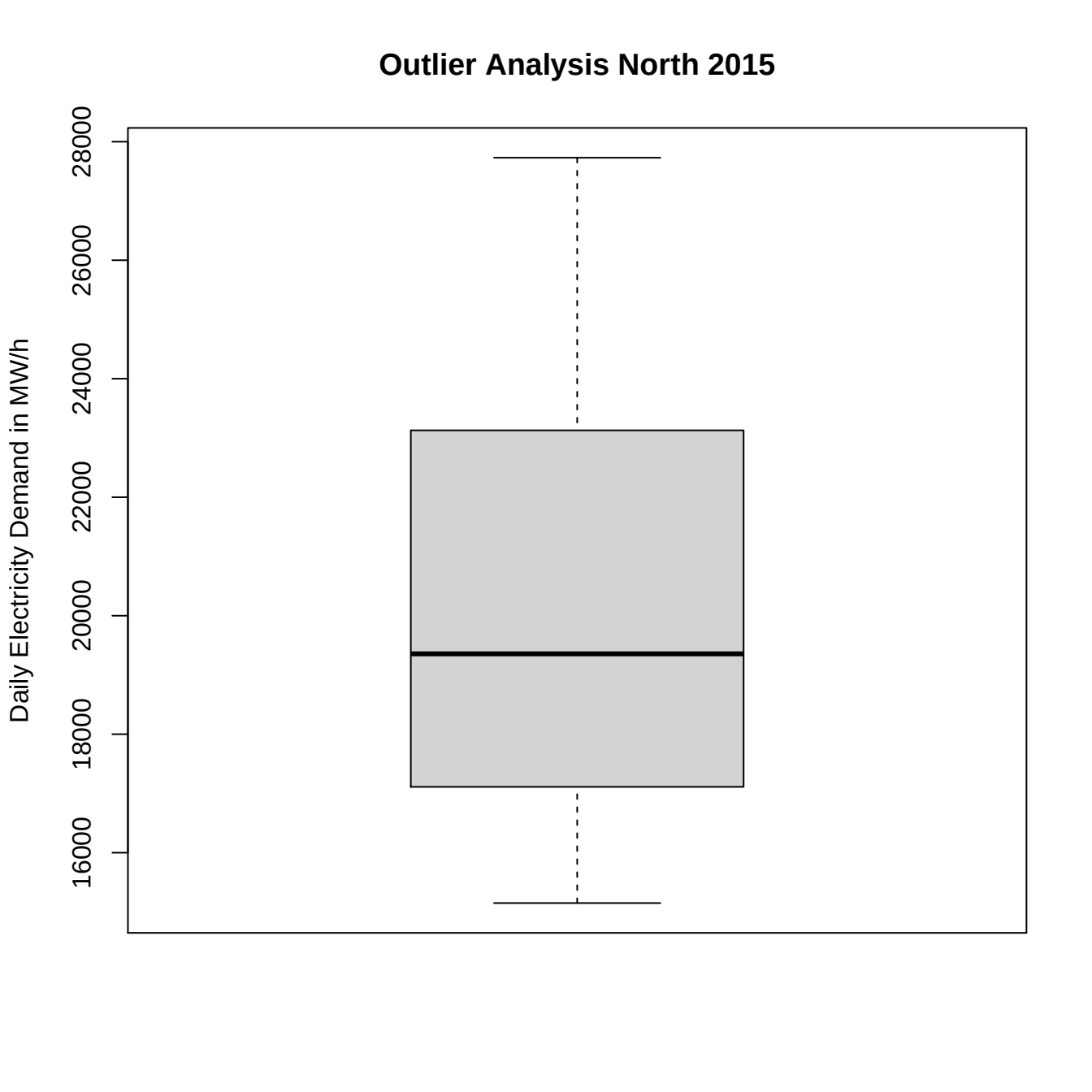

Outlier Analysis Somme 2020
Daily Electricity Demand in MW/h
300000
350000
400000
450000
500000
550000

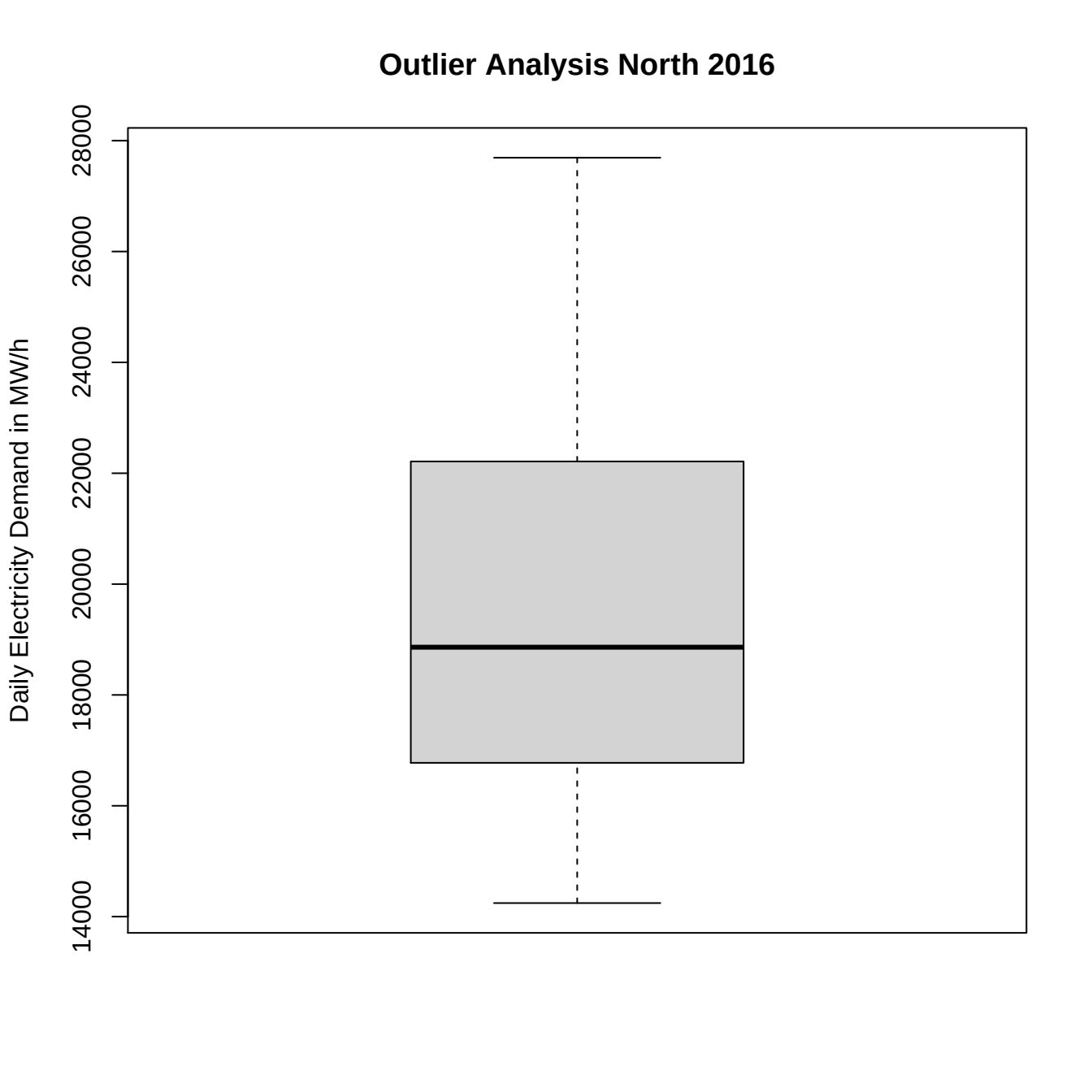

Outlier Analysis Somme 2021
Daily Electricity Demand in MW/h
3e+05
4e+05
5e+05
6e+05

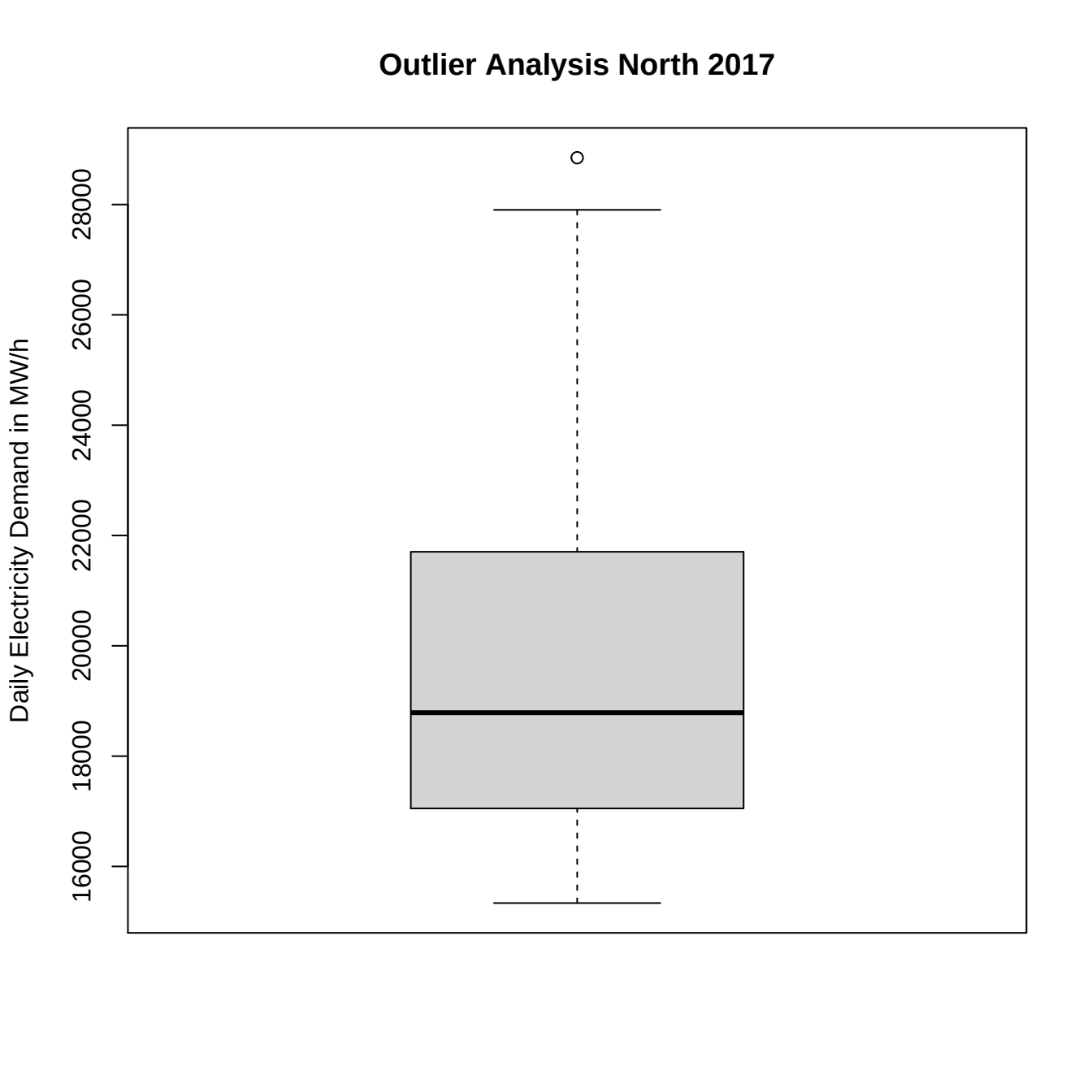

Outlier Analysis North 2012
Daily Electricity Demand in MW/h
30000
25000
20000
15000

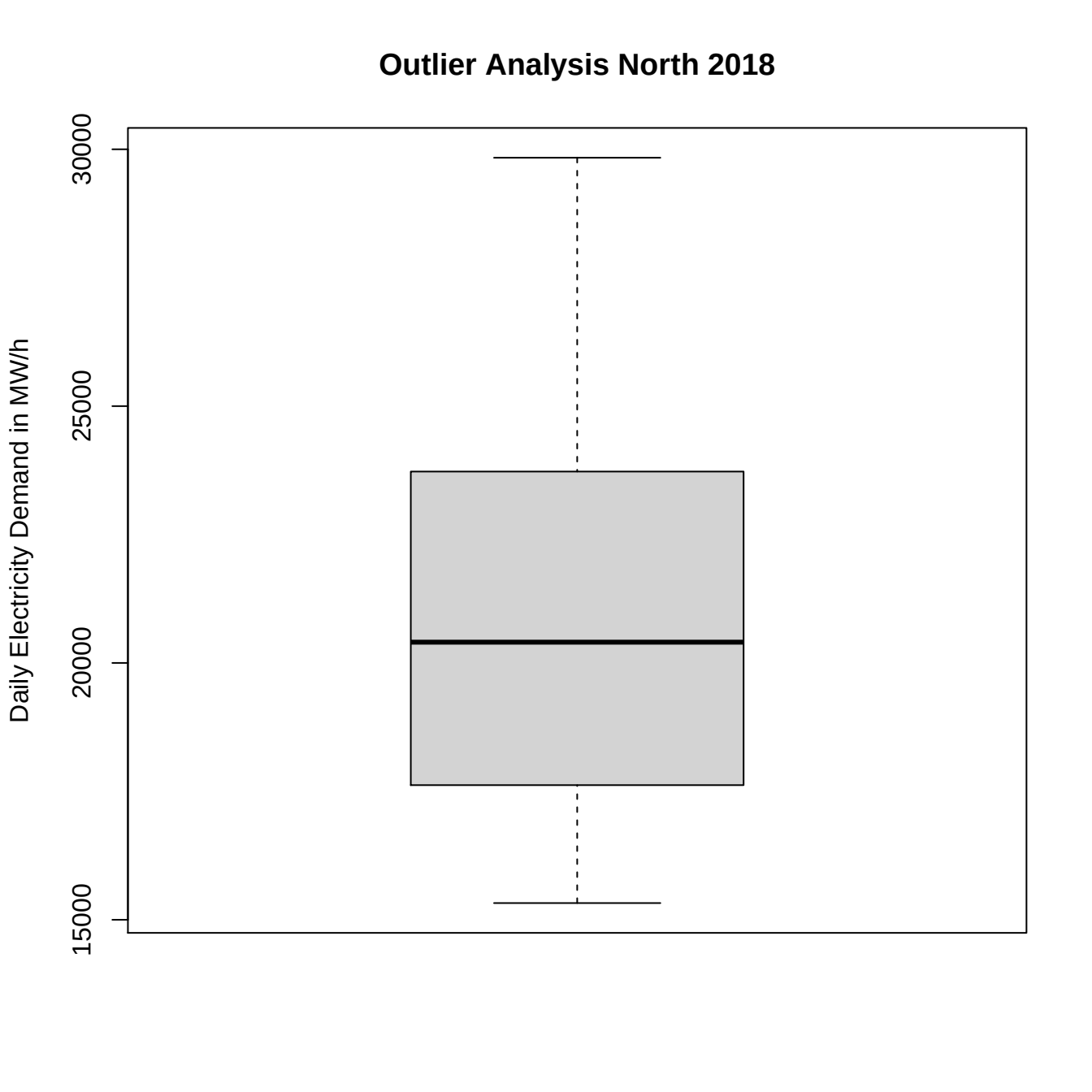

Outlier Analysis North 2013
Daily Electricity Demand in MW/h
16000
18000
20000
22000
24000
26000
28000

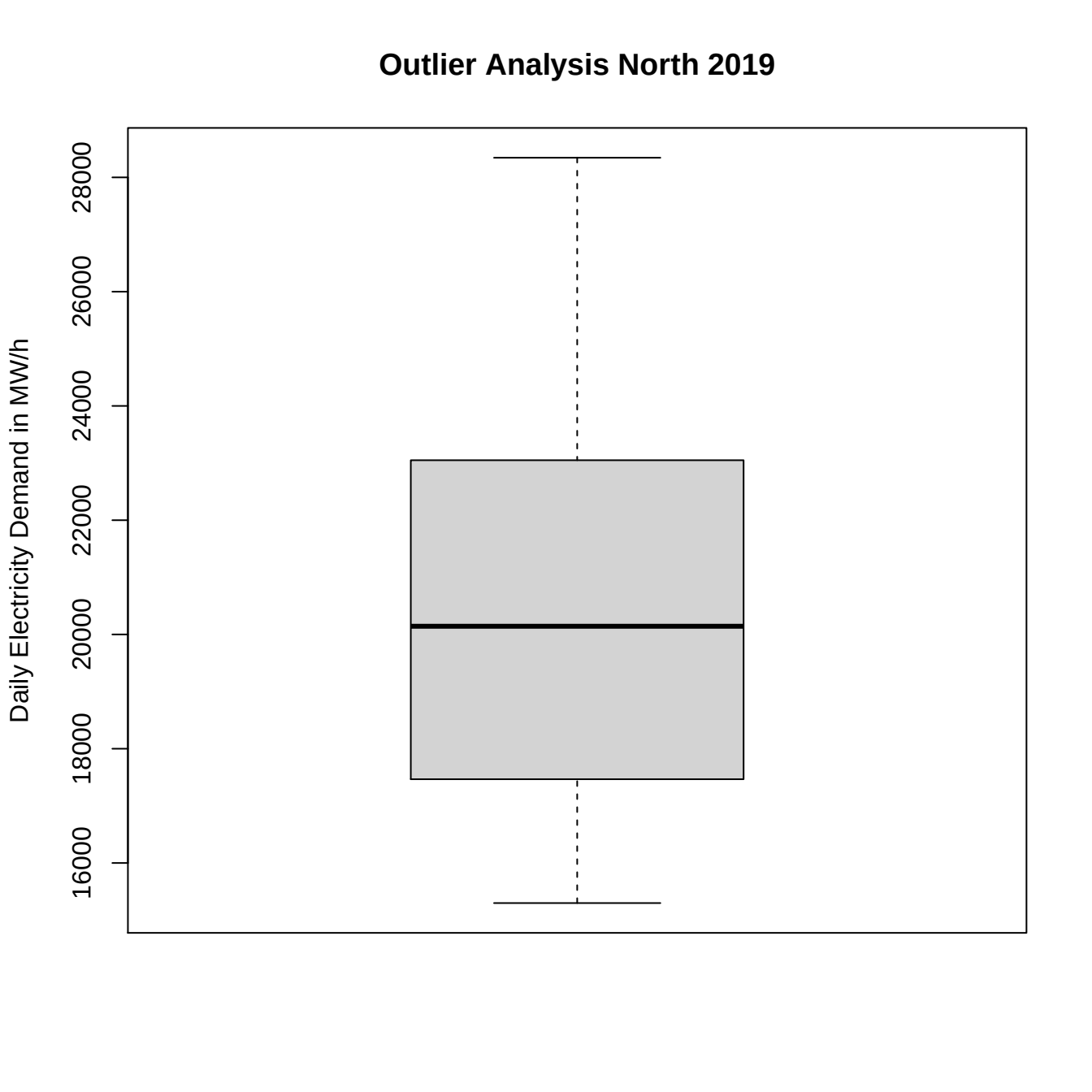

Outlier Analysis North 2014
Daily Electricity Demand in MW/h
16000
18000
20000
22000
24000
26000
28000

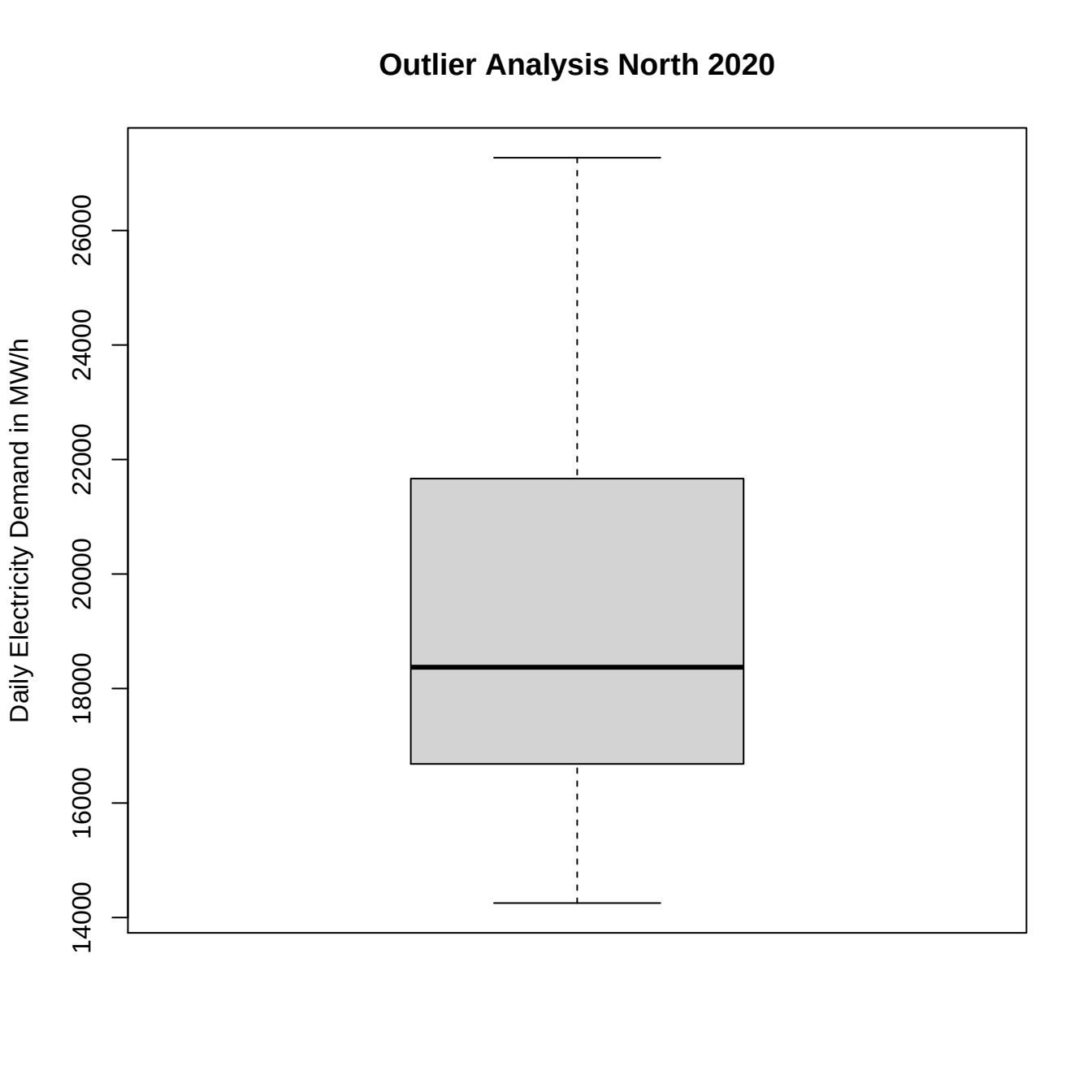

Outlier Analysis North 2015
Daily Electricity Demand in MW/h
16000
18000
20000
22000
24000
26000
28000

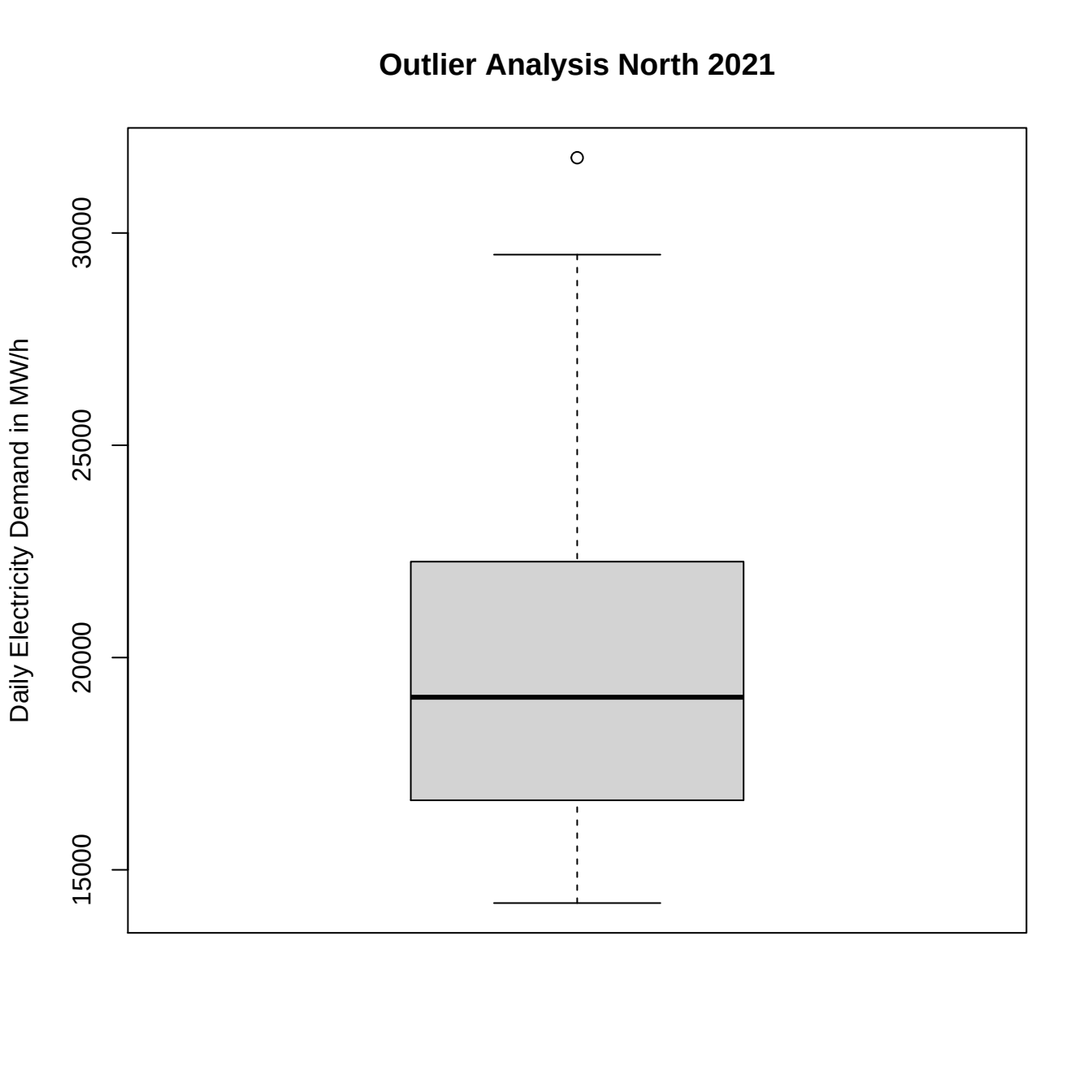

Outlier Analysis North 2016
Daily Electricity Demand in MW/h
14000
16000
18000
20000
22000
24000
26000
28000

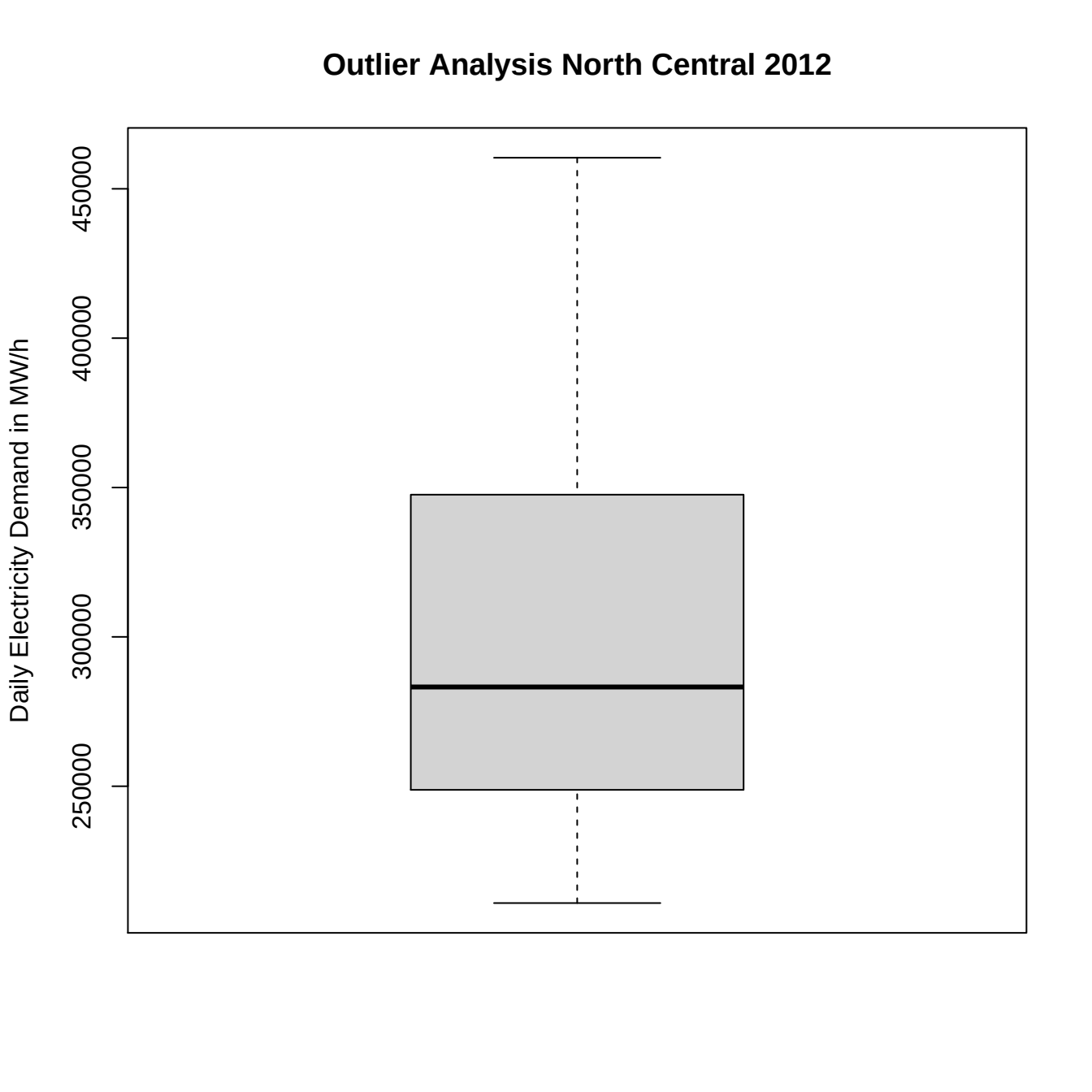

Outlier Analysis North 2017
Daily Electricity Demand in MW/h
16000
18000
20000
22000
24000
26000
28000

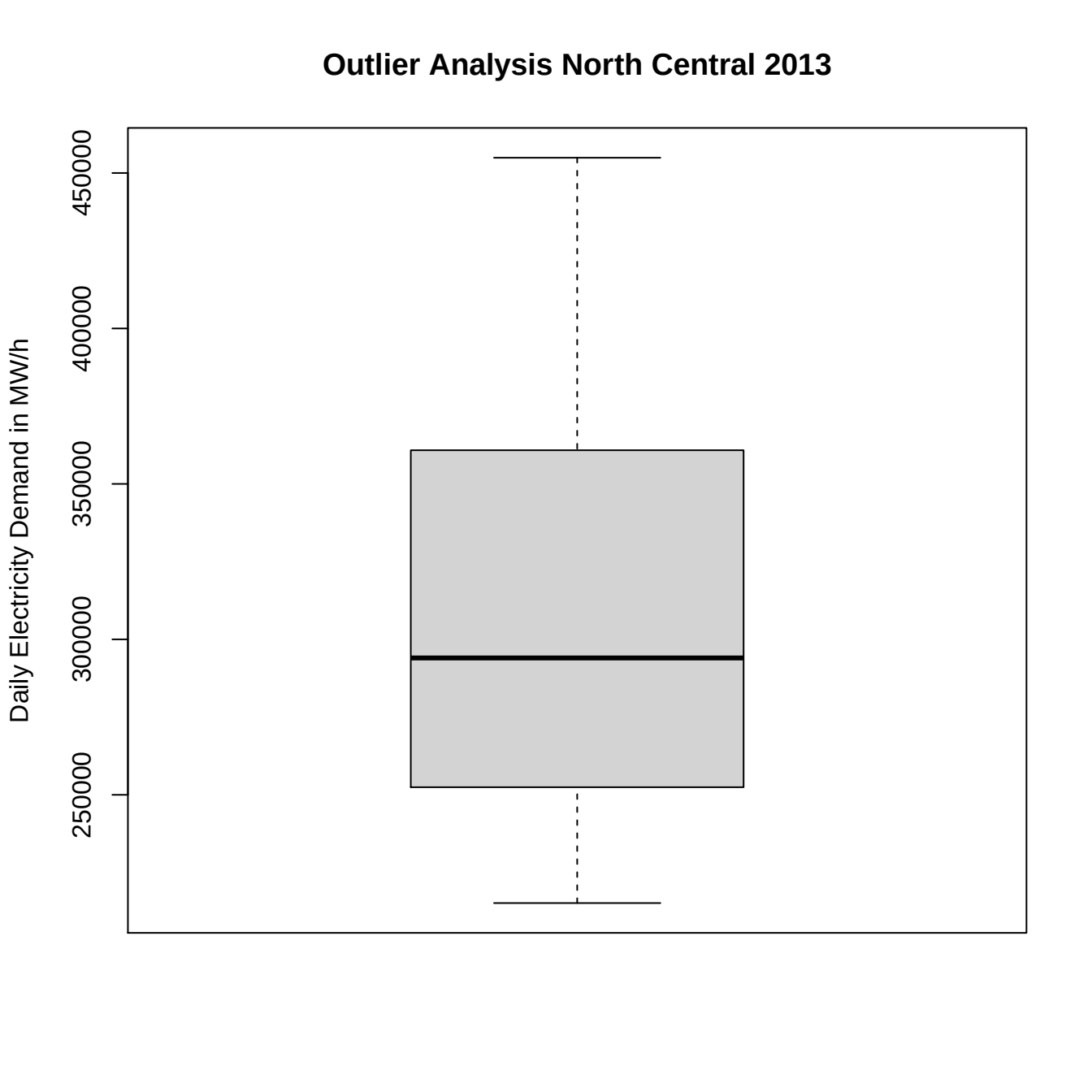

Outlier Analysis North 2018
Daily Electricity Demand in MW/h
30000
25000
20000
15000

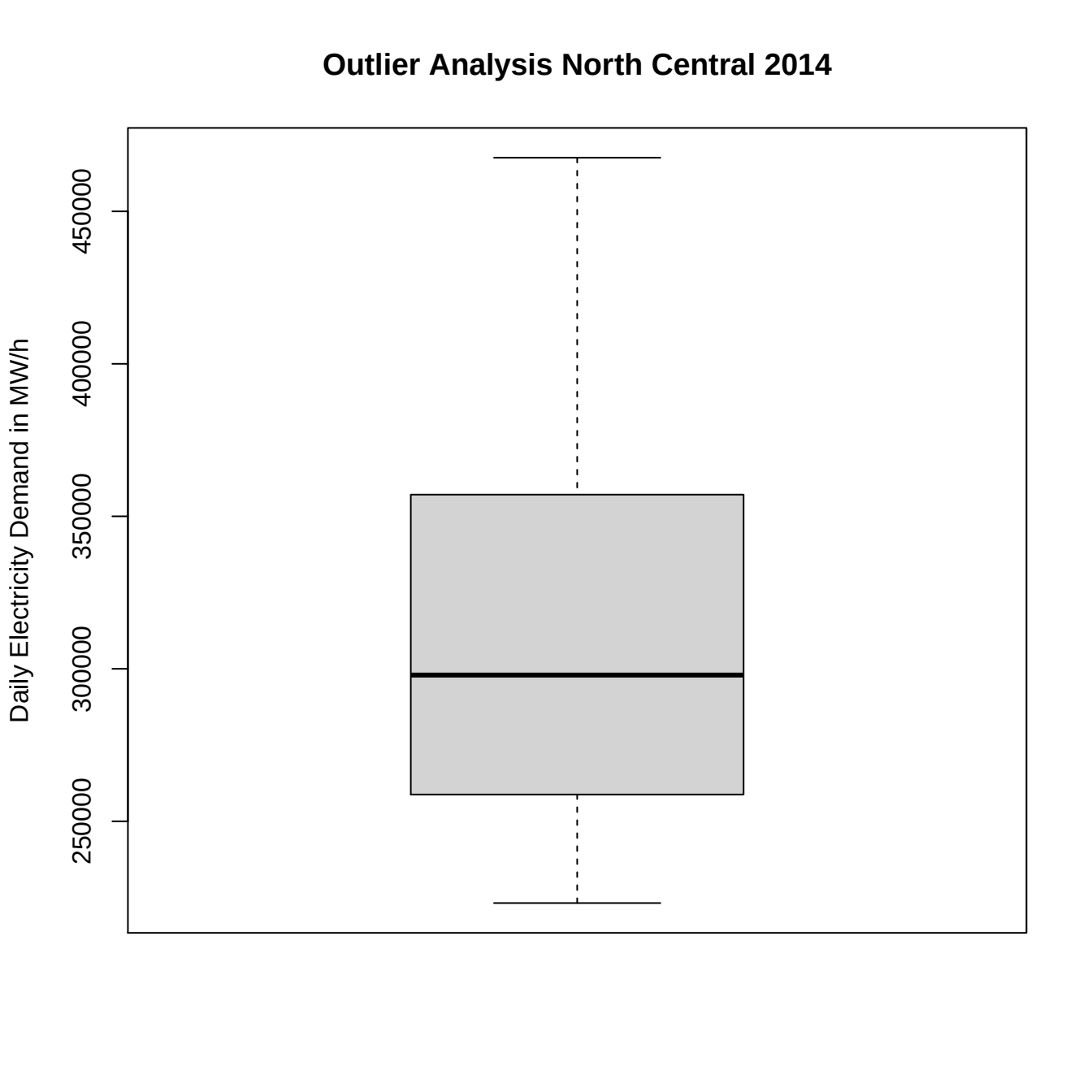

Outlier Analysis North 2019
Daily Electricity Demand in MW/h
16000
18000
20000
22000
24000
26000
28000

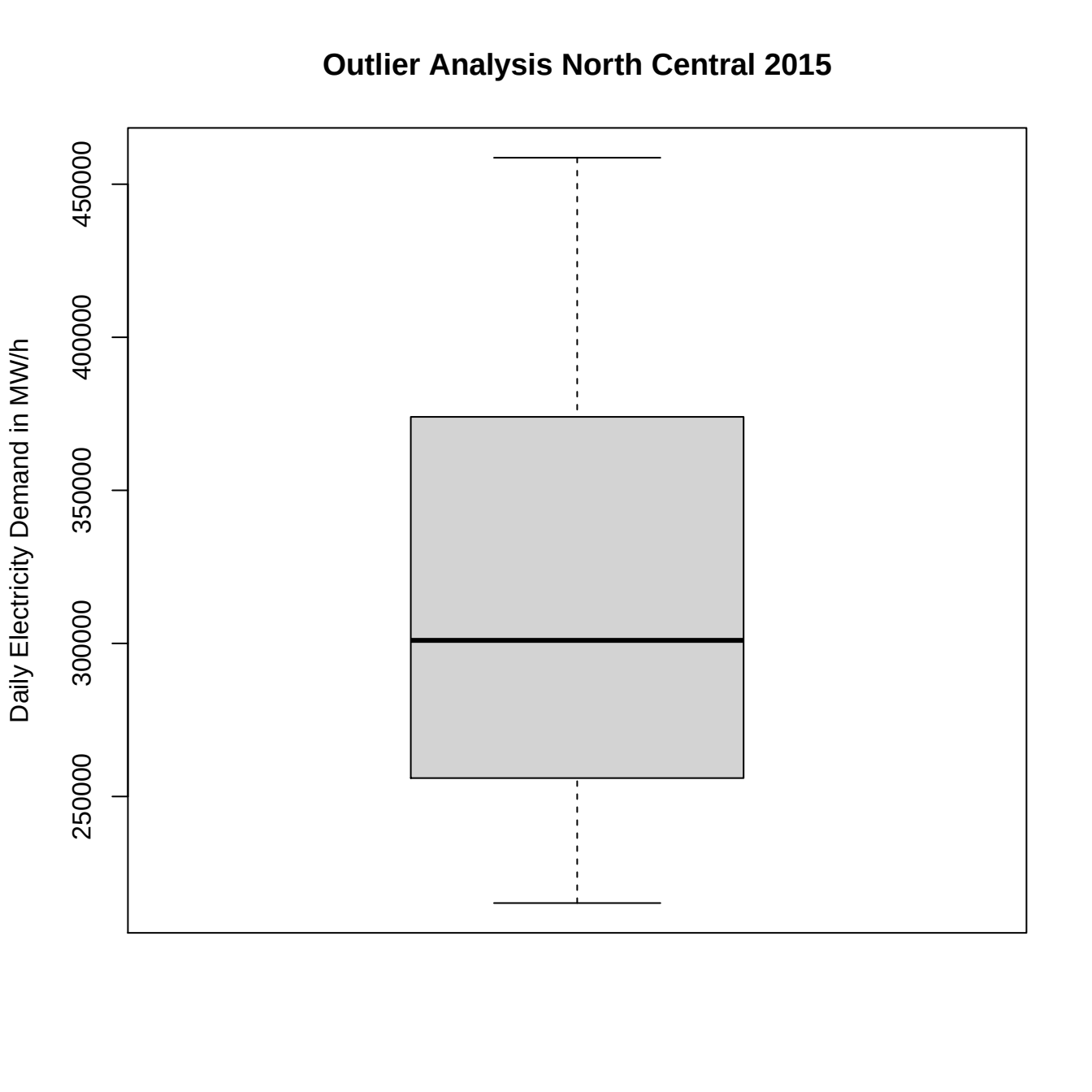

Outlier Analysis North 2020
Daily Electricity Demand in MW/h
14000
16000
18000
20000
22000
24000
26000

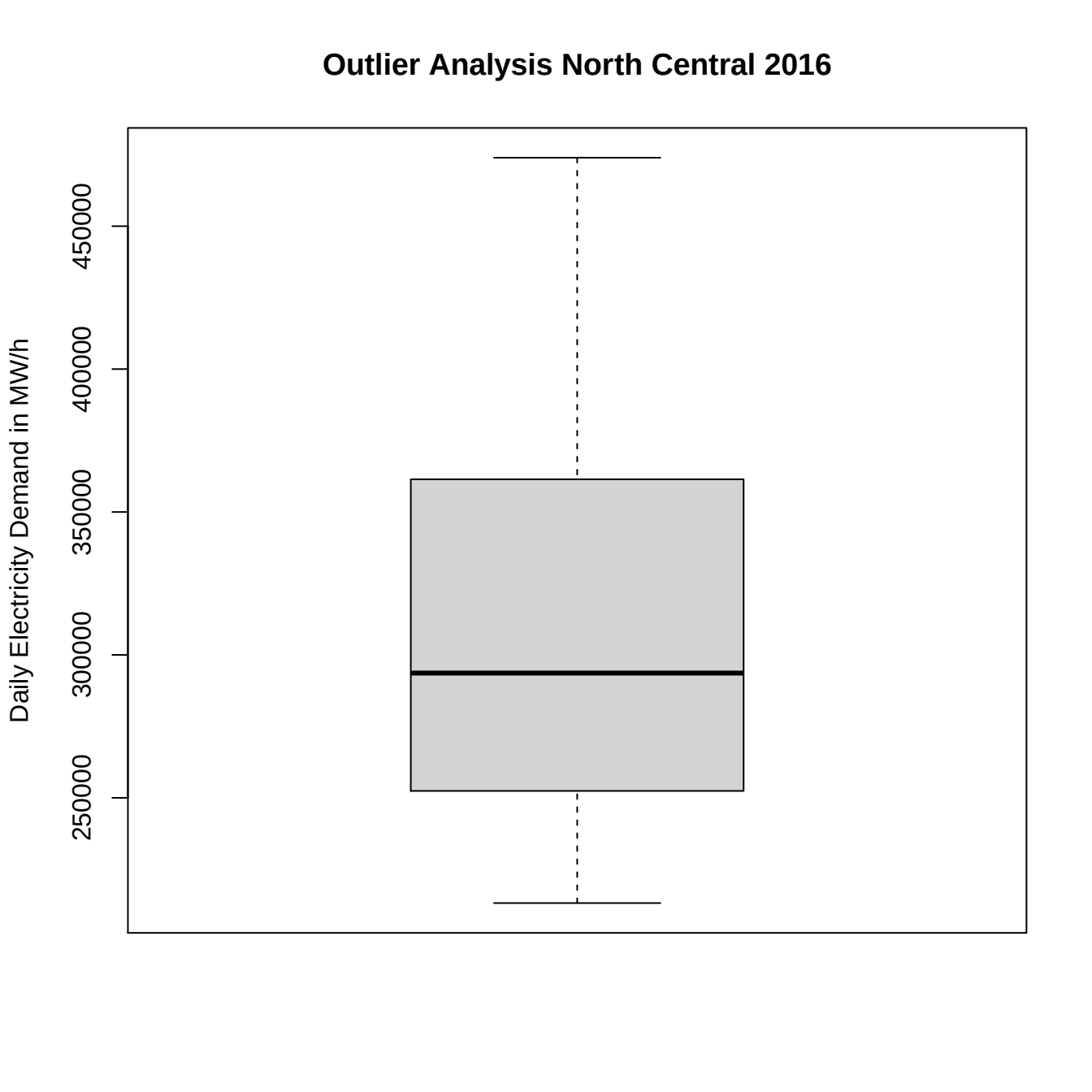

Outlier Analysis North 2021
Daily Electricity Demand in MW/h
15000
20000
25000
30000

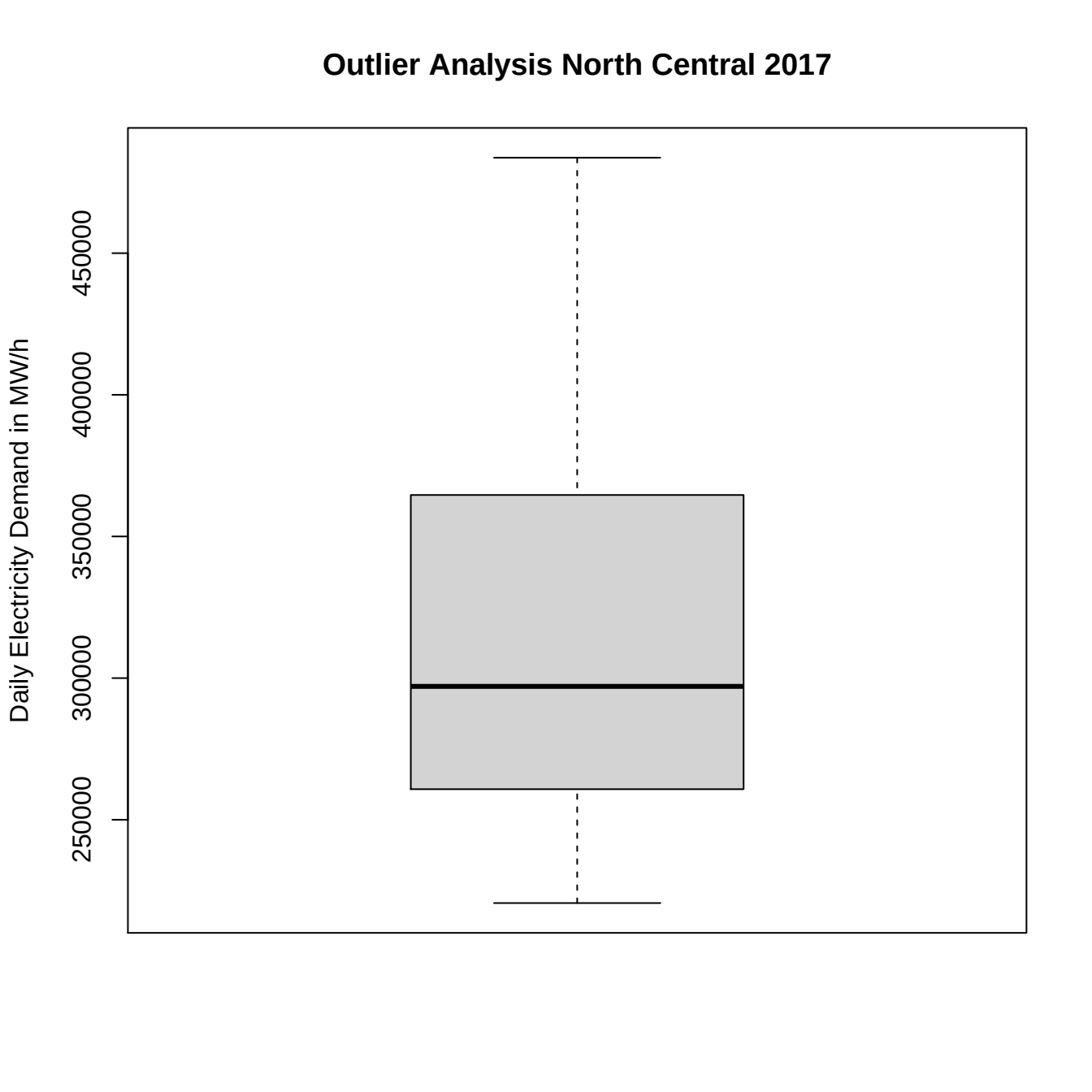

Outlier Analysis North Central 2012
Daily Electricity Demand in MW/h
250000
300000
350000
400000
450000

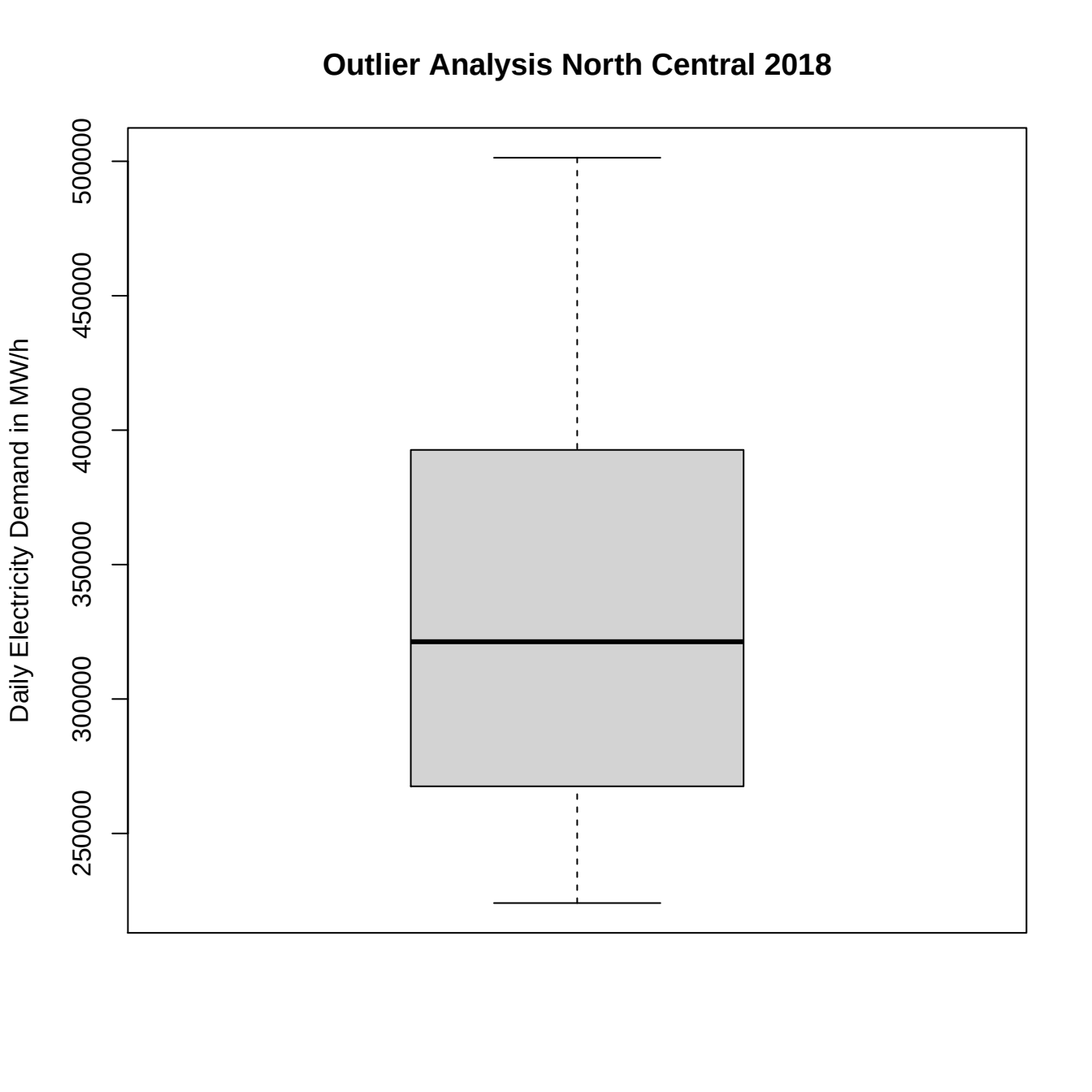

Outlier Analysis North Central 2013
Daily Electricity Demand in MW/h
450000
400000
350000
300000
250000

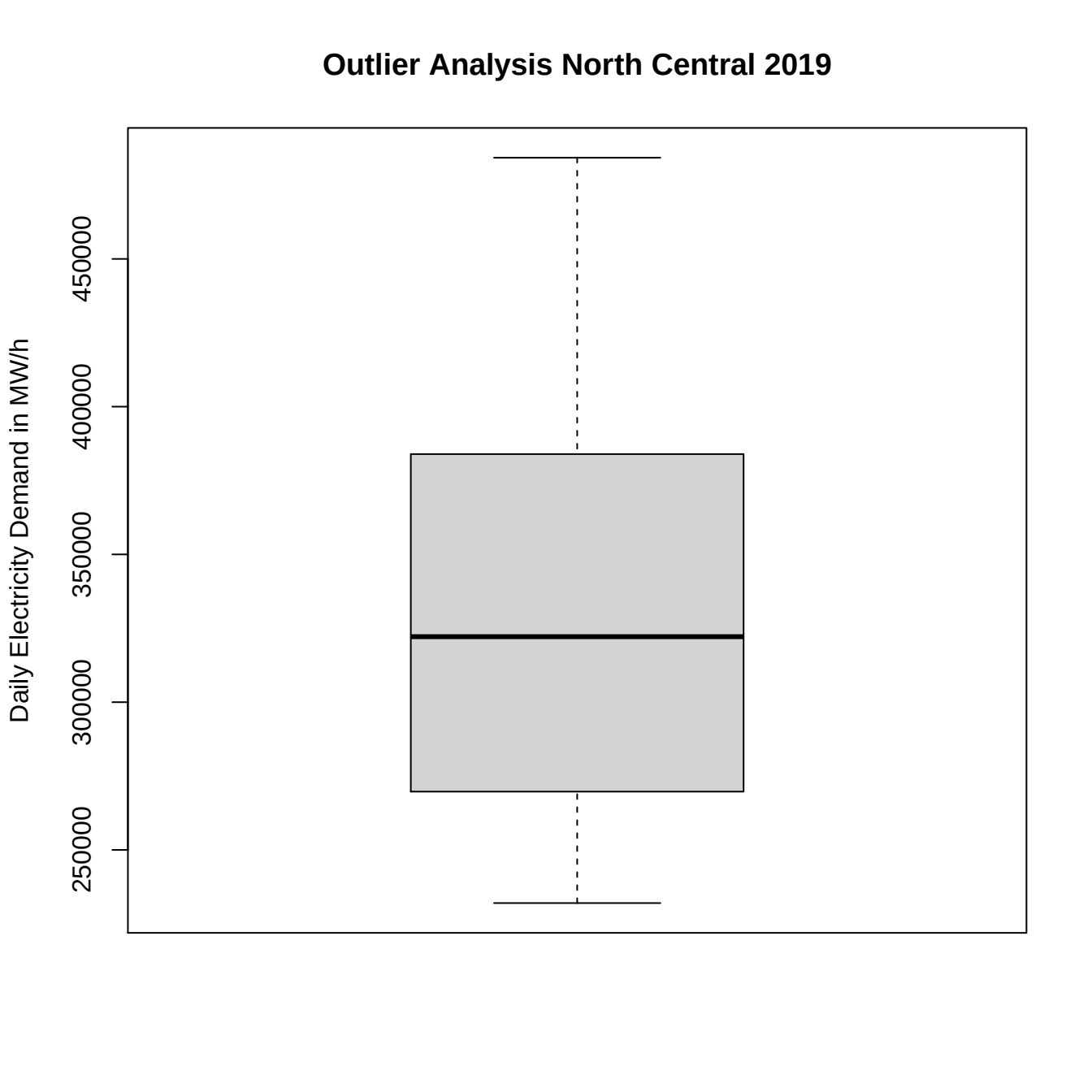

Outlier Analysis North Central 2014
Daily Electricity Demand in MW/h
250000
300000
350000
400000
450000

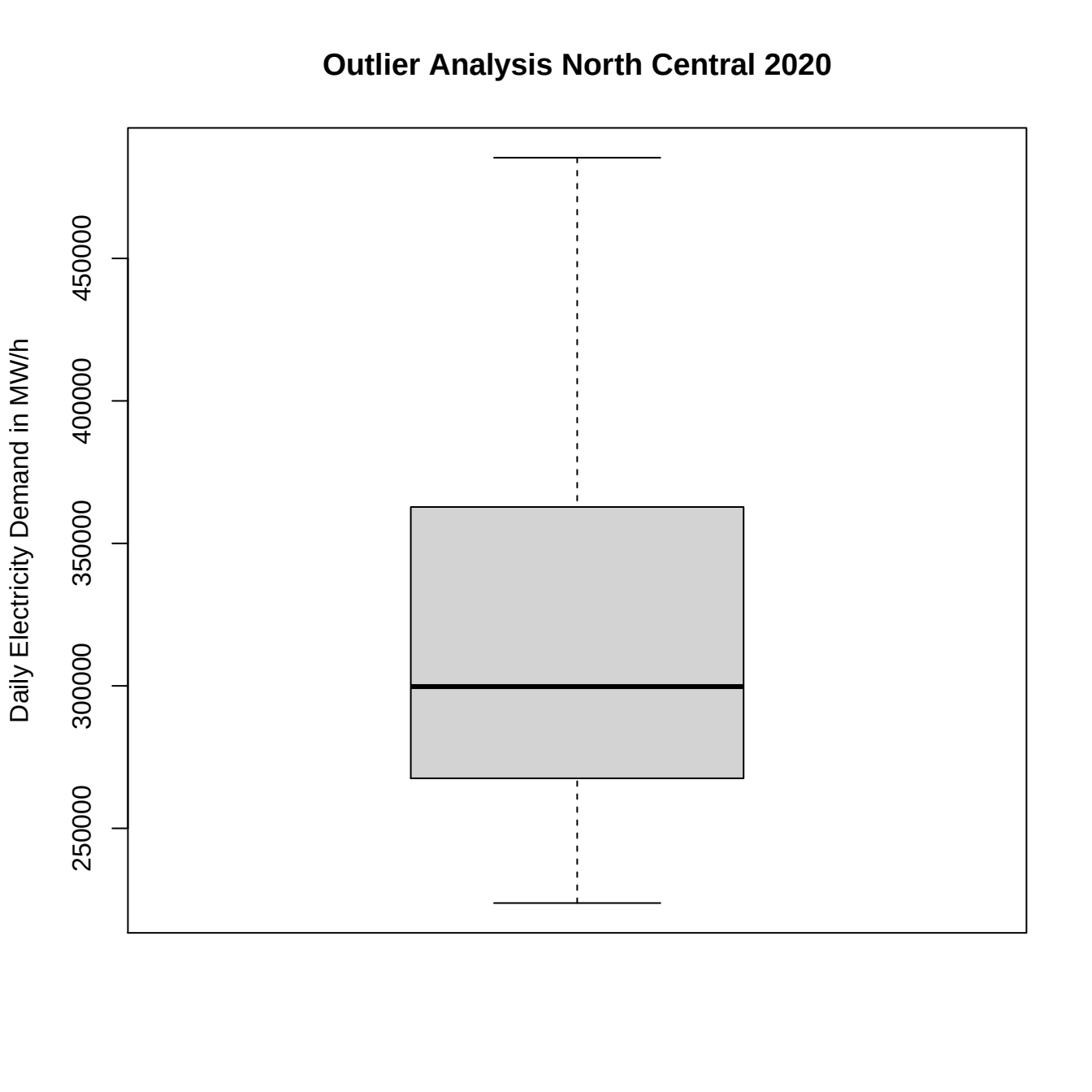

Outlier Analysis North Central 2015
Daily Electricity Demand in MW/h
250000
300000
350000
400000
450000

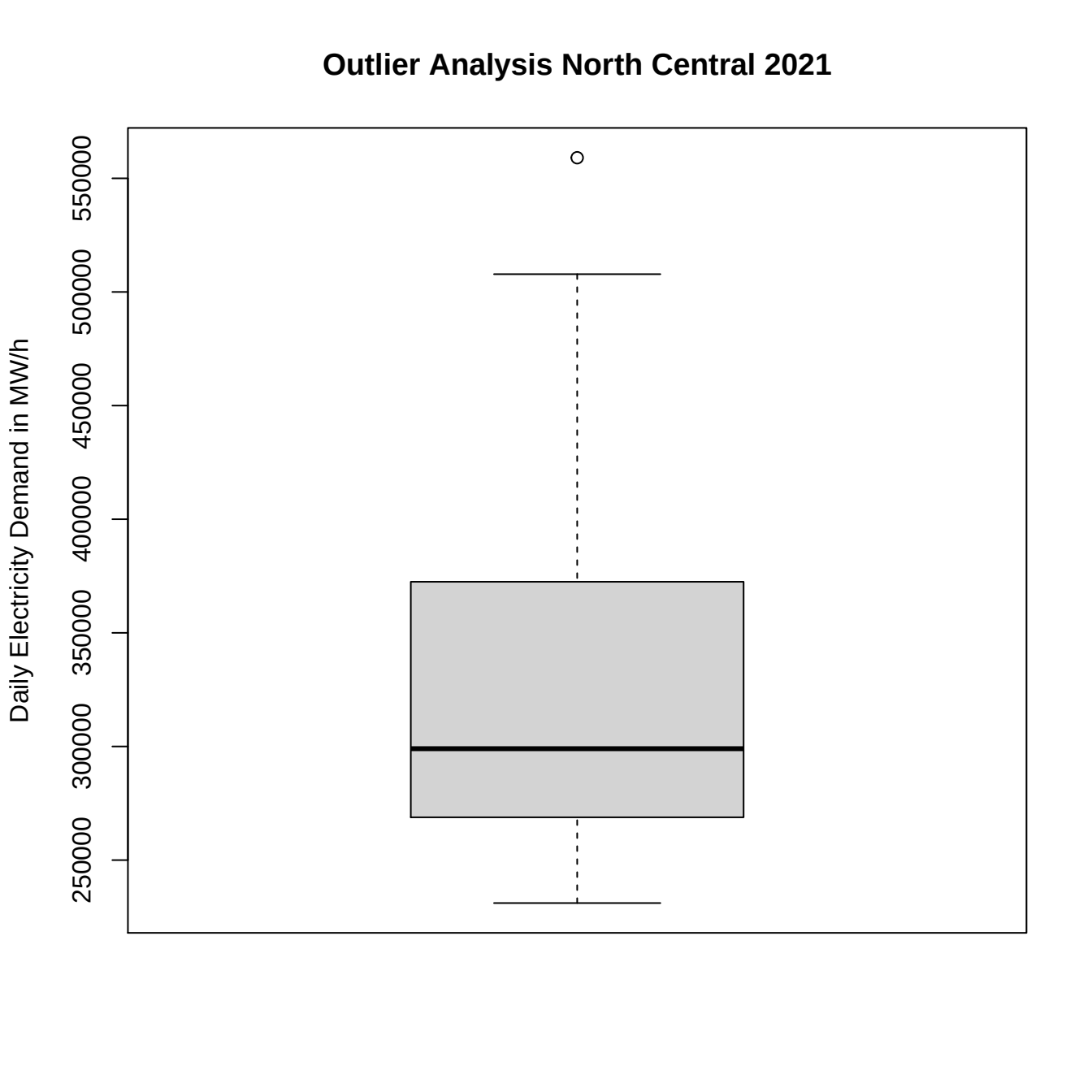

Outlier Analysis North Central 2016
Daily Electricity Demand in MW/h
250000
300000
350000
400000
450000

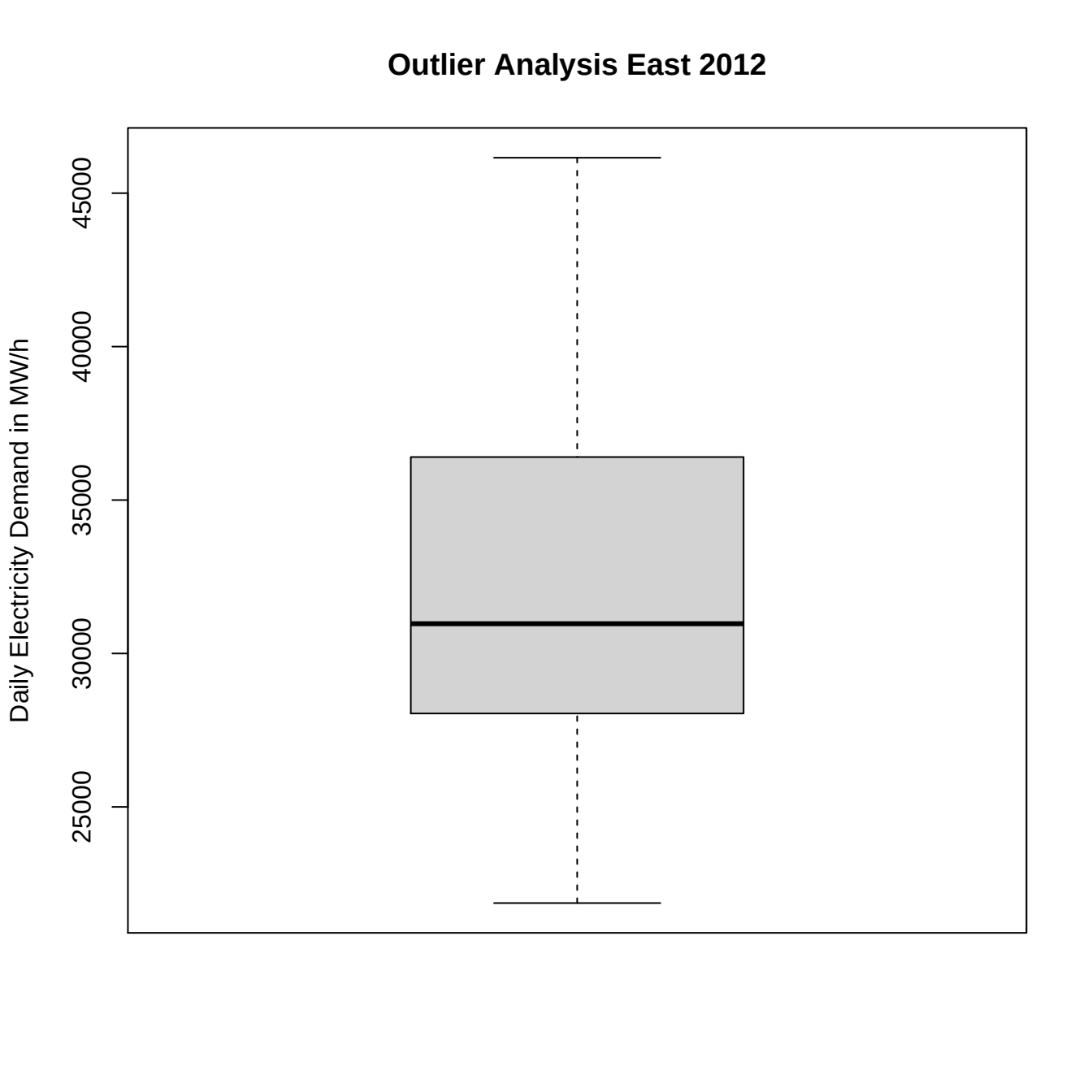

Outlier Analysis North Central 2017
Daily Electricity Demand in MW/h
250000
300000
350000
400000
450000

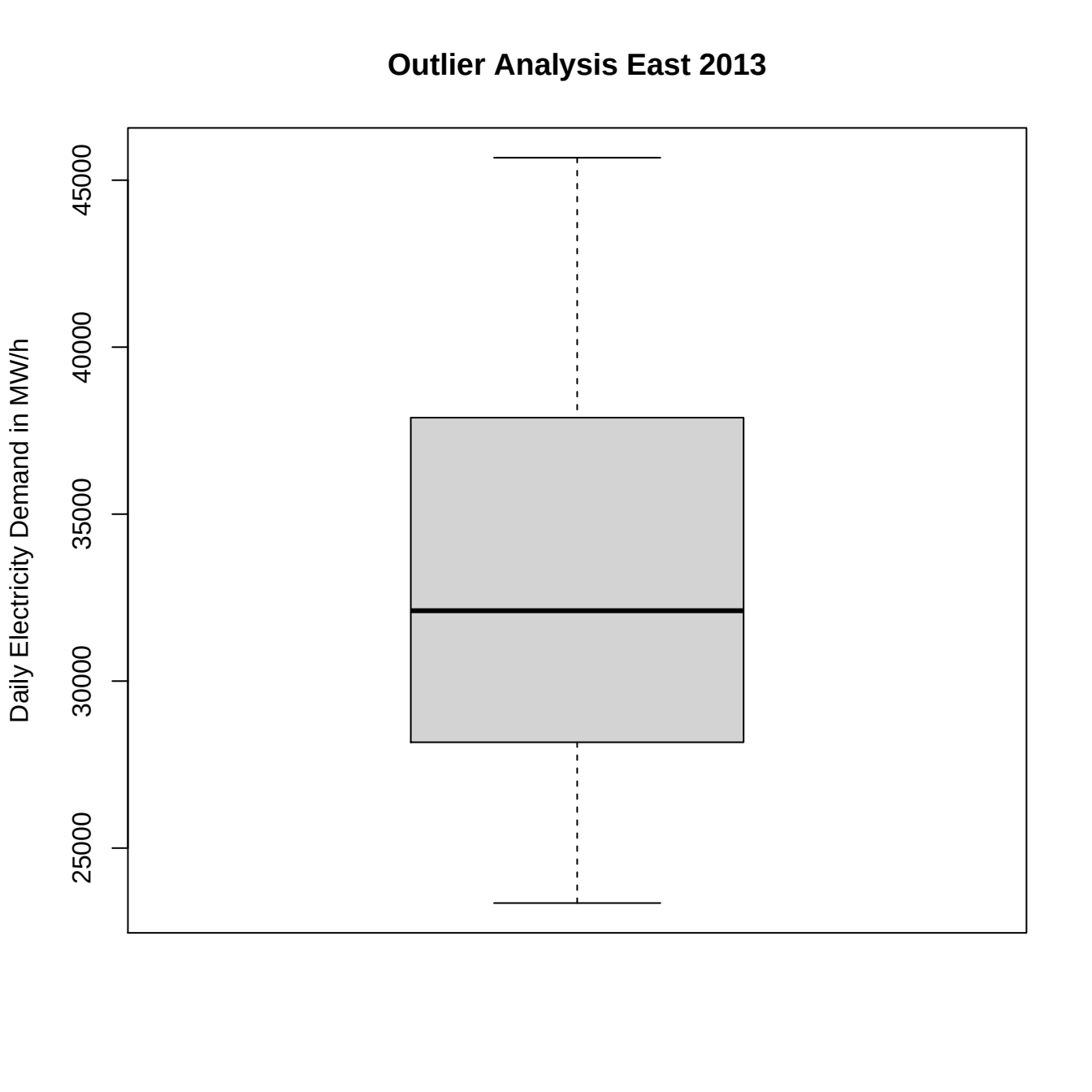

Outlier Analysis North Central 2018
Daily Electricity Demand in MW/h
250000
300000
350000
400000
450000
500000


Outlier Analysis North Central 2019
Daily Electricity Demand in MW/h
250000
300000
350000
400000
450000


Outlier Analysis North Central 2020
Daily Electricity Demand in MW/h
250000
300000
350000
400000
450000


Outlier Analysis North Central 2021
Daily Electricity Demand in MW/h
250000
300000
350000
400000
450000
500000
550000


Outlier Analysis East 2012
Daily Electricity Demand in MW/h
45000
40000
35000
30000
25000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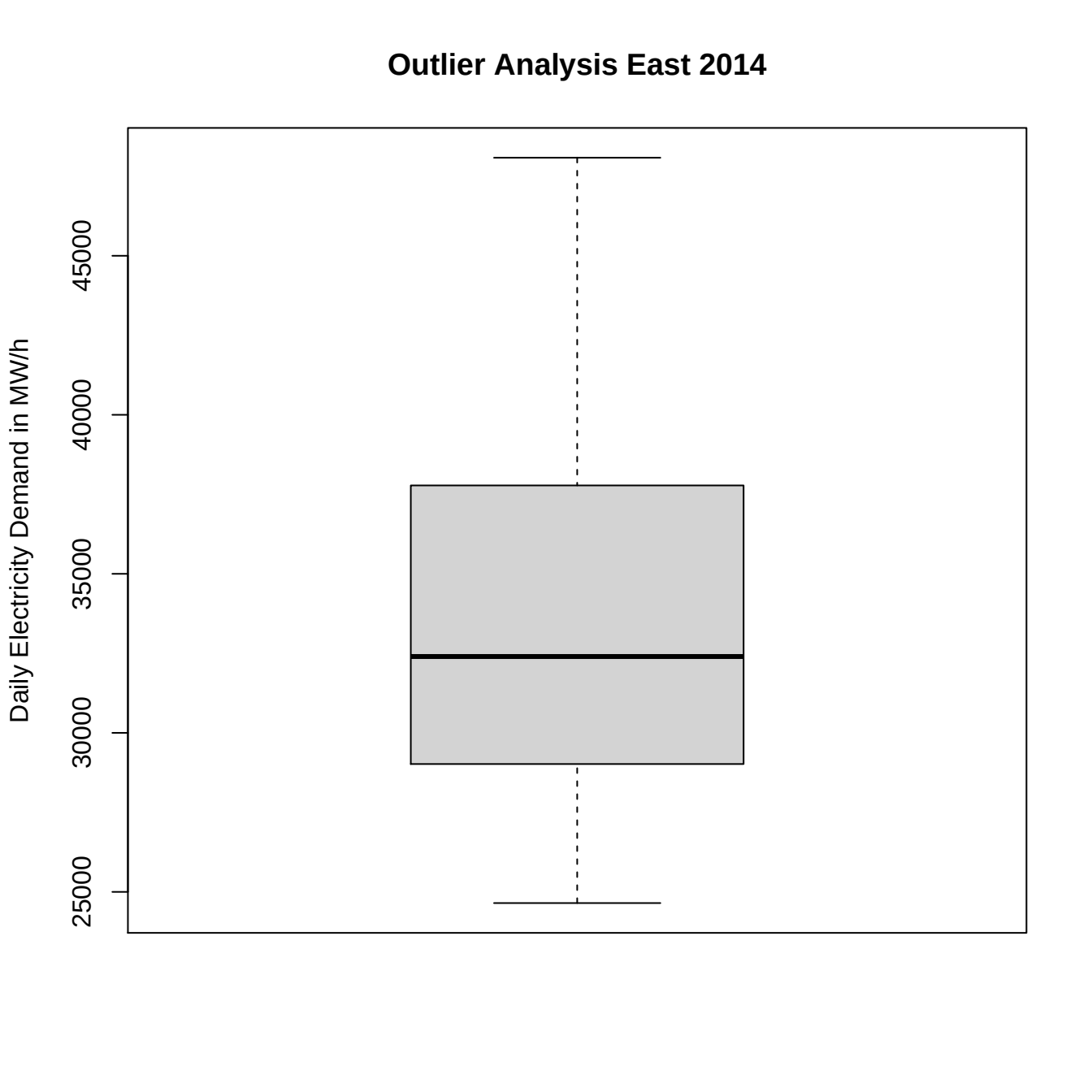
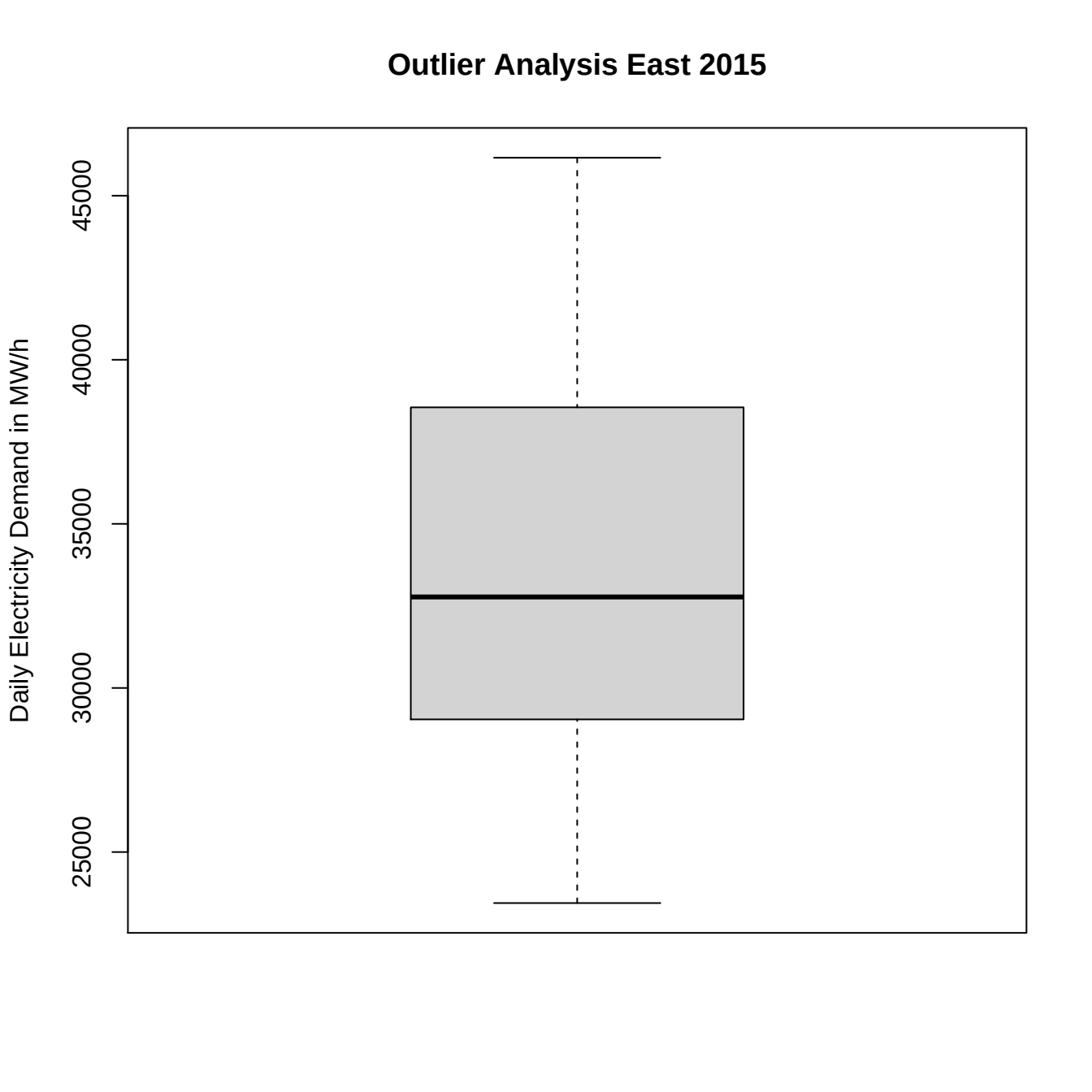
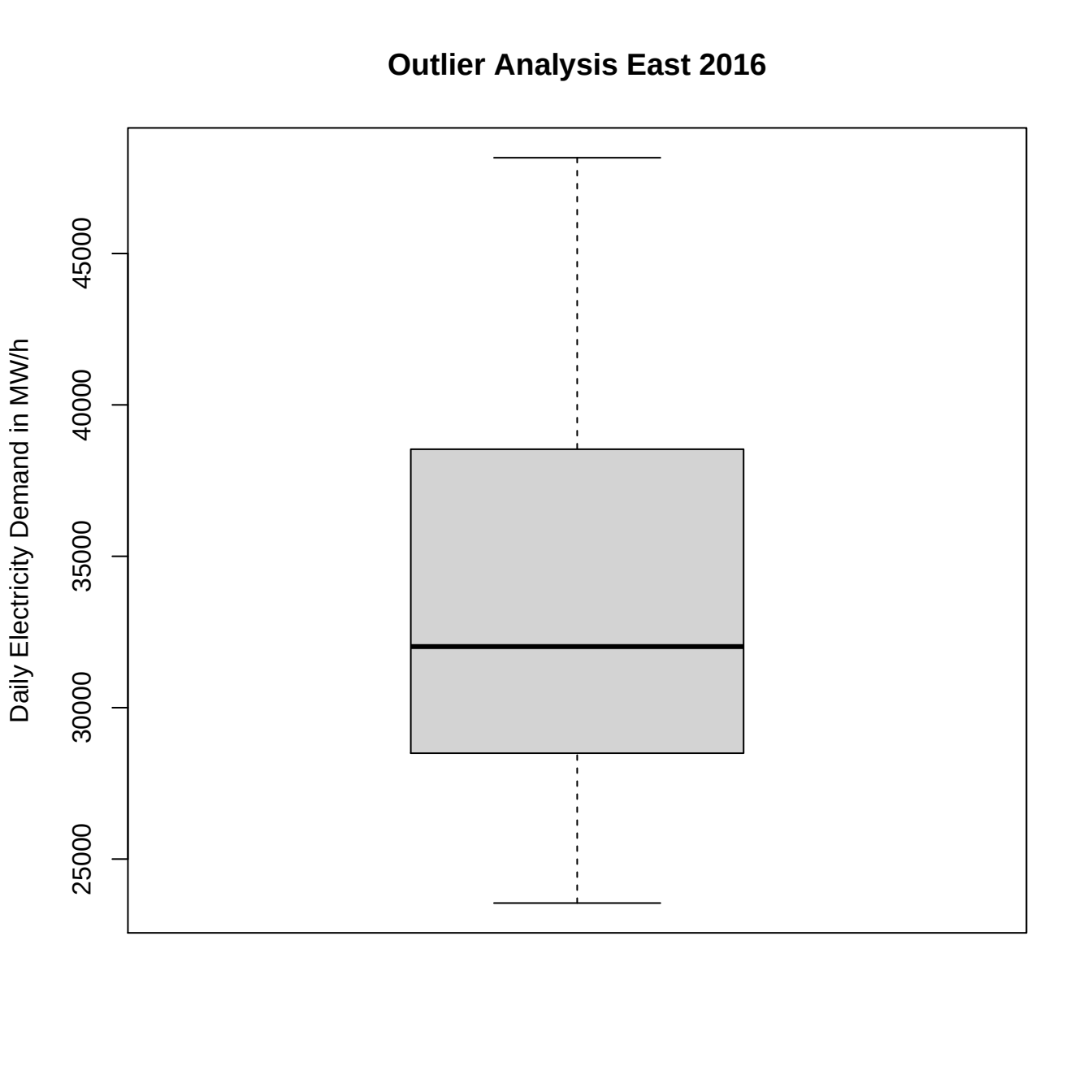
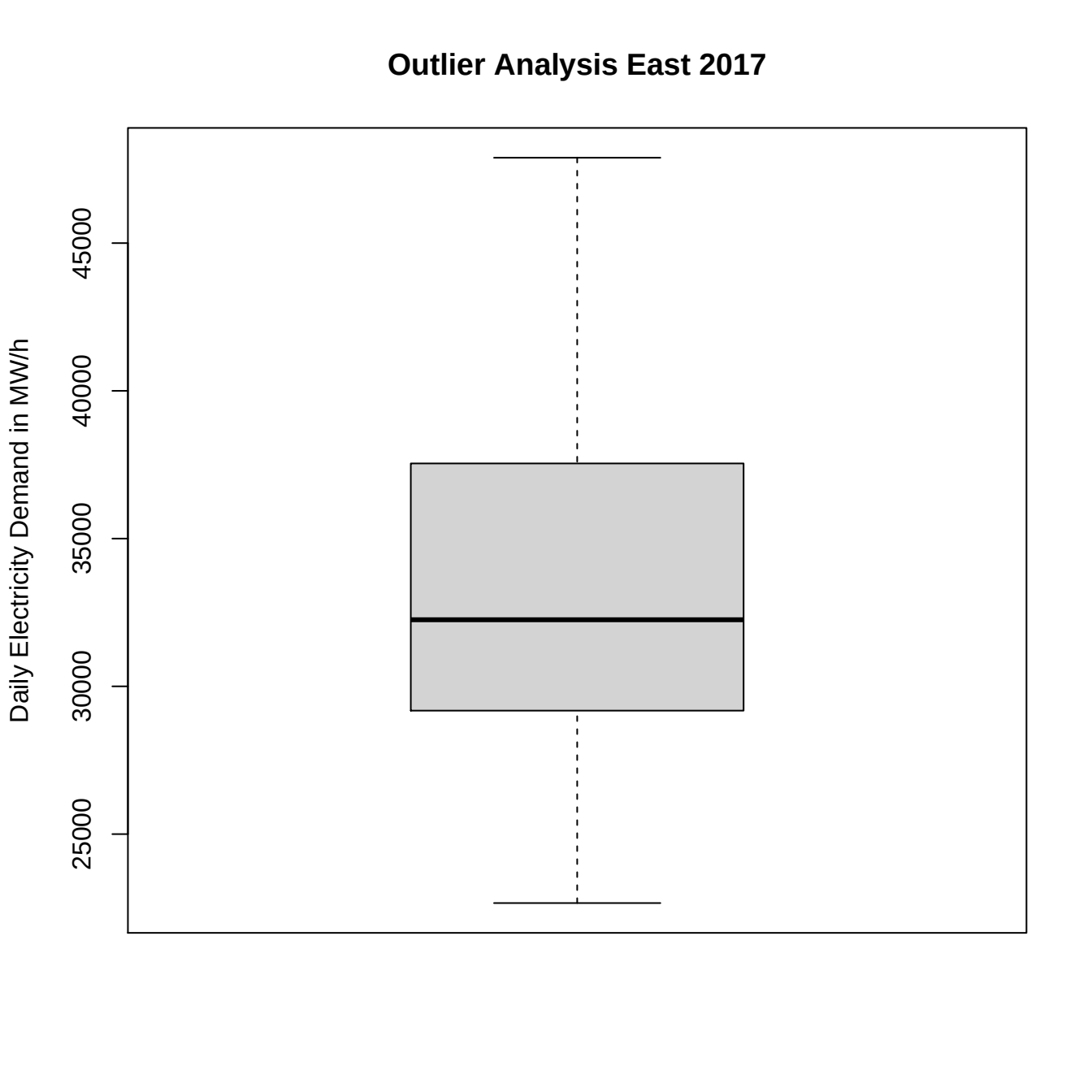
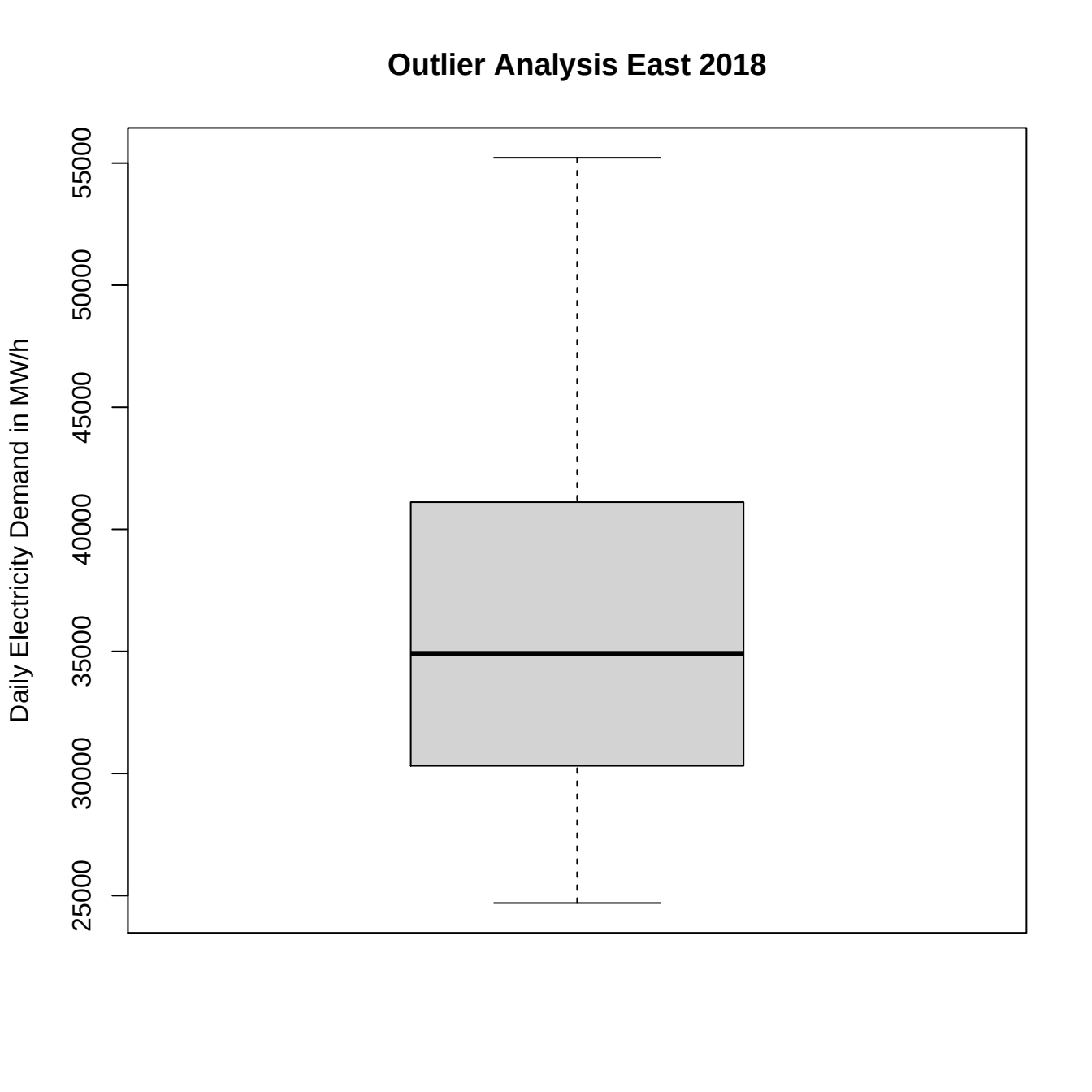
Daily Electricity Demand in MW/h
45000
40000
35000
30000
25000

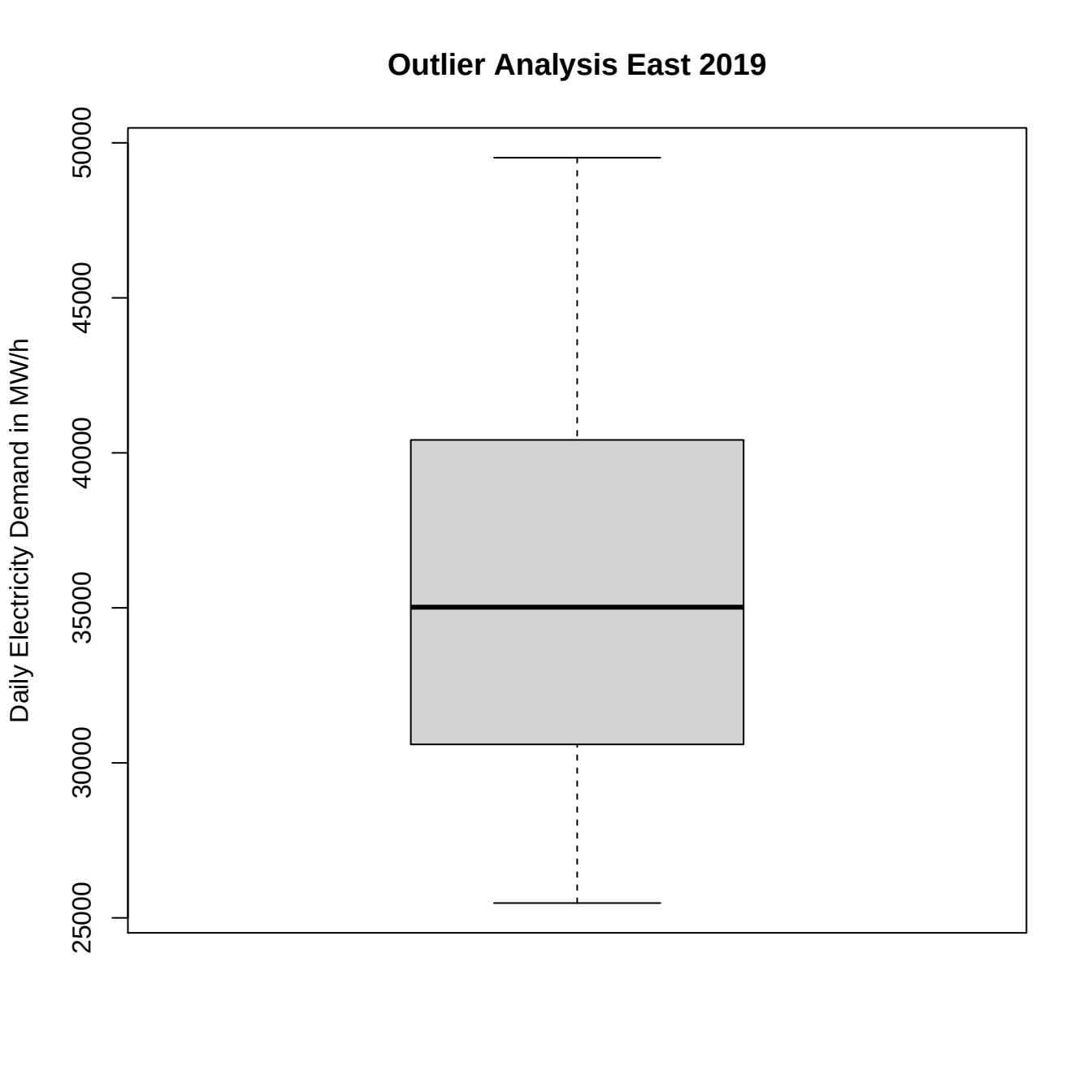

Outlier Analysis East 2014
Daily Electricity Demand in MW/h
25000
30000
35000
40000
45000

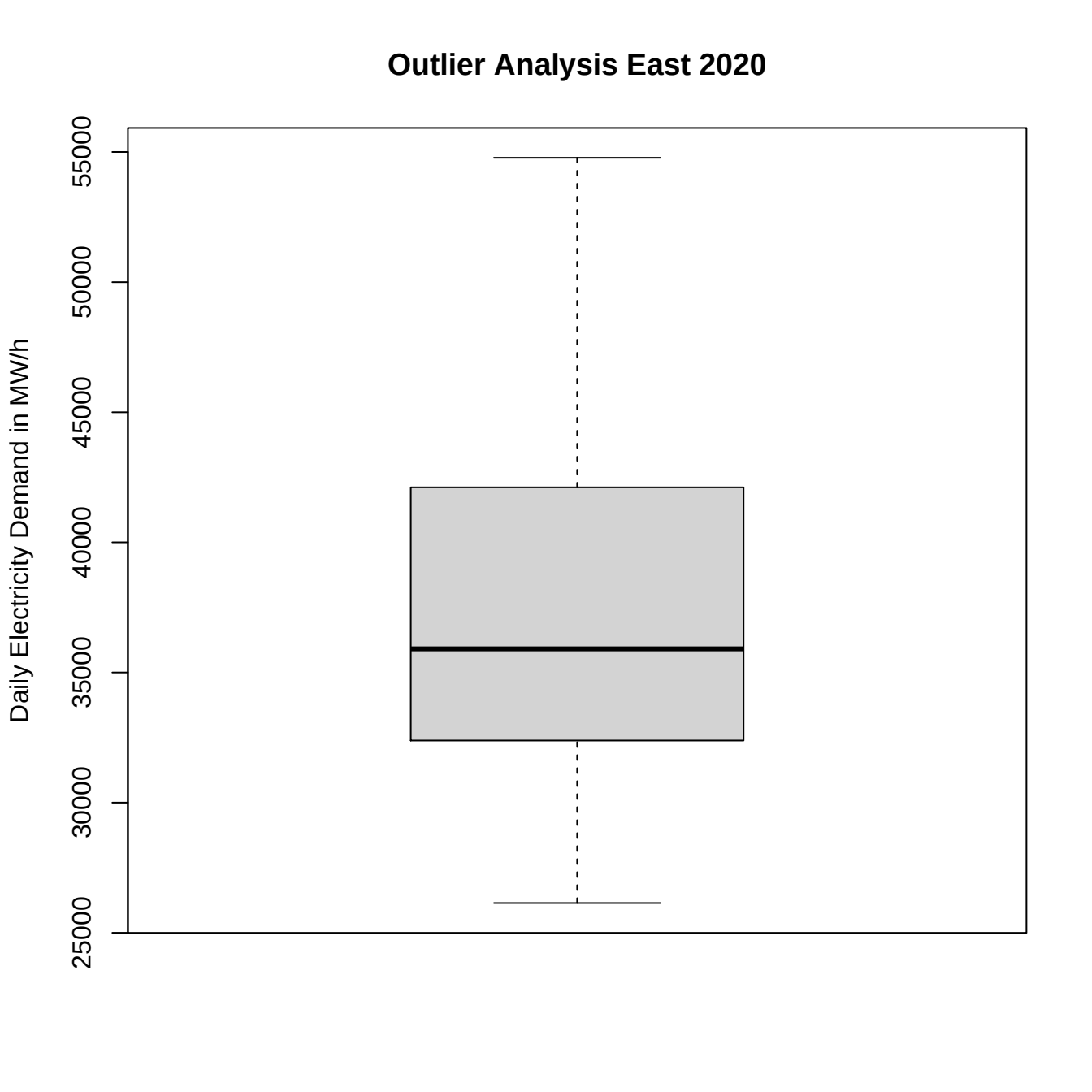

Outlier Analysis East 2015
Daily Electricity Demand in MW/h
45000
40000
35000
30000
25000

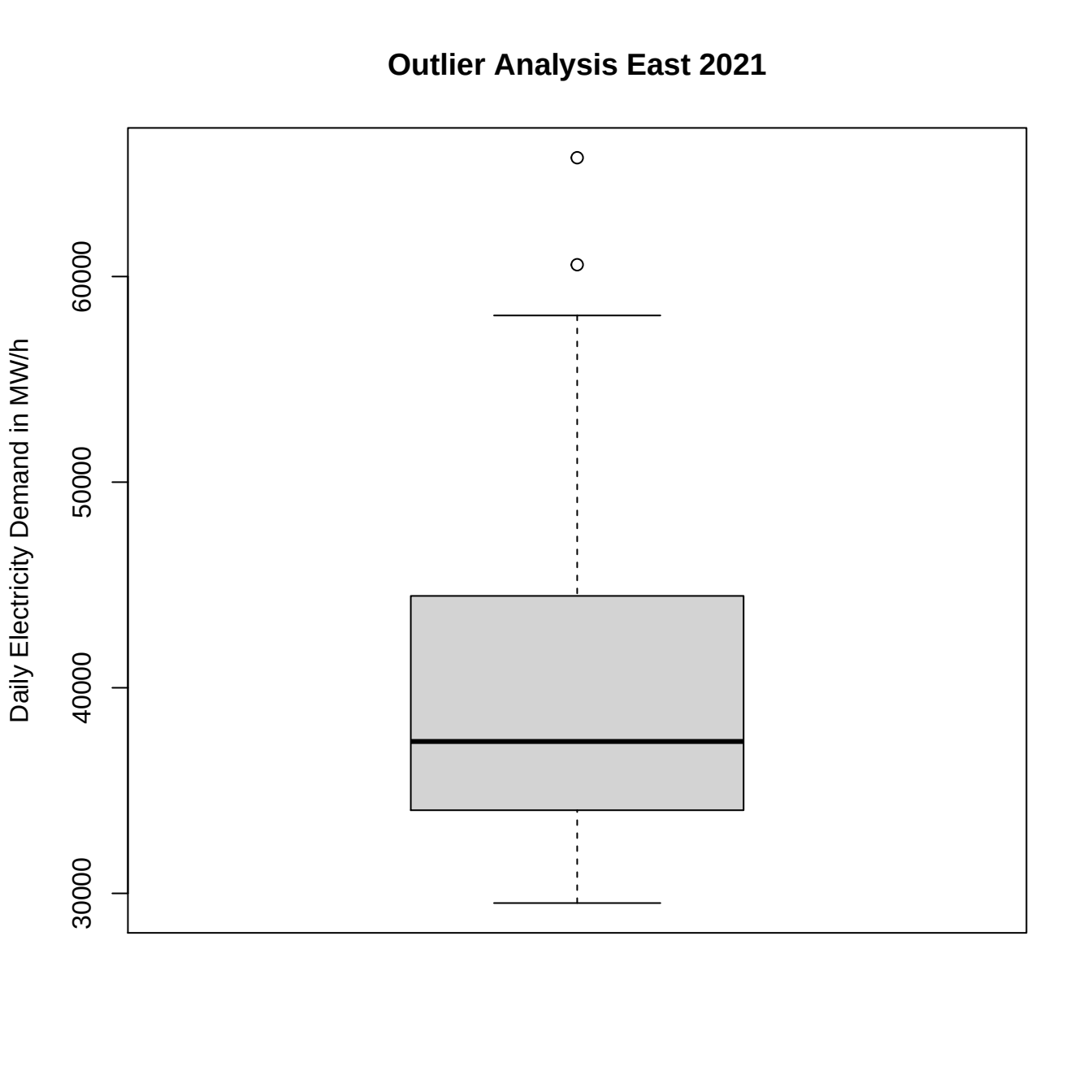

Outlier Analysis East 2016
Daily Electricity Demand in MW/h
25000
30000
35000
40000
45000

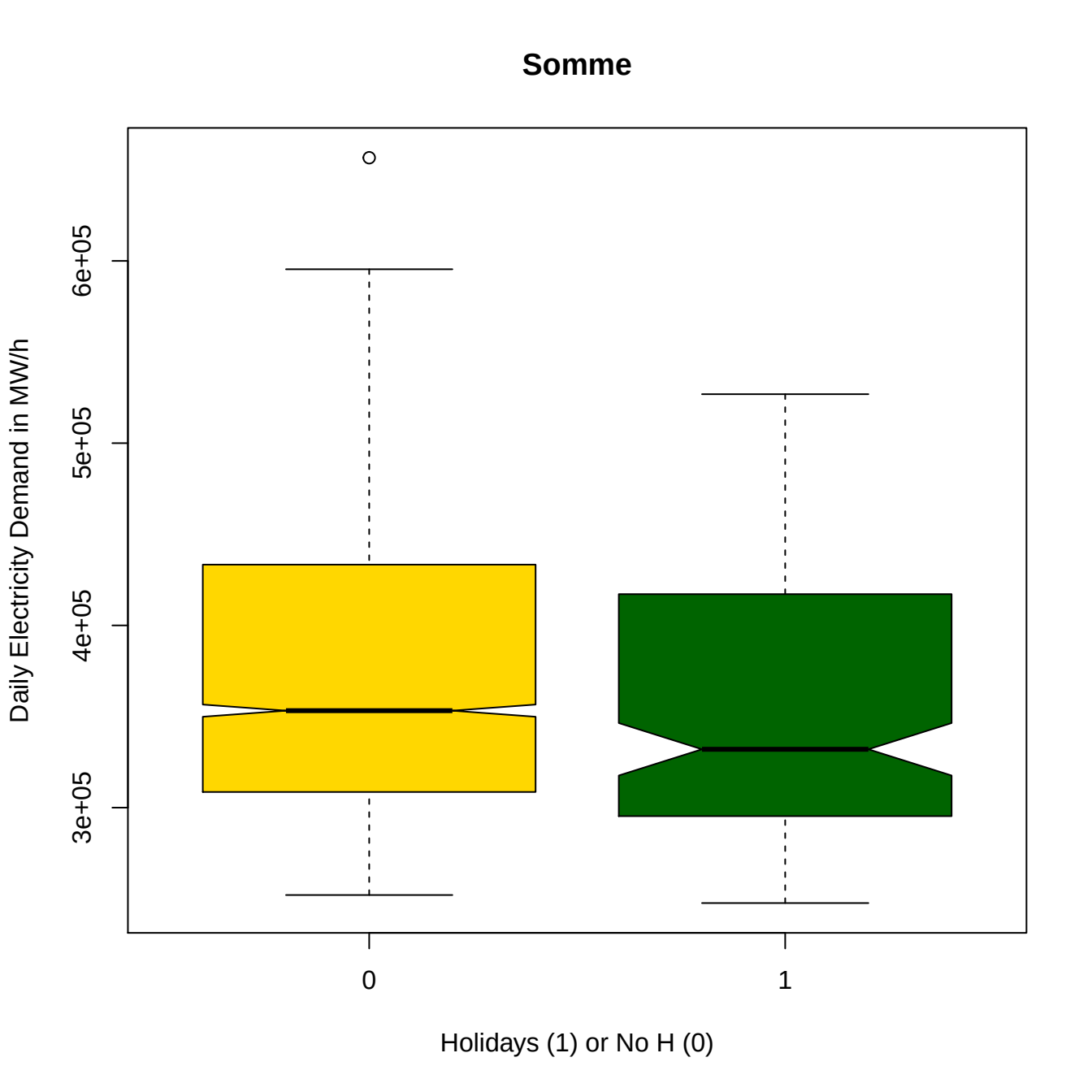

Outlier Analysis East 2017
Daily Electricity Demand in MW/h
25000
30000
35000
40000
45000

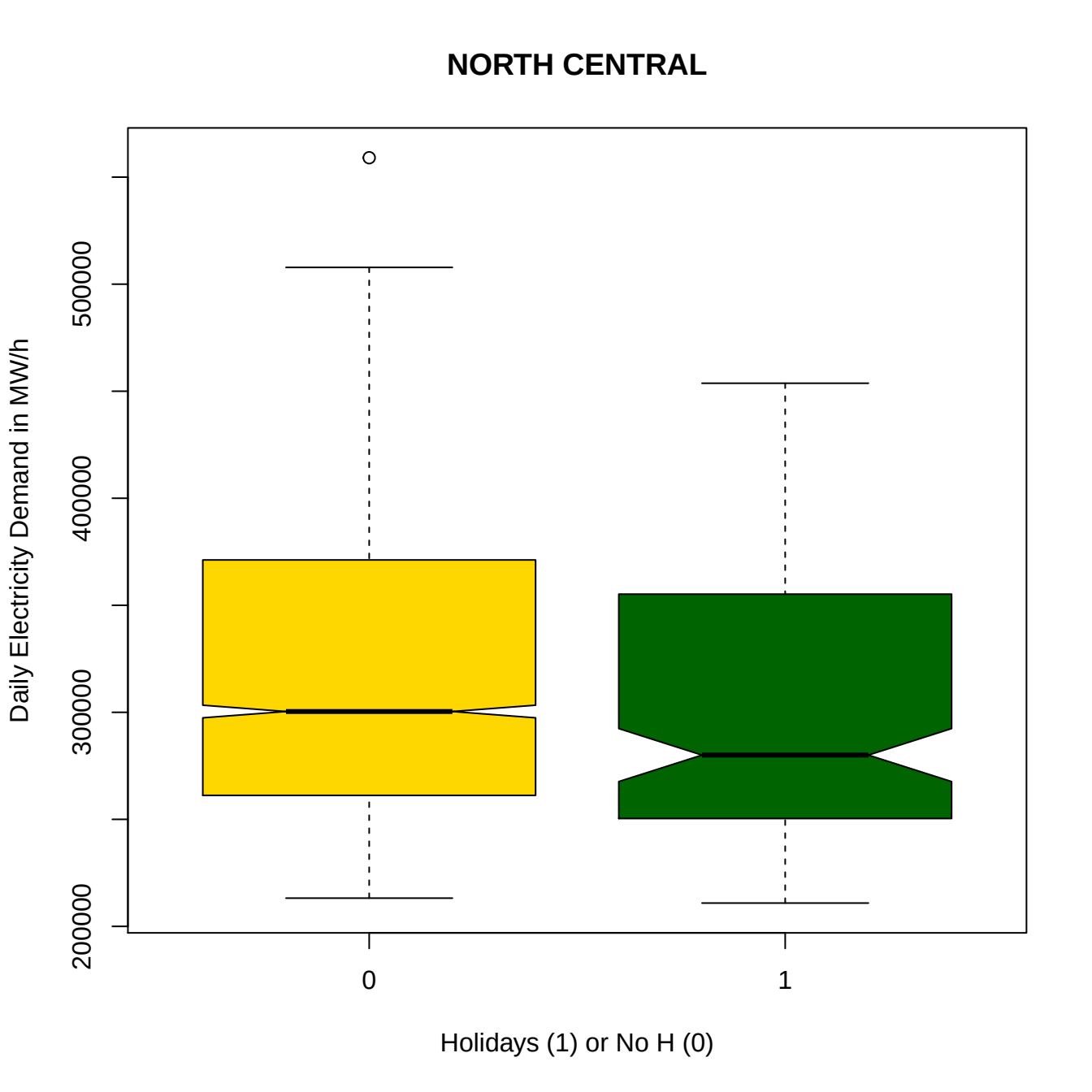

Outlier Analysis East 2018
Daily Electricity Demand in MW/h
25000
30000
35000
40000
45000
50000
55000

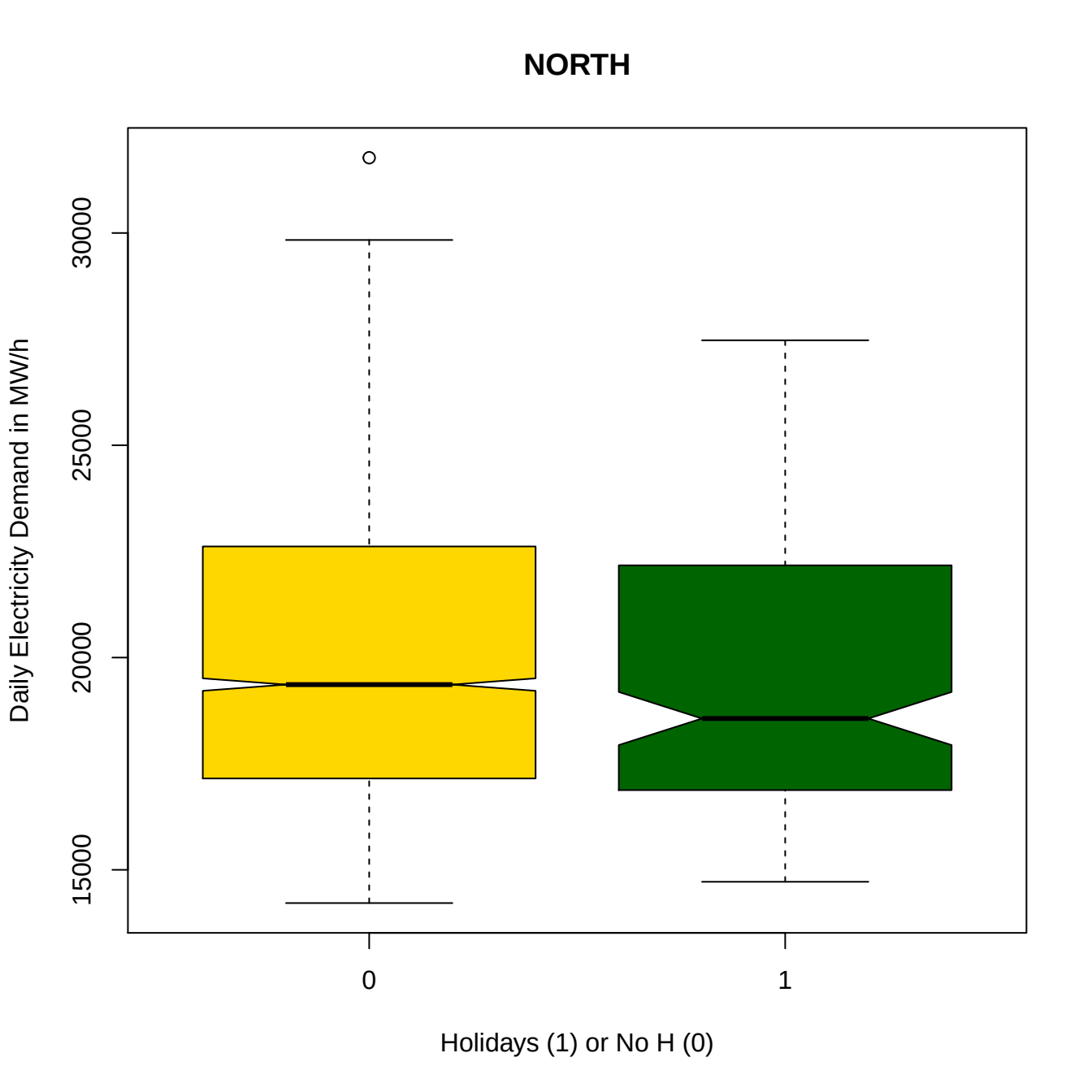

Outlier Analysis East 2019
Daily Electricity Demand in MW/h
50000
45000
40000
35000
30000
25000

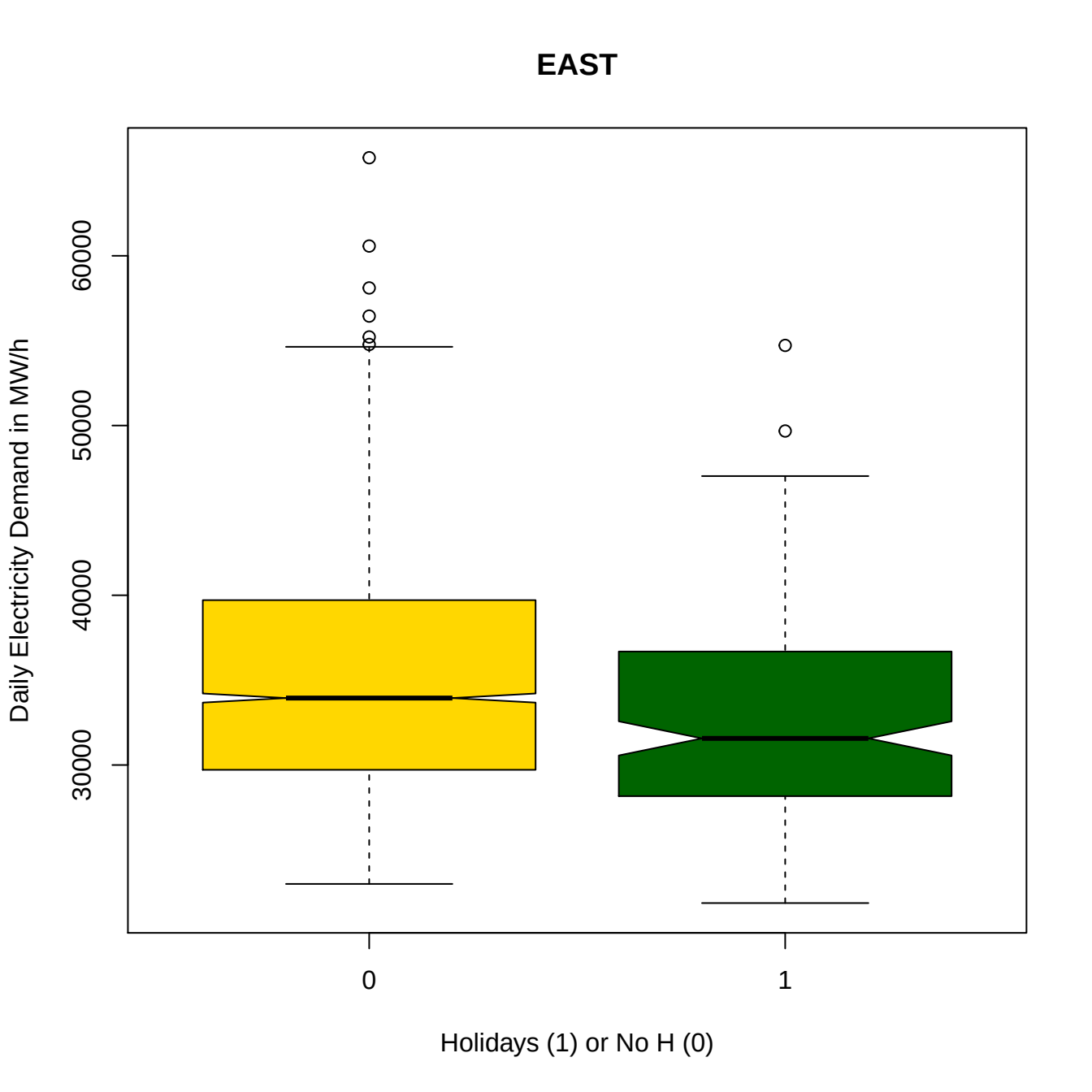

Outlier Analysis East 2020
Daily Electricity Demand in MW/h
55000
50000
45000
40000
35000
30000
25000

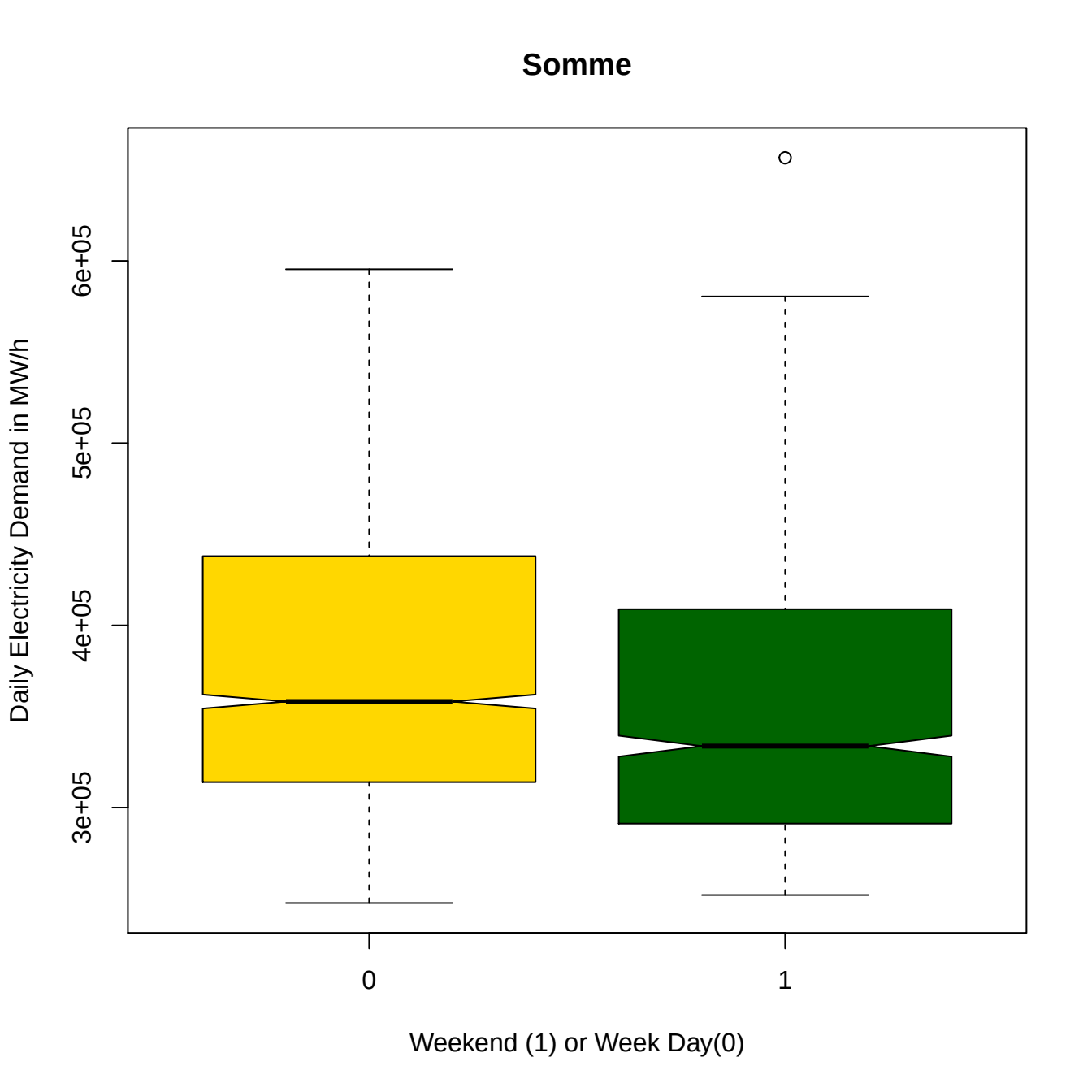

Outlier Analysis East 2021
Daily Electricity Demand in MW/h
30000
40000
50000
60000

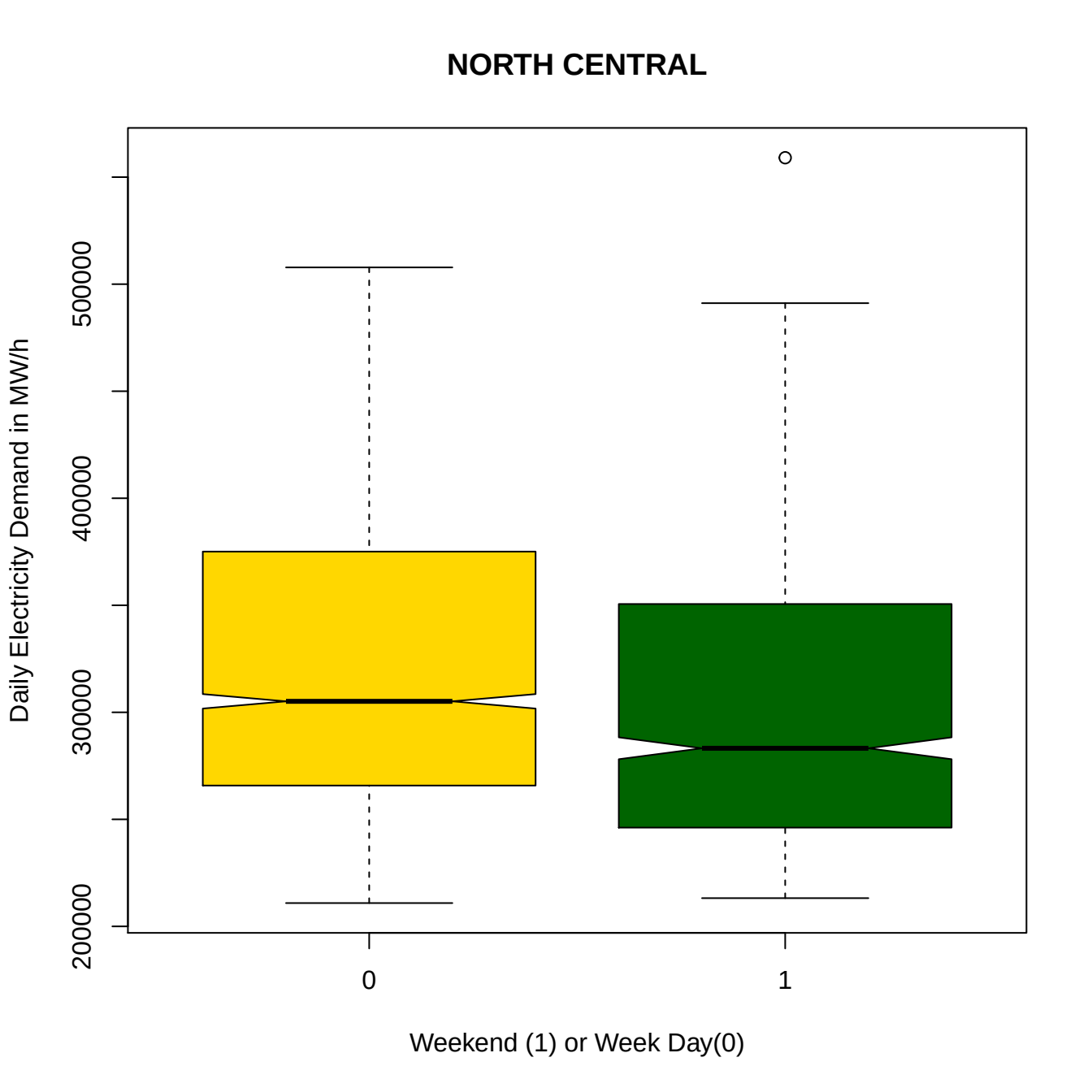

Somme
Daily Electricity Demand in MW/h
3e+05
4e+05
5e+05
6e+05
0
1
Holidays (1) or No H (0)

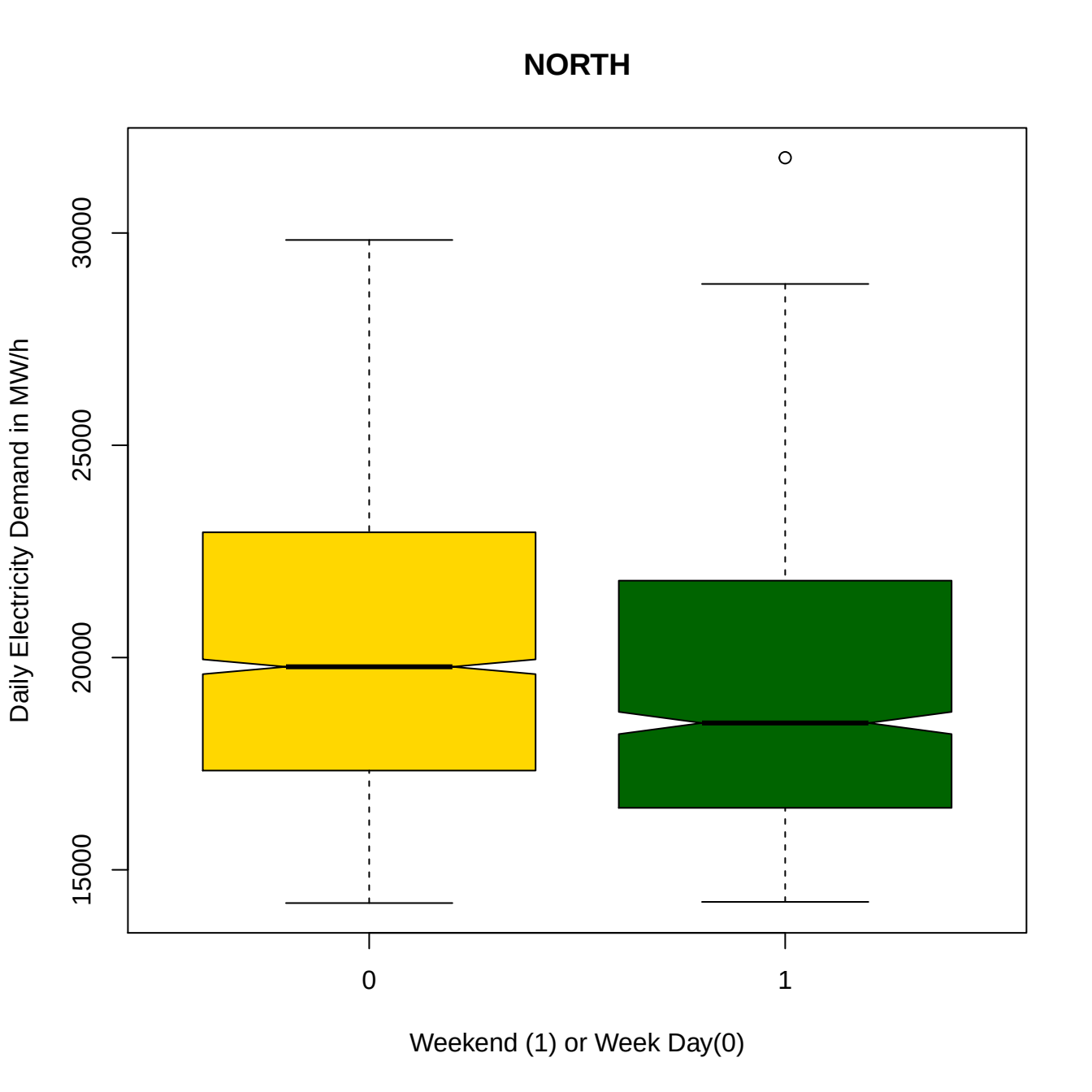

NORTH CENTRAL
Daily Electricity Demand in MW/h
200000
300000
400000
500000
0
1
Holidays (1) or No H (0)

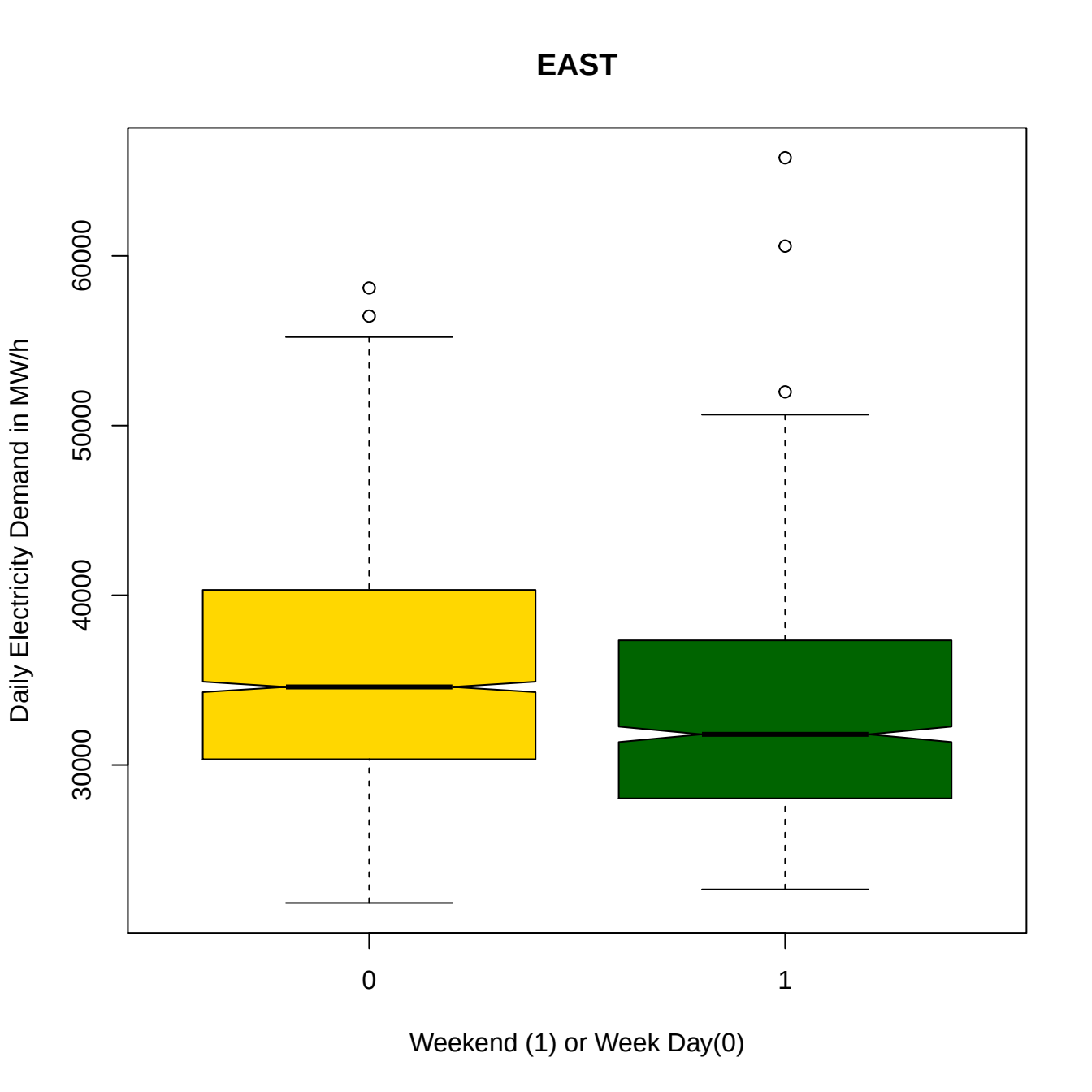

NORTH
Daily Electricity Demand in MW/h
30000
25000
20000
15000
0
1
Holidays (1) or No H (0)

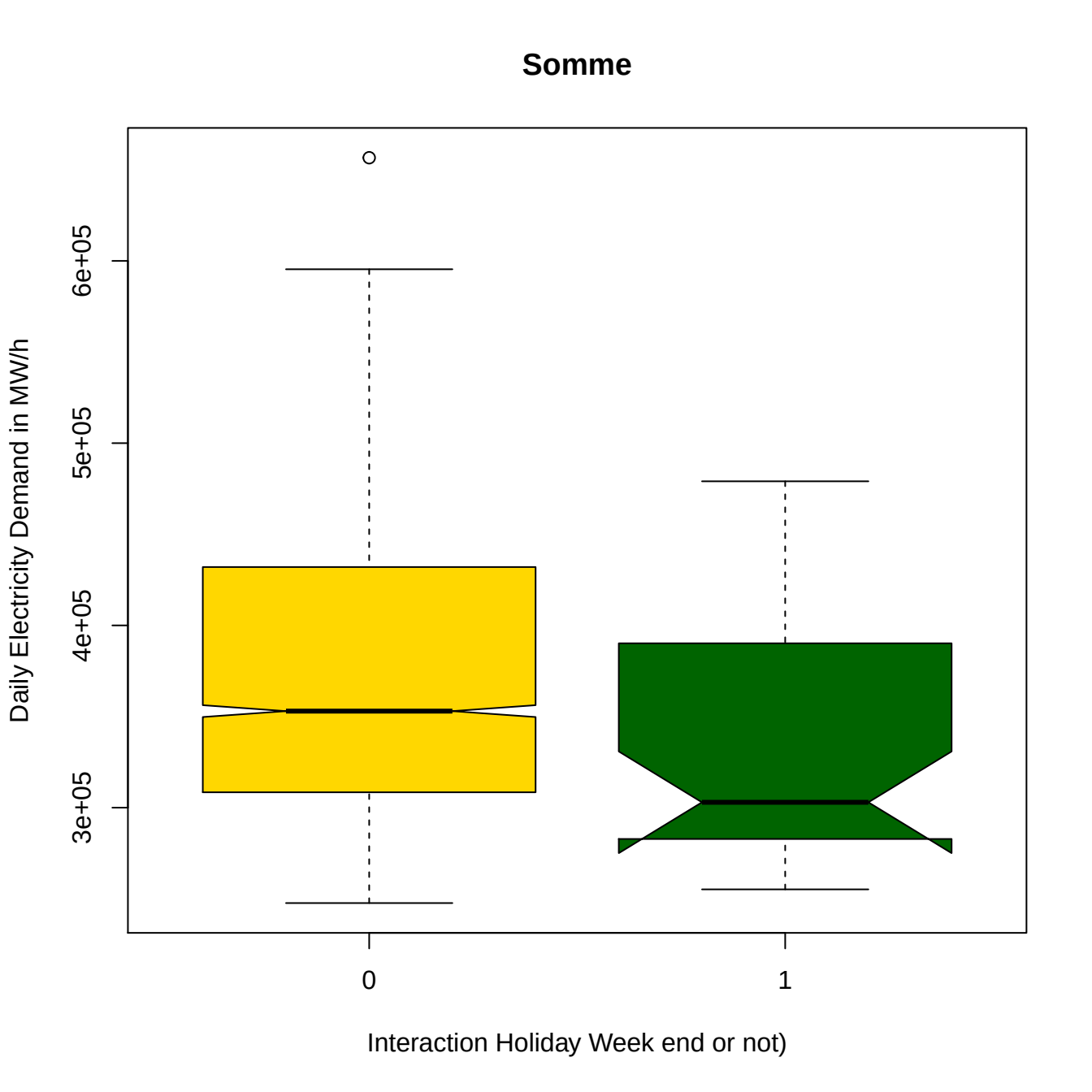

EAST
Daily Electricity Demand in MW/h
30000
40000
50000
60000
0
1
Holidays (1) or No H (0)

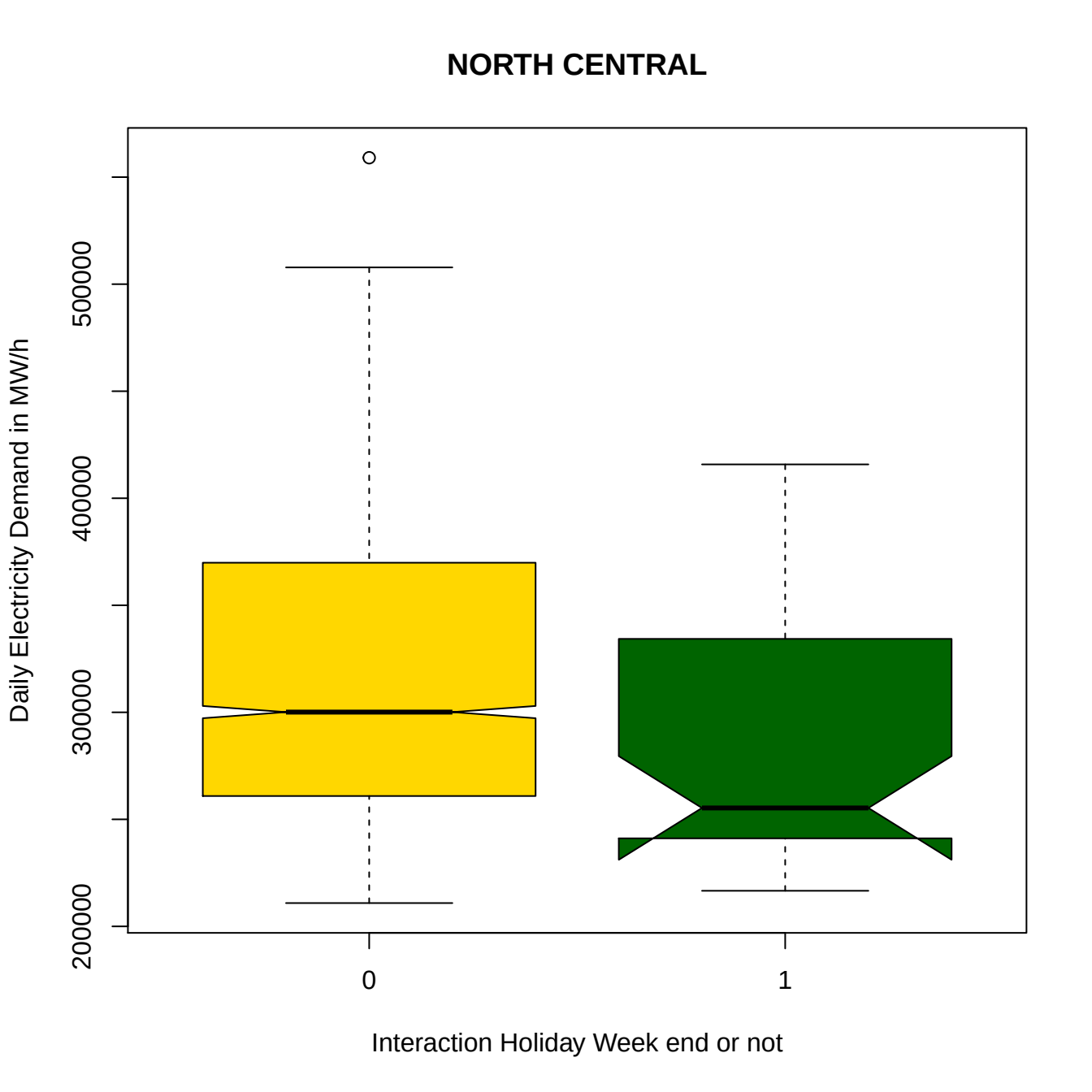

Somme
Daily Electricity Demand in MW/h
3e+05
4e+05
5e+05
6e+05
0
1
Weekend (1) or Week Day(0)

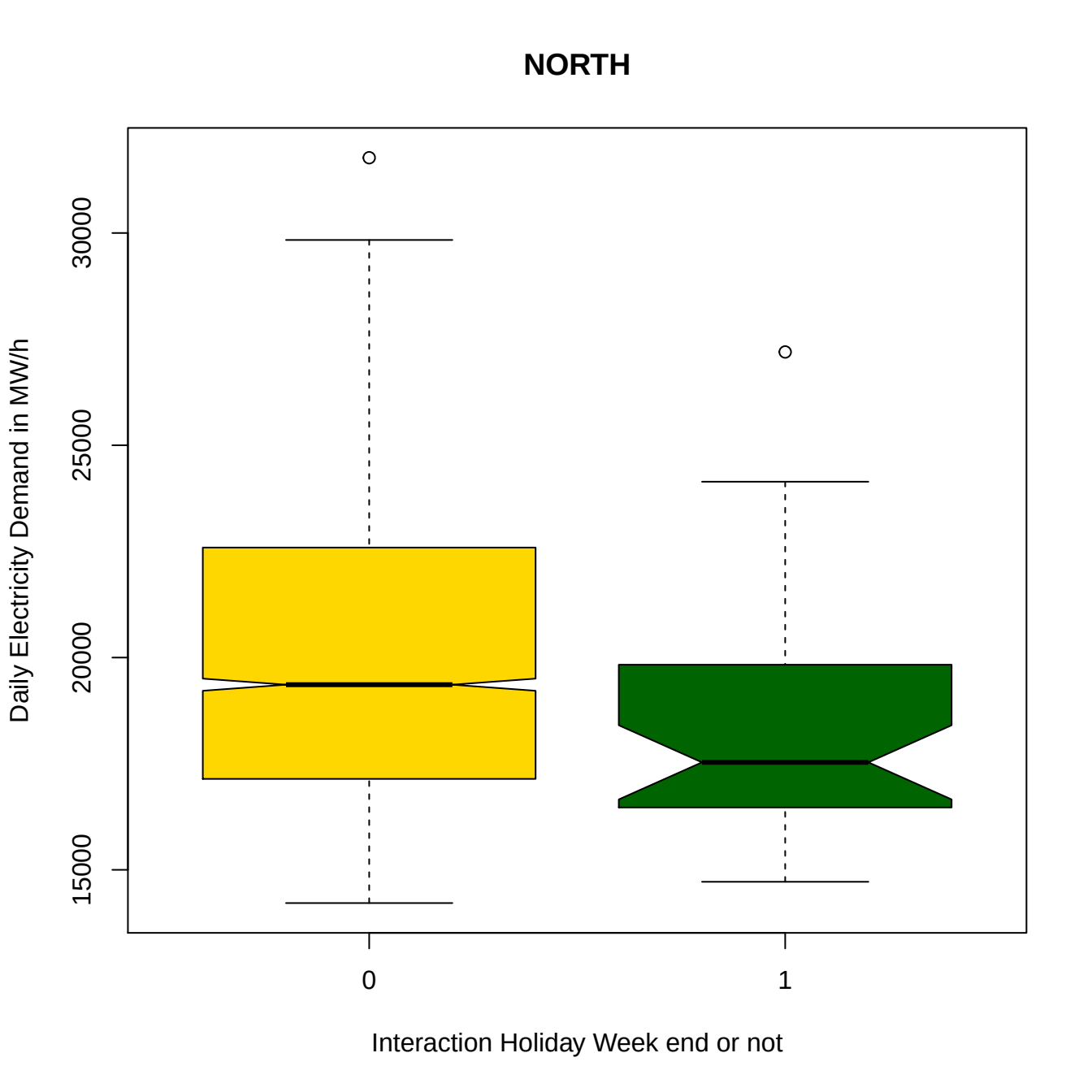

NORTH CENTRAL
Daily Electricity Demand in MW/h
200000
300000
400000
500000
0
1
Weekend (1) or Week Day(0)

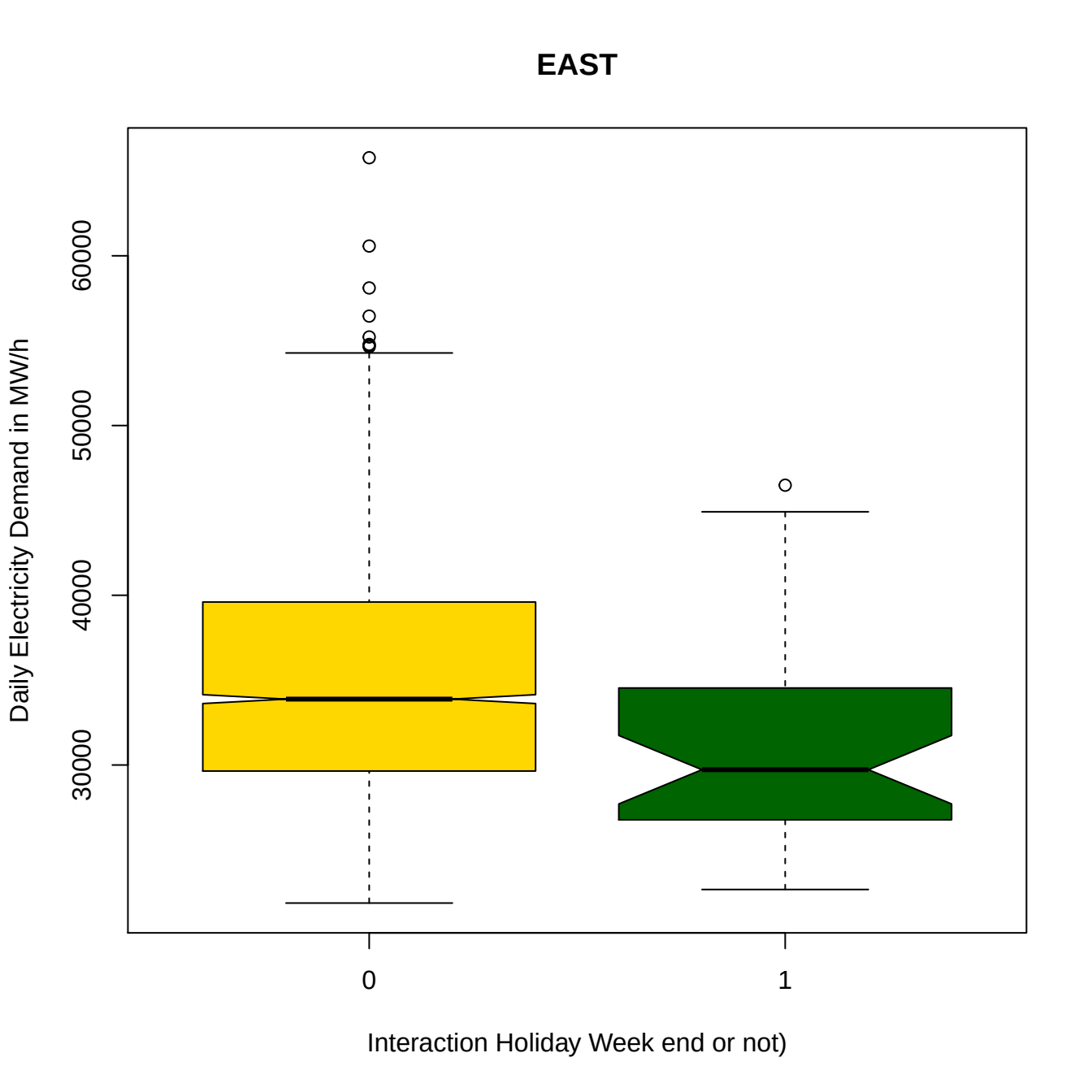

NORTH
Daily Electricity Demand in MW/h
15000
20000
25000
30000
0
1
Weekend (1) or Week Day(0)


EAST
Daily Electricity Demand in MW/h
30000
40000
50000
60000
0
1
Weekend (1) or Week Day(0)


Somme
Daily Electricity Demand in MW/h
3e+05
4e+05
5e+05
6e+05
0
1
Interaction Holiday Week end or not)


NORTH CENTRAL
Daily Electricity Demand in MW/h
200000
300000
400000
500000
0
1
Interaction Holiday Week end or not


NORTH
Daily Electricity Demand in MW/h
30000
25000
20000
15000
0
1
Interaction Holiday Week end or not


EAST
Daily Electricity Demand in MW/h
30000
40000
50000
60000
0
1
Interaction Holiday Week end or not)