The North Carolina Air Quality Forecast Center

Meteorologists

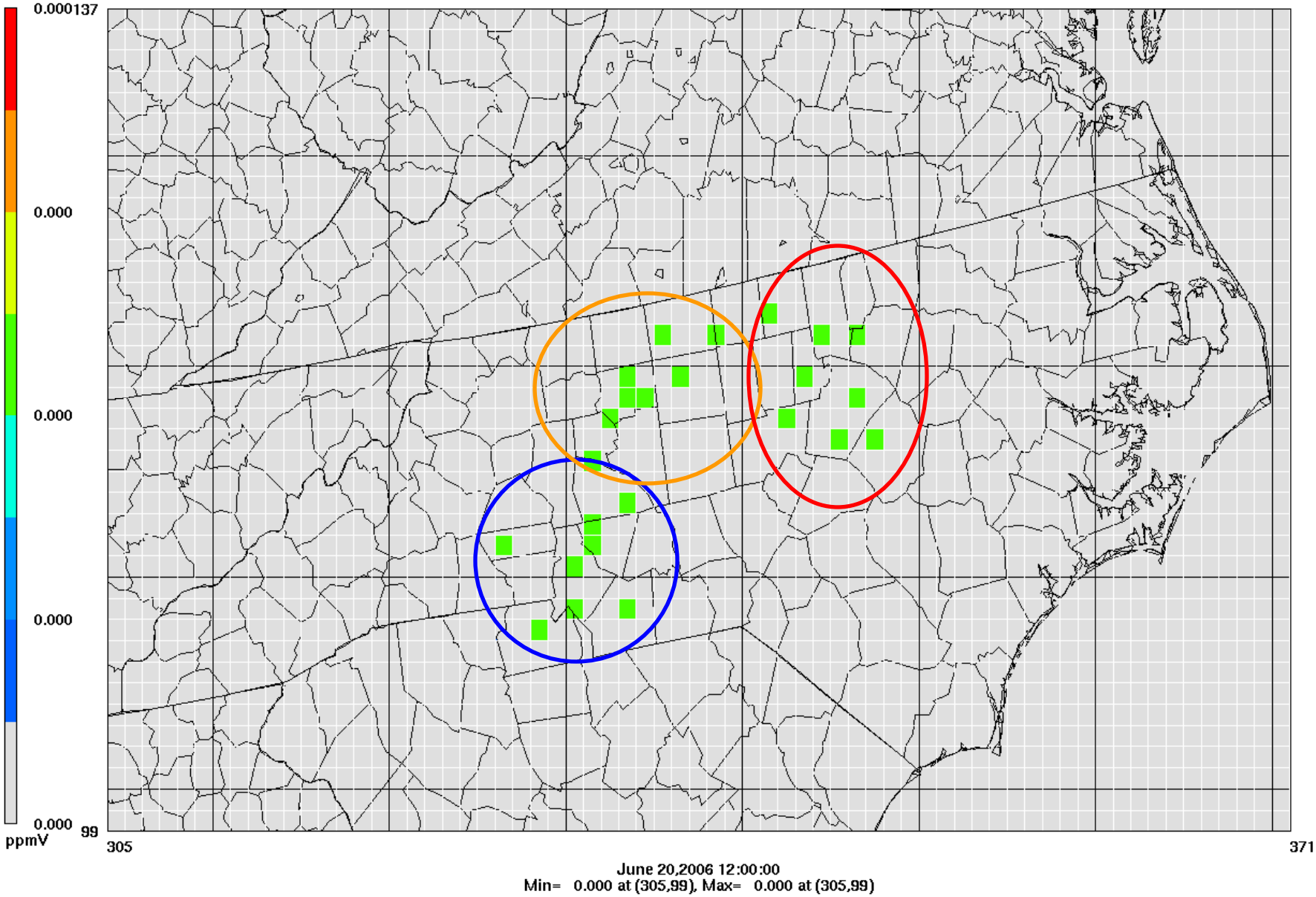
Bebhinn Do

George M. Bridgers

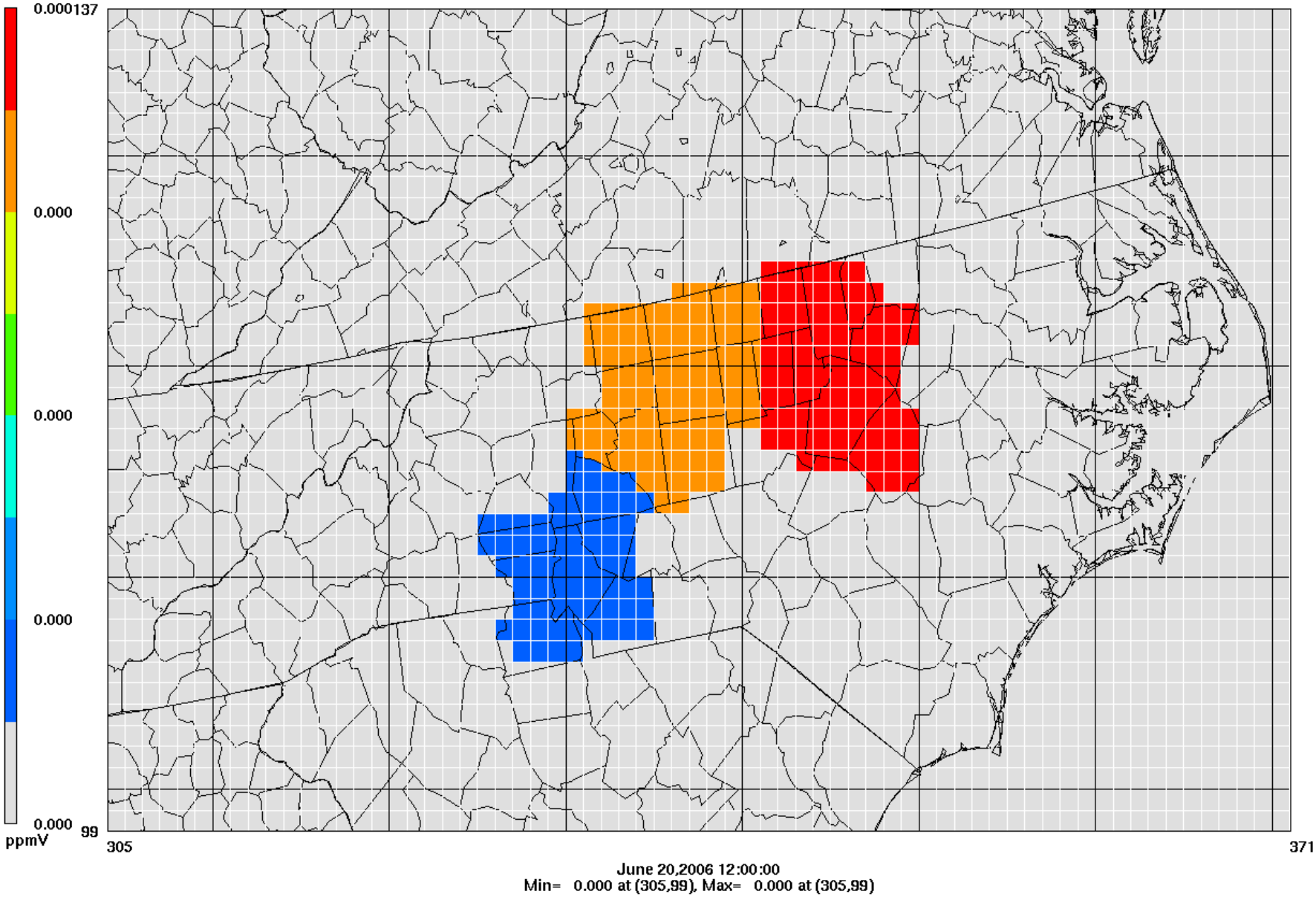
Peter Childs

Nick Witcraft

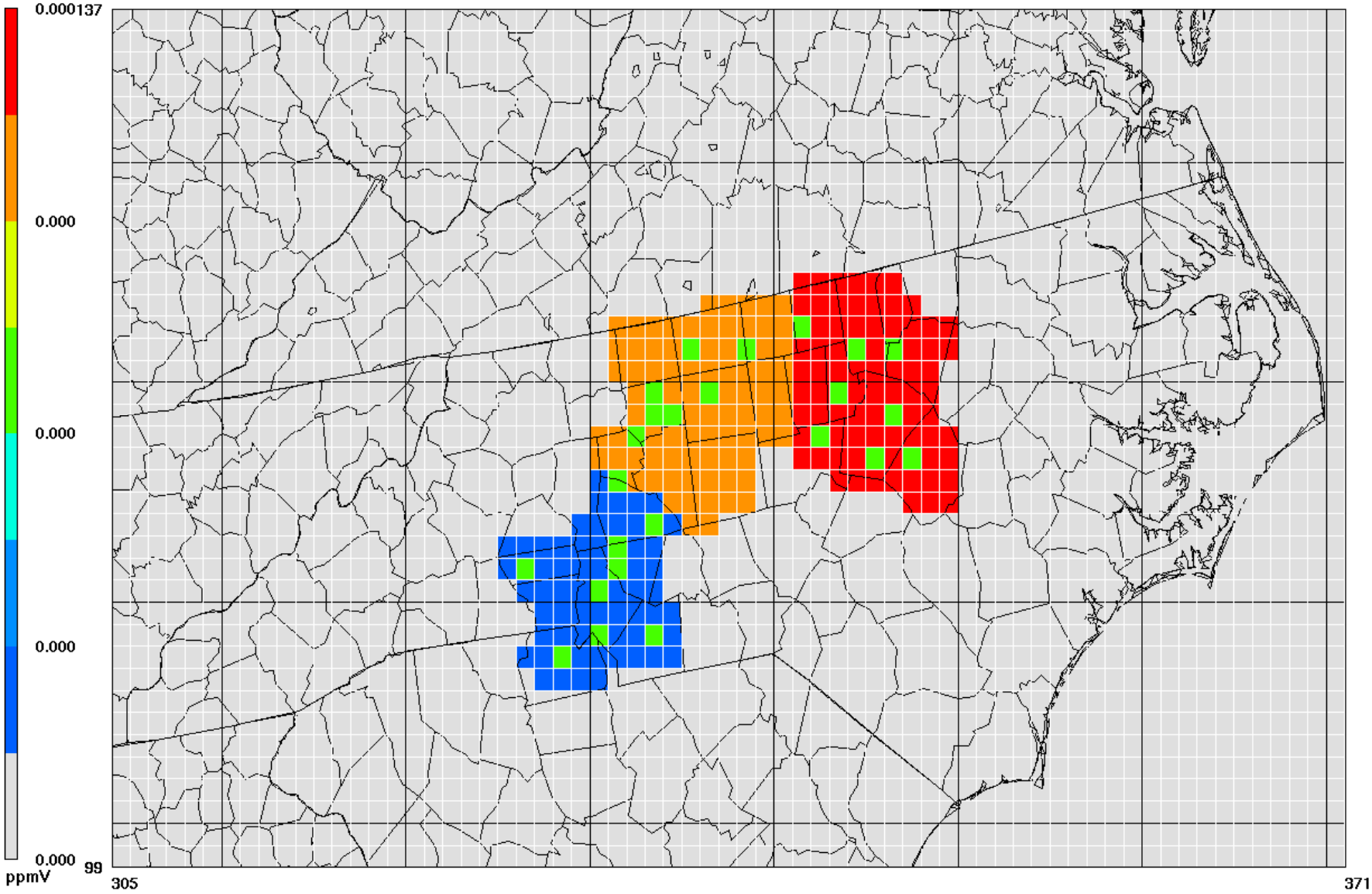
North Carolina Forecast Regions



North Carolina Forecast Regions



North Carolina Forecast Regions



June 20,2006 12:00:00
Min= 0.000 at (305,99), Max= 0.000 at (305,99)

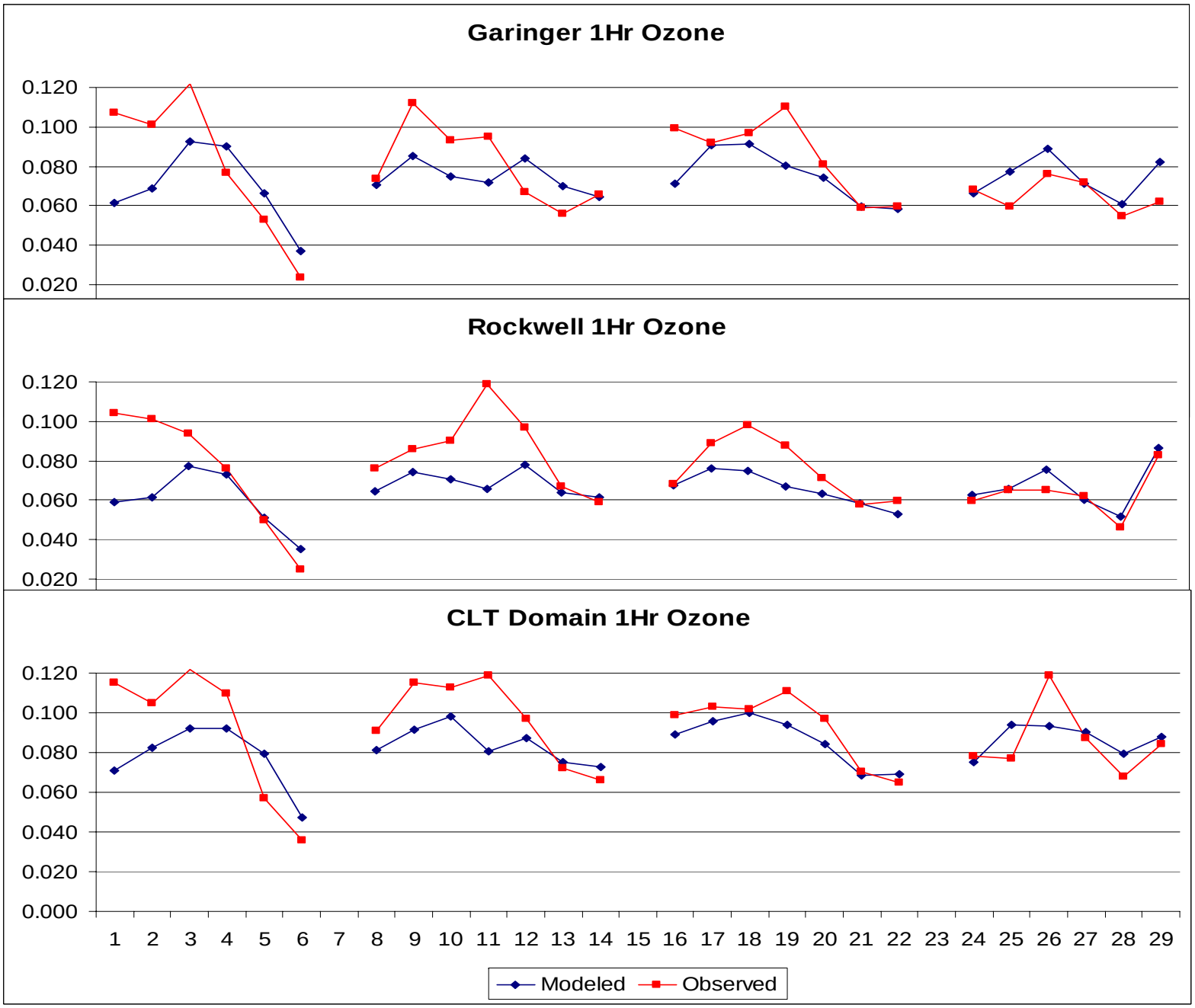
AQ Episodes Of Interest – 2006

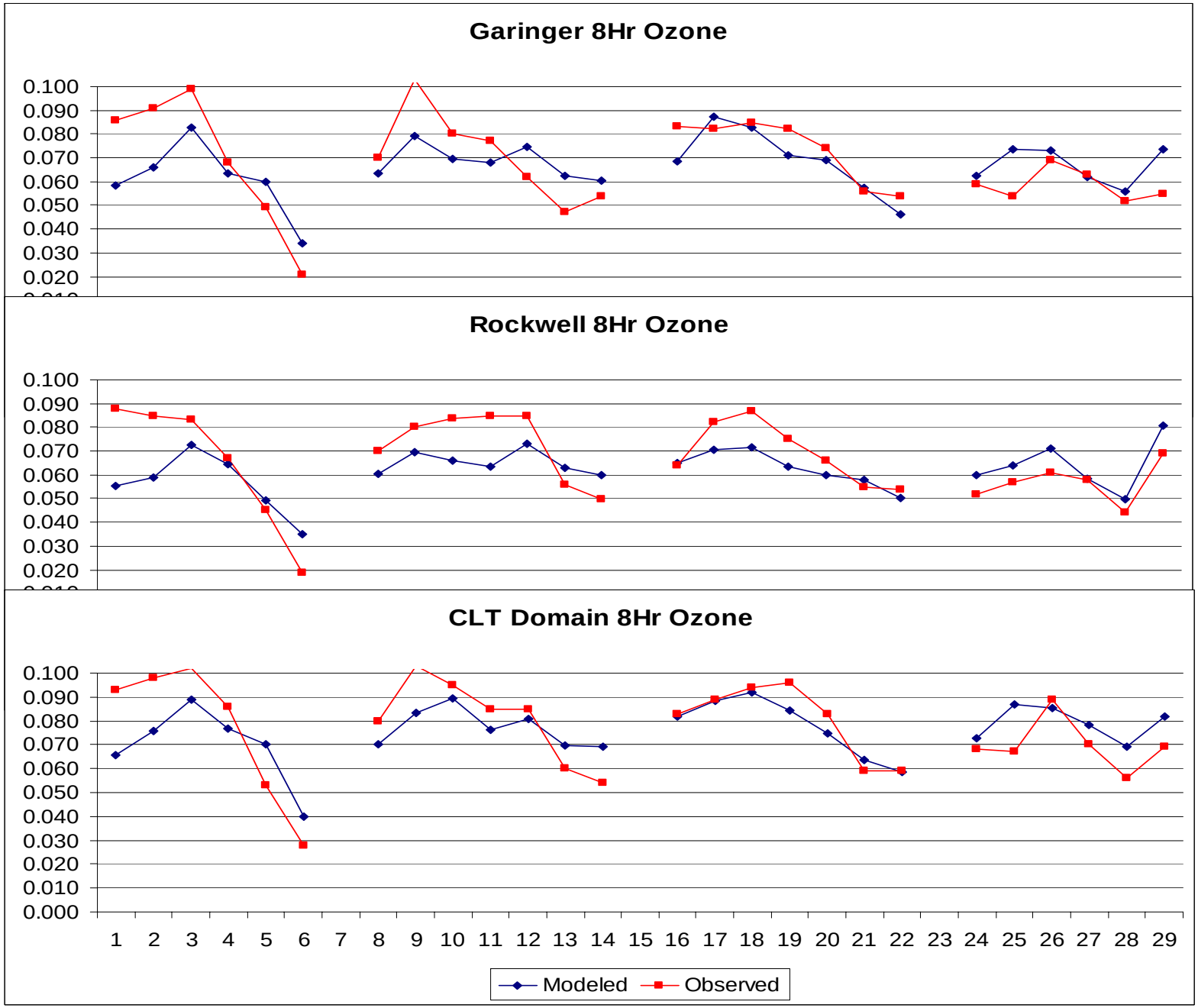
- June 20th - 25th *(Highest Ozone Of Summer)*
- July 17th - 23rd *(Central NC Ozone Event)*
- July 31st - Aug 6th *(PM2.5 & Ozone Event)*
- Aug 23rd – 28th *(Wide Spread PM2.5 Event)*

- Modeled AQ from previous day 06Z experimental run for PM2.5 and 12Z experimental run for ozone

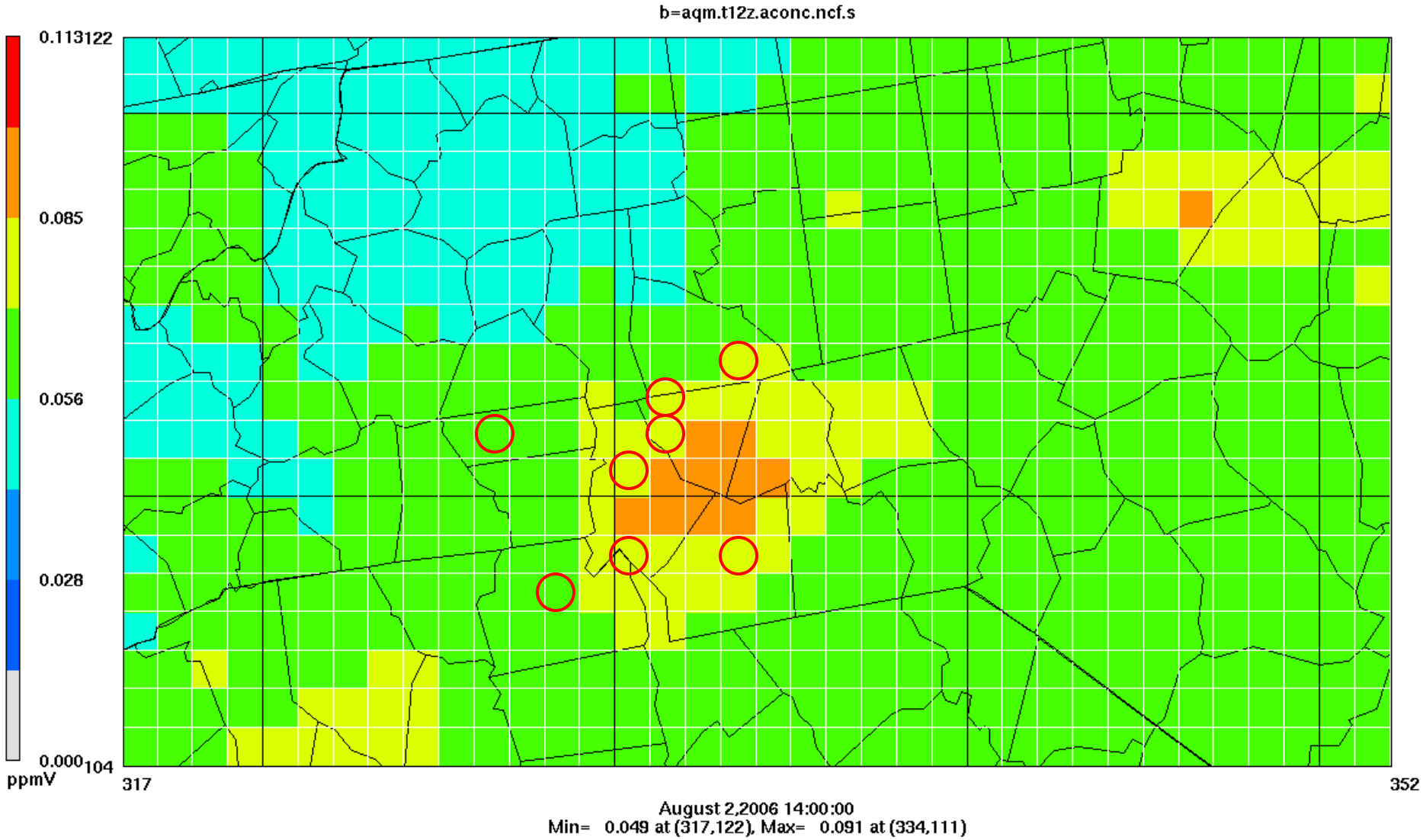
Action Day Evaluation - Ozone

	Warn	Miss	False	NoWarn
Rockwell	0	5	0	21
Enochville	0	4	0	22
Crouse	0	3	0	23
Co Line	0	6	0	20
Garinger	0	5	1	20
Arrowood	0	1	0	25
Monroe	0	2	0	24
York	0	0	1	25
CLT Domain	5	7	1	13


Garinger 1Hr Ozone
0.120
0.100
0.080
0.060
0.040
0.020
Rockwell 1Hr Ozone
0.120
0.100
0.080
0.060
0.040
0.020
CLT Domain 1Hr Ozone
0.120
0.100
0.080
0.060
0.040
0.020
0.000
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29
Modeled
Observed


Garinger 8Hr Ozone
0.100
0.090
0.080
0.070
0.060
0.050
0.040
0.030
0.020
Rockwell 8Hr Ozone
0.100
0.090
0.080
0.070
0.060
0.050
0.040
0.030
0.020
CLT Domain 8Hr Ozone
0.100
0.090
0.080
0.070
0.060
0.050
0.040
0.030
0.020
0.010
0.000
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29
Modeled
Observed

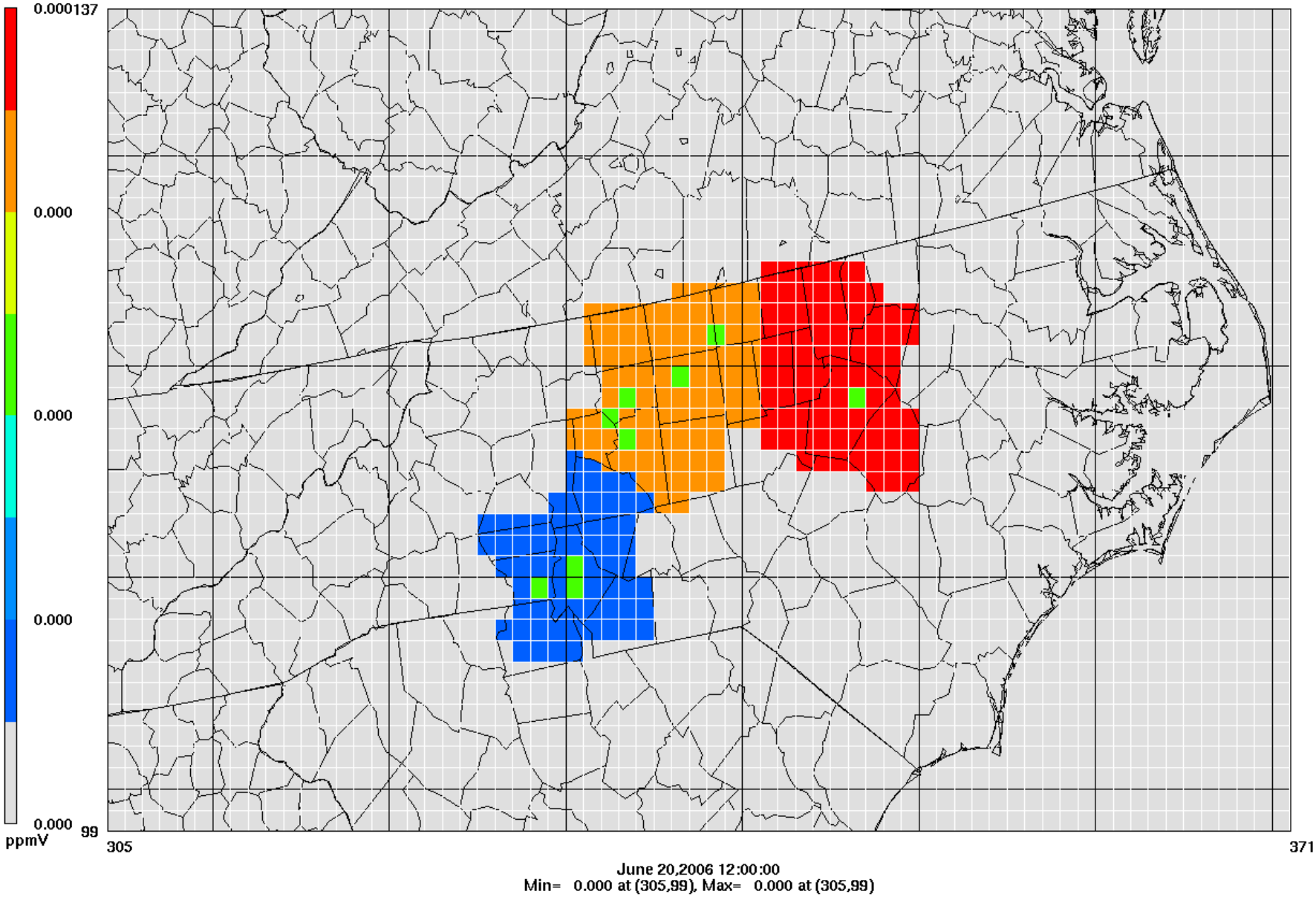
8–hour average:O3b

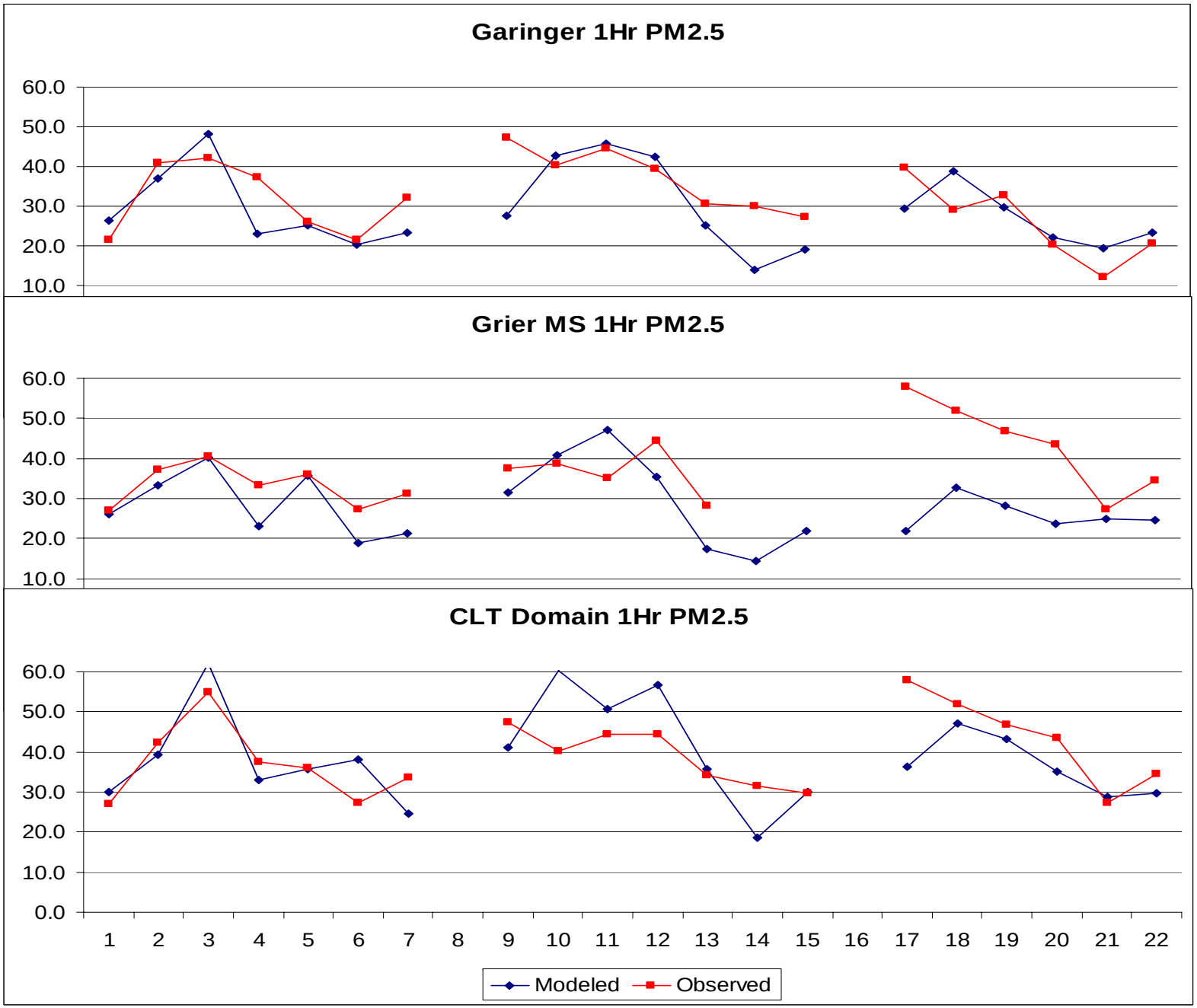


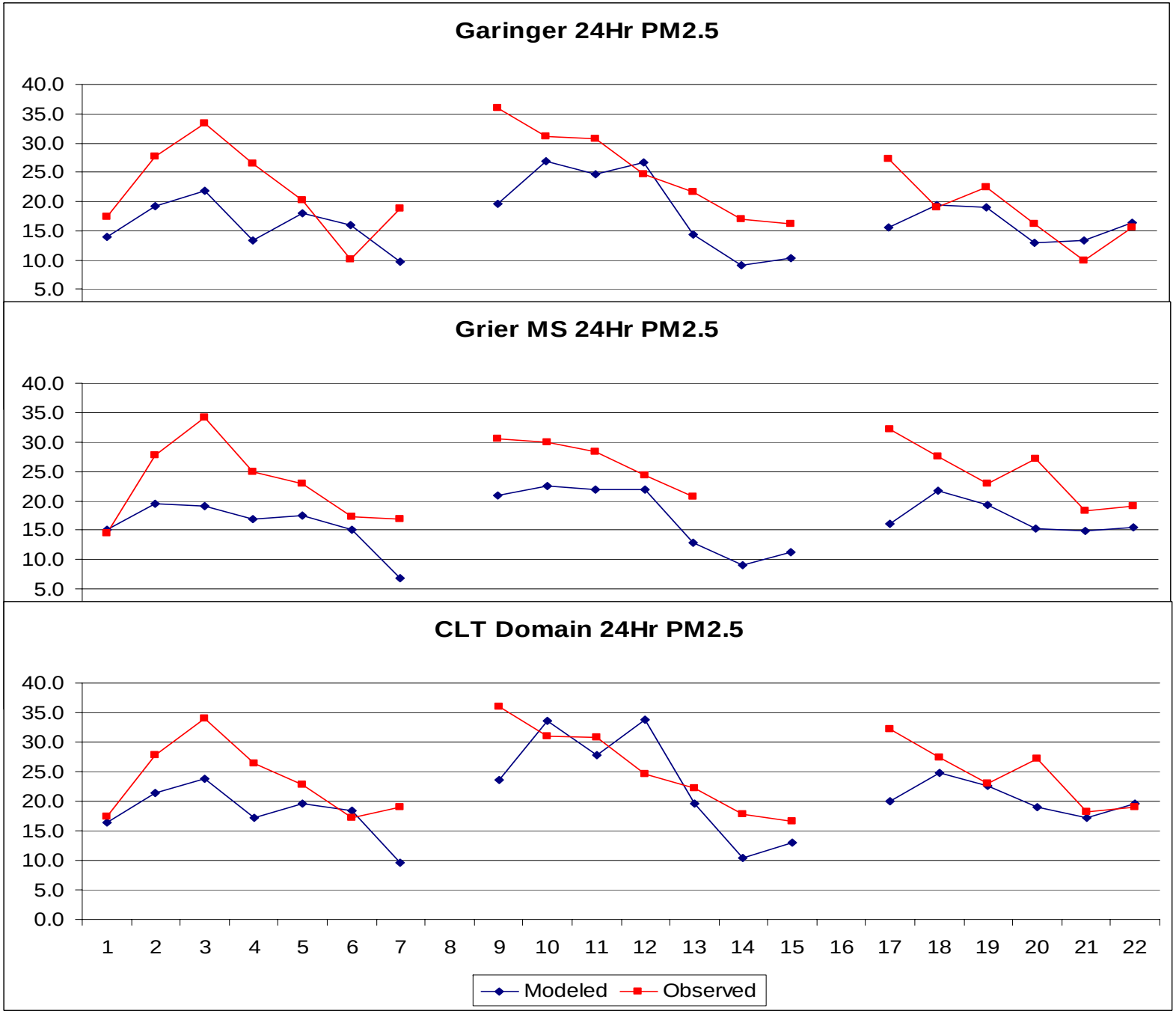
Summary – Ozone

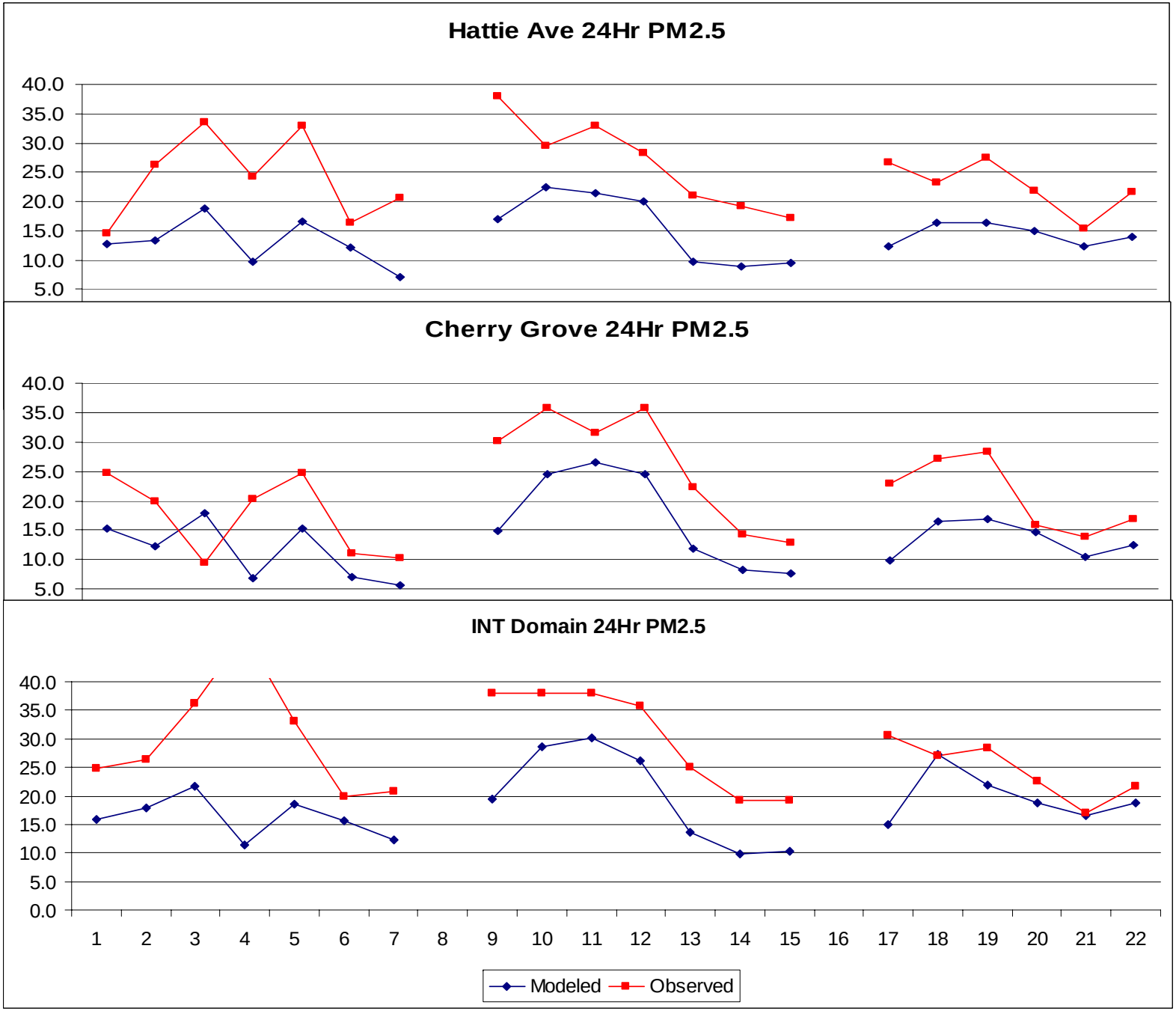
- Caveats with AQ model data prior to Aug 5th
- Spatial patterns were generally represented
- Scattered afternoon convection is still a significant challenge
- Improvement in AQ model under predictions at monitoring sites and across forecast region
- Domain masks are preferred to monitor specific statistics / output

North Carolina Forecast Regions




Garinger 1Hr PM2.5
60.0
50.0
40.0
30.0
20.0
10.0
Grier MS 1Hr PM2.5
60.0
50.0
40.0
30.0
20.0
10.0
CLT Domain 1Hr PM2.5
60.0
50.0
40.0
30.0
20.0
10.0
0.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22
Modeled
Observed


Garinger 24Hr PM2.5
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
Grier MS 24Hr PM2.5
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
CLT Domain 24Hr PM2.5
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22
Modeled
Observed


Hattie Ave 24Hr PM2.5
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
Cherry Grove 24Hr PM2.5
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
INT Domain 24Hr PM2.5
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22
Modeled
Observed

Summary – PM2.5

- AQ model consistently about 5ug/m3 below observations for 24hr averages
- Hourly spikes in observed data not well represented by AQ model
  - Need for more temporal study
- Urban core is better represented as compared to more rural or upwind locations
- Overall, very encouraging results…