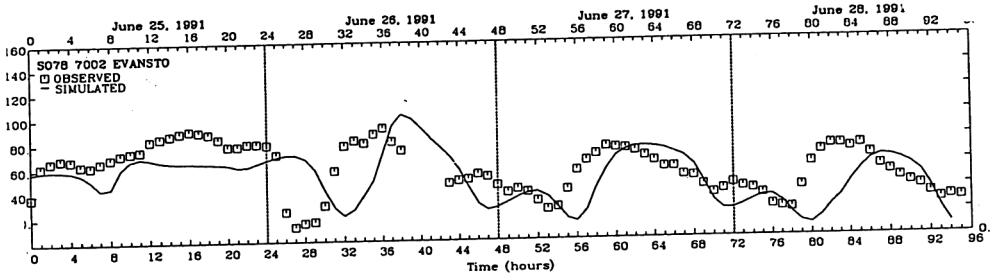
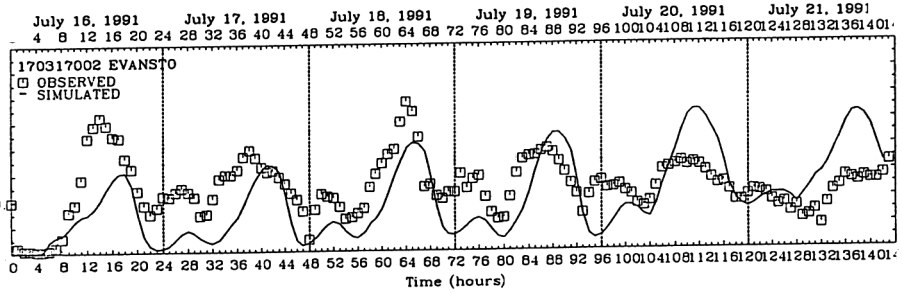
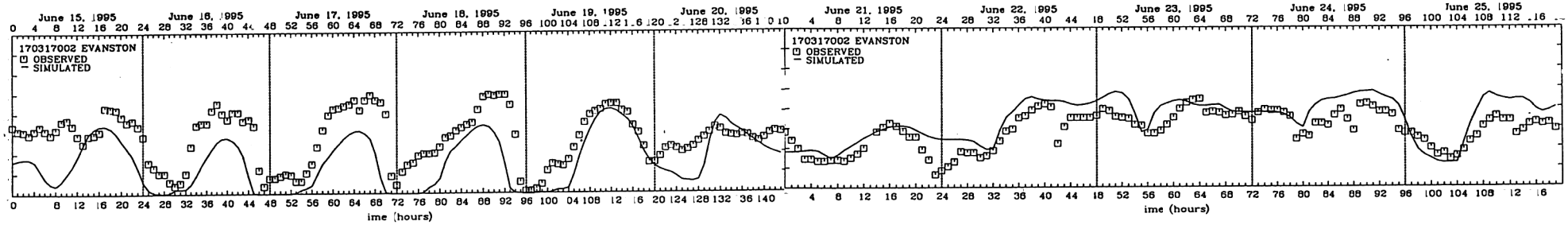
Fi


June 25, 1991
June 26, 1991
June 27, 1991
June 28, 1991
5078 7002 EVANSTO
OBSERVED
SIMULATED
Time (hours)

W
M
Chicago
Evanston
Michigan City
Kalamazoo
IL
Gary
IN
South Bend


July 16, 1991
July 17, 1991
July 18, 1991
July 19, 1991
July 20, 1991
July 21, 1991
170317002 EVANSTO
OBSERVED
SIMULATED
Time (hours)


June 15, 1995
June 16, 1995
June 17, 1995
June 18, 1995
June 19, 1995
June 20, 1995
June 21, 1995
June 22, 1995
June 23, 1995
June 24, 1995
June 25, 1995
170317002 EVANSTON
OBSERVED
SIMULATED

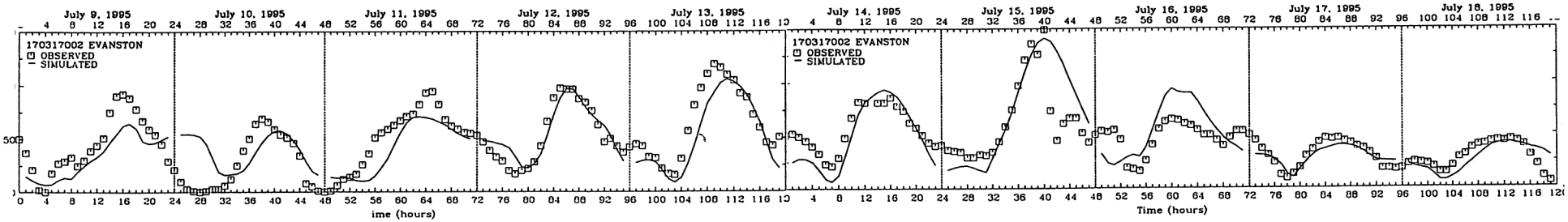
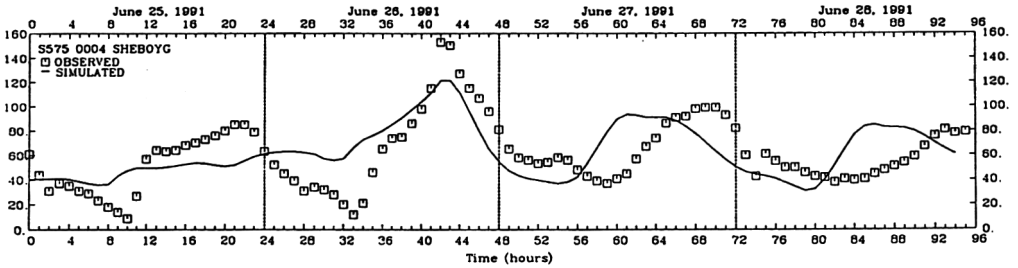
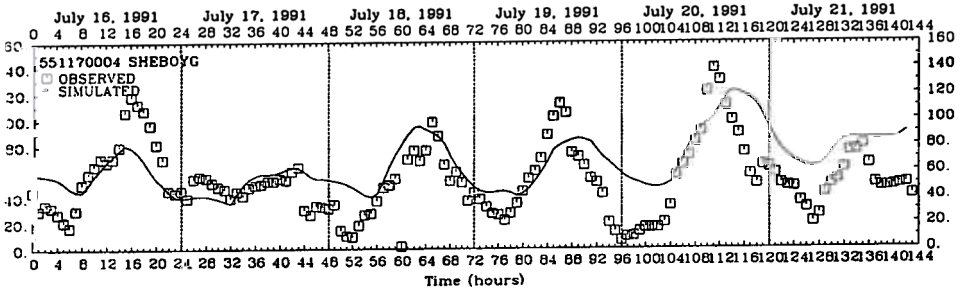
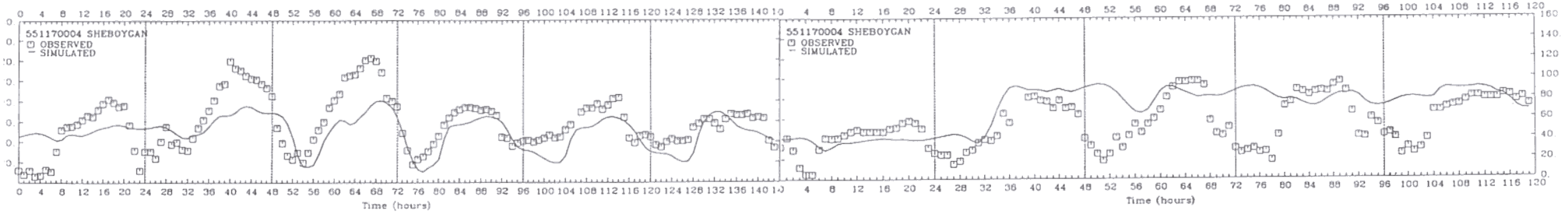

July 9, 1995
July 10, 1995
July 11, 1995
July 12, 1995
July 13, 1995
July 14, 1995
July 15, 1995
July 16, 1995
July 17, 1995
July 18, 1995
170317002 EVANSTON
OBSERVED
SIMULATED
Time (hours)

Figure 5b


June 25, 1991
June 26, 1991
June 27, 1991
June 28, 1991
S575 0004 SHEBOYG
OBSERVED
SIMULATED
Time (hours)


July 16, 1991
July 17, 1991
July 18, 1991
July 19, 1991
July 20, 1991
July 21, 1991
551170004 SHEBOYG
OBSERVED
SIMULATED
Time (hours)

WI
MI
IL
IN
Sheboygan
Milwaukee
Muskegon
Grand Rapids
Kalamazoo
Chicago
Evanston
Michigan City
Gary
South Bend


551170004 SHEBOYGAN
OBSERVED
SIMULATED
Time (hours)

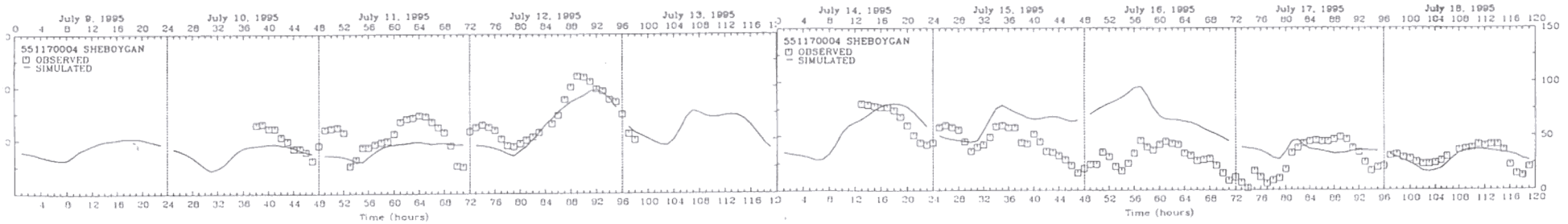
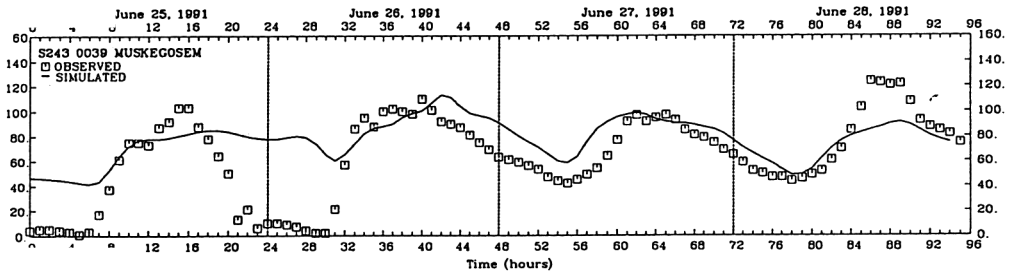
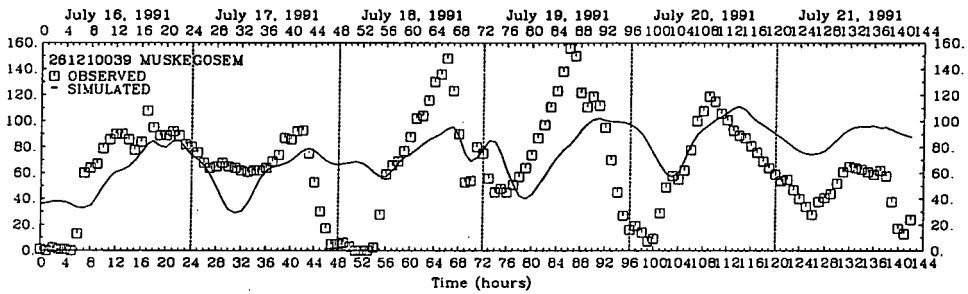
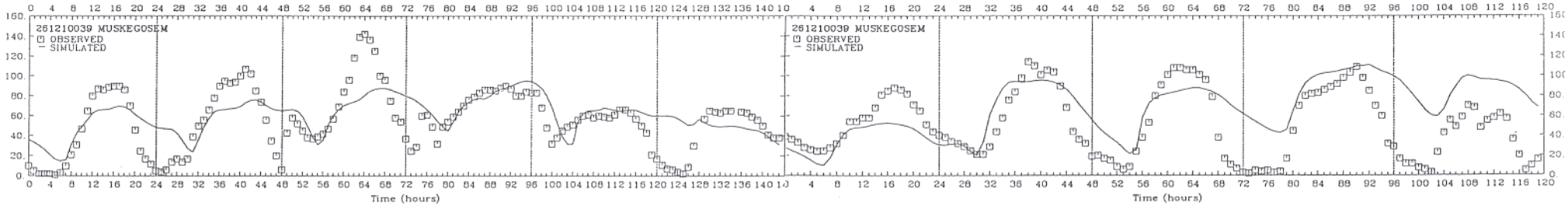

July 9, 1995
July 10, 1995
July 11, 1995
July 12, 1995
July 13, 1995
July 14, 1995
July 15, 1995
July 16, 1995
July 17, 1995
July 18, 1995
551170004 SHEBOYGAN
OBSERVED
SIMULATED
Time (hours)

Figure 5c


June 25, 1991
June 26, 1991
June 27, 1991
June 28, 1991
S243 0039 MUSKEGOSEM
OBSERVED
SIMULATED
Time (hours)


July 16, 1991
July 17, 1991
July 18, 1991
July 19, 1991
July 20, 1991
July 21, 1991
261210039 MUSKEGOSEM
OBSERVED
SIMULATED
Time (hours)

WI
MI
IL
IN
Sheboygan
Milwaukee
Muskegon
Grand Rapids
Kalamazoo
Chicago
Evanston
Michigan City
Gary
South Bend


261210039 MUSKEGOSEM
OBSERVED
SIMULATED
Time (hours)

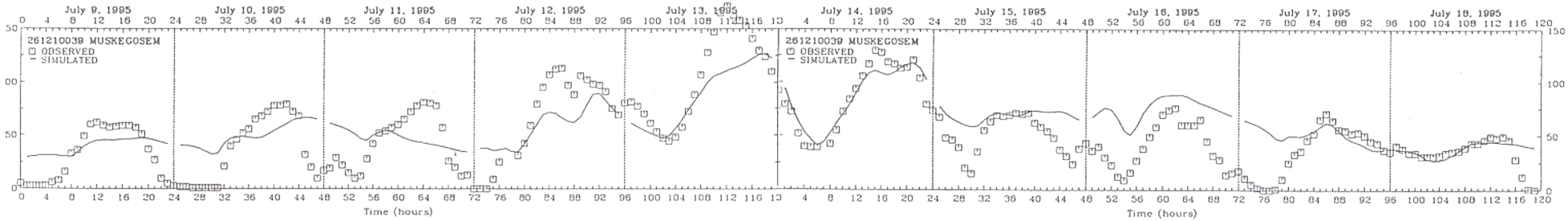
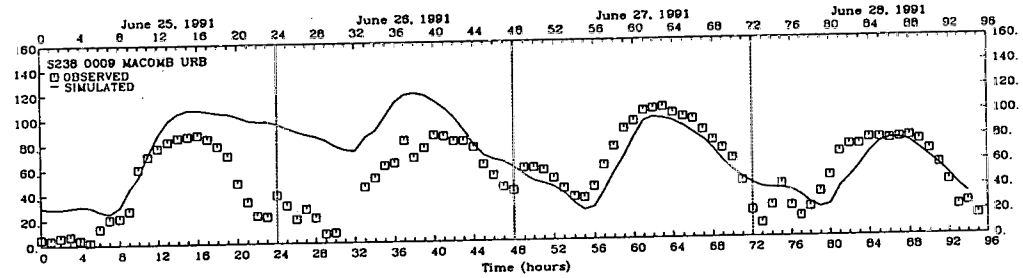
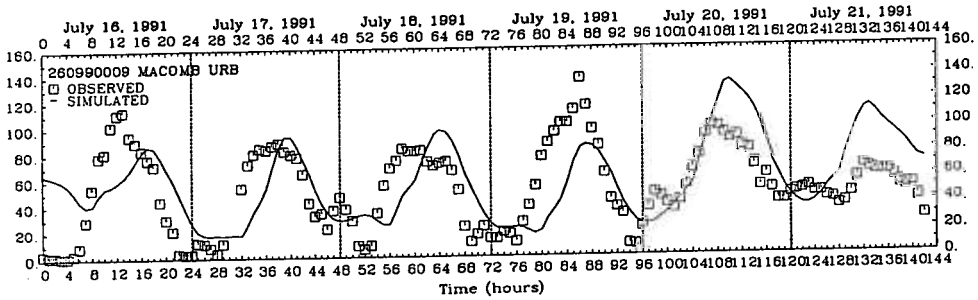
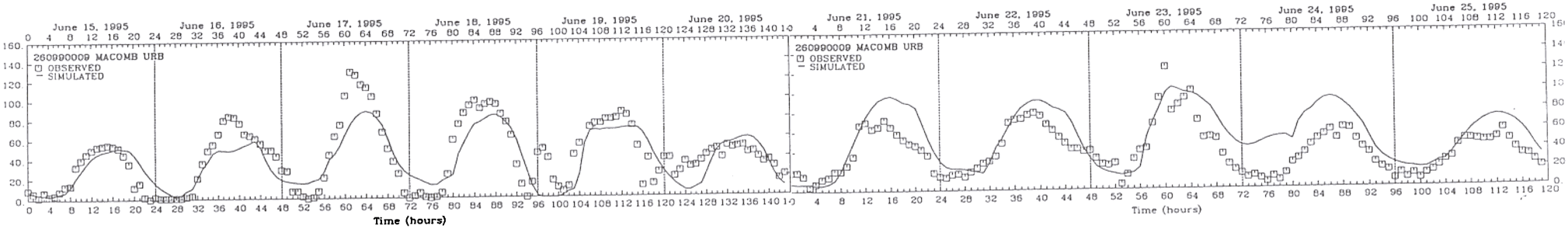

July 9, 1995
July 10, 1995
July 11, 1995
July 12, 1995
July 13, 1995
July 14, 1995
July 15, 1995
July 16, 1995
July 17, 1995
July 18, 1995
261210039 MUSKEGOSEM
OBSERVED
SIMULATED
Time (hours)

Figure 5d


June 25, 1991
June 26, 1991
June 27, 1991
June 28, 1991
5238 0009 MACOMB URB
OBSERVED
SIMULATED
Time (hours)


July 16, 1991
July 17, 1991
July 18, 1991
July 19, 1991
July 20, 1991
July 21, 1991
260990009 MACOMB URB
OBSERVED
SIMULATED
Time (hours)

WI
MI
Sheboygan
Madison
Grand Rapids
Milwaukee
Detroit
Chicago
Gary
Toledo
Cleveland
Fort Wayne
OH
Columbus
Springfield
Indianapolis
Dayton
Cincinnati
St. Louis
IL
IN
Louisville
KY
MO


June 15, 1995
June 16, 1995
June 17, 1995
June 18, 1995
June 19, 1995
June 20, 1995
June 21, 1995
June 22, 1995
June 23, 1995
June 24, 1995
June 25, 1995
260990009 MACOMB URB
OBSERVED
SIMULATED
Time (hours)

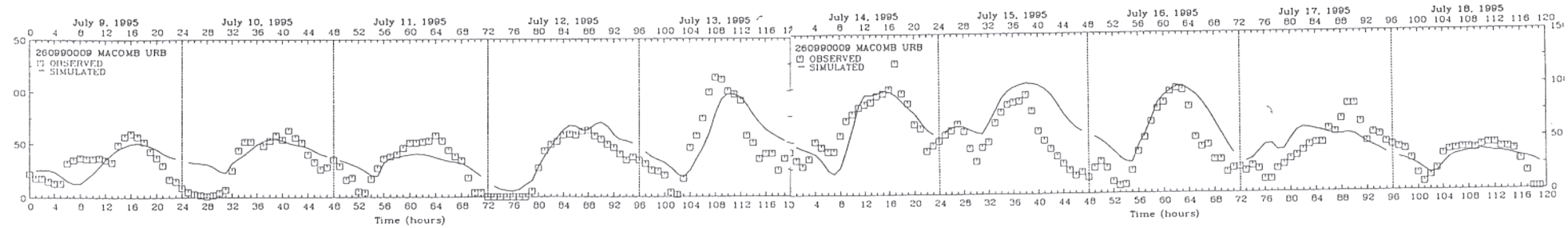
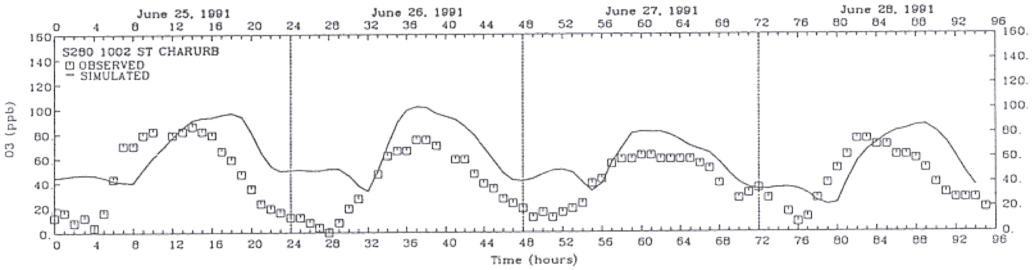
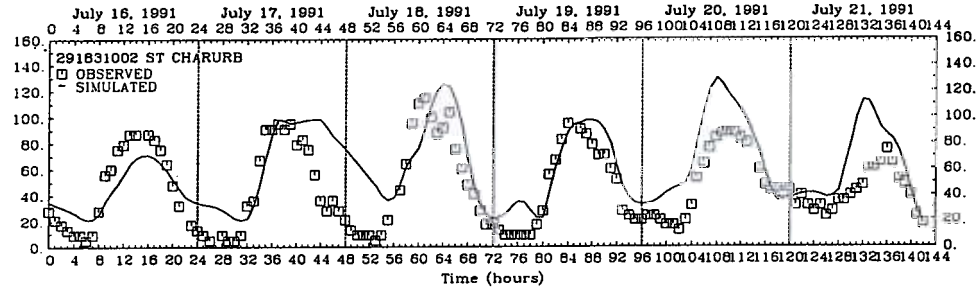
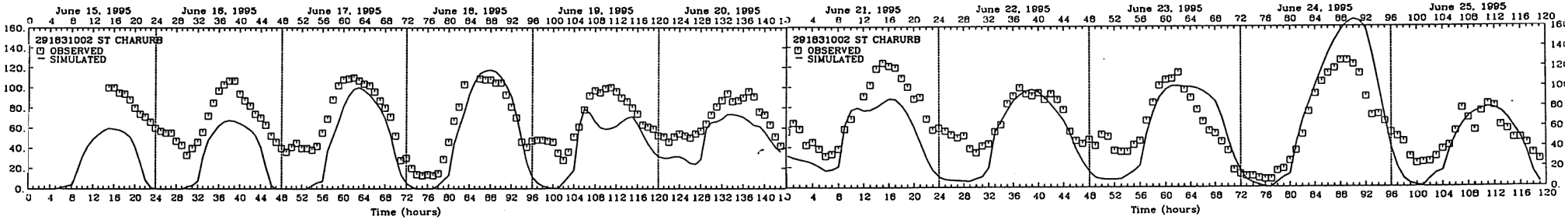

July 9, 1995
July 10, 1995
July 11, 1995
July 12, 1995
July 13, 1995
July 14, 1995
July 15, 1995
July 16, 1995
July 17, 1995
July 18, 1995
260990009 MACOMB URB
OBSERVED
SIMULATED
Time (hours)

Figure 5e


June 25, 1991
June 26, 1991
June 27, 1991
June 28, 1991
S280 1002 ST CHARURB
OBSERVED
SIMULATED
O3 (ppb)
Time (hours)


July 16, 1991
July 17, 1991
July 18, 1991
July 19, 1991
July 20, 1991
July 21, 1991
291831002 ST CHARURB
OBSERVED
SIMULATED
Time (hours)

WI
MI
Sheboygan
Madison
Grand Rapids
Milwaukee
Detroit
Chicago
Gary
Toledo
Cleveland
Fort Wayne
OH
Columbus
Springfield
Indianapolis
Dayton
Cincinnati
St Louis
IL
IN
Louisville
KY
MO


June 15, 1995
June 16, 1995
June 17, 1995
June 18, 1995
June 19, 1995
June 20, 1995
June 21, 1995
June 22, 1995
June 23, 1995
June 24, 1995
June 25, 1995
291831002 ST CHARURB
OBSERVED
SIMULATED
Time (hours)

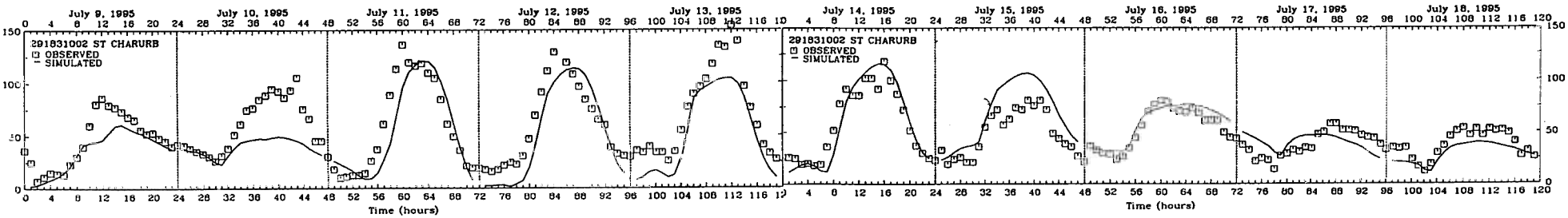
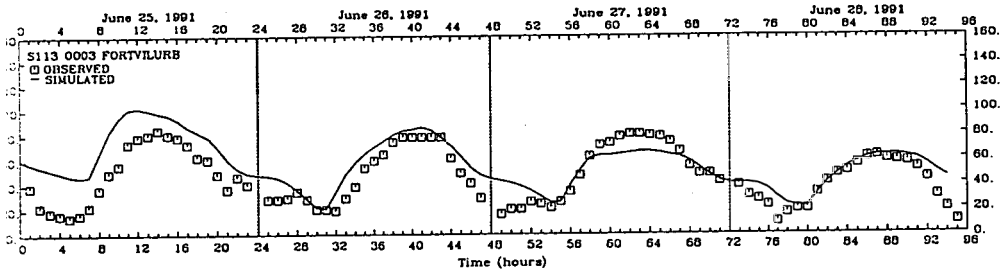
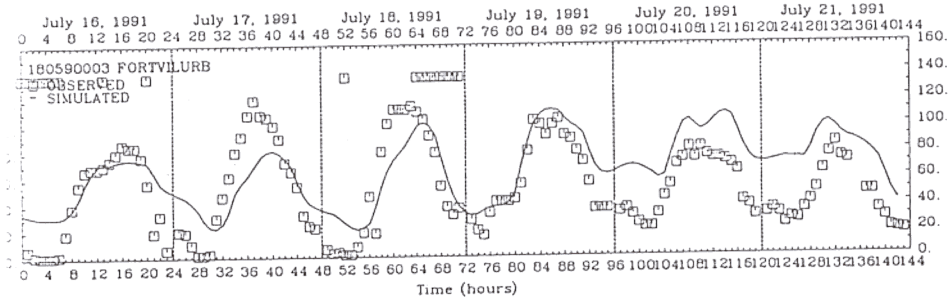
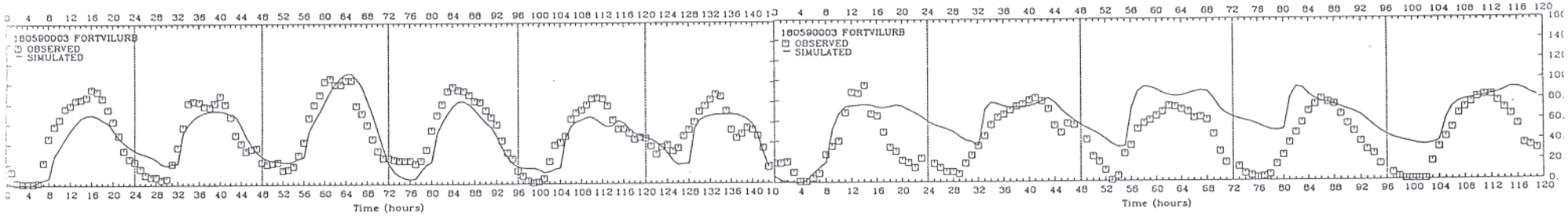

July 9, 1995
July 10, 1995
July 11, 1995
July 12, 1995
July 13, 1995
July 14, 1995
July 15, 1995
July 16, 1995
July 17, 1995
July 18, 1995
291831002 ST CHARURB
OBSERVED
SIMULATED
Time (hours)

Figure 5f


June 25, 1991
June 26, 1991
June 27, 1991
June 28, 1991
S113 0003 FORTVILURB
OBSERVED
SIMULATED
Time (hours)


July 16, 1991
July 17, 1991
July 18, 1991
July 19, 1991
July 20, 1991
July 21, 1991
180590003 FORTVILURB
OBSERVED
SIMULATED
Time (hours)

WI
MI
Sheboygan
Madison
Grand Rapids
Milwaukee
Detroit
Chicago
Gary
Fort Wayne
Toledo
Cleveland
OH
Columbus
Springfield
Indianapolis
Dayton
Cincinnati
St Louis
IL
IN
Louisville
KY
MO


180590003 FORTVILURB
OBSERVED
SIMULATED
Time (hours)

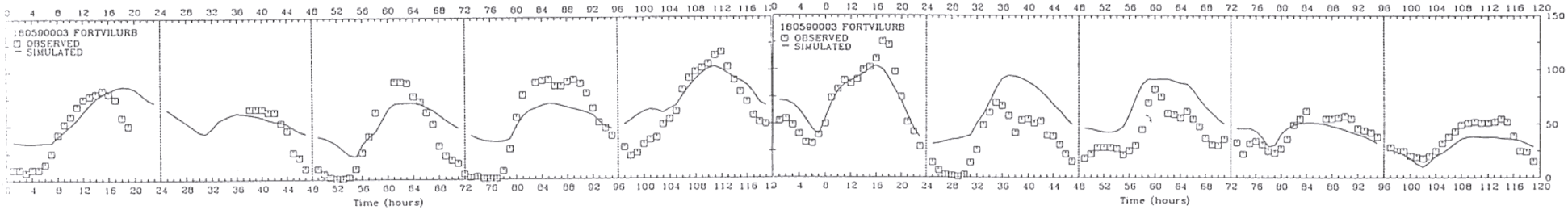
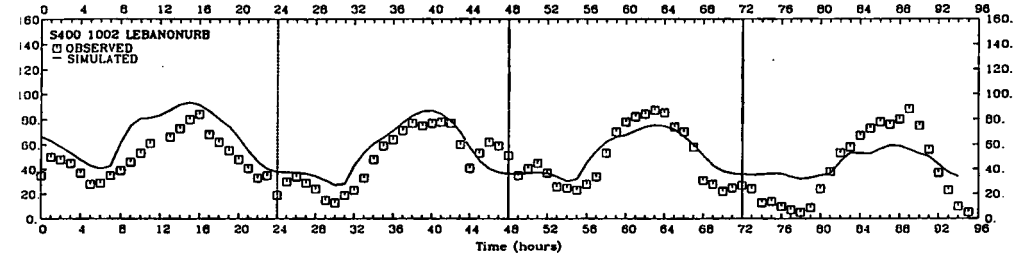
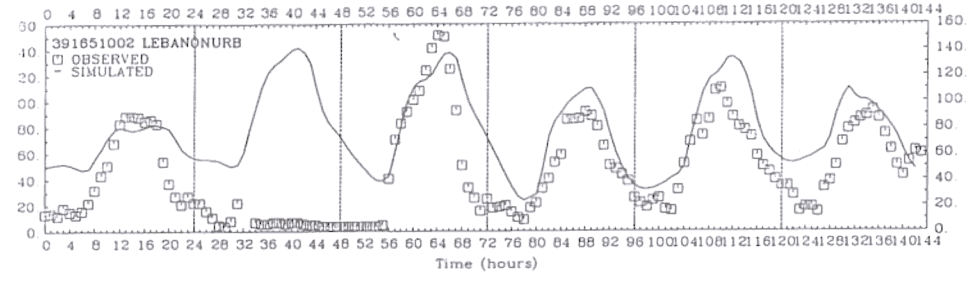
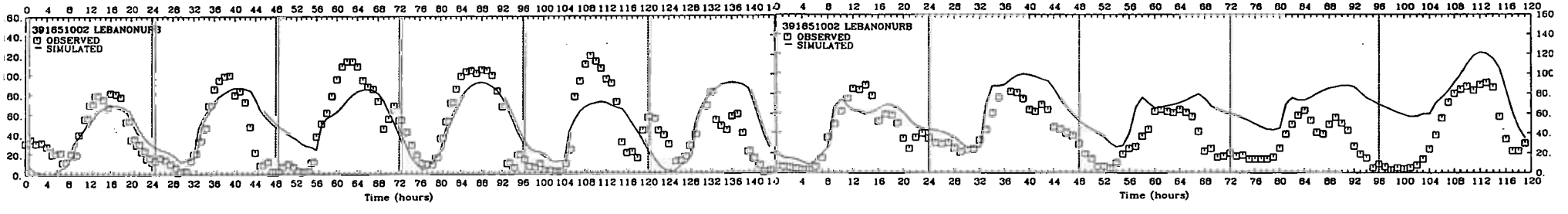

180590003 FORTVILURB
OBSERVED
SIMULATED
Time (hours)

Figure 5g


S400 1002 LEBANONURB
OBSERVED
SIMULATED
Time (hours)


391651002 LEBANONURB
OBSERVED
SIMULATED
Time (hours)

WI
MI
Sheboygan
Madison
Grand Rapids
Milwaukee
Detroit
Chicago
Gary
Fort Wayne
Toledo
Cleveland
OH
Springfield
Columbus
Indianapolis
Dayton
Cincinnati
St. Louis
IL
IN
Louisville
KY
MO


391651002 LEBANONURB
OBSERVED
SIMULATED
Time (hours)

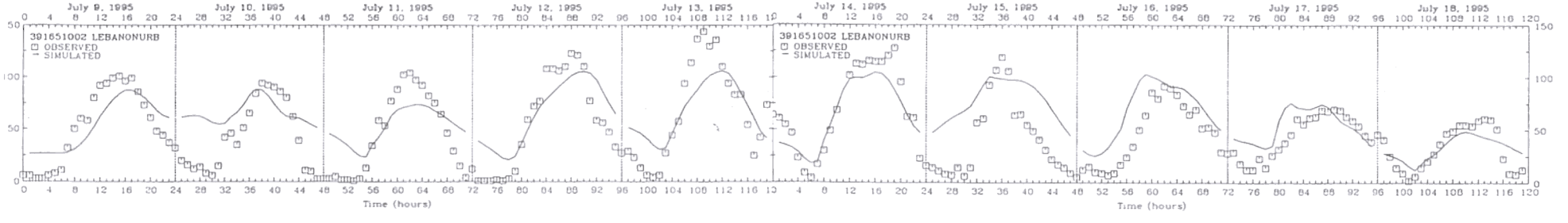
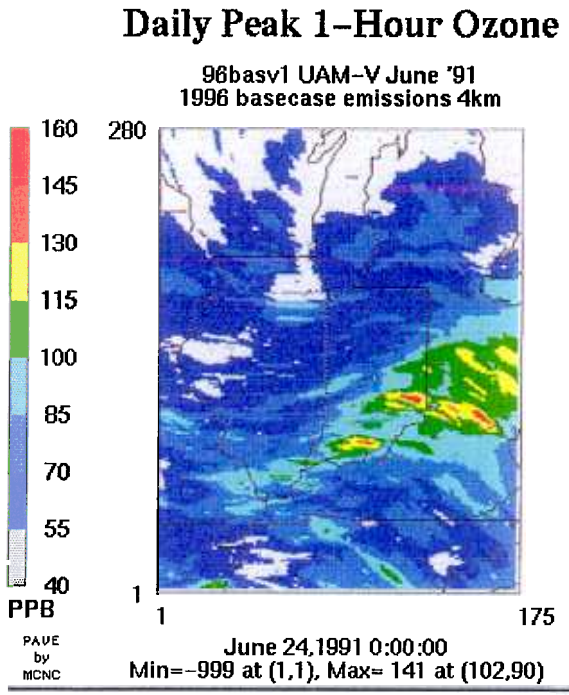
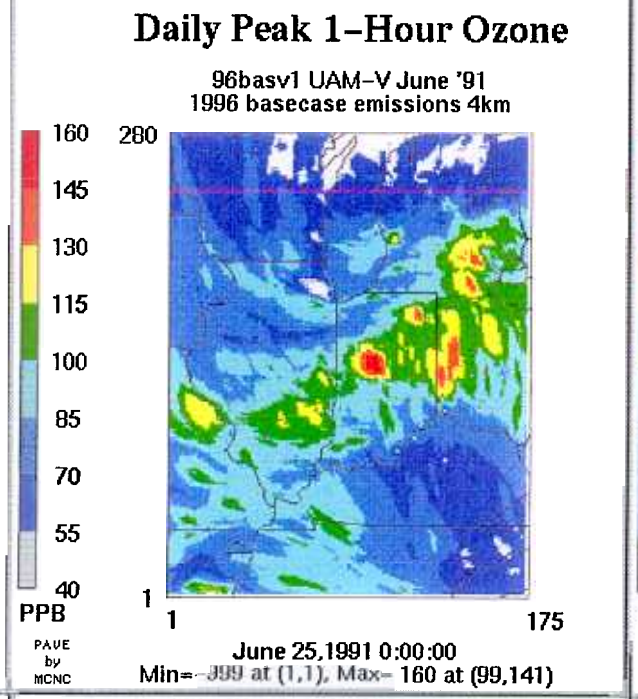
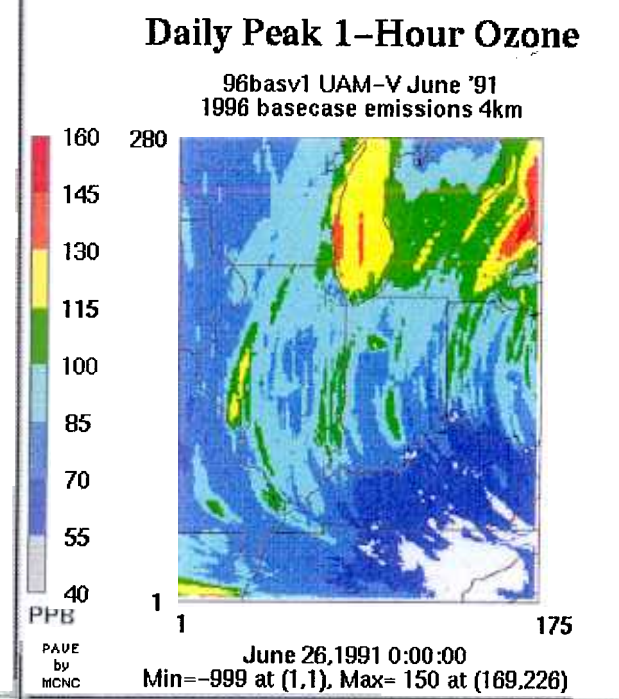
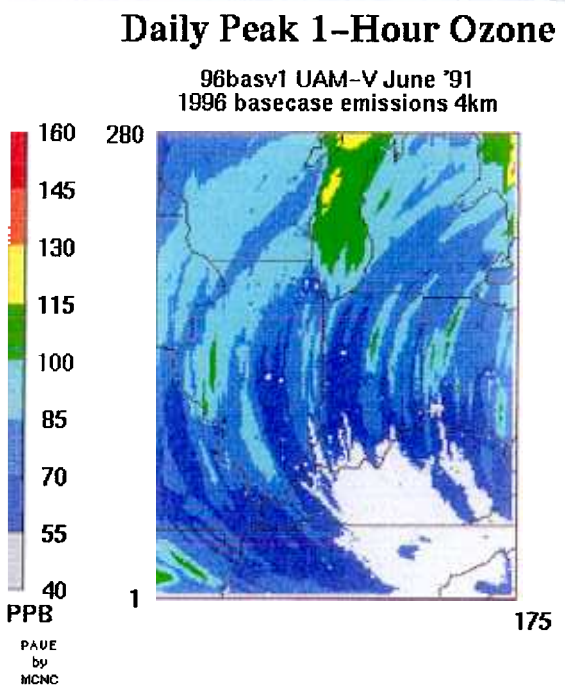

July 9, 1995
July 10, 1995
July 11, 1995
July 12, 1995
July 13, 1995
July 14, 1995
July 15, 1995
July 16, 1995
July 17, 1995
July 18, 1995
391651002 LEBANONURB
OBSERVED
SIMULATED
Time (hours)

Figure 6a


Daily Peak 1-Hour Ozone
96basv1 UAM-V June '91
1996 basecase emissions 4km
160
145
130
115
100
85
70
55
40
PPB
280
1
1
175
PAVE by MCNC
June 24,1991 0:00:00
Min=-999 at (1,1), Max= 141 at (102,90)


Daily Peak 1-Hour Ozone
96basv1 UAM-V June '91
1996 basecase emissions 4km
160
145
130
115
100
85
70
55
40
PPB
280
1
1
175
PAVE by MCNC
June 25,1991 0:00:00
Min=-999 at (1,1), Max= 160 at (99,141)


Daily Peak 1-Hour Ozone
96basv1 UAM-V June '91
1996 basecase emissions 4km
160
145
130
115
100
85
70
55
40
PPB
280
1
1
175
PAVE by MCNC
June 26,1991 0:00:00
Min=-999 at (1,1), Max= 150 at (169,226)


Daily Peak 1-Hour Ozone
96basv1 UAM-V June '91
1996 basecase emissions 4km
160
145
130
115
100
85
70
55
40
PPB
280
1
1
175
PAVE by MCNC

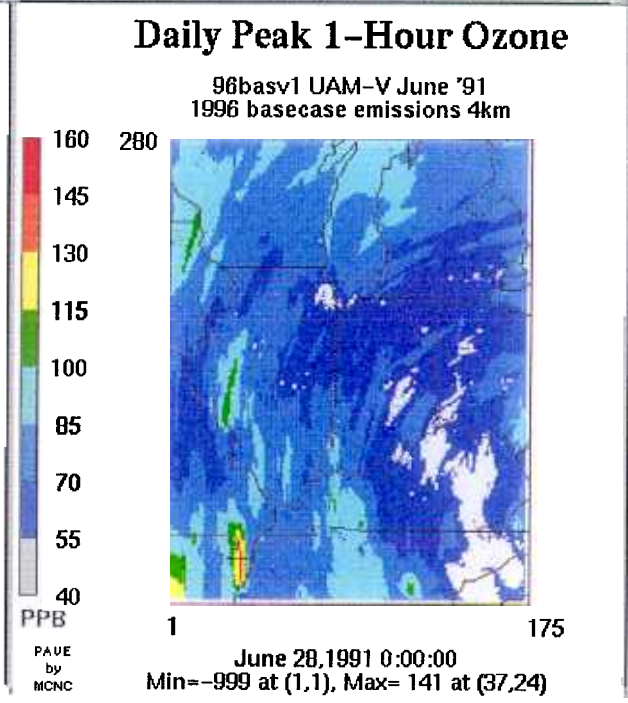

Daily Peak 1-Hour Ozone
96basv1 UAM-V June '91
1996 basecase emissions 4km
160
145
130
115
100
85
70
55
40
PPB
280
1
1
175
PAVE by MCNC
June 28,1991 0:00:00
Min=-999 at (1,1), Max= 141 at (37,24)

Figure 6b

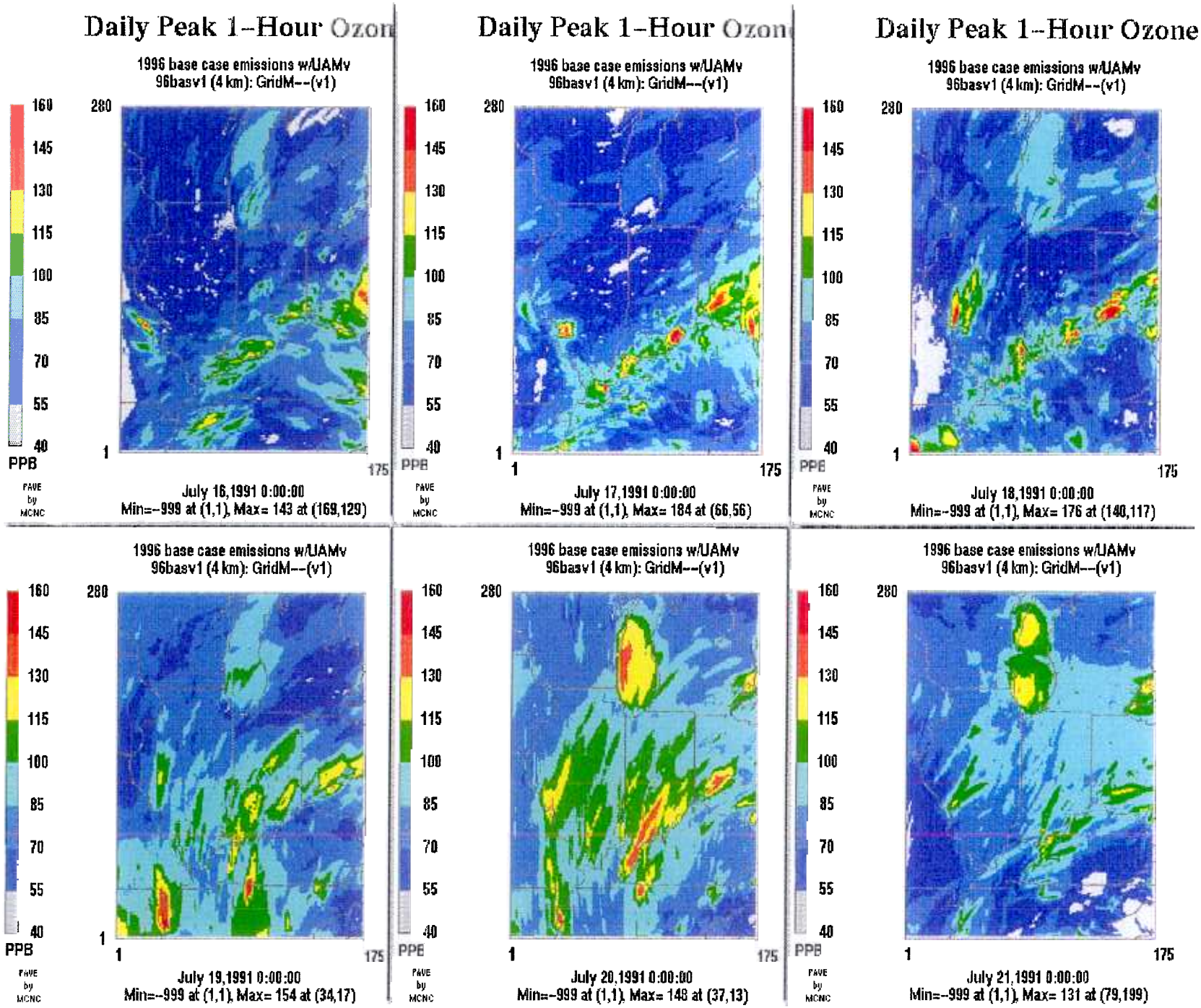

Daily Peak 1-Hour Ozone
1996 base case emissions w/UAMv
96basv1 (4 km): GridM--(v1)
160
145
130
115
100
85
70
55
40
PPB
280
1
175
PAVE by MCNC
July 16,1991 0:00:00
Min=-999 at (1,1), Max= 143 at (169,129)
July 17,1991 0:00:00
Min=-999 at (1,1), Max= 184 at (66,56)
July 18,1991 0:00:00
Min=-999 at (1,1), Max= 176 at (140,117)
July 19,1991 0:00:00
Min=-999 at (1,1), Max= 154 at (34,17)
July 20,1991 0:00:00
Min=-999 at (1,1), Max= 148 at (37,13)
July 21,1991 0:00:00
Min=-999 at (1,1), Max= 131 at (79,199)

Figure 6c

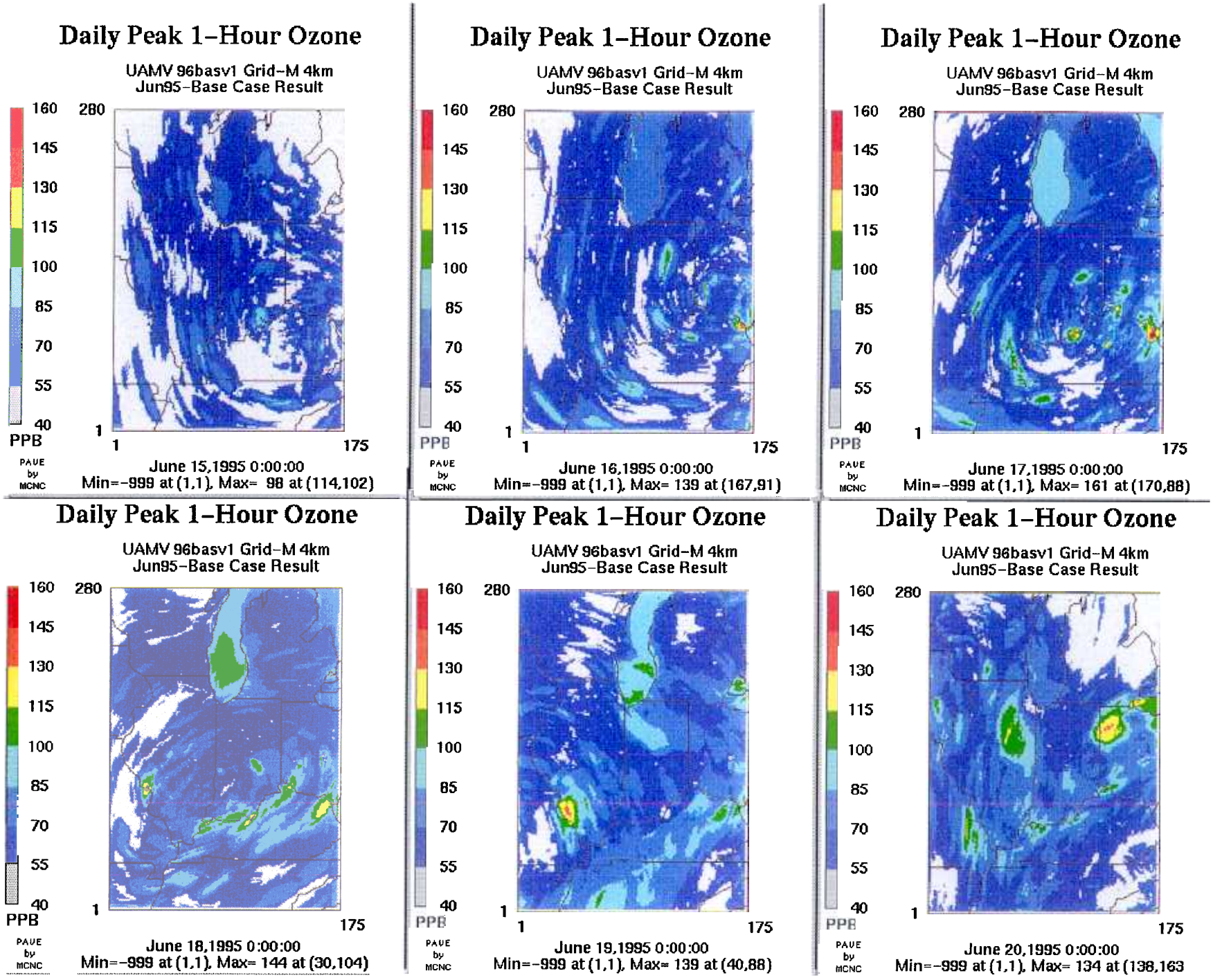

Daily Peak 1-Hour Ozone
UAMV 96basv1 Grid-M 4km
Jun95-Base Case Result
160
145
130
115
100
85
70
55
40
PPB
280
1
1
175
PAVE by MCNC
June 15,1995 0:00:00
Min=-999 at (1,1), Max= 98 at (114,102)
Daily Peak 1-Hour Ozone
UAMV 96basv1 Grid-M 4km
Jun95-Base Case Result
June 16,1995 0:00:00
Min=-999 at (1,1), Max= 139 at (167,91)
Daily Peak 1-Hour Ozone
UAMV 96basv1 Grid-M 4km
Jun95-Base Case Result
June 17,1995 0:00:00
Min=-999 at (1,1), Max= 161 at (170,88)
Daily Peak 1-Hour Ozone
UAMV 96basv1 Grid-M 4km
Jun95-Base Case Result
June 18,1995 0:00:00
Min=-999 at (1,1), Max= 144 at (30,104)
Daily Peak 1-Hour Ozone
UAMV 96basv1 Grid-M 4km
Jun95-Base Case Result
June 19,1995 0:00:00
Min=-999 at (1,1), Max= 139 at (40,88)
Daily Peak 1-Hour Ozone
UAMV 96basv1 Grid-M 4km
Jun95-Base Case Result
June 20,1995 0:00:00
Min=-999 at (1,1), Max= 134 at (138,163

Figure 6d

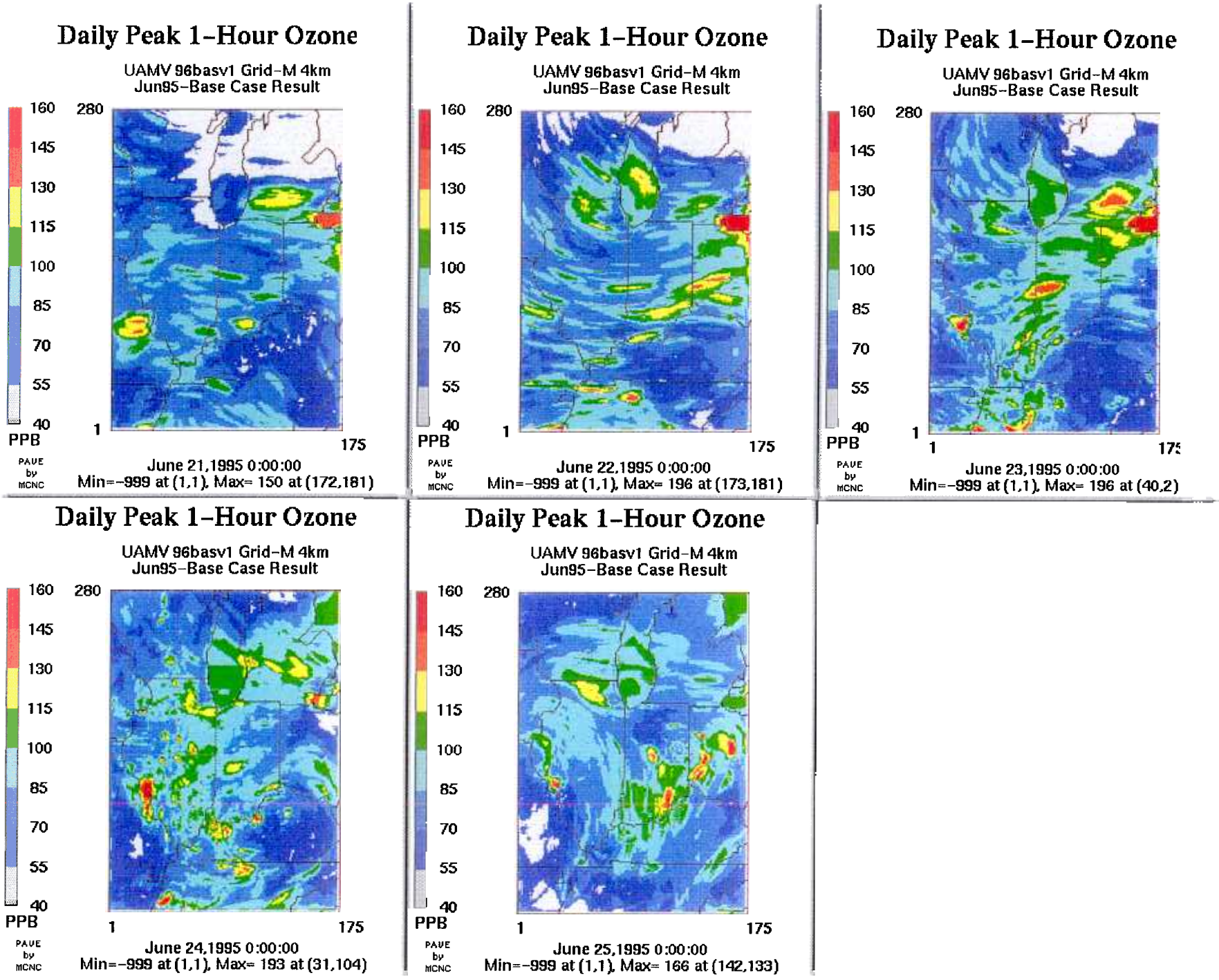

Daily Peak 1-Hour Ozone
UAMV 96basv1 Grid-M 4km
Jun95-Base Case Result
160
145
130
115
100
85
70
55
40
PPB
280
1
175
PAVE by MCNC
June 21,1995 0:00:00
Min=-999 at (1,1), Max= 150 at (172,181)
Daily Peak 1-Hour Ozone
UAMV 96basv1 Grid-M 4km
Jun95-Base Case Result
June 22,1995 0:00:00
Min=-999 at (1,1), Max= 196 at (173,181)
Daily Peak 1-Hour Ozone
UAMV 96basv1 Grid-M 4km
Jun95-Base Case Result
June 23,1995 0:00:00
Min=-999 at (1,1), Max= 196 at (40,2)
Daily Peak 1-Hour Ozone
UAMV 96basv1 Grid-M 4km
Jun95-Base Case Result
June 24,1995 0:00:00
Min=-999 at (1,1), Max= 193 at (31,104)
Daily Peak 1-Hour Ozone
UAMV 96basv1 Grid-M 4km
Jun95-Base Case Result
June 25,1995 0:00:00
Min=-999 at (1,1), Max= 166 at (142,133)

Figure 6e

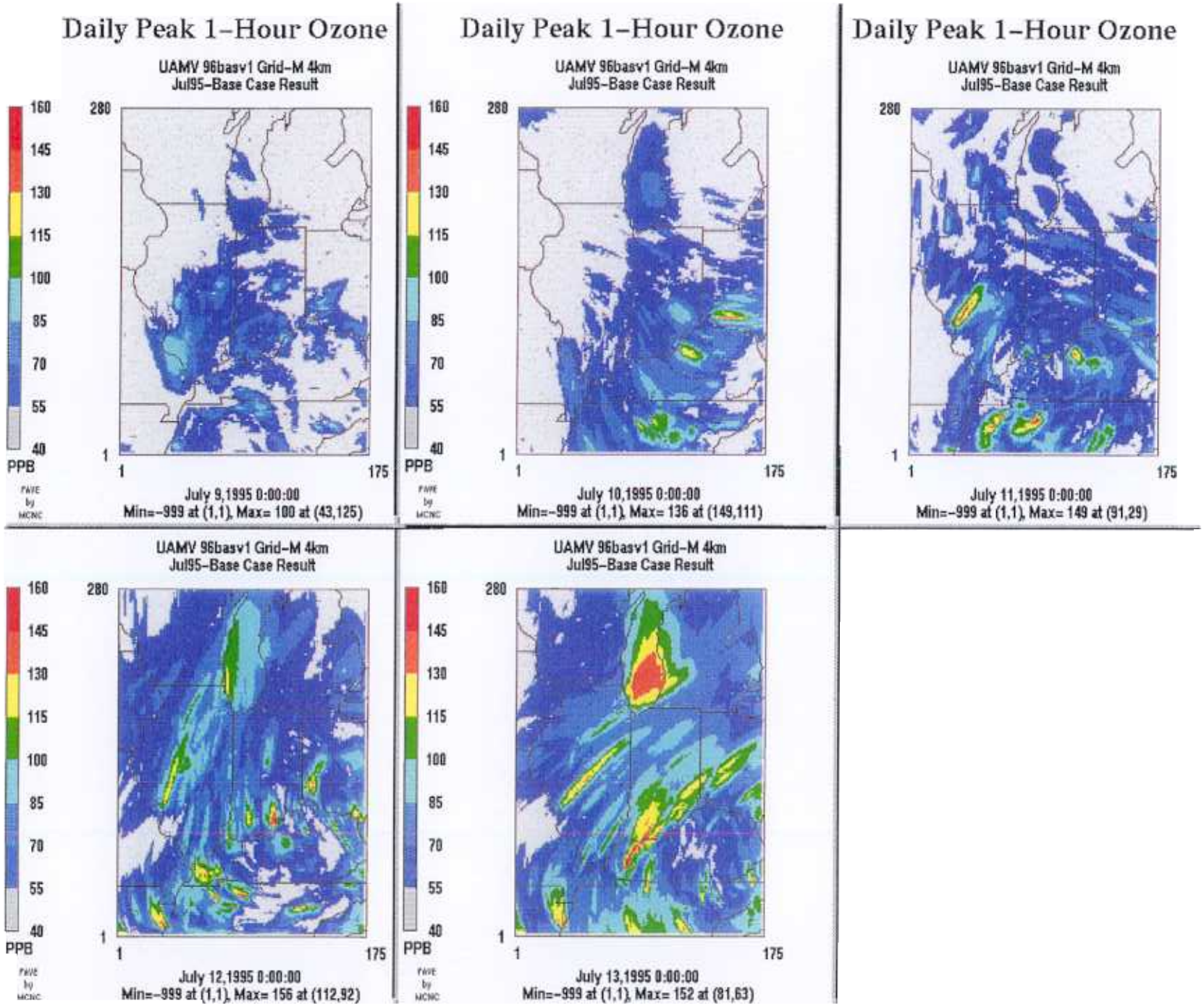

Daily Peak 1-Hour Ozone
UAMV 96basv1 Grid-M 4km
Jul95-Base Case Result
160
145
130
115
100
85
70
55
40
PPB
280
1
1
175
July 9,1995 0:00:00
Min=-999 at (1,1), Max= 100 at (43,125)
Daily Peak 1-Hour Ozone
UAMV 96basv1 Grid-M 4km
Jul95-Base Case Result
July 10,1995 0:00:00
Min=-999 at (1,1), Max= 136 at (149,111)
Daily Peak 1-Hour Ozone
UAMV 96basv1 Grid-M 4km
Jul95-Base Case Result
July 11,1995 0:00:00
Min=-999 at (1,1), Max= 149 at (91,29)
UAMV 96basv1 Grid-M 4km
Jul95-Base Case Result
July 12,1995 0:00:00
Min=-999 at (1,1), Max= 156 at (112,92)
UAMV 96basv1 Grid-M 4km
Jul95-Base Case Result
July 13,1995 0:00:00
Min=-999 at (1,1), Max= 152 at (81,63)

Figure 6f

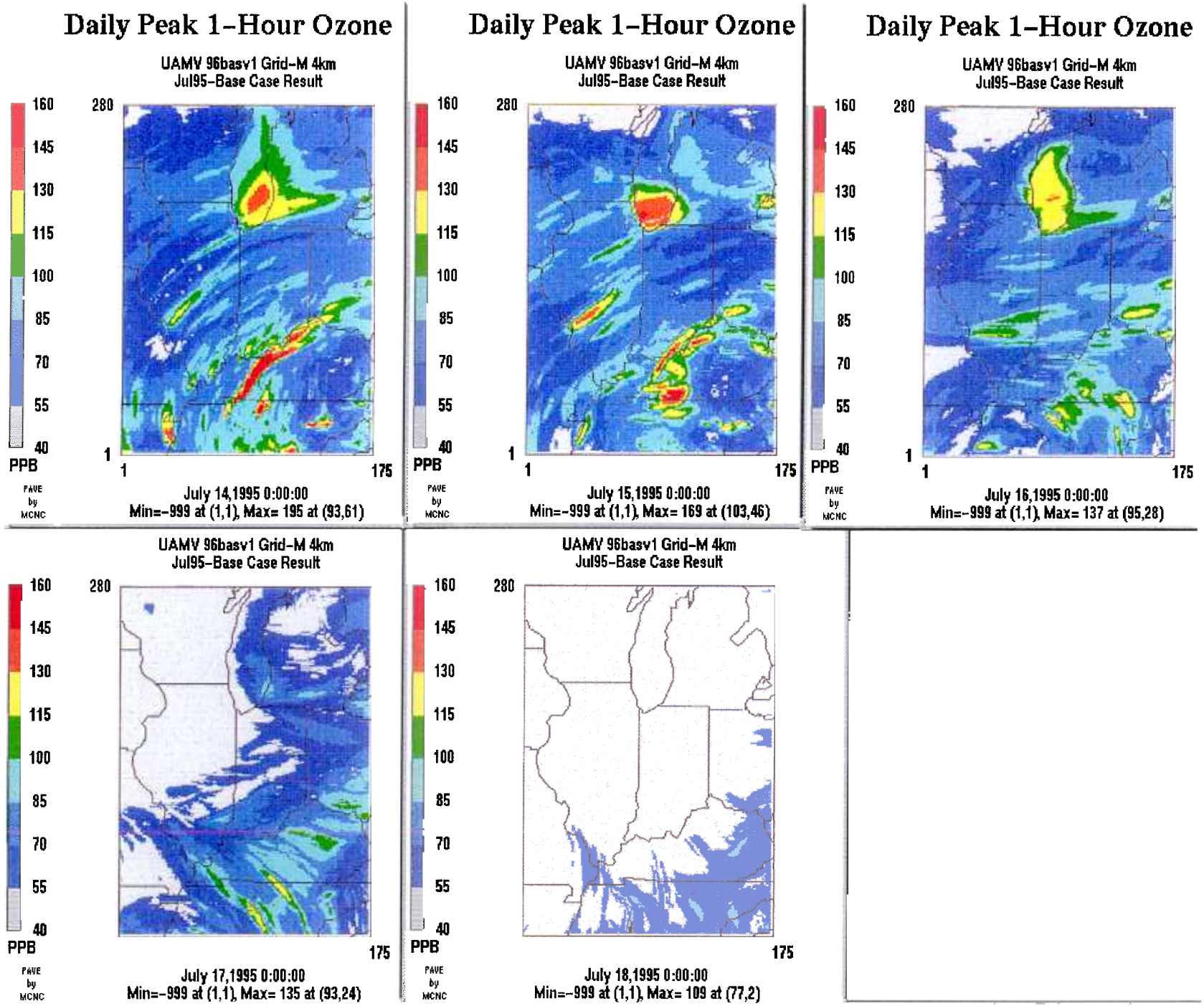
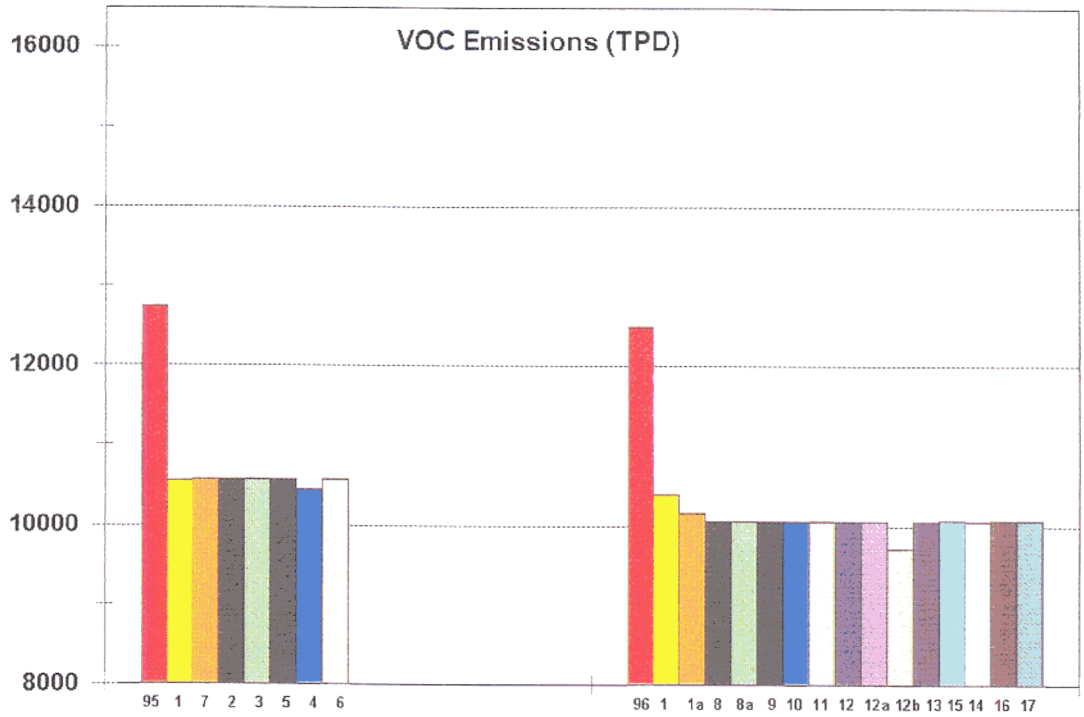

Daily Peak 1-Hour Ozone
UAMV 96basv1 Grid-M 4km
Jul95-Base Case Result
160
145
130
115
100
85
70
55
40
PPB
280
1
1
175
PAVE by MCNC
July 14,1995 0:00:00
Min=-999 at (1,1), Max= 195 at (93,61)
Daily Peak 1-Hour Ozone
UAMV 96basv1 Grid-M 4km
Jul95-Base Case Result
July 15,1995 0:00:00
Min=-999 at (1,1), Max= 169 at (103,46)
Daily Peak 1-Hour Ozone
UAMV 96basv1 Grid-M 4km
Jul95-Base Case Result
July 16,1995 0:00:00
Min=-999 at (1,1), Max= 137 at (95,28)
UAMV 96basv1 Grid-M 4km
Jul95-Base Case Result
July 17,1995 0:00:00
Min=-999 at (1,1), Max= 135 at (93,24)
UAMV 96basv1 Grid-M 4km
Jul95-Base Case Result
July 18,1995 0:00:00
Min=-999 at (1,1), Max= 109 at (77,2)

Figure 7


VOC Emissions (TPD)
16000
14000
12000
10000
8000
95 1 7 2 3 5 4 6
96 1 1a 8 8a 9 10 11 12 12a 12b 13 15 14 16 17

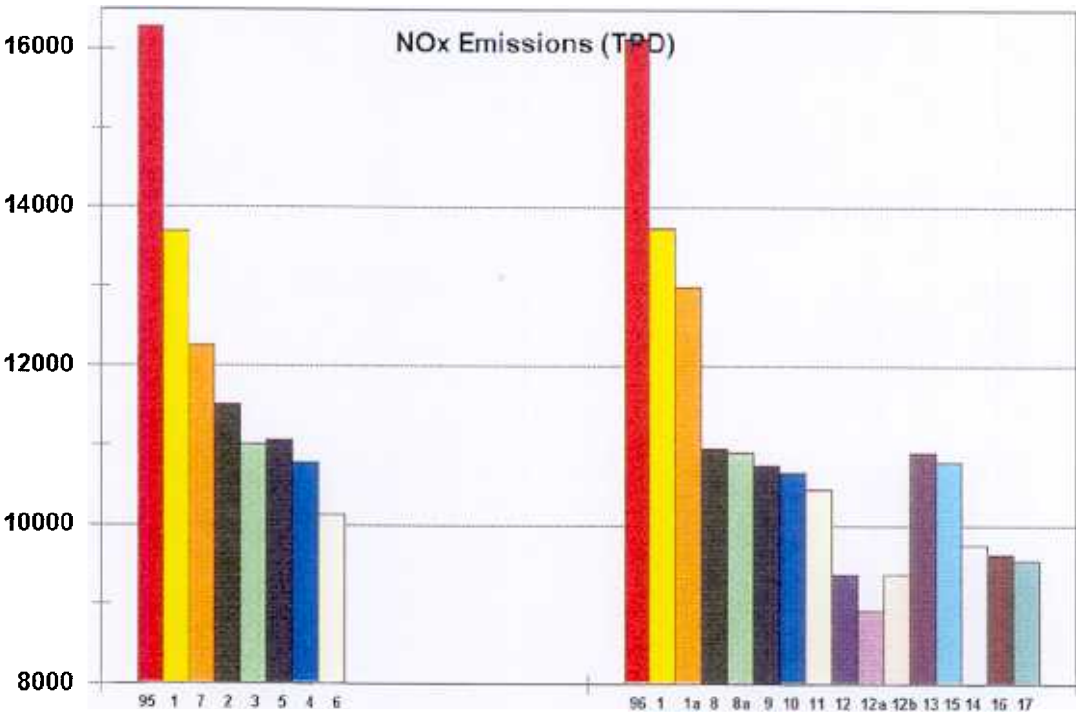

NOx Emissions (TPD)
16000
14000
12000
10000
8000
95 1 7 2 3 5 4 6
96 1 1a 8 8a 9 10 11 12 12a 12b 13 15 14 16 17

Figure 8a

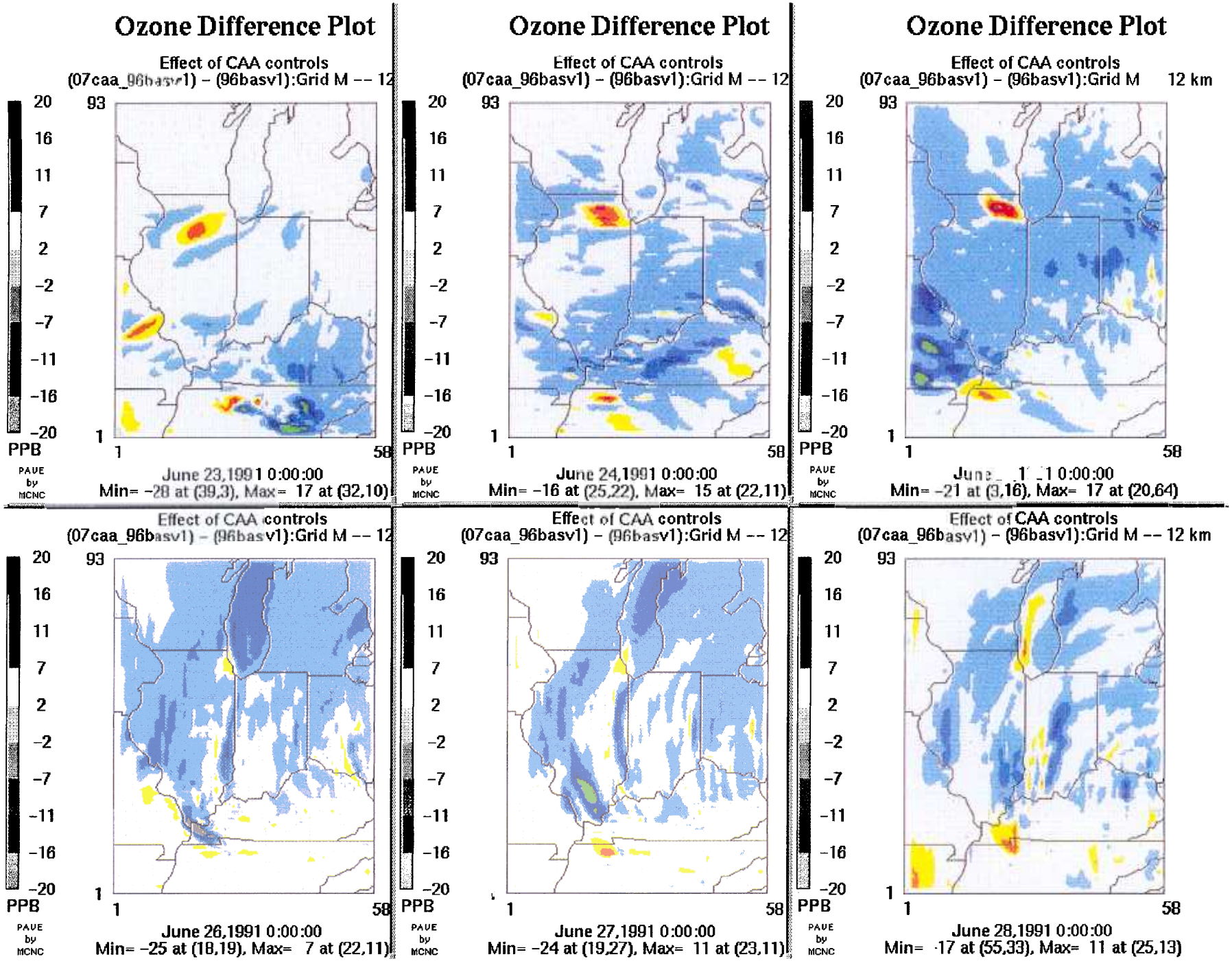

Ozone Difference Plot
Effect of CAA controls
(07caa_96basv1) - (96basv1):Grid M -- 12
20
16
11
7
2
-2
-7
-11
-16
-20
PPB
93
1
1
58
PAUE by MCNC
June 23,1991 0:00:00
Min= -28 at (39,3), Max= 17 at (32,10)
Ozone Difference Plot
Effect of CAA controls
(07caa_96basv1) - (96basv1):Grid M -- 12
June 24,1991 0:00:00
Min= -16 at (25,22), Max= 15 at (22,11)
Ozone Difference Plot
Effect of CAA controls
(07caa_96basv1) - (96basv1):Grid M 12 km
Min= -21 at (3,16), Max= 17 at (20,64)
Effect of CAA controls
(07caa_96basv1) - (96basv1):Grid M -- 12
June 26,1991 0:00:00
Min= -25 at (18,19), Max= 7 at (22,11)
Effect of CAA controls
(07caa_96basv1) - (96basv1):Grid M -- 12
June 27,1991 0:00:00
Min= -24 at (19,27), Max= 11 at (23,11)
Effect of CAA controls
(07caa_96basv1) - (96basv1):Grid M -- 12 km
June 28,1991 0:00:00
Min= -17 at (55,33), Max= 11 at (25,13)

Figure 8b

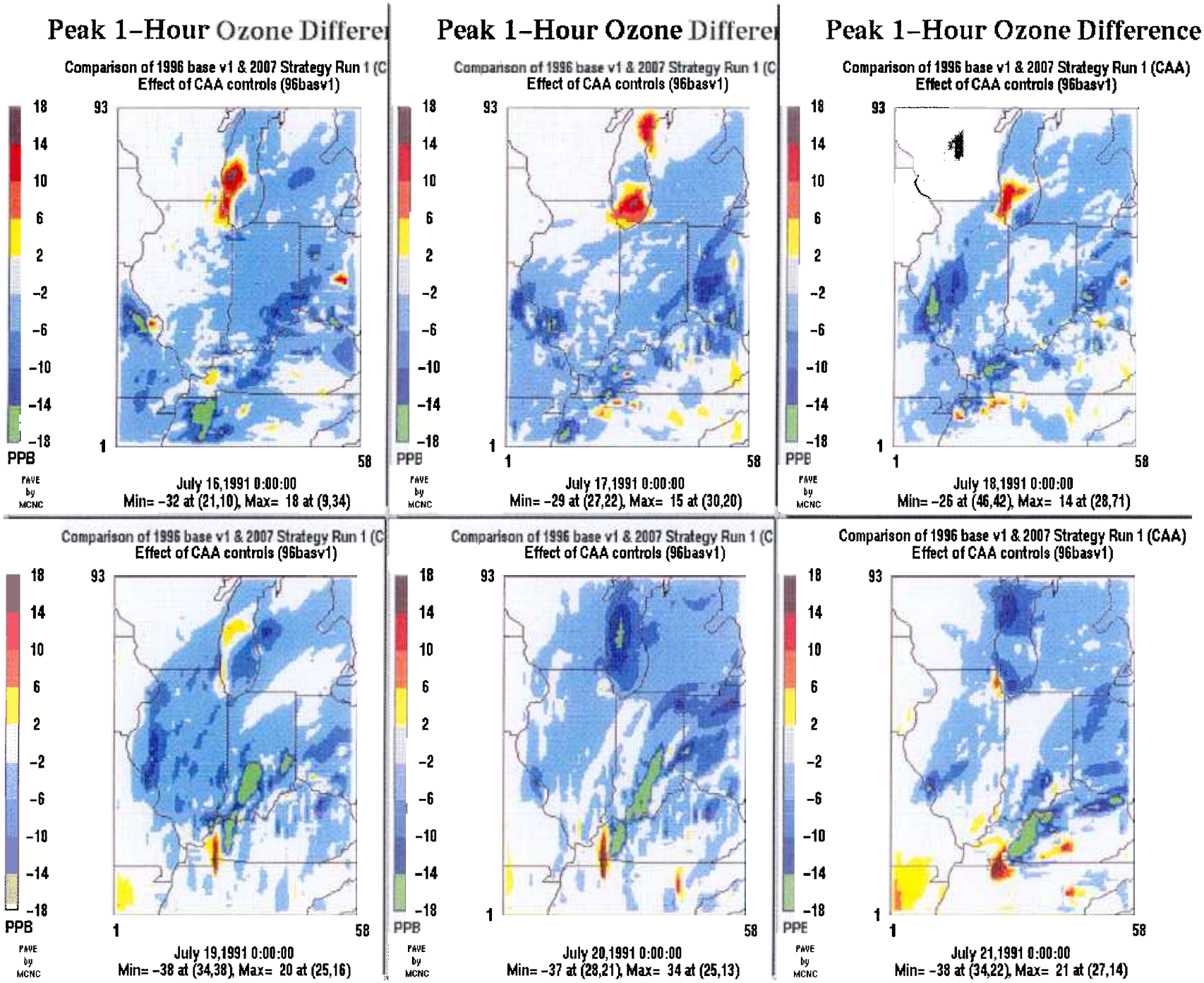

Peak 1-Hour Ozone Differe
Comparison of 1996 base v1 & 2007 Strategy Run 1 (C
Effect of CAA controls (96basv1)
18
14
10
6
2
-2
-6
-10
-14
-18
PPB
93
1
58
PAVE by MCNC
July 16,1991 0:00:00
Min= -32 at (21,10), Max= 18 at (9,34)
Peak 1-Hour Ozone Differe
Comparison of 1996 base v1 & 2007 Strategy Run 1 (C
Effect of CAA controls (96basv1)
July 17,1991 0:00:00
Min= -29 at (27,22), Max= 15 at (30,20)
Peak 1-Hour Ozone Difference
Comparison of 1996 base v1 & 2007 Strategy Run 1 (CAA)
Effect of CAA controls (96basv1)
July 18,1991 0:00:00
Min= -26 at (46,42), Max= 14 at (28,71)
Comparison of 1996 base v1 & 2007 Strategy Run 1 (C
Effect of CAA controls (96basv1)
July 19,1991 0:00:00
Min= -38 at (34,38), Max= 20 at (25,16)
Comparison of 1996 base v1 & 2007 Strategy Run 1 (C
Effect of CAA controls (96basv1)
July 20,1991 0:00:00
Min= -37 at (28,21), Max= 34 at (25,13)
Comparison of 1996 base v1 & 2007 Strategy Run 1 (CAA)
Effect of CAA controls (96basv1)
July 21,1991 0:00:00
Min= -38 at (34,22), Max= 21 at (27,14)

Figure 8c

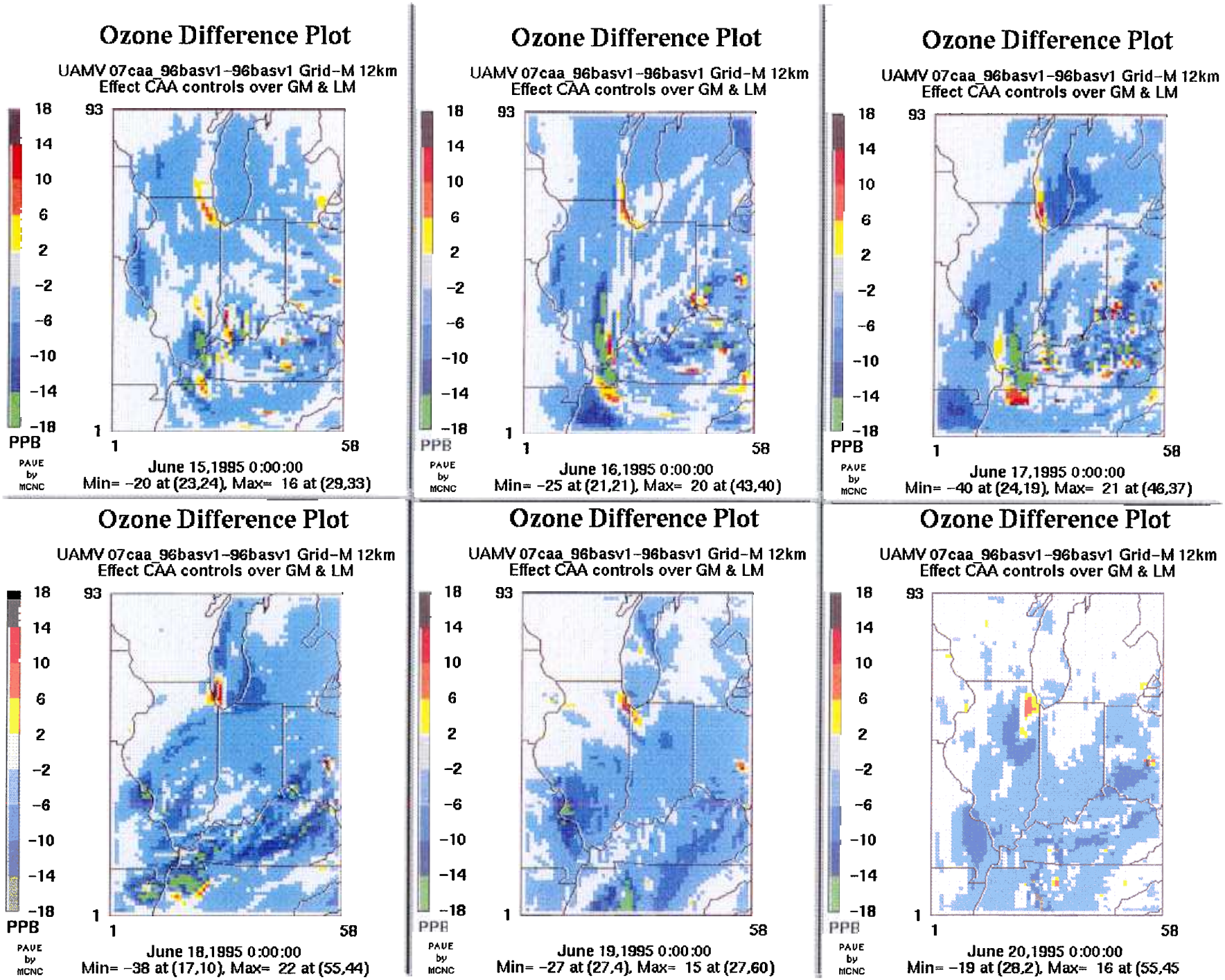

Ozone Difference Plot
UAMV 07caa_96basv1-96basv1 Grid-M 12km
Effect CAA controls over GM & LM
18
14
10
6
2
-2
-6
-10
-14
-18
PPB
PAUE by MCNC
93
1
1
58
June 15,1995 0:00:00
Min= -20 at (23,24), Max= 16 at (29,33)
June 16,1995 0:00:00
Min= -25 at (21,21), Max= 20 at (43,40)
June 17,1995 0:00:00
Min= -40 at (24,19), Max= 21 at (46,37)
June 18,1995 0:00:00
Min= -38 at (17,10), Max= 22 at (55,44)
June 19,1995 0:00:00
Min= -27 at (27,4), Max= 15 at (27,60)
June 20,1995 0:00:00
Min= -19 at (28,2), Max= 16 at (55,45

Figure 8d

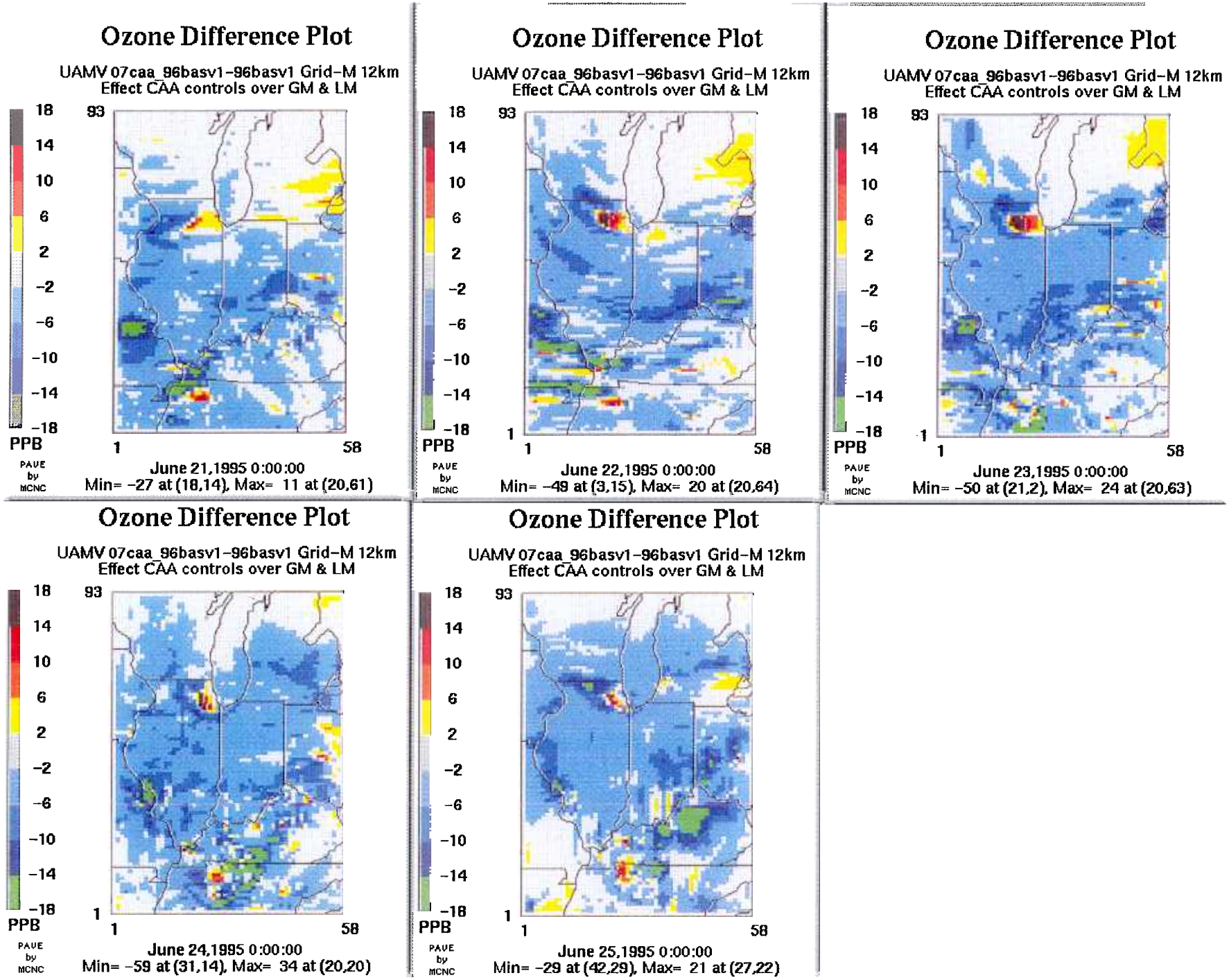

Ozone Difference Plot
UAMV 07caa_96basv1-96basv1 Grid-M 12km
Effect CAA controls over GM & LM
18
14
10
6
2
-2
-6
-10
-14
-18
PPB
93
1
1
58
PAVE by MCNC
June 21,1995 0:00:00
Min= -27 at (18,14), Max= 11 at (20,61)
Ozone Difference Plot
UAMV 07caa_96basv1-96basv1 Grid-M 12km
Effect CAA controls over GM & LM
June 22,1995 0:00:00
Min= -49 at (3,15), Max= 20 at (20,64)
Ozone Difference Plot
UAMV 07caa_96basv1-96basv1 Grid-M 12km
Effect CAA controls over GM & LM
June 23,1995 0:00:00
Min= -50 at (21,2), Max= 24 at (20,63)
Ozone Difference Plot
UAMV 07caa_96basv1-96basv1 Grid-M 12km
Effect CAA controls over GM & LM
June 24,1995 0:00:00
Min= -59 at (31,14), Max= 34 at (20,20)
Ozone Difference Plot
UAMV 07caa_96basv1-96basv1 Grid-M 12km
Effect CAA controls over GM & LM
June 25,1995 0:00:00
Min= -29 at (42,29), Max= 21 at (27,22)

Figure 8e

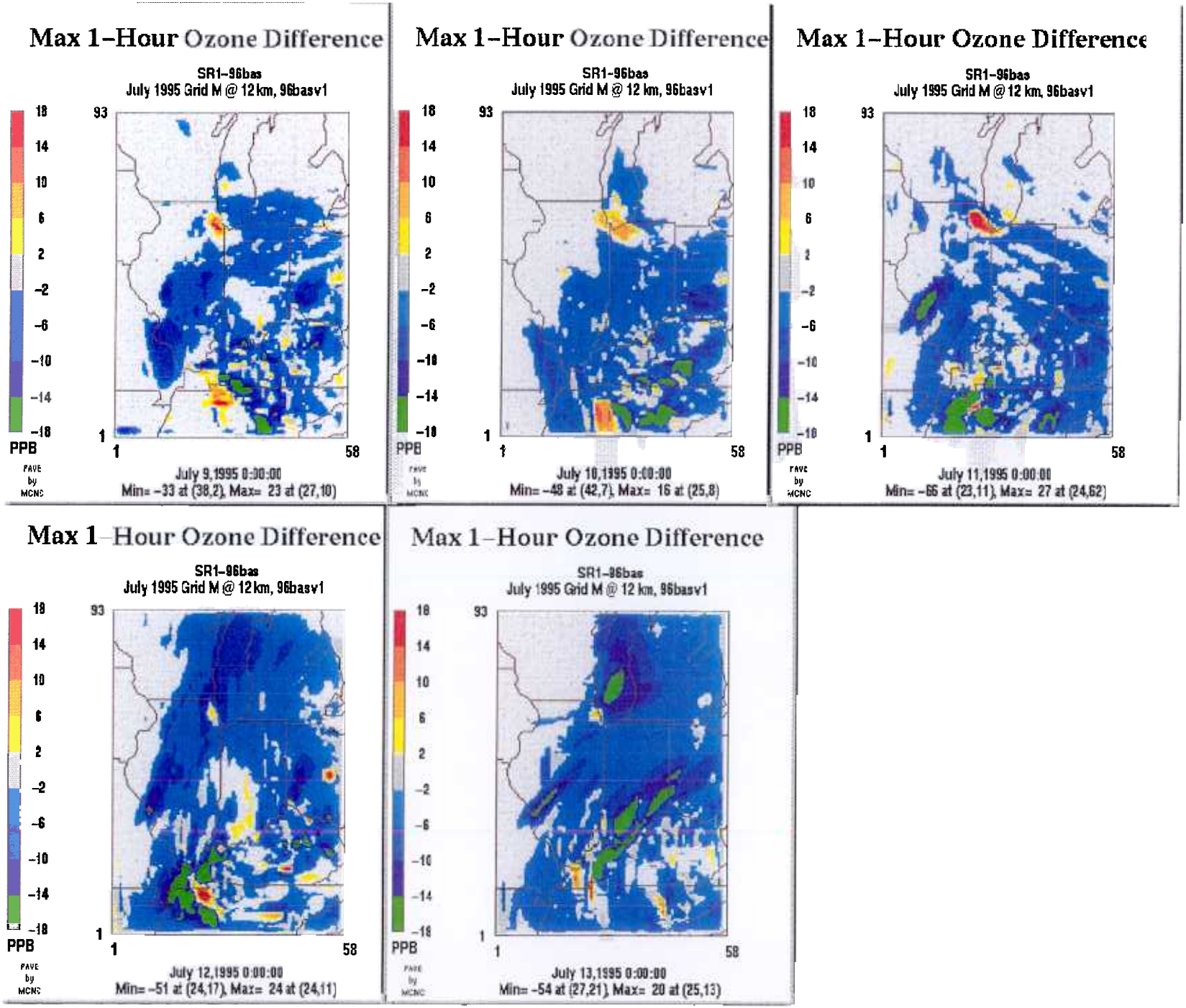
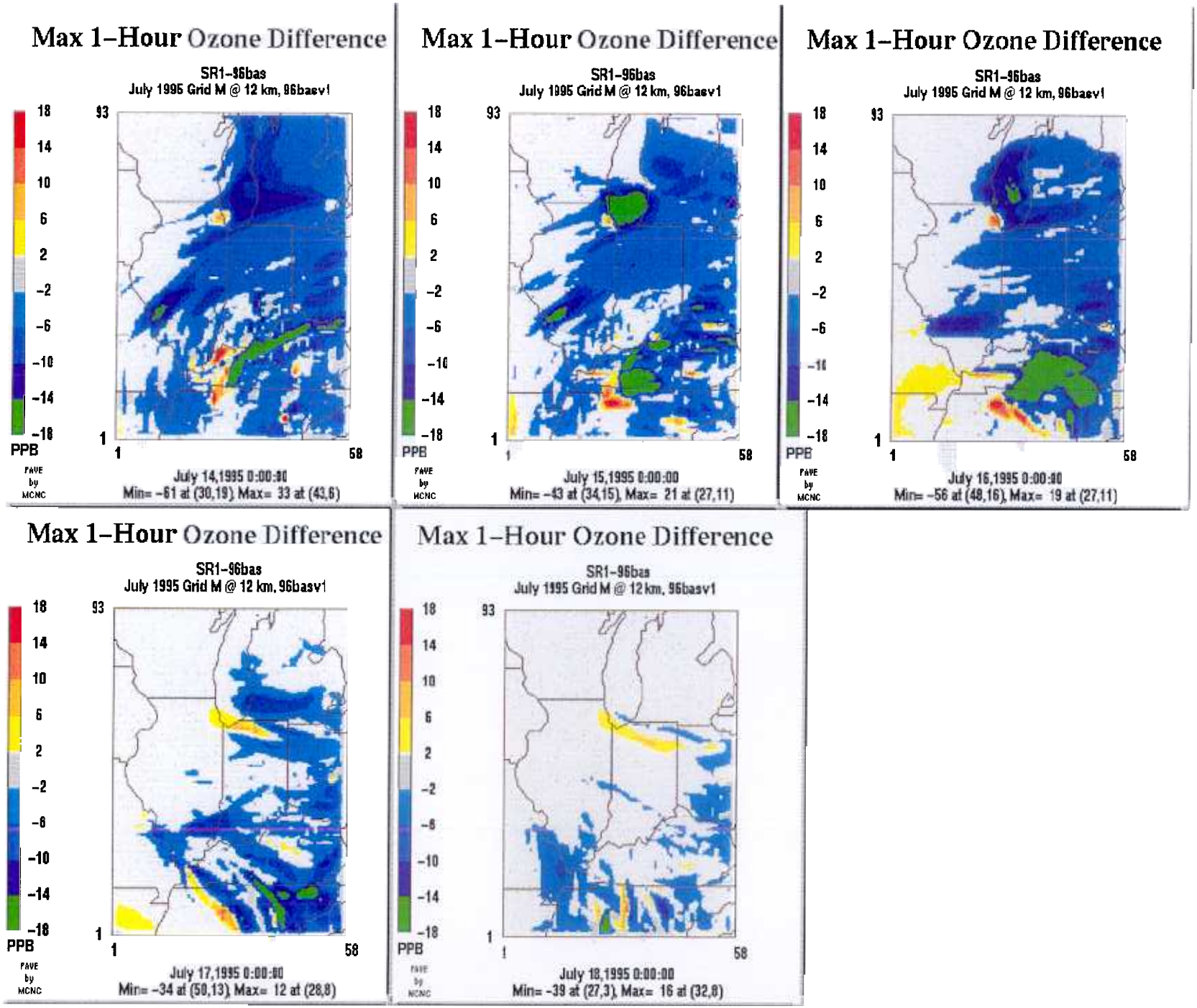

Max 1-Hour Ozone Difference
SR1-96bas
July 1995 Grid M @ 12 km, 96basv1
18
14
10
6
2
-2
-6
-10
-14
-18
PPB
PAVE by MCNC
93
1
1
58
July 9,1995 0:00:00
Min= -33 at (38,2), Max= 23 at (27,10)
Max 1-Hour Ozone Difference
SR1-96bas
July 1995 Grid M @ 12 km, 96basv1
July 10,1995 0:00:00
Min= -48 at (42,7), Max= 16 at (25,8)
Max 1-Hour Ozone Difference
SR1-96bas
July 1995 Grid M @ 12 km, 96basv1
July 11,1995 0:00:00
Min= -66 at (23,11), Max= 27 at (24,62)
Max 1-Hour Ozone Difference
SR1-96bas
July 1995 Grid M @ 12 km, 96basv1
July 12,1995 0:00:00
Min= -51 at (24,17), Max= 24 at (24,11)
Max 1-Hour Ozone Difference
SR1-96bas
July 1995 Grid M @ 12 km, 96basv1
July 13,1995 0:00:00
Min= -54 at (27,21), Max= 20 at (25,13)

Figure 8f


Max 1-Hour Ozone Difference
SR1-96bas
July 1995 Grid M @ 12 km, 96basv1
18
14
10
6
2
-2
-6
-10
-14
-18
PPB
93
1
1
58
PAVE by MCNC
July 14,1995 0:00:00
Min= -61 at (30,19), Max= 33 at (43,6)
Max 1-Hour Ozone Difference
SR1-96bas
July 1995 Grid M @ 12 km, 96basv1
July 15,1995 0:00:00
Min= -43 at (34,15), Max= 21 at (27,11)
Max 1-Hour Ozone Difference
SR1-96bas
July 1995 Grid M @ 12 km, 96basv1
July 16,1995 0:00:00
Min= -56 at (48,16), Max= 19 at (27,11)
Max 1-Hour Ozone Difference
SR1-96bas
July 1995 Grid M @ 12 km, 96basv1
July 17,1995 0:00:00
Min= -34 at (50,13), Max= 12 at (28,8)
Max 1-Hour Ozone Difference
SR1-96bas
July 1995 Grid M @ 12 km, 96basv1
July 18,1995 0:00:00
Min= -39 at (27,3), Max= 16 at (32,8)