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TECHNICAL SUPPORT DOCUMENT

MIDWEST SUBREGIONAL MODELING:

ANALYSIS OF NOx SIP CALL

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EXECUTIVE SUMMARY

On October 27, 1998 (63 FR 57356), the U.S. Environmental Protection Agency (USEPA) published a notice of final rulemaking requiring 22 States plus the District of Columbia to revise their State Implementation Plans (SIPs) to reduce emissions of oxides of nitrogen (NOx) to mitigate transport of ozone in the eastern half of the United States. Further, USEPA established specific levels of NOx emissions reductions that each of the affected jurisdictions are required to achieve.

The effect of these regional NOx emissions reductions on ozone concentrations can be assessed by mathematical modeling and ambient air quality analyses. The purpose of this document is to review subregional modeling performed by the Lake Michigan States to assess the air quality impact of the regional NOx emission reductions and to estimate the amount of control needed to provide for attainment of the 1-hour and 8-hour National Ambient Air Quality Standards (NAAQS) for ozone. In addition, a number of air quality analyses are reviewed to provide information about the effect of upwind NOx emission reductions on ozone levels in the Lake Michigan area, and about the effect of NOx emission reductions in the Lake Michigan area on both local and downwind ozone levels.

The subregional modeling shows that the regional (point source) NOx emission reductions required by the SIP call produce widespread ozone decreases and isolated ozone increases. Ozone decreases occur throughout much of the modeling domain, including areas with high base concentrations. Ozone increases are limited mostly to urban areas, and generally occur on days with lower concentrations. These findings are corroborated by the ambient air quality analyses.

The modeled attainment tests show that Clean Air Act controls will reduce ozone concentrations, but do not, by themselves, show attainment of the 1-hour NAAQS everywhere in the Lake Michigan area. Clean Air Act plus SIP call controls generally show attainment of the 1-hour NAAQS in the Lake Michigan area, except for maybe a few isolated locations. Clean Air Act plus SIP call controls, however, do not, by themselves, show attainment of the 8-hour NAAQS in the Lake Michigan area. Modeling indicates that additional controls are needed to meet the 8-hour NAAQS. Further analysis, including consideration of sufficient urban VOC and regional NOx controls, is necessary to provide a definitive attainment demonstration for all locations in the Lake Michigan area.

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Section 1
Introduction

The purpose of this document is to summarize the subregional modeling performed by the Lake Michigan States to assess USEPA's October 27, 1998 (63 FR 57356) Notice of Final Rulemaking (NFR): "Finding of Significant Contribution and Rulemaking for Certain States in the Ozone Transport Assessment Group Region for Purposes of Reducing Regional Transport of Ozone" (i.e., the NOx SIP call).

Midwest subregional modeling was initiated in September 1997. This modeling was an extension of preliminary subregional analyses begun by Illinois EPA in early 1997. Subregional modeling is necessary to assess ozone concentrations on both the local urban scale and the larger regional/subregional scale. As such, this modeling can be used to support urban area attainment demonstrations and address transport.

The first round of subregional modeling was completed in March 1998 to assist the States in preparing comments during the 120-day public comment period for the NPR on the NOx SIP call. For further information on the first round of modeling, see LADCO, 1998a. The second round of subregional modeling was completed in June 1998 to assist the States in preparing comments during a supplemental public comment period. For further information on the second round of modeling, see LADCO, 1998b.

The current modeling analysis examines the ozone air quality impact of the final NOx SIP call, and provides a preliminary assessment of attainment for the 1-hour and 8-hour National Ambient Air Quality Standards (NAAQS) for ozone in the Lake Michigan area. An overview of the Midwest subregional modeling is provided in Section 2. Sections 3 and 4 address the basecase and strategy modeling results, respectively. Section 5 provides the results of recent air quality analyses as additional information about the effect of regional NOx emission reductions. A summary is presented in Section 6.

Section 2
Overview of Modeling

A state-of-the-art modeling analysis was performed to examine the air quality impact of the regional NOx emission reductions required by USEPA's NOx SIP call. The variable-grid Urban Airshed Model, version 1.24 (UAM-V) was used for the analysis. This is the same version of the model that was used by the Ozone Transport Assessment Group (OTAG) and in the previous rounds of subregional modeling. In consultation with the model developer, a few modifications were made to the model for subregional modeling (see LADCO, 1998b).

The modeling domain and grid configuration was established based on consideration of areas of high ozone concentrations in the Lake Michigan States and possible upwind source areas impacting these high concentration areas. The primary domain, which is referred to as Grid M, is shown in Figure 1. The specifics of this grid are as follows:

Horizontal Resolution:	1/9° latitude x 1/6° longitude (approx. 12 km x 12 km)
Vertical Resolution:	7 vertical layers (0 - 50, 50 - 100, 100 - 250, 250 - 500, 500 - 1500, 1500 - 2500, and 2500 - 4000 m)
SW Corner:	-92 W, 35 N
NE Corner:	-82.28 W, 45.37 N
No. of Grid Cells:	58 x 93 x 7

Four episodes were modeled: June 22 - 28, 1991; July 14 - 21, 1991; June 13 - 25, 1995; and July 7 - 18, 1995.

These episodes were selected because they are representative of typical ozone episodes in the Lake Michigan area; they reflect a variety of meteorological conditions (see trajectory plots in Figure 2); there is an intensive data base available from 1991 LMOS field program; and they were previously modeled as part of the Lake Michigan Ozone Study (1991 episodes) and the OTAG study (July episodes). Maps of the observed peak daily 1-hour ozone concentrations for each episode are provided in Figure 3[1].

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[1] The observed concentration maps were created with USEPA's Ozone Mapping Software using data from the AIRS data base. Due to a software problem, the maps for the June 1991 and July 1991 episodes do not reflect some high concentration sites.

Given the expeditious modeling schedule, relatively coarse horizontal grid resolution was used for these model runs (i.e., 12 km). To assess the effect of grid resolution, a few runs were also performed with finer horizontal grid resolution (i.e., 4 km). The results of the 4 km runs, as discussed below, are generally consistent with those of the 12 km runs.

There are three key model inputs: emissions, meteorology, and boundary conditions. The development of these inputs for the current model basecase (bas10) is discussed briefly here. Note that the current basecase reflects two significant changes from the previous round of subregional modeling: updated emissions and use of RAMS-based vertical diffusivities. (For more information on the development and testing of model basecases, see LADCO, 1998b.)

Emissions inputs were developed through emissions modeling using the EMS-95 model. The following updated data files were provided by USEPA in mid-December 1998 via their web site ("ftp.epa.gov/pub/scram001/modelingcenter/other/ladco"):

egu07.tar.gz	2007 point source EGU
negu95.tar.gz	1995 base non-EGU
egu96.tar.gz	1996 base EGU
bude.tar.gz	2007 budget EGU
area95.tar.gz	1995 base area
areagrow.tar.gz	growth and control for 2007 area
new07.tar.gz	2007 mobile VMT and M5a inputs
new95.tar.gz	1995 mobile VMT and M5a inputs
negucntl.tar.gz	non-EGU budget controls
negu07.tar.gz	non-EGU 2007 growth and controls

These files provided the basic information needed to derive emissions for the 1995 base year inventory, the 2007 Clean Air Act inventory, and the 2007 SIP call inventory. A few revisions to these data were provided by the Lake Michigan States, such as modified area source data for Illinois. Temperatures from the RAMS3a meteorological modeling were used in the calculation of motor vehicle and biogenic emissions. Biogenic emissions were based on USEPA's BEIS2 model. Bar charts summarizing the domainwide weekday, Saturday, and Sunday VOC and NOx 1995 base year emissions are presented in Table 1 and Figure 4.

Meteorological inputs were developed through prognostic meteorological modeling using the RAMS3a model performed by ASTeR for the 1991 episodes, and by Wisconsin DNR for the 1995 episodes. Limited four-dimensional data assimilation was performed (i.e., analysis nudging using every 12-hour NWS rawinsonde observations).

Given differences in the coordinate systems between RAMS3a (rotated polar stereographic) and UAM-V (latitude-longitude), and in the horizontal and vertical grid structure between the two models, the RAMS2UAMV conversion program was run to map the RAMS output data to the UAM-V grid configuration. For vertical diffusitivies, the mapped meteorological fields and RAMS-based TKE's were used to derive the necessary UAM-V input using the Ulrickson method.[2]

Boundary conditions were developed by applying UAM-V for the OTAG domain at 36 km grid resolution. The OTAG domain modeling used the UAM-V (and not the SAI-modified) photolysis rates, and adjusted "clean" boundary and top concentrations (i.e., increased by 50%) based on OTAG and LMOS data analyses.

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[2] For the July 1995 episode, the RAMS-based TKE's were not available to derive the vertical diffusivities. Instead, Wisconsin DNR delivered a file of diffusivity values, which unfortunately were found to be suspiciously low. As an interim measure, the values were scaled (by a factor of 5) to be more consistent with those for the other episodes. The scaled values were used in this modeling analysis. Wisconsin DNR subsequently reran the July 1995 episode and provided RAMS-based TKE's to derive new vertical diffusivities. The results of the new July 1995 modeling are similar to those presented in this document.

Section 3
Basecase Modeling

The purpose of basecase modeling is to evaluate model performance by comparing modeled and measured concentrations. Peak 1-hour and 8-hour ozone concentration plots for each episode (using the 95Bas10 emissions) are presented in Figures 5(a) - (e)[3] and 6(a) - (e), respectively. The model performance evaluation consisted of comparisons of the spatial pattern, temporal profile, and magnitude of modeled and measured 1-hour and 8-hour ozone concentrations.

Spatial Pattern: Side-by-side plots of the peak daily 1-hour modeled and measured ozone concentrations for June 24, 1995 and July 13, 1995 are provided in Figure 7. In general, the areas of high modeled ozone concentrations correspond with the areas of high measured ozone concentrations (e.g., over Lake Michigan). Also, the regional (rural) modeled and measured ozone concentrations are comparable (i.e., on the order of 70 - 100 ppb). Peak ozone concentrations in the vicinity of Lake Michigan appear to be underestimated.

Temporal Pattern: Time series plots of 1-hour modeled and measured ozone concentrations for the June 1995 and July 1995 episodes for a number of select sites are provided in Figures 8 and 9. At most sites, the hour-to-hour and day-to-day variation of modeled and measured ozone concentrations are comparable. The magnitude of the modeled concentrations tend to be higher at night and lower during the afternoon (as compared to the measured concentrations). At the rural (regional) sites, the modeled and measured ozone concentrations are in good agreement. At the sites with the peak measured concentrations, the mid-afternoon peak ozone concentrations are underestimated.

Magnitude: Ozone statistics (mean, average accuracy of peak, normalized bias, and normalized gross error) for the current (bas10) and previous (bas8) model basecases for each episode are presented in Tables 2(a) - (d). The statistics for Grid M and the Lake Michigan area generally comply with USEPA's recommended values (i.e., peak accuracy of $\pm$15 - 20%, bias of $\pm$5 - 15%, and gross error of 30 - 35%). The statistics

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[3] For the June and July 1991 episodes, it would be preferable to use 1991 emissions, rather the 1995 emissions, for the purposes of evaluating model performance. In the previous round of subregional modeling, 1991 emissions were used in the performance evaluation for these two episodes. The results of that evaluation are presented in LADCO, 1998b. In the current subregional modeling, it was decided to simply use the new 95Bas emissions in the performance evaluation due to questions about "backcasting" the 1995 emissions to 1991. Although the 1995 emissions are generally lower than 1991 emissions, the difference is not enough to have much effect on the model performance statistics, which are still showing reasonably good performance (see Table 1).

further demonstrate the tendency of the model to underestimate measured ozone concentrations.

The effect of grid resolution on model performance can be assessed by comparing the 4 km and 12 km results. The plots of peak daily 1-hour (Figure 5(c) v. Figure 5(e)) and 8-hour (Figure 6(c) v. Figure 6(e)) ozone concentrations reflect similar spatial patterns. The performance statistics for each episode (Tables 2(a) - (d)) are also similar. Thus, it appears that model performance at 4 km is consistent with that at 12 km.

Although this limited evaluation indicates that model performance is reasonable, two concerns should be noted. First, a more rigorous performance evaluation should be conducted in future analyses (e.g., examination of ozone precursors, aloft concentrations, and response of the model to changes in ozone precursor emissions). Second, the results of this evaluation show that peak ozone concentrations tend to be underestimated. As such, the results of the strategy runs should be used in a relative, rather than absolute, sense.

Section 4
Strategy Modeling

The purpose of strategy modeling is to evaluate the ozone air quality impact of various control scenarios. For this modeling analysis, the following scenarios were modeled:

<u>Initial Control Runs</u>	
1995 base year	(95Bas10)
2007 future year with CAA controls[4]	(07CAA10)
2007 future year with CAA and SIP controls[5]	(07SIP10)
<u>Additional Control Runs</u>	
07SIP plus -25% VOC	(07SIP10-v25)
07SIP plus -25% low-level NOx	(07SIP10-n25)
07SIP plus -25% VOC and low-level NOx	(07SIP10-nv25)
07SIP plus -50% VOC	(07SIP10-v50)
07SIP plus -50% low-level NOx	(07SIP10-n50)
07SIP plus -50% VOC and low-level NOx	(07SIP10-nv50)

The emissions and control measures for these scenarios are summarized in Tables 1 and 3.

The following standard documentation was prepared for each episode:

<u>Initial Control Runs</u>		
Daily Peak Plots: (1-Hr, 8-Hr)	95Bas10 07CAA10 07SIP10	
Daily Diff Plots: (1-Hr, 8-Hr)	07CAA10 - 95Bas10	effect of growth and CAA controls
	07SIP10 - 07CAA10	effect of SIP controls
	07SIP10 - 95Bas10	effect of growth and CAA + SIP controls

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4 07CAA10 reflects growth of 95Bas10 to the year 2007 and application of Clean Air Act mandatory controls (i.e., all federal control requirements and state control requirements through the year 1996), and other National controls (e.g., NLEV)

5 07SIP10 reflects growth of 95Bas10 to the year 2007 and application of Clean Air Act mandatory controls, other National controls (e.g., NLEV), and the additional point source controls in the proposed NOx SIP call.

Additional Control Runs
Daily Diff Plots:
(1-Hr, 8-Hr)

(07SIP10-v25) - 07SIP10	effect of additional 25% VOC control
(07SIP10-n25) - 07SIP10	effect of additional 25% NOx control
(07SIP10-nv25) - 07SIP10	effect of additional 25% VOC, NOx control
(07SIP10-v50) - 07SIP10	effect of additional 50% VOC control
(07SIP10-n50) - 07SIP10	effect of additional 50% NOx control
(07SIP10-nv50) - 07SIP10	effect of additional 50% VOC, NOx control

Table of Metrics :	95Bas10	07CAA10	07SIP10
	07SIP10-v25	07SIP10-n25	07SIP10-nv25
	07SIP10-v50	07SIP10-n50	07SIP10-nv50

A subset of plots (i.e., one episode [June 1995]) are presented in this section. These results are sufficient to demonstrate the day-to-day and episode-to-episode differences in the magnitude and spatial pattern of modeled ozone concentrations. The full set of plots are available on the LADCO web site (www.ladco.org).

Initial Control Runs
The initial control runs provide information on the ozone air quality impact of CAA controls and the regional NOx emissions reductions required by the NOx SIP call. The results for these runs are presented in the following plots:

Figure 10 07CAA10 Peak Ozone Concentration Plots
(a) 1-hour
(b) 8-hour

Figure 11 07SIP10 Peak Ozone Concentration Plots
(a) 1-hour
(b) 8-hour

Figure 12 07CAA10 - 95Bas10 (effect of growth and CAA controls)
(a) 1-hour
(b) 8-hour

Figure 13 07SIP10 - 07CAA10 (effect of additional point source reductions)
(a) 1-hour
(b) 8-hour

Figure 14 07SIP10 - 95Bas10 (effect of growth and 07CAA10 plus additional point source reductions)
(a) 1-hour
(b) 8-hour
(c) 1-hour (4 km)

More quantitative results for the initial control runs are provided in bar charts of several metrics: peak 1-hour; number grid cells > 120 ppb (1-hour); number hours > 120 ppb (1-hour); and number grid cells > 80 ppb (8-hour) (see Figures 15 (a) - (d)).

Based on these results, several observations can be made:

* The net reduction in emissions between 95Bas10 and 07CAA10 (approximately 2000 tons NOx per weekday and 2500 tons VOC per weekday) produce widespread decreases and isolated increases, especially near Chicago, in ozone concentrations (see Figure 12). The ozone decreases occur in areas with high 95Bas10 ozone concentrations (i.e., benefits occur where it counts).

* The reduction in regional NOx emissions between 07CAA10 and 07SIP10 (approximately 4000 tons NOx per weekday) also produce widespread decreases, and isolated increases in ozone concentrations. The additional NOx emission reductions provide greater ozone decreases, and less increases. This suggests that more control provides more ozone benefit, and that more NOx control is generally beneficial.

* The 8-hour difference plots are similar to 1-hour difference plots (i.e., widespread decreases and isolated increases). The 8-hour decreases are slightly smaller in magnitude than the 1-hour decreases. The 8-hour increases are also slightly smaller in magnitude than the 1-hour increases in most areas on most days, but appear to be slightly larger (at least, based on a percentage of the NAAQS) on a few days in a few areas (e.g., June 16 over Lake Michigan). Further analysis is needed to determine whether these increases affect attainment of the ozone NAAQS.

* The difference plots show some surprisingly large concentration changes (especially, increases) along the eastern edge of the domain on several days with easterly winds (e.g., June 24 - 25, 1995). These changes may be due to emission changes outside of the domain, which may be compounded by emissions changes in a large metropolitan area near the edge of the domain (Detroit). To minimize this effect, it may be desirable to expand the spatial extent of at least the eastern boundary in future modeling.

* The effect of grid resolution on model response to changes in ozone precursor emissions can be assessed by comparing the 4 km and 12 km results for 95bas10 and 07SIP10. The difference plots reflect similar spatial patterns (see Figures 14(a) v. 14(c)). The relative change in various metrics are also similar. Thus, it appears that model response at 4 km is consistent with that at 12 km.

Additional Control Runs

The additional control runs provide information on the amount of control needed to provide for attainment of the ozone NAAQS. The additional control was applied to low-level emission sources across the full domain. Several comments on these emission reduction scenarios should be noted. First, the control levels represent a model sensitivity test; they do not necessarily represent any particular control measures and may, or may not, be achievable. Second, only low-level sources were controlled in light of the relatively high control level already being applied to elevated sources by the NOx SIP call. Third, the application of reductions domainwide was made to simplify the emissions processing and to maximize the effect of the reductions.[6]

The results for the additional control run are summarized in the following plots:

Figure 16 (07SIP10-v25) - 07SIP10
(a) 1-hour
(b) 8-hour

Figure 17 (07SIP10-v50) - 07SIP10
(a) 1-hour
(b) 8-hour

These plots indicate that additional reduction in low-level VOC emissions (approximately 3000 and 6000 tons VOC per weekday for "v25" and "v50", respectively) will decrease ozone concentrations in the vicinity of several urban (VOC-limited) areas. Although limited in spatial extent, these reductions will provide benefits in highly populated areas which generally have high local ozone concentrations. Also, more reduction is seen to provide more ozone benefit.

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6 A previous sensitivity analysis was performed for the same three initial and six additional reduction scenarios, but with the additional reductions applied in only the severe nonattainment counties around Lake Michigan (see LADCO, 1998c). The results of this analysis indicated much less effect from these reductions, suggesting a problem with the attainment test, the few number of modeled episodes used in this previous analysis, or the limited spatial extent of controls.

Figure 18 (07SIP10-n25) - 07SIP10
(a) 1-hour
(b) 8-hour

Figure 19 (07SIP10-n50) - 07SIP10
(a) 1-hour
(b) 8-hour

These plots indicate that additional reduction in low-level NOx emissions (approximately 2000 and 4000 tons NOx per weekday for "n25" and "n50", respectively) will decrease ozone concentrations over a large portion of the modeling domain. There are, however, isolated increases in ozone concentrations in some urban areas on some days. It is unclear whether the ozone increases cause or contribute to exceedances of the ozone NAAQS in these areas. Also, more reduction is seen to provide more ozone benefit and less disbenefit.

The effect of grid resolution on model response to changes in precursor emissions can be assessed by comparing the results of a special "n25" run at 4 km to the results of the "n25" run at 12 km for the July 1995 episode. Difference plots for the 4 km and 12 km runs are presented in Figure 20. As can be seen, the spatial pattern for the two sets of difference plots are similar. This further supports the finding that the model response at 4 km is consistent with that at 12 km.

Figure 21 (07SIP10-nv25) - 07SIP10
(a) 1-hour
(b) 8-hour

Figure 22 (07SIP10-nv50) - 07SIP10
(a) 1-hour
(b) 8-hour

These plots indicate that the combined effect of additional reduction of low-level VOC and NOx emissions will produce both the same widespread regional decreases in ozone concentrations (due to NOx emissions reductions) and urban decreases in ozone concentrations (due to VOC emissions reductions). The decreases due to VOC emissions reductions appear to generally offset the isolated increases due to NOx emissions reductions in urban areas.

More quantitative results for the initial control runs are provided in bar charts of several metrics: number grid cells > 120 ppb (1-hour); and number grid cells > 80 ppb (8-hour) (see Figures 23 (a) - (b)).

Attainment Assessment
USEPA has issued guidance on the use of modeling to demonstrate attainment of the 1-hour ozone NAAQS (USEPA, 1996) and is preparing guidance on the use of modeling to demonstrate attainment of the 8-hour ozone NAAQS (USEPA, 1998b, 1999). According to the new guidance, the attainment test uses model results in a "relative" rather than "absolute" sense. The test consists of four steps:

(1) Compute the current site-specific design value from monitored data (For this analysis, the design values were based on data for the period 1994 - 1996[7].)

(2) Using the modeled data, calculate a "relative reduction factor" (RRF) for each monitoring site based on the change in ozone concentrations between the base year (i.e., 95Bas10) and a given strategy (e.g., 07CAA10)

(3) Multiply the site-specific design value by the RRF for that site to produce an adjusted design value

(4) Compare the adjusted design value to the NAAQS. If this value is < 85 ppb, then the attainment test is passed.

The 1-hour and 8-hour design values above the NAAQS (based on 1994 - 1996 data) for counties in the Lake Michigan area are as follows:

		Design Values	
State	County	1-Hour	8-Hour
Illinois	Cook		89
	Kane		86
	Lake		87
Indiana	Lake		91
	Porter		94
	LaPorte	146	102
Michigan	Allegan	137	97
	Benzie		89
	Berrien		94
	Cass		94
	Kent	127	89
	Mason	125	96
	Muskegon	142	101

7 The data for the 1994 - 1996 period were used here to match the 1995 base year modeling inventory. The appropriateness of this 3-year period will be reexamined in future modeling, especially if a more current year inventory is available.

State	County	Design Values 1-Hour	8-Hour
Wisconsin	Door	125	91
	Kenosha	129	97
	Kewaunee		90
	Manitowoc	126	94
	Milwaukee	128	96
	Ozaukee	126	97
	Racine		89
	Sheboygan		89

County-level summaries of the model-adjusted design values for the initial strategy runs and the additional control runs are provided in Tables 4 and 5 for the 1-hour and 8-hour NAAQS, respectively. A histogram of the model-adjusted design values based on 12 km and 4 km results are presented in Figures 24(a) - (b). As can be seen, grid resolution has little effect on the attainment results.

The number of counties in Grid M/Lake Michigan with design values above the NAAQS are as follows (see Figure 25):

	Obs.	**07CAA10**	**07SIP10**	**v25**	**n25**	**nv25**	**v50**	**n50**	**nv50**
1-Hour	20/10	6/3	2/2	2/2	1/1	1/1	1/1	0/0	0/0
8-Hour	98/20	80/20	29/11	24/10	14/7	14/7	17/9	6/4	5/3

The results show that 07CAA10 will reduce ozone concentrations, but will not, by itself, show attainment of the 1-hour NAAQS everywhere in the Lake Michigan area. 07SIP10 generally shows attainment of the 1-hour NAAQS in the Lake Michigan area, except for maybe a few isolated locations.

07CAA10 and 07SIP10 will reduce ozone concentrations, but do not, by themselves, show attainment of the 8-hour NAAQS everywhere in the Lake Michigan area. Additional controls are needed to show attainment of the 8-hour NAAQS in the Lake Michigan area. Further analysis is needed to provide a definitive 8-hour attainment demonstration for all locations in the Lake Michigan area.

USEPA's draft 8-hour guidance includes an additional "improvement" requirement for unmonitored areas with substantially higher modeled ozone concentrations (than in the vicinity of any monitor). Specifically, the RRF for these high modeled, unmonitored areas multiplied by the area-wide maximum observed design value must be less than 85 ppb. In other words, these improvement at these locations must be as much (or greater) than that needed to bring the highest monitoring site into attainment. Such an area of high modeled, unmonitored ozone concentrations is evident over Lake Michigan (see, for example, Figure 5). The results of this additional requirement over

Lake Michigan for the initial strategy runs and the additional NOx/VOC control runs are as follows:

Design Values

	"Obs"	07CAA10	07SIP10	v25	n25	nv25	v50	n50	nv50
8-Hour	102	100	95	94	94	93	93	91	89

These results reflect the decrease in ozone concentrations due to 07CAA10 and 07SIP10, but show that further control is needed to provide for attainment. As noted above, further analysis is needed to provide a definitive 8-hour attainment demonstration for all locations in the Lake Michigan area.

Section 5
Air Quality Analyses

The effect of regional NOx reductions on ozone concentrations can be further assessed by ambient air quality analyses.[8] Of particular interest are those studies which provide information about the effect of upwind NOx emission reductions on ozone levels in the Lake Michigan area, and about the effect of NOx emission reductions in the Lake Michigan area on both local and downwind ozone levels. Several air quality analyses have been performed as part of the LMOS and OTAG studies, and by the Lake Michigan States. A summary of the relevant findings from these analyses is provided below.

Transport is a major contributor to high ozone concentrations in the Lake Michigan area, especially during southerly wind conditions

The spatial scale of regional (transported) ozone concentrations in the northern part of the eastern U.S. is on the order of several hundred miles

The role of regional and local ozone can be estimated by comparing ozone concentrations and wind speed (i.e., at low wind speeds, high ozone can be assumed to be mostly "homegrown", while at high wind speeds, high ozone can be assumed to be mostly transported). Based on data for a 10-year period (1986 - 1995), Husar and Renard (1997) found that at moderate (3 - 6 m/sec) and high (>6 m/sec) wind speeds, there are directional differences in the spatial pattern of ozone concentrations (e.g., in the Lake Michigan area, there is high ozone with southerly winds and low ozone with northerly winds). Average ozone values in the Chicago area were found to be relatively constant with wind speed for southerly wind directions and decline with wind speed for northerly wind directions. This suggests that during southerly winds, transport is important, while during northerly winds, there is a noticeable impact from local emissions (about 20 - 30 ppb).

Maps of surface winds and ozone concentrations were prepared by the LMOS Data Analysis Contractor to characterize transport patterns on high ozone days

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8 In the NPR for the NOx SIP call, USEPA cited its reliance on certain OTAG air quality analyses as part of its weight-of-evidence test to identify which states may contribute to multistate transport. Although USEPA subsequently decided in the NFR to rely solely on more recent state-by-state modeling analyses in the air quality portion of the weight-of-evidence test, the air quality analyses are considered here as additional information concerning the effect of regional NOx emissions reductions on ozone concentrations.

(Hanna and Chang, 1995) - see Figure 26. The maps show: (a) high ozone concentrations cover an area with dimensions several hundred miles on a side; (b) wind patterns for three 1991 episodes point to areas of high ozone to the southwest and south-southeast; and (c) wind patterns for the other 1991 episode point to an area of high ozone to the east. The incoming ozone levels along the upwind boundaries are on the order of 80 - 90 ppb.

A more detailed description of transport patterns is provided by back-trajectory plots prepared by Illinois EPA using the NOAA HYSPLIT model (Leopold, 1999). An example of these plots is provided in Figure 2. An examination of high ozone days since 1991 indicates that historical ozone episodes in the Lake Michigan area are associated with transport primarily from the southeast through southwest, and, on some days, from the east and west. Transport distances over the previous 48 hours ranges from 100 - 300 miles based on surface winds to 250 - 500 miles based on aloft winds. These directions and distances indicate that the high ozone concentrations entering the Lake Michigan area are due to source areas in Illinois, Indiana, Kentucky, Missouri, and possibly other nearby states.

A set of source-based trajectory climatologies were prepared by Husar and Schichtel (1996, 1997) using the CAPITA Monte Carlo Model with wind fields from the period June - August 1991 - 1995 to identify transport patterns and source regions of influence. The results show two characteristic transport regimes: one from Texas north through the Midwest and then east through New England, and one in the Southeast with relatively short transport distances (see Figure 27(a)). In addition, the results show that individual source regions of influence typically extend several hundred miles and collectively cover most of the eastern half of the U.S. (see Figure 27(c)). This finding is consistent with that reported by Porter, et al (1996) based on their spectral decomposition of ozone concentrations and the resulting spatial correlation of ozone concentrations (see Figure 20(d)). While these analyses are primarily based on 1-hour concentrations, Husar's (1996) examination of the spatial pattern of 1-hour and 8-hour "exceedances" shows that 8-hour concentrations represent more of a regional problem than 1-hour concentrations. These results suggest that emission reductions over a large airshed are necessary to deal with the ozone problem in the eastern half of the U.S.

A set of receptor-based trajectory climatologies were developed by Poirot and Wishinski (1996) to identify predominant synoptic-scale transport patterns when ozone is high at certain sites in the eastern half of the U.S. The results show that high ozone is generally associated with transport from the heart of the OTAG domain, whereas low ozone is generally associated with transported from around the edges (see Figure 27(b)). Plots for sites grouped by subregion show that high ozone is associated with transport from different directions. For the Lake Michigan sites, transport is typically from the southwest through southeast. The subregional plots also show more frequent impacts from nearby areas. These findings indicate that emission controls in the areas identified as being consistently upwind of various receptor sites on high ozone days may be most effective in reducing transported ozone levels.

Local ozone levels in the Lake Michigan area have declined in recent years, but incoming (transported) ozone levels remain high

Ozone trends calculated by Wisconsin DNR (1997, 1999) with the Rao-Zurbenko statistical method found that temperature-adjusted 1-hour and 8-hour ozone levels decreased at 7 sites on the western side of Lake Michigan from 0.2 to 1.0 %/year, and slightly decreased or had a statistically insignificant trend (i.e., either a zero or very weak trend) at 3 sites on the eastern and southern sides of Lake Michigan. Another study of 8-hour ozone levels by SAI (1997) found the estimated contributions from regionwide sources to 8-hour ozone levels in the eastern half of the U.S. show no change over the period 1980 - 1995, while the estimated contributions from local sources in many large cities have decreased by about 20 - 45% since the early 1980's. In particular, the reduction in local contribution for Chicago is about 20% (less than 1% per year), which is consistent with the results reported by Wisconsin DNR.

Trends in local surface ozone precursor and incoming ozone concentrations were also considered. Unfortunately, such data are extremely limited. There is only one site (UWM-North site in Milwaukee, Wisconsin) with as much as 10 years of surface precursor data. These data indicate that NMHC and, to a lesser degree, NOx concentrations have declined since the mid-1980's. The Lake Michigan regional Photochemical Assessment Monitoring Stations (PAMS) began operation in the mid-1990's and, eventually, should provide a reliable data base for assessing ozone precursor trends. Aloft (aircraft) ozone data are available for only a few days from the 1990 and 1991 LMOS field programs, and recent supplemental sampling conducted during the period 1994 - 1998. These data indicate that incoming ozone levels have remained relatively steady over the past 9 years (i.e., on the order of 70 - 100 ppb on high ozone days).

These trends analyses show that there has been significant improvement in local ozone levels in the Lake Michigan area in recent years. While local ozone concentrations seem to be declining (in response to local emission control programs), incoming (transported) ozone levels remain high. Thus, transport of ozone into the Lake Michigan region remains a significant problem.

The relative effectiveness of VOC v. NOx control in the Lake Michigan region varies spatially

The LMOS Data Analysis Contractor examined the LMOS field data to identify VOC- and NOx-limited areas within the Lake Michigan region (STI, 1995). The examination involved a review of various LMOS reports and associated data analyses (STI, 1994), application of an observation-based model (i.e., the smog production algorithm) to the LMOS field data, examination of ozone and ozone precursor data, and consideration of the ratio of NMOC to NOx concentrations. Based on this information, several findings were made:

> Ambient air entering the study region from the south is NOx-limited (i.e., NOx is the precursor pollutant in short supply). The incoming ozone concentrations range from 70 - 110 ppb under adverse meteorological conditions.
>
> Emissions from the greater Chicago/Gary area contribute sufficient NOx relative to VOCs to the air mass passing through the area that it becomes VOC-limited. NO reacts rapidly with ozone to reduce ozone concentrations locally by 10 - 30 ppb. (This ozone titration also occurs near other major cities, such as Milwaukee.)
>
> Downwind of the Chicago/Gary area at distances of 50 - 100 km, NO concentrations become quite low due consumption via chemical reactions. Thus, the air masses begin to transition back to NOx-limited conditions.

These findings suggest that VOC emission reductions in the Chicago/Gary area will be most effective in reducing ozone concentrations immediately downwind, but will be less effective farther downwind. NOx emission reductions in the Chicago/Gary area, on the other hand, will increase ozone concentrations in the urban area and immediately downwind, but will be effective in reducing ozone concentrations farther downwind.

In conclusion, these air quality analyses show that NOx emission reductions in upwind areas are needed to reduce high incoming (transported) ozone concentrations entering the Lake Michigan area, and that NOx emission reductions in the Lake Michigan States will reduce ozone concentrations in downwind areas.

Section 6
Summary

A state-of-the-art modeling analysis was performed to assess the ozone air quality impact of the regional NOx emission reductions required by USEPA's NOx SIP call. Additional (across-the-board) reductions in VOC and NOx emissions were also examined.

Several key assumptions for the analysis should be noted:

* Spatial extent of modeling domain selected based on the Lake Michigan area (i.e., includes the Lake Michigan area, and nearby upwind source and downwind receptor areas)

* UAM-V model grid resolution (horizontal: 12 km, and vertical: 7 layers) shown by previous studies to be reasonable for regional-scale analyses

* Four modeled episodes are representative of historical ozone episodes in the Lake Michigan area, reflect a variety of meteorological conditions, and have additional air quality data available to help evaluate model performance

* Photochemical model demonstrated in previous studies to provide a reasonable representation of observed ozone concentrations

* Base year emissions reflect the emissions inventory used by USEPA in their final rulemaking for the NOx SIP call, with a few state updates

* Future year emissions reflect USEPA's latest growth and control factors

* "Across-the-board" emission reductions in the strategy runs were applied domainwide to low-level point, area, and motor vehicle sources

* Meteorological inputs are based on initial prognostic meteorological modeling

* Boundary conditions based on larger scale UAM-V model run

* To assess 1-hour and 8-hour attainment, a model-adjusted design value (i.e., observed design values multiplied by the relative change in modeled concentrations) was compared to the NAAQS, as recommended by USEPA in their draft ozone modeling guidance. Design values based on

1994 - 1996 observed data. Relative change in modeled concentrations based on 1995 v. various future year (2007) control strategies.

The results of the analysis are considered to be technically credible. In particular, model performance was determined to be reasonable (i.e., there is good agreement in the magnitude, spatial pattern, and temporal profile of modeled and measured ozone concentrations) and the response of the model to changes in emissions was found to be consistent with previous modeling and corroborative air quality analyses. There are, however, some limitations with the analysis. To address these limitations, a number of improvements will be considered in future analyses:

* Expand the spatial extent of the modeling domain to the east, north, and west to better address all problem areas in the Lake Michigan States

* Enhance vertical grid resolution (e.g., 9 or 11 layers) to provide better representation of 3-dimensional nature of atmosphere

* Employ 12 km horizontal grid resolution for regional-scale analyses and 4 km horizontal grid resolution, as necessary, for urban-scale analyses

* Select modeled episodes to reflect conditions associated with high (design value) 8-hour ozone concentrations in the Lake Michigan area and other problem areas in the Lake Michigan States, a variety of meteorological conditions, and periods with additional air quality data to help evaluate model performance

* Consider alternative photochemical models with updated science and other new features, such as CAMX

* Perform more complete performance evaluation for photochemical model (e.g., aloft, ozone precusors, weekday v. weekends) to improve confidence in the model as a planning tool

* Update base year emissions to reflect state comments on USEPA's SIP Call inventory, new non-road and other area source data, and current state transportation networks

* Review and, if appropriate, modify growth and control factors used in calculating future year emissions

* Consider alternative prognostic meteorological models with more air quality applications and technical support, such as MM5

* Perform more complete performance evaluation for meteorological model prior to using these data in the photochemical model

* Review other model inputs to ensure that they are up-to-date and technically defensible (e.g., photolysis rates, depostion factors, land use/land cover, and cloud data)

* Apply modeled attainment test based on USEPA's final ozone modeling guidance, with special attention to highest sites (i.e., calculate the relative change in modeled concentrations for those days with meteorological conditions associated with high [design value] concentrations at those sites)

* Perform supplemental air quality analyses (e.g., analysis of air quality and emissions trends, and application of observation-based models) to provide corroborative information for the modeling results

In light of the key modeling assumptions and limitations, the following strategy-relevant findings can be made:

* Urban area VOC emission reductions decrease ozone concentrations in urban nonattainment areas. The spatial extent of the ozone decreases is limited, but do occur in high population and generally high ozone areas.

* Domainwide NOx emission reductions both decrease and, on some days, increase ozone concentrations. Ozone decreases occur throughout much of the modeling domain, including areas with high base concentrations. Ozone increases are limited mostly to urban areas and generally occur on days with lower concentrations. It is unclear whether the ozone increases cause or contribute to exceedances of the ozone NAAQS in these areas.

* Clean Air Act controls will reduce ozone concentrations, but do not, by themselves, show attainment of the 1-hour NAAQS everywhere in the Lake Michigan area. Clean Air Act plus SIP call controls generally show attainment of the 1-hour NAAQS in the Lake Michigan area, except for maybe a few isolated locations.

* Clean Air Act and SIP call controls will reduce ozone concentrations, but do not, by themselves, show attainment of the 8-hour NAAQS everywhere in the Lake Michigan area. Modeling indicates that additional controls are needed to show attainment of the 8-hour NAAQS in the Lake Michigan area. Further analysis, including consideration of sufficient urban VOC and regional NOx controls, is necessary to provide a definitive attainment demonstration for all locations in the Lake Michigan area.

Section 7
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Round 2

TABLE 1 (revised)

NOx	POINT - Utility			POINT-Non-Utility (see note 1)			AREA			MOTOR VEH			TOTAL		
	Thurs	Sat	Sun	Thurs	Sat	Sun	Thurs	Sat	Sun	Thurs	Sat	Sun	Thurs	Sat	Sun
GridM															
1995	6038	5530	5277	2033	1910	1872	2914	1884	1310	5974	5438	4808	16959	14762	13267
07CAA	5043	4618	4408	2488	2346	2299	2706	1630	1193	4715	4294	3794	14952	12888	11694
07SIP	1862	1706	1628	1750	1665	1622	2706	1630	1193	4715	4294	3794	11033	9295	8237
VOC25	1862	1706	1628	1750	1665	1622	2706	1630	1193	4715	4294	3794	11033	9295	8237
NOx25	1862	1706	1628	1660	1581	1541	2030	1223	895	3536	3221	2846	9087	7730	6909
VOC50	1862	1706	1628	1750	1665	1622	2706	1630	1193	4715	4294	3794	11033	9295	8237
NOx50	1862	1706	1628	1569	1496	1460	1353	815	597	2358	2147	1897	7142	6164	5581

(Note 1: Non-utility NOx emissions for 07SIP are incorrect-i.e., no reductions were included for Wisconsin. The corrected emissions are 26 TPD lower.)

NOx	POINT - Utility			POINT-Non-Utility			AREA			MOTOR VEH			TOTAL		
Illinois															
1995	971	889	849	430	398	388	576	420	297	1123	1041	931	3100	2748	2465
07CAA	905	829	791	372	341	331	629	420	297	643	595	534	2549	2185	1953
07SIP	288	264	252	295	264	254	629	420	297	643	595	534	1855	1543	1337
VOC25	288	264	252	295	264	254	629	420	297	643	595	534	1855	1543	1337
NOx25	288	264	252	280	251	241	472	315	223	482	446	401	1522	1276	1117
VOC50	288	264	252	295	264	254	629	420	297	643	595	534	1855	1543	1337
NOx50	288	264	252	266	238	229	315	210	149	322	298	267	1190	1009	896
Cook County															
1995	99	89	81				144	90	67	350	325	291	593	504	439
07CAA	110	99	91				162		60	136	126	113	408	225	264
07SIP	81	72	64				162		60	136	126	113	379	198	237
VOC25	81	72	64				162		60	136	126	113	379	198	237
NOx25	81	72	64				122		45	102	95	85	305	167	194
VOC50	81	72	64				162		60	136	126	113	379	198	237
NOx50	81	72	64				81		30	68	63	57	230	135	151

VOC	POINT			POINT - Non-Utility			AREA			MOTOR VEH			TOTAL		
	Thurs	Sat	Sun	Thurs	Sat	Sun	Thurs	Sat	Sun	Thurs	Sat	Sun	Thurs	Sat	Sun
GridM															
1995	47	43	41	2722	1906	1719	6685	7560	6748	4613	4348	3729	14067	13857	12237
07CAA	34	31	30	2112	1493	1374	5995	6155	5492	3467	3259	2796	11608	10938	9692
07SIP	30	27	26	2093	1484	1366	5995	6155	5492	3467	3259	2796	11585	10925	9680
VOC25	30	27	26	1570	1113	1025	4496	4616	4119	2600	2444	2097	8696	8201	7267
NOx25	30	27	26	2093	1484	1366	5995	6155	5492	3467	3259	2796	11585	10925	9680
VOC50	30	27	26	1047	742	683	2998	3078	2746	1734	1630	1398	5808	5476	4853
NOx50	30	27	26	2093	1484	1366	5995	6155	5492	3467	3259	2796	11585	10925	9680
Illinois															
1995	5	5	5	668	371	321	1275	1687	1565	651	607	517	2599	2670	2408
07CAA	5	5	5	601	305	255	1309	1678	1560	330	306	271	2245	2294	2091
07SIP	5	4	4	601	305	255	1309	1678	1560	330	306	271	2245	2293	2090
VOC25	5	4	4	601	305	255	1309	1678	1560	330	306	271	2245	2293	2090
NOx25	5	4	4	451	229	191	982	1259	1170	248	230	203	1685	1721	1569
VOC50	5	4	4	601	305	255	1309	1678	1560	330	306	271	2245	2293	2090
NOx50	5	4	4	301	153	128	655	839	780	165	153	136	1125	1149	1047
Cook County															
1995	193	89	75				239	277	246	232	213	170	664	579	491
07CAA	135	56	50				242			66	52	48	443	108	98
07SIP	135	56	50				242			66	52	48	443	108	98
VOC25															
NOx25															
VOC50															
NOx50															

TABLE 2a

Grid M & Lake Michigan Performance Statistics – 95bas10 - June 22-28, 1991

	Observed Grid M (12)	91bas8 Grid M @ 4 km	91bas8 Grid M @ 12 km	95bas10 Grid M @ 4 km	95bas10 Grid M @ 12 km	Observed LM (12)	91bas8 LM @ 4 km	91bas8 LM @ 12 km	95bas10 LM @ 4 km	95bas10 LM @ 12 km
Peak Value										
6/24/91	103.0	144.1	137.0	140.8	132.3	92.0	107.6	107.5	104.9	103.9
6/25/91	120.0	152.5	147.1	156.4	144.0	104.0	129.5	123.5	136.7	128.5
6/26/91	175.0	149.9	165.3	150.8	152.4	175.0	143.5	142.6	138.7	141.8
6/27/91	118.0	129.8	134.4	132.7	139.8	118.0	129.8	134.4	128.2	139.8
6/28/91	138.0	128.4	119.9	139.8	121.8	138.0	107.0	117.2	106.4	120.4
Mean Value										
6/24/91	69.0	62.9	66.4	63.8	66.3	69.0	54.3	57.8	54.6	56.7
6/25/91	74.4	70.0	76.1	71.2	75.2	75.9	62.7	67.3	63.4	65.5
6/26/91	75.7	77.7	86.8	78.6	84.8	80.1	79.0	88.1	80.0	85.7
6/27/91	72.3	68.4	76.5	69.1	75.9	72.8	73.8	81.6	74.0	80.3
6/28/91	72.0	58.6	67.1	59.3	66.8	74.7	60.3	69.0	61.0	68.3
Normalized Bias										
6/24/91		-8.3%	-3.1%	-7.0%	-3.3%		-20.9%	-16.0%	-20.5%	-17.6%
6/25/91		-4.8%	+3.5%	-3.1%	+2.1%		-17.1%	-10.7%	-16.0%	-13.2%
6/26/91		+4.0%	+16.6%	+5.1%	+13.8%		+0.1%	+12.5%	+1.2%	+9.2%
6/27/91		-5.1%	+6.9%	-4.3%	+5.9%		+1.2%	+13.5%	+1.4%	+11.6%
6/28/91		-17.7%	-5.4%	-16.7%	-5.9%		-18.2%	-5.9%	-17.3%	-7.0%
Normalized Gross Error										
6/24/91		21.3%	20.0%	22.5%	21.5%		21.8%	18.3%	21.4%	19.7%
6/25/91		21.5%	22.0%	20.8%	22.8%		20.2%	17.5%	18.9%	19.3%
6/26/91		20.3%	24.9%	20.2%	24.5%		22.0%	25.0%	21.0%	25.4%
6/27/91		16.6%	15.5%	16.6%	16.3%		16.1%	20.2%	16.6%	21.2%
6/28/91		22.2%	15.1%	21.8%	16.5%		22.8%	16.4%	22.7%	17.6%

TABLE 2b

Grid M & Lake Michigan Performance Statistics – 95bas10 - July 16-21, 1991										
	Observed Grid M (12)	91bas8 Grid M @ 4 km	91bas8 Grid M @ 12 km	95bas10 Grid M @ 4 km	95bas10 Grid M @ 12 km	Observed LM (12)	91bas8 LM @ 4 km	91bas8 LM @ 12 km	95bas10 LM @ 4 km	95bas10 LM @ 12 km
Peak Value										
7/16/91	130.0	148.5	145.1	156.6	148.9	130.0	125.7	124.1	132.9	124.6
7/17/91	140.0	183.1	182.2	205.7	179.3	137.0	105.1	111.7	103.7	105.8
7/18/91	170.0	218.2	183.3	206.1	183.2	170.0	133.1	143.6	125.9	138.2
7/19/91	170.0	162.7	145.4	157.4	151.0	170.0	142.2	145.4	138.9	142.5
7/20/91	139.0	153.0	151.6	162.5	170.6	139.0	149.0	151.6	162.5	170.6
7/21/91	101.0	140.8	140.0	150.0	151.5	101.0	140.8	140.0	150.0	151.5
Mean Value										
7/16/91	75.0	65.8	72.4	66.1	72.1	76.1	60.7	66.7	60.4	65.5
7/17/91	78.0	70.7	77.3	70.0	76.6	74.4	58.3	63.8	56.6	62.1
7/18/91	79.5	75.3	84.3	74.8	83.5	79.9	72.5	79.7	71.4	77.7
7/19/91	79.2	74.9	82.9	73.5	81.2	81.0	69.9	77.3	67.0	74.1
7/20/91	75.0	88.5	95.8	87.0	94.6	76.3	85.8	93.3	83.1	90.9
7/21/91	69.2	84.3	87.8	84.3	86.8	69.7	86.4	90.5	87.0	88.6
Normalized Bias										
7/16/91		-11.6%	-2.7%	-11.3%	-3.1%		-20.1%	-11.7%	-20.8%	-13.4%
7/17/91		-8.6%	-0.1%	-9.8%	-1.3%		-20.9%	-13.2%	-23.3%	-15.9%
7/18/91		-3.8%	+8.0%	-4.5%	+6.9%		-6.4%	+3.4%	-8.0%	+0.6%
7/19/91		-3.2%	+7.4%	-5.2%	+5.1%		-11.3%	-1.7%	-15.5%	-6.2%
7/20/91		+19.7%	+29.6%	+17.5%	+27.9%		+14.7%	+24.7%	+10.6%	+21.2%
7/21/91		+22.6%	+27.9%	+22.2%	+26.5%		+25.6%	+31.5%	+25.8%	+28.5%
Normalized Gross Error										
7/16/91		19.6%	16.1%	20.0%	16.8%		21.3%	14.9%	22.9%	17.5%
7/17/91		22.9%	21.3%	24.4%	22.6%		23.0%	17.7%	25.7%	19.8%
7/18/91		19.5%	20.2%	21.0%	21.3%		17.8%	17.2%	18.9%	16.9%
7/19/91		24.0%	24.3%	24.6%	25.0%		22.9%	21.3%	23.9%	21.9%
7/20/91		25.9%	32.2%	26.2%	32.2%		21.8%	27.5%	22.8%	27.5%
7/21/91		27.0%	30.8%	27.3%	31.3%		30.4%	34.1%	30.7%	34.5%

TABLE Z6

Grid M & Lake Michigan Performance Statistics – June 15-25, 1995 – 95bas10 (RAMS Kv's)

	Observed Grid M (12)	95bas3 Grid M @ 4 km	95bas3 Grid M @ 12 km	95bas10 Grid M @ 4 km	95bas10 Grid M @ 12 km	Observed LM (12)	95bas3 LM @ 4 km	95bas3 LM @ 12 km	95bas10 LM @ 4 km	95bas10 LM @ 12 km
Peak Value										
6/15/95	125.0	96.8	93.8	103.0	89.1	125.0	85.5	88.1	90.0	81.9
6/16/95	124.0	152.0	123.3	146.5	110.5	124.0	94.2	90.0	101.2	88.6
6/17/95	145.0	150.9	138.0	161.4	128.1	145.0	119.8	127.2	133.7	128.1
6/18/95	131.0	142.2	138.1	171.3	146.3	131.0	121.1	121.8	143.4	128.4
6/19/95	120.0	136.9	135.1	156.2	147.1	118.0	129.3	117.5	131.5	115.2
6/20/95	118.0	134.9	128.4	138.0	129.7	97.0	130.4	127.3	133.3	123.4
6/21/95	124.0	144.1	136.0	149.6	134.3	112.0	123.4	121.7	125.2	121.7
6/22/95	119.0	185.3	152.7	185.6	152.9	119.0	125.6	130.1	133.4	130.6
6/23/95	124.0	205.9	179.7	213.5	174.8	123.0	120.2	126.1	126.0	131.4
6/24/95	166.0	201.4	185.5	213.0	188.5	166.0	149.0	150.5	150.8	144.2
6/25/95	108.0	172.3	156.6	205.4	146.0	108.0	133.8	134.8	144.1	132.4
Mean Value										
6/15/95	74.4	53.1	56.7	52.6	53.5	75.0	53.0	55.0	53.3	52.0
6/16/95	77.7	58.2	61.9	58.3	58.4	82.8	58.2	60.2	59.2	56.4
6/17/95	80.1	63.8	67.9	63.7	64.0	83.2	63.5	66.3	62.8	61.3
6/18/95	78.9	65.9	70.6	67.0	68.5	76.4	62.4	65.1	63.3	62.5
6/19/95	76.6	62.6	67.3	62.8	64.8	74.7	63.3	65.6	64.0	62.3
6/20/95	73.0	64.4	69.2	64.5	66.9	69.3	57.7	61.2	57.8	58.9
6/21/95	75.1	68.1	72.9	68.0	70.2	74.9	57.8	61.1	58.6	60.8
6/22/95	76.3	78.5	83.9	79.3	81.8	77.7	77.2	82.4	78.7	80.9
6/23/95	79.9	79.8	85.6	79.8	82.7	83.7	76.6	82.0	77.5	80.1
6/24/95	79.9	84.3	92.5	85.6	89.8	83.7	83.1	89.7	84.4	86.5
6/25/95	72.3	80.2	85.1	81.5	83.2	72.6	80.8	84.8	82.2	82.1
Normalized Bias										
6/15/95		-27.8%	-23.0%	-28.6%	-27.4%		-28.5%	-25.8%	-28.1%	-30.1%
6/16/95		-24.1%	-19.3%	-24.3%	-24.1%		-29.9%	-26.4%	-28.9%	-31.3%
6/17/95		-19.7%	-14.3%	-20.2%	-19.4%		-23.8%	-18.9%	-25.2%	-25.4%
6/18/95		-15.4%	-9.7%	-14.2%	-12.5%		-17.4%	-13.4%	-16.3%	-16.9%
6/19/95		-17.4%	-11.0%	-17.5%	-14.7%		-15.0%	-11.4%	-14.4%	-15.9%
6/20/95		-11.1%	-4.5%	-11.2%	-7.8%		-16.4%	-11.5%	-16.3%	-14.7%
6/21/95		-7.9%	-1.8%	-8.3%	-5.7%		-22.9%	-18.6%	-21.8%	-19.1%
6/22/95		+4.2%	+11.1%	+5.1%	+8.2%		+0.9%	+7.7%	+2.7%	+5.5%
6/23/95		+2.7%	+9.6%	+2.5%	+5.6%		-6.2%	+0.2%	-5.3%	-2.6%
6/24/95		+7.8%	+17.8%	+9.0%	+13.9%		+1.4%	+9.1%	+2.7%	+4.9%
6/25/95		+12.2%	+18.7%	+13.7%	+16.0%		+12.5%	+18.1%	+14.2%	+14.2%
Normalized Gross Error										
6/15/95		28.2%	23.8%	29.0%	27.8%		28.6%	26.3%	28.4%	30.4%
6/16/95		26.0%	21.9%	26.2%	25.5%		30.0%	26.7%	29.2%	31.4%
6/17/95		22.0%	17.8%	23.2%	21.6%		24.3%	19.7%	26.1%	25.8%
6/18/95		19.2%	15.2%	19.7%	17.3%		18.9%	15.3%	19.7%	18.2%
6/19/95		20.3%	16.0%	20.8%	18.7%		17.5%	14.3%	17.7%	17.9%
6/20/95		17.3%	15.9%	18.5%	17.6%		19.2%	17.7%	20.1%	20.2%
6/21/95		18.4%	17.0%	19.3%	18.2%		26.0%	22.0%	25.0%	22.0%
6/22/95		17.1%	18.0%	18.0%	17.1%		16.4%	16.9%	18.1%	16.7%
6/23/95		18.8%	19.5%	21.0%	19.7%		17.0%	15.5%	18.5%	16.9%
6/24/95		19.3%	23.0%	21.6%	22.4%		17.0%	16.7%	18.0%	16.2%
6/25/95		17.9%	22.2%	20.4%	21.7%		16.8%	20.0%	19.4%	18.8%

TABLE 2d

Grid M & Lake Michigan Performance Statistics – July 7-18, 1995 (95bas10: Kv x 5)

	Observed Grid M (12)	95bas1 Grid M @ 4 km	95bas1 Grid M @ 12 km	95bas10 Grid M @ 4 km	95bas10 Grid M @ 12 km	Observed LM (12)	95bas1 LM @ 4 km	95bas1 LM @ 12 km	95bas10 LM @ 4 km	95bas10 LM @ 12 km
Peak Value										
7/09/95	122.0	148.4	103.2	127.3	101.6	122.0	80.2	71.7	93.5	85.7
7/10/95	125.0	170.3	142.0	157.6	123.5	106.0	97.5	85.5	92.5	93.1
7/11/95	140.0	191.5	179.7	157.7	145.1	118.0	110.7	83.1	102.2	101.2
7/12/95	146.0	190.7	162.8	166.3	148.5	146.0	138.6	122.6	139.2	122.2
7/13/95	178.0	231.7	210.4	157.8	157.2	178.0	231.7	210.4	157.8	157.2
7/14/95	150.0	206.9	182.5	199.5	153.1	150.0	205.4	182.5	141.2	140.6
7/15/95	154.0	241.6	168.2	165.4	166.0	154.0	241.6	168.2	165.4	150.1
7/16/95	109.0	190.4	159.0	148.4	129.5	92.0	190.4	159.0	136.2	128.9
7/17/95	108.0	143.4	122.4	145.3	110.6	88.0	141.9	122.4	94.7	91.0
7/18/95	83.0	132.5	109.9	119.6	95.1	68.0	68.8	52.0	56.5	52.3
Mean Value										
7/09/95	73.0	50.0	47.9	54.7	58.2	74.9	39.6	37.9	52.1	54.8
7/10/95	73.5	50.7	49.2	55.1	58.4	70.2	44.3	39.9	49.9	51.8
7/11/95	76.8	56.9	55.8	61.0	64.7	74.1	45.1	42.1	56.2	57.3
7/12/95	83.0	62.9	61.6	69.2	73.4	85.6	61.0	56.9	73.2	76.0
7/13/95	82.9	72.1	73.6	72.5	77.1	87.2	75.2	76.9	73.8	78.4
7/14/95	81.4	77.0	78.1	78.0	82.8	83.0	75.6	75.8	76.5	80.5
7/15/95	74.5	80.0	77.3	80.1	83.2	74.5	86.2	77.9	83.4	85.6
7/16/95	69.6	77.5	76.4	77.9	80.6	69.2	85.5	79.5	85.5	86.5
7/17/95	67.2	58.9	56.2	60.3	60.8	66.0	47.1	40.6	45.7	46.5
7/18/95	65.2	51.2	49.9	50.3	52.9	62.9	29.7	23.7	37.8	40.9
Normalized Bias										
7/09/95		-30.8%	-33.4%	-24.6%	-19.5%		-46.3%	-48.4%	-29.9%	-26.0%
7/10/95		-30.7%	-32.5%	-24.6%	-19.7%		-36.7%	-42.6%	-28.9%	-25.9%
7/11/95		-25.7%	-26.9%	-19.8%	-14.9%		-38.8%	-42.3%	-24.1%	-22.1%
7/12/95		-23.2%	-24.5%	-15.3%	-10.2%		-28.6%	-32.7%	-13.5%	-9.6%
7/13/95		-12.8%	-10.4%	-11.6%	-5.4%		-13.8%	-11.7%	-14.3%	-8.7%
7/14/95		-4.8%	-3.0%	-3.0%	+3.4%		-9.2%	-8.4%	-6.9%	-1.7%
7/15/95		+8.0%	+5.2%	+8.6%	+13.3%		+16.7%	+6.4%	+13.3%	+16.9%
7/16/95		+11.3%	+10.2%	+12.4%	+16.7%		+23.9%	+15.2%	+24.1%	+25.6%
7/17/95		-13.0%	-16.5%	-10.7%	-9.3%		-29.0%	-38.8%	-31.1%	-29.6%
7/18/95		-21.8%	-23.8%	-23.0%	-19.1%		-53.2%	-62.7%	-40.2%	-35.1%
Normalized Gross Error										
7/09/95		33.8%	34.9%	26.2%	21.4%		46.3%	48.4%	30.0%	26.0%
7/10/95		34.3%	34.6%	27.7%	22.7%		37.6%	42.6%	29.1%	26.2%
7/11/95		33.1%	33.1%	24.9%	21.9%		39.0%	42.4%	26.9%	24.8%
7/12/95		29.5%	29.7%	22.4%	19.5%		30.0%	32.8%	20.6%	18.1%
7/13/95		23.6%	20.2%	20.5%	16.9%		23.6%	20.3%	20.3%	16.8%
7/14/95		22.8%	18.7%	17.0%	15.8%		20.5%	16.9%	15.6%	15.0%
7/15/95		26.8%	21.2%	21.6%	21.4%		30.4%	21.5%	21.6%	22.4%
7/16/95		20.2%	16.9%	18.9%	21.1%		28.8%	19.8%	26.9%	27.6%
7/17/95		22.8%	22.9%	20.8%	18.7%		30.5%	39.2%	32.6%	30.0%
7/18/95		25.8%	26.9%	24.3%	20.9%		53.2%	62.7%	40.2%	35.1%

Table 3. Control Measures

NOx RUN	UTILITY	NONUTILITY	NONROAD/OTHER AREA	MOTOR VEHICLE
1995	* Title IV controls (Phase 1)	* RACT at major sources in non-waiver areas	* Fed RFG - Phase I[1]	* Fed RFG - Phase 1[1] * Enhanced I/M[1] * Basic I/M[1]
07CAA10	* Title IV controls (Phases 1 and 2 for all boiler types) * 250 ton PSD,NSPS * RACT and NSR in non-waiver areas	* RACT at major sources in non-waiver areas * 250 ton PSD, NSPS * NSR in non-waiver areas	* Fed Phase II small engine standards * Fed Marine engine standards * Fed HDV (≥50 hp) standards-Phase1 * Fed RFG - Phase II[1] * Fed locomotive standards (in. Rebuilds) * HC engine 4 gm standard	* Tier I LDV and HDV standards * Fed RFG - Phase II[1] * Enhanced I/M[1] * Basic I/M[1] * Clean fuel fleets[1] * National LEV * HDV 3 gm standard
07SIP10	* 0.15 lb/MMBTU in 22 affected States	* 60% large boilers,turbines 90% large I.C. engines 30% large cement plants	Same as 07CAA10	Same as 07CAA

VOC	UTILITY / NONUTILITY	NONROAD/OTHER AREA	MOTOR VEHICLE
1995	* CTG and Non-CTG RACT at major sources in NA areas * NSR LAER and Offsets in NA areas	* Fed RFG - Phase I[1]	* Fed RFG - Phase 1[1] * Enhanced I/M[1] * Basic I/M[1]
07CAA10	Same as 1995	* Fed Phase II small engine standards * Fed Marine engine standards * Fed HDV (≥50 hp) standards-Phase1 * Fed RFG - Phase II[1] * C/C solvent and arch. coating controls * Stage I, II in NA areas * Autobody, degreasing, and dry cleaning controls in NA areas	* Tier I LDV and HDV standards * Fed RFG - Phase II[1] * 9.0 RVP fuel elsewhere in domain * Enhanced I/M[1] * Basic I/M[1] * Clean fuel fleets[1]
07SIP10	Same as 07CAA10	Same as 07CAA10	Same as 07CAA

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1 In mandatory areas

1 In mandatory areas

TABLE 4

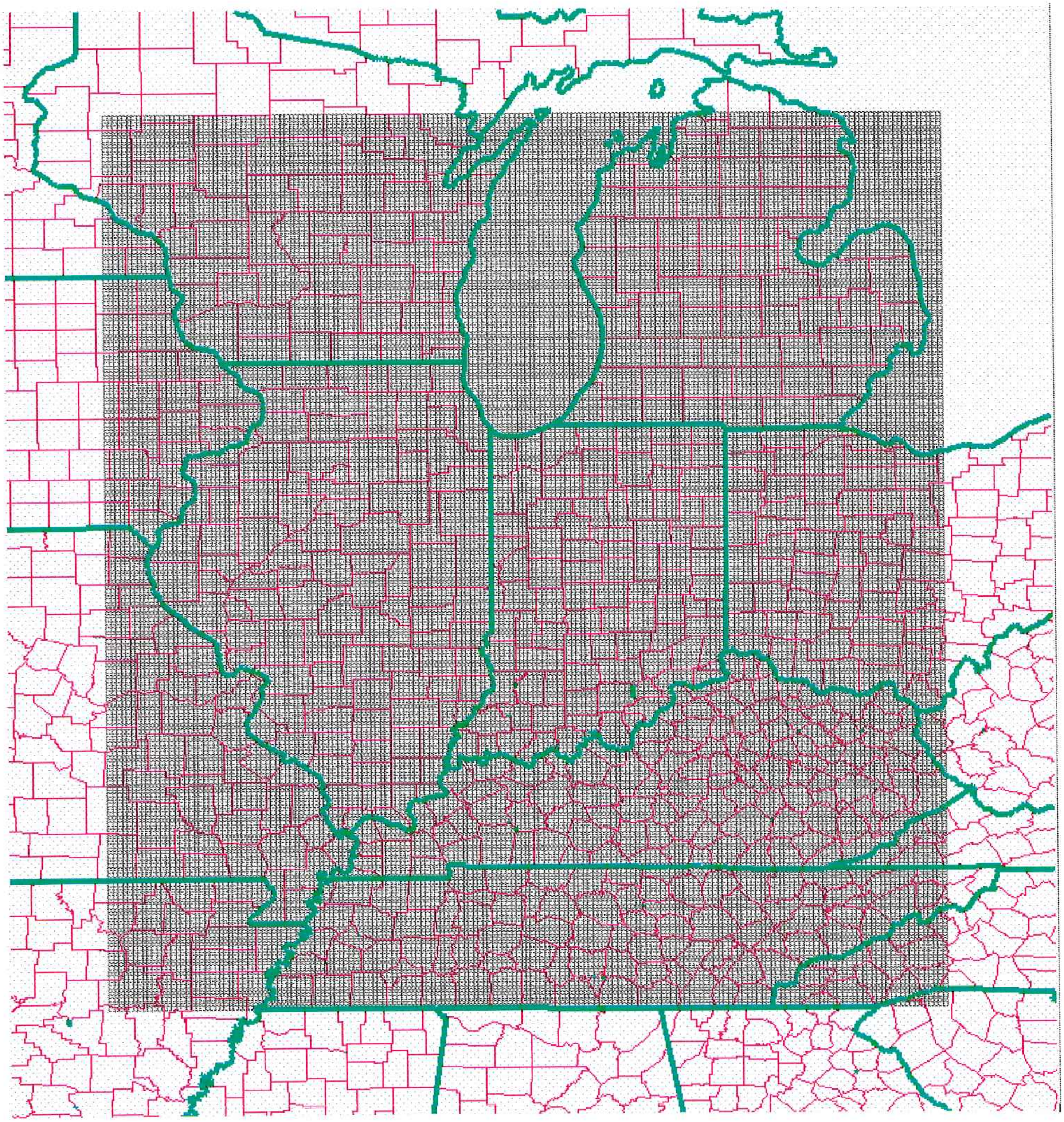
			base	caa	sip	v25	n25	nv25	v50	n50	nv50
170010006	IL	Adams	89	82	75	74	71	70	73	67	66
170198001	IL	Champaign	105	100	92	92	88	87	91	83	82
170317002	IL	Cook	119	113	108	106	105	103	104	100	97
170436001	IL	DuPage	104	101	98	96	96	94	93	91	89
170491001	IL	Effingham	97	91	82	82	79	79	82	74	75
170831001	IL	Jersey	112	102	96	95	90	89	94	83	82
170858001	IL	Jo Daviess	99	94	89	88	85	85	87	81	80
170890005	IL	Kane	117	114	109	106	106	104	103	100	97
170971002	IL	Lake	116	107	101	99	97	95	98	92	90
170979999	IL	Lake	146	138	130	128	125	123	125	119	115
171110001	IL	McHenry	108	104	99	97	96	94	94	89	87
171150013	IL	Macon	100	94	87	86	83	82	85	78	77
171170002	IL	Macoupin	103	95	88	88	83	83	87	77	77
171190008	IL	Madison	127	116	110	108	103	102	107	95	94
171431001	IL	Peoria	96	91	85	84	81	81	83	77	76
171570001	IL	Randolph	102	95	86	86	82	82	85	77	77
171610003	IL	Rock Island	85	81	77	76	74	74	75	71	70
171630010	IL	St. Clair	108	102	95	94	91	90	92	85	83
171670010	IL	Sangamon	101	94	86	86	82	81	85	77	76
171971008	IL	Will	112	107	103	101	100	98	99	94	93
172010009	IL	Winnebago	101	95	90	89	87	86	87	83	81
180030002	IN	Allen	112	106	101	100	97	96	99	91	90
180190003	IN	Clark	132	124	118	115	115	112	111	108	104
180330002	IN	De Kalb	79	76	70	70	68	67	69	64	63
180390002	IN	Elkhart	115	111	103	103	99	99	102	95	94
180431004	IN	Floyd	115	109	103	100	103	99	97	99	94
180571001	IN	Hamilton	116	111	106	103	104	101	99	97	94
180590003	IN	Hancock	122	117	111	108	108	105	105	102	98
180838001	IN	Knox	103	98	88	88	85	85	87	82	81
180850002	IN	Kosciusko	97	93	85	85	82	82	84	78	78
180892008	IN	Lake	117	110	104	103	100	99	101	96	94
180910005	IN	La Porte	146	138	130	128	124	124	127	118	117
180950010	IN	Madison	117	111	104	102	99	98	100	93	91
180970050	IN	Marion	115	110	105	102	103	101	98	98	94
181270024	IN	Porter	124	117	110	109	106	105	108	101	99
181290003	IN	Posey	63	60	54	53	51	51	53	48	48
181410010	IN	St. Joseph	112	108	101	101	97	97	101	93	93
181570006	IN	Tippecanoe	101	95	86	86	83	83	85	80	79
181630013	IN	Vanderburgh	114	108	98	97	92	92	96	86	85
181670018	IN	Vigo	107	102	91	91	87	87	90	83	82
181698001	IN	Wabash	108	103	96	95	92	91	94	87	86
181730002	IN	Warrick	131	122	109	108	103	103	107	96	95
191131015	IA	Linn	74	71	67	67	65	65	66	63	63
191632011	IA	Scott	95	90	86	85	83	82	84	78	77
191770004	IA	Van Buren	82	80	72	72	70	70	72	68	68
210130002	KY	Bell	92	85	71	71	69	69	71	66	66
210150003	KY	Boone	113	109	100	99	95	95	98	89	88
210190015	KY	Boyd	122	120	110	110	106	106	109	101	100
210290006	KY	Bullitt	115	107	99	97	96	94	95	90	88
210371001	KY	Campbell	115	107	104	101	102	100	98	96	93
210470006	KY	Christian	103	98	86	86	81	81	86	76	76
210590005	KY	Daviess	108	102	93	92	89	88	90	83	82
210610500	KY	Edmonson	110	105	94	94	90	90	94	85	85
210670001	KY	Fayette	108	103	96	95	91	90	93	82	82
210830003	KY	Graves	92	88	80	79	75	75	78	70	69
210890007	KY	Greenup	121	119	109	109	105	105	108	100	99
210910012	KY	Hancock	115	109	97	96	92	92	95	86	86
210930005	KY	Hardin	115	108	98	97	93	92	95	87	86
211010013	KY	Henderson	108	103	92	91	88	87	90	83	81
211111021	KY	Jefferson	121	114	109	105	108	104	102	104	98
211130001	KY	Jessamine	99	94	88	87	83	83	86	76	76
211170007	KY	Kenton	118	111	108	104	105	103	100	100	95
211270003	KY	Lawrence	115	110	93	92	89	88	92	84	84
211390004	KY	Livingston	108	103	94	93	89	88	93	83	82
211451024	KY	McCracken	103	99	89	88	85	84	87	80	79
211490001	KY	McLean	110	104	93	92	89	88	90	84	83
211850004	KY	Oldham	109	103	97	95	92	91	92	85	83
211930002	KY	Perry	92	89	76	76	75	75	76	73	73
211950002	KY	Pike	101	95	78	78	76	76	78	75	75
211990003	KY	Pulaski	99	91	78	78	74	74	78	70	70
212090001	KY	Scott	107	101	91	90	86	85	89	80	79
212130004	KY	Simpson	100	97	87	87	82	82	87	76	76
212218001	KY	Trigg	104	106	88	88	84	84	88	79	79
212298001	KY	Washington	103	97	87	86	84	83	85	79	78
260050003	MI	Allegan	137	131	122	121	118	117	119	112	111
260190003	MI	Benzie	108	100	96	94	92	91	92	88	86
260210014	MI	Berrien	116	110	102	101	98	97	100	93	92
260270003	MI	Cass	115	109	101	100	97	96	99	92	91
260370001	MI	Clinton	89	85	81	80	78	78	80	75	74
260490021	MI	Genesee	98	93	90	89	88	87	88	84	83
260630007	MI	Huron	115	110	100	99	97	96	98	92	91
260650012	MI	Ingham	97	92	88	87	85	85	87	81	81
260770905	MI	Kalamazoo	102	97	91	90	88	87	89	83	82
260810020	MI	Kent	127	120	114	113	110	109	112	104	102
260910007	MI	Lenawee	104	99	93	92	90	90	91	87	87
260990009	MI	Macomb	129	122	119	117	116	114	114	111	108
261018001	MI	Manistee	97	91	85	84	82	81	83	77	76
261050006	MI	Mason	125	116	111	109	106	105	106	100	98
261070901	MI	Mecosta	87	83	76	76	73	72	75	69	68
261210039	MI	Muskegon	142	133	127	125	122	121	123	115	113
261250001	MI	Oakland	120	115	113	110	113	111	108	110	107

261390005	MI	Ottawa	116	109	103	102	99	98	101	94	92
261430901	MI	Roscommon	86	83	76	75	72	72	74	68	67
261470030	MI	St. Clair	129	122	120	117	116	114	114	111	108
261578001	MI	Tuscola	103	100	94	93	91	90	92	88	87
261610005	MI	Washtenaw	104	99	98	97	95	94	95	90	90
261630019	MI	Wayne	121	115	113	110	113	110	108	110	106
290990012	MO	Jefferson	126	119	107	106	102	101	105	95	94
291370001	MO	Monroe	97	88	83	82	78	77	82	71	71
291831002	MO	St. Charles	136	125	118	116	111	110	115	104	101
291860005	MO	Ste. Genevieve	105	98	83	82	79	79	82	74	74
291890006	MO	St. Louis	129	122	114	112	109	107	109	102	99
370210030	NC	Buncombe	85	85	68	68	66	66	68	64	64
370870035	NC	Haywood	95	93	79	79	79	79	79	79	79
371138001	NC	Macon	84	81	64	64	64	64	64	64	64
371730002	NC	Swain	76								
390030002	OH	Allen	106	97	91	90	88	87	89	84	83
390171004	OH	Butler	124	113	107	105	102	100	102	96	93
390230003	OH	Clark	121	111	103	101	100	98	99	95	92
390250020	OH	Clermont	117	108	104	102	100	99	99	94	92
390271002	OH	Clinton	118	108	99	98	94	93	96	88	87
390338001	OH	Crawford	99	94	87	86	84	84	85	81	80
390490004	OH	Franklin	107	101	92	91	91	90	89	89	86
390610010	OH	Hamilton	114	108	103	100	101	98	97	96	92
390830002	OH	Knox	113	106	99	97	97	95	95	93	90
390870006	OH	Lawrence	117	115	106	105	101	101	105	97	96
390890005	OH	Licking	108	101	92	90	89	88	89	84	83
390911001	OH	Logan	111	104	97	96	93	92	95	88	87
390950034	OH	Lucas	114	109	99	99	98	97	98	95	94
390970007	OH	Madison	113	105	96	94	92	91	93	87	85
391090005	OH	Miami	110	101	95	93	92	90	92	86	84
391130019	OH	Montgomery	115	105	98	96	95	93	94	90	88
391298001	OH	Pickaway	108	100	89	88	85	85	88	81	80
391351001	OH	Preble	103	95	88	87	84	84	86	79	78
391651002	OH	Warren	128	117	111	108	107	104	106	101	97
470010101	TN	Anderson	112	106	100	99	94	94	99	87	87
470090101	TN	Blount	116	111	105	105	98	98	105	90	90
470110004	TN	Bradley	95	88	75	75	73	73	75	71	71
470258001	TN	Claiborne	104	94	79	79	76	76	79	73	73
470310004	TN	Coffee	88	84	76	76	72	72	76	67	67
470370026	TN	Davidson	115	112	105	103	100	99	102	92	90
470418001	TN	DeKalb	91	86	76	76	72	72	76	67	67
470430009	TN	Dickson	111	111	97	97	92	92	96	86	85
470450003	TN	Dyer	93	91	81	80	77	77	80	74	74
470550002	TN	Giles	95	94	81	81	80	80	81	80	80
470630003	TN	Hamblen	93	90	77	77	75	75	77	72	72
470650028	TN	Hamilton	118	111	96	96	93	93	96	90	90
470750002	TN	Haywood	102	100	87	87	84	84	87	80	80
470850020	TN	Humphreys	98	97	81	81	77	77	81	73	73
470890001	TN	Jefferson	123	114	107	107	101	101	107	94	94
470931020	TN	Knox	115	111	107	106	100	100	106	91	91
471050003	TN	Loudon	108	101	95	94	89	89	94	81	81
471131003	TN	Madison	101	95	84	84	80	79	84	74	74
471190106	TN	Maury	90	87	75	75	72	72	75	68	68
471410004	TN	Putnam	84	81	70	70	67	67	70	62	62
471490101	TN	Rutherford	93	89	80	80	76	76	79	71	71
471550101	TN	Sevier	111	106	100	99	91	91	100	82	83
471570021	TN	Shelby	128	127	118	117	113	112	115	106	104
471632002	TN	Sullivan	109	110	101	99	101	98	96	100	96
471650007	TN	Sumner	124	121	113	112	107	106	110	98	96
471870105	TN	Williamson	106	102	90	89	86	86	88	81	80
471890103	TN	Wilson	108	105	96	96	90	90	96	83	83
540110006	WV	Cabell	120	119	108	107	104	103	107	98	98
550090026	WI	Brown	107	100	95	94	91	90	93	86	85
550210015	WI	Columbia	104	99	94	94	90	89	94	84	84
550250041	WI	Dane	96	92	90	88	86	85	86	81	80
550270007	WI	Dodge	90	86	81	81	78	77	80	74	73
550290004	WI	Door	125	116	109	107	104	102	105	98	96
550390006	WI	Fond du Lac	95	90	84	84	81	81	84	77	77
550550002	WI	Jefferson	98	94	89	88	85	85	88	80	80
550590019	WI	Kenosha	129	121	114	111	110	108	108	104	100
550610002	WI	Kewaunee	120	112	105	103	101	99	102	95	93
550710007	WI	Manitowoc	126	118	110	109	106	104	107	99	97
550730012	WI	Marathon	84	78	75	75	73	73	75	70	70
550790085	WI	Milwaukee	128	120	114	112	109	108	111	103	102
550870009	WI	Outagamie	97	93	89	88	85	84	87	80	80
550890009	WI	Ozaukee	126	118	111	109	107	105	107	101	98
551010017	WI	Racine	119	112	105	103	101	99	100	96	93
551050024	WI	Rock	105	99	95	93	91	90	92	86	85
551110007	WI	Sauk	90	86	82	81	78	78	81	74	73
551170004	WI	Sheboygan	122	115	108	106	103	102	104	97	95
551198001	WI	Taylor	81								
551230008	WI	Vernon	83	81	77	77	76	76	76	73	73
551270005	WI	Walworth	100	95	89	89	87	86	88	82	81
551310009	WI	Washington	102	97	91	91	87	87	90	83	82
551330017	WI	Waukesha	102	96	92	91	88	88	90	84	83
551390011	WI	Winnebago	96	90	86	85	82	82	85	78	78

TABLE 5

			base	caa	sip	v25	n25	nv25	v50	n50	nv50
170010006	IL	Adams	73	69	62	62	59	59	61	56	56
170198001	IL	Champaign	87	82	76	76	73	73	75	70	70
170314006	IL	Cook	89	89	86	84	85	83	83	82	80
170436001	IL	DuPage	75	73	69	68	68	67	68	66	65
170491001	IL	Effingham	83	79	71	71	69	69	71	66	66
170831001	IL	Jersey	84	80	74	74	72	71	73	68	67
170858001	IL	Jo Daviess	80	77	73	72	70	70	72	67	66
170890005	IL	Kane	86	83	79	78	77	76	77	74	73
170971007	IL	Lake	87	84	81	80	79	78	79	76	74
170979999	IL	Lake	102	99	95	94	93	92	92	90	89
171110001	IL	McHenry	83	81	77	76	75	74	75	72	70
171150013	IL	Macon	84	80	74	74	71	71	73	68	67
171170002	IL	Macoupin	86	81	74	74	71	71	73	67	66
171192007	IL	Madison	91	87	81	81	78	78	80	74	74
171431001	IL	Peoria	82	78	73	73	71	70	72	67	67
171570001	IL	Randolph	82	79	72	72	70	69	72	67	67
171610003	IL	Rock Island	71	68	63	63	61	61	63	59	58
171630010	IL	St. Clair	77	75	70	69	67	67	68	64	63
171670010	IL	Sangamon	80	76	70	69	68	67	68	64	64
171971011	IL	Will	81	78	72	72	70	70	72	67	67
172012001	IL	Winnebago	81	76	72	72	70	69	71	67	66
180030004	IN	Allen	93	88	83	82	80	80	82	78	77
180190003	IN	Clark	94	90	83	82	81	80	80	78	76
180330002	IN	De Kalb	72	69	64	63	62	62	63	60	60
180390002	IN	Elkhart	88	85	79	78	76	76	78	73	73
180431004	IN	Floyd	93	89	82	80	80	79	80	77	75
180571001	IN	Hamilton	98	94	88	86	85	84	85	83	81
180590003	IN	Hancock	97	93	86	85	84	83	84	81	79
180838001	IN	Knox	87	83	76	76	74	73	75	71	70
180850002	IN	Kosciusko	86	83	76	76	74	74	76	72	71
180890022	IN	Lake	94	90	86	85	82	82	85	79	78
180910005	IN	La Porte	102	98	93	92	90	90	92	87	86
180950010	IN	Madison	97	93	85	85	83	82	84	79	79
180970050	IN	Marion	97	93	86	85	83	82	84	80	79
181270020	IN	Porter	85	82	78	77	75	75	77	73	72
181270024	IN	Porter	94	90	86	85	82	82	85	79	78
181410010	IN	St. Joseph	93	89	83	83	81	80	83	77	77
181570006	IN	Tippecanoe	84	81	75	75	73	73	74	70	69
181630013	IN	Vanderburgh	95	91	84	83	81	80	83	77	76
181670018	IN	Vigo	92	88	80	79	77	77	79	75	74
181698001	IN	Wabash	93	90	83	83	80	80	82	77	77
181730002	IN	Warrick	96	93	84	84	81	81	83	77	76
191131015	IA	Linn	63	61	57	57	56	56	56	54	54
191632011	IA	Scott	80	76	72	71	70	69	71	66	66
191770004	IA	Van Buren	69	67	61	61	60	60	61	58	58
210130002	KY	Bell	75	72	62	62	61	61	62	59	59
210150003	KY	Boone	85	83	77	76	74	73	75	70	69
210190015	KY	Boyd	86	83	76	75	74	74	75	72	72
210290006	KY	Bullitt	85	81	74	74	72	72	73	68	68
210371001	KY	Campbell	91	88	82	81	79	78	80	76	75
210470006	KY	Christian	79	77	69	69	67	66	69	63	63
210590005	KY	Daviess	88	85	77	76	74	74	76	70	70
210610500	KY	Edmonson	82	80	71	72	69	69	72	65	66
210670012	KY	Fayette	87	83	77	76	74	74	75	70	70
210830003	KY	Graves	70	68	61	61	59	59	61	56	56
210890007	KY	Greenup	85	82	75	75	73	73	74	71	71
210910012	KY	Hancock	91	88	80	79	77	77	79	73	73
210930005	KY	Hardin	89	85	77	77	74	74	76	70	70
211010014	KY	Henderson	89	86	77	77	74	74	76	71	70
211111021	KY	Jefferson	92	88	81	80	79	78	79	76	74
211130001	KY	Jessamine	82	78	72	71	69	69	70	66	65
211170007	KY	Kenton	95	92	86	85	83	82	84	80	78
211270003	KY	Lawrence	79	76	67	67	64	64	66	62	62
211390003	KY	Livingston	84	81	73	73	70	70	72	66	65
211451024	KY	McCracken	79	76	69	69	67	66	69	64	63
211490001	KY	McLean	88	85	77	76	74	74	76	70	70
211850004	KY	Oldham	89	85	79	77	76	75	76	72	71
211930002	KY	Perry	72	71	61	61	60	60	61	58	58
211950002	KY	Pike	80	78	67	67	66	66	67	65	65
211990003	KY	Pulaski	78	74	63	63	61	61	63	58	58
212090001	KY	Scott	85	82	74	73	70	70	73	67	66
212130004	KY	Simpson	80	78	70	70	67	67	70	64	64
212218001	KY	Trigg	88	86	77	77	74	74	77	70	70
212298001	KY	Washington	88	84	76	76	73	73	75	69	69
260050003	MI	Allegan	97	94	89	89	88	87	88	85	84
260190003	MI	Benzie	89	84	80	79	77	77	78	74	72
260210014	MI	Berrien	94	90	85	84	82	82	84	79	79
260270003	MI	Cass	94	90	83	83	81	81	83	78	78
260370001	MI	Clinton	74	71	69	68	67	66	67	65	64
260490021	MI	Genesee	82	79	75	74	73	73	74	71	71
260630007	MI	Huron	83	80	75	75	73	73	74	71	70
260650012	MI	Ingham	84	80	78	78	76	76	77	74	73
260770906	MI	Kalamazoo	86	83	77	76	74	74	76	71	71
260812001	MI	Kent	89	86	83	81	80	79	80	76	75
260910007	MI	Lenawee	86	82	77	77	76	75	76	74	73
260990009	MI	Macomb	93	89	84	83	83	82	81	81	79
261018001	MI	Manistee	82	77	73	72	70	69	71	67	66
261050006	MI	Mason	96	91	86	85	84	83	84	80	78
261070901	MI	Mecosta	81	78	73	73	71	71	72	68	67

261210039	MI	Muskegon	101	98	94	93	91	91	92	88	87
261250001	MI	Oakland	81	78	73	72	72	72	71	71	69
261390005	MI	Ottawa	84	81	77	76	76	75	75	73	72
261430901	MI	Roscommon	72	69	64	64	62	61	63	59	58
261470030	MI	St. Clair	94	90	85	84	84	83	83	81	79
261578001	MI	Tuscola	80	77	73	72	71	71	72	69	68
261618001	MI	Washtenaw	84	81	75	75	73	73	74	72	71
261630019	MI	Wayne	90	85	81	80	80	79	79	79	77
290990012	MO	Jefferson	97	95	86	85	83	83	85	80	79
291370001	MO	Monroe	84	76	72	71	67	67	70	62	61
291831002	MO	St. Charles	104	100	93	92	90	90	91	86	85
291860005	MO	Ste. Genevieve	95	91	81	80	78	77	80	74	73
291897002	MO	St. Louis	92	91	82	82	80	80	81	78	76
370210030	NC	Buncombe	72	72	60	60	59	59	60	58	58
370870036	NC	Haywood	81	79	73	73	68	68	73	64	65
371138001	NC	Macon	69	66	54	54	53	53	54	54	54
371730002	NC	Swain	65	63	55	55	53	54	55	52	52
390030002	OH	Allen	91	84	77	76	75	75	75	73	72
390171004	OH	Butler	94	90	83	82	80	79	81	77	75
390230003	OH	Clark	94	89	82	82	80	79	81	76	75
390250020	OH	Clermont	90	87	80	80	78	77	79	74	73
390271002	OH	Clinton	97	92	85	84	82	81	83	78	77
390338001	OH	Crawford	75	71	65	65	64	63	64	61	61
390490081	OH	Franklin	87	84	77	76	77	76	74	74	73
390610006	OH	Hamilton	95	92	86	85	83	82	84	79	78
390830002	OH	Knox	90	86	79	78	77	77	77	75	73
390870011	OH	Lawrence	82	79	71	70	69	69	70	67	67
390890005	OH	Licking	90	87	79	78	77	76	78	74	73
390911001	OH	Logan	88	84	75	75	73	73	74	70	70
390950034	OH	Lucas	91	87	81	80	80	79	80	78	77
390970007	OH	Madison	92	88	81	80	78	77	79	74	74
391090005	OH	Miami	81	77	70	70	69	68	69	66	65
391130019	OH	Montgomery	93	87	80	79	79	78	78	76	75
391298001	OH	Pickaway	89	85	78	77	74	74	77	70	70
391351001	OH	Preble	86	81	75	74	73	72	74	69	68
391651002	OH	Warren	99	95	89	88	86	85	87	83	81
470010101	TN	Anderson	88	84	76	76	74	74	76	71	71
470090008	TN	Blount	94	91	82	82	79	79	81	75	76
470110004	TN	Bradley	82	79	68	68	67	67	68	65	65
470258001	TN	Claiborne	76	72	62	62	60	60	62	59	59
470310004	TN	Coffee	76	73	65	65	63	63	65	61	61
470370026	TN	Davidson	91	90	81	80	79	79	80	78	77
470418001	TN	DeKalb	74	72	65	65	62	62	64	60	60
470430009	TN	Dickson	95	94	82	82	79	79	81	75	75
470450003	TN	Dyer	83	81	71	71	69	69	71	67	67
470550002	TN	Giles	83	81	70	70	69	69	70	69	69
470630003	TN	Hamblen	83	80	71	71	69	69	71	66	66
470650028	TN	Hamilton	91	87	76	76	74	74	75	73	73
470750002	TN	Haywood	85	83	74	74	72	72	74	70	70
470850020	TN	Humphreys	84	82	72	72	70	70	72	67	67
470890001	TN	Jefferson	94	90	82	82	78	78	82	74	74
470931020	TN	Knox	91	87	81	81	78	78	80	75	75
471050003	TN	Loudon	90	85	76	76	74	74	76	70	70
471131003	TN	Madison	93	90	80	80	78	78	80	75	75
471190106	TN	Maury	77	74	65	65	64	64	65	62	62
471410004	TN	Putnam	76	73	65	65	63	63	65	60	60
471490101	TN	Rutherford	75	73	64	64	62	62	64	61	61
471550101	TN	Sevier	91	87	79	79	75	75	79	71	71
471570021	TN	Shelby	94	92	88	87	86	86	86	84	83
471632003	TN	Sullivan	88	86	77	76	77	76	75	77	75
471650007	TN	Sumner	99	97	89	88	86	86	87	83	82
471870105	TN	Williamson	88	85	74	74	73	72	74	71	71
471890103	TN	Wilson	86	85	76	76	74	74	76	72	72
540110006	WV	Cabell	91	87	79	79	78	78	79	76	76
550090026	WI	Brown	80	75	71	70	68	68	69	64	64
550210015	WI	Columbia	80	77	72	72	69	69	71	65	65
550250041	WI	Dane	76	72	68	68	67	66	67	64	63
550270007	WI	Dodge	75	72	69	68	66	66	68	64	63
550290004	WI	Door	91	86	81	80	77	77	79	73	72
550390006	WI	Fond du Lac	77	74	70	70	68	68	70	66	66
550550002	WI	Jefferson	80	77	74	73	72	71	73	69	68
550590019	WI	Kenosha	97	94	90	89	88	87	88	84	83
550610002	WI	Kewaunee	90	86	81	81	78	78	80	74	74
550710007	WI	Manitowoc	94	90	85	84	81	81	83	77	77
550730012	WI	Marathon	69	67	64	64	62	62	64	60	60
550790085	WI	Milwaukee	96	91	87	86	84	83	86	80	79
550870009	WI	Outagamie	81	79	75	75	73	72	74	70	70
550890009	WI	Ozaukee	97	94	89	88	86	86	87	83	82
551010017	WI	Racine	89	86	82	81	80	79	80	77	76
551050024	WI	Rock	83	78	75	74	73	72	73	70	69
551110007	WI	Sauk	75	72	68	68	66	66	68	64	64
551170004	WI	Sheboygan	89	86	81	81	78	78	80	75	74
551198001	WI	Taylor	68	68	65	65	64	64	65	63	63
551230008	WI	Vernon	67	65	61	61	60	60	61	58	58
551270005	WI	Walworth	83	80	76	75	74	74	75	72	71
551310009	WI	Washington	82	79	75	75	73	73	74	70	70
551330017	WI	Waukesha	78	75	72	71	70	69	70	67	66
551390011	WI	Winnebago	78	75	72	72	70	69	72	67	67



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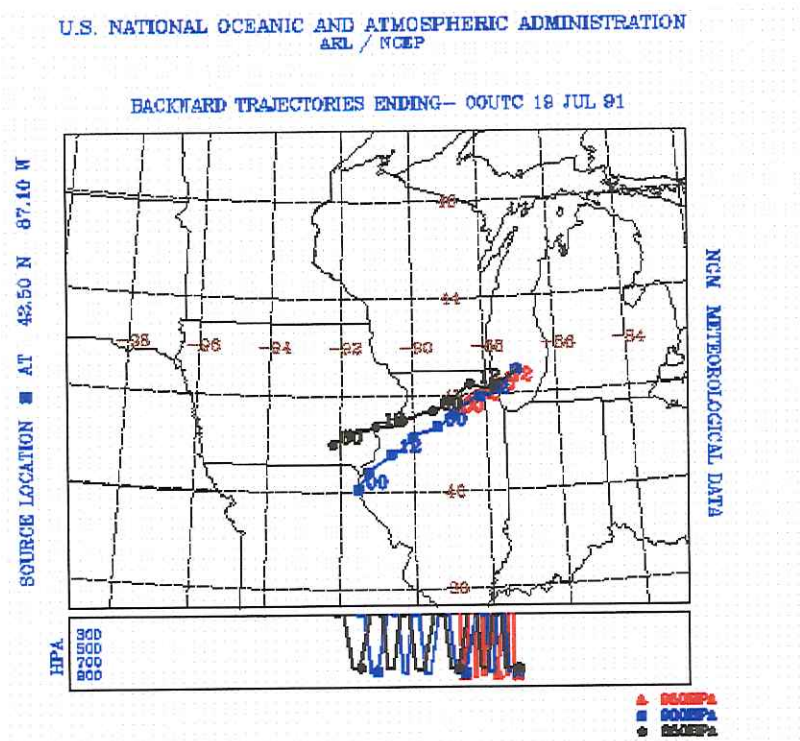

U.S. NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
ARL / NCEP
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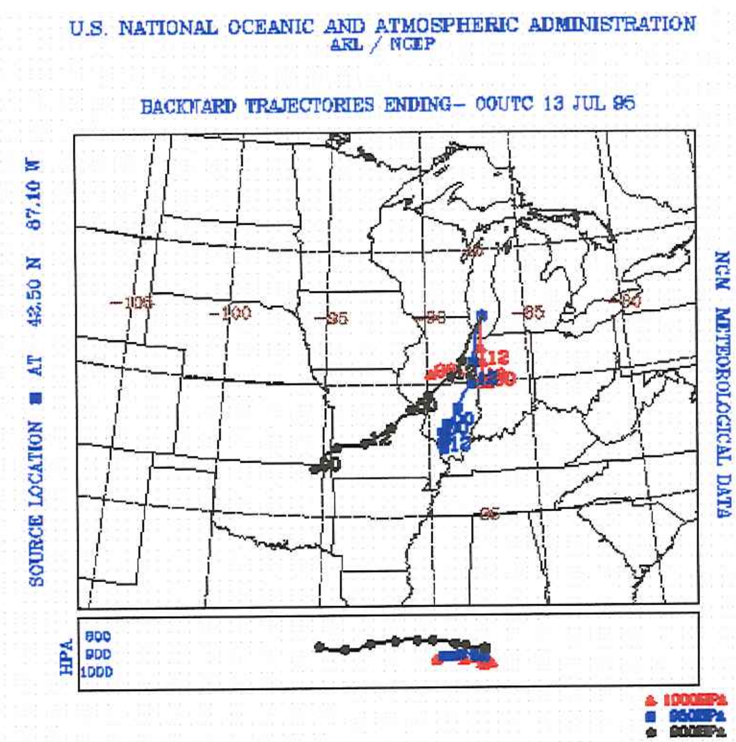
500
700
900



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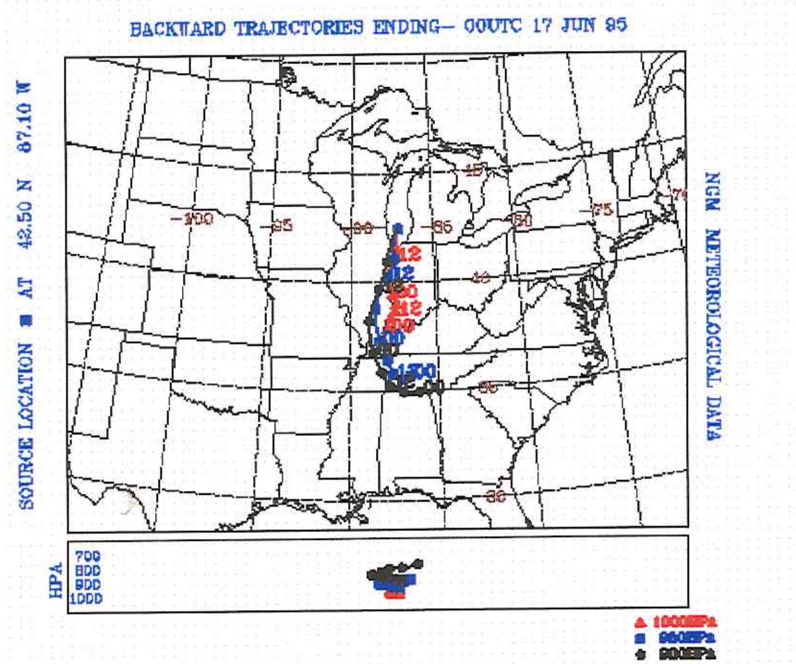

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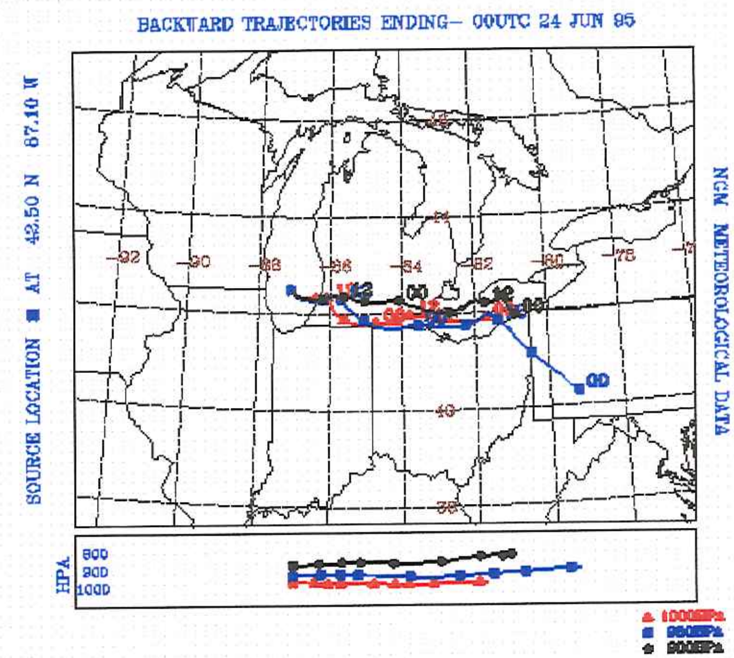

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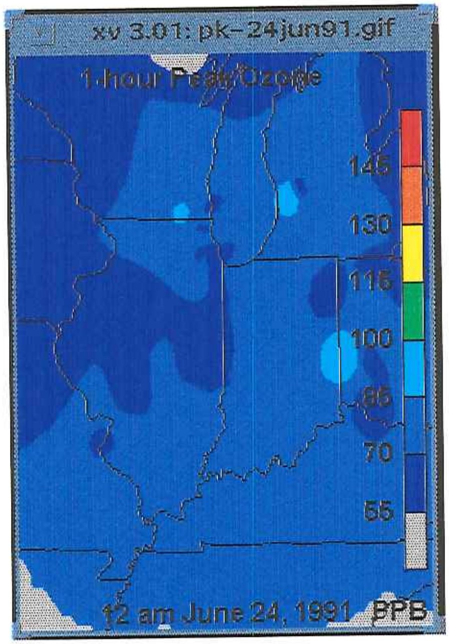
3a



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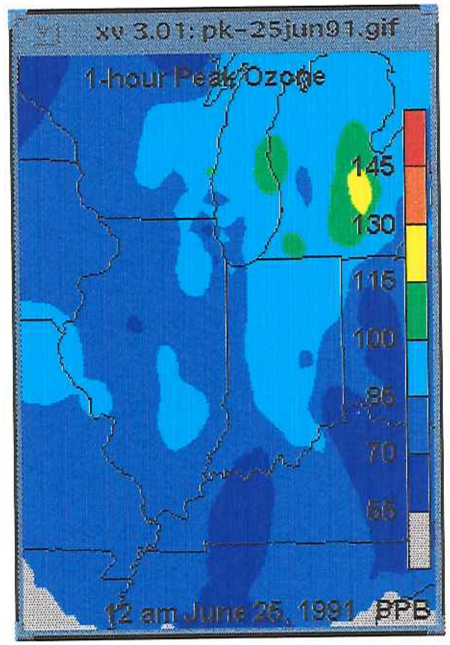
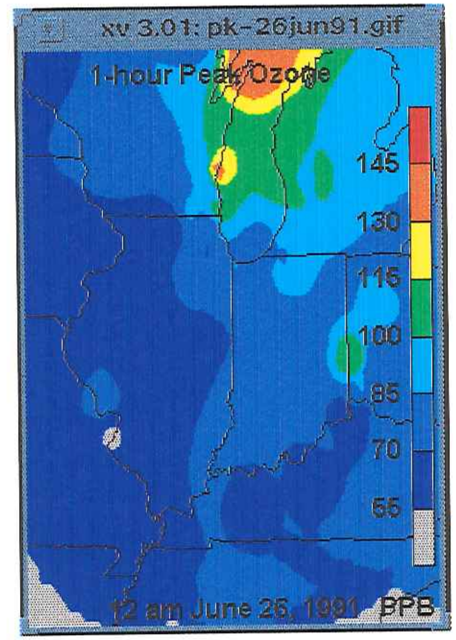
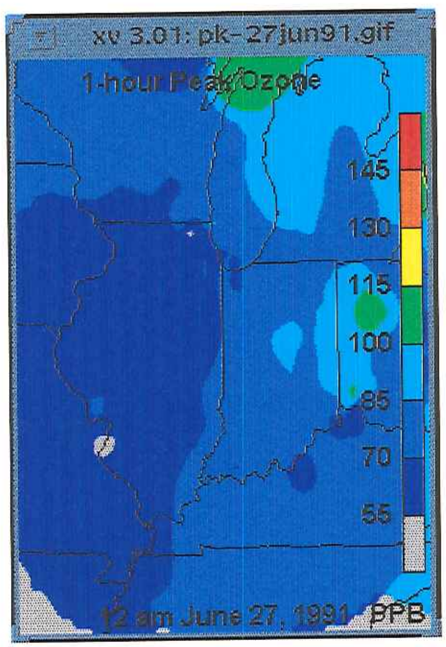
1-hour Peak Ozone
145
130
115
100
85
70
55
12 am June 24, 1991
PPB



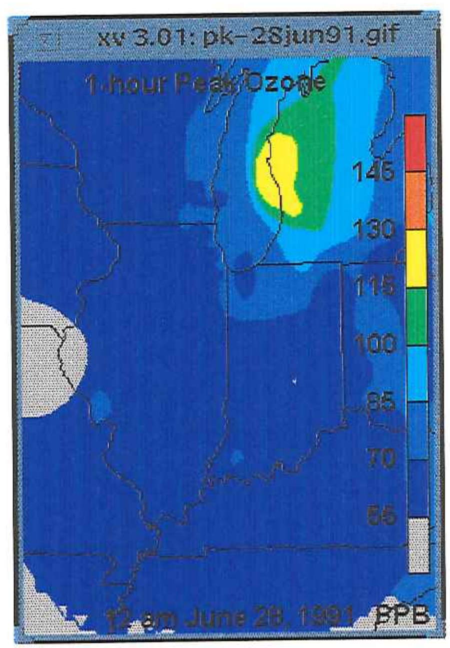
xv 3.01: pk-25jun91.gif
1-hour Peak Ozone
145
130
115
100
85
70
55
12 am June 25, 1991
PPB



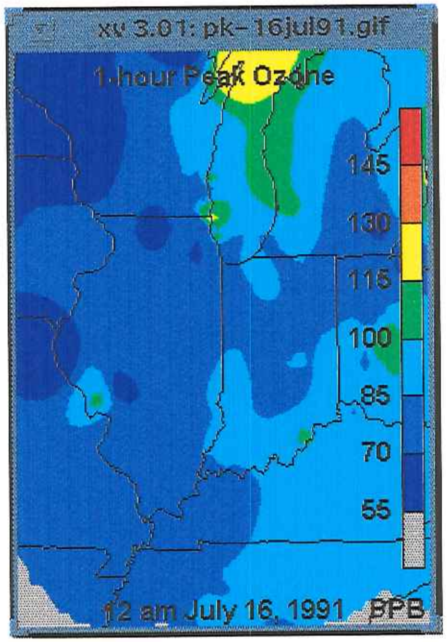
xv 3.01: pk-26jun91.gif
1-hour Peak Ozone
145
130
115
100
85
70
55
12 am June 26, 1991
PPB

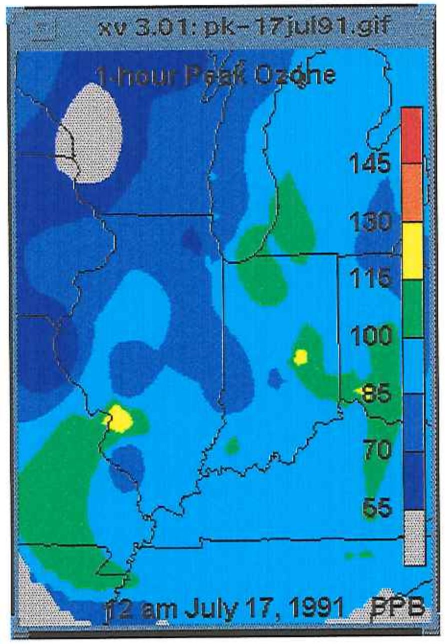


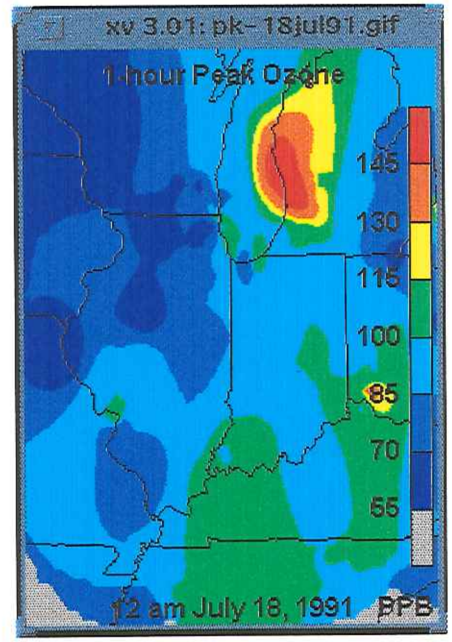
xv 3.01: pk-27jun91.gif
1-hour Peak Ozone
145
130
115
100
85
70
55
12 am June 27, 1991
PPB

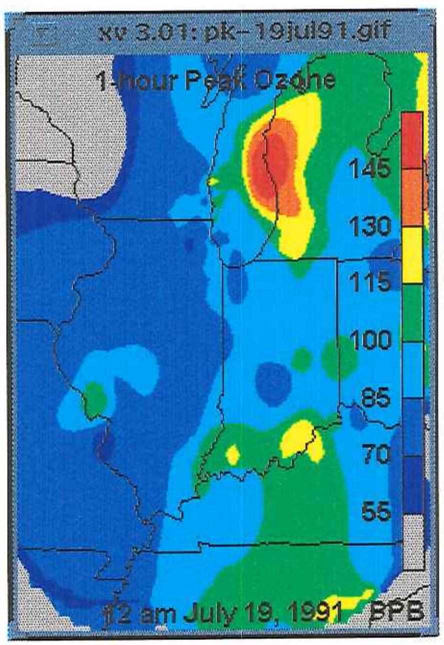


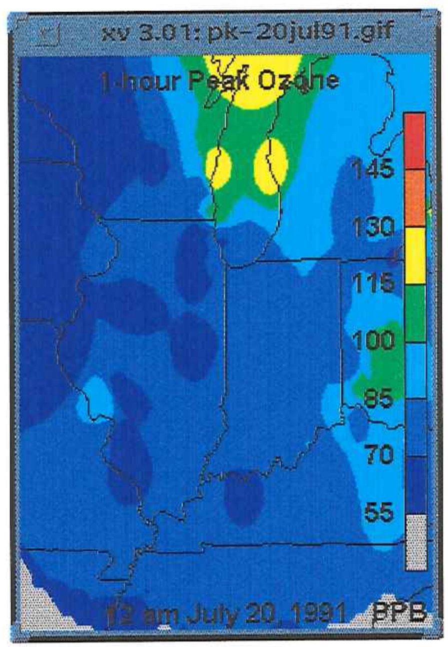
xv 3.01: pk-28jun91.gif
1-hour Peak Ozone
145
130
115
100
85
70
55
12 am June 28, 1991
PPB

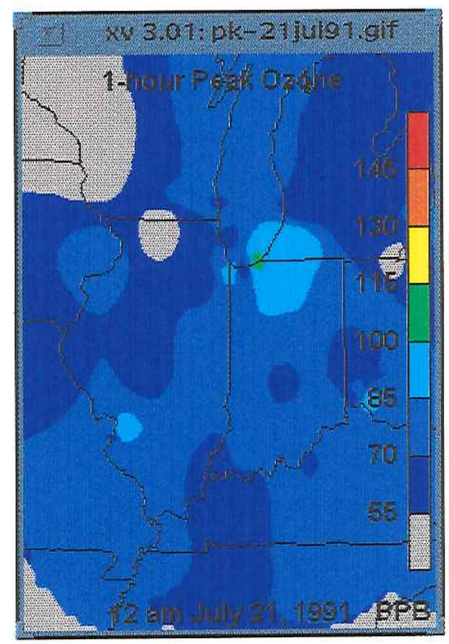

xv 3.01: pk-16jul91.gif
1-hour Peak Ozone
145
130
115
100
85
70
55
12 am July 16, 1991
PPB


xv 3.01: pk-17jul91.gif
1-hour Peak Ozone
145
130
115
100
85
70
55
12 am July 17, 1991
PPB

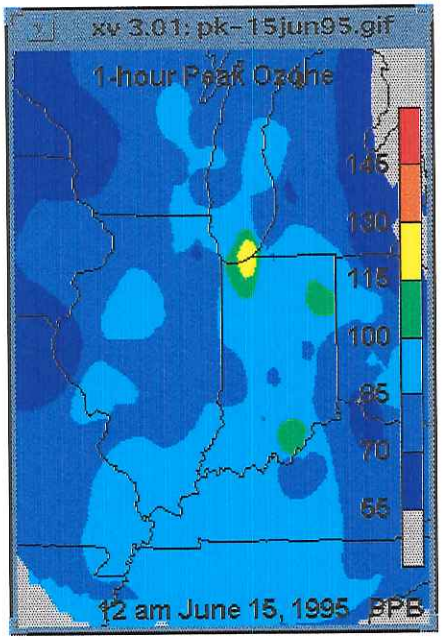

xv 3.01: pk-18jul91.gif
1-hour Peak Ozone
145
130
115
100
85
70
55
12 am July 18, 1991
PPB


xv 3.01: pk-19jul91.gif
1-hour Peak Ozone
145
130
115
100
85
70
55
12 am July 19, 1991
PPB

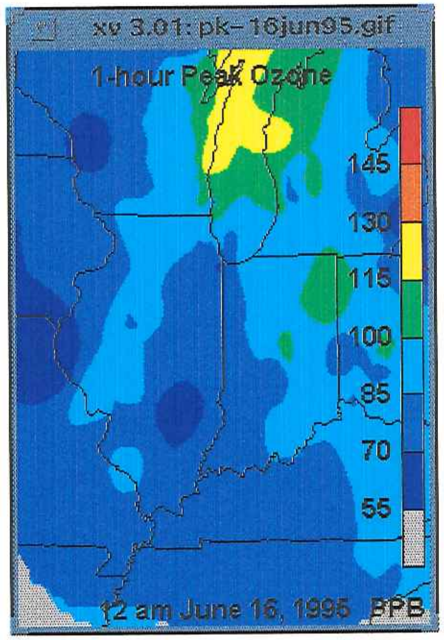

xv 3.01: pk-20jul91.gif
1-hour Peak Ozone
145
130
115
100
85
70
55
12 am July 20, 1991
PPB


xv 3.01: pk-21jul91.gif
1-hour Peak Ozone
145
130
115
100
85
70
55
12 am July 21, 1991
PPB

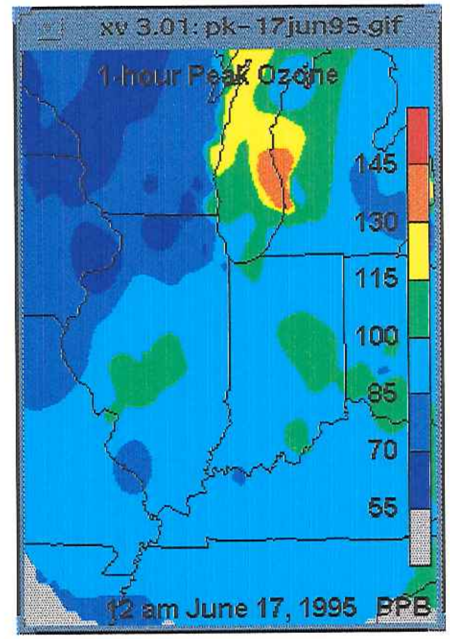
3c



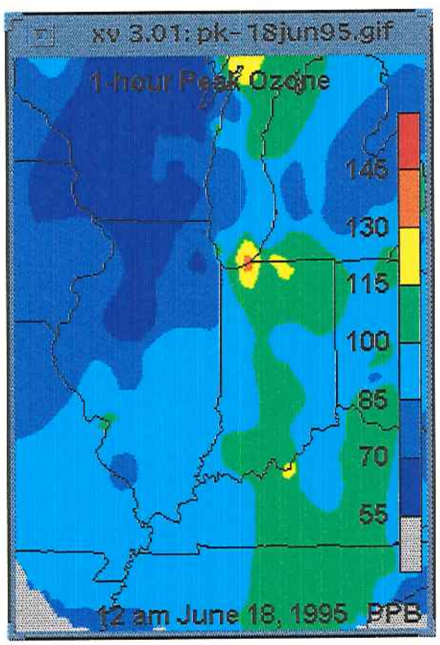
xv 3.01: pk-15jun95.gif
1-hour Peak Ozone
145
130
115
100
85
70
55
12 am June 15, 1995
PPB



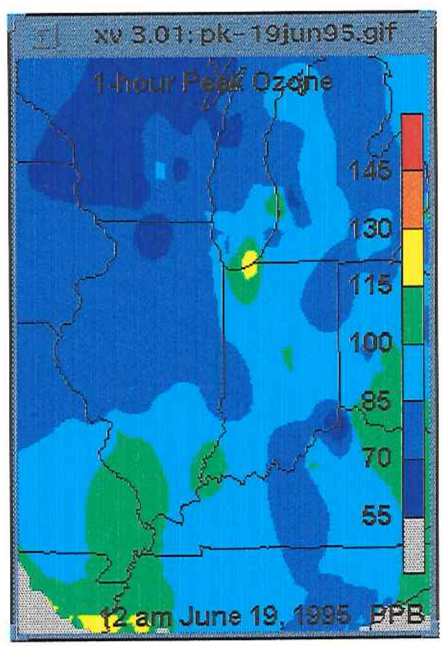
xv 3.01: pk-16jun95.gif
1-hour Peak Ozone
145
130
115
100
85
70
55
12 am June 16, 1995
PPB



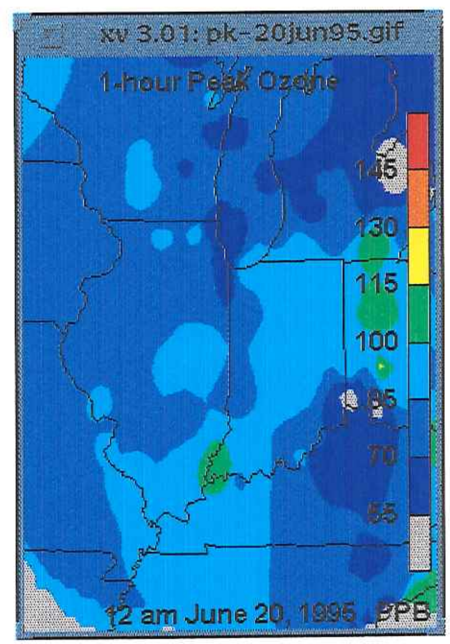
xv 3.01: pk-17jun95.gif
1-hour Peak Ozone
145
130
115
100
85
70
55
12 am June 17, 1995
PPB



xv 3.01: pk-18jun95.gif
1-hour Peak Ozone
145
130
115
100
85
70
55
12 am June 18, 1995
PPB

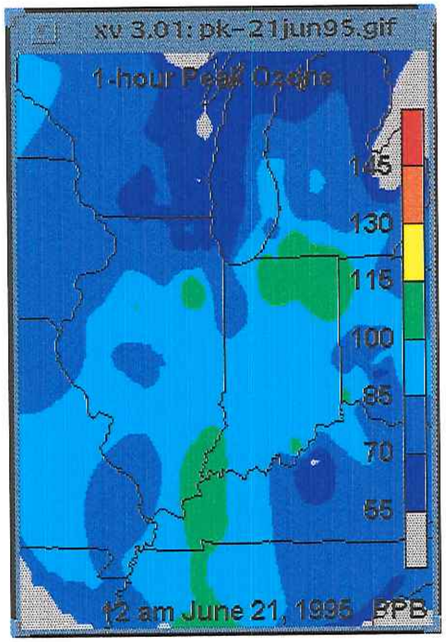


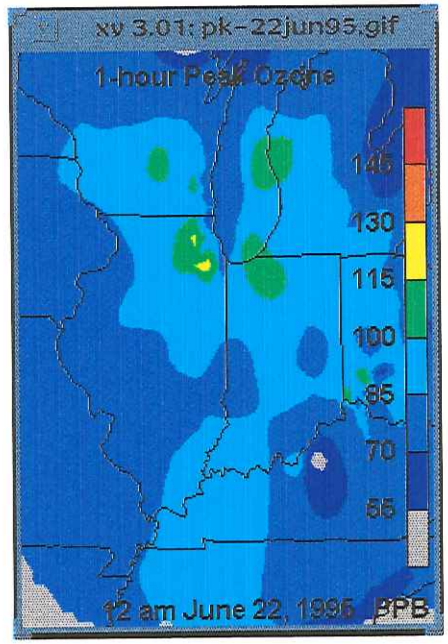
xv 3.01: pk-19jun95.gif
1-hour Peak Ozone
145
130
115
100
85
70
55
12 am June 19, 1995
PPB

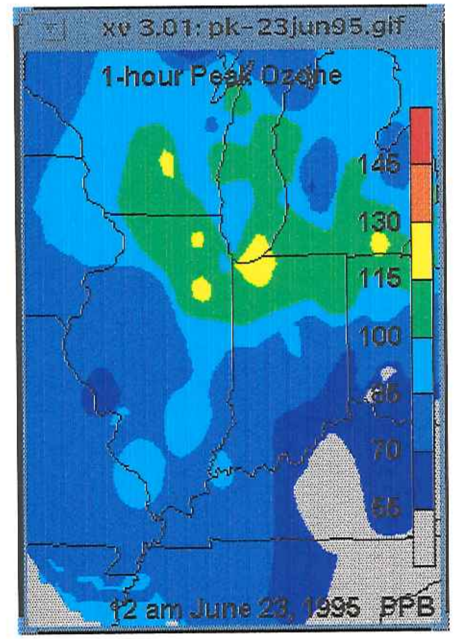


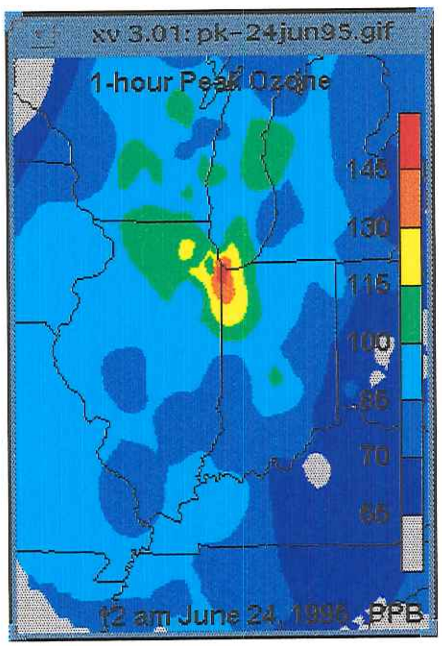
xv 3.01: pk-20jun95.gif
1-hour Peak Ozone
145
130
115
100
85
70
55
12 am June 20, 1995
PPB

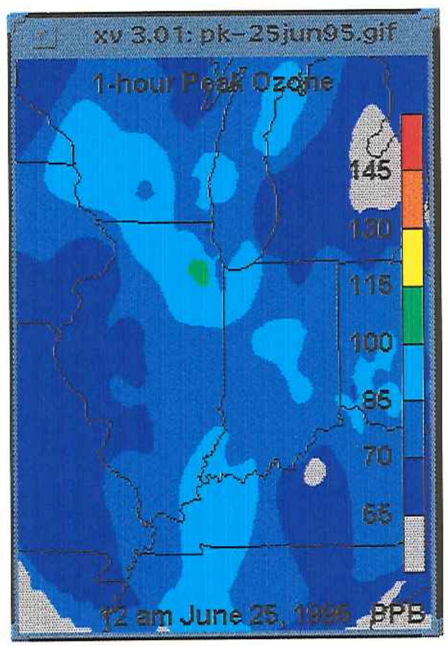
3c (cont.)


xv 3.01: pk-21jun95.gif
1-hour Peak Ozone
145
130
115
100
85
70
55
12 am June 21, 1995
PPB

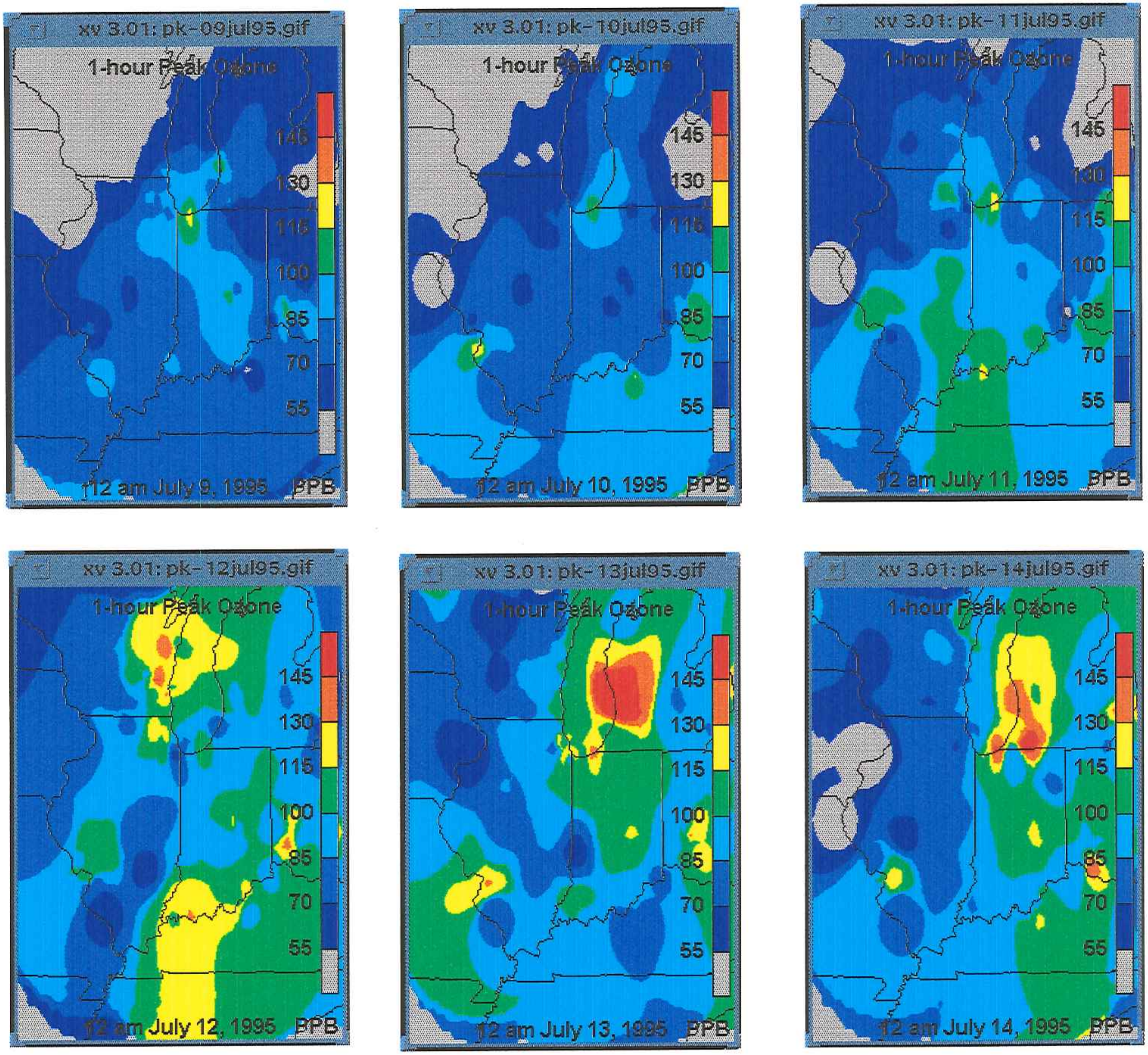

xv 3.01: pk-22jun95.gif
1-hour Peak Ozone
145
130
115
100
85
70
55
12 am June 22, 1995
PPB


xv 3.01: pk-23jun95.gif
1-hour Peak Ozone
145
130
115
100
85
70
55
12 am June 23, 1995
PPB

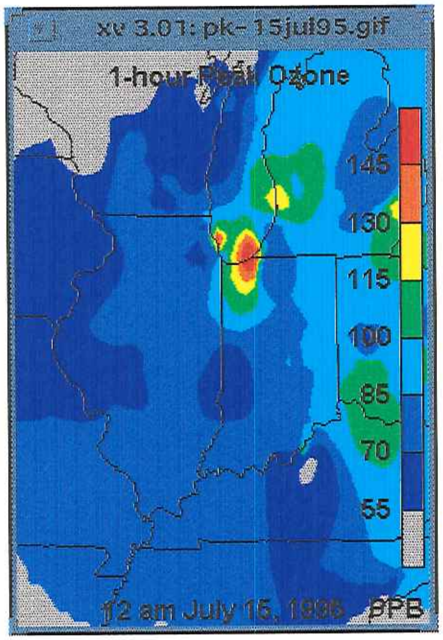

xv 3.01: pk-24jun95.gif
1-hour Peak Ozone
145
130
115
100
85
70
55
12 am June 24, 1995
PPB

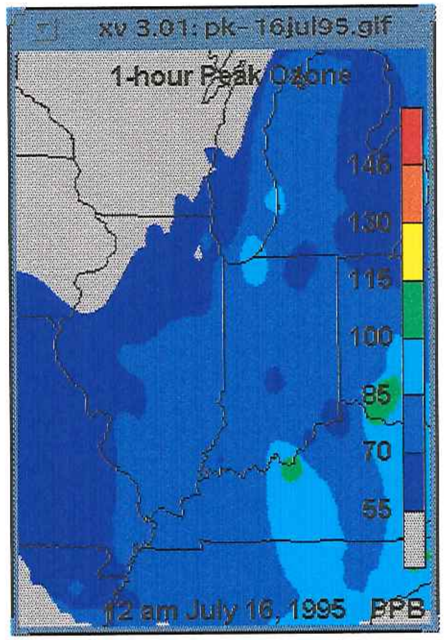

xv 3.01: pk-25jun95.gif
1-hour Peak Ozone
145
130
115
100
85
70
55
12 am June 25, 1995
PPB

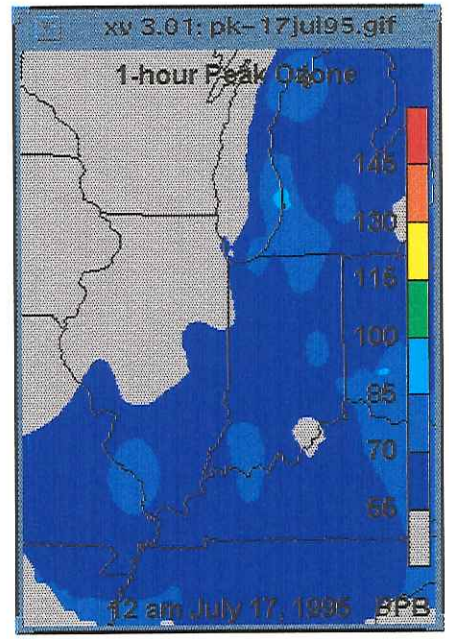
3d

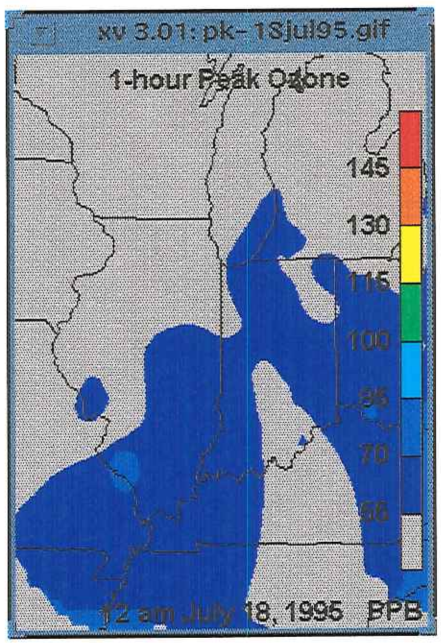

xv 3.01: pk-09jul95.gif
1-hour Peak Ozone
145
130
115
100
85
70
55
12 am July 9, 1995 PPB
xv 3.01: pk-10jul95.gif
1-hour Peak Ozone
145
130
115
100
85
70
55
12 am July 10, 1995 PPB
xv 3.01: pk-11jul95.gif
1-hour Peak Ozone
145
130
115
100
85
70
55
12 am July 11, 1995 PPB
xv 3.01: pk-12jul95.gif
1-hour Peak Ozone
145
130
115
100
85
70
55
12 am July 12, 1995 PPB
xv 3.01: pk-13jul95.gif
1-hour Peak Ozone
145
130
115
100
85
70
55
12 am July 13, 1995 PPB
xv 3.01: pk-14jul95.gif
1-hour Peak Ozone
145
130
115
100
85
70
55
12 am July 14, 1995 PPB

3d (con't.)

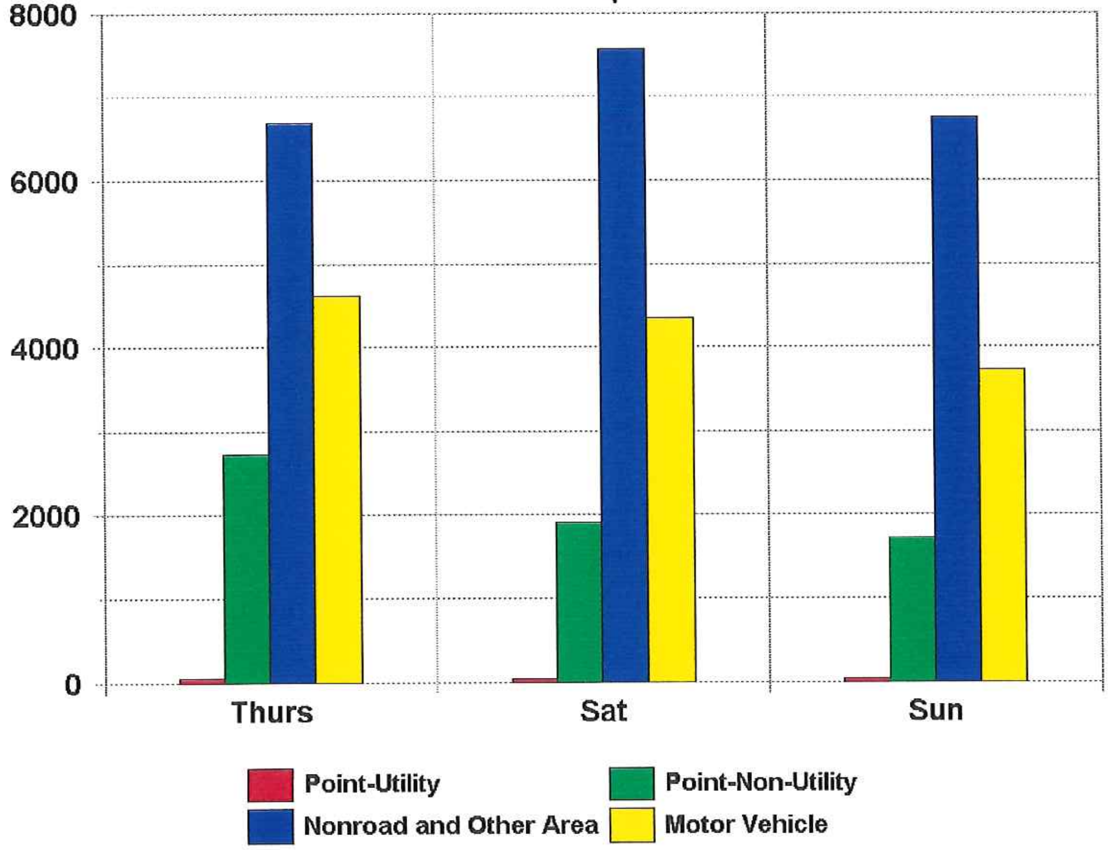

xv 3.01: pk-15jul95.gif
1-hour Peak Ozone
145
130
115
100
85
70
55
12 am July 15, 1995
PPB


xv 3.01: pk-16jul95.gif
1-hour Peak Ozone
145
130
115
100
85
70
55
12 am July 16, 1995
PPB

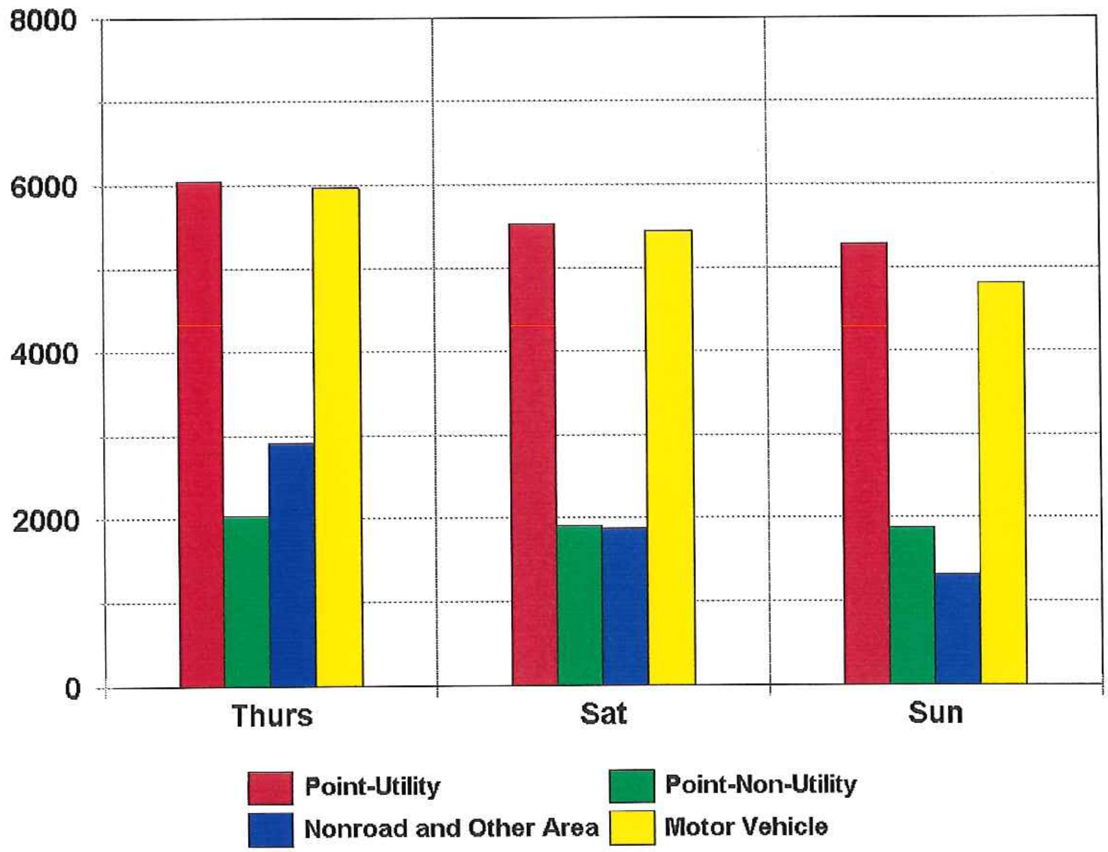

xv 3.01: pk-17jul95.gif
1-hour Peak Ozone
145
130
115
100
85
70
55
12 am July 17, 1995
PPB


xv 3.01: pk-18jul95.gif
1-hour Peak Ozone
145
130
115
100
85
70
55
12 am July 18, 1995
PPB

4

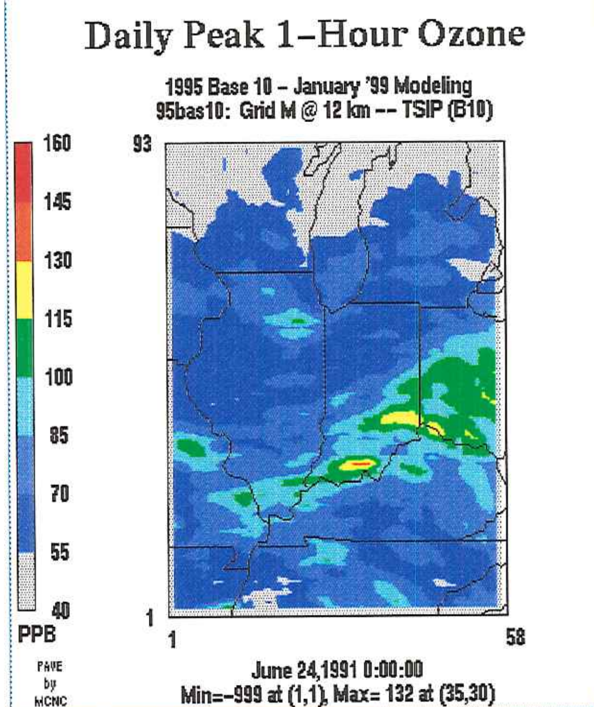


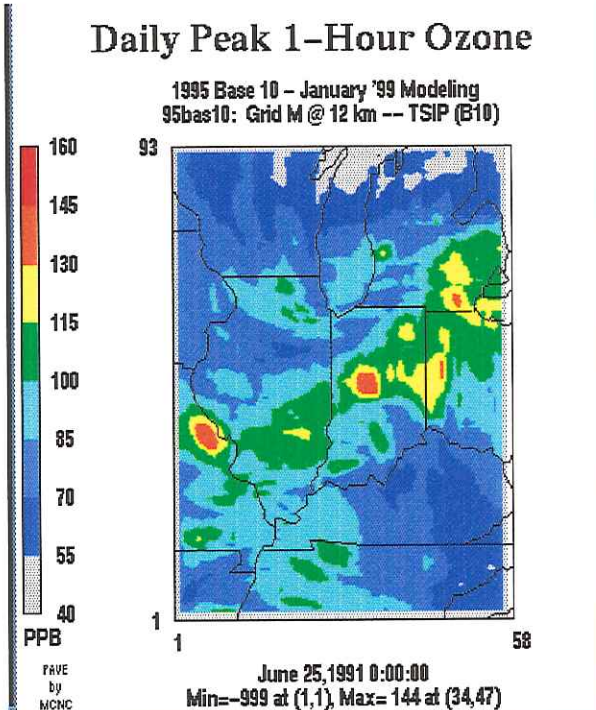
8000
6000
4000
2000
0
Thurs
Sat
Sun
Point-Utility
Point-Non-Utility
Nonroad and Other Area
Motor Vehicle

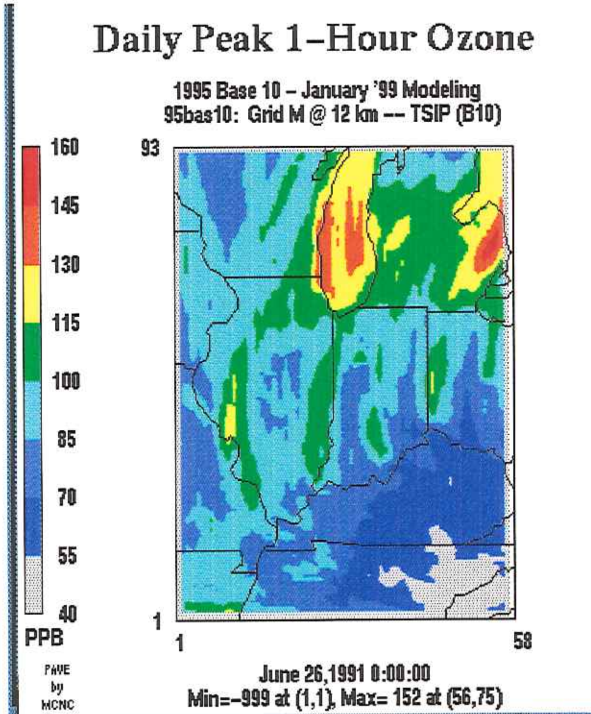


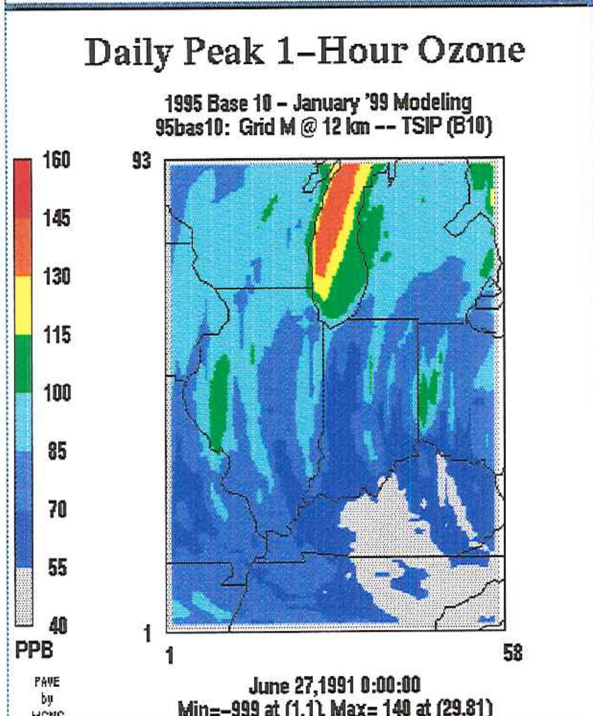
8000
6000
4000
2000
0
Thurs
Sat
Sun
Point-Utility
Point-Non-Utility
Nonroad and Other Area
Motor Vehicle

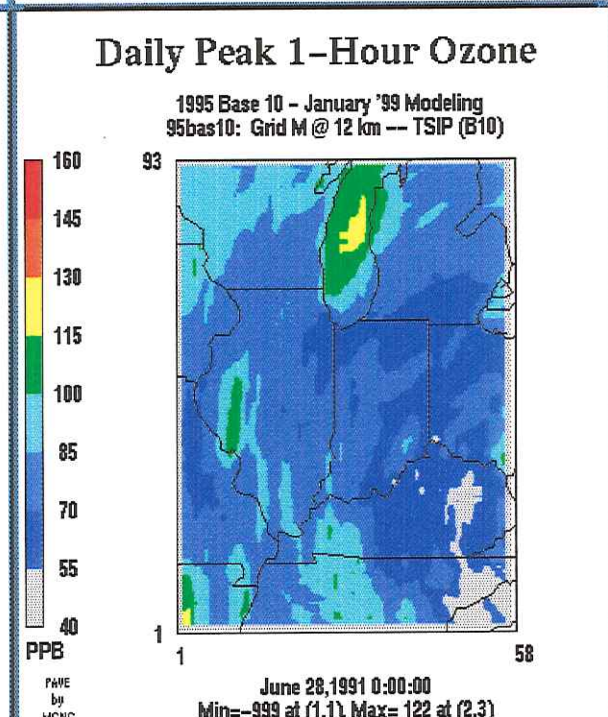
5a


Daily Peak 1-Hour Ozone
1995 Base 10 - January '99 Modeling
95bas10: Grid M @ 12 km -- TSIP (B10)
160
145
130
115
100
85
70
55
40
PPB
93
1
1
58
PAVE by MCNC
June 24,1991 0:00:00
Min=-999 at (1,1), Max= 132 at (35,30)

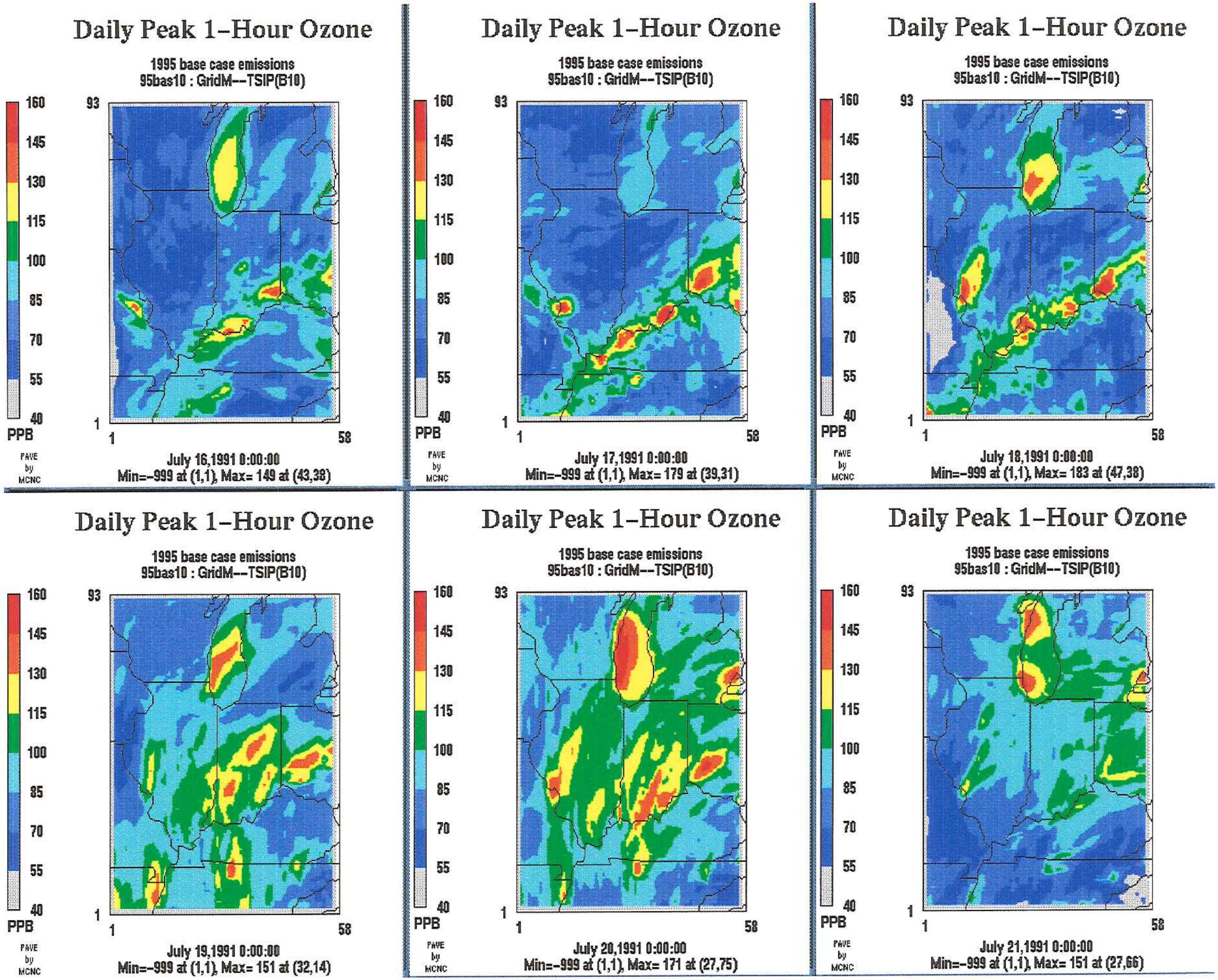

Daily Peak 1-Hour Ozone
1995 Base 10 - January '99 Modeling
95bas10: Grid M @ 12 km -- TSIP (B10)
160
145
130
115
100
85
70
55
40
PPB
93
1
1
58
PAVE by MCNC
June 25,1991 0:00:00
Min=-999 at (1,1), Max= 144 at (34,47)


Daily Peak 1-Hour Ozone
1995 Base 10 - January '99 Modeling
95bas10: Grid M @ 12 km -- TSIP (B10)
160
145
130
115
100
85
70
55
40
PPB
93
1
1
58
PAVE by MCNC
June 26,1991 0:00:00
Min=-999 at (1,1), Max= 152 at (56,75)

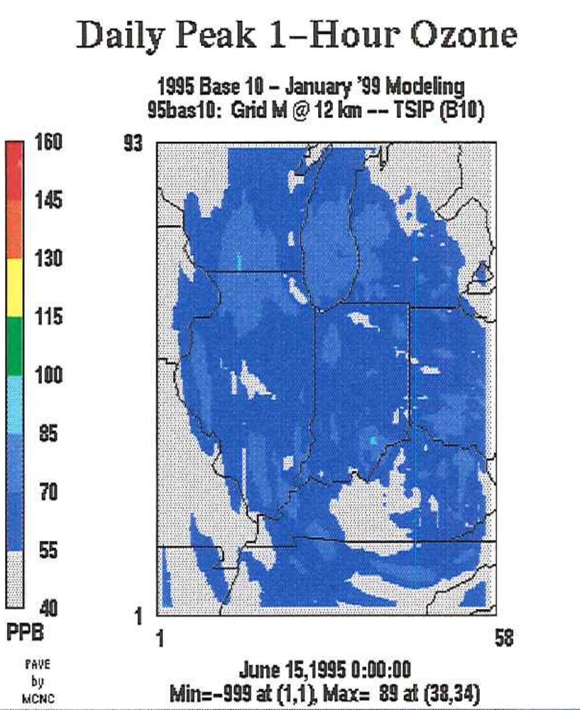

Daily Peak 1-Hour Ozone
1995 Base 10 - January '99 Modeling
95bas10: Grid M @ 12 km -- TSIP (B10)
160
145
130
115
100
85
70
55
40
PPB
93
1
1
58
PAVE by MCNC
June 27,1991 0:00:00
Min=-999 at (1,1), Max= 140 at (29,81)

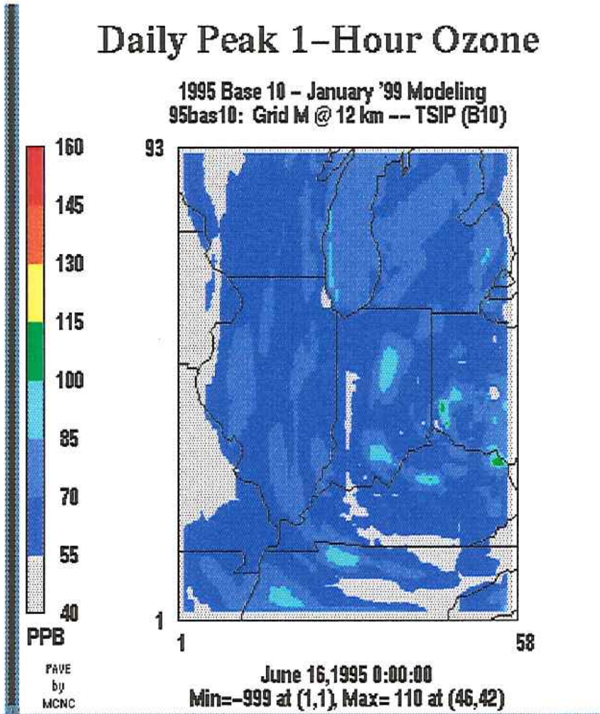

Daily Peak 1-Hour Ozone
1995 Base 10 - January '99 Modeling
95bas10: Grid M @ 12 km -- TSIP (B10)
160
145
130
115
100
85
70
55
40
PPB
93
1
1
58
PAVE by MCNC
June 28,1991 0:00:00
Min=-999 at (1,1), Max= 122 at (2,3)

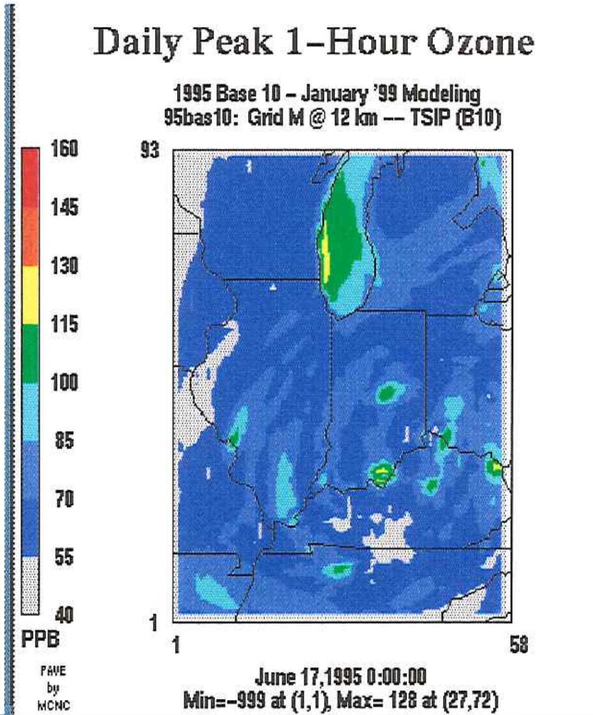
5b

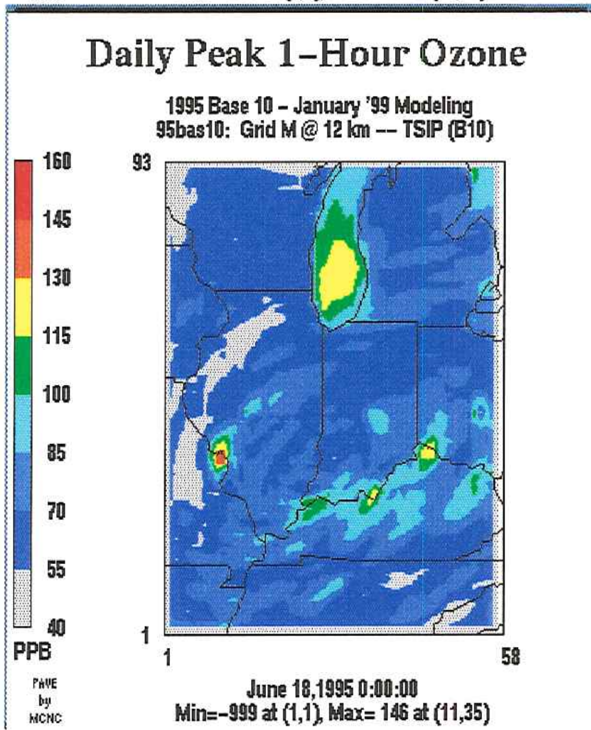

Daily Peak 1-Hour Ozone
1995 base case emissions
95bas10 : GridM--TSIP(B10)
160
145
130
115
100
85
70
55
40
PPB
PAVE by MCNC
93
1
1
58
July 16,1991 0:00:00
Min=-999 at (1,1), Max= 149 at (43,38)
Daily Peak 1-Hour Ozone
1995 base case emissions
95bas10 : GridM--TSIP(B10)
July 17,1991 0:00:00
Min=-999 at (1,1), Max= 179 at (39,31)
Daily Peak 1-Hour Ozone
1995 base case emissions
95bas10 : GridM--TSIP(B10)
July 18,1991 0:00:00
Min=-999 at (1,1), Max= 183 at (47,38)
Daily Peak 1-Hour Ozone
1995 base case emissions
95bas10 : GridM--TSIP(B10)
July 19,1991 0:00:00
Min=-999 at (1,1), Max= 151 at (32,14)
Daily Peak 1-Hour Ozone
1995 base case emissions
95bas10 : GridM--TSIP(B10)
July 20,1991 0:00:00
Min=-999 at (1,1), Max= 171 at (27,75)
Daily Peak 1-Hour Ozone
1995 base case emissions
95bas10 : GridM--TSIP(B10)
July 21,1991 0:00:00
Min=-999 at (1,1), Max= 151 at (27,66)

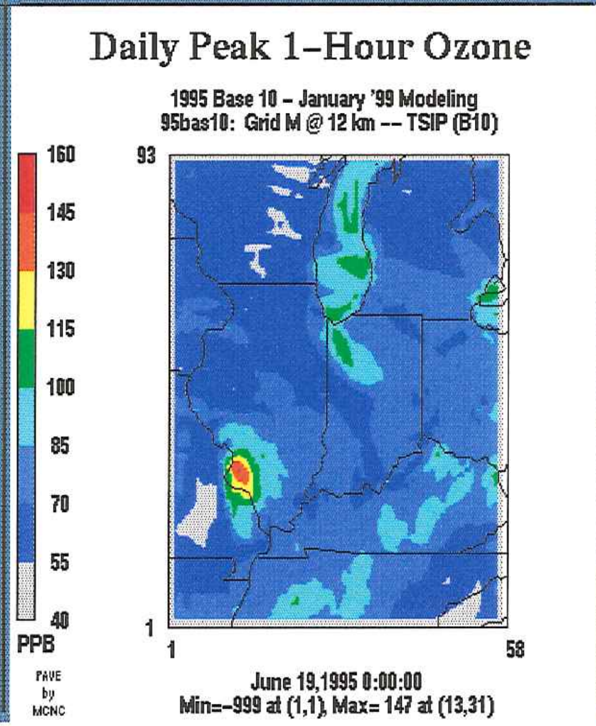
5c

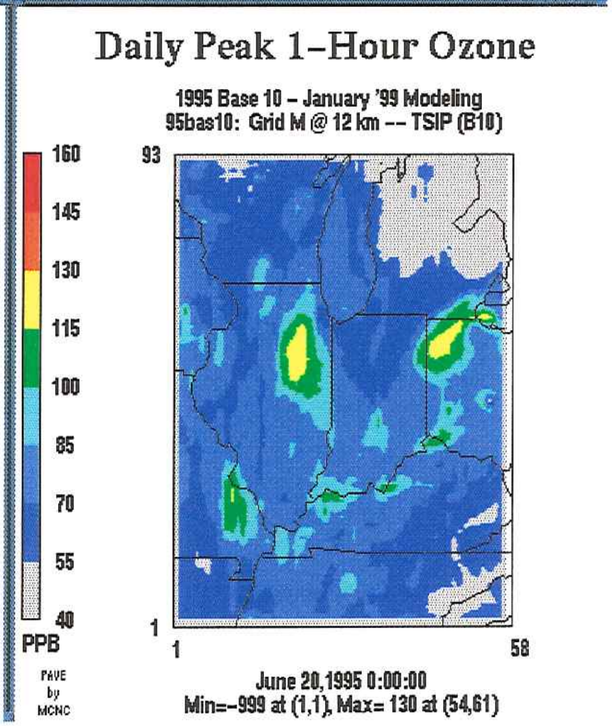

Daily Peak 1-Hour Ozone
1995 Base 10 – January '99 Modeling
95bas10: Grid M @ 12 km -- TSIP (B10)
160
145
130
115
100
85
70
55
40
PPB
PAVE by MCNC
93
1
1
58
June 15,1995 0:00:00
Min=-999 at (1,1), Max= 89 at (38,34)


Daily Peak 1-Hour Ozone
1995 Base 10 – January '99 Modeling
95bas10: Grid M @ 12 km -- TSIP (B10)
160
145
130
115
100
85
70
55
40
PPB
PAVE by MCNC
93
1
1
58
June 16,1995 0:00:00
Min=-999 at (1,1), Max= 110 at (46,42)

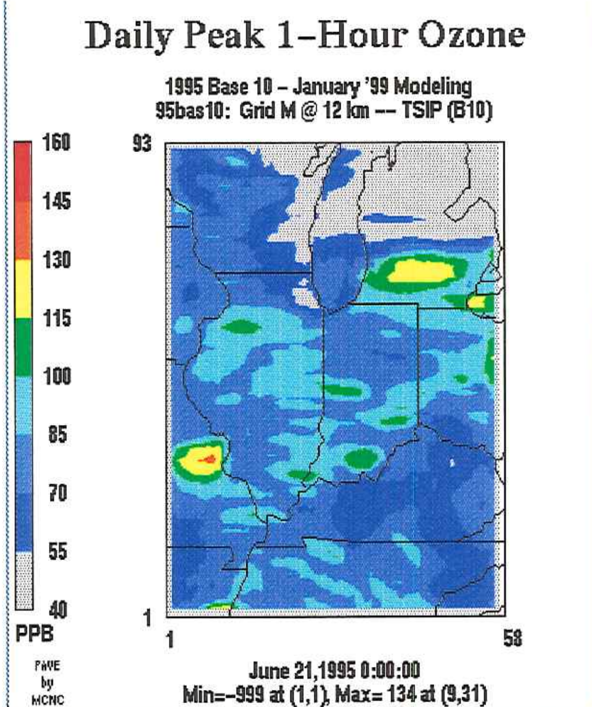

Daily Peak 1-Hour Ozone
1995 Base 10 – January '99 Modeling
95bas10: Grid M @ 12 km -- TSIP (B10)
160
145
130
115
100
85
70
55
40
PPB
PAVE by MCNC
93
1
1
58
June 17,1995 0:00:00
Min=-999 at (1,1), Max= 128 at (27,72)

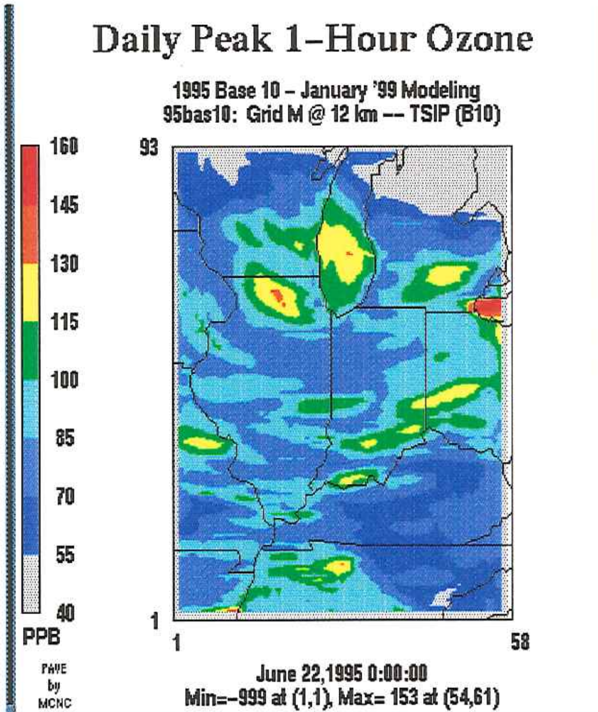

Daily Peak 1-Hour Ozone
1995 Base 10 – January '99 Modeling
95bas10: Grid M @ 12 km -- TSIP (B10)
160
145
130
115
100
85
70
55
40
PPB
PAVE by MCNC
93
1
1
58
June 18,1995 0:00:00
Min=-999 at (1,1), Max= 146 at (11,35)

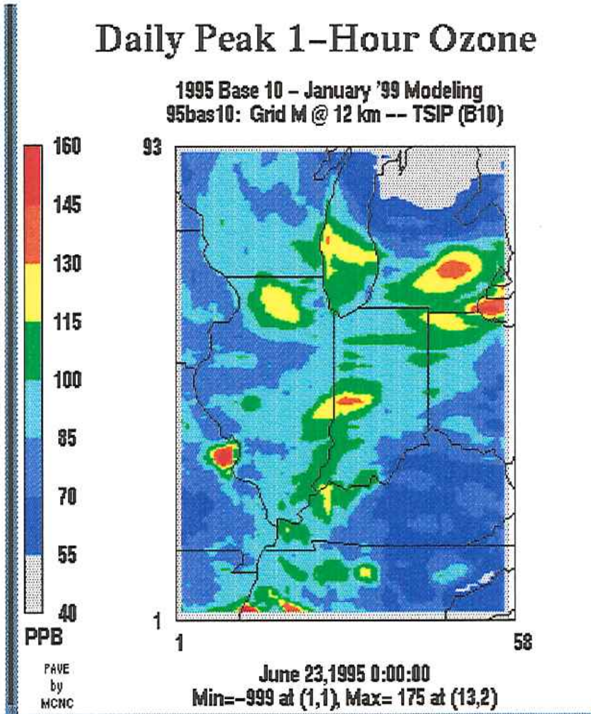

Daily Peak 1-Hour Ozone
1995 Base 10 – January '99 Modeling
95bas10: Grid M @ 12 km -- TSIP (B10)
160
145
130
115
100
85
70
55
40
PPB
PAVE by MCNC
93
1
1
58
June 19,1995 0:00:00
Min=-999 at (1,1), Max= 147 at (13,31)

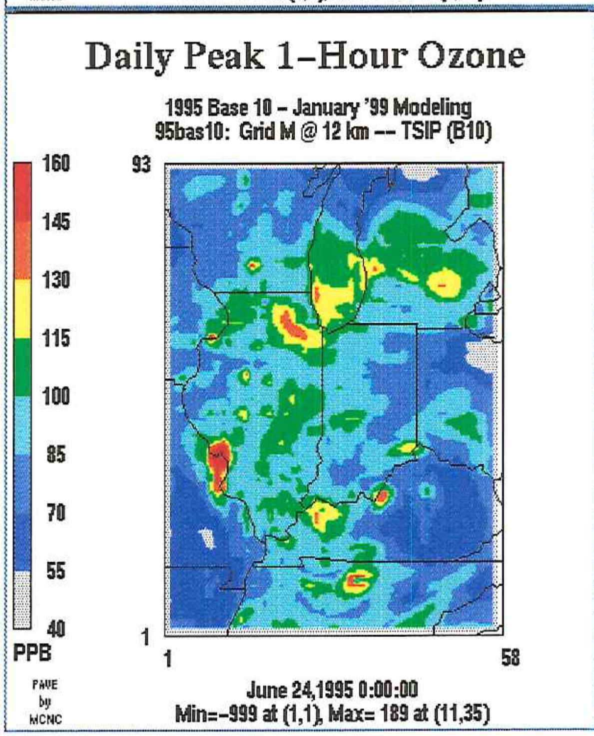

Daily Peak 1-Hour Ozone
1995 Base 10 – January '99 Modeling
95bas10: Grid M @ 12 km -- TSIP (B10)
160
145
130
115
100
85
70
55
40
PPB
PAVE by MCNC
93
1
1
58
June 20,1995 0:00:00
Min=-999 at (1,1), Max= 130 at (54,61)

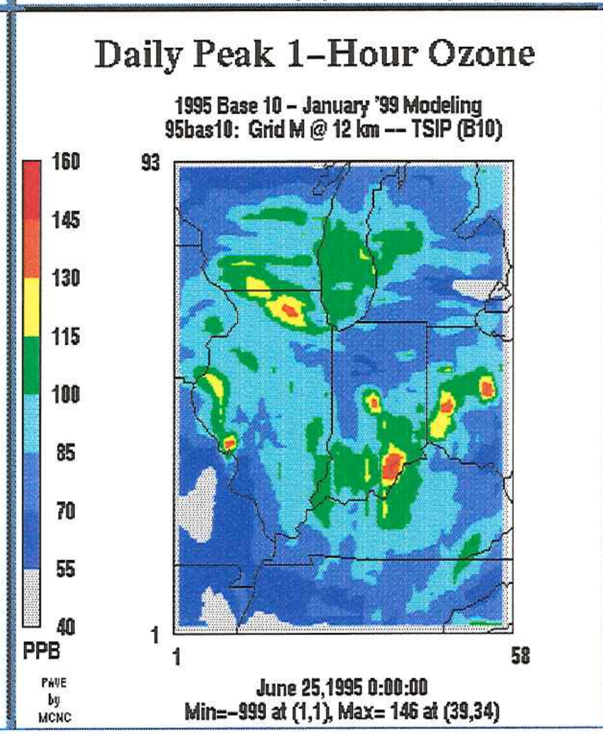
5c (cont.)


Daily Peak 1-Hour Ozone
1995 Base 10 – January '99 Modeling
95bas10: Grid M @ 12 km -- TSIP (B10)
160
145
130
115
100
85
70
55
40
PPB
93
1
1
58
PAVE by MCNC
June 21,1995 0:00:00
Min=-999 at (1,1), Max= 134 at (9,31)


Daily Peak 1-Hour Ozone
1995 Base 10 – January '99 Modeling
95bas10: Grid M @ 12 km -- TSIP (B10)
160
145
130
115
100
85
70
55
40
PPB
93
1
1
58
PAVE by MCNC
June 22,1995 0:00:00
Min=-999 at (1,1), Max= 153 at (54,61)

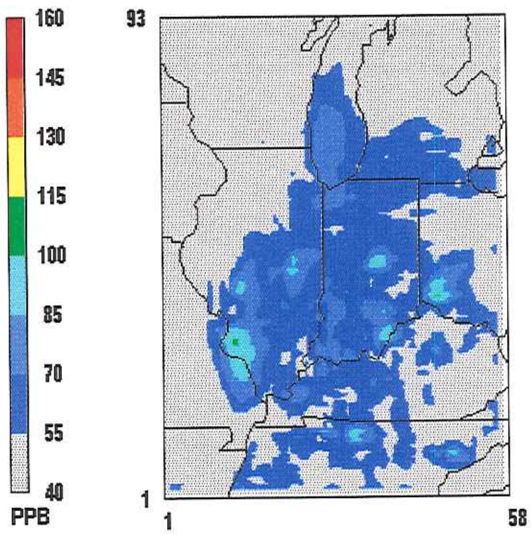

Daily Peak 1-Hour Ozone
1995 Base 10 – January '99 Modeling
95bas10: Grid M @ 12 km -- TSIP (B10)
160
145
130
115
100
85
70
55
40
PPB
93
1
1
58
PAVE by MCNC
June 23,1995 0:00:00
Min=-999 at (1,1), Max= 175 at (13,2)


Daily Peak 1-Hour Ozone
1995 Base 10 – January '99 Modeling
95bas10: Grid M @ 12 km -- TSIP (B10)
160
145
130
115
100
85
70
55
40
PPB
93
1
1
58
PAVE by MCNC
June 24,1995 0:00:00
Min=-999 at (1,1), Max= 189 at (11,35)


Daily Peak 1-Hour Ozone
1995 Base 10 – January '99 Modeling
95bas10: Grid M @ 12 km -- TSIP (B10)
160
145
130
115
100
85
70
55
40
PPB
93
1
1
58
PAVE by MCNC
June 25,1995 0:00:00
Min=-999 at (1,1), Max= 146 at (39,34)

Daily Peak 1-Hour Ozone

1995 Base 10 – January '99 Modeling
95bas10: Grid M @ 12 km -- TSIP (B10)

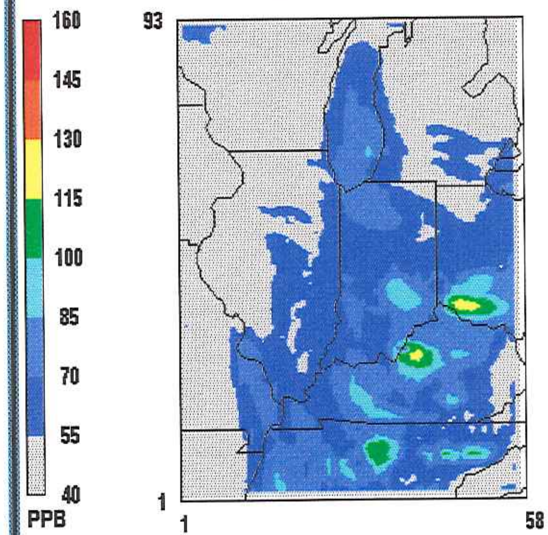


PAVE by MCNC

July 9,1995 0:00:00
Min=-999 at (1,1), Max= 102 at (47,39)

Daily Peak 1-Hour Ozone

1995 Base 10 – January '99 Modeling
95bas10: Grid M @ 12 km -- TSIP (B10)

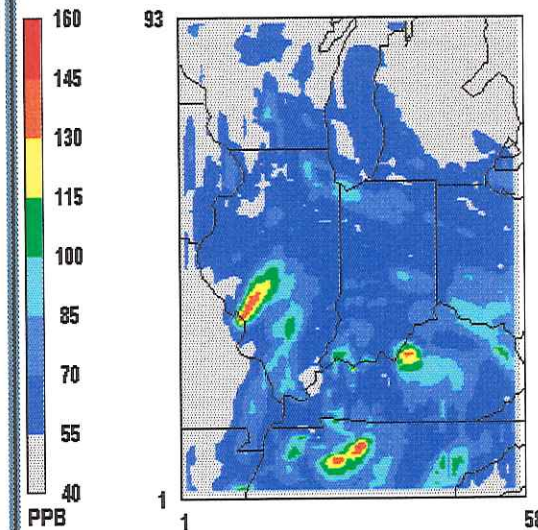


PAVE by MCNC

July 10,1995 0:00:00
Min=-999 at (1,1), Max= 123 at (48,38)

Daily Peak 1-Hour Ozone

1995 Base 10 – January '99 Modeling
95bas10: Grid M @ 12 km -- TSIP (B10)

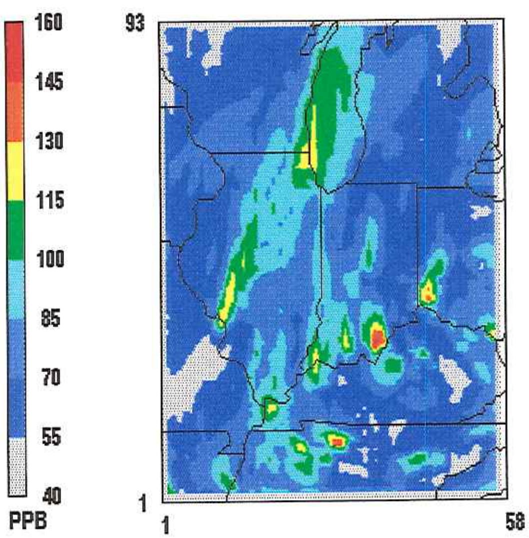


PAVE by MCNC

July 11,1995 0:00:00
Min=-999 at (1,1), Max= 145 at (31,10)

Daily Peak 1-Hour Ozone

1995 Base 10 – January '99 Modeling
95bas10: Grid M @ 12 km -- TSIP (B10)

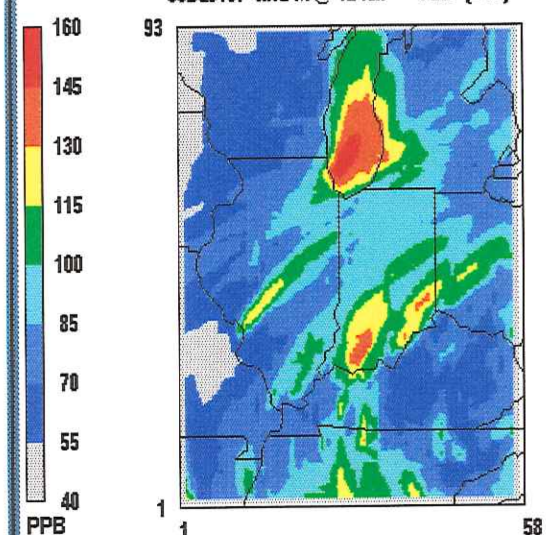


PAVE by MCNC

July 12,1995 0:00:00
Min=-999 at (1,1), Max= 149 at (37,30)

Daily Peak 1-Hour Ozone

1995 Base 10 – January '99 Modeling
95bas10: Grid M @ 12 km -- TSIP (B10)

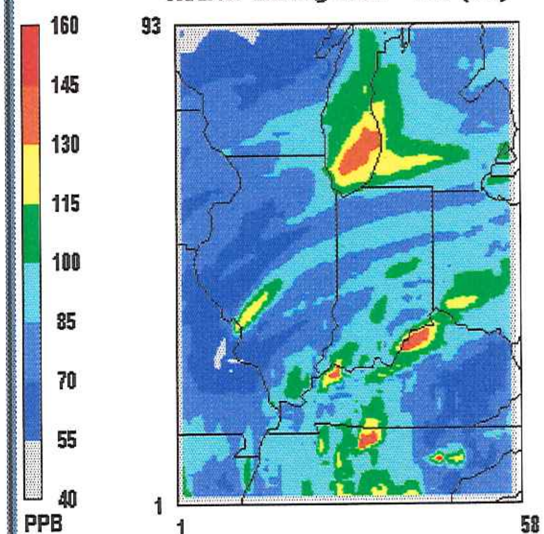


PAVE by MCNC

July 13,1995 0:00:00
Min=-999 at (1,1), Max= 157 at (28,66)

Daily Peak 1-Hour Ozone

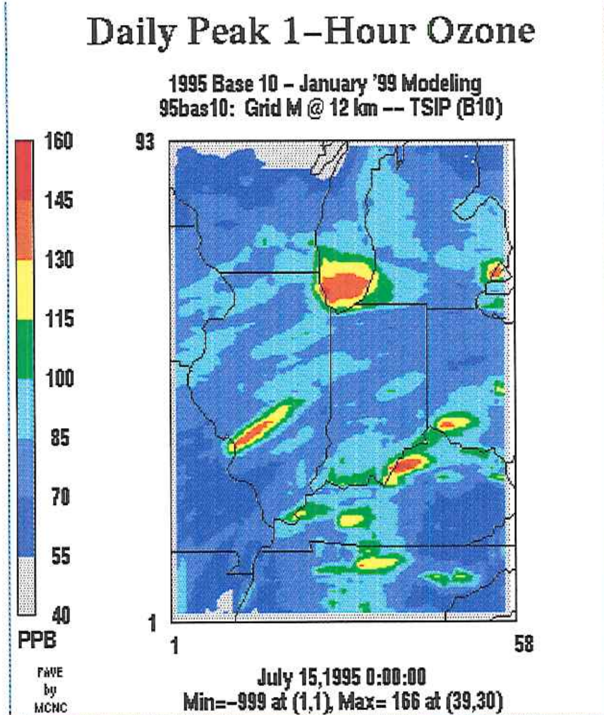
1995 Base 10 – January '99 Modeling
95bas10: Grid M @ 12 km -- TSIP (B10)



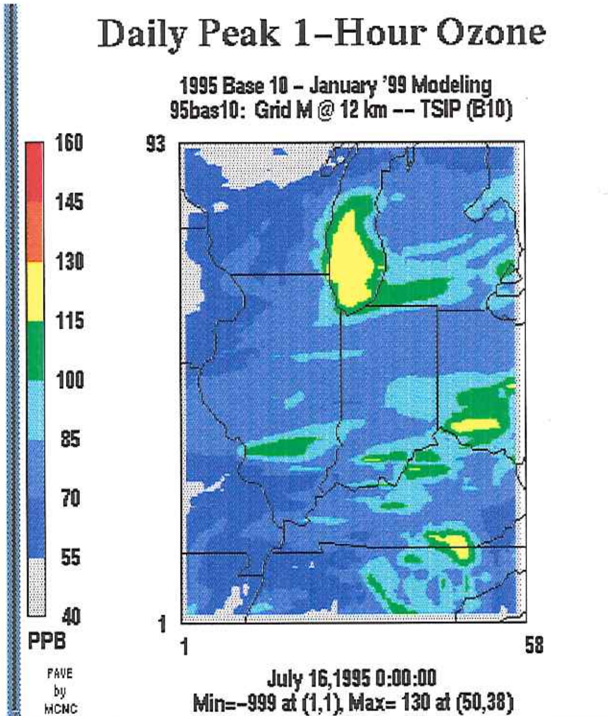
PAVE by MCNC

July 14,1995 0:00:00
Min=-999 at (1,1), Max= 153 at (32,12)

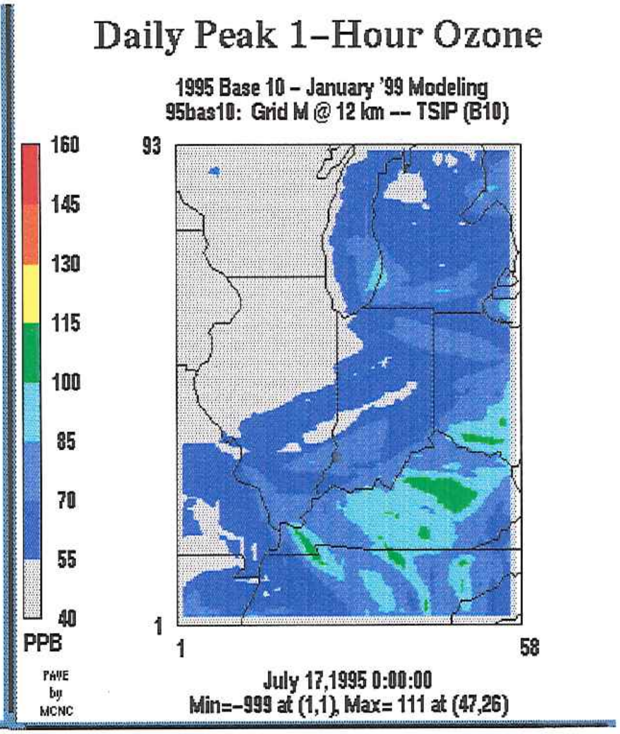
5d (cont.)



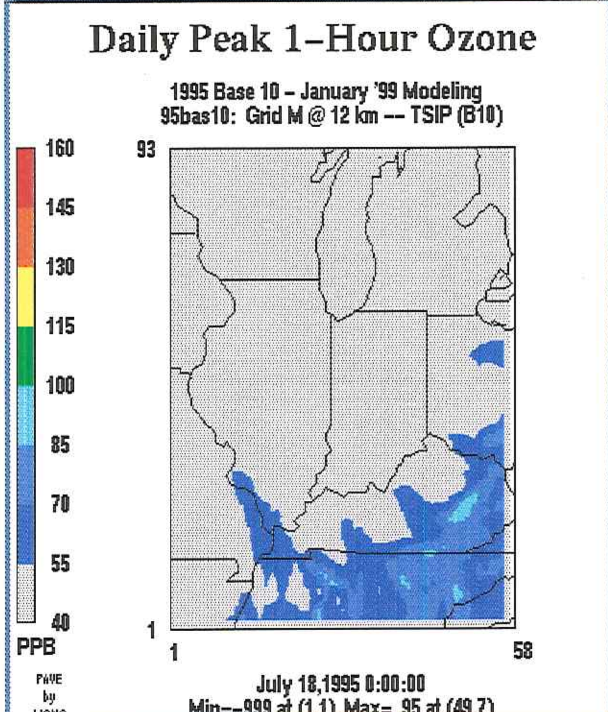
Daily Peak 1-Hour Ozone
1995 Base 10 – January '99 Modeling
95bas10: Grid M @ 12 km -- TSIP (B10)
160
145
130
115
100
85
70
55
40
PPB
93
1
1
58
PAVE by MCNC
July 15,1995 0:00:00
Min=-999 at (1,1), Max= 166 at (39,30)



Daily Peak 1-Hour Ozone
1995 Base 10 – January '99 Modeling
95bas10: Grid M @ 12 km -- TSIP (B10)
160
145
130
115
100
85
70
55
40
PPB
93
1
1
58
PAVE by MCNC
July 16,1995 0:00:00
Min=-999 at (1,1), Max= 130 at (50,38)

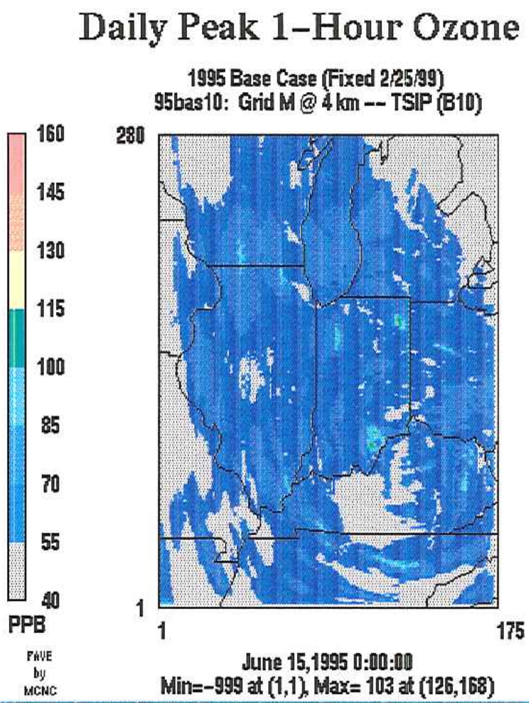


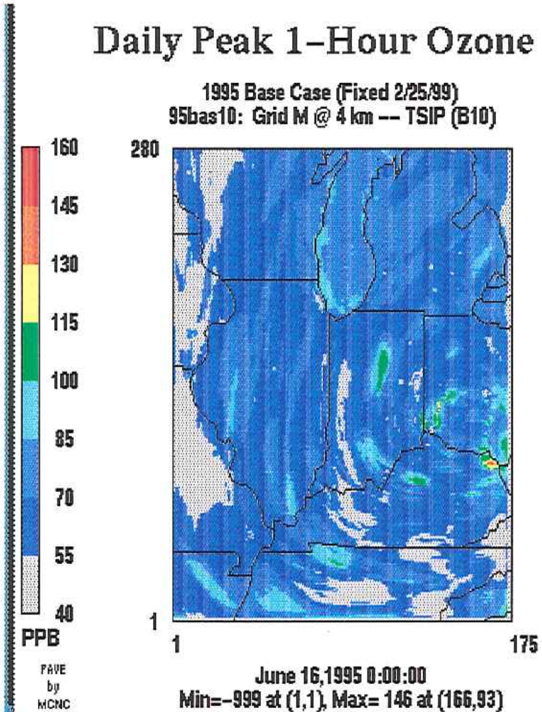
Daily Peak 1-Hour Ozone
1995 Base 10 – January '99 Modeling
95bas10: Grid M @ 12 km -- TSIP (B10)
160
145
130
115
100
85
70
55
40
PPB
93
1
1
58
PAVE by MCNC
July 17,1995 0:00:00
Min=-999 at (1,1), Max= 111 at (47,26)

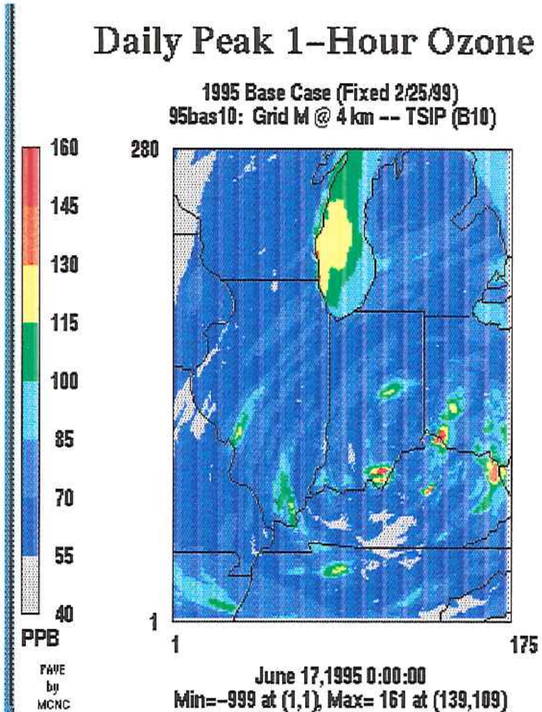


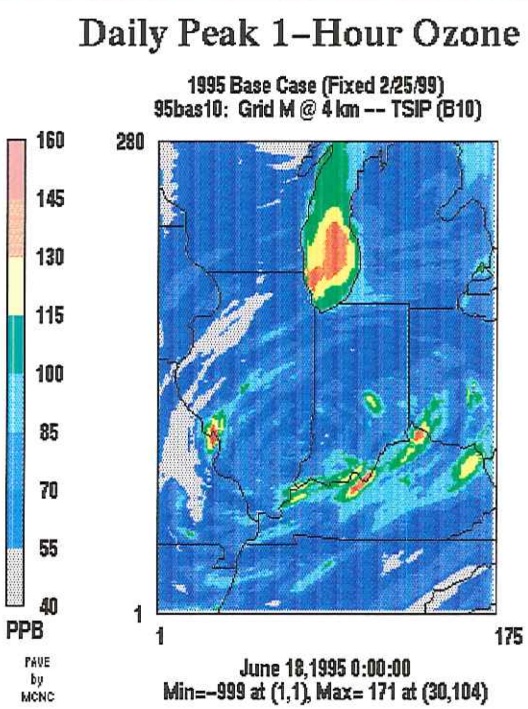
Daily Peak 1-Hour Ozone
1995 Base 10 – January '99 Modeling
95bas10: Grid M @ 12 km -- TSIP (B10)
160
145
130
115
100
85
70
55
40
PPB
93
1
1
58
PAVE by MCNC
July 18,1995 0:00:00
Min=-999 at (1,1), Max= 95 at (49,7)

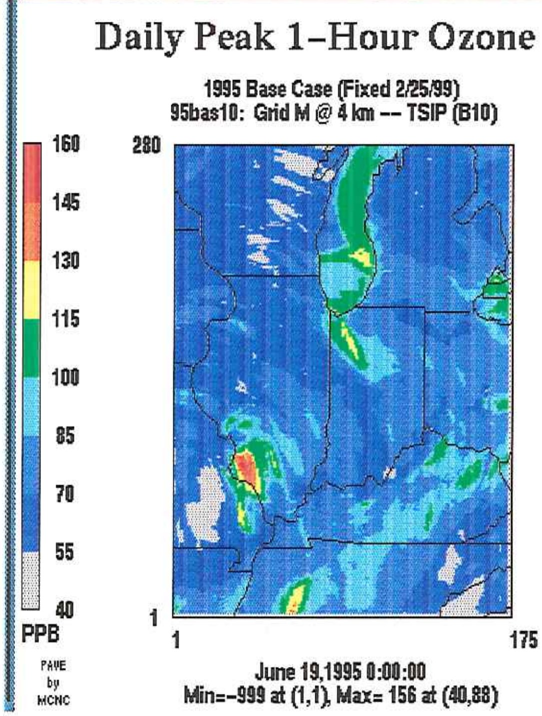
5e(1)

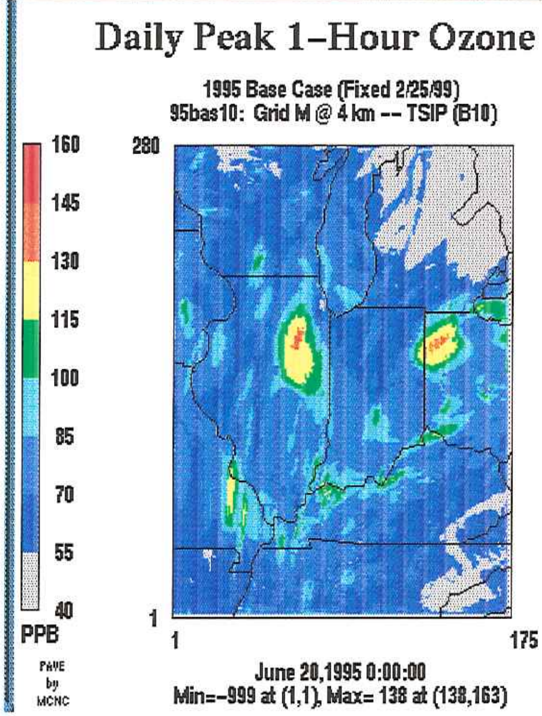

Daily Peak 1-Hour Ozone
1995 Base Case (Fixed 2/25/99)
95bas10: Grid M @ 4 km -- TSIP (B10)
160
145
130
115
100
85
70
55
40
PPB
280
1
1
175
PAVE by MCNC
June 15,1995 0:00:00
Min=-999 at (1,1), Max= 103 at (126,168)


Daily Peak 1-Hour Ozone
1995 Base Case (Fixed 2/25/99)
95bas10: Grid M @ 4 km -- TSIP (B10)
160
145
130
115
100
85
70
55
40
PPB
280
1
1
175
PAVE by MCNC
June 16,1995 0:00:00
Min=-999 at (1,1), Max= 146 at (166,93)


Daily Peak 1-Hour Ozone
1995 Base Case (Fixed 2/25/99)
95bas10: Grid M @ 4 km -- TSIP (B10)
160
145
130
115
100
85
70
55
40
PPB
280
1
1
175
PAVE by MCNC
June 17,1995 0:00:00
Min=-999 at (1,1), Max= 161 at (139,109)


Daily Peak 1-Hour Ozone
1995 Base Case (Fixed 2/25/99)
95bas10: Grid M @ 4 km -- TSIP (B10)
160
145
130
115
100
85
70
55
40
PPB
280
1
1
175
PAVE by MCNC
June 18,1995 0:00:00
Min=-999 at (1,1), Max= 171 at (30,104)

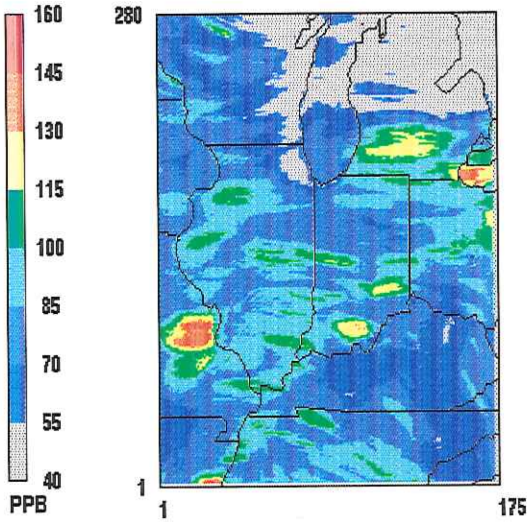

Daily Peak 1-Hour Ozone
1995 Base Case (Fixed 2/25/99)
95bas10: Grid M @ 4 km -- TSIP (B10)
160
145
130
115
100
85
70
55
40
PPB
280
1
1
175
PAVE by MCNC
June 19,1995 0:00:00
Min=-999 at (1,1), Max= 156 at (40,88)


Daily Peak 1-Hour Ozone
1995 Base Case (Fixed 2/25/99)
95bas10: Grid M @ 4 km -- TSIP (B10)
160
145
130
115
100
85
70
55
40
PPB
280
1
1
175
PAVE by MCNC
June 20,1995 0:00:00
Min=-999 at (1,1), Max= 138 at (138,163)

5e(2)

Daily Peak 1-Hour Ozone

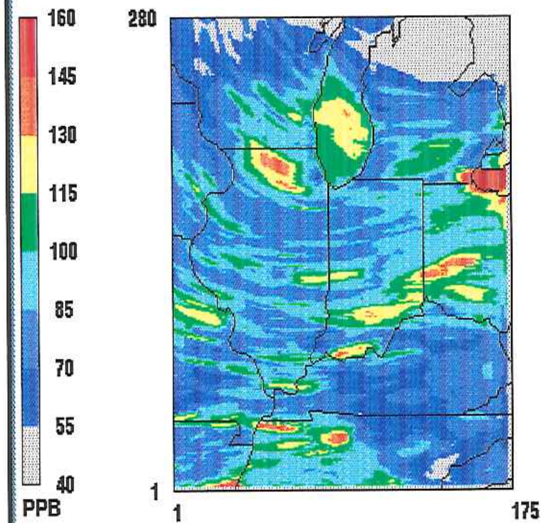
1995 Base Case (Fixed 2/25/99)
95bas10: Grid M @ 4 km -- TSIP (B10)



June 21,1995 0:00:00
Min=-999 at (1,1), Max= 150 at (22,96)

Daily Peak 1-Hour Ozone

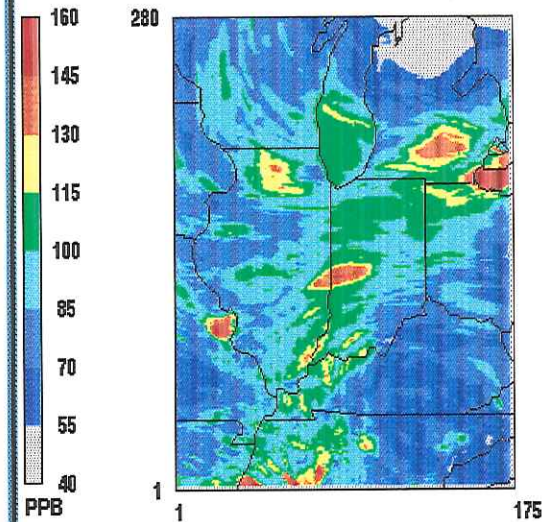
1995 Base Case (Fixed 2/25/99)
95bas10: Grid M @ 4 km -- TSIP (B10)



June 22,1995 0:00:00
Min=-999 at (1,1), Max= 186 at (172,181)

Daily Peak 1-Hour Ozone

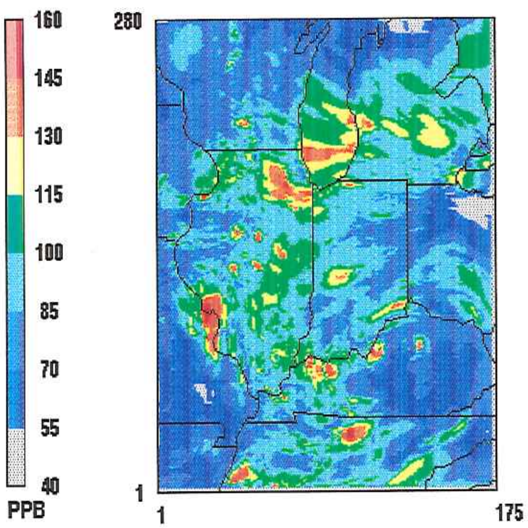
1995 Base Case (Fixed 2/25/99)
95bas10: Grid M @ 4 km -- TSIP (B10)



June 23,1995 0:00:00
Min=-999 at (1,1), Max= 214 at (40,2)

Daily Peak 1-Hour Ozone

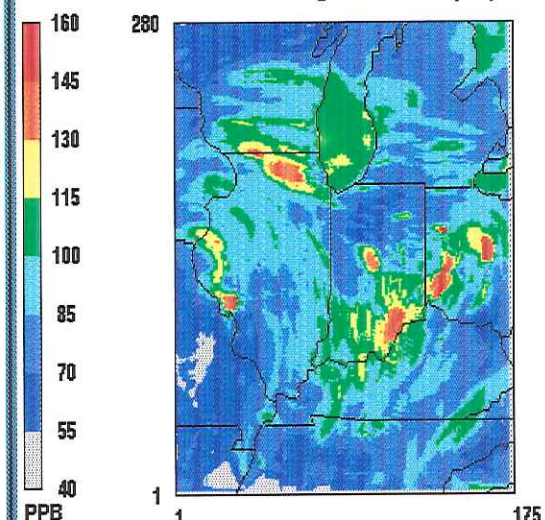
1995 Base Case (Fixed 2/25/99)
95bas10: Grid M @ 4 km -- TSIP (B10)



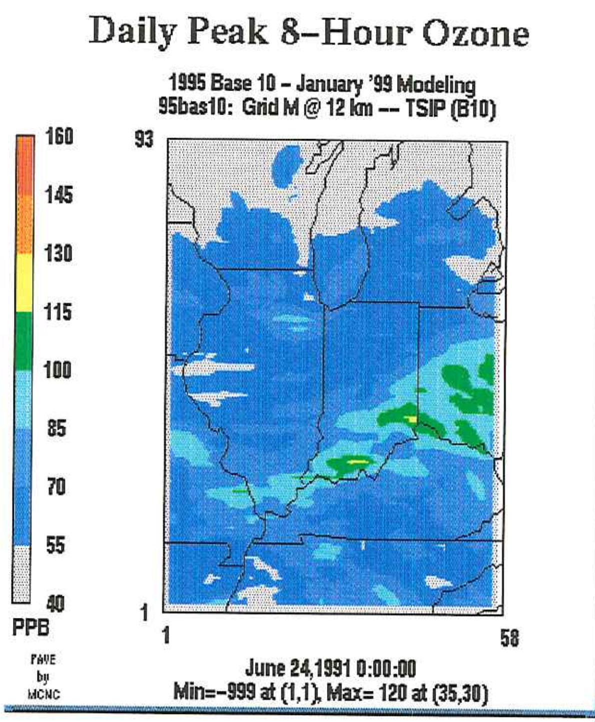
June 24,1995 0:00:00
Min=-999 at (1,1), Max= 213 at (32,104)

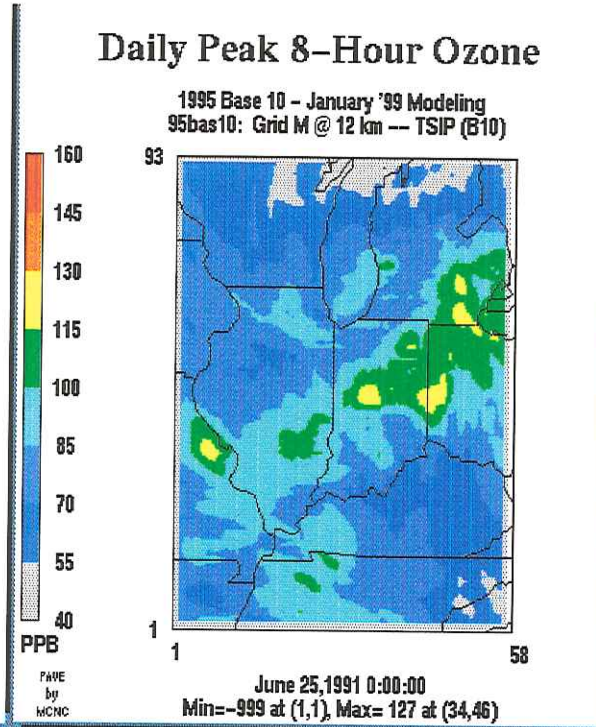
Daily Peak 1-Hour Ozone

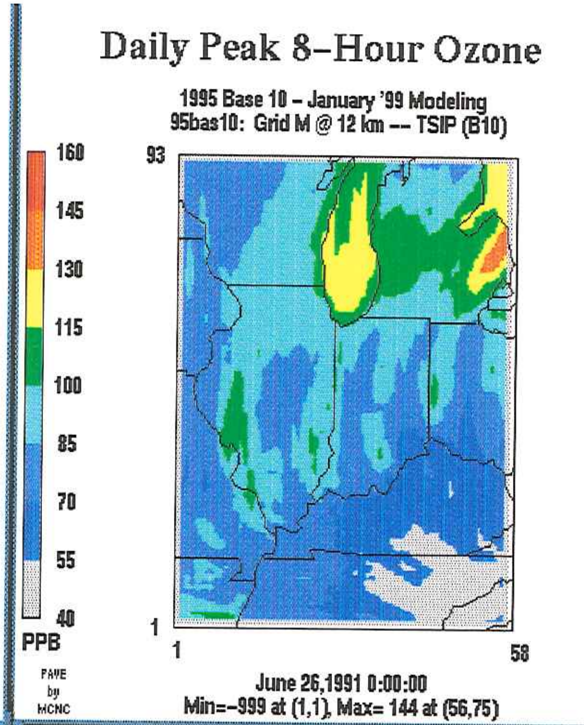
1995 Base Case (Fixed 2/25/99)
95bas10: Grid M @ 4 km -- TSIP (B10)

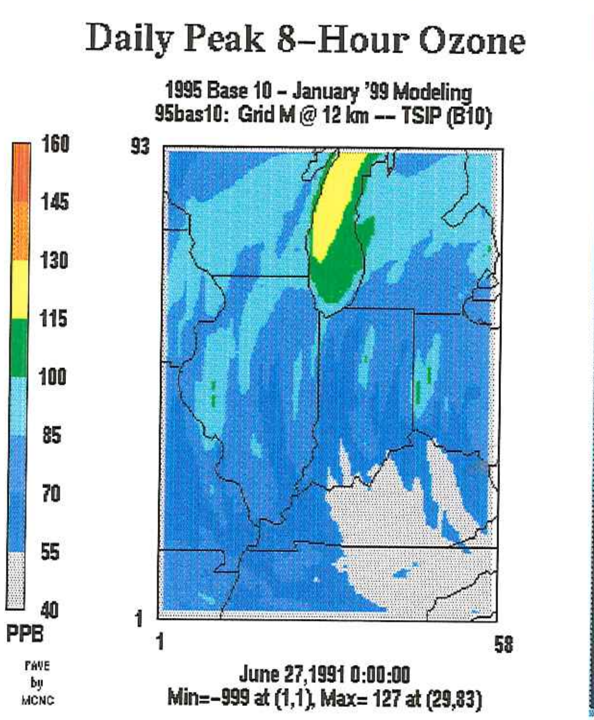


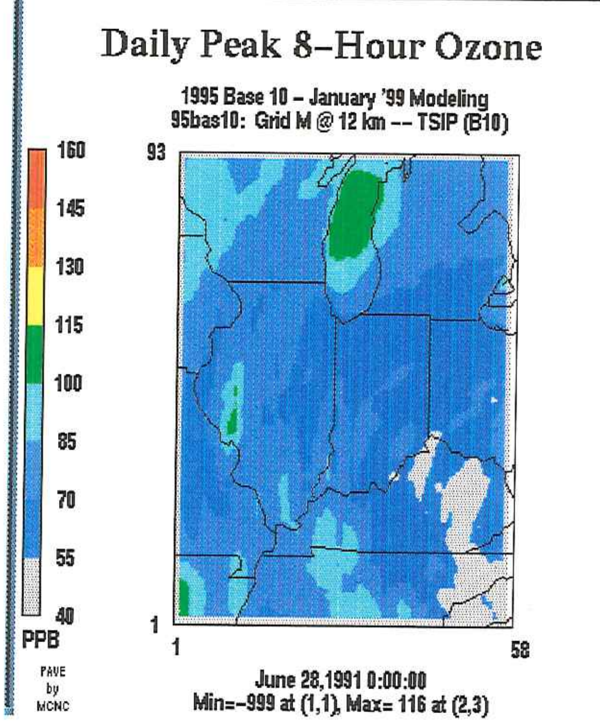
June 25,1995 0:00:00
Min=-999 at (1,1), Max= 205 at (138,122)


Daily Peak 8-Hour Ozone
1995 Base 10 - January '99 Modeling
95bas10: Grid M @ 12 km -- TSIP (B10)
160
145
130
115
100
85
70
55
40
PPB
93
1
1
58
PAVE by MCNC
June 24,1991 0:00:00
Min=-999 at (1,1), Max= 120 at (35,30)


Daily Peak 8-Hour Ozone
1995 Base 10 - January '99 Modeling
95bas10: Grid M @ 12 km -- TSIP (B10)
160
145
130
115
100
85
70
55
40
PPB
93
1
1
58
PAVE by MCNC
June 25,1991 0:00:00
Min=-999 at (1,1), Max= 127 at (34,46)


Daily Peak 8-Hour Ozone
1995 Base 10 - January '99 Modeling
95bas10: Grid M @ 12 km -- TSIP (B10)
160
145
130
115
100
85
70
55
40
PPB
93
1
1
58
PAVE by MCNC
June 26,1991 0:00:00
Min=-999 at (1,1), Max= 144 at (56,75)

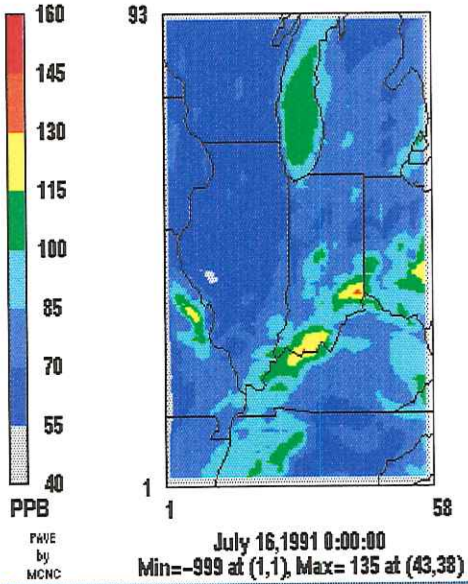

Daily Peak 8-Hour Ozone
1995 Base 10 - January '99 Modeling
95bas10: Grid M @ 12 km -- TSIP (B10)
160
145
130
115
100
85
70
55
40
PPB
93
1
1
58
PAVE by MCNC
June 27,1991 0:00:00
Min=-999 at (1,1), Max= 127 at (29,83)


Daily Peak 8-Hour Ozone
1995 Base 10 - January '99 Modeling
95bas10: Grid M @ 12 km -- TSIP (B10)
160
145
130
115
100
85
70
55
40
PPB
93
1
1
58
PAVE by MCNC
June 28,1991 0:00:00
Min=-999 at (1,1), Max= 116 at (2,3)

6b

Daily Peak 8 – Hour Ozone

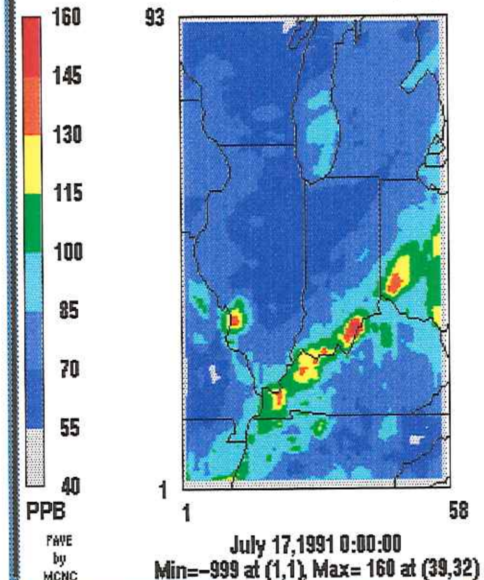
1995 base case emissions
95bas10 : GridM--TSIP(B10)



July 16,1991 0:00:00
Min=-999 at (1,1), Max= 135 at (43,38)

Daily Peak 8 – Hour Ozone

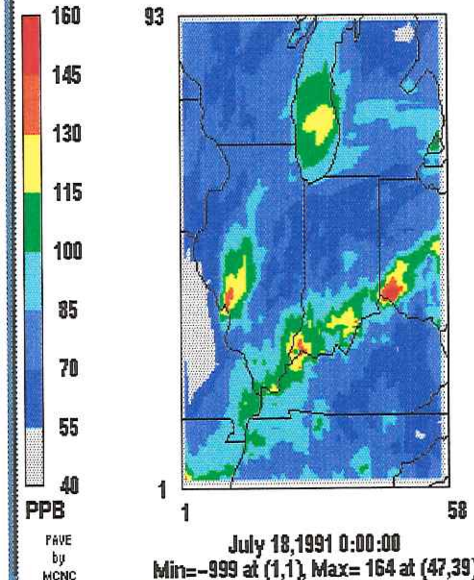
1995 base case emissions
95bas10 : GridM--TSIP(B10)



July 17,1991 0:00:00
Min=-999 at (1,1), Max= 160 at (39,32)

Daily Peak 8 – Hour Ozone

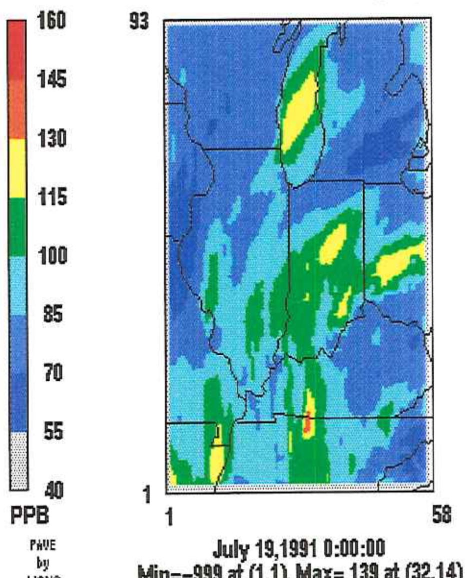
1995 base case emissions
95bas10 : GridM--TSIP(B10)



July 18,1991 0:00:00
Min=-999 at (1,1), Max= 164 at (47,39)

Daily Peak 8 – Hour Ozone

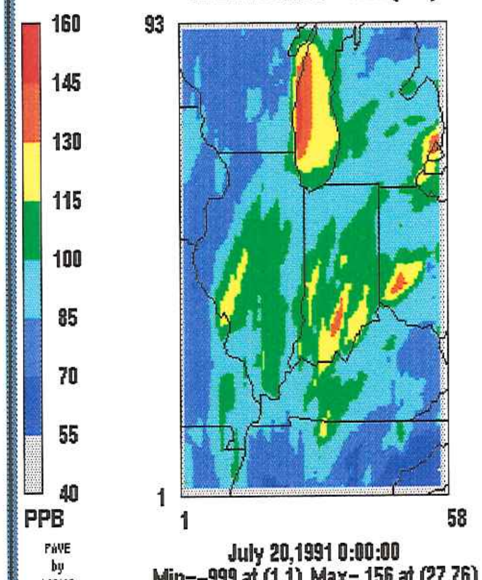
1995 base case emissions
95bas10 : GridM--TSIP(B10)



July 19,1991 0:00:00
Min=-999 at (1,1), Max= 139 at (32,14)

Daily Peak 8 – Hour Ozone

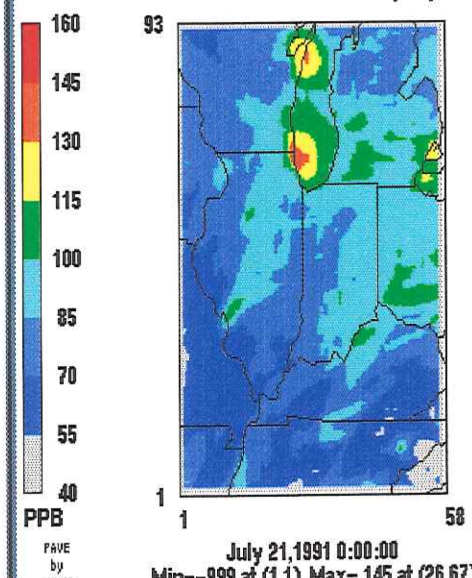
1995 base case emissions
95bas10 : GridM--TSIP(B10)



July 20,1991 0:00:00
Min=-999 at (1,1), Max= 156 at (27,76)

Daily Peak 8 – Hour Ozone

1995 base case emissions
95bas10 : GridM--TSIP(B10)

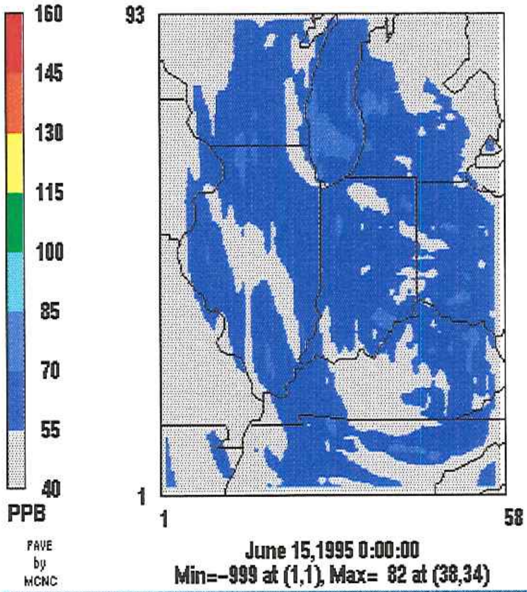


July 21,1991 0:00:00
Min=-999 at (1,1), Max= 145 at (26,67)

6c

Daily Peak 8-Hour Ozone

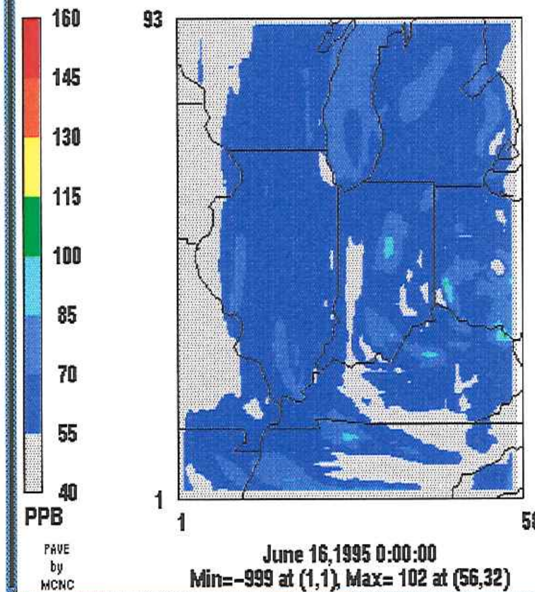
1995 Base 10 – January '99 Modeling
95bas10: Grid M @ 12 km -- TSIP (B10)



June 15,1995 0:00:00
Min=-999 at (1,1), Max= 82 at (38,34)

Daily Peak 8-Hour Ozone

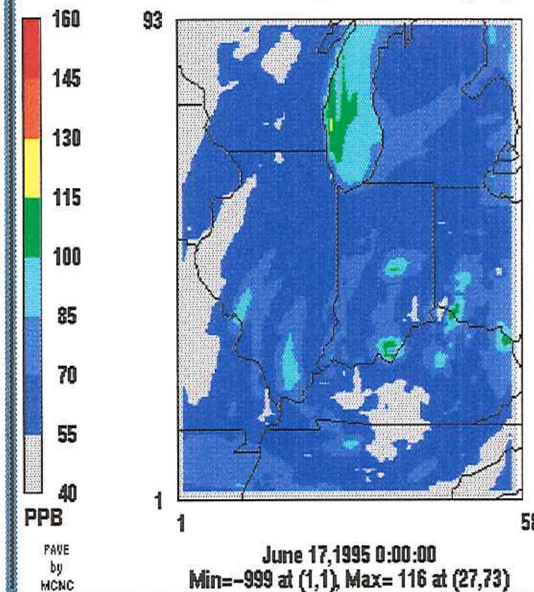
1995 Base 10 – January '99 Modeling
95bas10: Grid M @ 12 km -- TSIP (B10)



June 16,1995 0:00:00
Min=-999 at (1,1), Max= 102 at (56,32)

Daily Peak 8-Hour Ozone

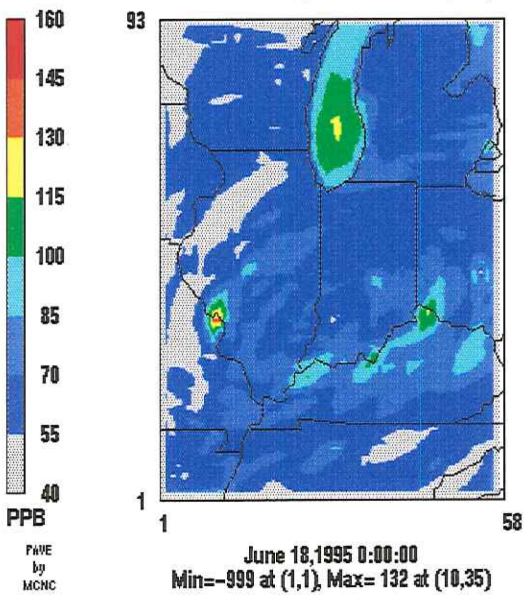
1995 Base 10 – January '99 Modeling
95bas10: Grid M @ 12 km -- TSIP (B10)



June 17,1995 0:00:00
Min=-999 at (1,1), Max= 116 at (27,73)

Daily Peak 8-Hour Ozone

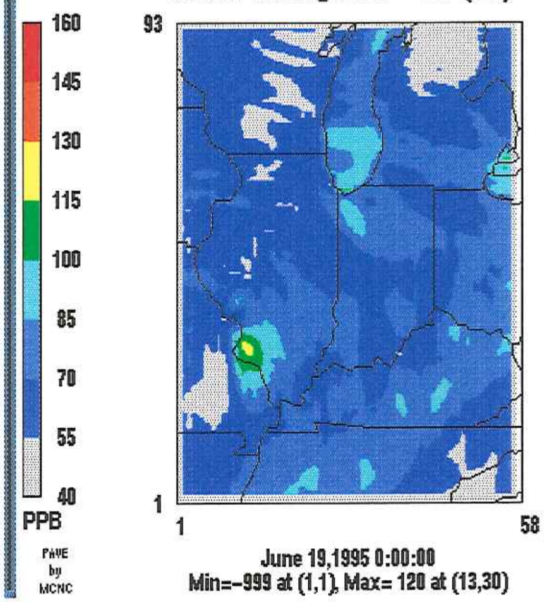
1995 Base 10 – January '99 Modeling
95bas10: Grid M @ 12 km -- TSIP (B10)



June 18,1995 0:00:00
Min=-999 at (1,1), Max= 132 at (10,35)

Daily Peak 8-Hour Ozone

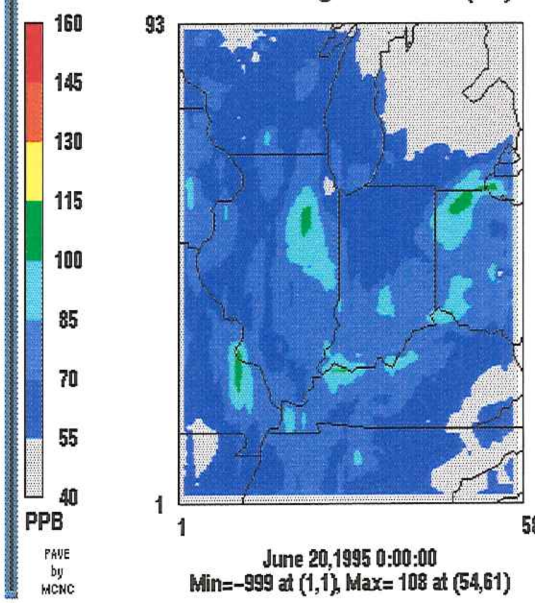
1995 Base 10 – January '99 Modeling
95bas10: Grid M @ 12 km -- TSIP (B10)



June 19,1995 0:00:00
Min=-999 at (1,1), Max= 120 at (13,30)

Daily Peak 8-Hour Ozone

1995 Base 10 – January '99 Modeling
95bas10: Grid M @ 12 km -- TSIP (B10)

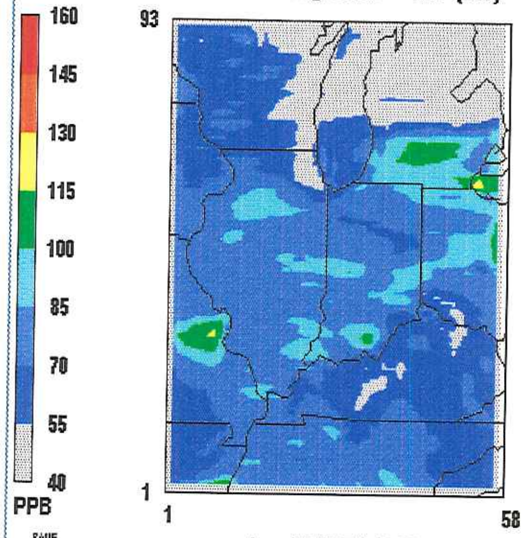


June 20,1995 0:00:00
Min=-999 at (1,1), Max= 108 at (54,61)

6c (cont.)

Daily Peak 8-Hour Ozone

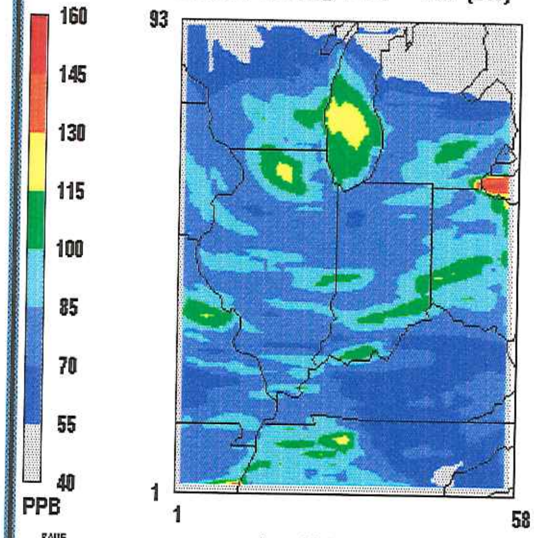
1995 Base 10 – January '99 Modeling
95bas10: Grid M @ 12 km -- TSIP (B10)



June 21,1995 0:00:00
Min=-999 at (1,1), Max= 119 at (54,61)

Daily Peak 8-Hour Ozone

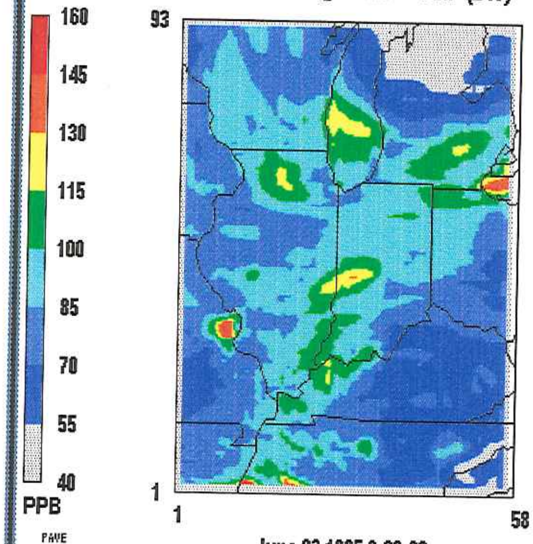
1995 Base 10 – January '99 Modeling
95bas10: Grid M @ 12 km -- TSIP (B10)



June 22,1995 0:00:00
Min=-999 at (1,1), Max= 150 at (54,61)

Daily Peak 8-Hour Ozone

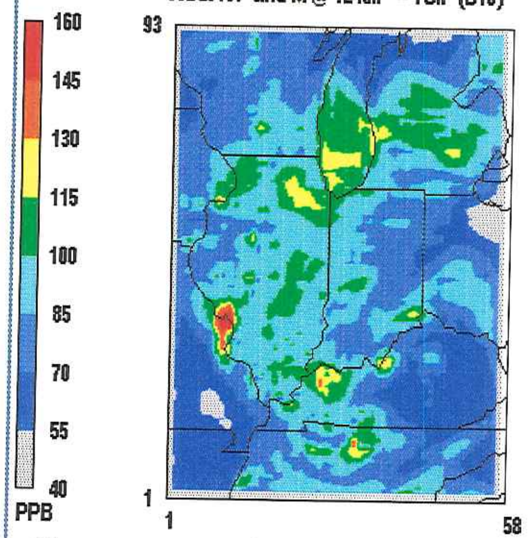
1995 Base 10 – January '99 Modeling
95bas10: Grid M @ 12 km -- TSIP (B10)



June 23,1995 0:00:00
Min=-999 at (1,1), Max= 157 at (13,2)

Daily Peak 8-Hour Ozone

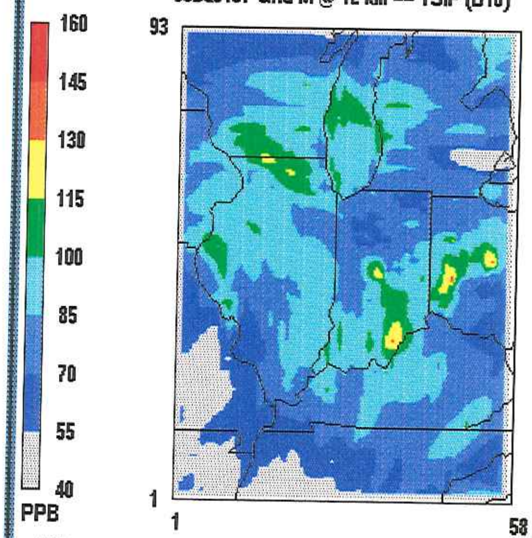
1995 Base 10 – January '99 Modeling
95bas10: Grid M @ 12 km -- TSIP (B10)



June 24,1995 0:00:00
Min=-999 at (1,1), Max= 169 at (11,35)

Daily Peak 8-Hour Ozone

1995 Base 10 – January '99 Modeling
95bas10: Grid M @ 12 km -- TSIP (B10)

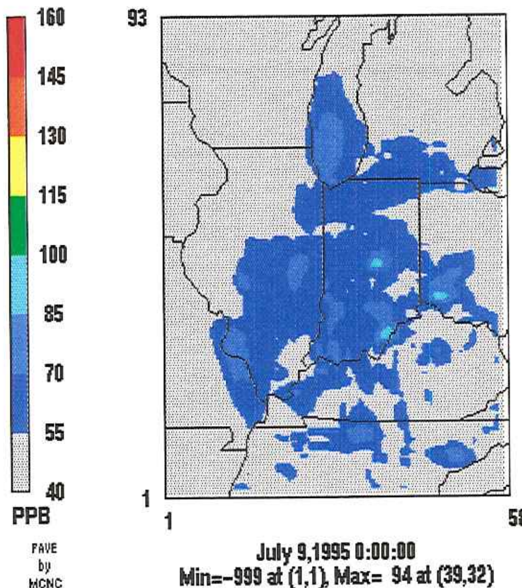


June 25,1995 0:00:00
Min=-999 at (1,1), Max= 131 at (38,32)

6d

Daily Peak 8-Hour Ozone

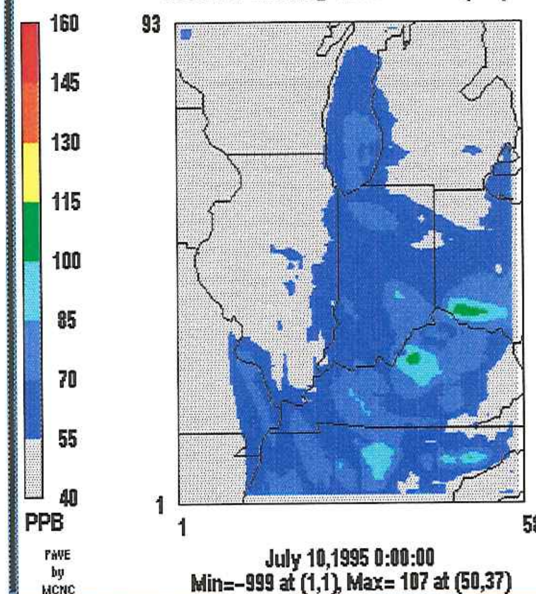
1995 Base 10 - January '99 Modeling
95bas10: Grid M @ 12 km -- TSIP (B10)



July 9,1995 0:00:00
Min=-999 at (1,1), Max= 94 at (39,32)

Daily Peak 8-Hour Ozone

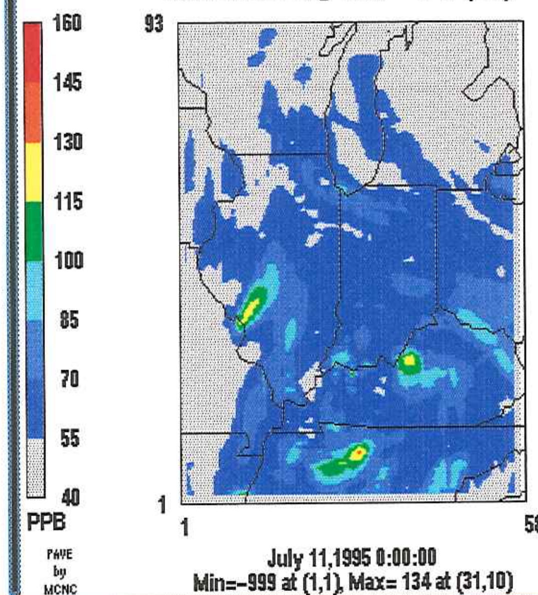
1995 Base 10 - January '99 Modeling
95bas10: Grid M @ 12 km -- TSIP (B10)



July 10,1995 0:00:00
Min=-999 at (1,1), Max= 107 at (50,37)

Daily Peak 8-Hour Ozone

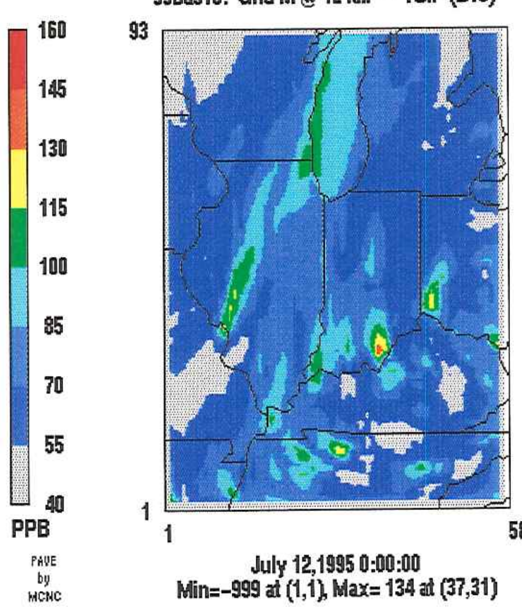
1995 Base 10 - January '99 Modeling
95bas10: Grid M @ 12 km -- TSIP (B10)



July 11,1995 0:00:00
Min=-999 at (1,1), Max= 134 at (31,10)

Daily Peak 8-Hour Ozone

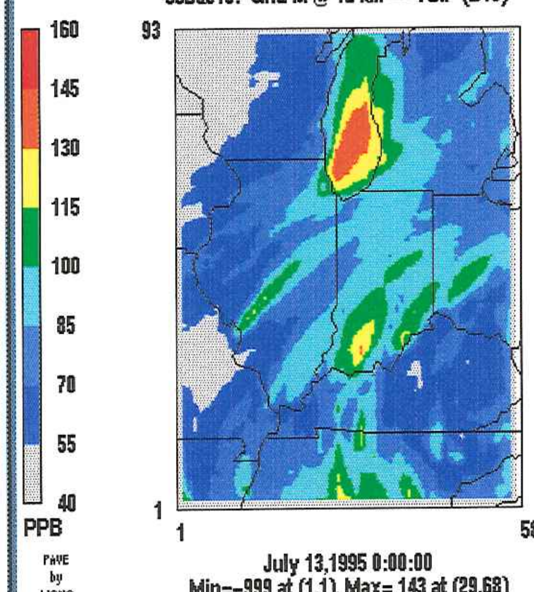
1995 Base 10 - January '99 Modeling
95bas10: Grid M @ 12 km -- TSIP (B10)



July 12,1995 0:00:00
Min=-999 at (1,1), Max= 134 at (37,31)

Daily Peak 8-Hour Ozone

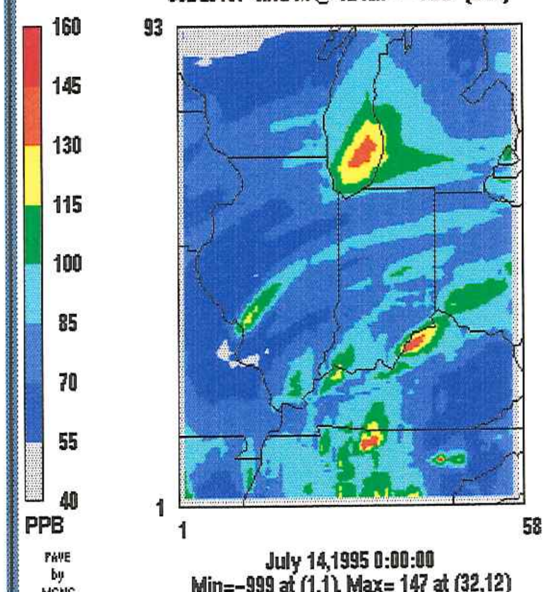
1995 Base 10 - January '99 Modeling
95bas10: Grid M @ 12 km -- TSIP (B10)



July 13,1995 0:00:00
Min=-999 at (1,1), Max= 143 at (29,68)

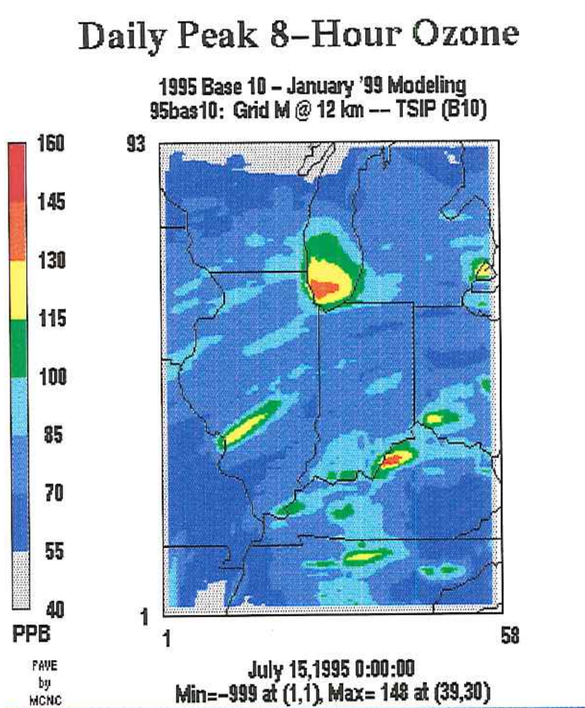
Daily Peak 8-Hour Ozone

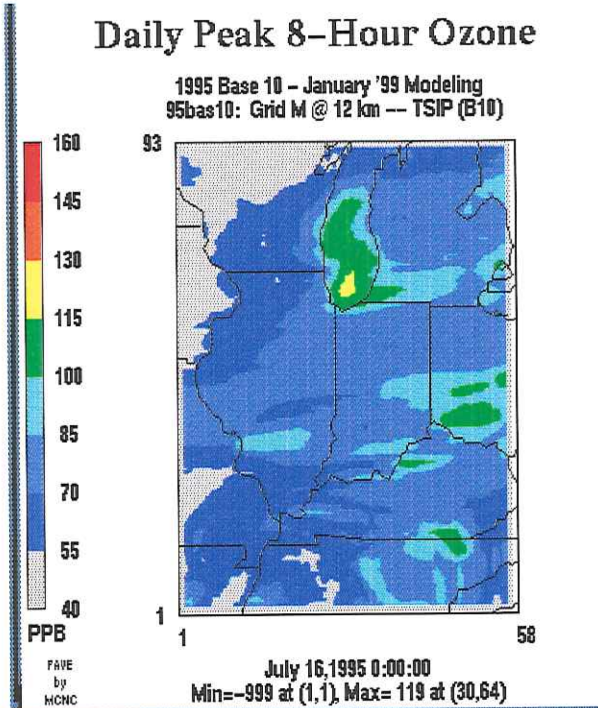
1995 Base 10 - January '99 Modeling
95bas10: Grid M @ 12 km -- TSIP (B10)

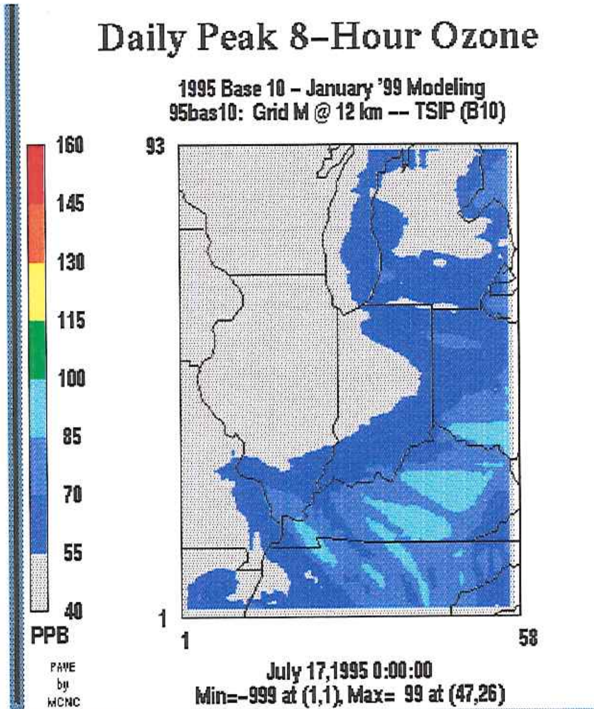


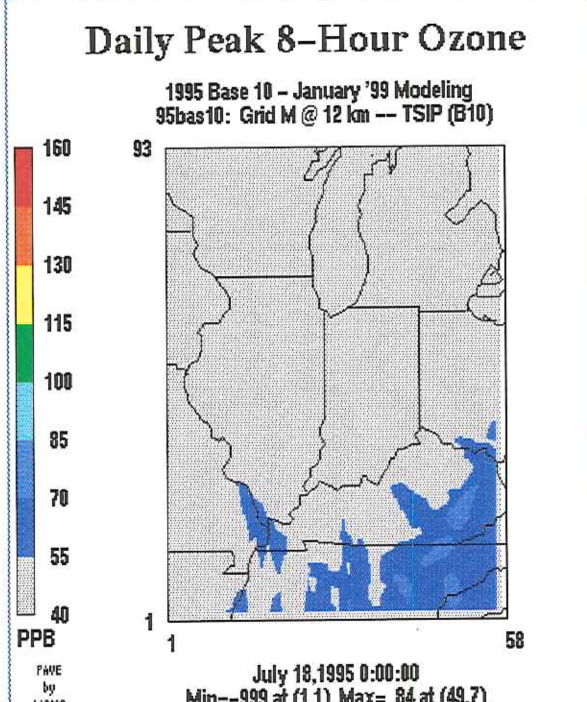
July 14,1995 0:00:00
Min=-999 at (1,1), Max= 147 at (32,12)

6 d (cont.)


Daily Peak 8-Hour Ozone
1995 Base 10 - January '99 Modeling
95bas10: Grid M @ 12 km -- TSIP (B10)
160
145
130
115
100
85
70
55
40
PPB
93
1
1
58
PAVE by MCNC
July 15,1995 0:00:00
Min=-999 at (1,1), Max= 148 at (39,30)


Daily Peak 8-Hour Ozone
1995 Base 10 - January '99 Modeling
95bas10: Grid M @ 12 km -- TSIP (B10)
160
145
130
115
100
85
70
55
40
PPB
93
1
1
58
PAVE by MCNC
July 16,1995 0:00:00
Min=-999 at (1,1), Max= 119 at (30,64)

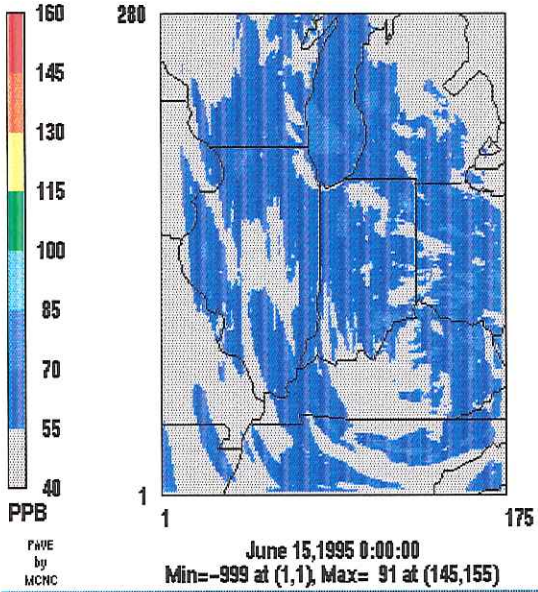

Daily Peak 8-Hour Ozone
1995 Base 10 - January '99 Modeling
95bas10: Grid M @ 12 km -- TSIP (B10)
160
145
130
115
100
85
70
55
40
PPB
93
1
1
58
PAVE by MCNC
July 17,1995 0:00:00
Min=-999 at (1,1), Max= 99 at (47,26)


Daily Peak 8-Hour Ozone
1995 Base 10 - January '99 Modeling
95bas10: Grid M @ 12 km -- TSIP (B10)
160
145
130
115
100
85
70
55
40
PPB
93
1
1
58
PAVE by MCNC
July 18,1995 0:00:00
Min=-999 at (1,1), Max= 84 at (49,7)

6e (1)

Daily Peak 8-Hour Ozone

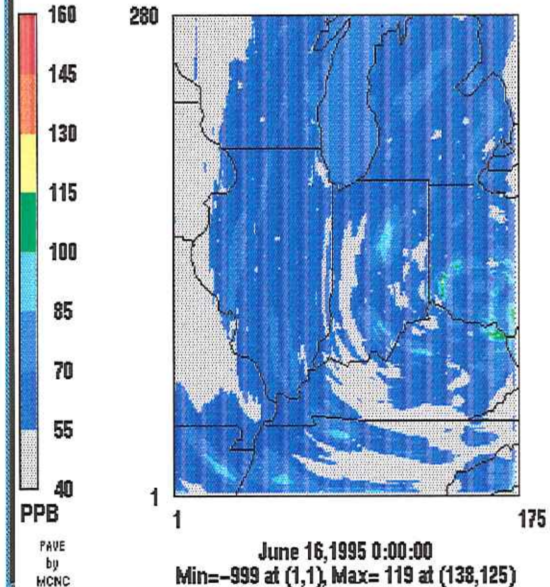
1995 Base 10 – January '99 Modeling
95bas10: Grid M @ 4 km -- TSIP (B10)



June 15,1995 0:00:00
Min=-999 at (1,1), Max= 91 at (145,155)

Daily Peak 8-Hour Ozone

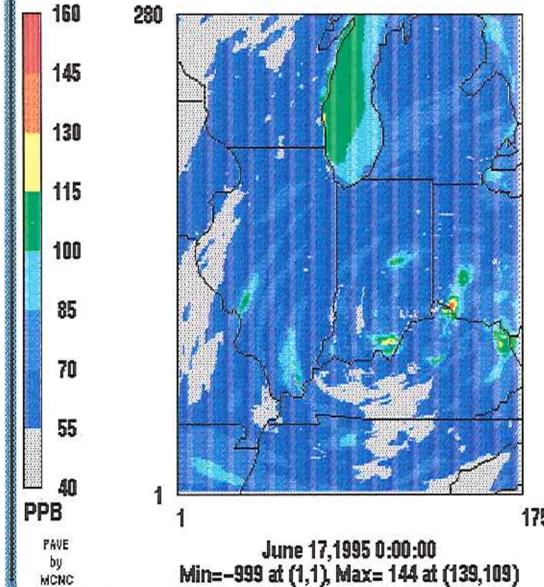
1995 Base 10 – January '99 Modeling
95bas10: Grid M @ 4 km -- TSIP (B10)



June 16,1995 0:00:00
Min=-999 at (1,1), Max= 119 at (138,125)

Daily Peak 8-Hour Ozone

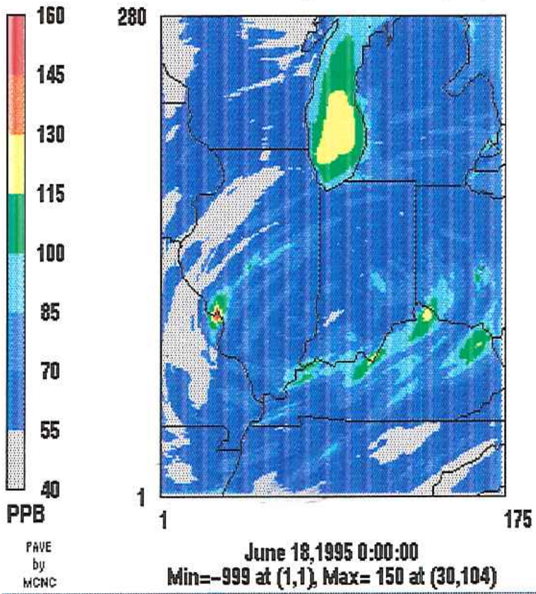
1995 Base 10 – January '99 Modeling
95bas10: Grid M @ 4 km -- TSIP (B10)



June 17,1995 0:00:00
Min=-999 at (1,1), Max= 144 at (139,109)

Daily Peak 8-Hour Ozone

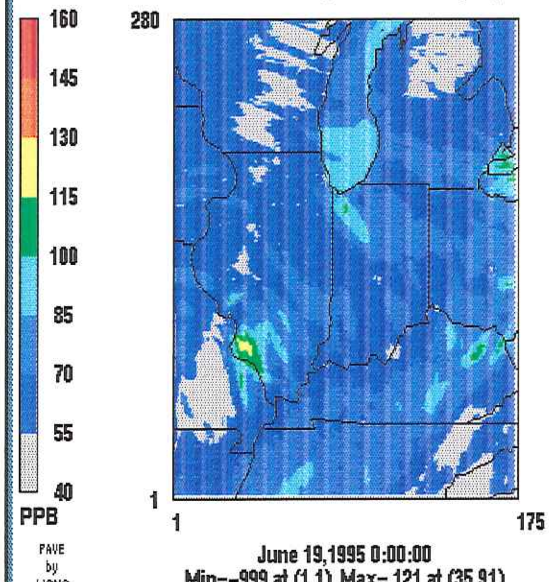
1995 Base 10 – January '99 Modeling
95bas10: Grid M @ 4 km -- TSIP (B10)



June 18,1995 0:00:00
Min=-999 at (1,1), Max= 150 at (30,104)

Daily Peak 8-Hour Ozone

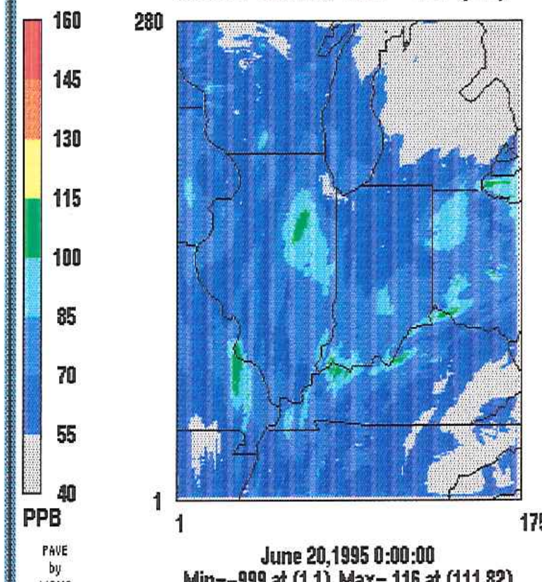
1995 Base 10 – January '99 Modeling
95bas10: Grid M @ 4 km -- TSIP (B10)



June 19,1995 0:00:00
Min=-999 at (1,1), Max= 121 at (35,91)

Daily Peak 8-Hour Ozone

1995 Base 10 – January '99 Modeling
95bas10: Grid M @ 4 km -- TSIP (B10)

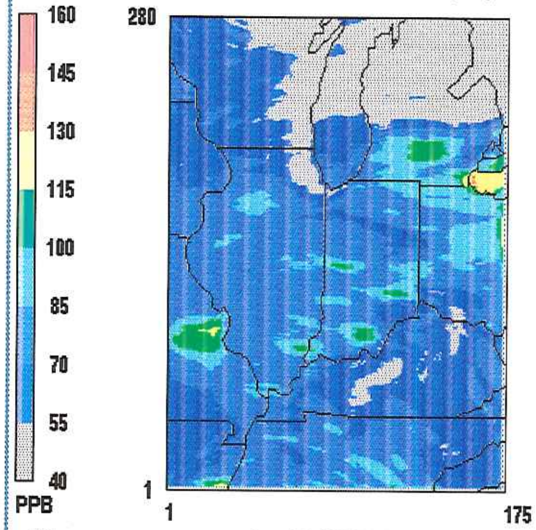


June 20,1995 0:00:00
Min=-999 at (1,1), Max= 116 at (111,82)

6e(2)

Daily Peak 8-Hour Ozone

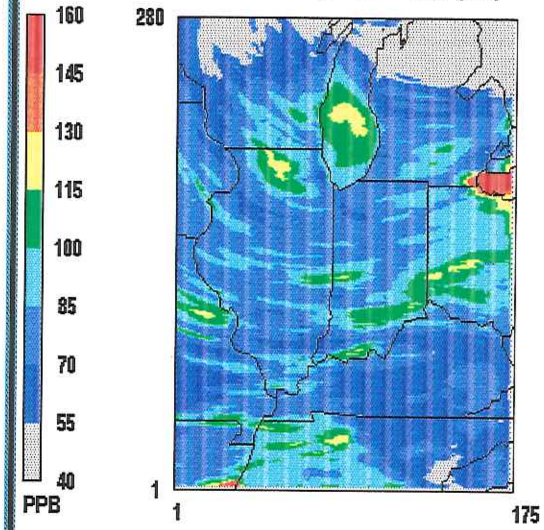
1995 Base 10 – January '99 Modeling
95bas10: Grid M @ 4 km -- TSIP (B10)



June 21,1995 0:00:00
Min=-999 at (1,1), Max= 132 at (159,181)

Daily Peak 8-Hour Ozone

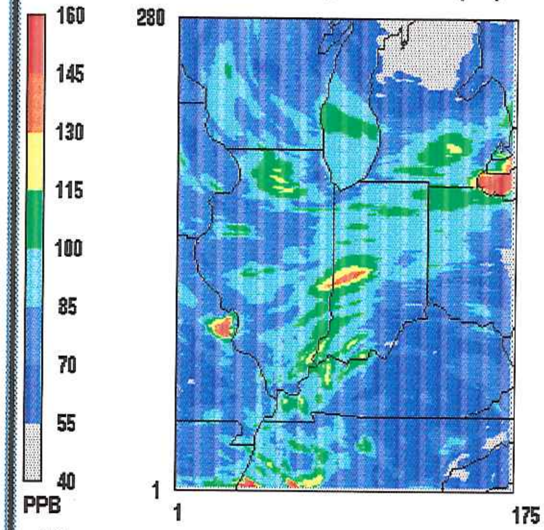
1995 Base 10 – January '99 Modeling
95bas10: Grid M @ 4 km -- TSIP (B10)



June 22,1995 0:00:00
Min=-999 at (1,1), Max= 175 at (168,179)

Daily Peak 8-Hour Ozone

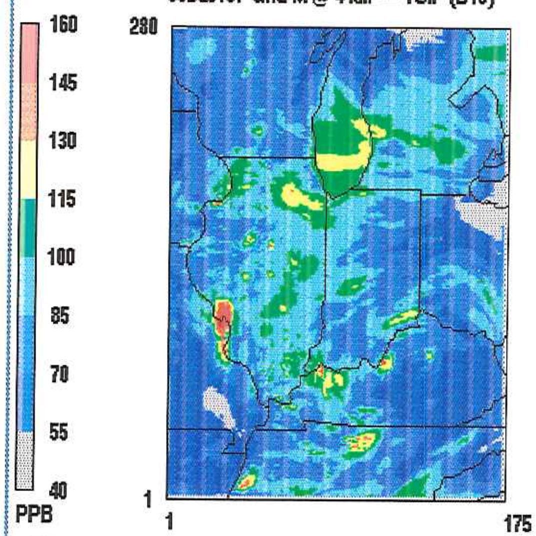
1995 Base 10 – January '99 Modeling
95bas10: Grid M @ 4 km -- TSIP (B10)



June 23,1995 0:00:00
Min=-999 at (1,1), Max= 181 at (40,2)

Daily Peak 8-Hour Ozone

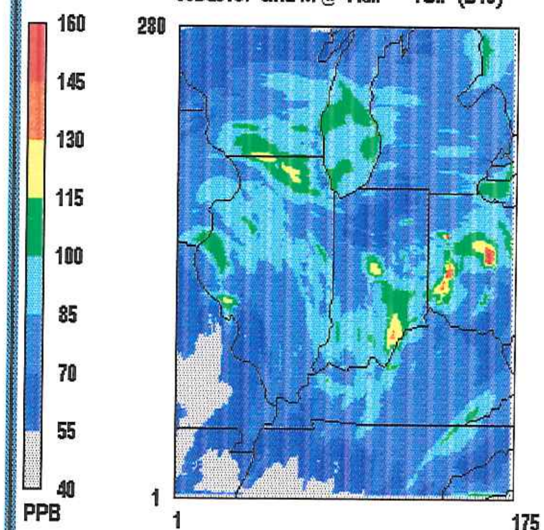
1995 Base 10 – January '99 Modeling
95bas10: Grid M @ 4 km -- TSIP (B10)



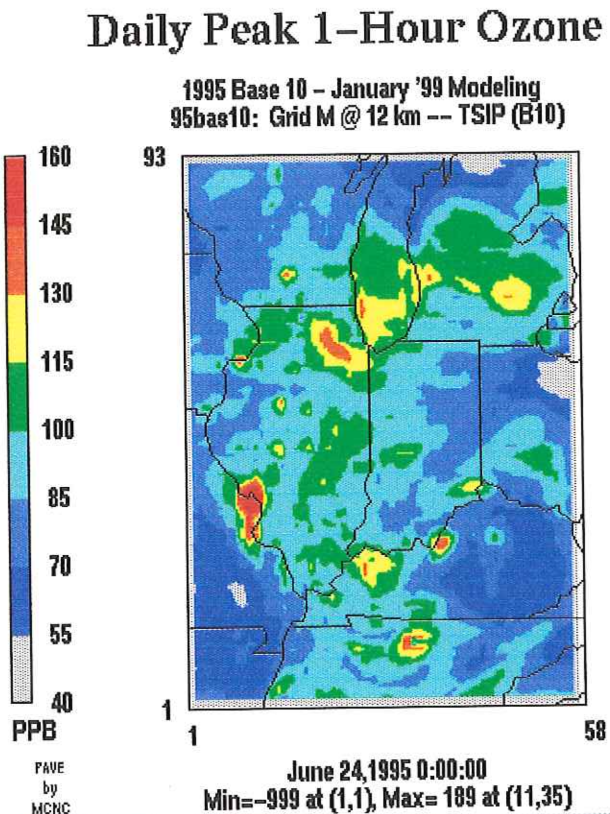
June 24,1995 0:00:00
Min=-999 at (1,1), Max= 188 at (30,104)

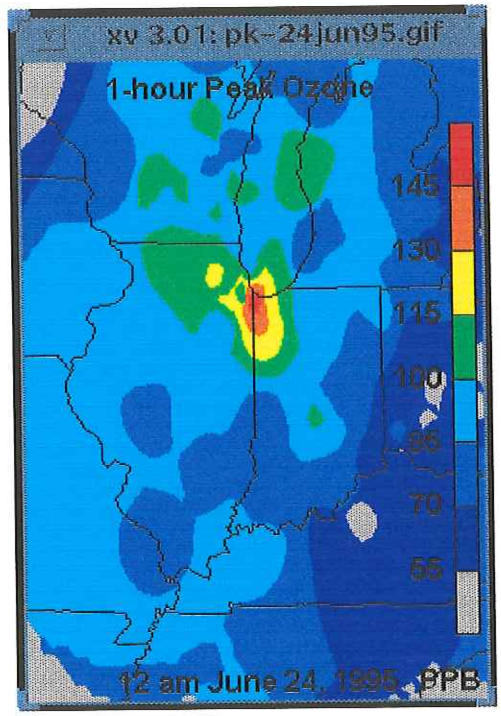
Daily Peak 8-Hour Ozone

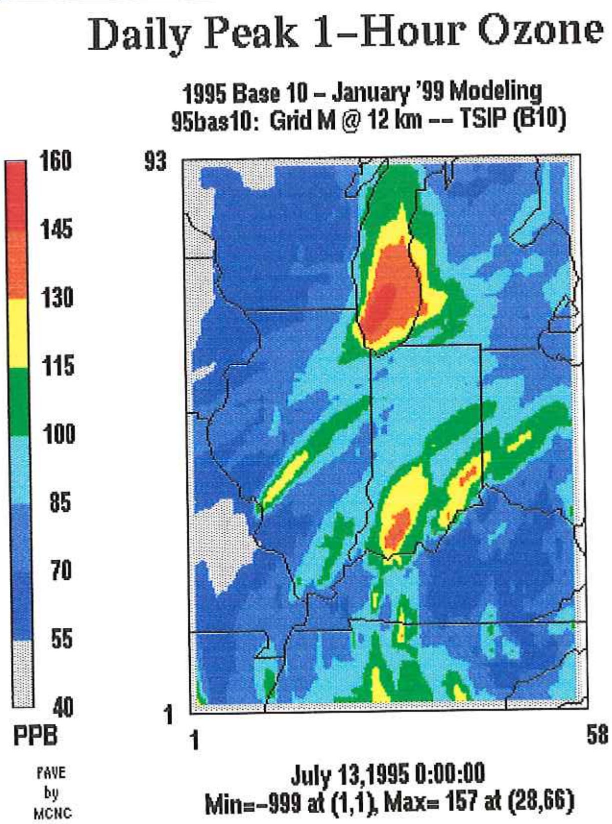
1995 Base 10 – January '99 Modeling
95bas10: Grid M @ 4 km -- TSIP (B10)



June 25,1995 0:00:00
Min=-999 at (1,1), Max= 153 at (163,143)


Daily Peak 1-Hour Ozone
1995 Base 10 – January '99 Modeling
95bas10: Grid M @ 12 km -- TSIP (B10)
160
145
130
115
100
85
70
55
40
PPB
93
1
1
58
PAVE
by
MCNC
June 24,1995 0:00:00
Min=-999 at (1,1), Max= 189 at (11,35)


xv 3.01: pk-24jun95.gif
1-hour Peak Ozone
145
130
115
100
85
70
55
12 am June 24, 1995 PPB


Daily Peak 1-Hour Ozone
1995 Base 10 – January '99 Modeling
95bas10: Grid M @ 12 km -- TSIP (B10)
160
145
130
115
100
85
70
55
40
PPB
93
1
1
58
PAVE
by
MCNC
July 13,1995 0:00:00
Min=-999 at (1,1), Max= 157 at (28,66)

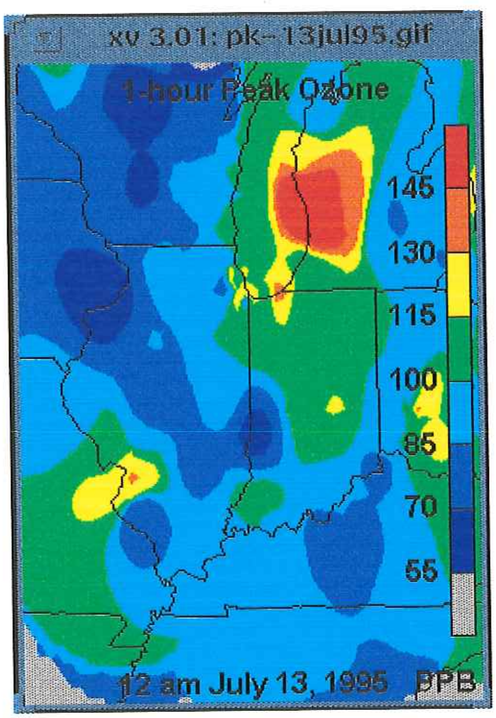
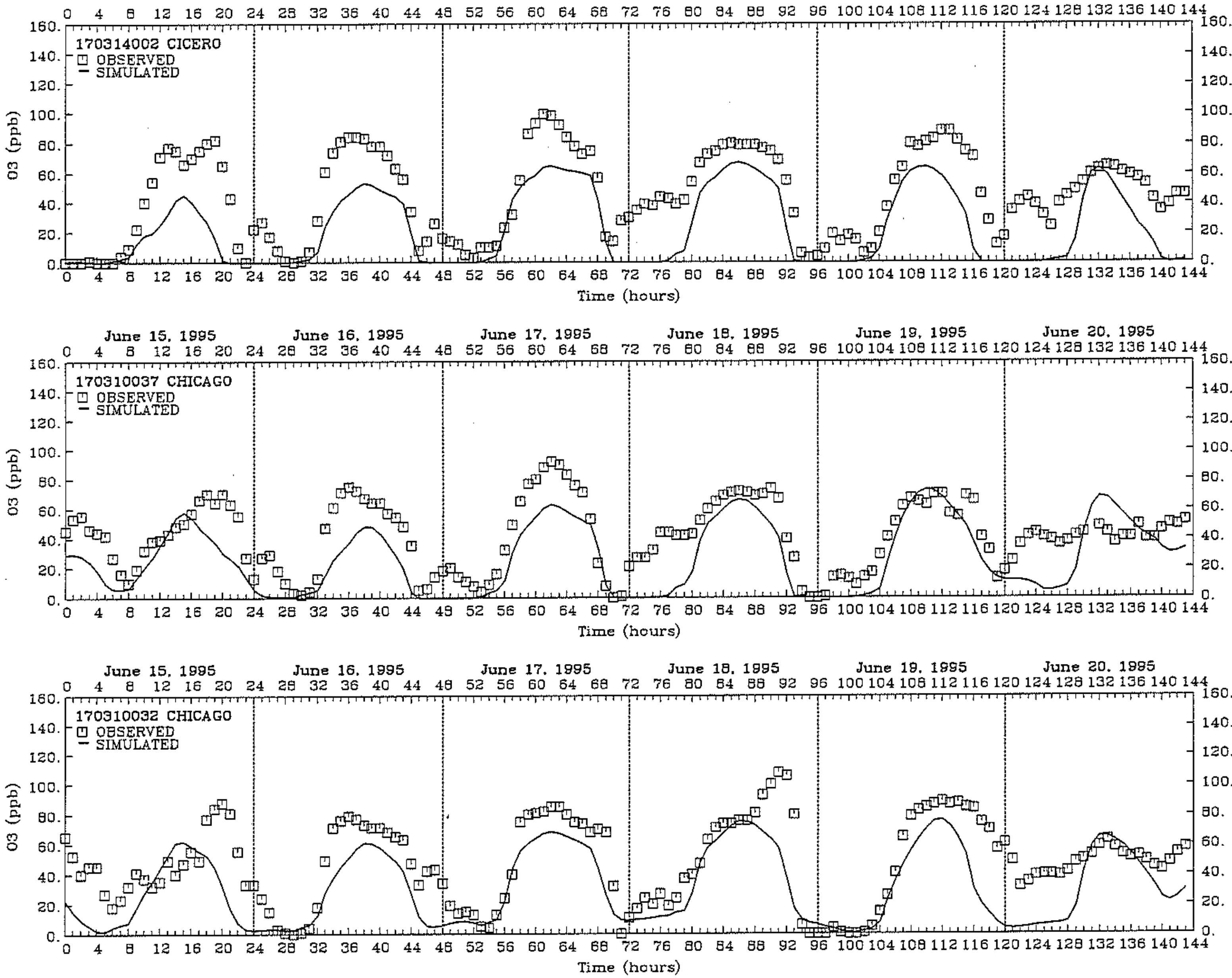

xv 3.01: pk-13jul95.gif
1-hour Peak Ozone
145
130
115
100
85
70
55
12 am July 13, 1995 PPB

FIGURE 8

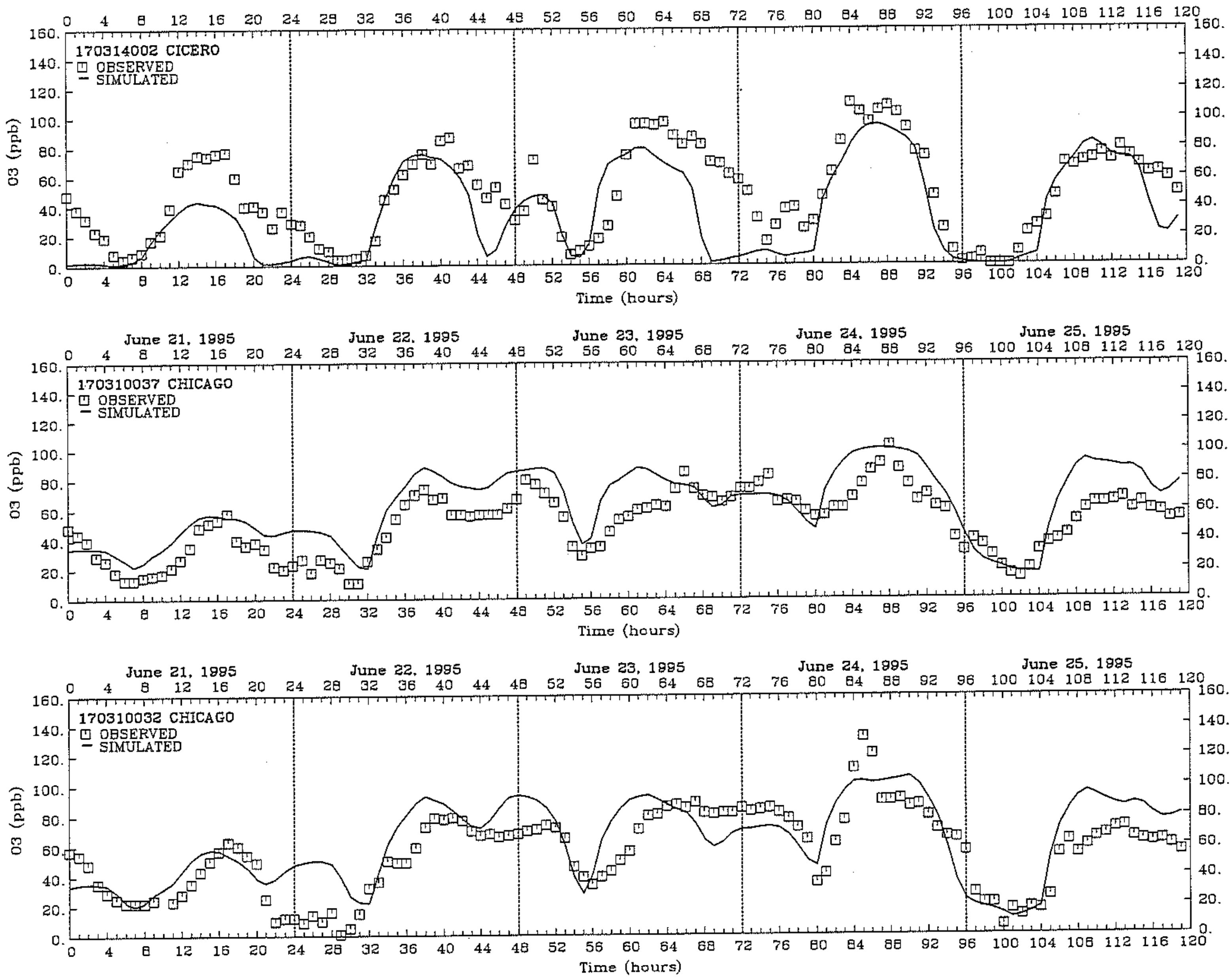


Grid M UAMV 1.24 Model Ozone Predictions vs. Ambient Observations
-- June 15–20, 1995 --

95bas10 @ 12 km (Stress = 0)

UAMPLT: Fri Jan 22 12:24:54 1999

Figure 8 (cont.)



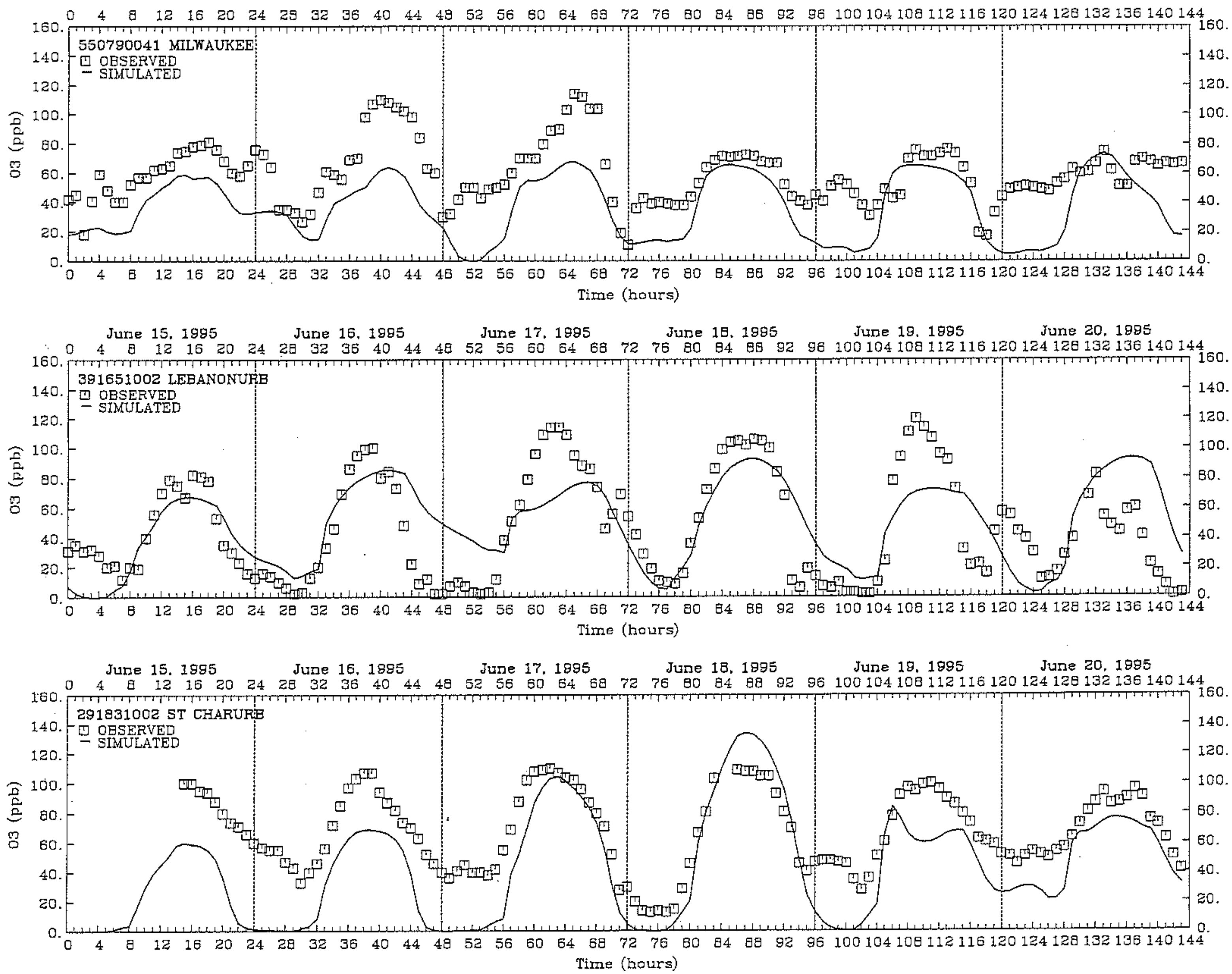
Grid M UAMV 1.24 Model Ozone Predictions vs. Ambient Observations

-- June 21-25, 1995 --

95bas10 @ 12 km (Stress = 0)

UAMPLT: Fri Jan 22 12:02:22 1999

Figure 8 (cont.)

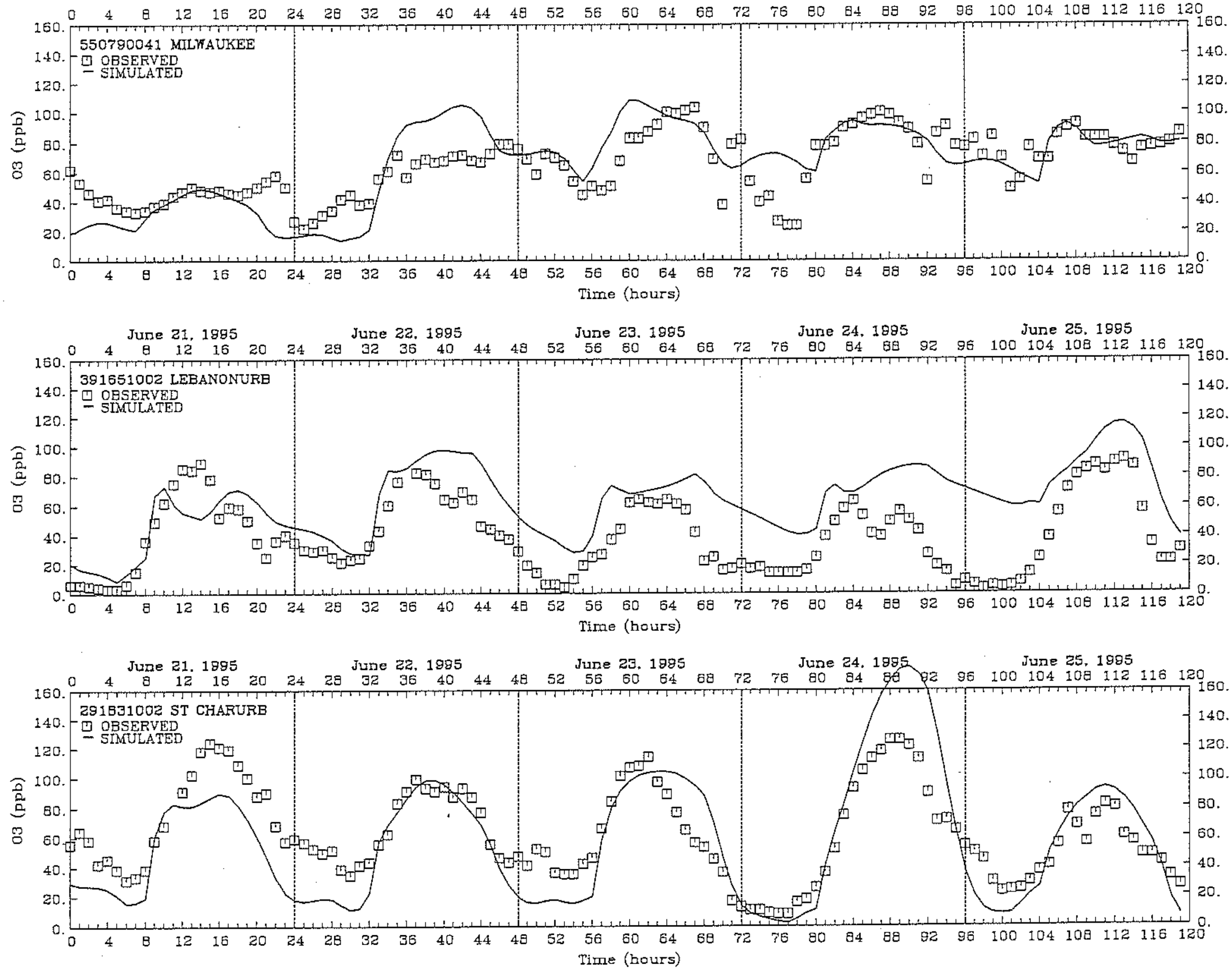


Grid M UAMV 1.24 Model Ozone Predictions vs. Ambient Observations
-- June 15-20, 1995 --

95bas10 @ 12 km (Stress = 0)

UAMPLT: Fri Jan 22 12:24:54 1999

Figure 8 (cont.)

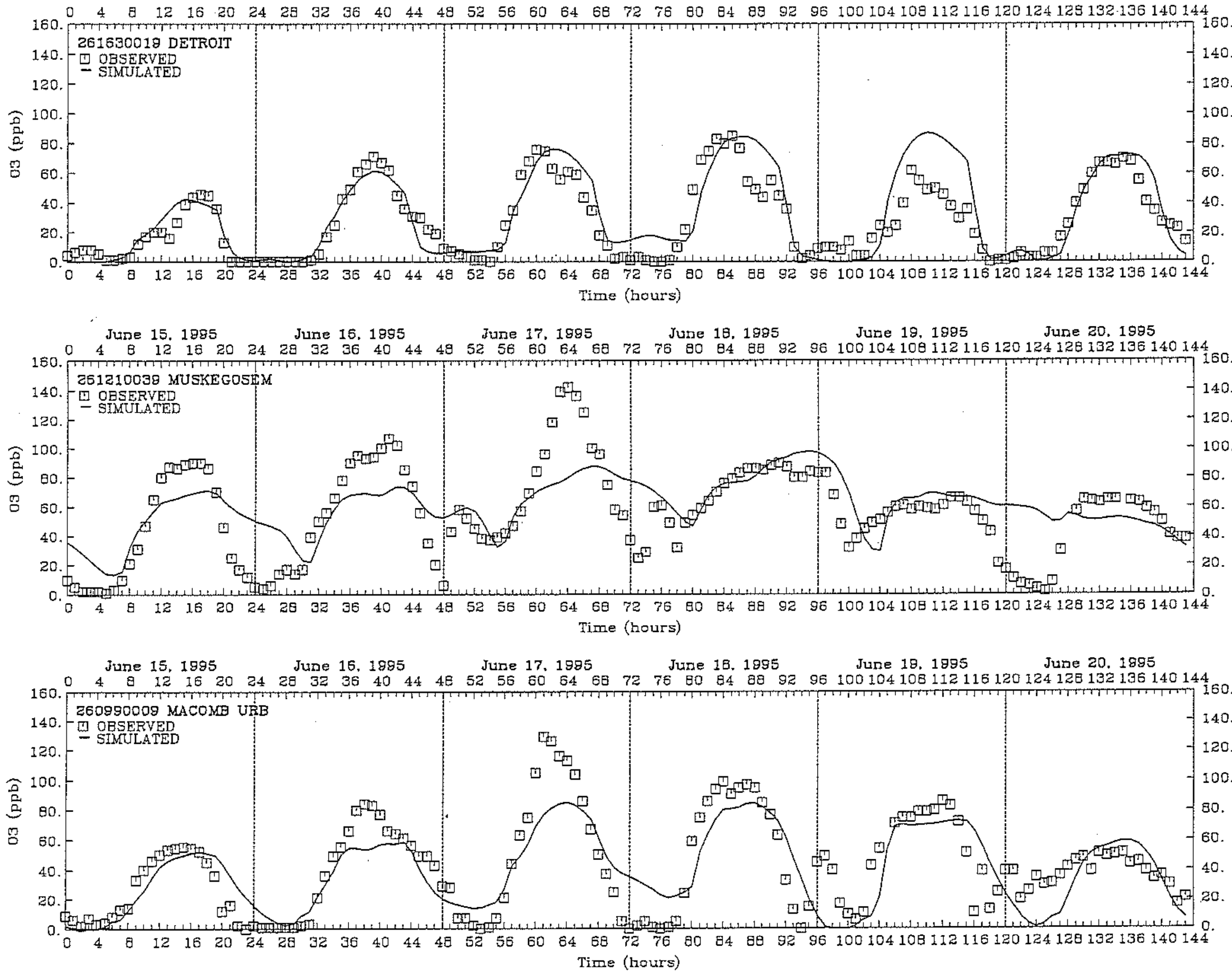


Grid M UAMV 1.24 Model Ozone Predictions vs. Ambient Observations
-- June 21-25, 1995 --

95bas10 @ 12 km (Stress = 0)

UAMPLT: Fri Jan 22 12:02:22 1999

Figure 8 (cont.)

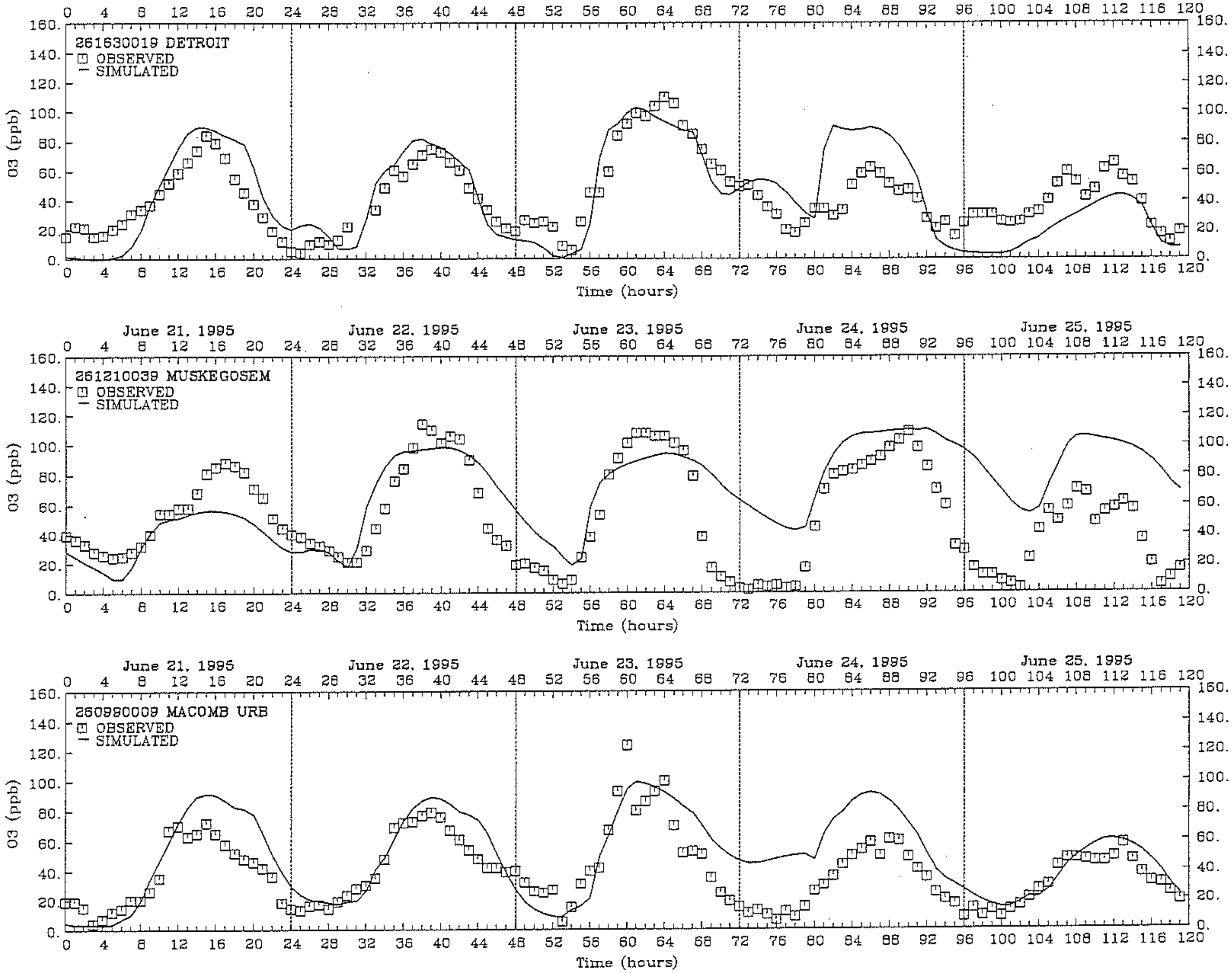


Grid M UAMV 1.24 Model Ozone Predictions vs. Ambient Observations
-- June 15-20, 1995 --

95bas10 @ 12 km (Stress = 0)

UAMPLT: Fri Jan 22 12:24:54 1999

Figure 8 (cont.)

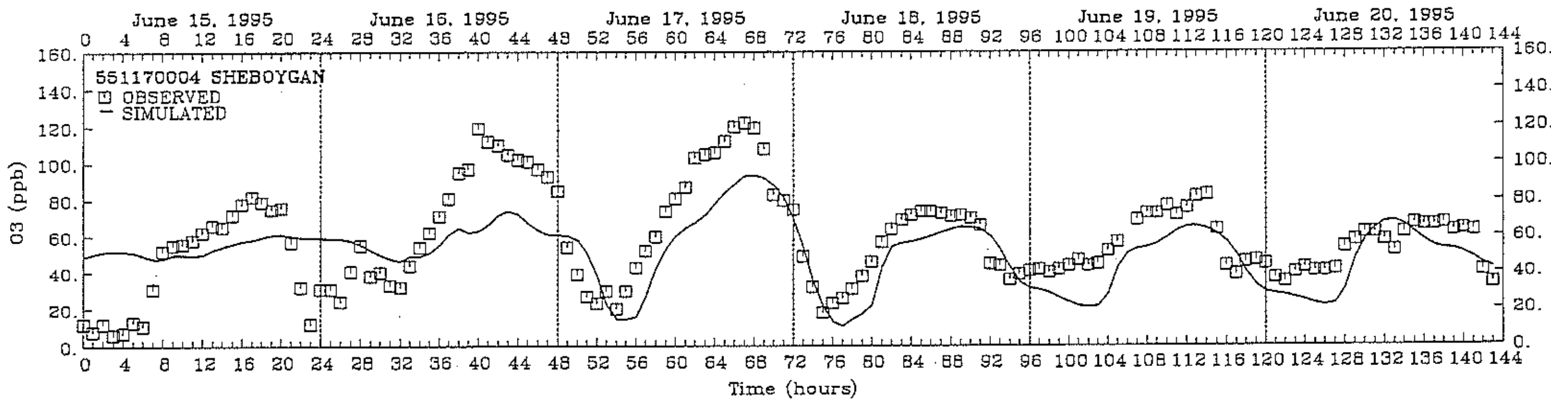


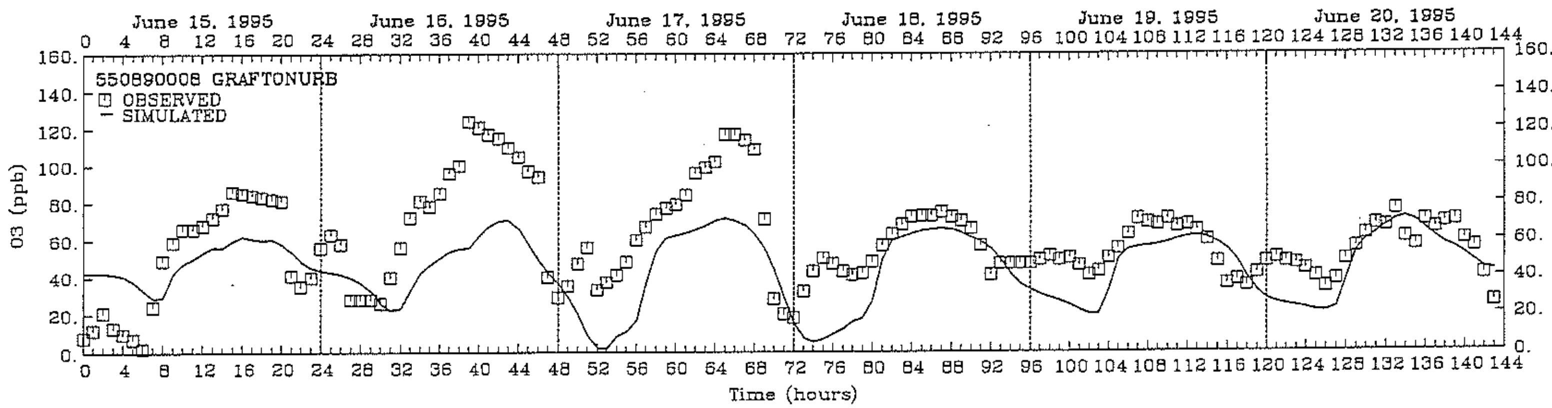
Grid M UAMV 1.24 Model Ozone Predictions vs. Ambient Observations
-- June 21–25, 1995 --

95bas10 @ 12 km (Stress = 0)

UAMPLT: Fri Jan 22 12:02:22 1999

Figure 8 (cont.)



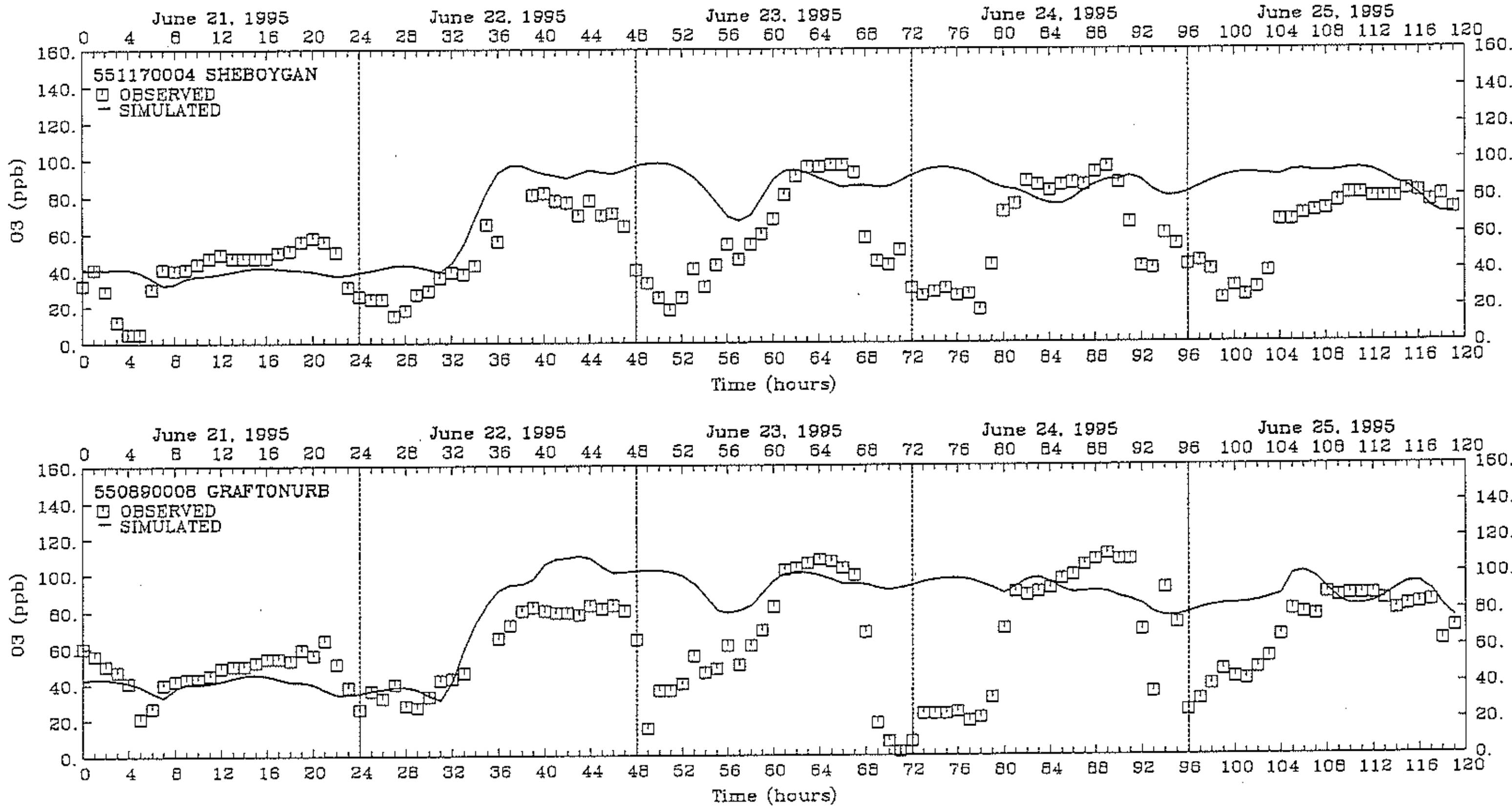


Grid M UAMV 1.24 Model Ozone Predictions vs. Ambient Observations
-- June 15-20, 1995 --

95bas10 @ 12 km (Stress = 0)

UAMPLT: Fri Jan 22 12:24:54 1999

Figure 8 (cont.)

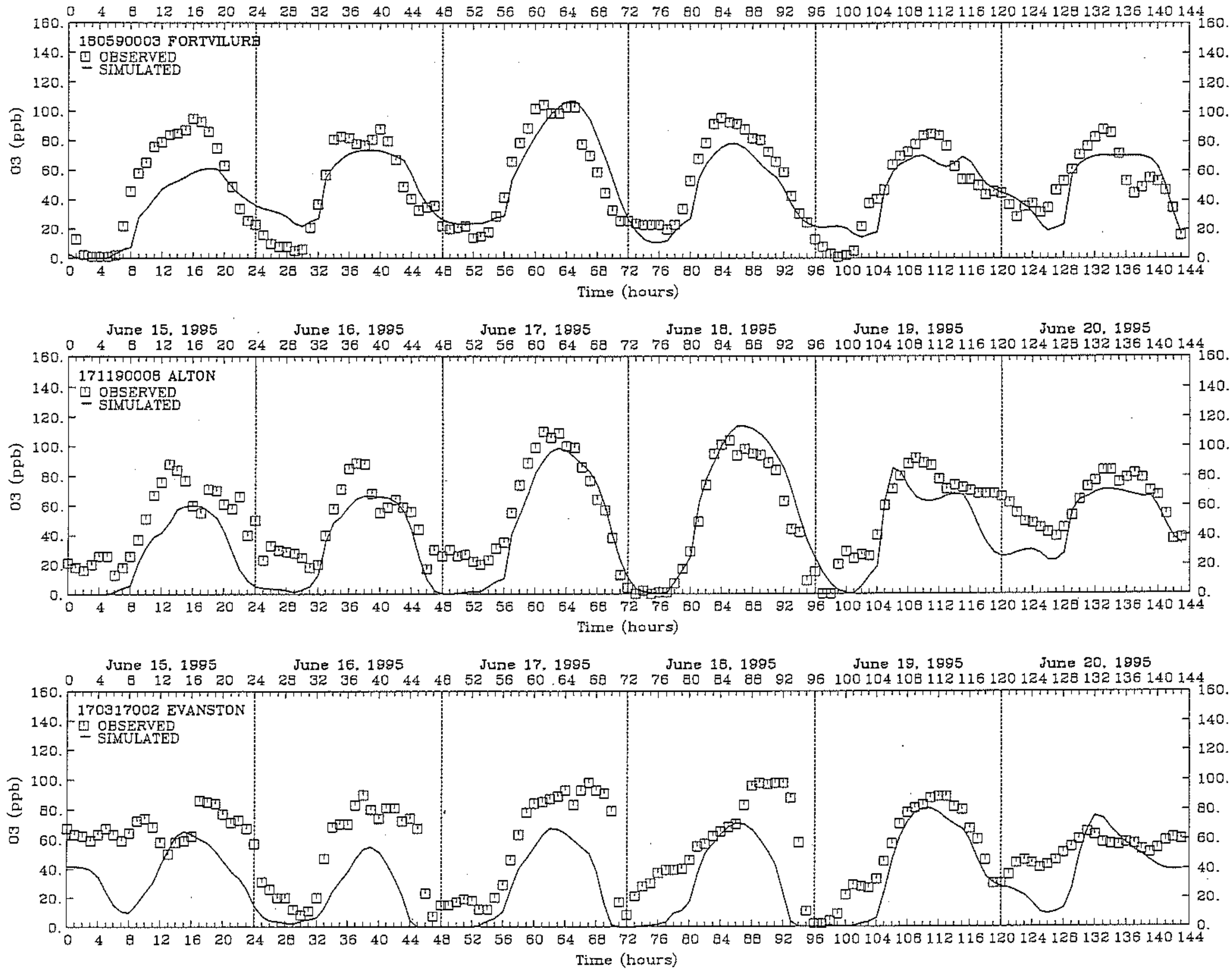


Grid M UAMV 1.24 Model Ozone Predictions vs. Ambient Observations
-- June 21-25, 1995 --

95bas10 @ 12 km (Stress = 0)

UAMPLT: Fri Jan 22 12:02:22 1999

Figure 8 (cont.)

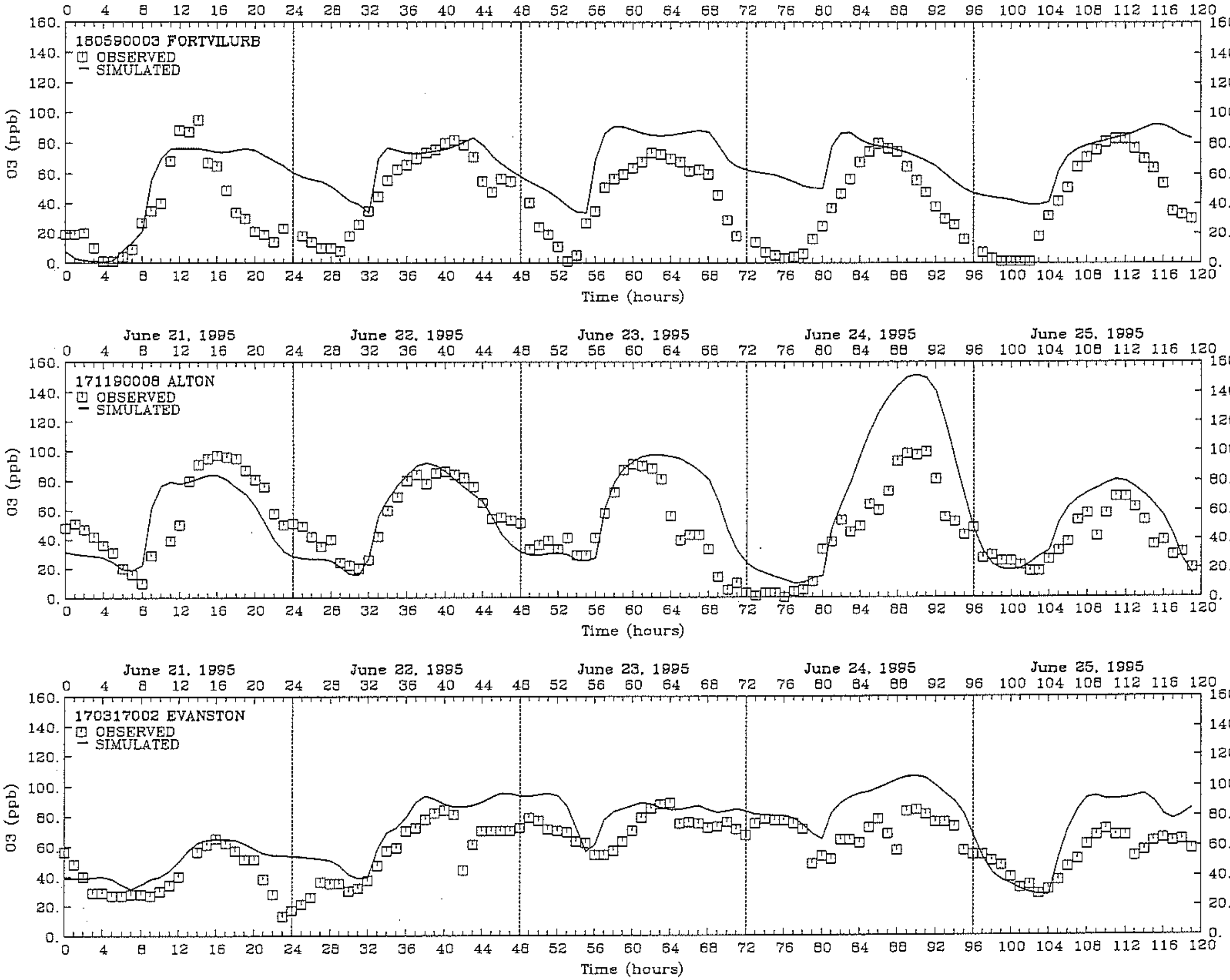


Grid M UAMV 1.24 Model Ozone Predictions vs. Ambient Observations
-- June 15-20, 1995 --

95bas10 @ 12 km (Stress = 0)

UAMPLT: Fri Jan 22 12:24:54 1999

Figure 8 (cont.)

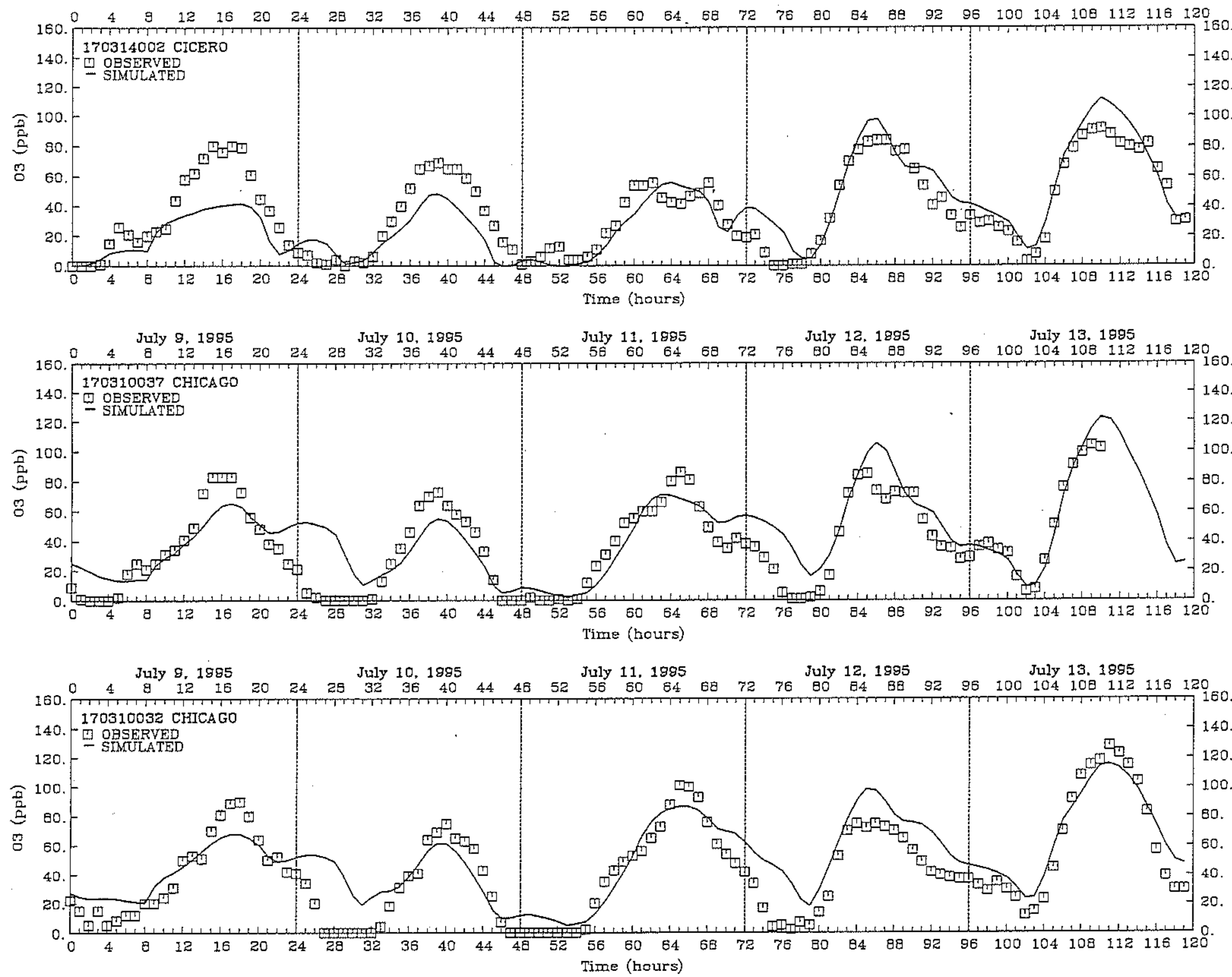


Grid M UAMV 1.24 Model Ozone Predictions vs. Ambient Observations
-- June 21-25, 1995 --

95bas10 @ 12 km (Stress = 0)

UAMPLT: Fri Jan 22 12:02:22 1999

Figure 9

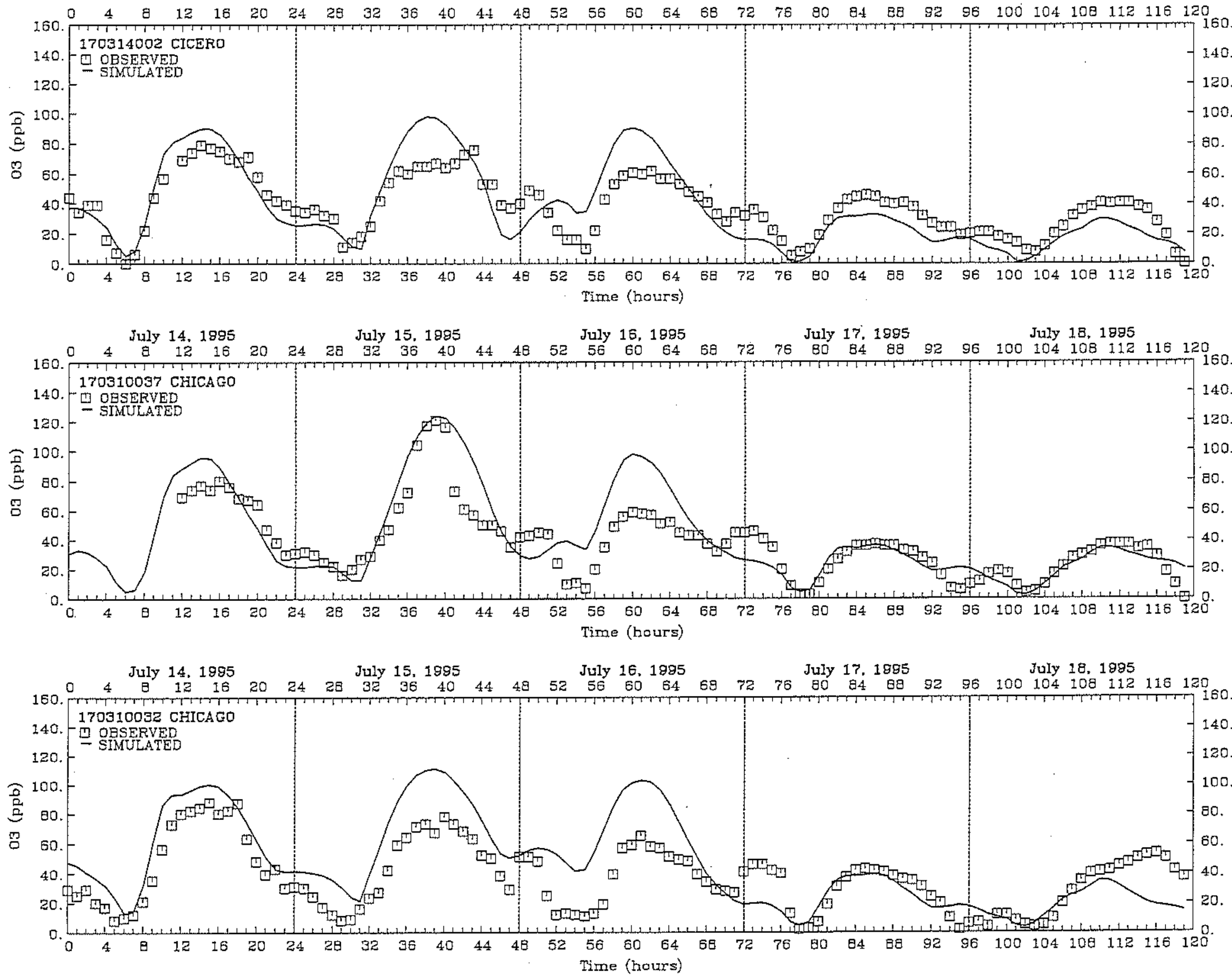


Grid M UAMV 1.24 Model Ozone Predictions vs. Ambient Observations
-- July 09-13, 1995 --

95bas10 @ 12 km (Stress = 0)

UAMPLT: Fri Jan 22 15:34:15 1999

Figure 9 (cont.)

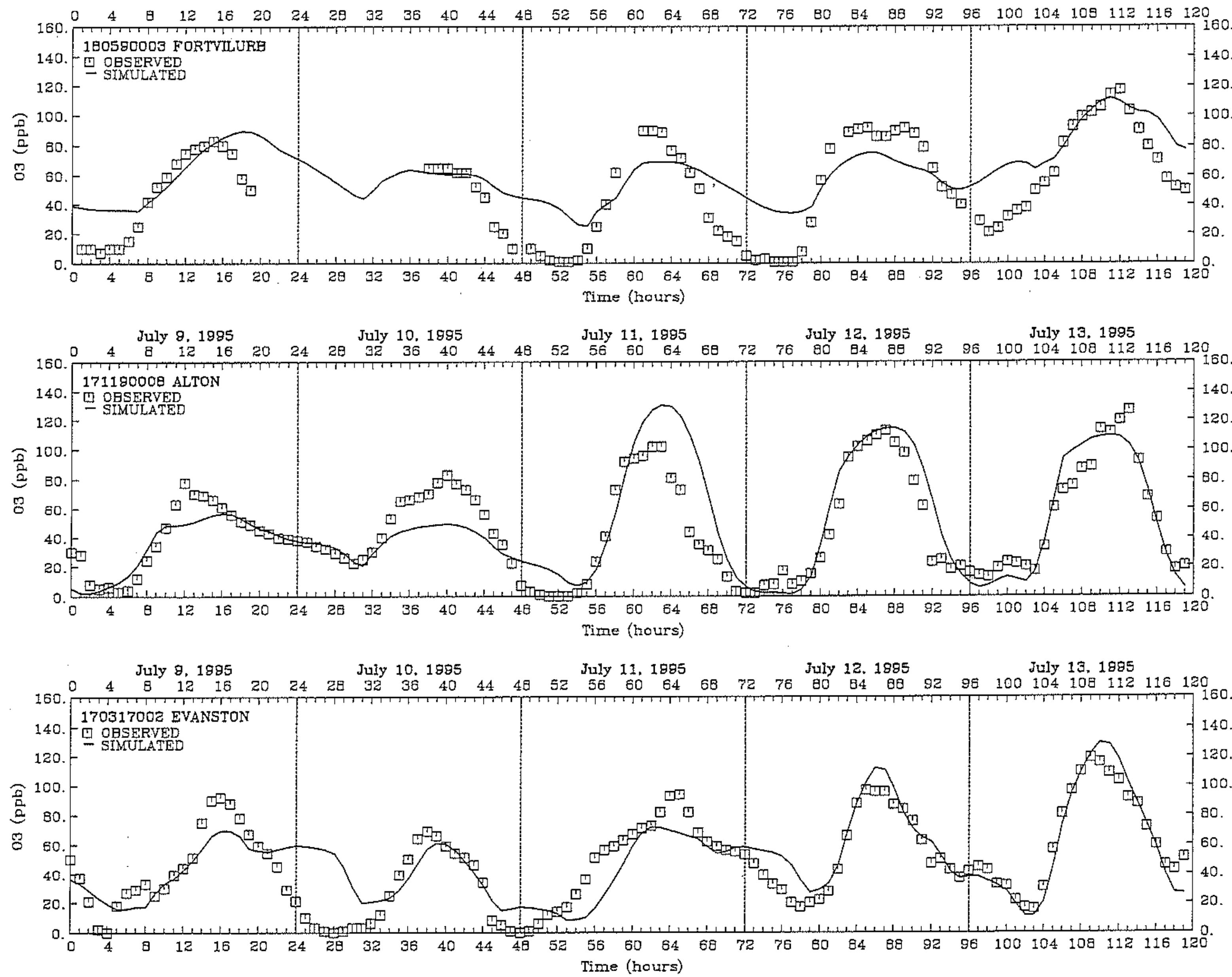


Grid M UAMV 1.24 Model Ozone Predictions vs. Ambient Observations
-- July 14-18, 1995 --

95bas10 @ 12 km (Stress = 0)

UAMPLT: Fri Jan 22 15:37:28 1999

Figure 9 (cont.)

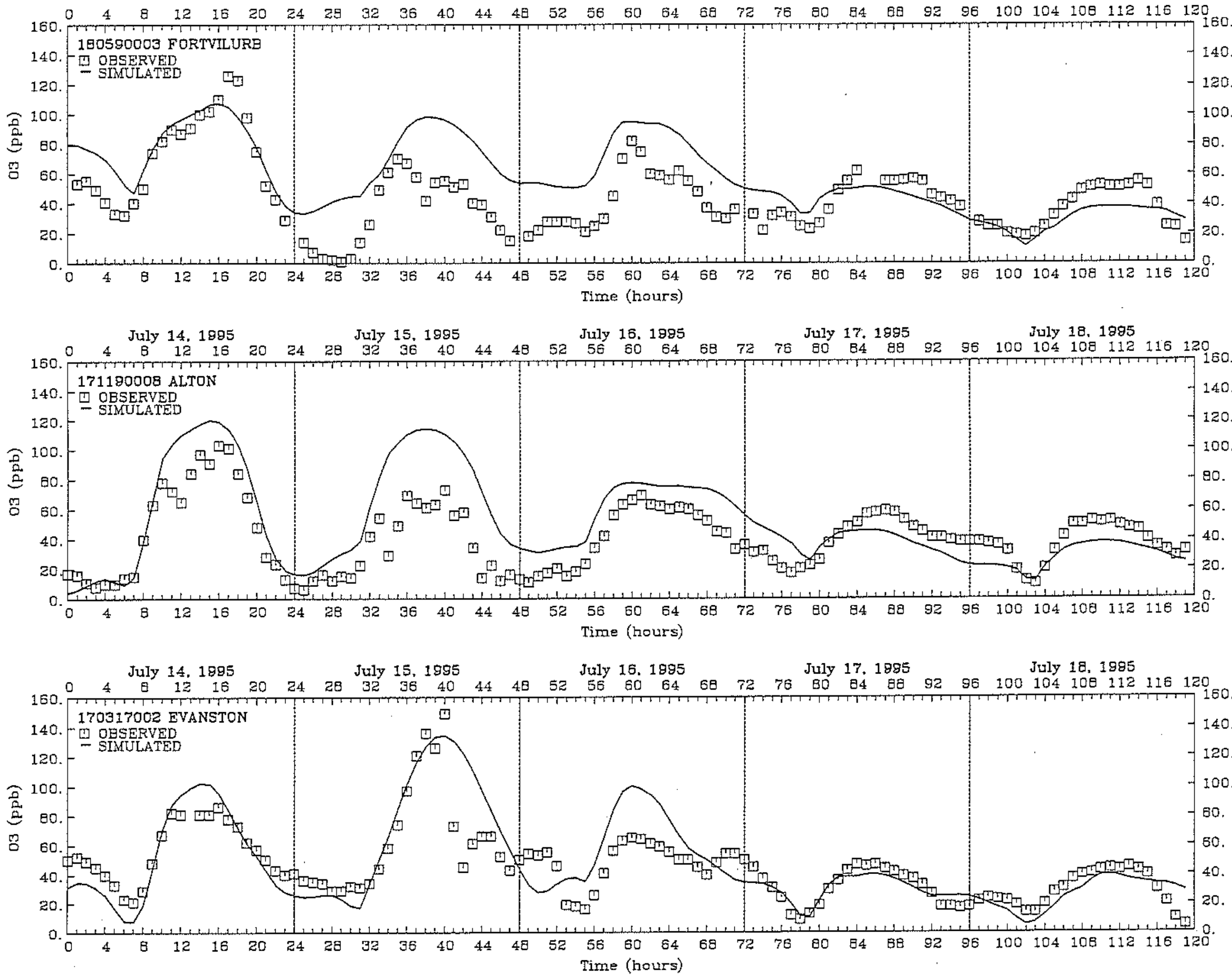


Grid M UAMV 1.24 Model Ozone Predictions vs. Ambient Observations
-- July 09-13, 1995 --

95bas10 @ 12 km (Stress = 0)

UAMPLT: Fri Jan 22 15:34:15 1999

Figure 9 (cont.)

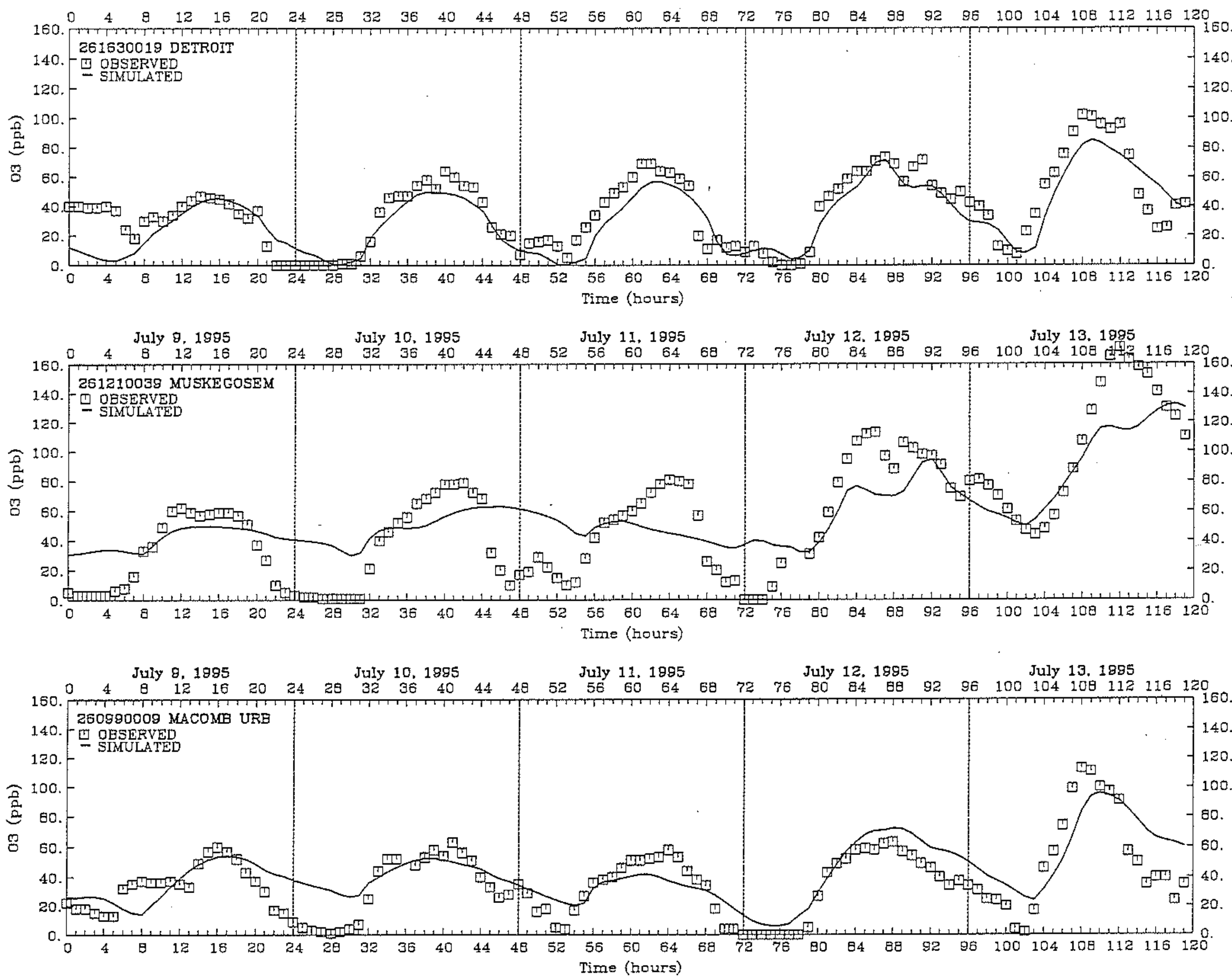


Grid M UAMV 1.24 Model Ozone Predictions vs. Ambient Observations
-- July 14-18, 1995 --

95bas10 @ 12 km (Stress = 0)

UAMPLT: Fri Jan 22 15:37:28 1999

Figure 9 (cont.)

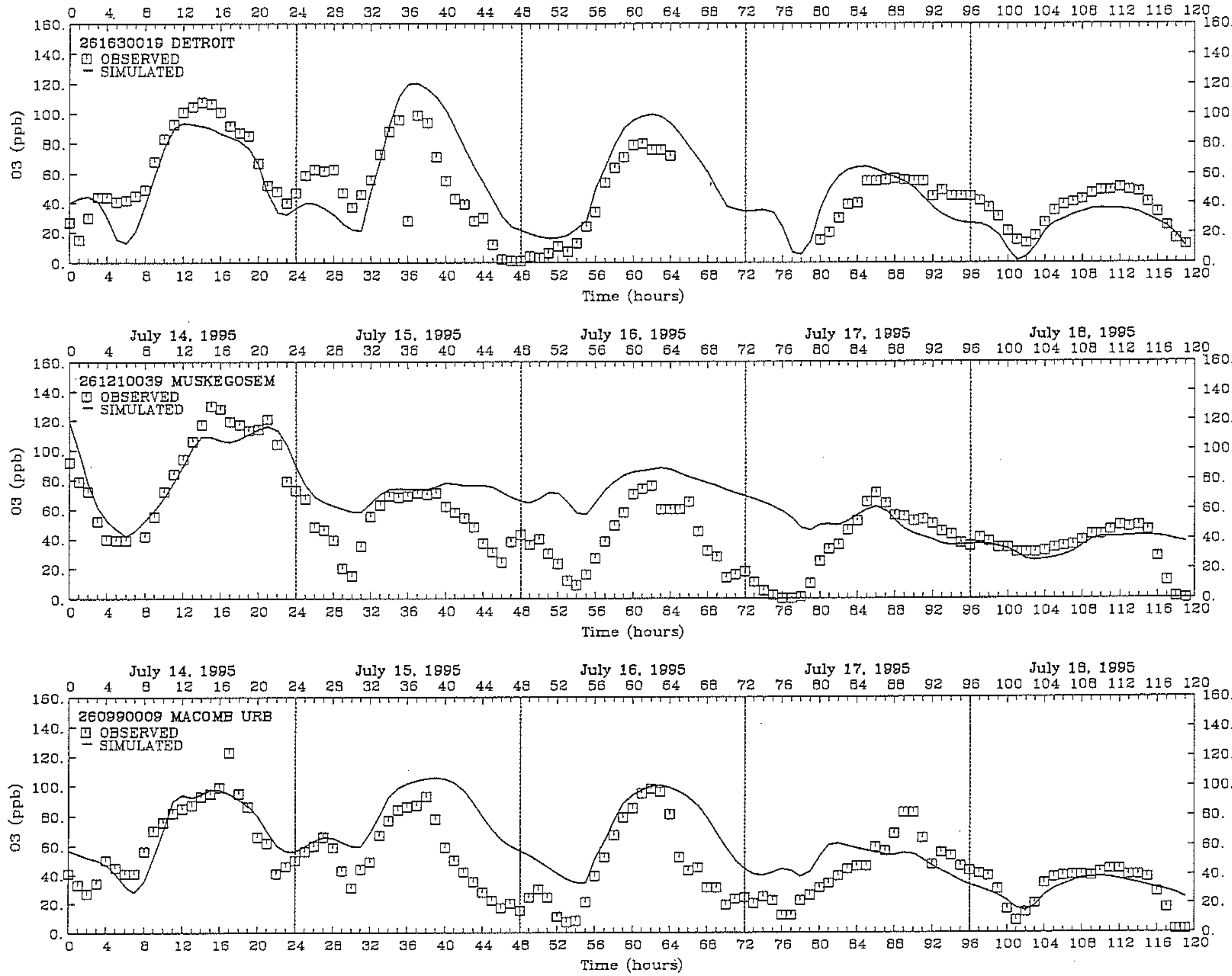


Grid M UAMV 1.24 Model Ozone Predictions vs. Ambient Observations
-- July 09–13, 1995 --

95bas10 @ 12 km (Stress = 0)

UAMPLT: Fri Jan 22 15:34:15 1999

Figure 9 (cont.)

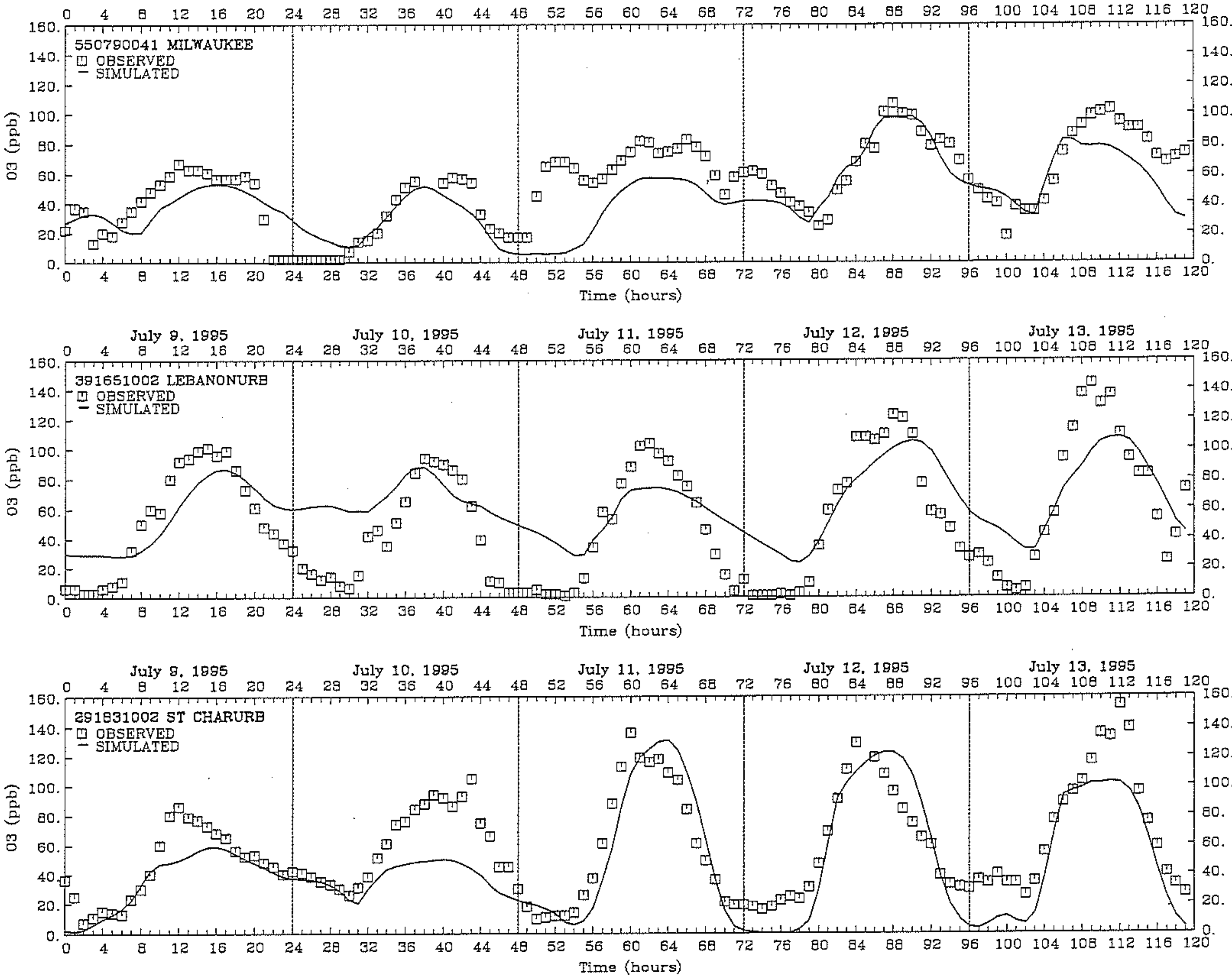


Grid M UAMV 1.24 Model Ozone Predictions vs. Ambient Observations
-- July 14-18, 1995 --

95bas10 @ 12 km (Stress = 0)

UAMPLT: Fri Jan 22 15:37:28 1999

Figure 9 (cont.)

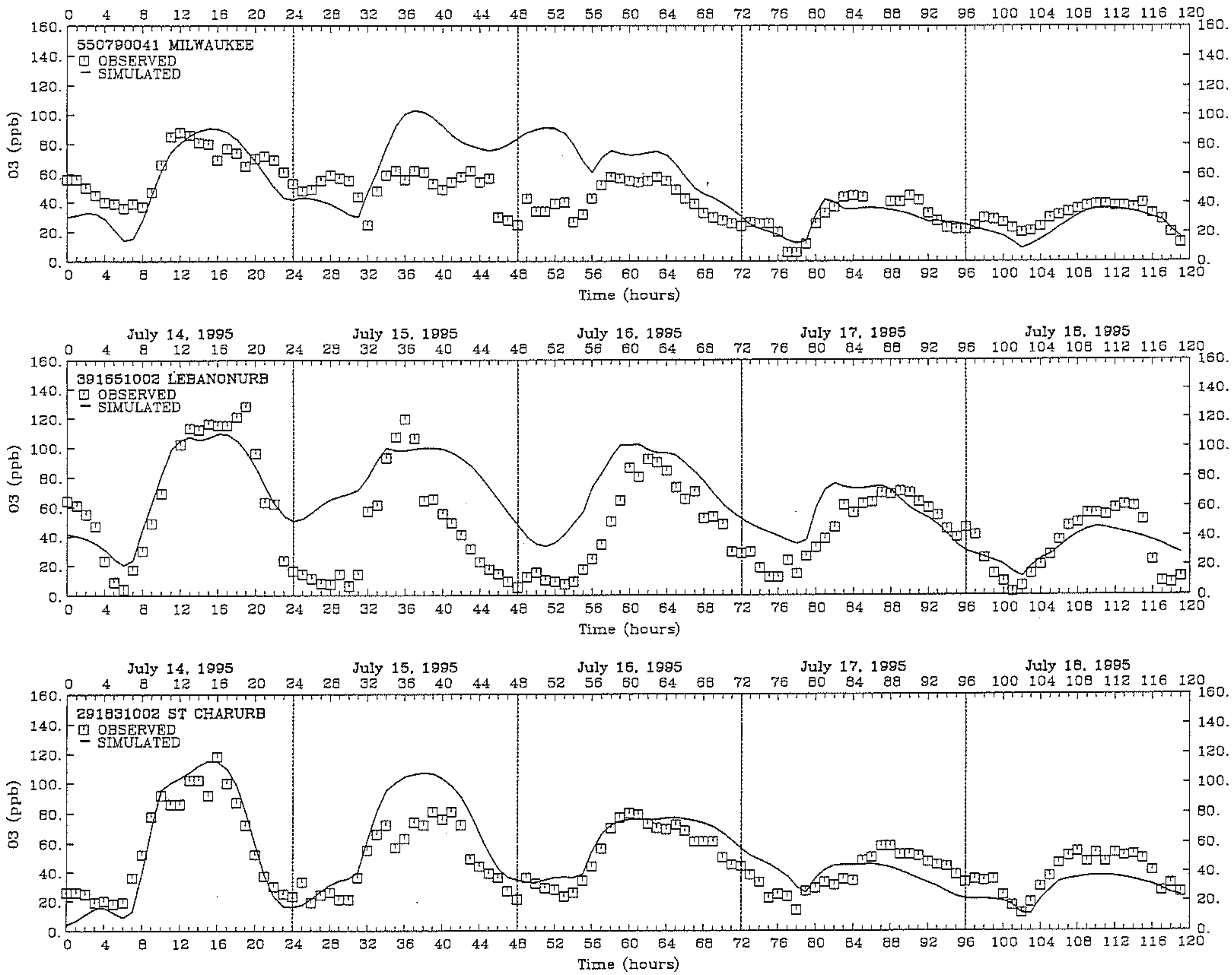


Grid M UAMV 1.24 Model Ozone Predictions vs. Ambient Observations
-- July 09-13, 1995 --

95bas10 @ 12 km (Stress = 0)

UAMPLT: Fri Jan 22 15:34:15 1999

Figure 9 (cont.)

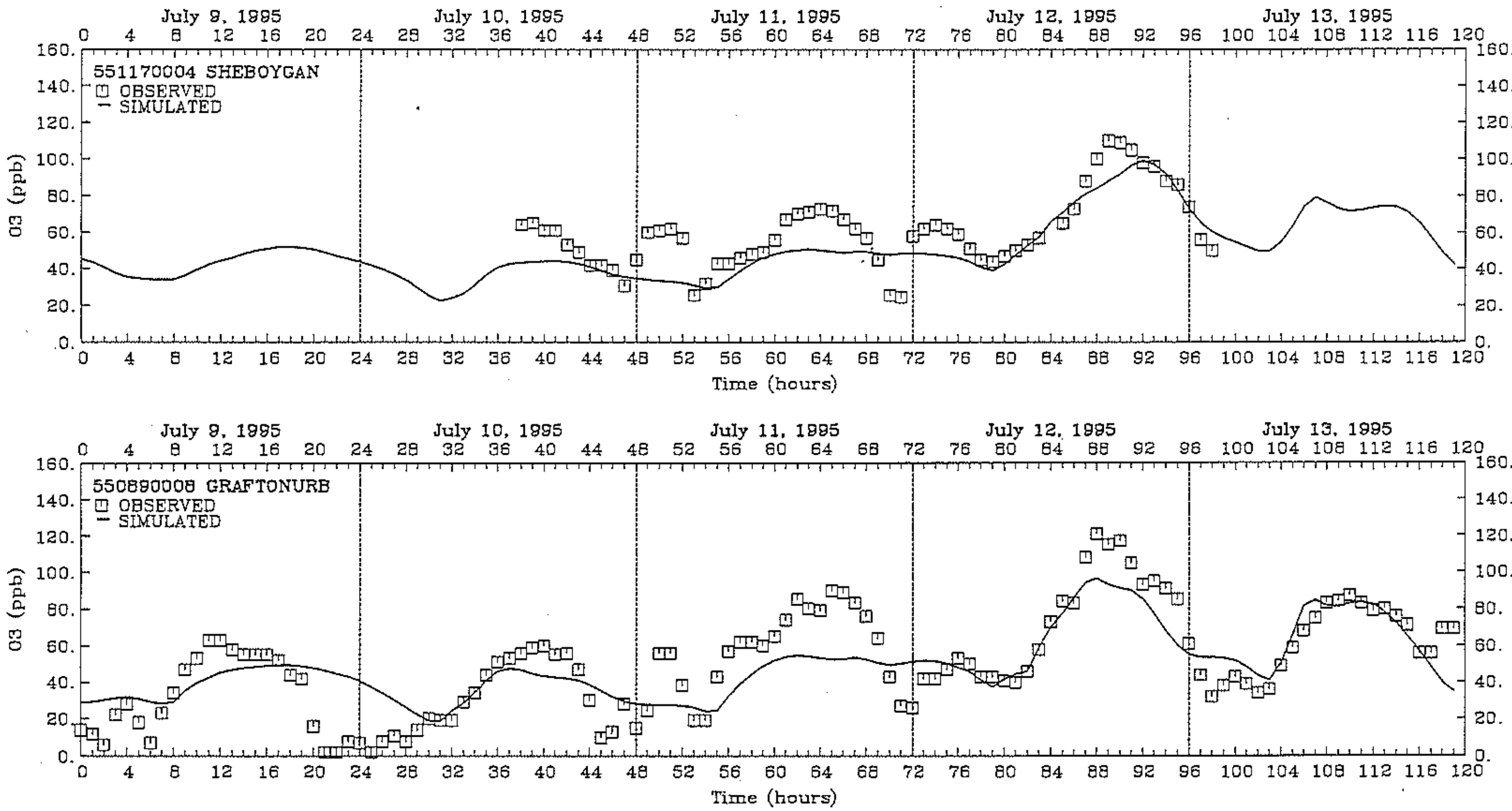


Grid M UAMV 1.24 Model Ozone Predictions vs. Ambient Observations
-- July 14–18, 1995 --

95bas10 @ 12 km (Stress = 0)

UAMPLT: Fri Jan 22 15:37:28 1999

Figure 9 (cont.)

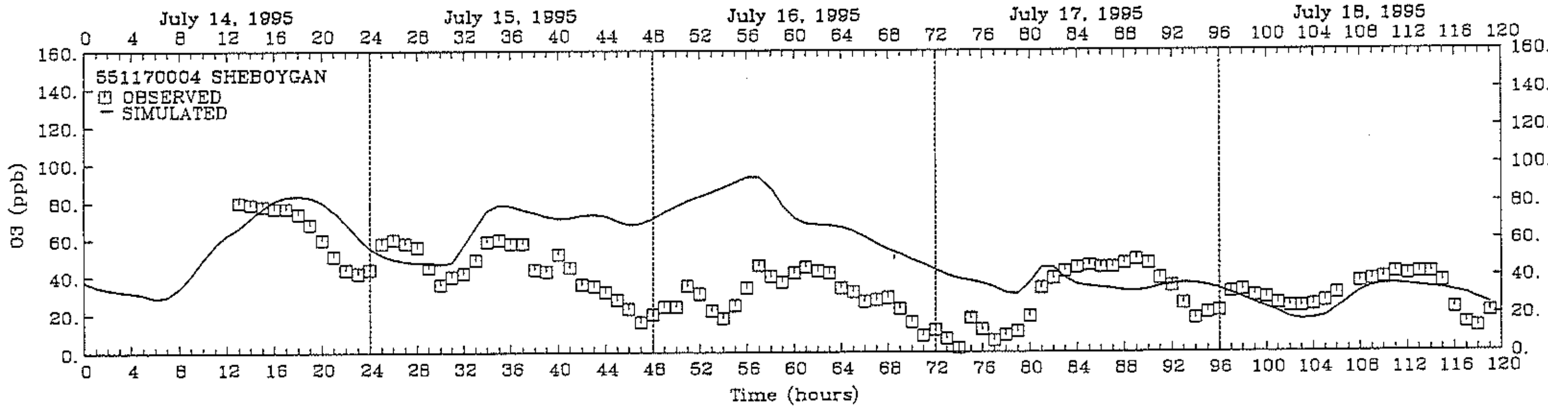


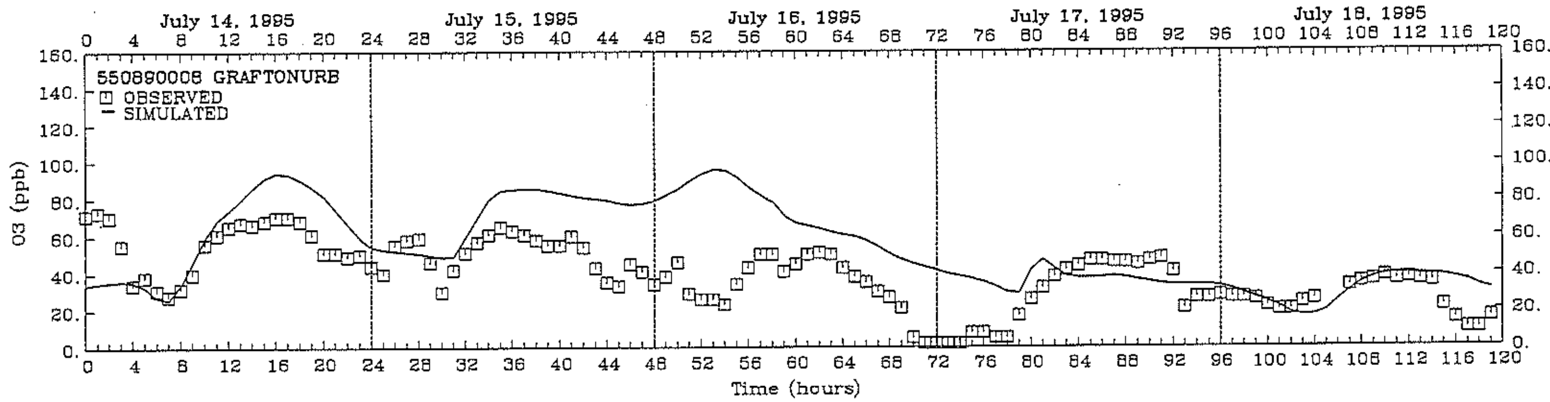
Grid M UAMV 1.24 Model Ozone Predictions vs. Ambient Observations
-- July 09-13, 1995 --

95bas10 @ 12 km (Stress = 0)

UAMPLT: Fri Jan 22 15:34:15 1999

Figure 9 (cont.)





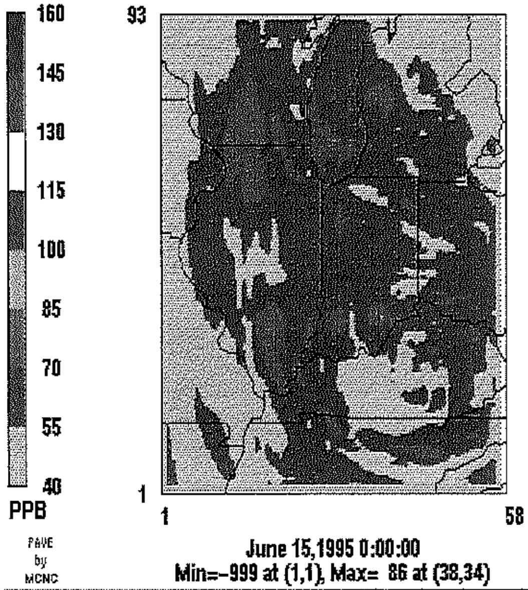
Grid M UAMV 1.24 Model Ozone Predictions vs. Ambient Observations
-- July 14–18, 1995 --

95bas10 @ 12 km (Stress = 0)

UAMPLT: Fri Jan 22 15:37:28 1999

Daily Peak 1-Hour Ozone

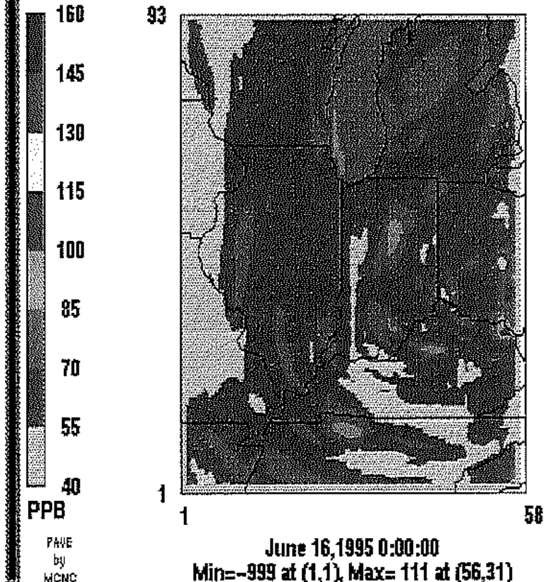
2007 CAA Base – January '99 Modeling
07caa10: Grid M @ 12 km –– TSIP (B10)



June 15,1995 0:00:00
Min=-999 at (1,1), Max= 86 at (38,34)

Daily Peak 1-Hour Ozone

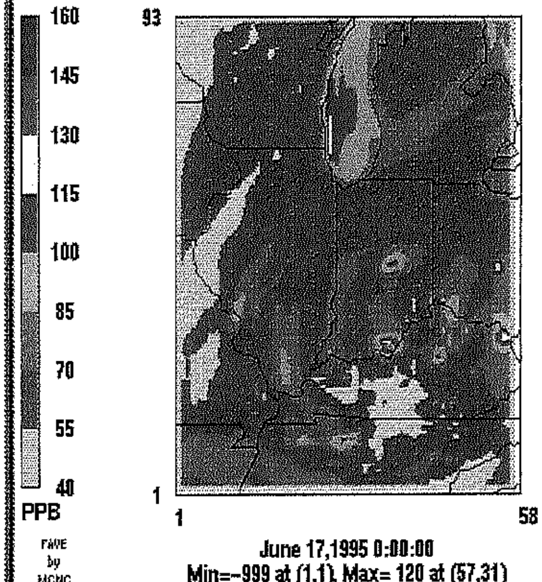
2007 CAA Base – January '99 Modeling
07caa10: Grid M @ 12 km –– TSIP (B10)



June 16,1995 0:00:00
Min=-999 at (1,1), Max= 111 at (56,31)

Daily Peak 1-Hour Ozone

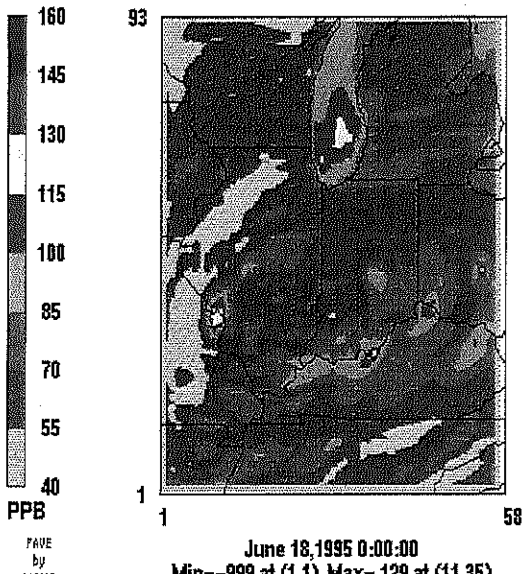
2007 CAA Base – January '99 Modeling
07caa10: Grid M @ 12 km –– TSIP (B10)



June 17,1995 0:00:00
Min=-999 at (1,1), Max= 120 at (57,31)

Daily Peak 1-Hour Ozone

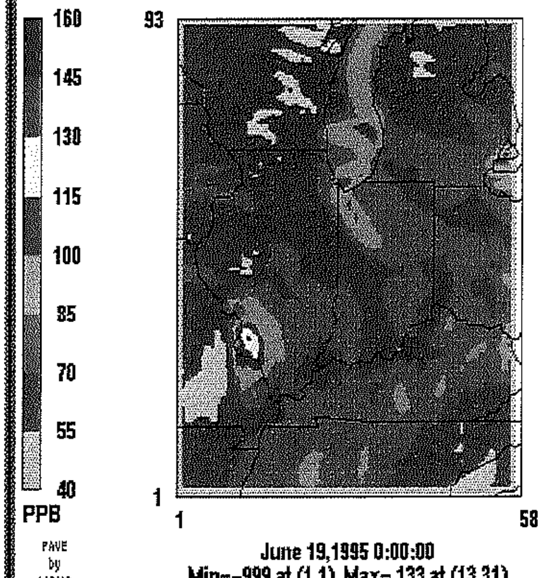
2007 CAA Base – January '99 Modeling
07caa10: Grid M @ 12 km –– TSIP (B10)



June 18,1995 0:00:00
Min=-999 at (1,1), Max= 129 at (11,35)

Daily Peak 1-Hour Ozone

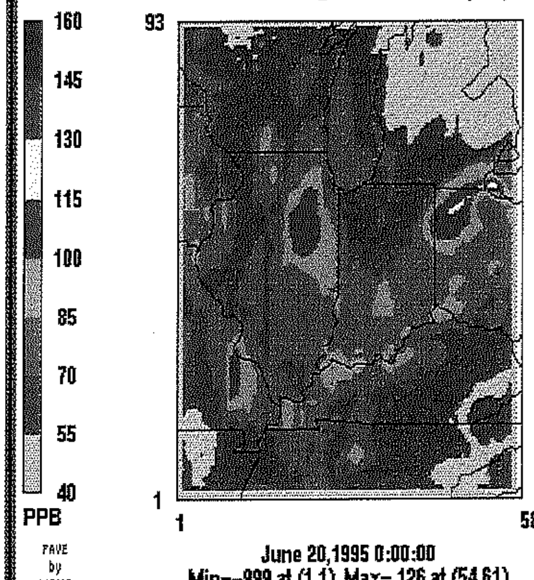
2007 CAA Base – January '99 Modeling
07caa10: Grid M @ 12 km –– TSIP (B10)



June 19,1995 0:00:00
Min=-999 at (1,1), Max= 133 at (13,31)

Daily Peak 1-Hour Ozone

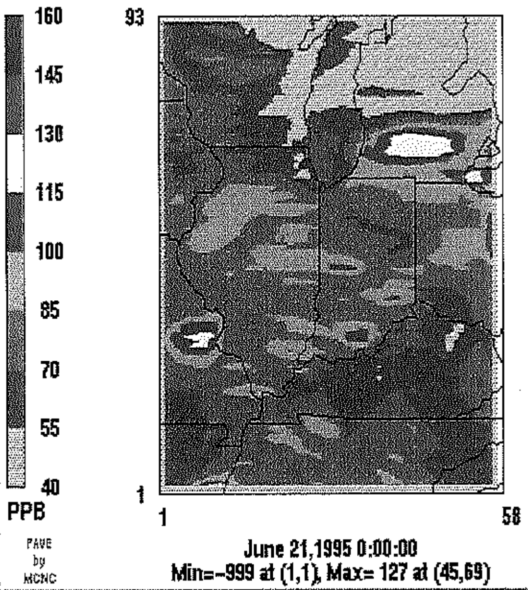
2007 CAA Base – January '99 Modeling
07caa10: Grid M @ 12 km –– TSIP (B10)



June 20,1995 0:00:00
Min=-999 at (1,1), Max= 126 at (54,61)

Daily Peak 1-Hour Ozone

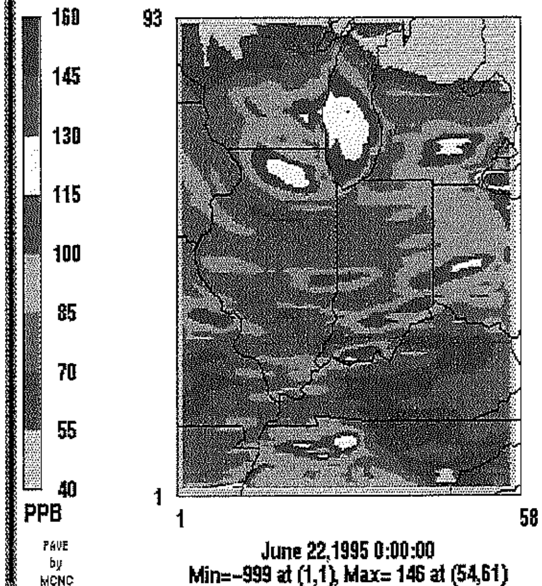
2007 CAA Base - January '99 Modeling
07caa10: Grid M @ 12 km -- TSIP (B10)



June 21,1995 0:00:00
Min=-999 at (1,1), Max= 127 at (45,69)

Daily Peak 1-Hour Ozone

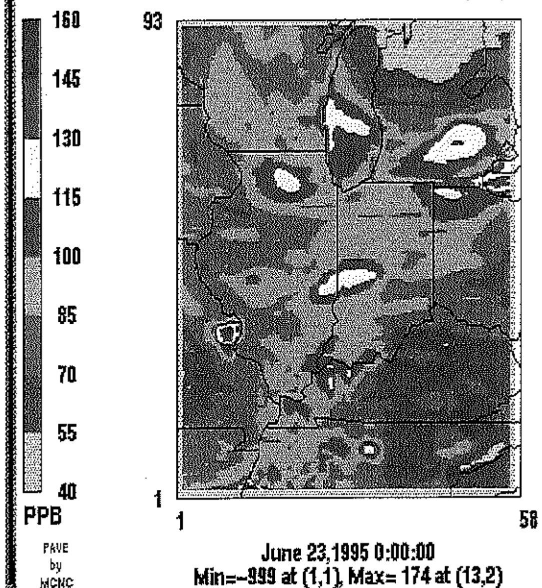
2007 CAA Base - January '99 Modeling
07caa10: Grid M @ 12 km -- TSIP (B10)



June 22,1995 0:00:00
Min=-999 at (1,1), Max= 146 at (54,61)

Daily Peak 1-Hour Ozone

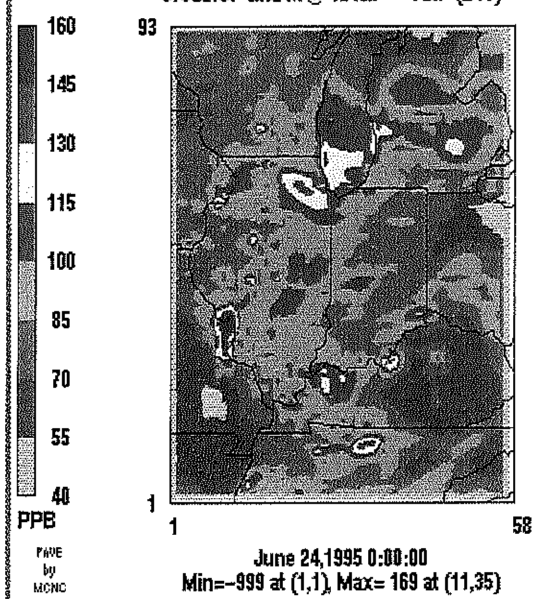
2007 CAA Base - January '99 Modeling
07caa10: Grid M @ 12 km -- TSIP (B10)



June 23,1995 0:00:00
Min=-999 at (1,1), Max= 174 at (13,2)

Daily Peak 1-Hour Ozone

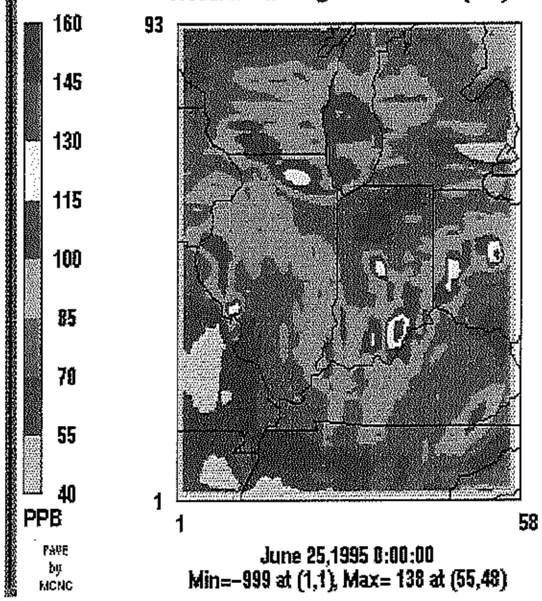
2007 CAA Base - January '99 Modeling
07caa10: Grid M @ 12 km -- TSIP (B10)



June 24,1995 0:00:00
Min=-999 at (1,1), Max= 169 at (11,35)

Daily Peak 1-Hour Ozone

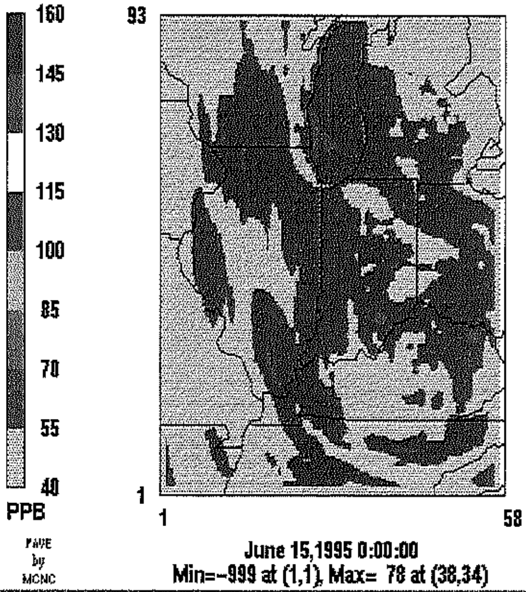
2007 CAA Base - January '99 Modeling
07caa10: Grid M @ 12 km -- TSIP (B10)



June 25,1995 0:00:00
Min=-999 at (1,1), Max= 138 at (55,48)

Daily Peak 8–Hour Ozone

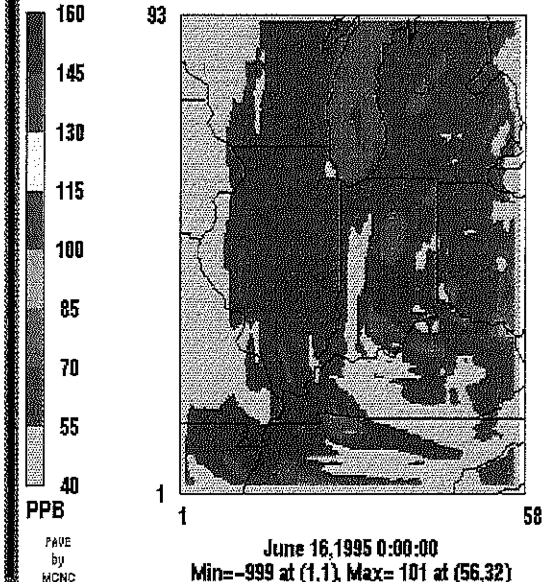
2007 CAA Base – January '99 Modeling
07caa10: Grid M @ 12 km -- TSIP (B10)



June 15,1995 0:00:00
Min=-999 at (1,1), Max= 78 at (38,34)

Daily Peak 8–Hour Ozone

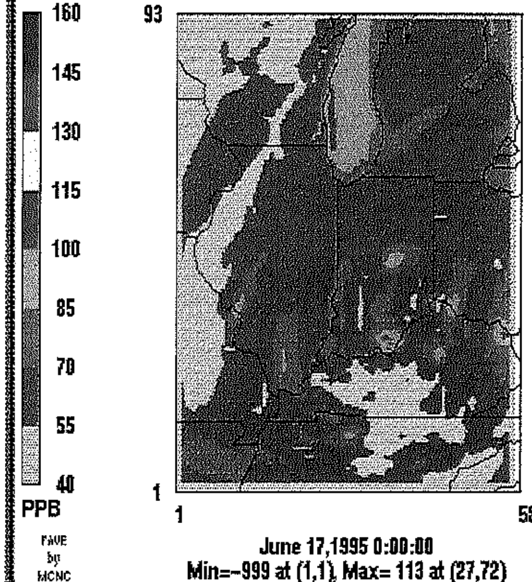
2007 CAA Base – January '99 Modeling
07caa10: Grid M @ 12 km -- TSIP (B10)



June 16,1995 0:00:00
Min=-999 at (1,1), Max= 101 at (56,32)

Daily Peak 8–Hour Ozone

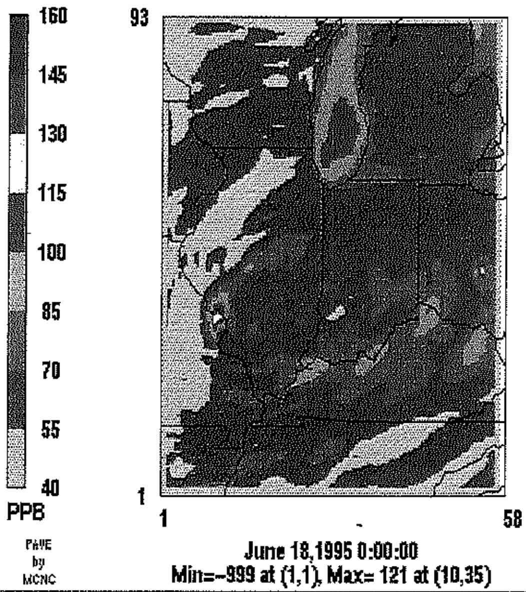
2007 CAA Base – January '99 Modeling
07caa10: Grid M @ 12 km -- TSIP (B10)



June 17,1995 0:00:00
Min=-999 at (1,1), Max= 113 at (27,72)

Daily Peak 8–Hour Ozone

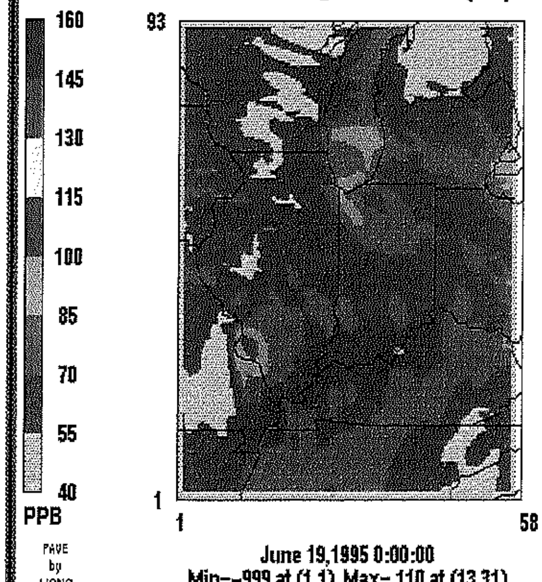
2007 CAA Base – January '99 Modeling
07caa10: Grid M @ 12 km -- TSIP (B10)



June 18,1995 0:00:00
Min=-999 at (1,1), Max= 121 at (10,35)

Daily Peak 8–Hour Ozone

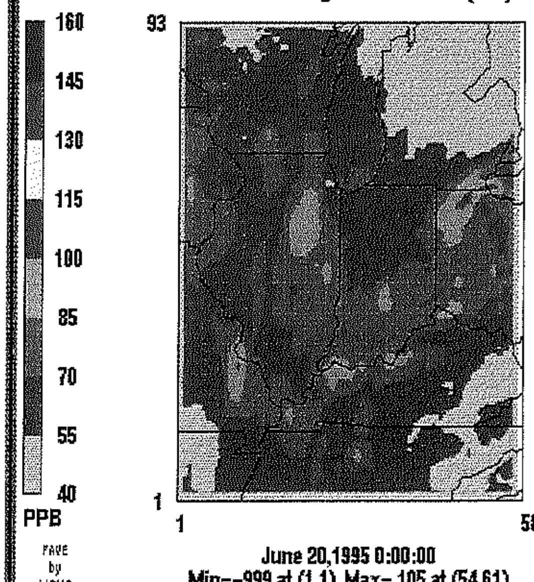
2007 CAA Base – January '99 Modeling
07caa10: Grid M @ 12 km -- TSIP (B10)



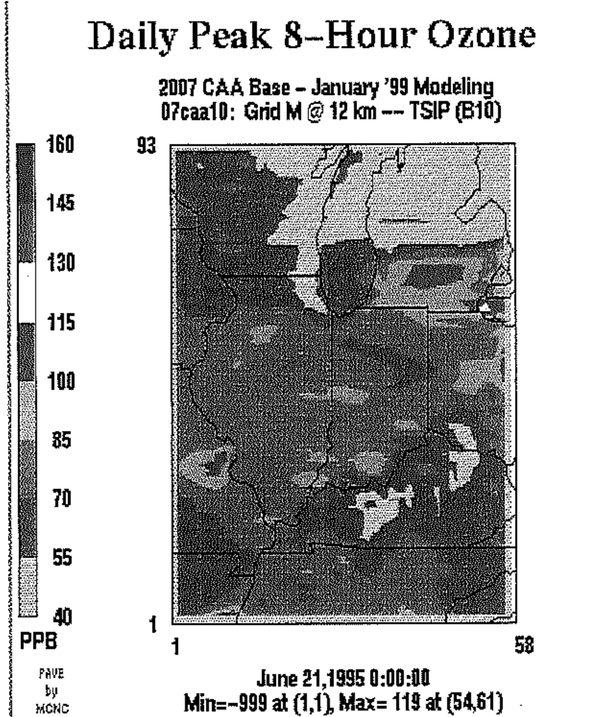
June 19,1995 0:00:00
Min=-999 at (1,1), Max= 110 at (13,31)

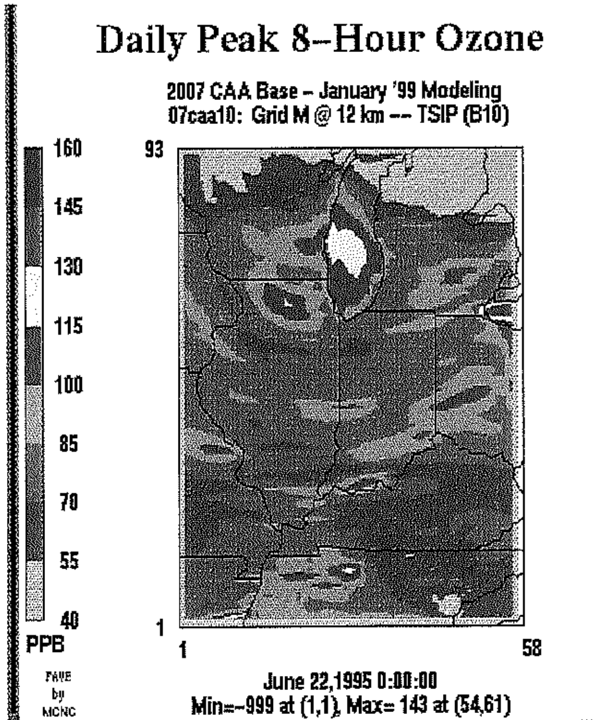
Daily Peak 8–Hour Ozone

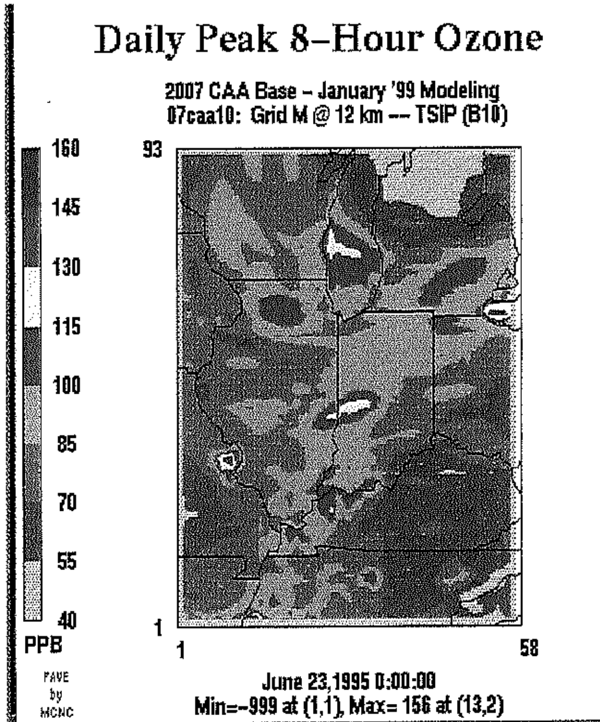
2007 CAA Base – January '99 Modeling
07caa10: Grid M @ 12 km -- TSIP (B10)

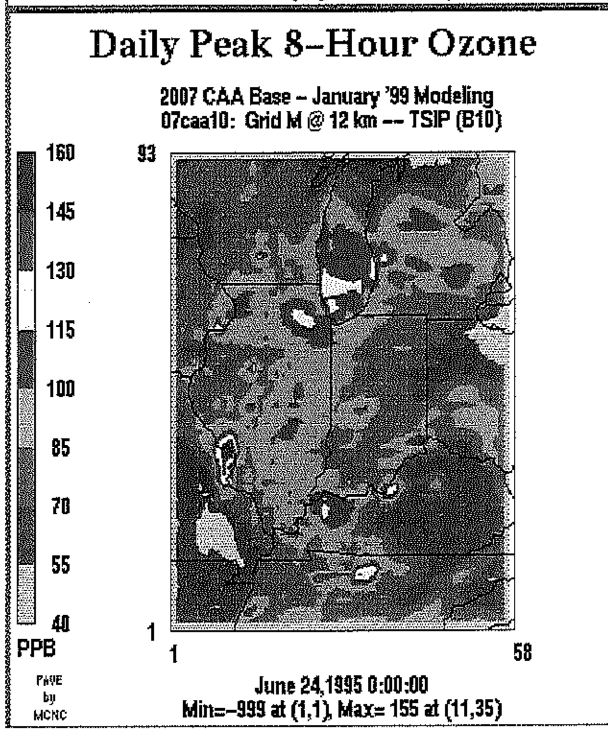


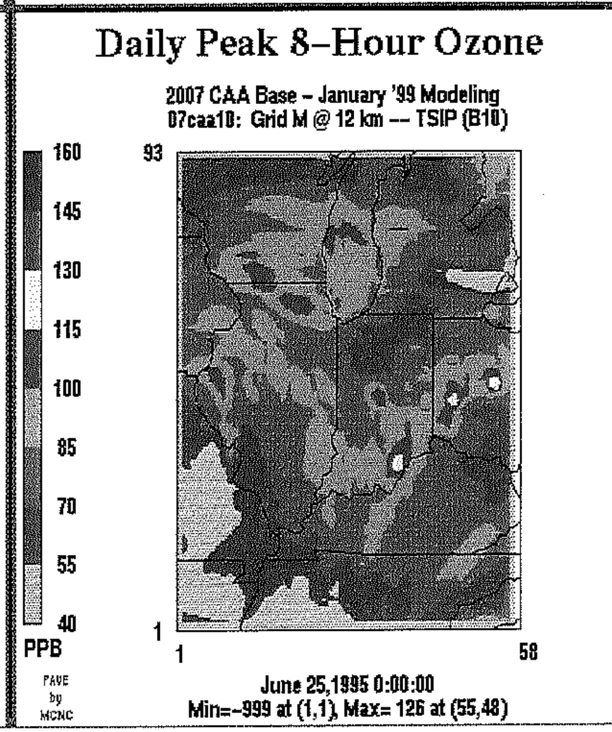
June 20,1995 0:00:00
Min=-999 at (1,1), Max= 105 at (54,61)


Daily Peak 8–Hour Ozone
2007 CAA Base – January '99 Modeling
07caa10: Grid M @ 12 km --- TSIP (B10)
160
145
130
115
100
85
70
55
40
PPB
PAVE by MCNC
93
1
1
58
June 21,1995 0:00:00
Min=-999 at (1,1), Max= 119 at (54,61)


Daily Peak 8–Hour Ozone
2007 CAA Base – January '99 Modeling
07caa10: Grid M @ 12 km --- TSIP (B10)
160
145
130
115
100
85
70
55
40
PPB
PAVE by MCNC
93
1
1
58
June 22,1995 0:00:00
Min=-999 at (1,1), Max= 143 at (54,61)

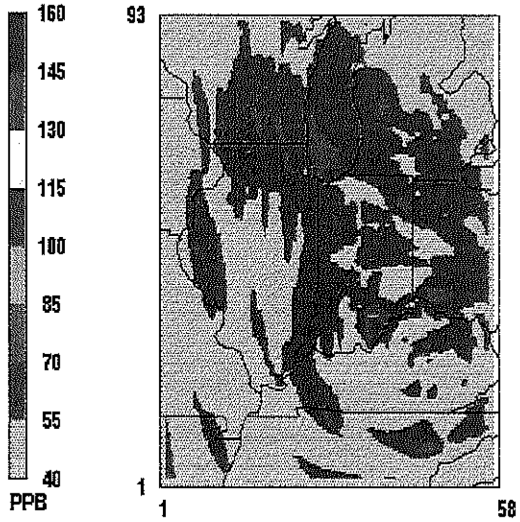

Daily Peak 8–Hour Ozone
2007 CAA Base – January '99 Modeling
07caa10: Grid M @ 12 km --- TSIP (B10)
160
145
130
115
100
85
70
55
40
PPB
PAVE by MCNC
93
1
1
58
June 23,1995 0:00:00
Min=-999 at (1,1), Max= 156 at (13,2)


Daily Peak 8–Hour Ozone
2007 CAA Base – January '99 Modeling
07caa10: Grid M @ 12 km --- TSIP (B10)
160
145
130
115
100
85
70
55
40
PPB
PAVE by MCNC
93
1
1
58
June 24,1995 0:00:00
Min=-999 at (1,1), Max= 155 at (11,35)


Daily Peak 8–Hour Ozone
2007 CAA Base – January '99 Modeling
07caa10: Grid M @ 12 km --- TSIP (B10)
160
145
130
115
100
85
70
55
40
PPB
PAVE by MCNC
93
1
1
58
June 25,1995 0:00:00
Min=-999 at (1,1), Max= 126 at (55,48)

Daily Peak 1–Hour Ozone

2007 SIP Call – January '99 Modeling
07sip10: Grid M @ 12 km --- TSIP (B10)

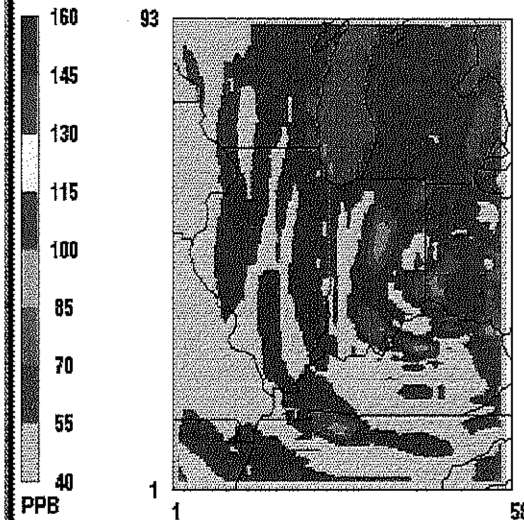


PAVE by MCNC

June 15,1995 0:00:00
Min=-999 at (1,1), Max= 86 at (37,34)

Daily Peak 1–Hour Ozone

2007 SIP Call – January '99 Modeling
07sip10: Grid M @ 12 km --- TSIP (B10)

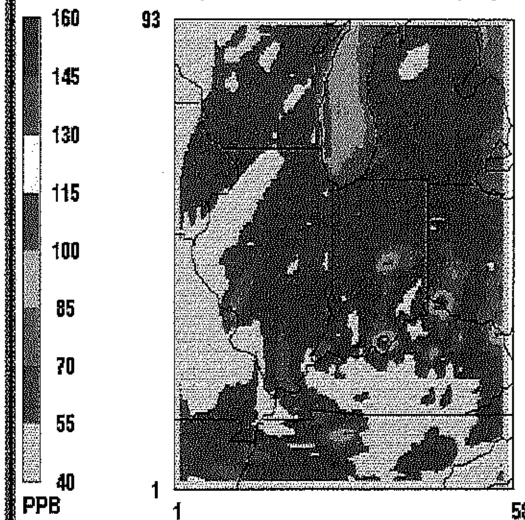


PAVE by MCNC

June 16,1995 0:00:00
Min=-999 at (1,1), Max= 103 at (56,31)

Daily Peak 1–Hour Ozone

2007 SIP Call – January '99 Modeling
07sip10: Grid M @ 12 km --- TSIP (B10)

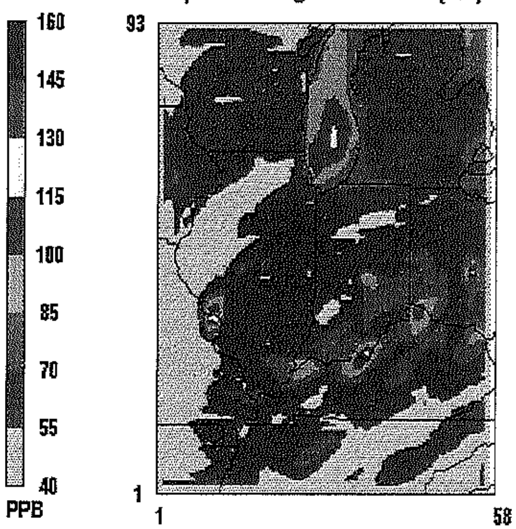


PAVE by MCNC

June 17,1995 0:00:00
Min=-999 at (1,1), Max= 119 at (46,37)

Daily Peak 1–Hour Ozone

2007 SIP Call – January '99 Modeling
07sip10: Grid M @ 12 km --- TSIP (B10)

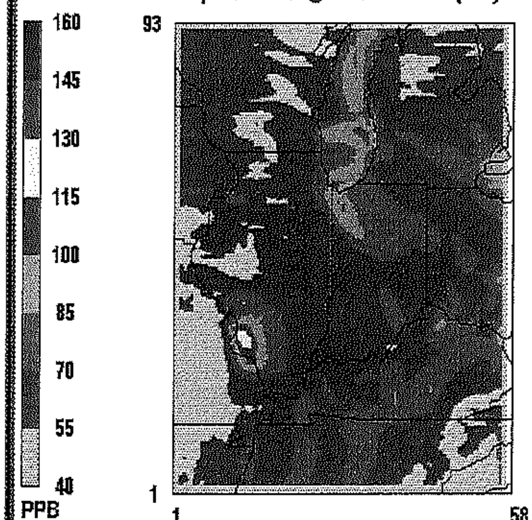


PAVE by MCNC

June 18,1995 0:00:00
Min=-999 at (1,1), Max= 122 at (11,35)

Daily Peak 1–Hour Ozone

2007 SIP Call – January '99 Modeling
07sip10: Grid M @ 12 km --- TSIP (B10)

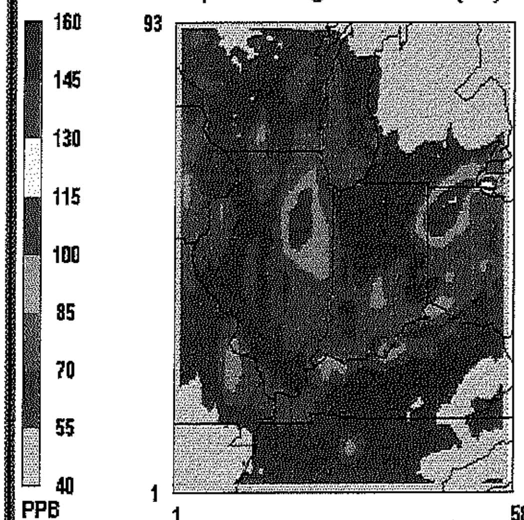


PAVE by MCNC

June 19,1995 0:00:00
Min=-999 at (1,1), Max= 125 at (13,31)

Daily Peak 1–Hour Ozone

2007 SIP Call – January '99 Modeling
07sip10: Grid M @ 12 km --- TSIP (B10)



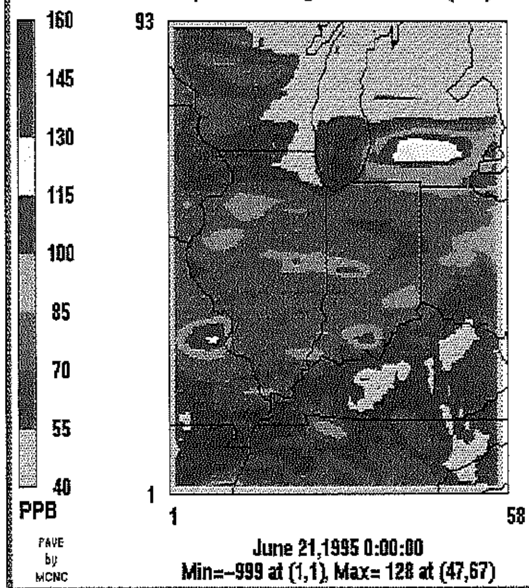
PAVE by MCNC

June 20,1995 0:00:00
Min=-999 at (1,1), Max= 124 at (54,61)

11a (cont.)

Daily Peak 1-Hour Ozone

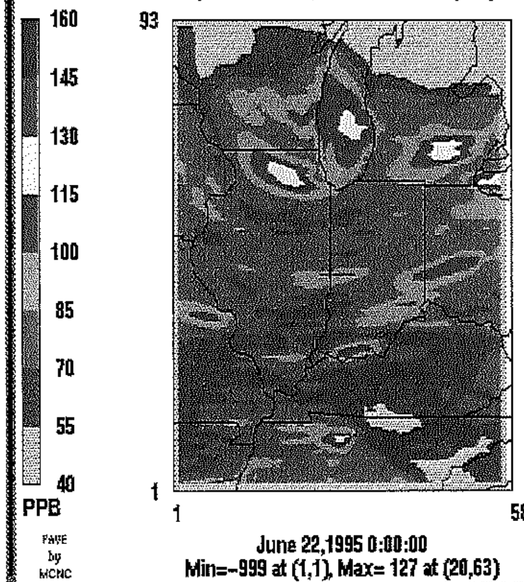
2007 SIP Call – January '99 Modeling
07sip10: Grid M @ 12 km --- TSIP (B10)



June 21,1995 0:00:00
Min=-999 at (1,1), Max= 128 at (47,67)

Daily Peak 1-Hour Ozone

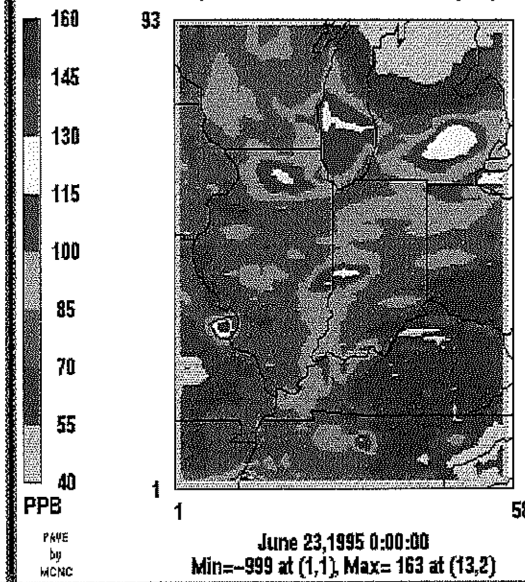
2007 SIP Call – January '99 Modeling
07sip10: Grid M @ 12 km --- TSIP (B10)



June 22,1995 0:00:00
Min=-999 at (1,1), Max= 127 at (20,63)

Daily Peak 1-Hour Ozone

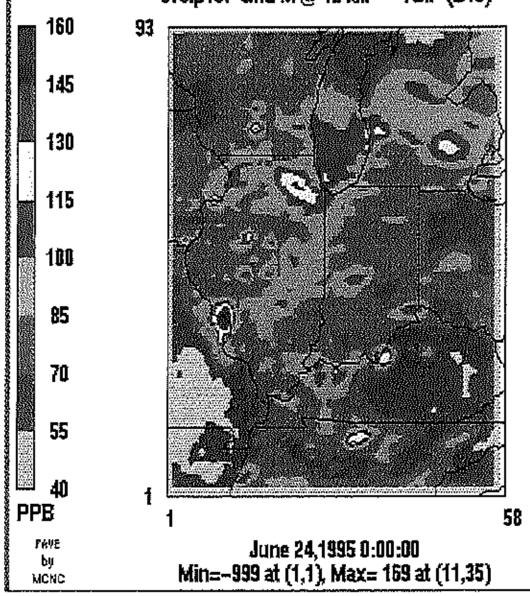
2007 SIP Call – January '99 Modeling
07sip10: Grid M @ 12 km --- TSIP (B10)



June 23,1995 0:00:00
Min=-999 at (1,1), Max= 163 at (13,2)

Daily Peak 1-Hour Ozone

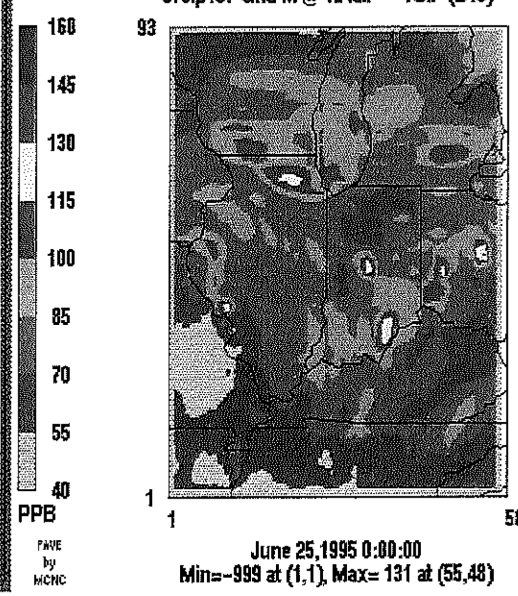
2007 SIP Call – January '99 Modeling
07sip10: Grid M @ 12 km --- TSIP (B10)



June 24,1995 0:00:00
Min=-999 at (1,1), Max= 169 at (11,35)

Daily Peak 1-Hour Ozone

2007 SIP Call – January '99 Modeling
07sip10: Grid M @ 12 km --- TSIP (B10)

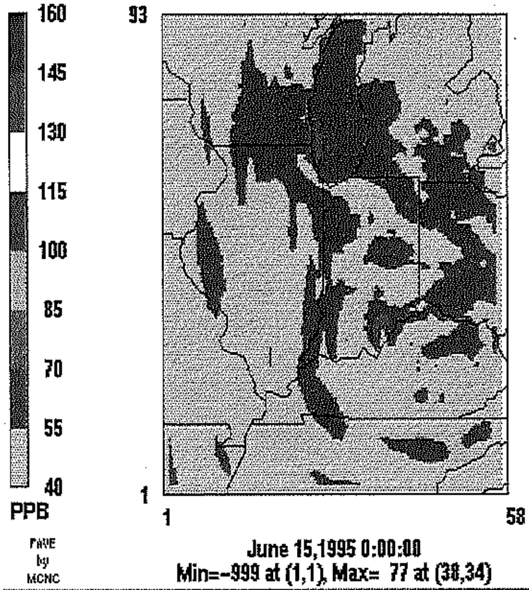


June 25,1995 0:00:00
Min=-999 at (1,1), Max= 131 at (55,48)

11b

Daily Peak 8-Hour Ozone

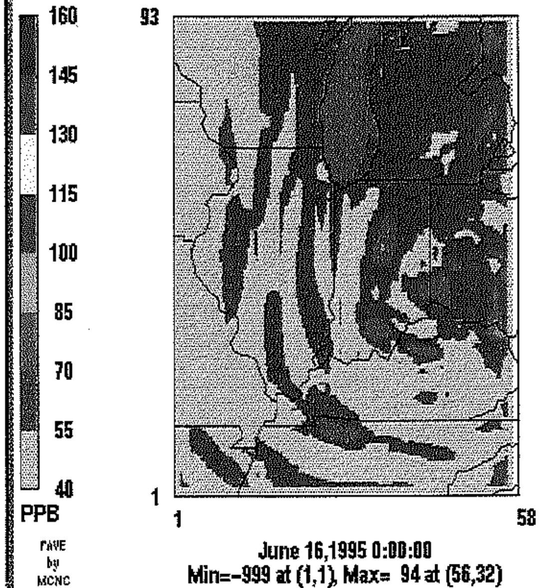
2007 SIP Call – January '99 Modeling
07sip10: Grid M @ 12 km -- TSIP (B10)



June 15,1995 0:00:00
Min=-999 at (1,1), Max= 77 at (38,34)

Daily Peak 8-Hour Ozone

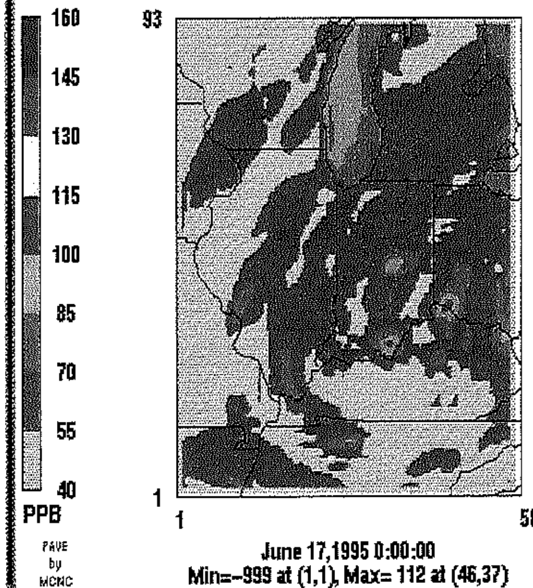
2007 SIP Call – January '99 Modeling
07sip10: Grid M @ 12 km -- TSIP (B10)



June 16,1995 0:00:00
Min=-999 at (1,1), Max= 94 at (56,32)

Daily Peak 8-Hour Ozone

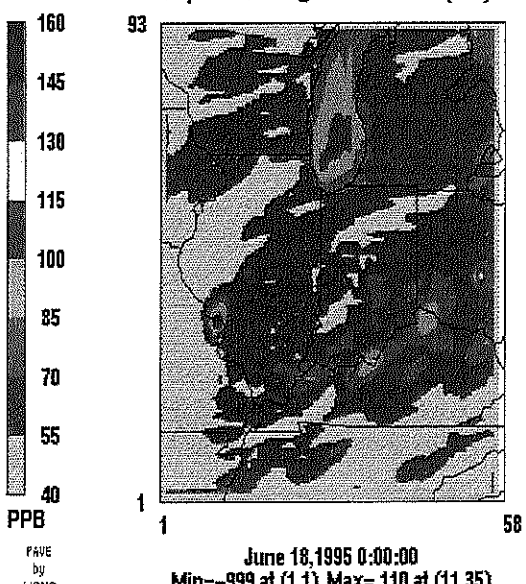
2007 SIP Call – January '99 Modeling
07sip10: Grid M @ 12 km -- TSIP (B10)



June 17,1995 0:00:00
Min=-999 at (1,1), Max= 112 at (46,37)

Daily Peak 8-Hour Ozone

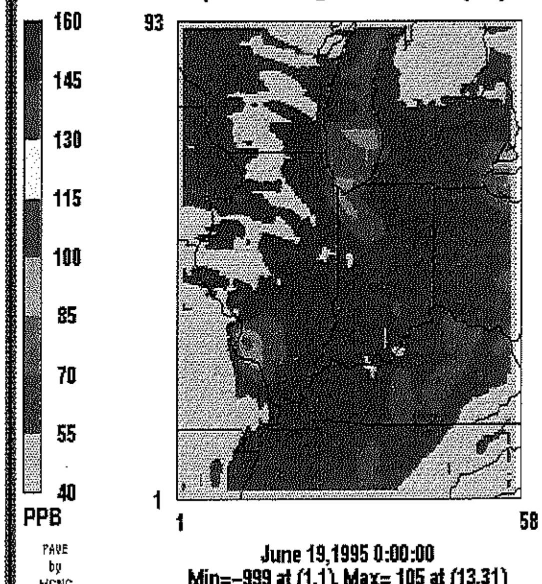
2007 SIP Call – January '99 Modeling
07sip10: Grid M @ 12 km -- TSIP (B10)



June 18,1995 0:00:00
Min=-999 at (1,1), Max= 110 at (11,35)

Daily Peak 8-Hour Ozone

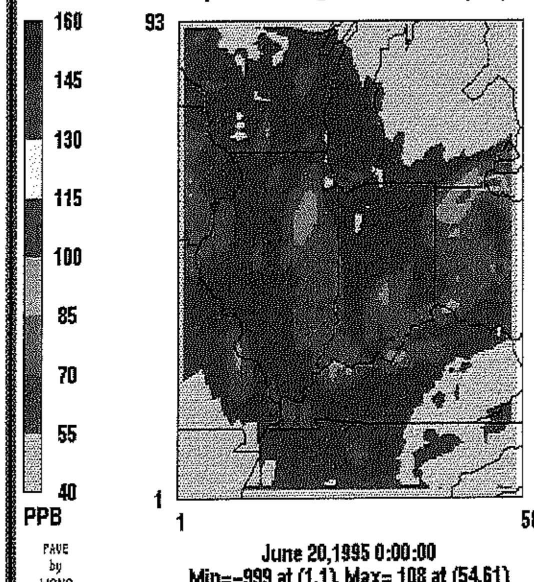
2007 SIP Call – January '99 Modeling
07sip10: Grid M @ 12 km -- TSIP (B10)



June 19,1995 0:00:00
Min=-999 at (1,1), Max= 105 at (13,31)

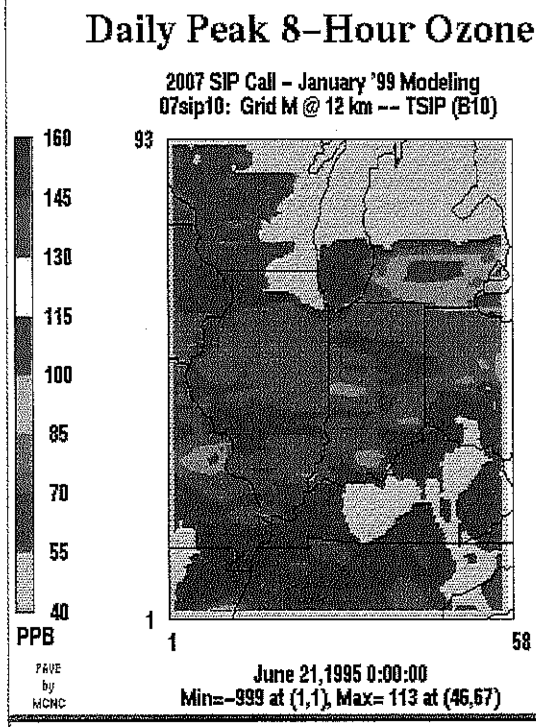
Daily Peak 8-Hour Ozone

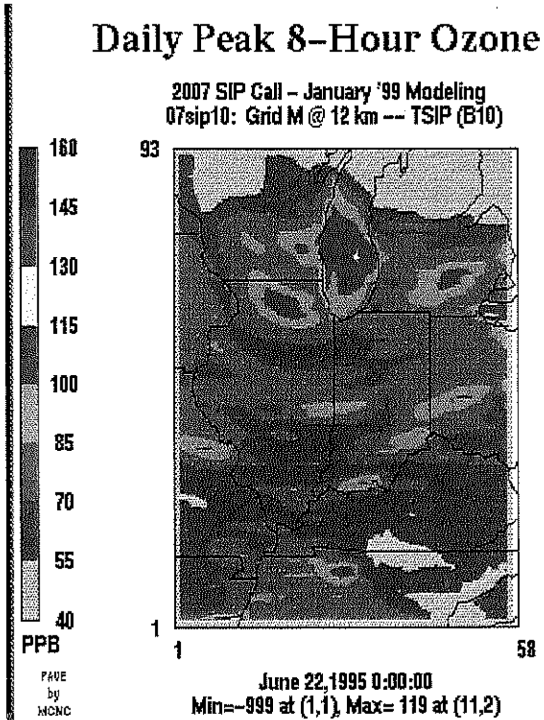
2007 SIP Call – January '99 Modeling
07sip10: Grid M @ 12 km -- TSIP (B10)

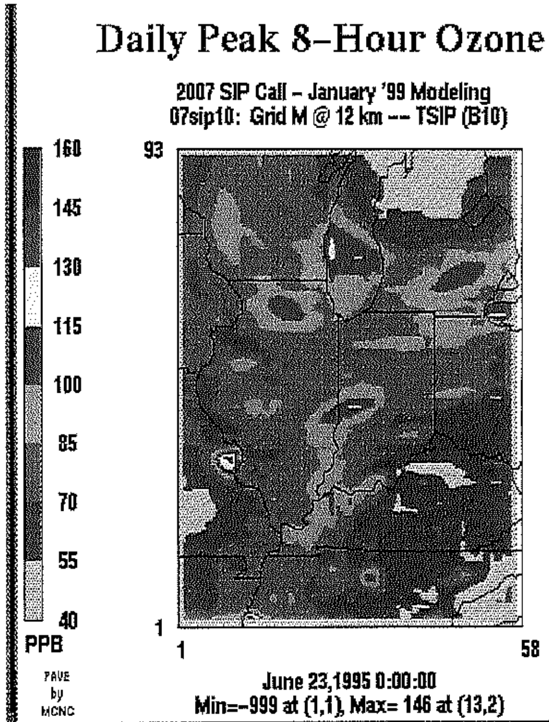


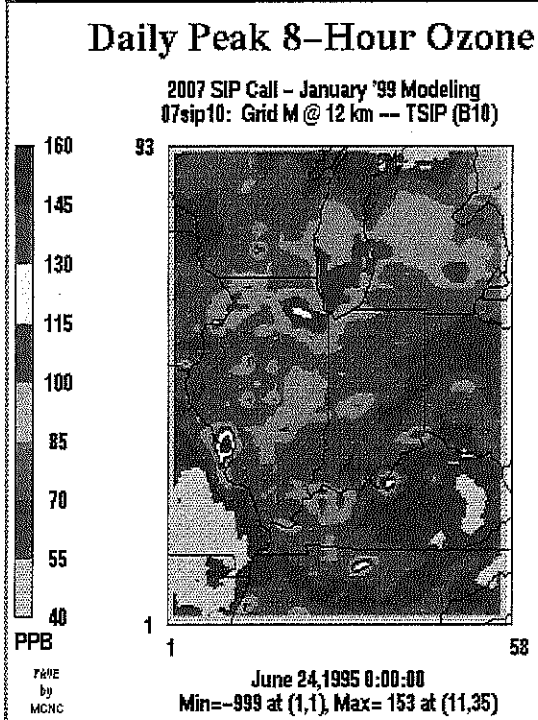
June 20,1995 0:00:00
Min=-999 at (1,1), Max= 108 at (54,61)

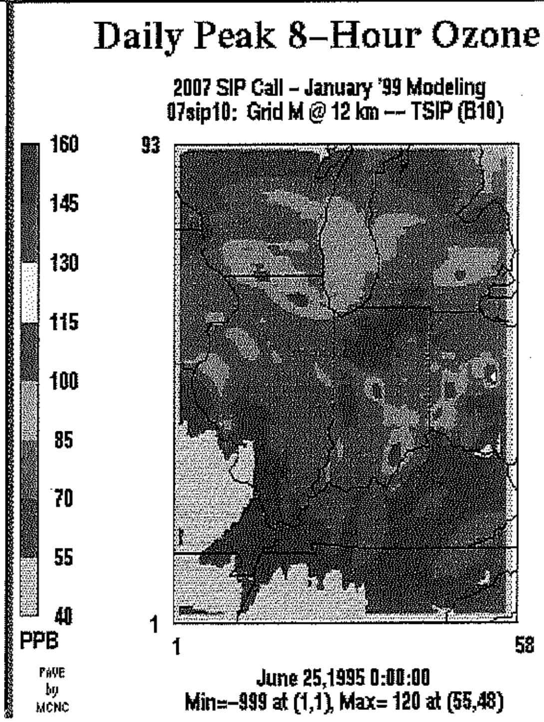
110 (cont.)


Daily Peak 8-Hour Ozone
2007 SIP Call - January '99 Modeling
07sip10: Grid M @ 12 km -- TSIP (B10)
160
145
130
115
100
85
70
55
40
PPB
PAVE by MCNC
93
1
1
58
June 21,1995 0:00:00
Min=-999 at (1,1), Max= 113 at (46,67)


Daily Peak 8-Hour Ozone
2007 SIP Call - January '99 Modeling
07sip10: Grid M @ 12 km -- TSIP (B10)
160
145
130
115
100
85
70
55
40
PPB
PAVE by MCNC
93
1
1
58
June 22,1995 0:00:00
Min=-999 at (1,1), Max= 119 at (11,2)

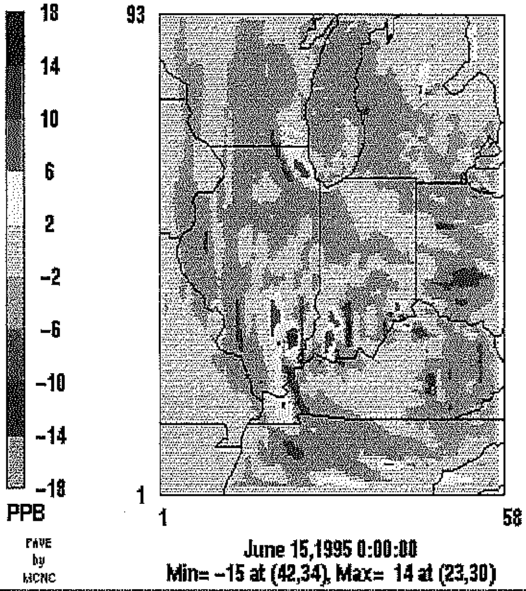

Daily Peak 8-Hour Ozone
2007 SIP Call - January '99 Modeling
07sip10: Grid M @ 12 km -- TSIP (B10)
160
145
130
115
100
85
70
55
40
PPB
PAVE by MCNC
93
1
1
58
June 23,1995 0:00:00
Min=-999 at (1,1), Max= 146 at (13,2)


Daily Peak 8-Hour Ozone
2007 SIP Call - January '99 Modeling
07sip10: Grid M @ 12 km -- TSIP (B10)
160
145
130
115
100
85
70
55
40
PPB
PAVE by MCNC
93
1
1
58
June 24,1995 0:00:00
Min=-999 at (1,1), Max= 153 at (11,35)


Daily Peak 8-Hour Ozone
2007 SIP Call - January '99 Modeling
07sip10: Grid M @ 12 km -- TSIP (B10)
160
145
130
115
100
85
70
55
40
PPB
PAVE by MCNC
93
1
1
58
June 25,1995 0:00:00
Min=-999 at (1,1), Max= 120 at (55,48)

Max 1–Hour Ozone Difference

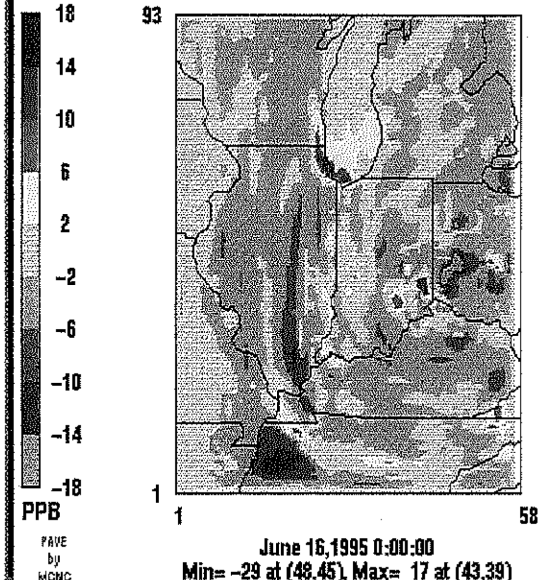
Effect of 2007 CAA growth and controls on 1995 Base
(07caa10) – (95bas10): Grid M @ 12 km –– TSIP (B8)



June 15,1995 0:00:00
Min= -15 at (42,34), Max= 14 at (23,30)

Max 1–Hour Ozone Difference

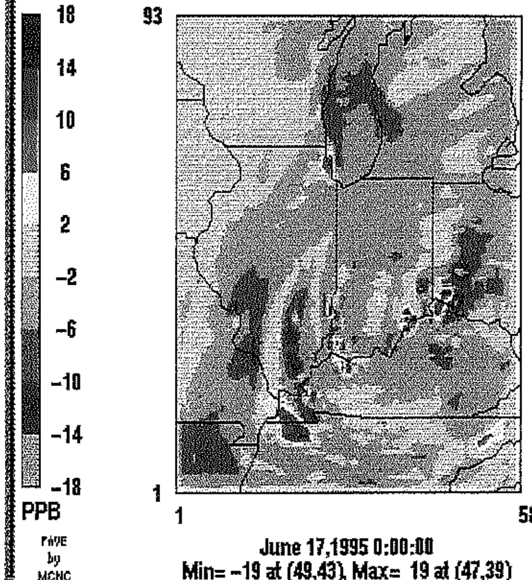
Effect of 2007 CAA growth and controls on 1995 Base
(07caa10) – (95bas10): Grid M @ 12 km –– TSIP (B8)



June 16,1995 0:00:00
Min= -29 at (48,45), Max= 17 at (43,39)

Max 1–Hour Ozone Difference

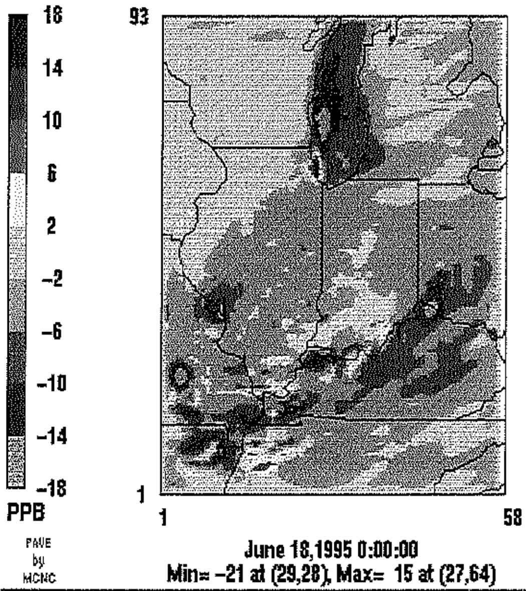
Effect of 2007 CAA growth and controls on 1995 Base
(07caa10) – (95bas10): Grid M @ 12 km –– TSIP (B8)



June 17,1995 0:00:00
Min= -19 at (49,43), Max= 19 at (47,39)

Max 1–Hour Ozone Difference

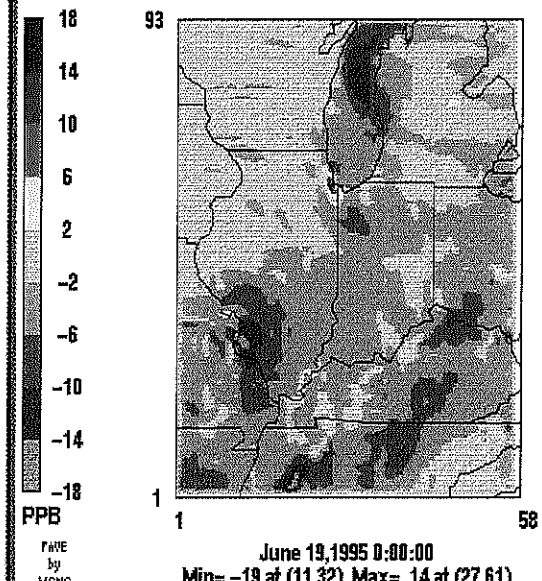
Effect of 2007 CAA growth and controls on 1995 Base
(07caa10) – (95bas10): Grid M @ 12 km –– TSIP (B8)



June 18,1995 0:00:00
Min= -21 at (29,28), Max= 15 at (27,64)

Max 1–Hour Ozone Difference

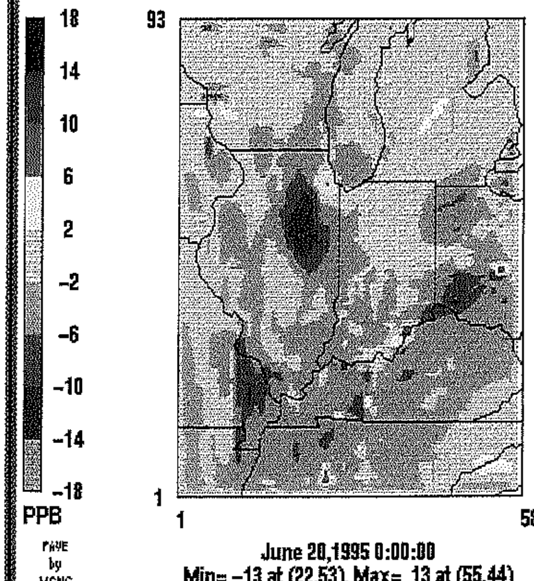
Effect of 2007 CAA growth and controls on 1995 Base
(07caa10) – (95bas10): Grid M @ 12 km –– TSIP (B8)



June 19,1995 0:00:00
Min= -19 at (11,32), Max= 14 at (27,61)

Max 1–Hour Ozone Difference

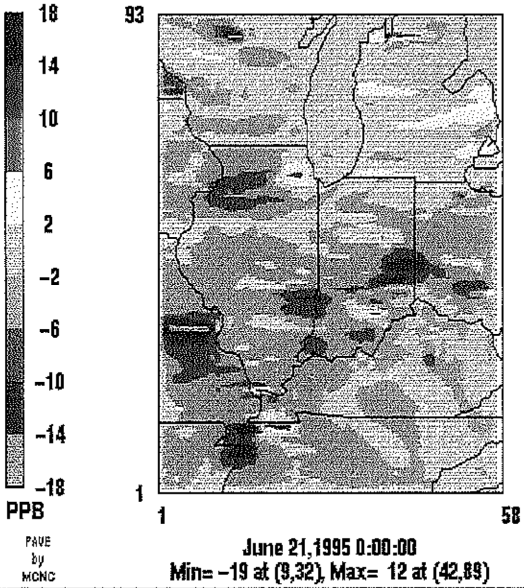
Effect of 2007 CAA growth and controls on 1995 Base
(07caa10) – (95bas10): Grid M @ 12 km –– TSIP (B8)



June 20,1995 0:00:00
Min= -13 at (22,53), Max= 13 at (55,44)

Max 1–Hour Ozone Difference

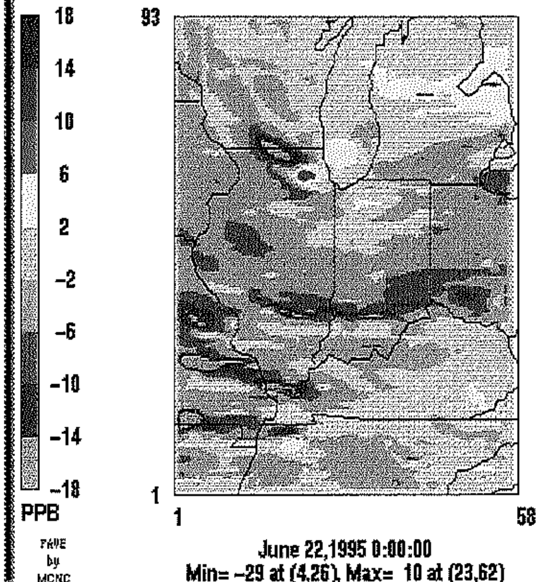
Effect of 2007 CAA growth and controls on 1995 Base
(07caa10) – (95bas10): Grid M @ 12 km –– TSIP (B8)



June 21,1995 0:00:00
Min= –19 at (9,32), Max= 12 at (42,89)

Max 1–Hour Ozone Difference

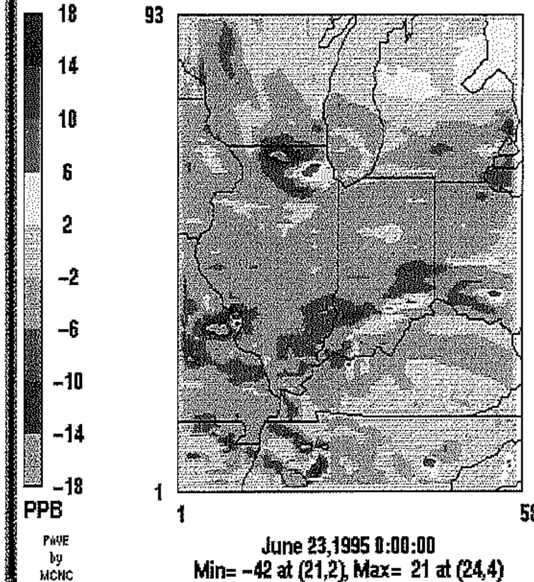
Effect of 2007 CAA growth and controls on 1995 Base
(07caa10) – (95bas10): Grid M @ 12 km –– TSIP (B8)



June 22,1995 0:00:00
Min= –29 at (4,26), Max= 10 at (23,62)

Max 1–Hour Ozone Difference

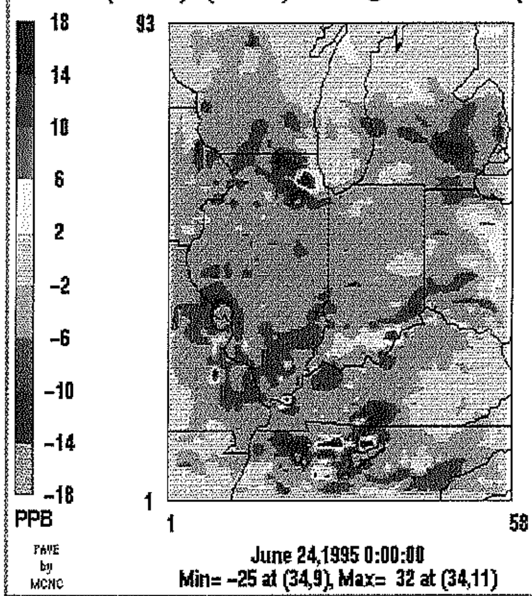
Effect of 2007 CAA growth and controls on 1995 Base
(07caa10) – (95bas10): Grid M @ 12 km –– TSIP (B8)



June 23,1995 0:00:00
Min= –42 at (21,2), Max= 21 at (24,4)

Max 1–Hour Ozone Difference

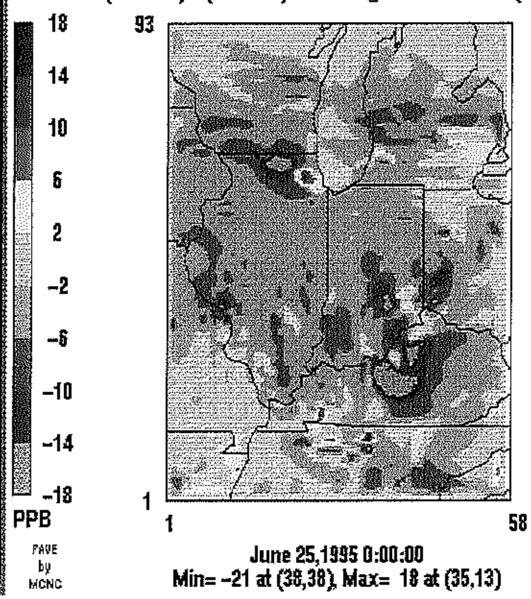
Effect of 2007 CAA growth and controls on 1995 Base
(07caa10) – (95bas10): Grid M @ 12 km –– TSIP (B8)



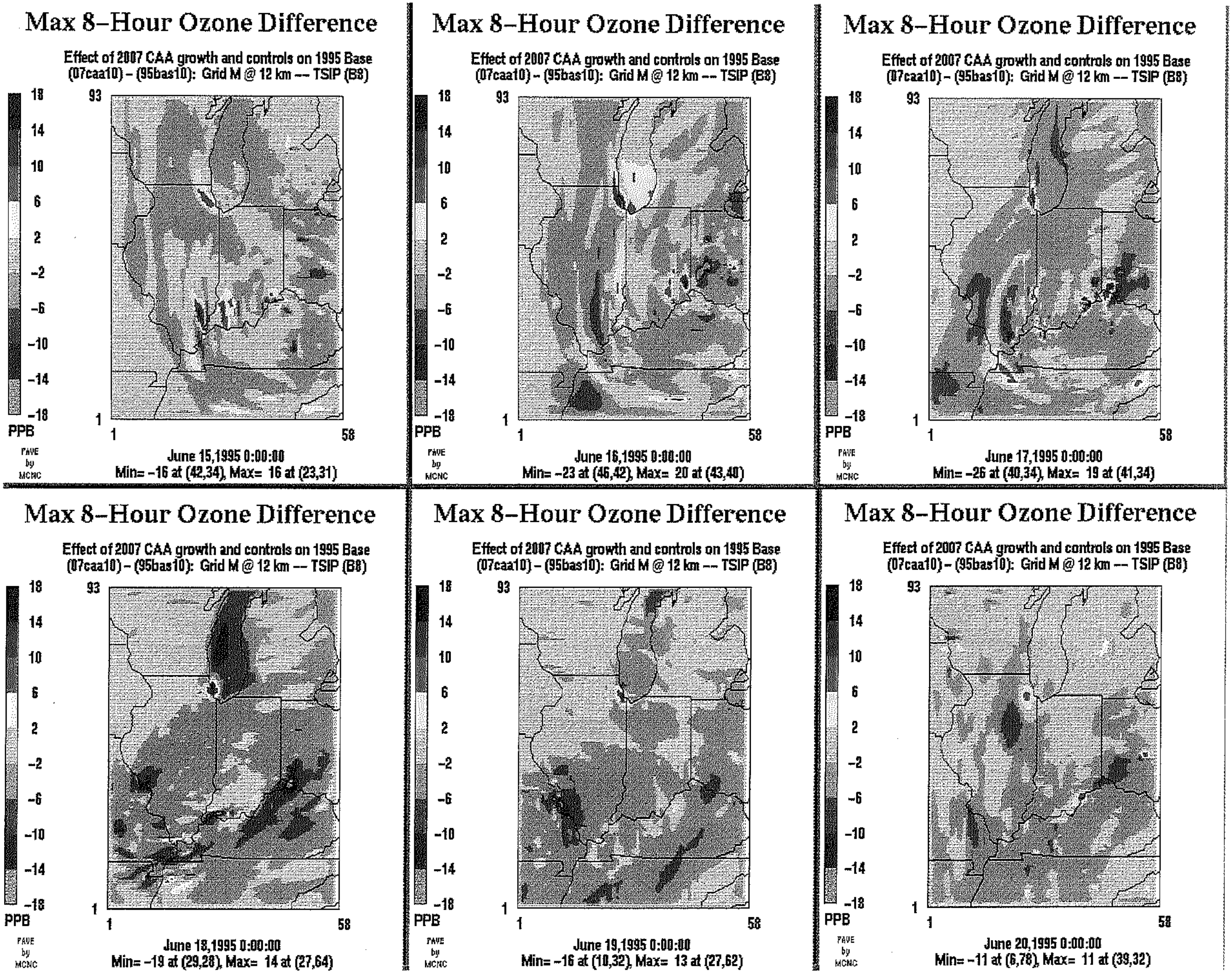
June 24,1995 0:00:00
Min= –25 at (34,9), Max= 32 at (34,11)

Max 1–Hour Ozone Difference

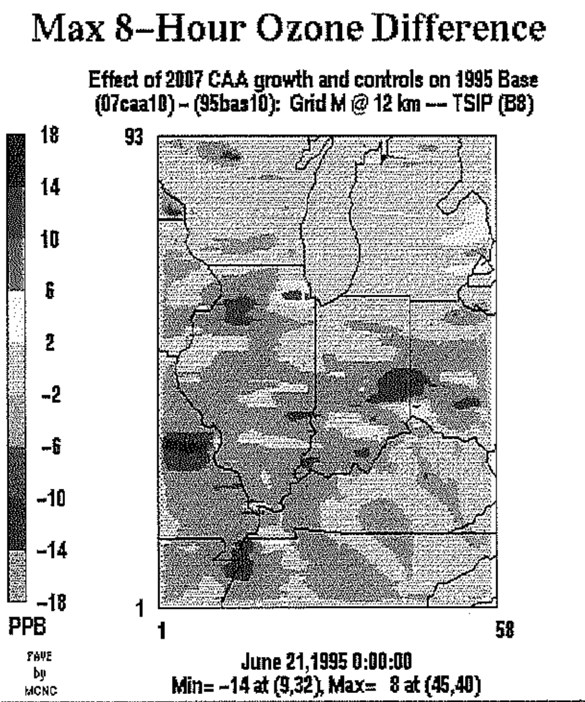
Effect of 2007 CAA growth and controls on 1995 Base
(07caa10) – (95bas10): Grid M @ 12 km –– TSIP (B8)

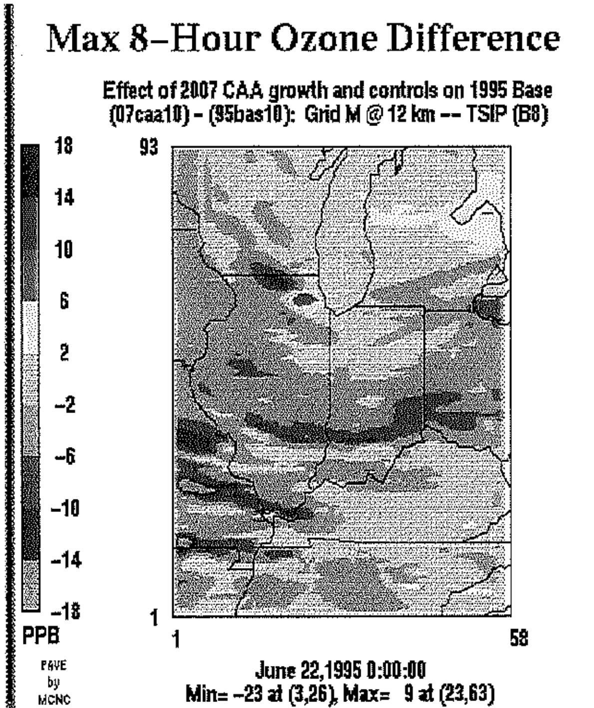


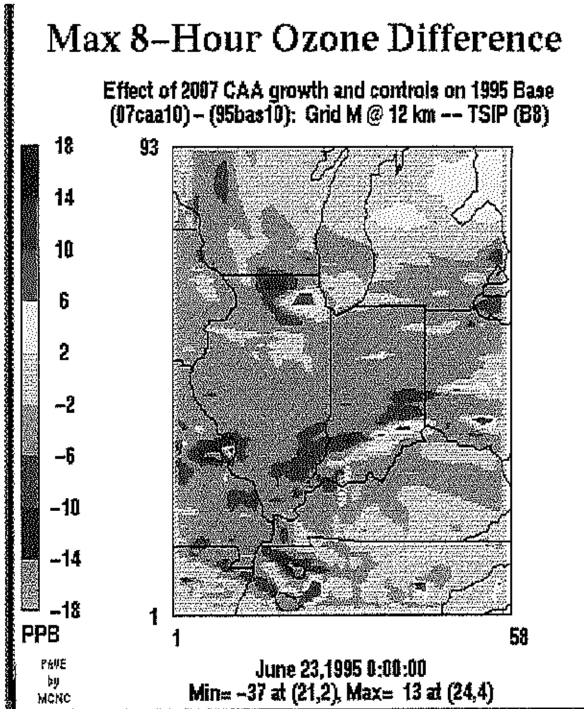
June 25,1995 0:00:00
Min= –21 at (38,38), Max= 18 at (35,13)

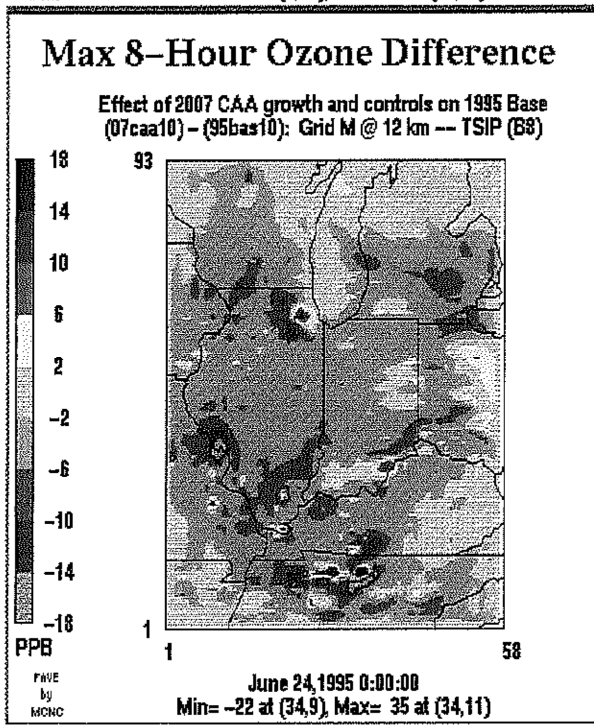

Max 8–Hour Ozone Difference
Effect of 2007 CAA growth and controls on 1995 Base
(07caa10) - (95bas10): Grid M @ 12 km -- TSIP (B8)
18 14 10 6 2 -2 -6 -10 -14 -18
PPB
93
1
1
58
PAVE by MCNC
June 15,1995 0:00:00
Min= -16 at (42,34), Max= 16 at (23,31)
Max 8–Hour Ozone Difference
Effect of 2007 CAA growth and controls on 1995 Base
(07caa10) - (95bas10): Grid M @ 12 km -- TSIP (B8)
18 14 10 6 2 -2 -6 -10 -14 -18
PPB
93
1
1
58
PAVE by MCNC
June 16,1995 0:00:00
Min= -23 at (46,42), Max= 20 at (43,40)
Max 8–Hour Ozone Difference
Effect of 2007 CAA growth and controls on 1995 Base
(07caa10) - (95bas10): Grid M @ 12 km -- TSIP (B8)
18 14 10 6 2 -2 -6 -10 -14 -18
PPB
93
1
1
58
PAVE by MCNC
June 17,1995 0:00:00
Min= -26 at (40,34), Max= 19 at (41,34)
Max 8–Hour Ozone Difference
Effect of 2007 CAA growth and controls on 1995 Base
(07caa10) - (95bas10): Grid M @ 12 km -- TSIP (B8)
18 14 10 6 2 -2 -6 -10 -14 -18
PPB
93
1
1
58
PAVE by MCNC
June 18,1995 0:00:00
Min= -19 at (29,28), Max= 14 at (27,64)
Max 8–Hour Ozone Difference
Effect of 2007 CAA growth and controls on 1995 Base
(07caa10) - (95bas10): Grid M @ 12 km -- TSIP (B8)
18 14 10 6 2 -2 -6 -10 -14 -18
PPB
93
1
1
58
PAVE by MCNC
June 19,1995 0:00:00
Min= -16 at (10,32), Max= 13 at (27,62)
Max 8–Hour Ozone Difference
Effect of 2007 CAA growth and controls on 1995 Base
(07caa10) - (95bas10): Grid M @ 12 km -- TSIP (B8)
18 14 10 6 2 -2 -6 -10 -14 -18
PPB
93
1
1
58
PAVE by MCNC
June 20,1995 0:00:00
Min= -11 at (6,78), Max= 11 at (39,32)

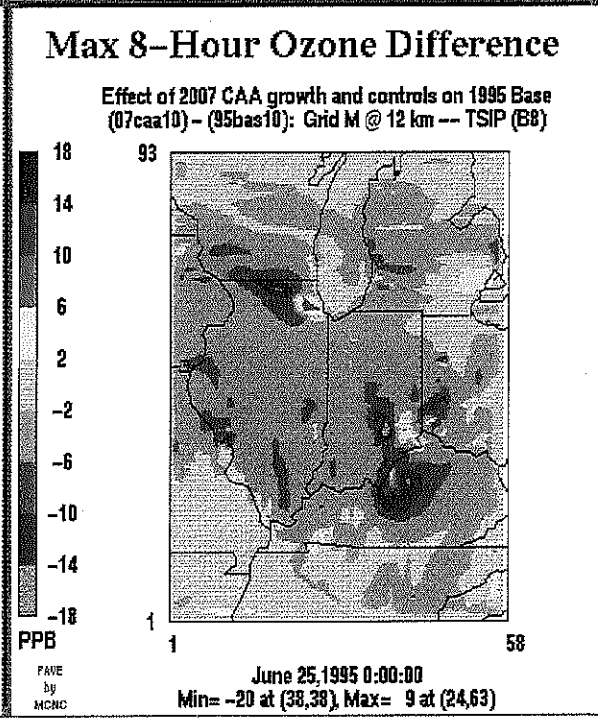
12b (cont.)









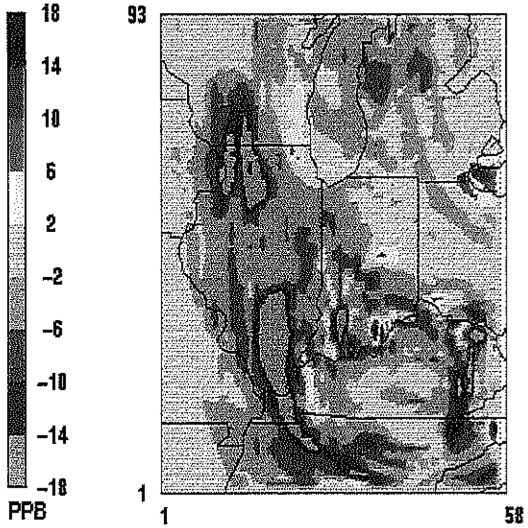


gif
gif
gif
gif
gif
gif

13a

Max 1-Hour Ozone Difference

Effect of 2007 SIP controls over 2007 CAA
(07sip10) - (07caa10): Grid M @ 12 km -- TSIP (B8)

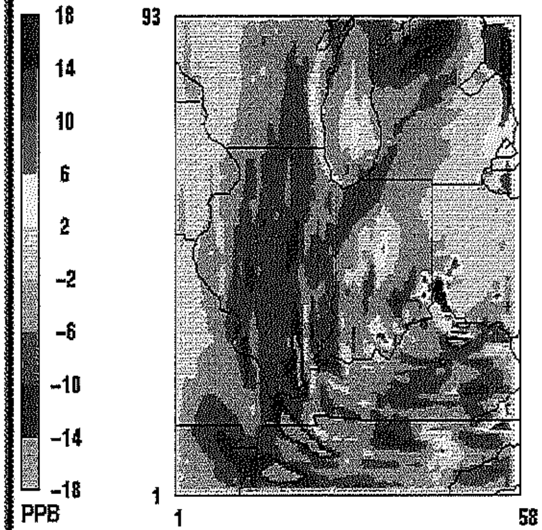


PAVE by MCNC

June 15,1995 0:00:00
Min= -28 at (20,35), Max= 20 at (37,32)

Max 1-Hour Ozone Difference

Effect of 2007 SIP controls over 2007 CAA
(07sip10) - (07caa10): Grid M @ 12 km -- TSIP (B8)

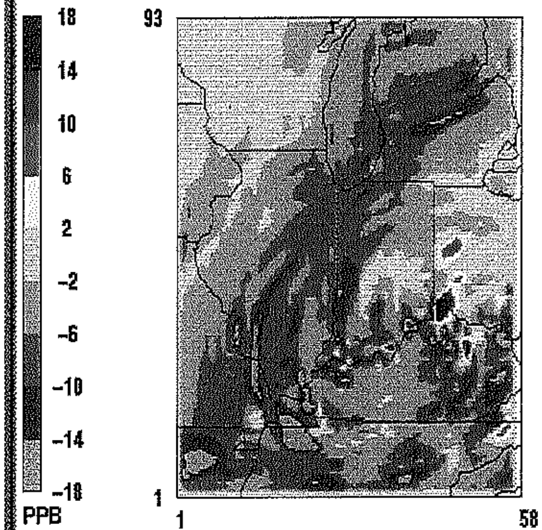


PAVE by MCNC

June 16,1995 0:00:00
Min= -24 at (49,33), Max= 37 at (45,39)

Max 1-Hour Ozone Difference

Effect of 2007 SIP controls over 2007 CAA
(07sip10) - (07caa10): Grid M @ 12 km -- TSIP (B8)

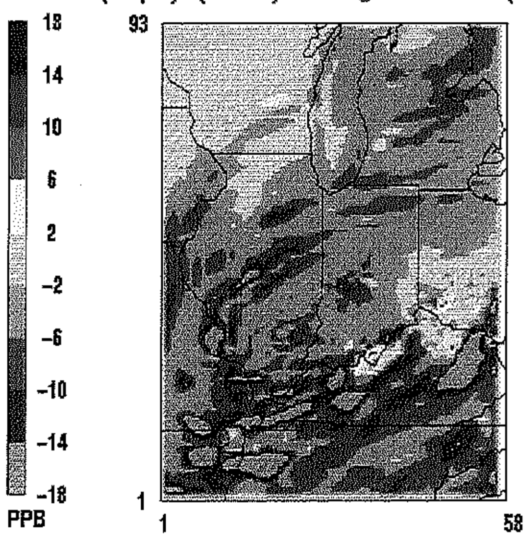


PAVE by MCNC

June 17,1995 0:00:00
Min= -30 at (22,11), Max= 55 at (46,38)

Max 1-Hour Ozone Difference

Effect of 2007 SIP controls over 2007 CAA
(07sip10) - (07caa10): Grid M @ 12 km -- TSIP (B8)

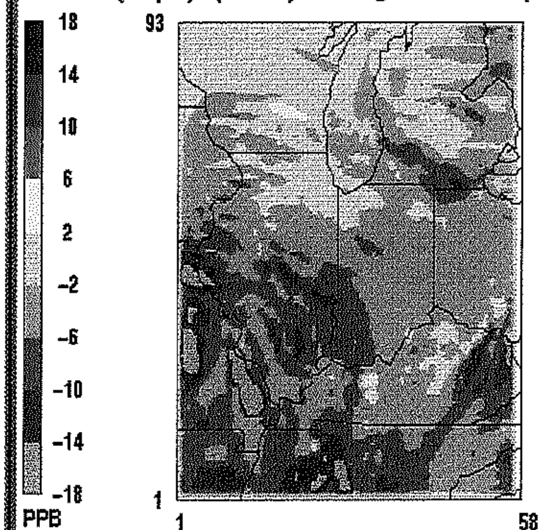


PAVE by MCNC

June 18,1995 0:00:00
Min= -26 at (17,7), Max= 18 at (57,31)

Max 1-Hour Ozone Difference

Effect of 2007 SIP controls over 2007 CAA
(07sip10) - (07caa10): Grid M @ 12 km -- TSIP (B8)

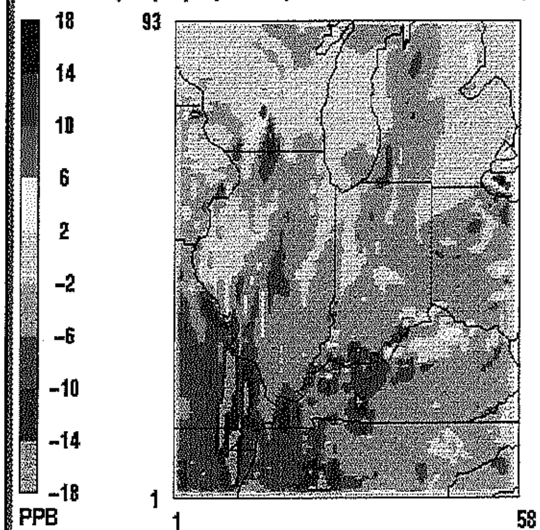


PAVE by MCNC

June 19,1995 0:00:00
Min= -33 at (12,23), Max= 12 at (57,31)

Max 1-Hour Ozone Difference

Effect of 2007 SIP controls over 2007 CAA
(07sip10) - (07caa10): Grid M @ 12 km -- TSIP (B8)

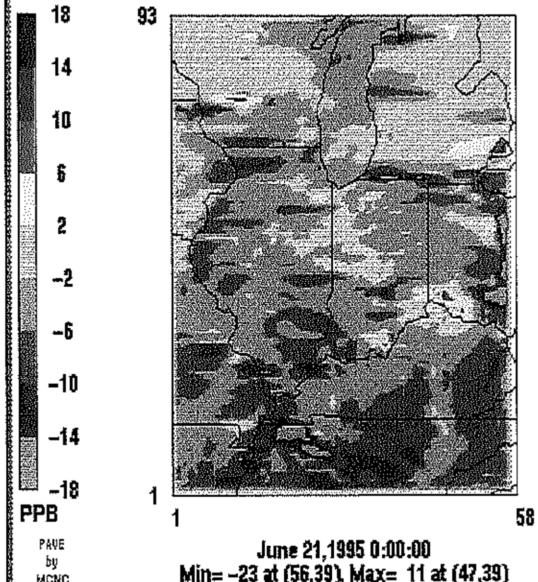


PAVE by MCNC

June 20,1995 0:00:00
Min= -22 at (10,20), Max= 26 at (56,62)

Max 1–Hour Ozone Difference

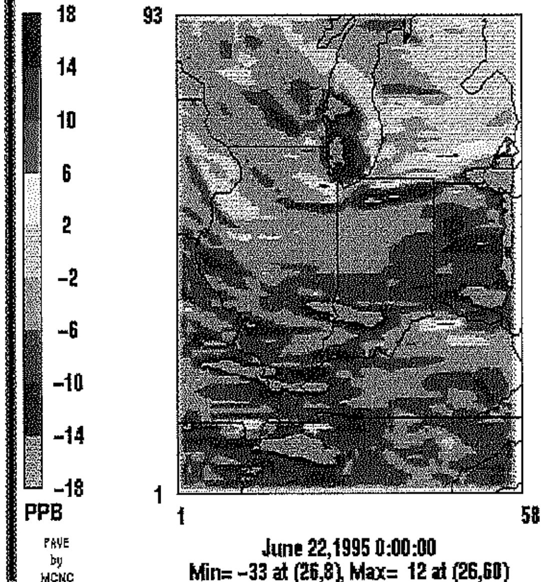
Effect of 2007 SIP controls over 2007 CAA
(07sip10) – (07caa10): Grid M @ 12 km — TSIP (B8)



June 21,1995 0:00:00
Min= -23 at (56,39), Max= 11 at (47,39)

Max 1–Hour Ozone Difference

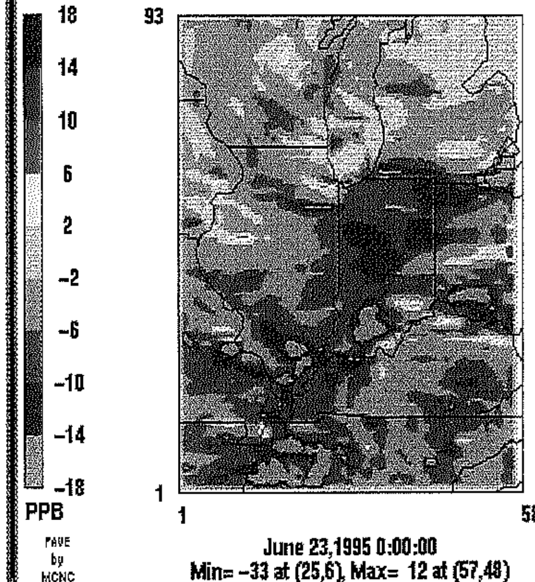
Effect of 2007 SIP controls over 2007 CAA
(07sip10) – (07caa10): Grid M @ 12 km — TSIP (B8)



June 22,1995 0:00:00
Min= -33 at (26,8), Max= 12 at (26,60)

Max 1–Hour Ozone Difference

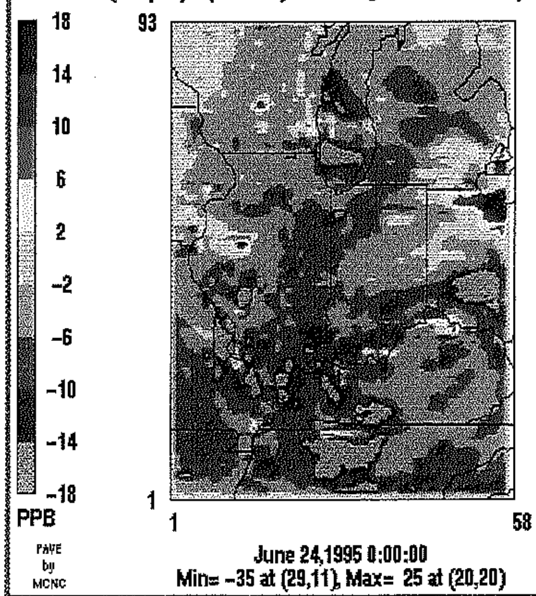
Effect of 2007 SIP controls over 2007 CAA
(07sip10) – (07caa10): Grid M @ 12 km — TSIP (B8)



June 23,1995 0:00:00
Min= -33 at (25,6), Max= 12 at (57,48)

Max 1–Hour Ozone Difference

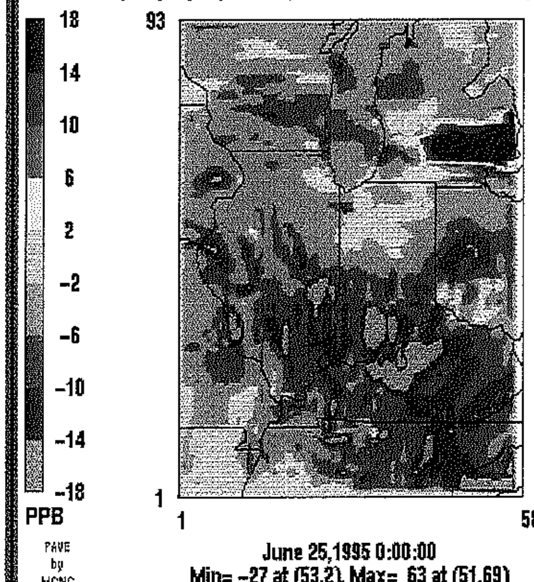
Effect of 2007 SIP controls over 2007 CAA
(07sip10) – (07caa10): Grid M @ 12 km — TSIP (B8)



June 24,1995 0:00:00
Min= -35 at (29,11), Max= 25 at (20,20)

Max 1–Hour Ozone Difference

Effect of 2007 SIP controls over 2007 CAA
(07sip10) – (07caa10): Grid M @ 12 km — TSIP (B8)

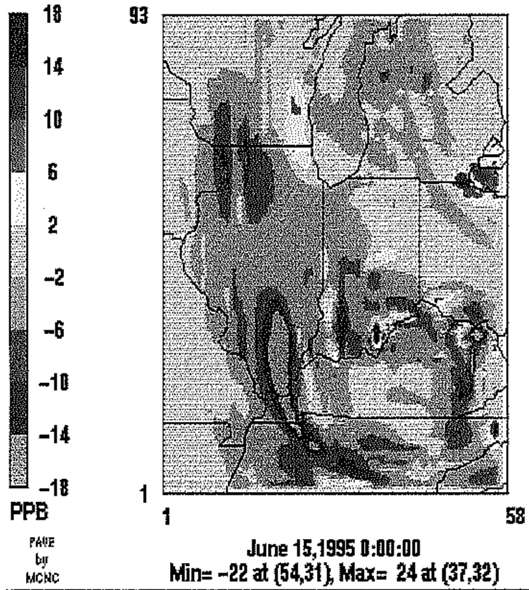


June 25,1995 0:00:00
Min= -27 at (53,2), Max= 63 at (51,69)

136

Max 8–Hour Ozone Difference

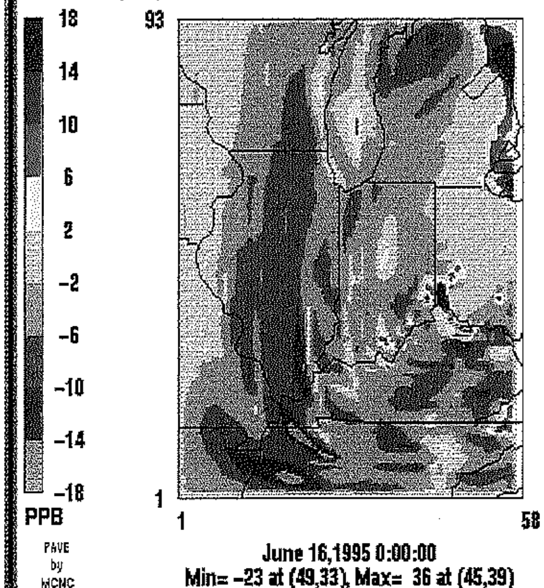
Effect of 2007 SIP controls over 2007 CAA
(07sip10) – (07caa10): Grid M @ 12 km -- TSIP (B8)



June 15,1995 0:00:00
Min= -22 at (54,31), Max= 24 at (37,32)

Max 8–Hour Ozone Difference

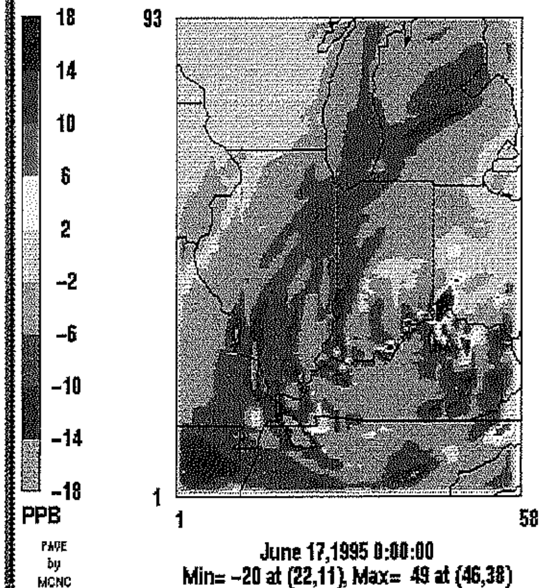
Effect of 2007 SIP controls over 2007 CAA
(07sip10) – (07caa10): Grid M @ 12 km -- TSIP (B8)



June 16,1995 0:00:00
Min= -23 at (49,33), Max= 36 at (45,39)

Max 8–Hour Ozone Difference

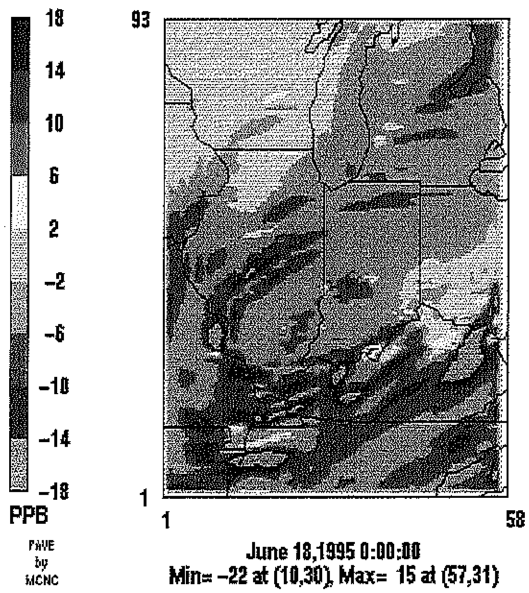
Effect of 2007 SIP controls over 2007 CAA
(07sip10) – (07caa10): Grid M @ 12 km -- TSIP (B8)



June 17,1995 0:00:00
Min= -20 at (22,11), Max= 49 at (46,38)

Max 8–Hour Ozone Difference

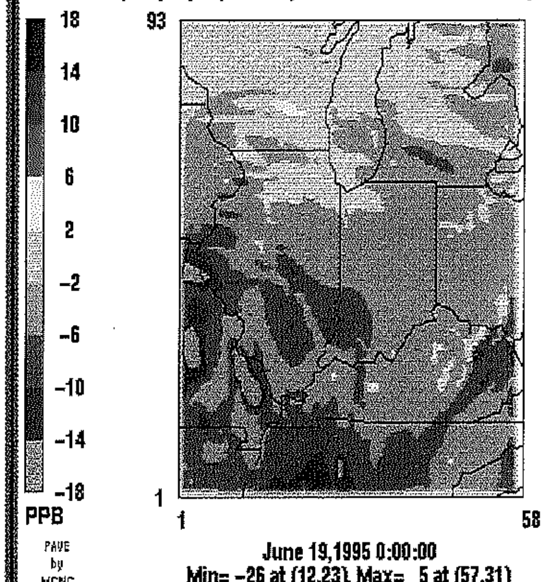
Effect of 2007 SIP controls over 2007 CAA
(07sip10) – (07caa10): Grid M @ 12 km -- TSIP (B8)



June 18,1995 0:00:00
Min= -22 at (10,30), Max= 15 at (57,31)

Max 8–Hour Ozone Difference

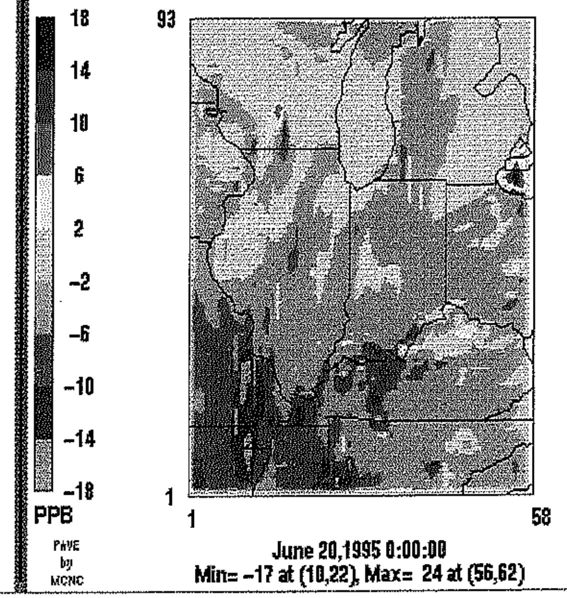
Effect of 2007 SIP controls over 2007 CAA
(07sip10) – (07caa10): Grid M @ 12 km -- TSIP (B8)



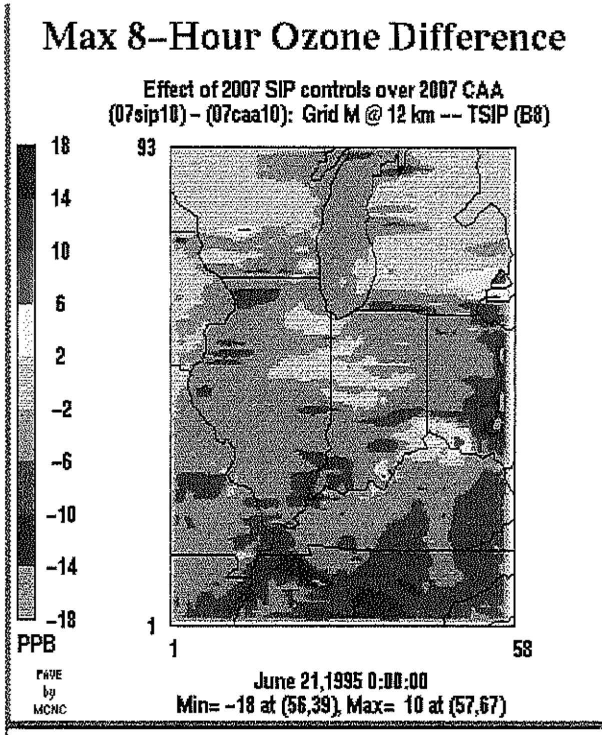
June 19,1995 0:00:00
Min= -26 at (12,23), Max= 5 at (57,31)

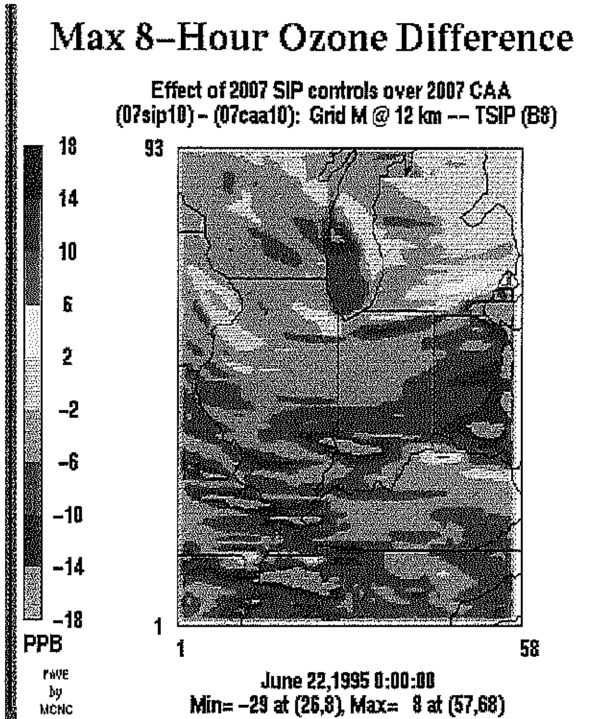
Max 8–Hour Ozone Difference

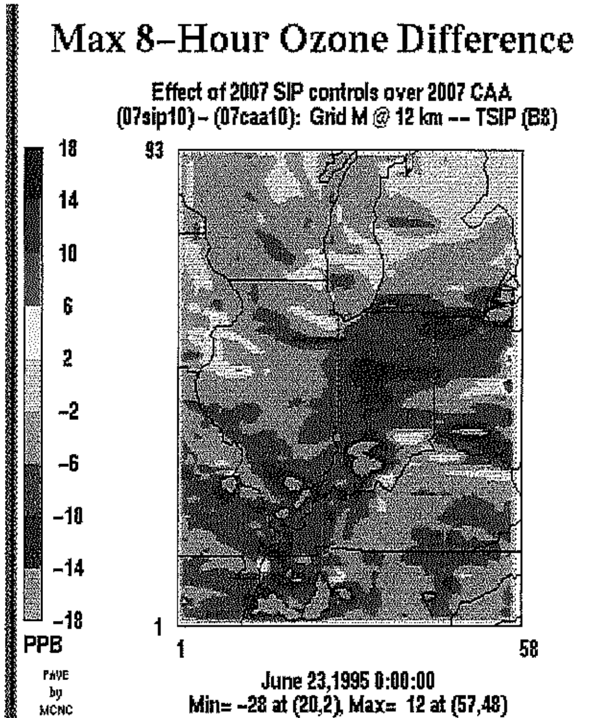
Effect of 2007 SIP controls over 2007 CAA
(07sip10) – (07caa10): Grid M @ 12 km -- TSIP (B8)

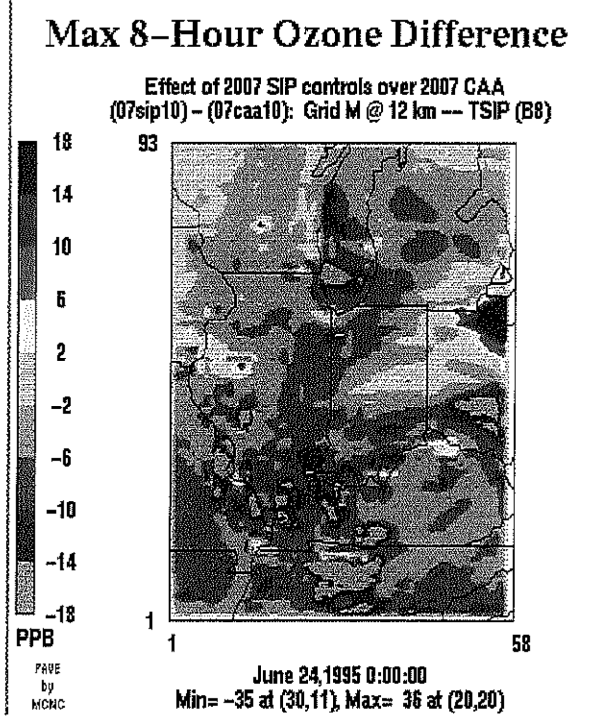


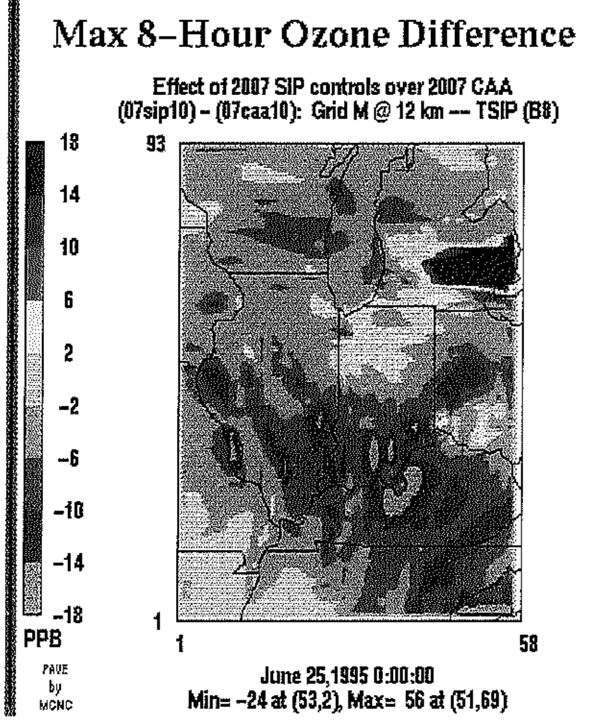
June 20,1995 0:00:00
Min= -17 at (10,22), Max= 24 at (56,62)

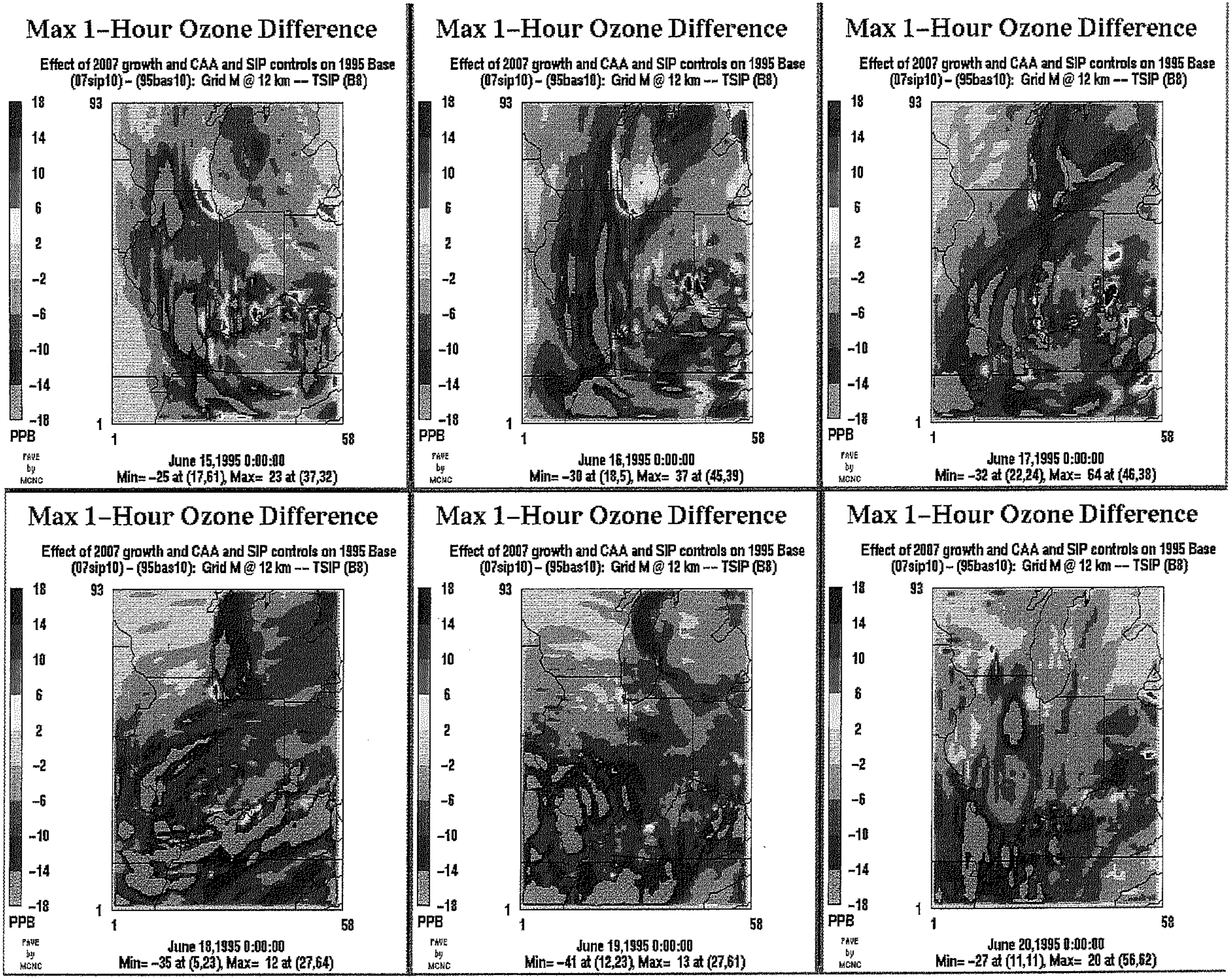

Max 8–Hour Ozone Difference
Effect of 2007 SIP controls over 2007 CAA
(07sip10) – (07caa10): Grid M @ 12 km -- TSIP (B8)
18
14
10
6
2
-2
-6
-10
-14
-18
PPB
93
1
1
58
PAVE by MCNC
June 21,1995 0:00:00
Min= -18 at (56,39), Max= 10 at (57,67)


Max 8–Hour Ozone Difference
Effect of 2007 SIP controls over 2007 CAA
(07sip10) – (07caa10): Grid M @ 12 km -- TSIP (B8)
18
14
10
6
2
-2
-6
-10
-14
-18
PPB
93
1
1
58
PAVE by MCNC
June 22,1995 0:00:00
Min= -29 at (26,8), Max= 8 at (57,68)


Max 8–Hour Ozone Difference
Effect of 2007 SIP controls over 2007 CAA
(07sip10) – (07caa10): Grid M @ 12 km -- TSIP (B8)
18
14
10
6
2
-2
-6
-10
-14
-18
PPB
93
1
1
58
PAVE by MCNC
June 23,1995 0:00:00
Min= -28 at (20,2), Max= 12 at (57,48)

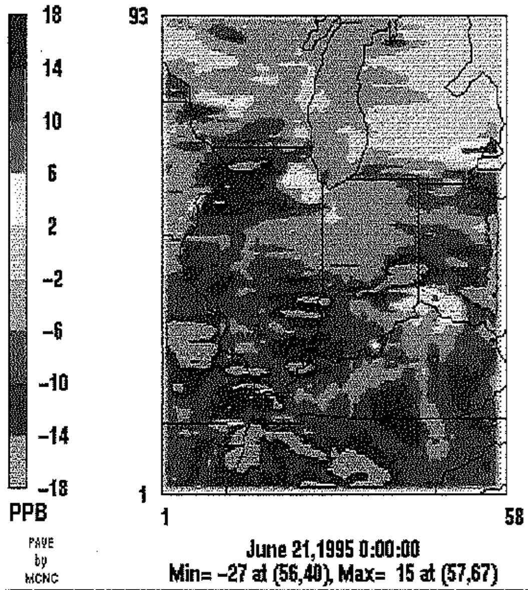

Max 8–Hour Ozone Difference
Effect of 2007 SIP controls over 2007 CAA
(07sip10) – (07caa10): Grid M @ 12 km -- TSIP (B8)
18
14
10
6
2
-2
-6
-10
-14
-18
PPB
93
1
1
58
PAVE by MCNC
June 24,1995 0:00:00
Min= -35 at (30,11), Max= 36 at (20,20)


Max 8–Hour Ozone Difference
Effect of 2007 SIP controls over 2007 CAA
(07sip10) – (07caa10): Grid M @ 12 km -- TSIP (B8)
18
14
10
6
2
-2
-6
-10
-14
-18
PPB
93
1
1
58
PAVE by MCNC
June 25,1995 0:00:00
Min= -24 at (53,2), Max= 56 at (51,69)


Max 1-Hour Ozone Difference
Effect of 2007 growth and CAA and SIP controls on 1995 Base
(07sip10) - (95bas10): Grid M @ 12 km -- TSIP (B8)
18 14 10 6 2 -2 -6 -10 -14 -18
PPB
93 1 1 58
PAVE by MCNC
June 15,1995 0:00:00
Min= -25 at (17,61), Max= 23 at (37,32)
Max 1-Hour Ozone Difference
Effect of 2007 growth and CAA and SIP controls on 1995 Base
(07sip10) - (95bas10): Grid M @ 12 km -- TSIP (B8)
18 14 10 6 2 -2 -6 -10 -14 -18
PPB
93 1 1 58
PAVE by MCNC
June 16,1995 0:00:00
Min= -30 at (18,5), Max= 37 at (45,39)
Max 1-Hour Ozone Difference
Effect of 2007 growth and CAA and SIP controls on 1995 Base
(07sip10) - (95bas10): Grid M @ 12 km -- TSIP (B8)
18 14 10 6 2 -2 -6 -10 -14 -18
PPB
93 1 1 58
PAVE by MCNC
June 17,1995 0:00:00
Min= -32 at (22,24), Max= 64 at (46,38)
Max 1-Hour Ozone Difference
Effect of 2007 growth and CAA and SIP controls on 1995 Base
(07sip10) - (95bas10): Grid M @ 12 km -- TSIP (B8)
18 14 10 6 2 -2 -6 -10 -14 -18
PPB
93 1 1 58
PAVE by MCNC
June 18,1995 0:00:00
Min= -35 at (5,23), Max= 12 at (27,64)
Max 1-Hour Ozone Difference
Effect of 2007 growth and CAA and SIP controls on 1995 Base
(07sip10) - (95bas10): Grid M @ 12 km -- TSIP (B8)
18 14 10 6 2 -2 -6 -10 -14 -18
PPB
93 1 1 58
PAVE by MCNC
June 19,1995 0:00:00
Min= -41 at (12,23), Max= 13 at (27,61)
Max 1-Hour Ozone Difference
Effect of 2007 growth and CAA and SIP controls on 1995 Base
(07sip10) - (95bas10): Grid M @ 12 km -- TSIP (B8)
18 14 10 6 2 -2 -6 -10 -14 -18
PPB
93 1 1 58
PAVE by MCNC
June 20,1995 0:00:00
Min= -27 at (11,11), Max= 20 at (56,62)

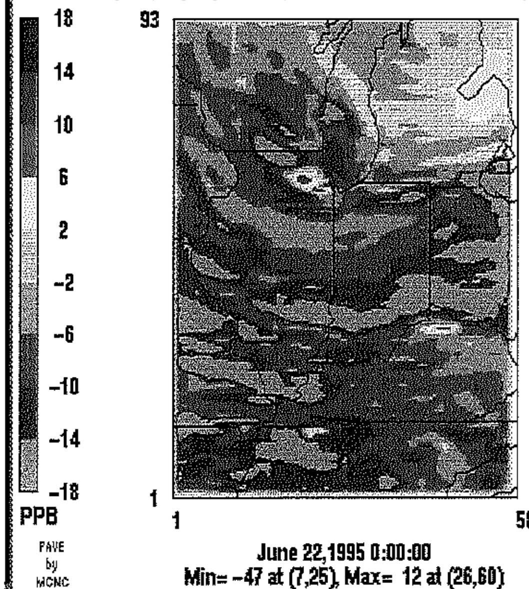
Max 1-Hour Ozone Difference

Effect of 2007 growth and CAA and SIP controls on 1995 Base
(07sip10) - (95bas10): Grid M @ 12 km -- TSIP (B8)



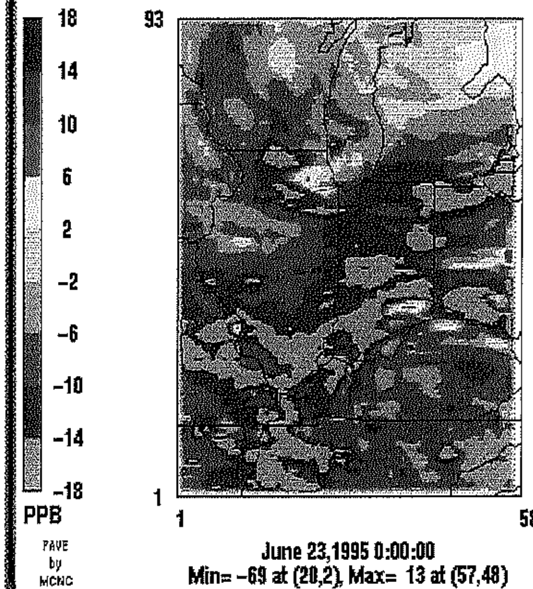
Max 1-Hour Ozone Difference

Effect of 2007 growth and CAA and SIP controls on 1995 Base
(07sip10) - (95bas10): Grid M @ 12 km -- TSIP (B8)



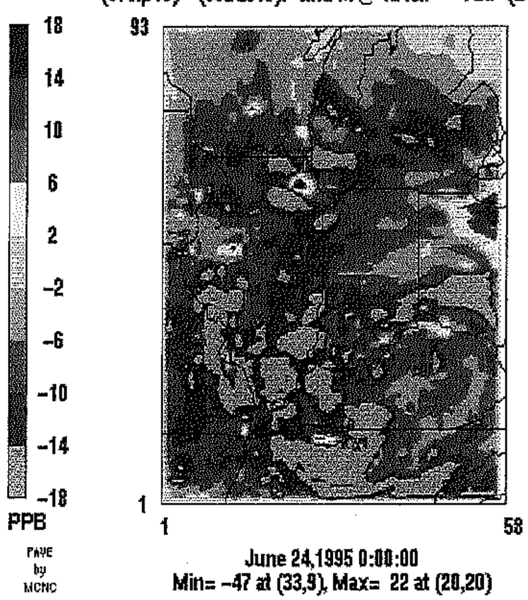
Max 1-Hour Ozone Difference

Effect of 2007 growth and CAA and SIP controls on 1995 Base
(07sip10) - (95bas10): Grid M @ 12 km -- TSIP (B8)



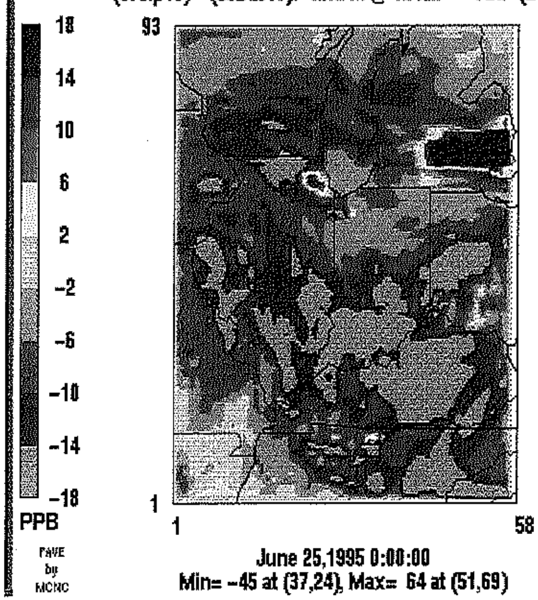
Max 1-Hour Ozone Difference

Effect of 2007 growth and CAA and SIP controls on 1995 Base
(07sip10) - (95bas10): Grid M @ 12 km -- TSIP (B8)



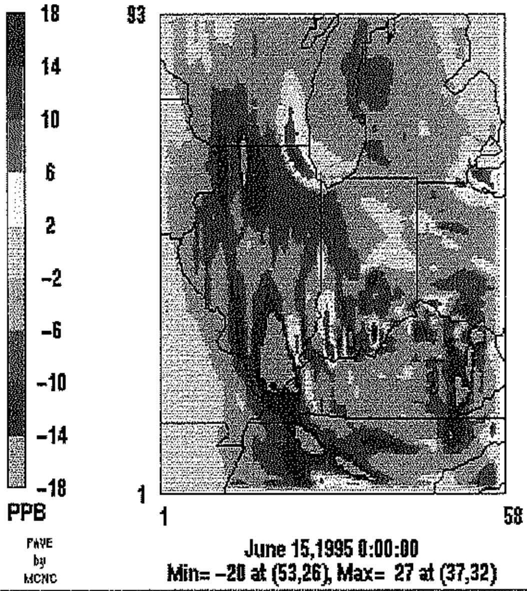
Max 1-Hour Ozone Difference

Effect of 2007 growth and CAA and SIP controls on 1995 Base
(07sip10) - (95bas10): Grid M @ 12 km -- TSIP (B8)



Max 8–Hour Ozone Difference

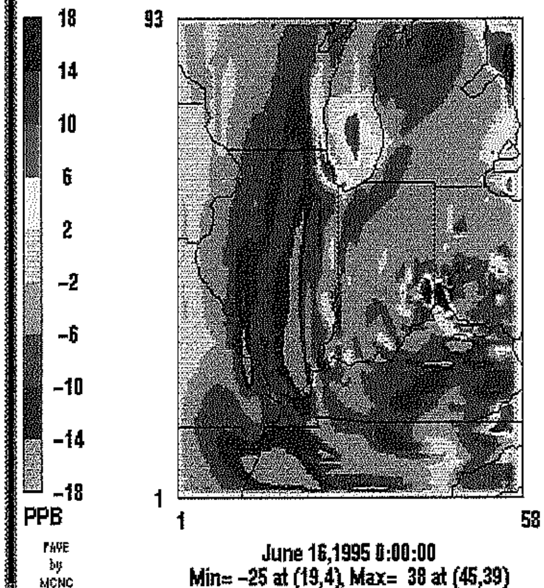
Effect of 2007 growth and CAA and SIP controls on 1995 Base
(07sip10) – (95bas10): Grid M @ 12 km –– TSIP (B8)



June 15,1995 0:00:00
Min= -20 at (53,26), Max= 27 at (37,32)

Max 8–Hour Ozone Difference

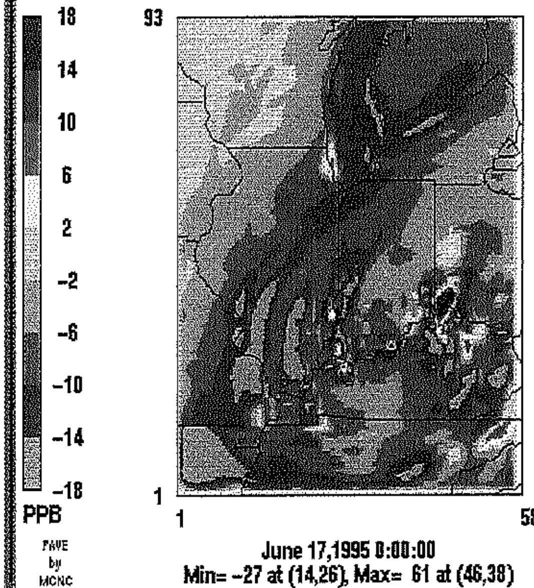
Effect of 2007 growth and CAA and SIP controls on 1995 Base
(07sip10) – (95bas10): Grid M @ 12 km –– TSIP (B8)



June 16,1995 0:00:00
Min= -25 at (19,4), Max= 38 at (45,39)

Max 8–Hour Ozone Difference

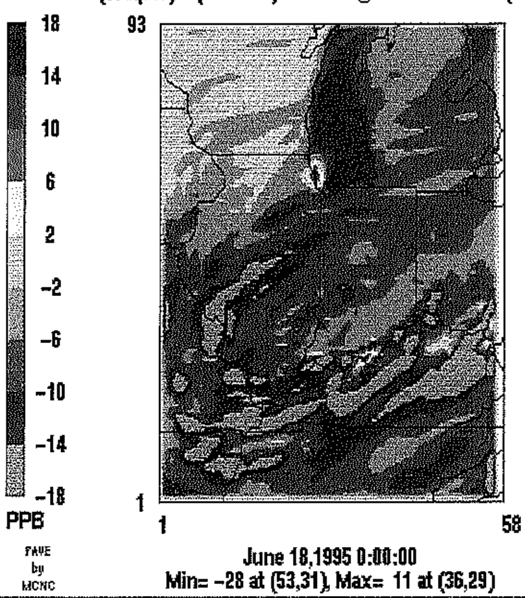
Effect of 2007 growth and CAA and SIP controls on 1995 Base
(07sip10) – (95bas10): Grid M @ 12 km –– TSIP (B8)



June 17,1995 0:00:00
Min= -27 at (14,26), Max= 61 at (46,38)

Max 8–Hour Ozone Difference

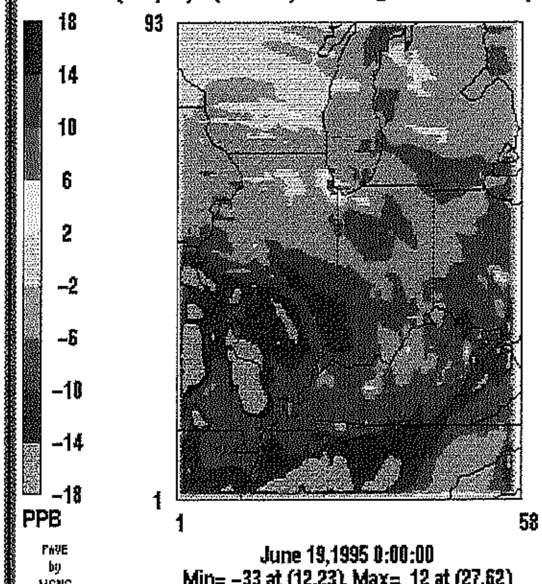
Effect of 2007 growth and CAA and SIP controls on 1995 Base
(07sip10) – (95bas10): Grid M @ 12 km –– TSIP (B8)



June 18,1995 0:00:00
Min= -28 at (53,31), Max= 11 at (36,29)

Max 8–Hour Ozone Difference

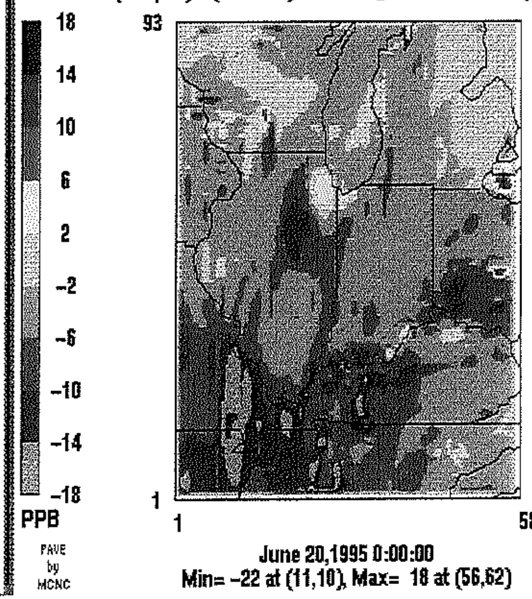
Effect of 2007 growth and CAA and SIP controls on 1995 Base
(07sip10) – (95bas10): Grid M @ 12 km –– TSIP (B8)



June 19,1995 0:00:00
Min= -33 at (12,23), Max= 12 at (27,62)

Max 8–Hour Ozone Difference

Effect of 2007 growth and CAA and SIP controls on 1995 Base
(07sip10) – (95bas10): Grid M @ 12 km –– TSIP (B8)

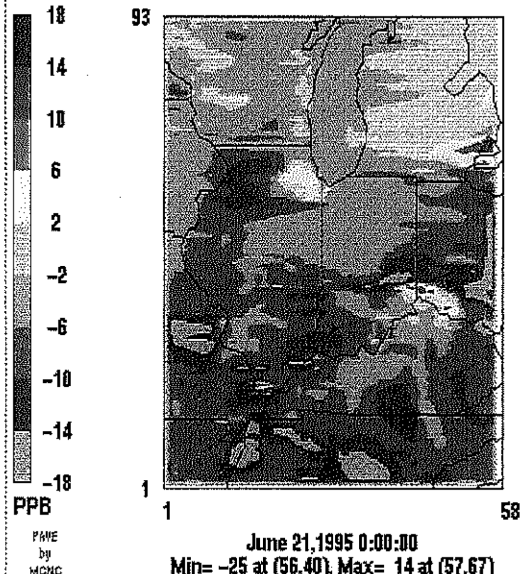


June 20,1995 0:00:00
Min= -22 at (11,10), Max= 18 at (56,62)

176 (cont.)

Max 8–Hour Ozone Difference

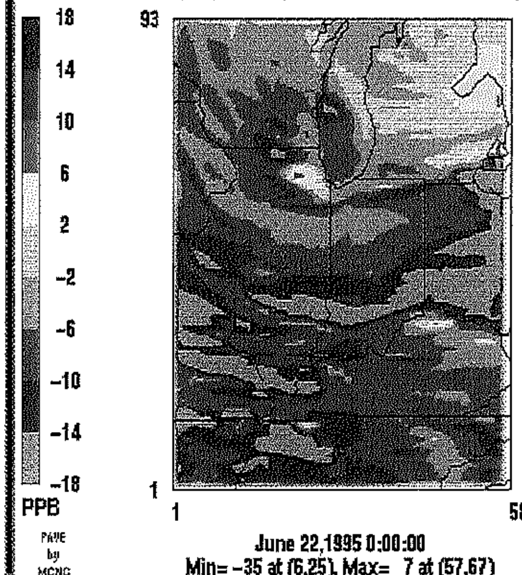
Effect of 2007 growth and CAA and SIP controls on 1995 Base
(07sip10) – (95bas10): Grid M @ 12 km --- TSIP (B8)



June 21,1995 0:00:00
Min= -25 at (56,40), Max= 14 at (57,67)

Max 8–Hour Ozone Difference

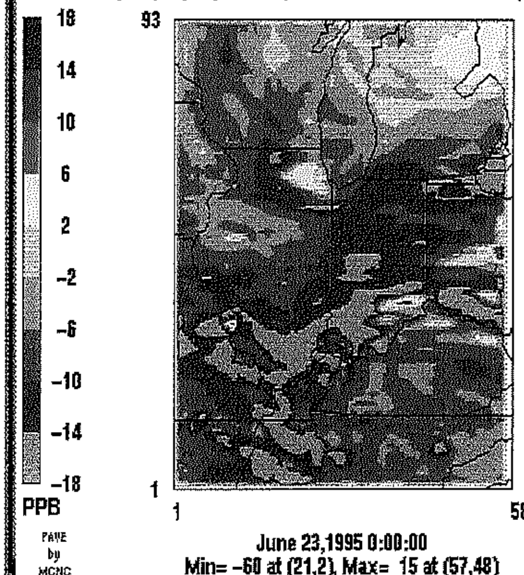
Effect of 2007 growth and CAA and SIP controls on 1995 Base
(07sip10) – (95bas10): Grid M @ 12 km --- TSIP (B8)



June 22,1995 0:00:00
Min= -35 at (6,25), Max= 7 at (57,67)

Max 8–Hour Ozone Difference

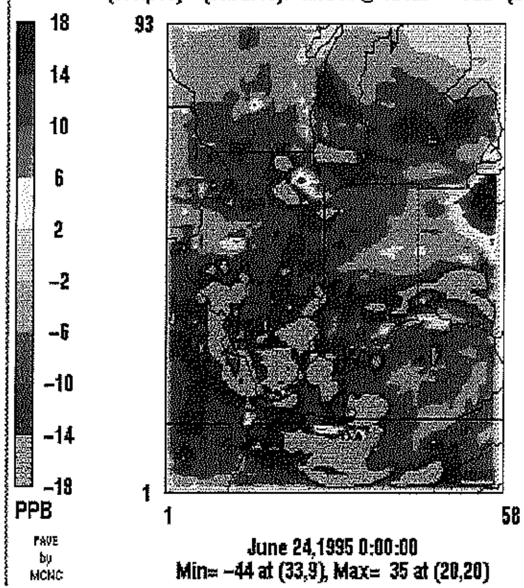
Effect of 2007 growth and CAA and SIP controls on 1995 Base
(07sip10) – (95bas10): Grid M @ 12 km --- TSIP (B8)



June 23,1995 0:00:00
Min= -60 at (21,2), Max= 15 at (57,48)

Max 8–Hour Ozone Difference

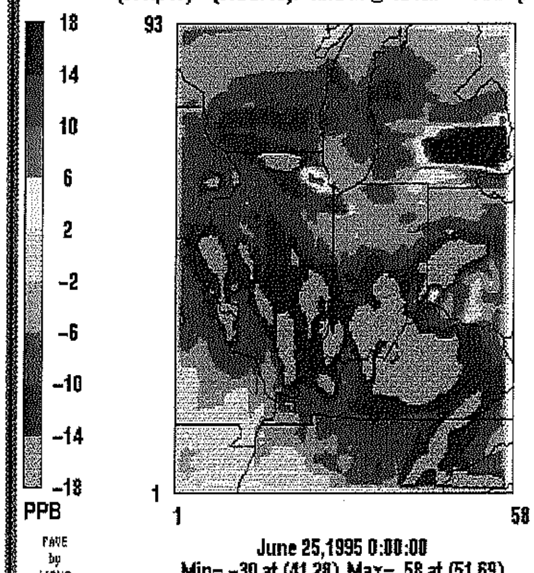
Effect of 2007 growth and CAA and SIP controls on 1995 Base
(07sip10) – (95bas10): Grid M @ 12 km --- TSIP (B8)



June 24,1995 0:00:00
Min= -44 at (33,9), Max= 35 at (20,20)

Max 8–Hour Ozone Difference

Effect of 2007 growth and CAA and SIP controls on 1995 Base
(07sip10) – (95bas10): Grid M @ 12 km --- TSIP (B8)



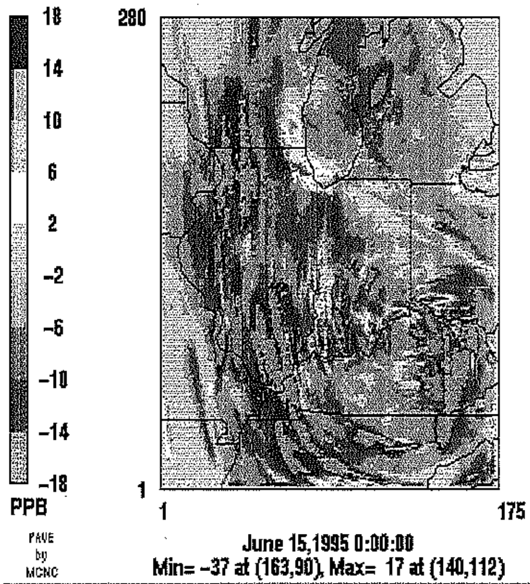
June 25,1995 0:00:00
Min= -30 at (41,28), Max= 58 at (51,69)

gif
gif
gif
gif
gif
gif

14.c

Max 1–Hour Ozone Difference

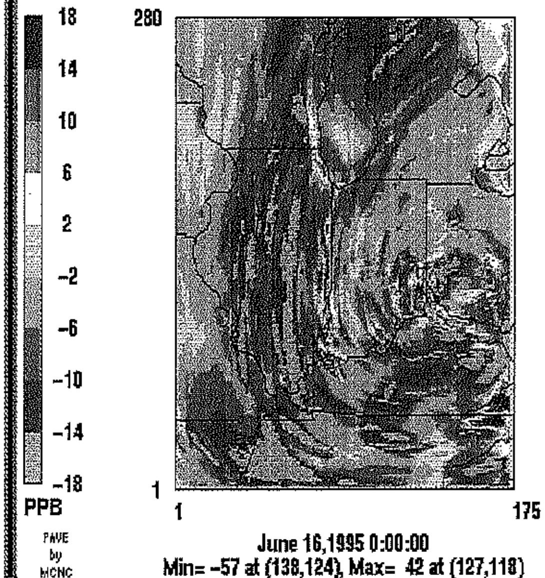
Effect of 2007 Growth and CAA + SIP Call and Controls
(07sip10) – (95bas10): Grid M @ 4 km -- TSIP (B10)



June 15,1995 0:00:00
Min= -37 at (163,90), Max= 17 at (140,112)

Max 1–Hour Ozone Difference

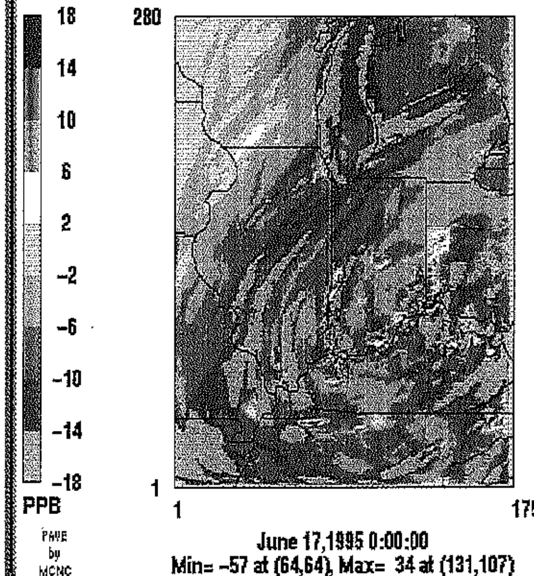
Effect of 2007 Growth and CAA + SIP Call and Controls
(07sip10) – (95bas10): Grid M @ 4 km -- TSIP (B10)



June 16,1995 0:00:00
Min= -57 at (138,124), Max= 42 at (127,118)

Max 1–Hour Ozone Difference

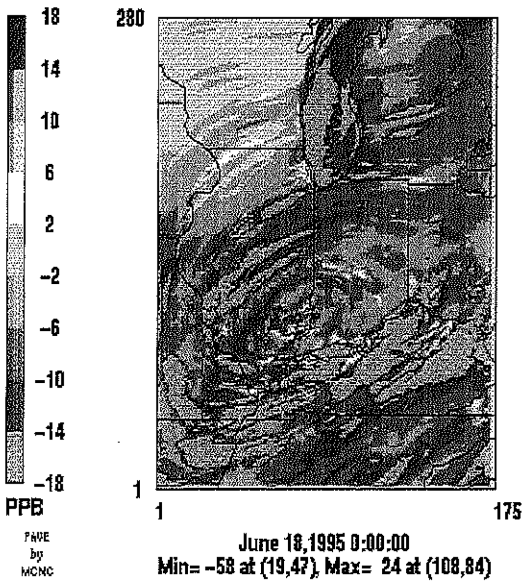
Effect of 2007 Growth and CAA + SIP Call and Controls
(07sip10) – (95bas10): Grid M @ 4 km -- TSIP (B10)



June 17,1995 0:00:00
Min= -57 at (64,64), Max= 34 at (131,107)

Max 1–Hour Ozone Difference

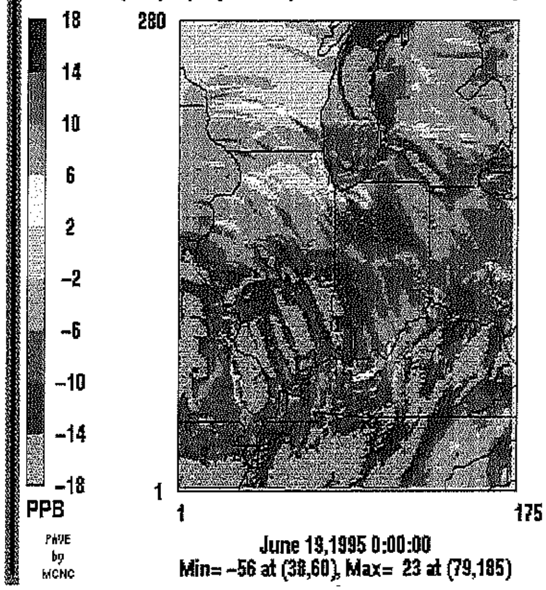
Effect of 2007 Growth and CAA + SIP Call and Controls
(07sip10) – (95bas10): Grid M @ 4 km -- TSIP (B10)



June 18,1995 0:00:00
Min= -58 at (19,47), Max= 24 at (108,84)

Max 1–Hour Ozone Difference

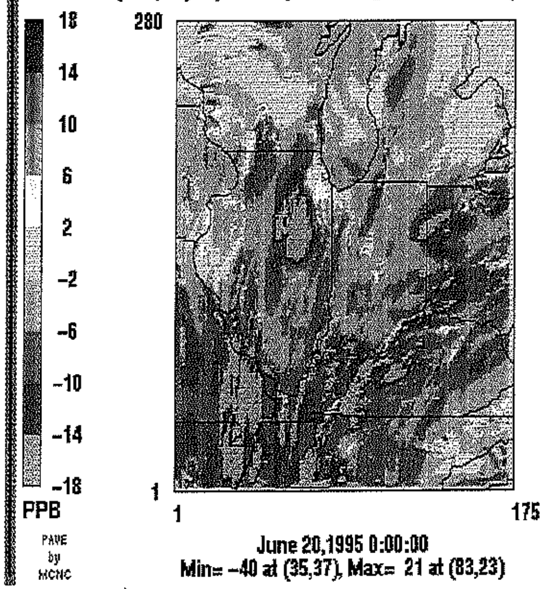
Effect of 2007 Growth and CAA + SIP Call and Controls
(07sip10) – (95bas10): Grid M @ 4 km -- TSIP (B10)



June 19,1995 0:00:00
Min= -56 at (38,60), Max= 23 at (79,185)

Max 1–Hour Ozone Difference

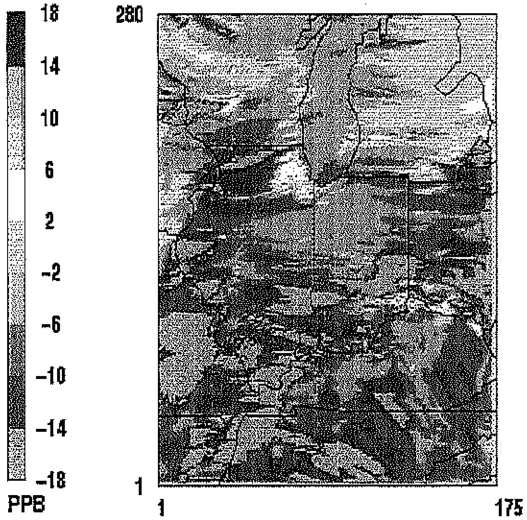
Effect of 2007 Growth and CAA + SIP Call and Controls
(07sip10) – (95bas10): Grid M @ 4 km -- TSIP (B10)



June 20,1995 0:00:00
Min= -40 at (35,37), Max= 21 at (83,23)

Max 1-Hour Ozone Difference

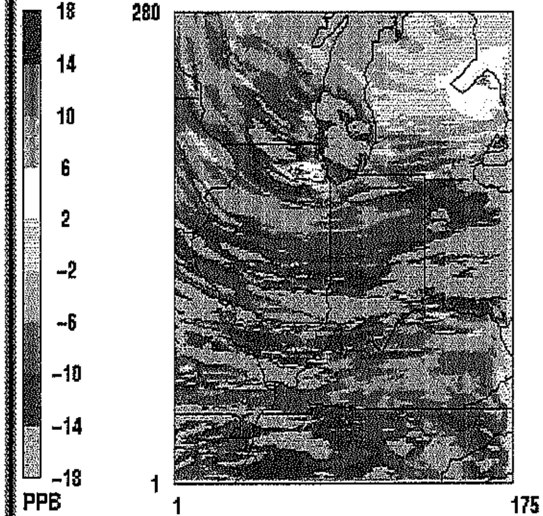
Effect of 2007 Growth and CAA + SIP Call and Controls
(07sip10) - (95bas10): Grid M @ 4 km -- TSIP (B10)



June 21,1995 0:00:00
Min= -48 at (25,23), Max= 17 at (41,267)

Max 1-Hour Ozone Difference

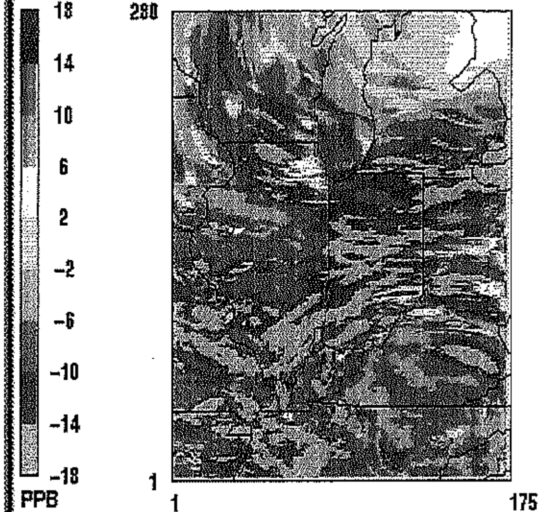
Effect of 2007 Growth and CAA + SIP Call and Controls
(07sip10) - (95bas10): Grid M @ 4 km -- TSIP (B10)



June 22,1995 0:00:00
Min= -65 at (3,42), Max= 24 at (83,23)

Max 1-Hour Ozone Difference

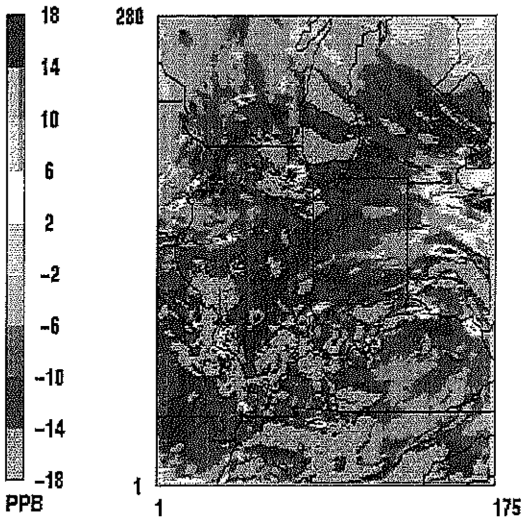
Effect of 2007 Growth and CAA + SIP Call and Controls
(07sip10) - (95bas10): Grid M @ 4 km -- TSIP (B10)



June 23,1995 0:00:00
Min=-104 at (62,3), Max= 49 at (83,23)

Max 1-Hour Ozone Difference

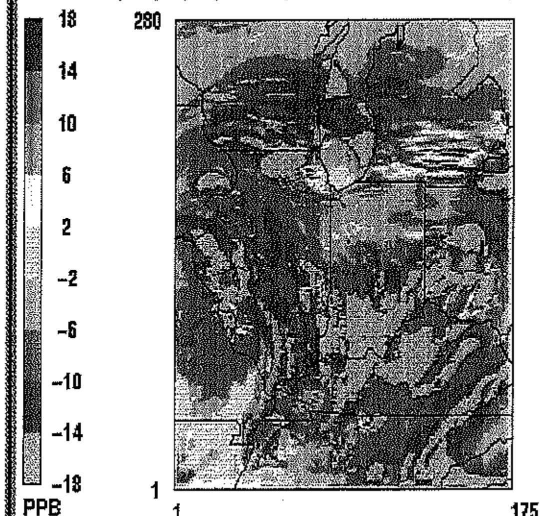
Effect of 2007 Growth and CAA + SIP Call and Controls
(07sip10) - (95bas10): Grid M @ 4 km -- TSIP (B10)



June 24,1995 0:00:00
Min= -82 at (30,91), Max= 31 at (62,56)

Max 1-Hour Ozone Difference

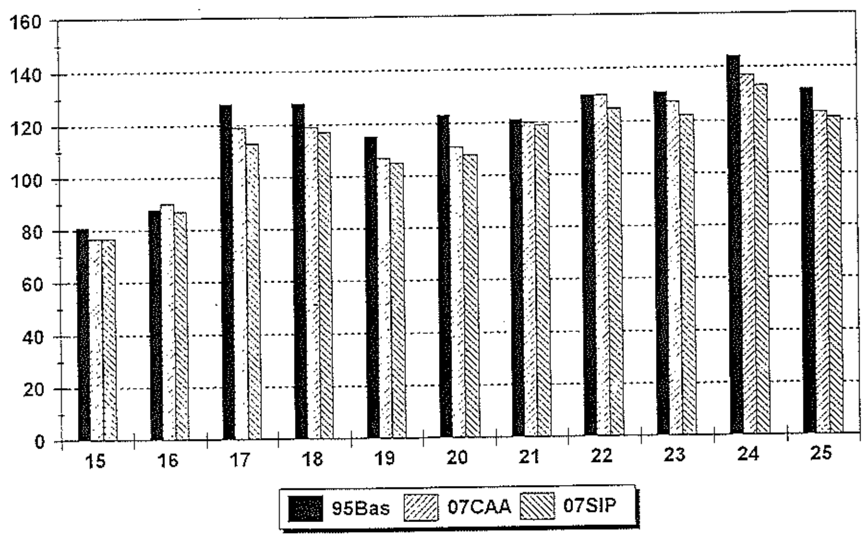
Effect of 2007 Growth and CAA + SIP Call and Controls
(07sip10) - (95bas10): Grid M @ 4 km -- TSIP (B10)



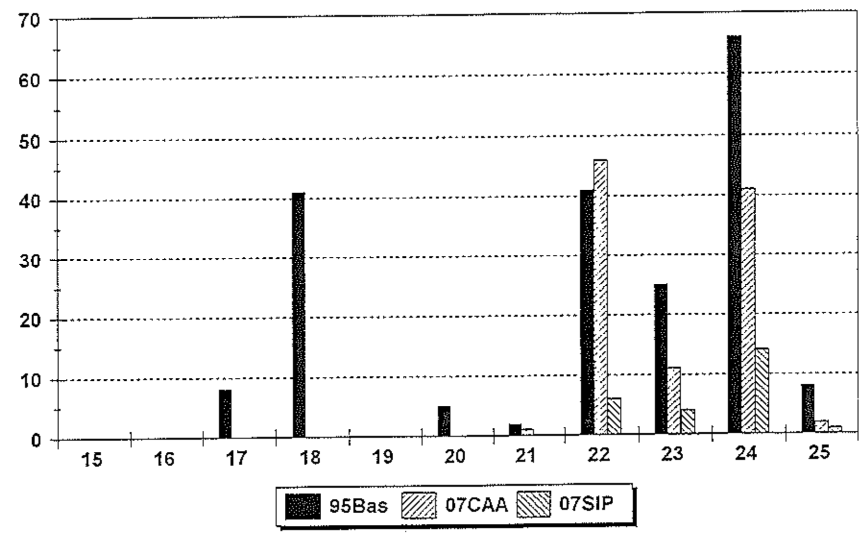
June 25,1995 0:00:00
Min= -76 at (138,122), Max= 26 at (136,196)

15

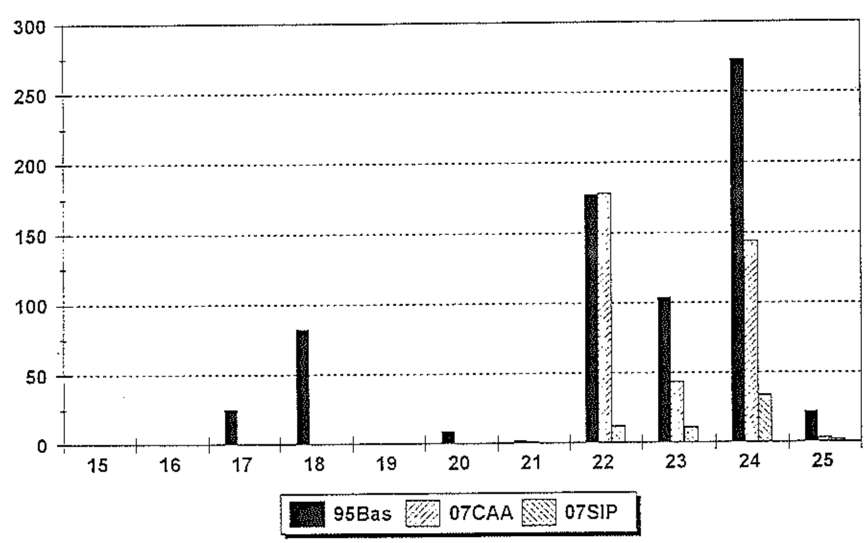
Peak 1-Hour Concentration (ppb)
Lake Michigan Area



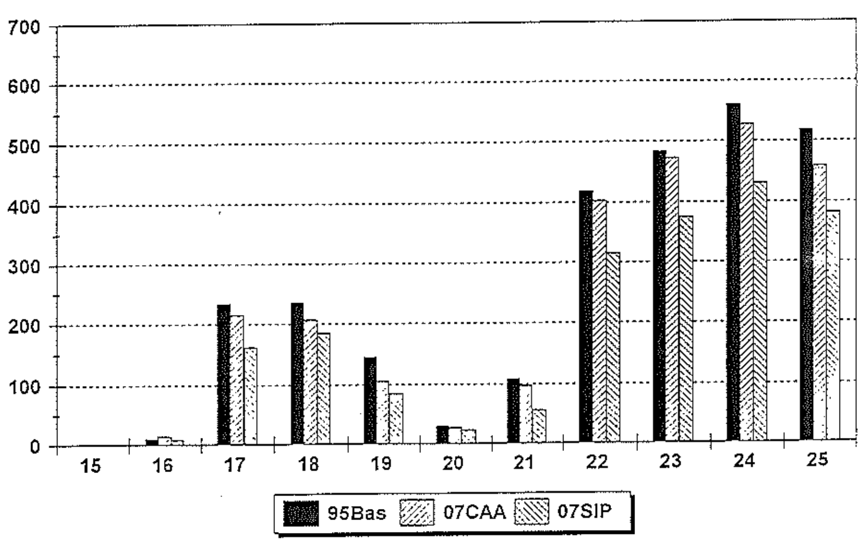
No. Grid Cells > 120 ppb (1-Hour)
Lake Michigan Area



No. Hours > 120 ppb (1-Hour)
Lake Michigan Area

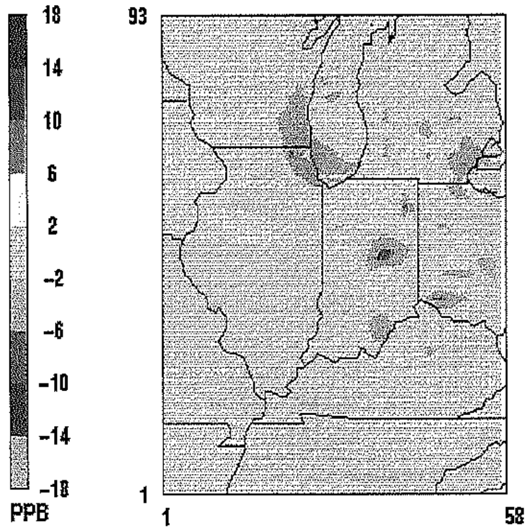


No. Grid Cells > 80 ppb (8-Hour)
Lake Michigan Area



Max 1-Hour Ozone Difference

Effect of 25% VOC Red'n in Grid M
(07sip10-v25) - (07sip10): Grid M @ 12 km -- TSIP (B8)

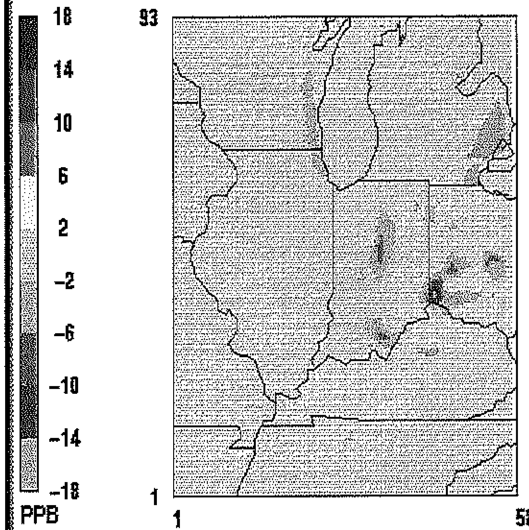


PAVE by MCNC

June 15,1995 0:00:00
Min= -9 at (42,56), Max= 0 at (46,35)

Max 1-Hour Ozone Difference

Effect of 25% VOC Red'n in Grid M
(07sip10-v25) - (07sip10): Grid M @ 12 km -- TSIP (B8)

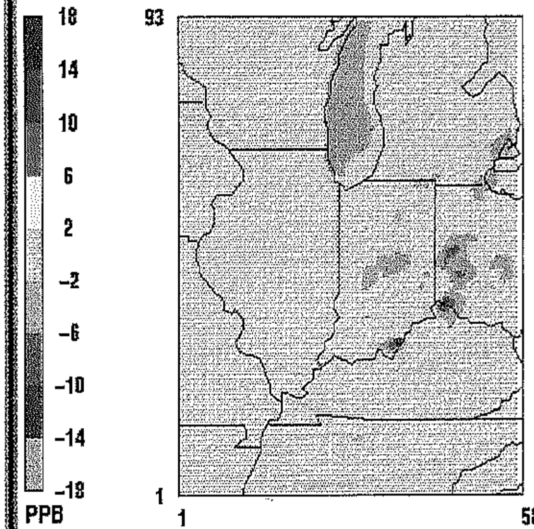


PAVE by MCNC

June 16,1995 0:00:00
Min= -15 at (45,39), Max= 1 at (36,28)

Max 1-Hour Ozone Difference

Effect of 25% VOC Red'n in Grid M
(07sip10-v25) - (07sip10): Grid M @ 12 km -- TSIP (B8)

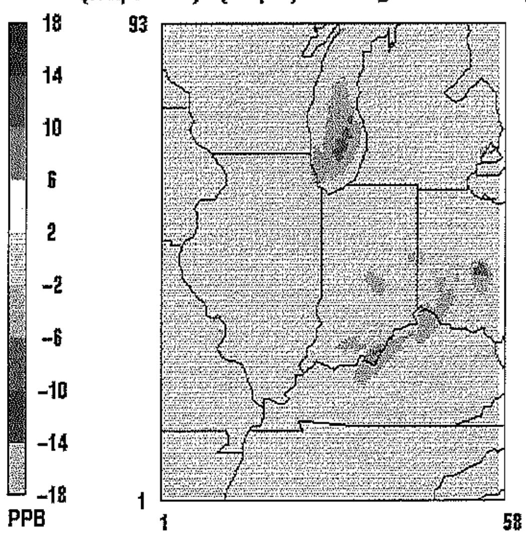


PAVE by MCNC

June 17,1995 0:00:00
Min= -14 at (38,30), Max= 1 at (44,37)

Max 1-Hour Ozone Difference

Effect of 25% VOC Red'n in Grid M
(07sip10-v25) - (07sip10): Grid M @ 12 km -- TSIP (B8)

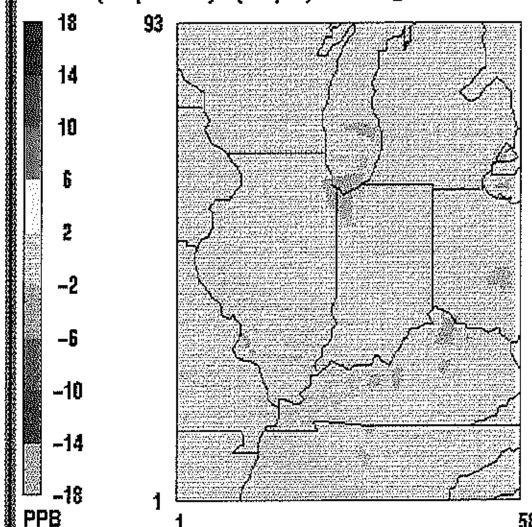


PAVE by MCNC

June 18,1995 0:00:00
Min= -8 at (55,45), Max= 0 at (6,2)

Max 1-Hour Ozone Difference

Effect of 25% VOC Red'n in Grid M
(07sip10-v25) - (07sip10): Grid M @ 12 km -- TSIP (B8)

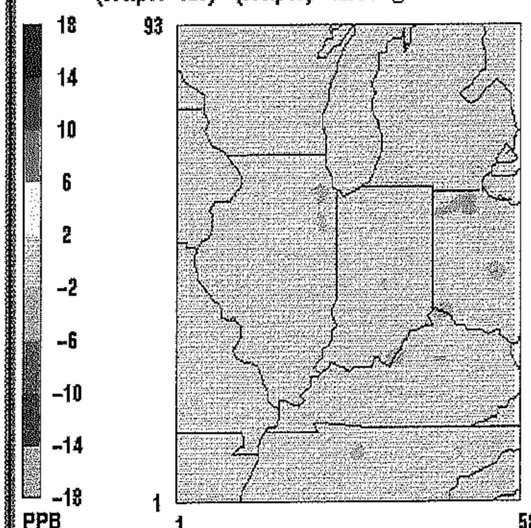


PAVE by MCNC

June 19,1995 0:00:00
Min= -6 at (33,73), Max= 0 at (12,26)

Max 1-Hour Ozone Difference

Effect of 25% VOC Red'n in Grid M
(07sip10-v25) - (07sip10): Grid M @ 12 km -- TSIP (B8)



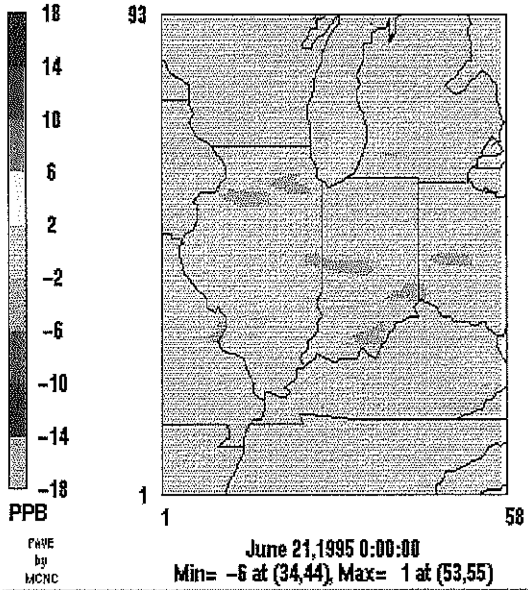
PAVE by MCNC

June 20,1995 0:00:00
Min= -6 at (39,29), Max= 0 at (16,74)

16a (cont.)

Max 1–Hour Ozone Difference

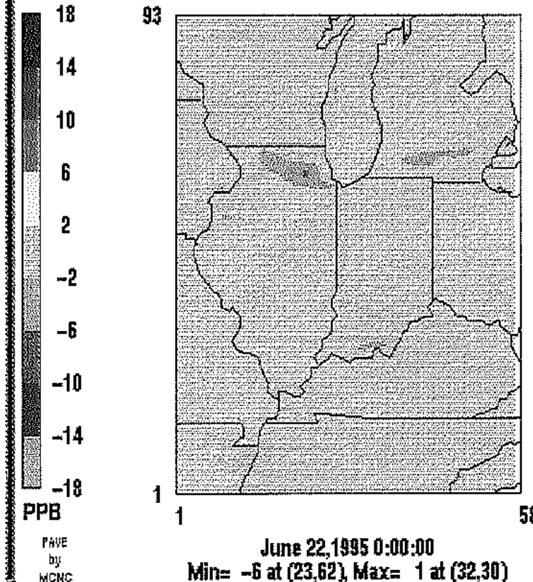
Effect of 25% VOC Red'n in Grid M
(07sip10–v25) – (07sip10): Grid M @ 12 km –– TSIP (B8)



June 21,1995 0:00:00
Min= -6 at (34,44), Max= 1 at (53,55)

Max 1–Hour Ozone Difference

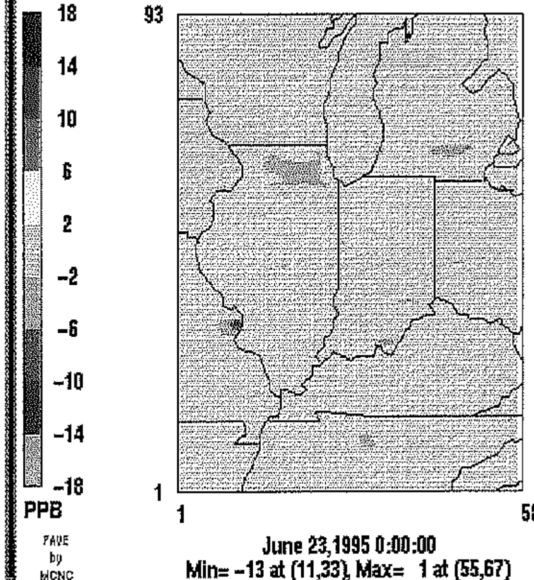
Effect of 25% VOC Red'n in Grid M
(07sip10–v25) – (07sip10): Grid M @ 12 km –– TSIP (B8)



June 22,1995 0:00:00
Min= -6 at (23,62), Max= 1 at (32,30)

Max 1–Hour Ozone Difference

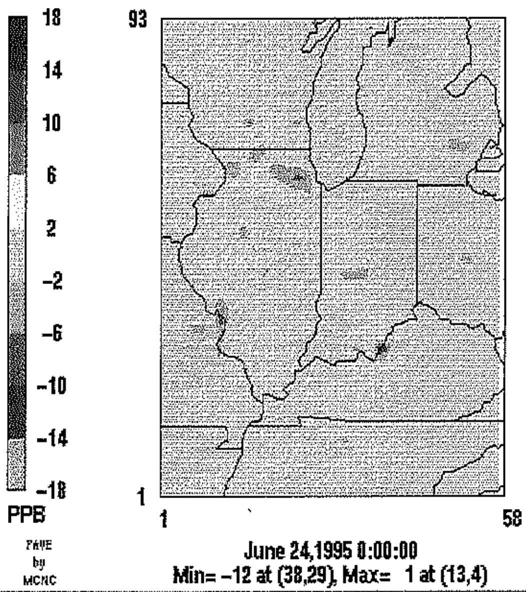
Effect of 25% VOC Red'n in Grid M
(07sip10–v25) – (07sip10): Grid M @ 12 km –– TSIP (B8)



June 23,1995 0:00:00
Min= -13 at (11,33), Max= 1 at (55,67)

Max 1–Hour Ozone Difference

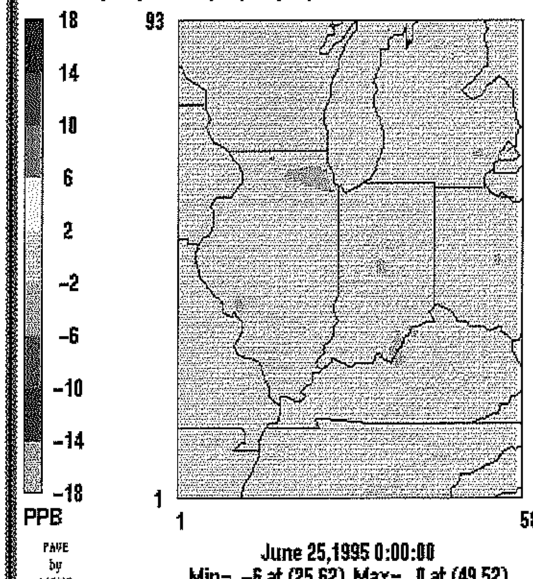
Effect of 25% VOC Red'n in Grid M
(07sip10–v25) – (07sip10): Grid M @ 12 km –– TSIP (B8)



June 24,1995 0:00:00
Min= -12 at (38,29), Max= 1 at (13,4)

Max 1–Hour Ozone Difference

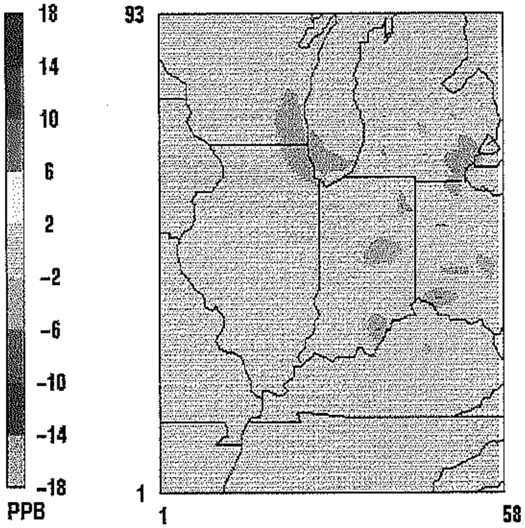
Effect of 25% VOC Red'n in Grid M
(07sip10–v25) – (07sip10): Grid M @ 12 km –– TSIP (B8)



June 25,1995 0:00:00
Min= -6 at (25,62), Max= 0 at (49,52)

Max 8–Hour Ozone Difference

Effect of 25% VOC Red'n in Grid M
(07sip10–v25) – (07sip10): Grid M @ 12 km –– TSIP (B8)

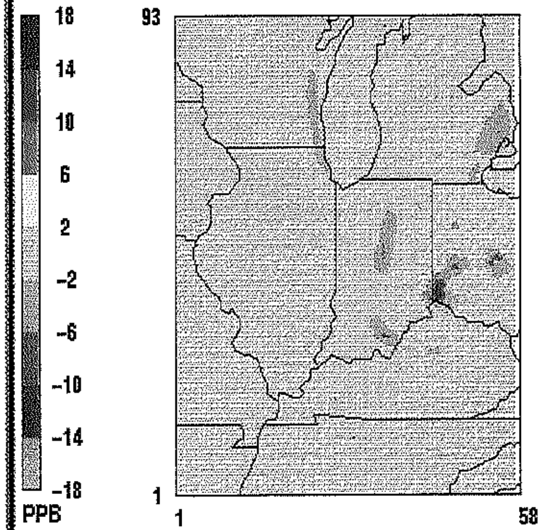


PAVE by MCNC

June 15,1995 0:00:00
Min= -7 at (42,56), Max= 0 at (46,35)

Max 8–Hour Ozone Difference

Effect of 25% VOC Red'n in Grid M
(07sip10–v25) – (07sip10): Grid M @ 12 km –– TSIP (B8)

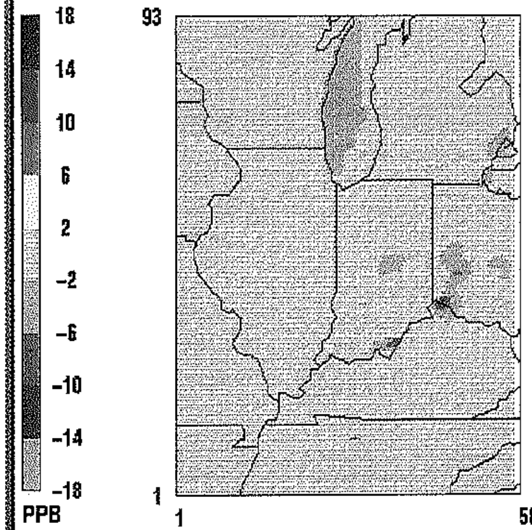


PAVE by MCNC

June 16,1995 0:00:00
Min= -13 at (45,39), Max= 1 at (37,28)

Max 8–Hour Ozone Difference

Effect of 25% VOC Red'n in Grid M
(07sip10–v25) – (07sip10): Grid M @ 12 km –– TSIP (B8)

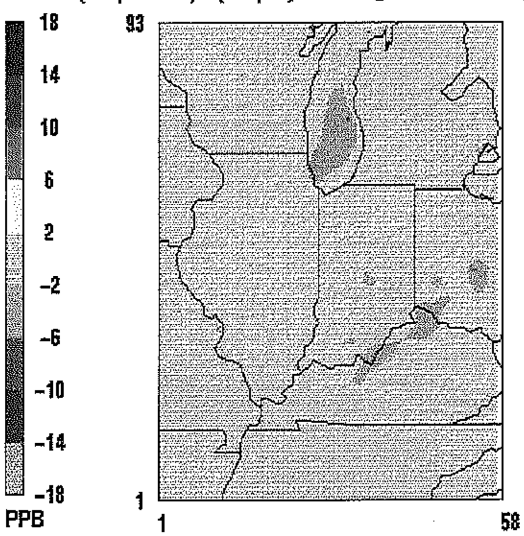


PAVE by MCNC

June 17,1995 0:00:00
Min= -12 at (46,37), Max= 1 at (33,11)

Max 8–Hour Ozone Difference

Effect of 25% VOC Red'n in Grid M
(07sip10–v25) – (07sip10): Grid M @ 12 km –– TSIP (B8)

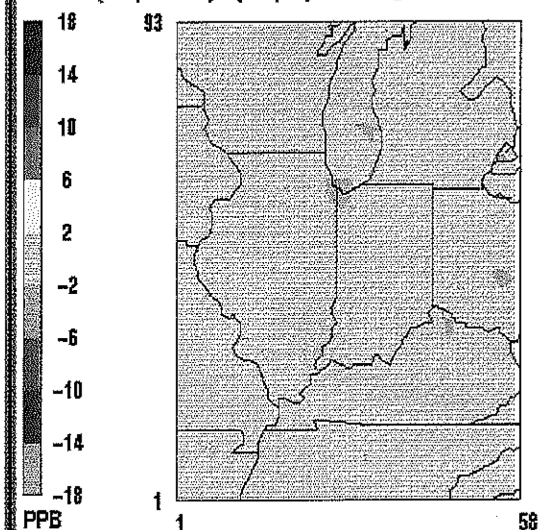


PAVE by MCNC

June 18,1995 0:00:00
Min= -7 at (54,45), Max= 0 at (11,32)

Max 8–Hour Ozone Difference

Effect of 25% VOC Red'n in Grid M
(07sip10–v25) – (07sip10): Grid M @ 12 km –– TSIP (B8)

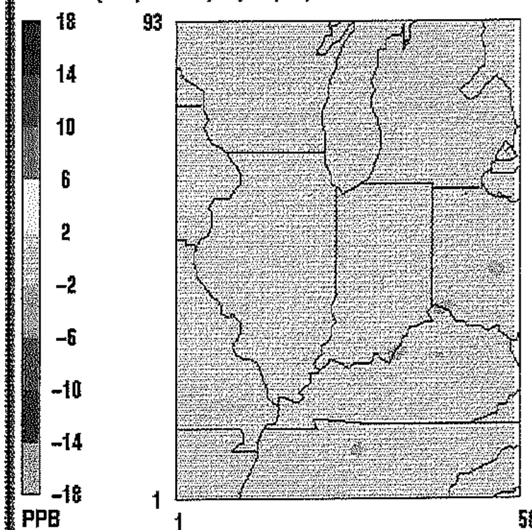


PAVE by MCNC

June 19,1995 0:00:00
Min= -5 at (56,43), Max= 0 at (11,29)

Max 8–Hour Ozone Difference

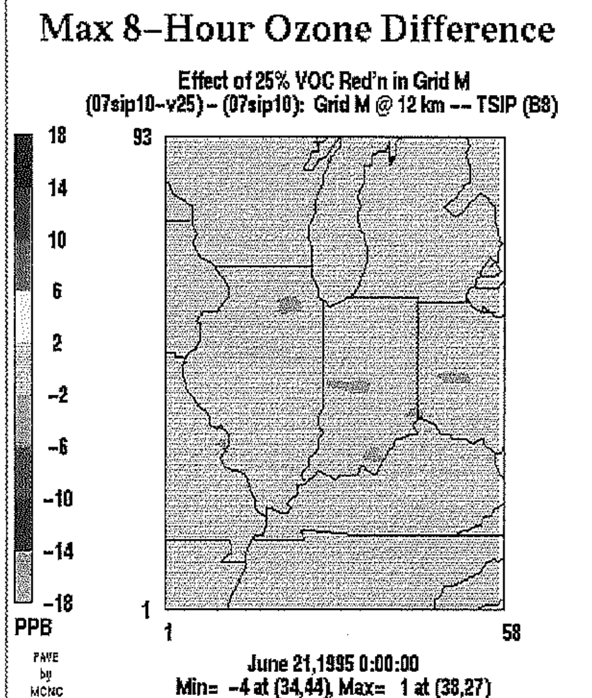
Effect of 25% VOC Red'n in Grid M
(07sip10–v25) – (07sip10): Grid M @ 12 km –– TSIP (B8)

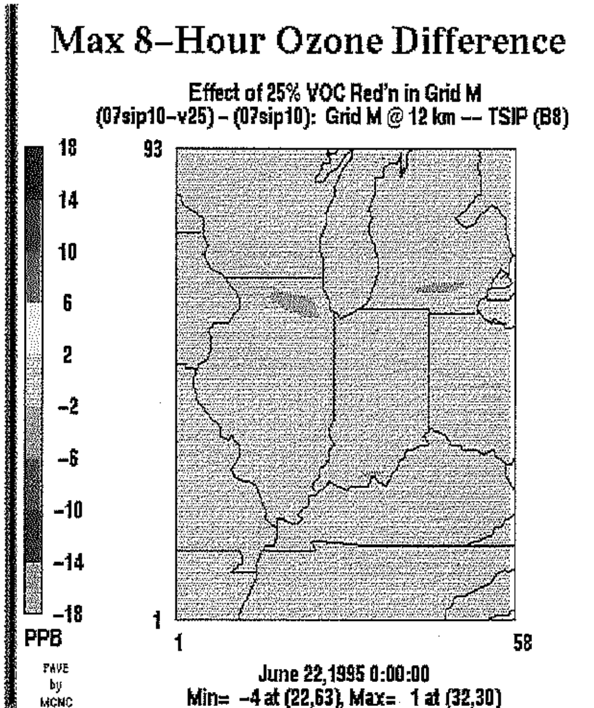


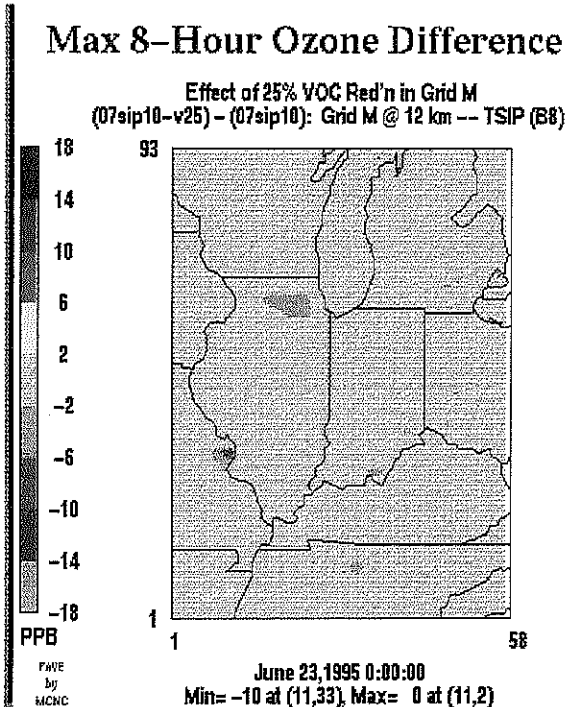
PAVE by MCNC

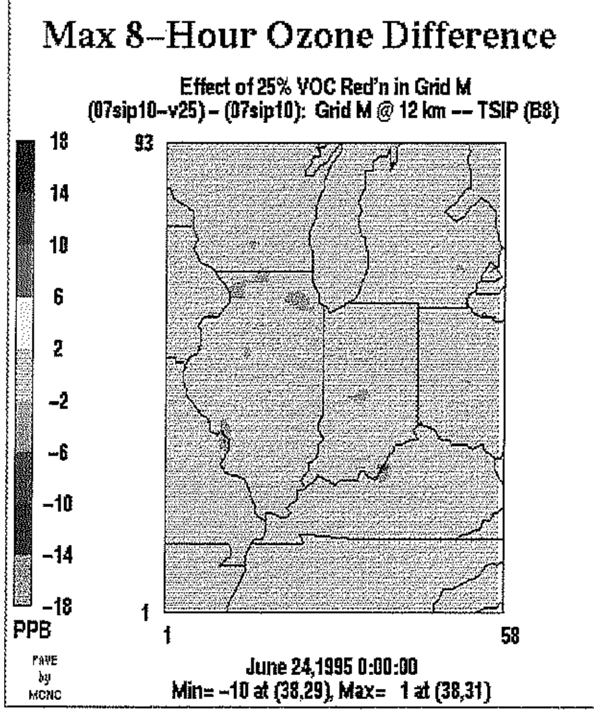
June 20,1995 0:00:00
Min= -6 at (38,28), Max= 0 at (16,74)

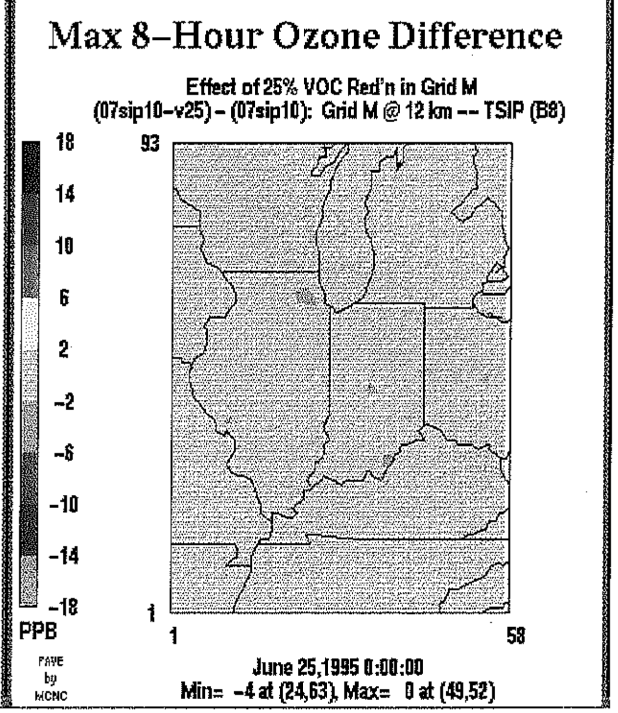
16b (cont.)

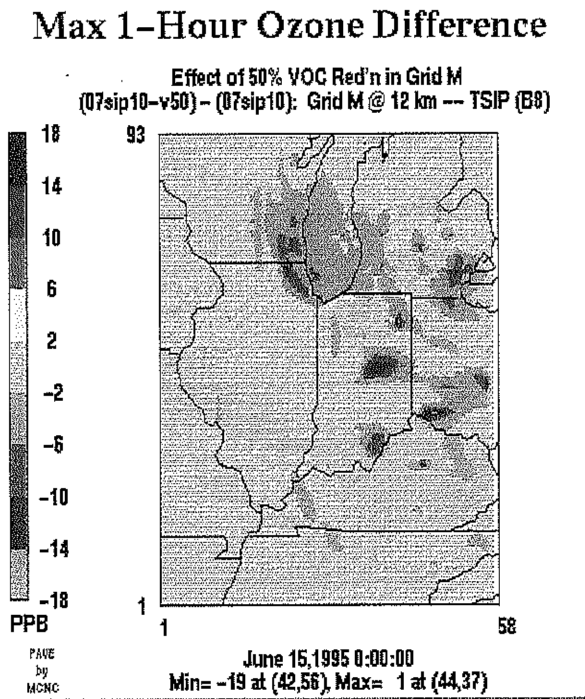

Max 8-Hour Ozone Difference
Effect of 25% VOC Red'n in Grid M
(07sip10-v25) - (07sip10): Grid M @ 12 km -- TSIP (B8)
18
14
10
6
2
-2
-6
-10
-14
-18
PPB
93
1
1
58
PAVE by MCNC
June 21,1995 0:00:00
Min= -4 at (34,44), Max= 1 at (38,27)


Max 8-Hour Ozone Difference
Effect of 25% VOC Red'n in Grid M
(07sip10-v25) - (07sip10): Grid M @ 12 km -- TSIP (B8)
18
14
10
6
2
-2
-6
-10
-14
-18
PPB
93
1
1
58
PAVE by MCNC
June 22,1995 0:00:00
Min= -4 at (22,63), Max= 1 at (32,30)

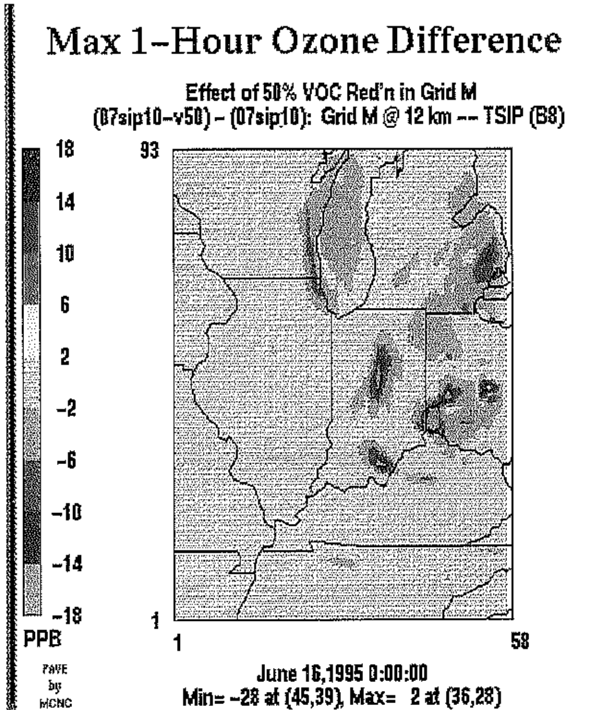

Max 8-Hour Ozone Difference
Effect of 25% VOC Red'n in Grid M
(07sip10-v25) - (07sip10): Grid M @ 12 km -- TSIP (B8)
18
14
10
6
2
-2
-6
-10
-14
-18
PPB
93
1
1
58
PAVE by MCNC
June 23,1995 0:00:00
Min= -10 at (11,33), Max= 0 at (11,2)


Max 8-Hour Ozone Difference
Effect of 25% VOC Red'n in Grid M
(07sip10-v25) - (07sip10): Grid M @ 12 km -- TSIP (B8)
18
14
10
6
2
-2
-6
-10
-14
-18
PPB
93
1
1
58
PAVE by MCNC
June 24,1995 0:00:00
Min= -10 at (38,29), Max= 1 at (38,31)

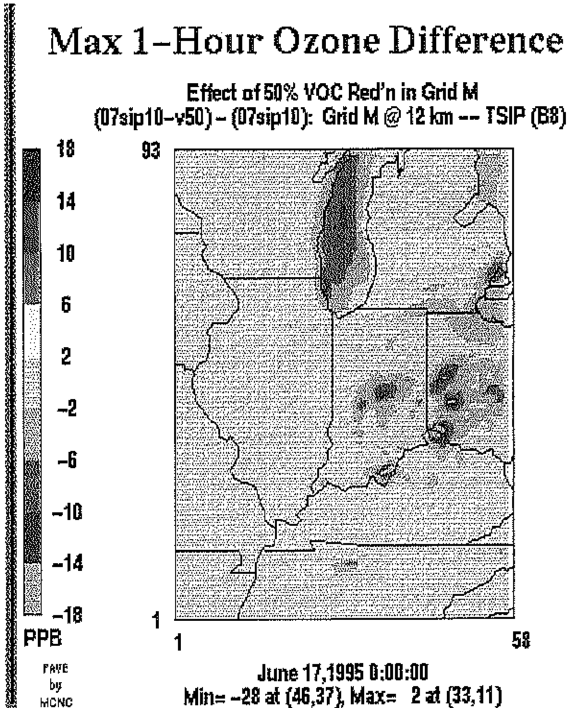

Max 8-Hour Ozone Difference
Effect of 25% VOC Red'n in Grid M
(07sip10-v25) - (07sip10): Grid M @ 12 km -- TSIP (B8)
18
14
10
6
2
-2
-6
-10
-14
-18
PPB
93
1
1
58
PAVE by MCNC
June 25,1995 0:00:00
Min= -4 at (24,63), Max= 0 at (49,52)



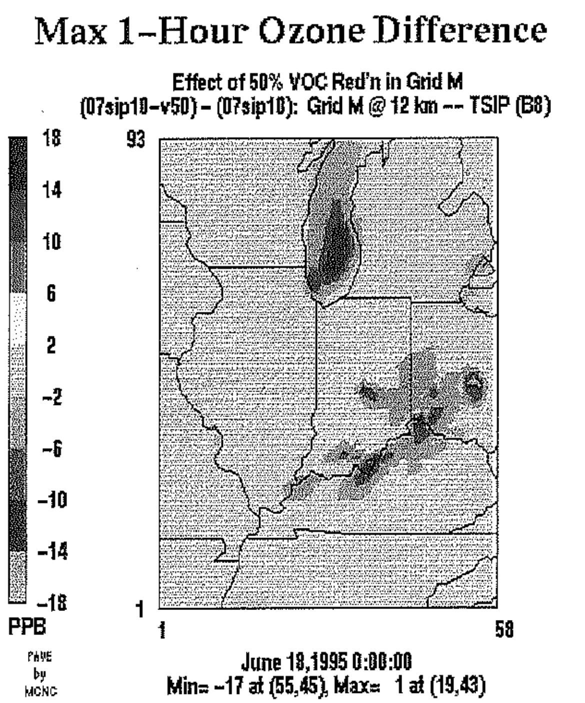
Max 1-Hour Ozone Difference
Effect of 50% VOC Red'n in Grid M
(07sip10-v50) - (07sip10): Grid M @ 12 km -- TSIP (B8)
18
14
10
6
2
-2
-6
-10
-14
-18
PPB
93
1
1
58
PAVE by MCNC
June 15,1995 0:00:00
Min= -19 at (42,56), Max= 1 at (44,37)



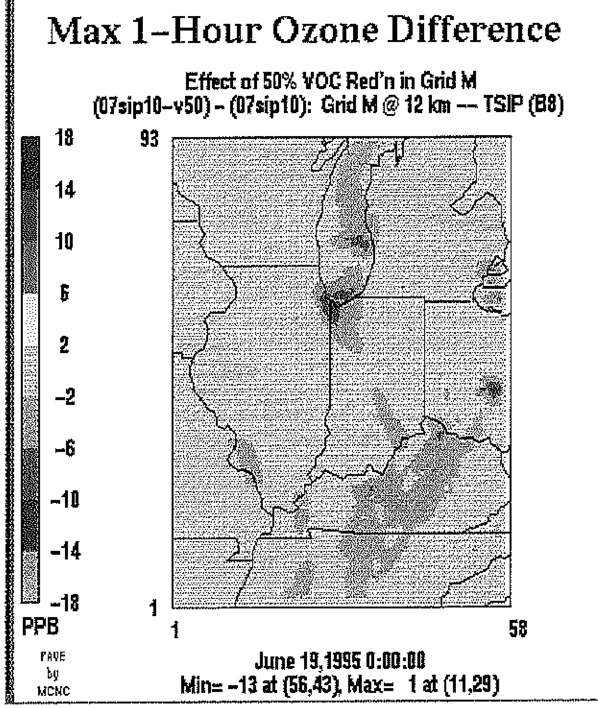
Max 1-Hour Ozone Difference
Effect of 50% VOC Red'n in Grid M
(07sip10-v50) - (07sip10): Grid M @ 12 km -- TSIP (B8)
18
14
10
6
2
-2
-6
-10
-14
-18
PPB
93
1
1
58
PAVE by MCNC
June 16,1995 0:00:00
Min= -28 at (45,39), Max= 2 at (36,28)



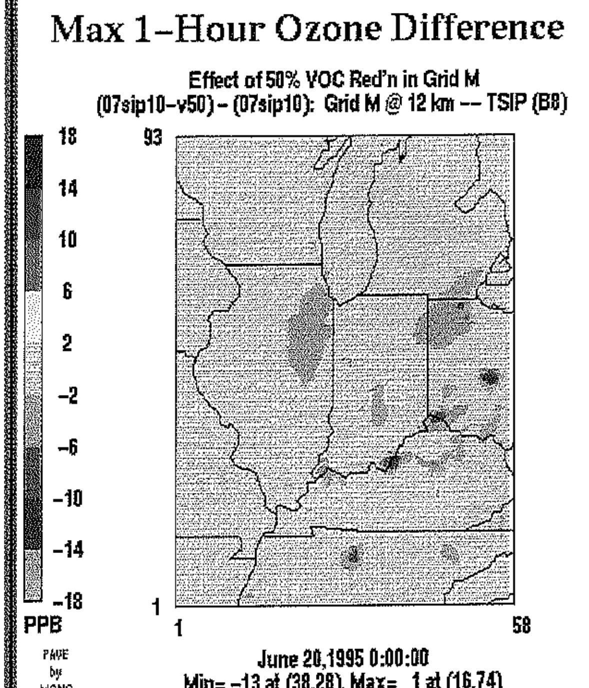
Max 1-Hour Ozone Difference
Effect of 50% VOC Red'n in Grid M
(07sip10-v50) - (07sip10): Grid M @ 12 km -- TSIP (B8)
18
14
10
6
2
-2
-6
-10
-14
-18
PPB
93
1
1
58
PAVE by MCNC
June 17,1995 0:00:00
Min= -28 at (46,37), Max= 2 at (33,11)



Max 1-Hour Ozone Difference
Effect of 50% VOC Red'n in Grid M
(07sip10-v50) - (07sip10): Grid M @ 12 km -- TSIP (B8)
18
14
10
6
2
-2
-6
-10
-14
-18
PPB
93
1
1
58
PAVE by MCNC
June 18,1995 0:00:00
Min= -17 at (55,45), Max= 1 at (19,43)

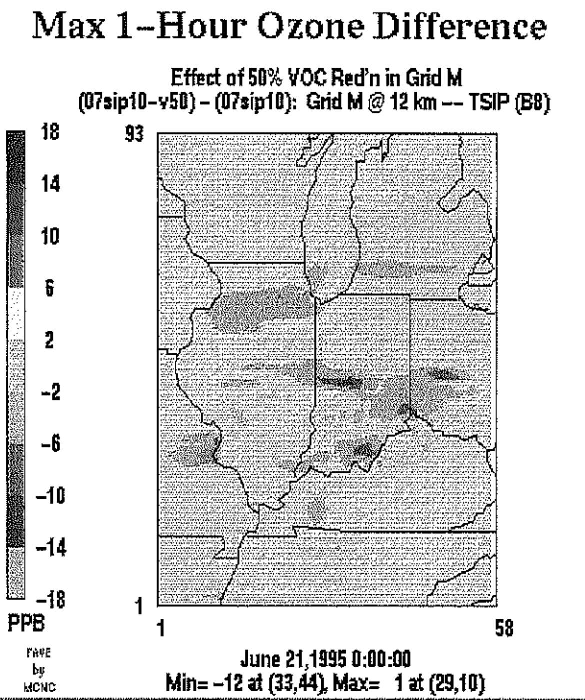


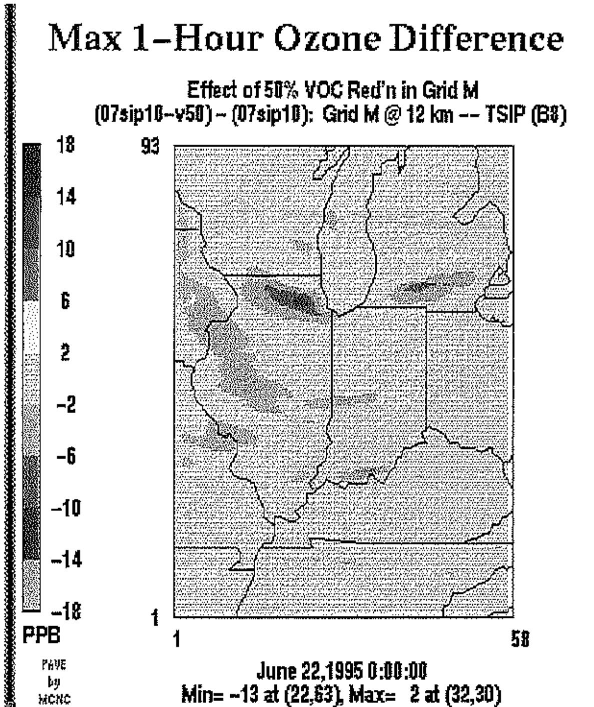
Max 1-Hour Ozone Difference
Effect of 50% VOC Red'n in Grid M
(07sip10-v50) - (07sip10): Grid M @ 12 km -- TSIP (B8)
18
14
10
6
2
-2
-6
-10
-14
-18
PPB
93
1
1
58
PAVE by MCNC
June 19,1995 0:00:00
Min= -13 at (56,43), Max= 1 at (11,29)

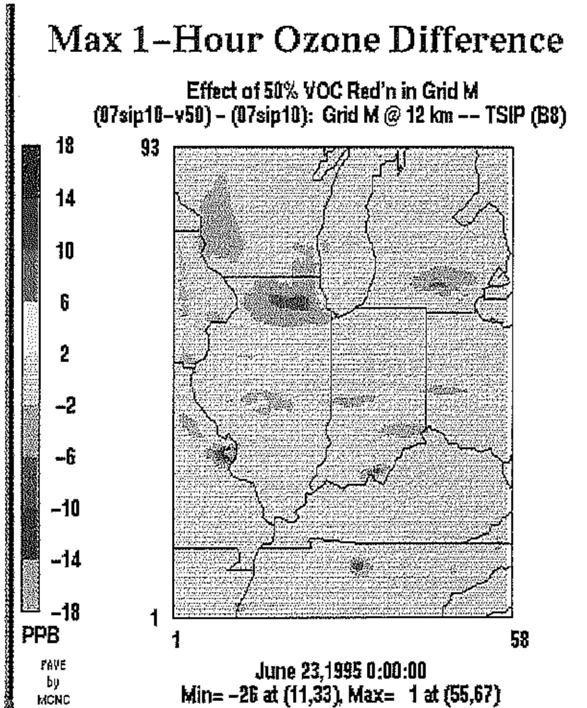


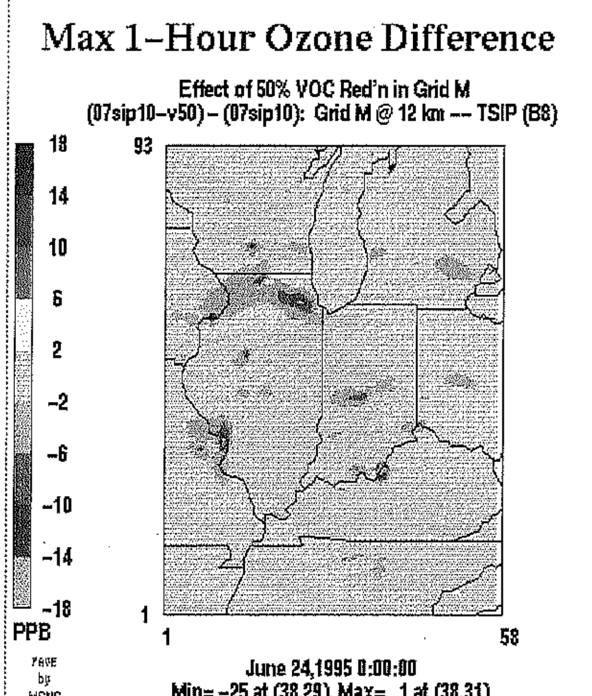
Max 1-Hour Ozone Difference
Effect of 50% VOC Red'n in Grid M
(07sip10-v50) - (07sip10): Grid M @ 12 km -- TSIP (B8)
18
14
10
6
2
-2
-6
-10
-14
-18
PPB
93
1
1
58
PAVE by MCNC
June 20,1995 0:00:00
Min= -13 at (38,28), Max= 1 at (16,74)

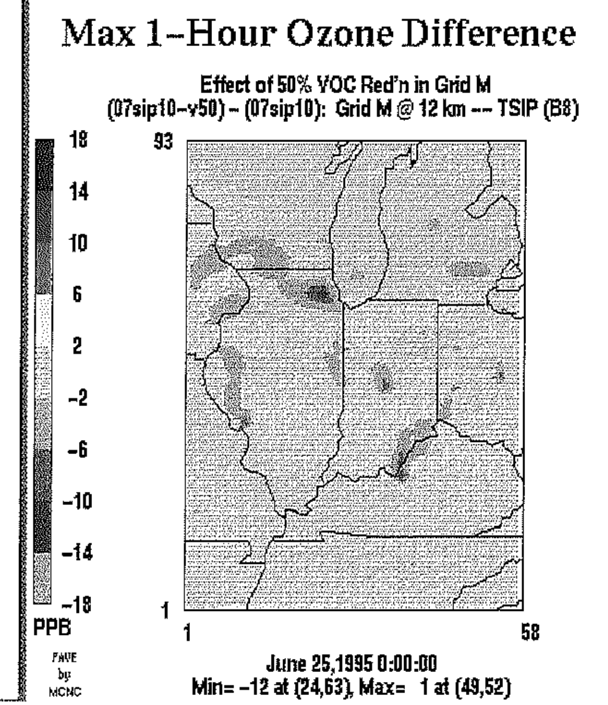
17a (cont.)


Max 1-Hour Ozone Difference
Effect of 50% VOC Red'n in Grid M
(07sip10-v50) - (07sip10): Grid M @ 12 km -- TSIP (B8)
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= -12 at (33,44), Max= 1 at (29,10)


Max 1-Hour Ozone Difference
Effect of 50% VOC Red'n in Grid M
(07sip10-v50) - (07sip10): Grid M @ 12 km -- TSIP (B8)
18
14
10
6
2
-2
-6
-10
-14
-18
PPB
93
1
1
58
PAVE by MCNC
June 22,1995 0:00:00
Min= -13 at (22,63), Max= 2 at (32,30)

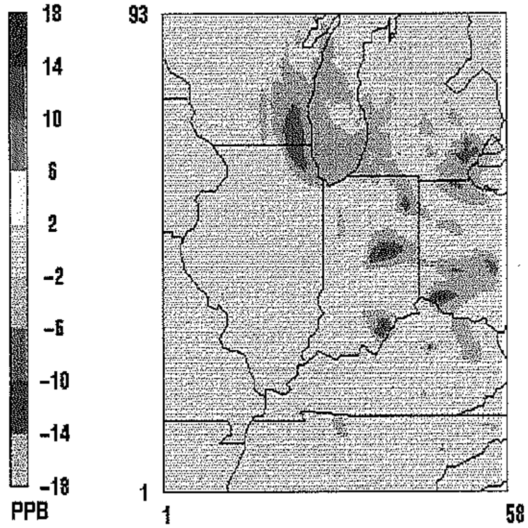

Max 1-Hour Ozone Difference
Effect of 50% VOC Red'n in Grid M
(07sip10-v50) - (07sip10): Grid M @ 12 km -- TSIP (B8)
18
14
10
6
2
-2
-6
-10
-14
-18
PPB
93
1
1
58
PAVE by MCNC
June 23,1995 0:00:00
Min= -26 at (11,33), Max= 1 at (55,67)


Max 1-Hour Ozone Difference
Effect of 50% VOC Red'n in Grid M
(07sip10-v50) - (07sip10): Grid M @ 12 km -- TSIP (B8)
18
14
10
6
2
-2
-6
-10
-14
-18
PPB
93
1
1
58
PAVE by MCNC
June 24,1995 0:00:00
Min= -25 at (38,29), Max= 1 at (38,31)


Max 1-Hour Ozone Difference
Effect of 50% VOC Red'n in Grid M
(07sip10-v50) - (07sip10): Grid M @ 12 km -- TSIP (B8)
18
14
10
6
2
-2
-6
-10
-14
-18
PPB
93
1
1
58
PAVE by MCNC
June 25,1995 0:00:00
Min= -12 at (24,63), Max= 1 at (49,52)

Max 8-Hour Ozone Difference

Effect of 50% VOC Red'n in Grid M
(07sip10-v50) - (07sip10): Grid M @ 12 km -- TSIP (B8)

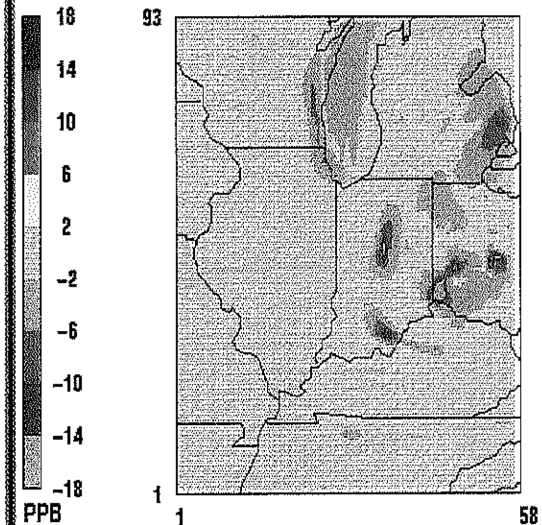


PAVE by MCNC

June 15,1995 0:00:00
Min= -16 at (42,56), Max= 1 at (44,37)

Max 8-Hour Ozone Difference

Effect of 50% VOC Red'n in Grid M
(07sip10-v50) - (07sip10): Grid M @ 12 km -- TSIP (B8)

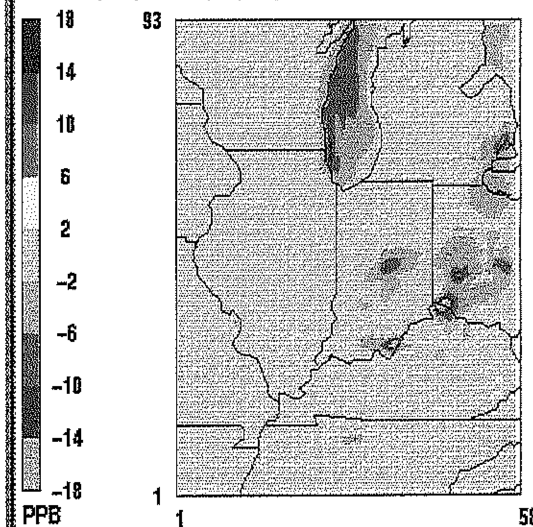


PAVE by MCNC

June 16,1995 0:00:00
Min= -23 at (45,39), Max= 1 at (37,28)

Max 8-Hour Ozone Difference

Effect of 50% VOC Red'n in Grid M
(07sip10-v50) - (07sip10): Grid M @ 12 km -- TSIP (B8)

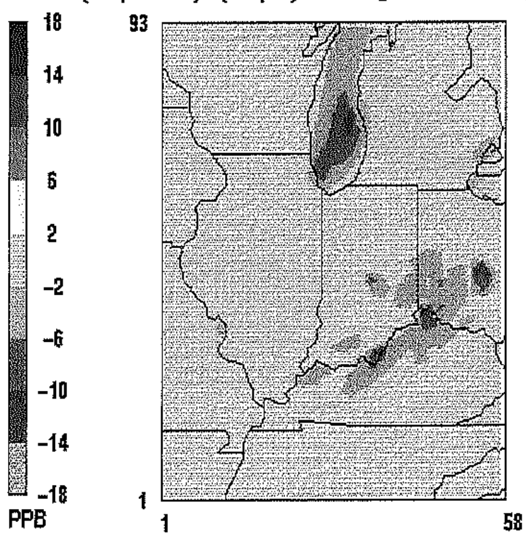


PAVE by MCNC

June 17,1995 0:00:00
Min= -26 at (46,37), Max= 2 at (33,11)

Max 8-Hour Ozone Difference

Effect of 50% VOC Red'n in Grid M
(07sip10-v50) - (07sip10): Grid M @ 12 km -- TSIP (B8)

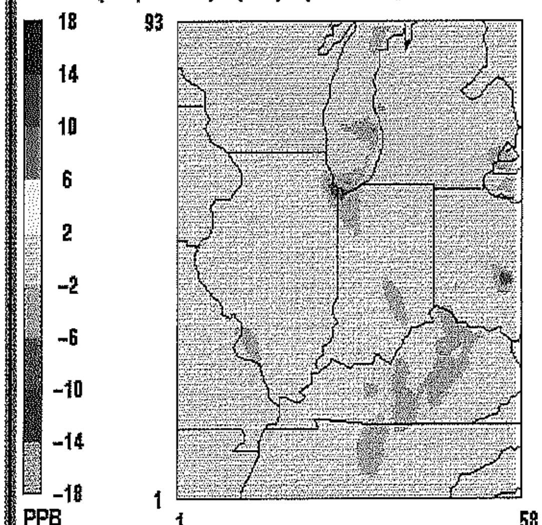


PAVE by MCNC

June 18,1995 0:00:00
Min= -14 at (56,44), Max= 1 at (19,43)

Max 8-Hour Ozone Difference

Effect of 50% VOC Red'n in Grid M
(07sip10-v50) - (07sip10): Grid M @ 12 km -- TSIP (B8)

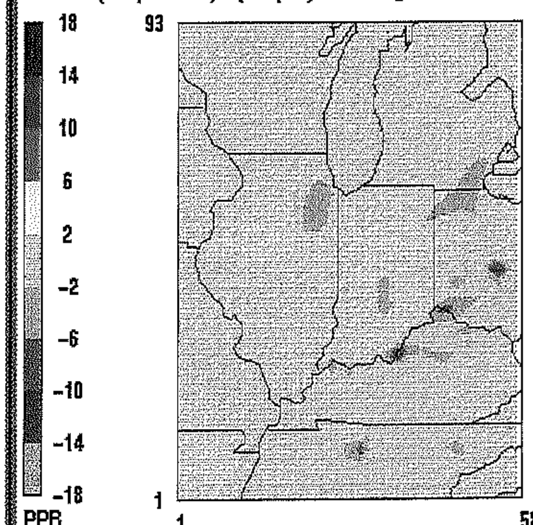


PAVE by MCNC

June 19,1995 0:00:00
Min= -11 at (56,43), Max= 1 at (11,29)

Max 8-Hour Ozone Difference

Effect of 50% VOC Red'n in Grid M
(07sip10-v50) - (07sip10): Grid M @ 12 km -- TSIP (B8)



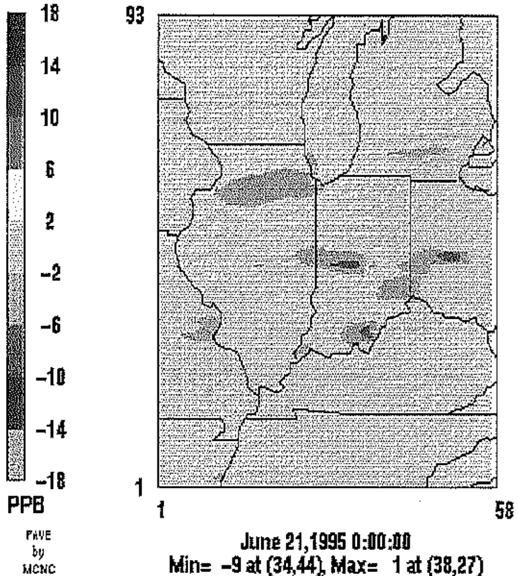
PAVE by MCNC

June 20,1995 0:00:00
Min= -12 at (38,28), Max= 1 at (16,74)

17b (cont.)

Max 8-Hour Ozone Difference

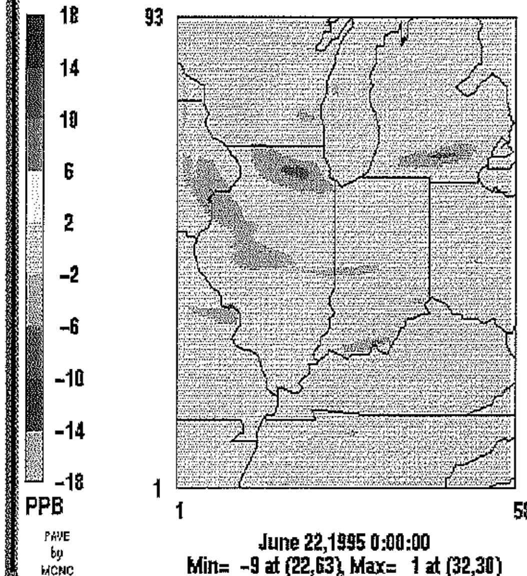
Effect of 50% VOC Red'n in Grid M
(07sip10-v50) - (07sip10): Grid M @ 12 km -- TSIP (B8)



June 21,1995 0:00:00
Min= -9 at (34,44), Max= 1 at (38,27)

Max 8-Hour Ozone Difference

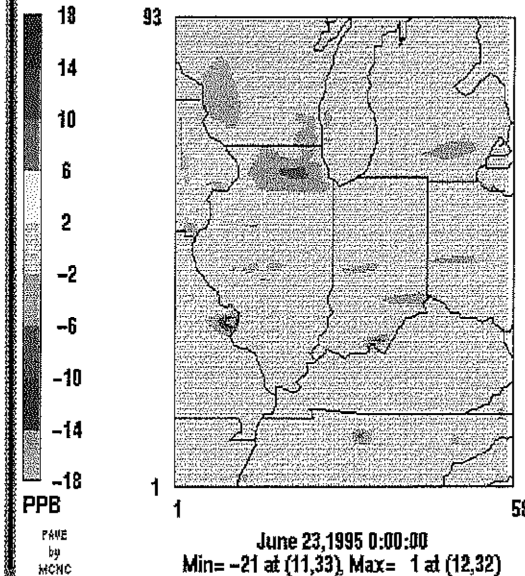
Effect of 50% VOC Red'n in Grid M
(07sip10-v50) - (07sip10): Grid M @ 12 km -- TSIP (B8)



June 22,1995 0:00:00
Min= -9 at (22,63), Max= 1 at (32,30)

Max 8-Hour Ozone Difference

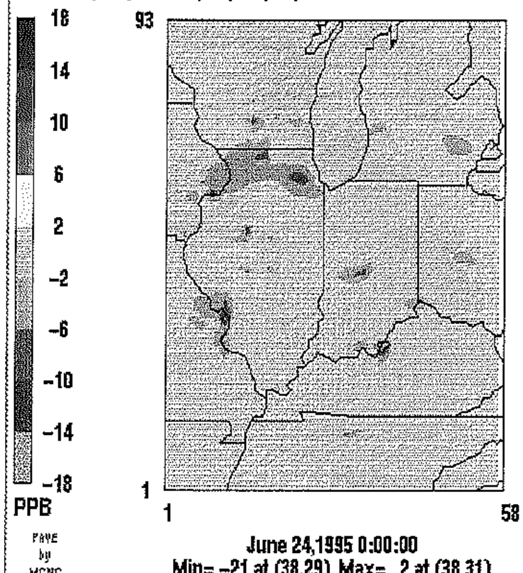
Effect of 50% VOC Red'n in Grid M
(07sip10-v50) - (07sip10): Grid M @ 12 km -- TSIP (B8)



June 23,1995 0:00:00
Min= -21 at (11,33), Max= 1 at (12,32)

Max 8-Hour Ozone Difference

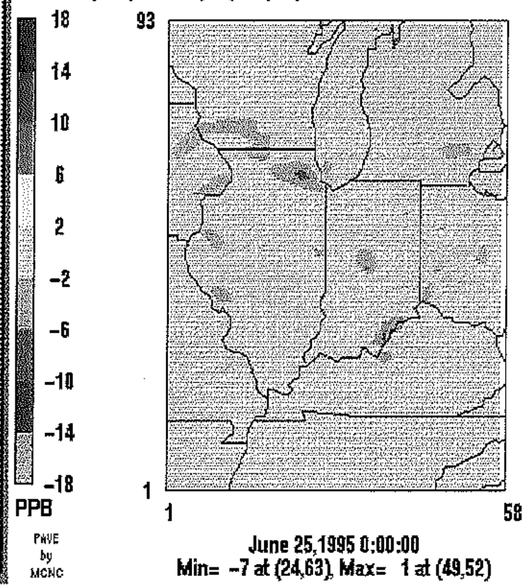
Effect of 50% VOC Red'n in Grid M
(07sip10-v50) - (07sip10): Grid M @ 12 km -- TSIP (B8)



June 24,1995 0:00:00
Min= -21 at (38,29), Max= 2 at (38,31)

Max 8-Hour Ozone Difference

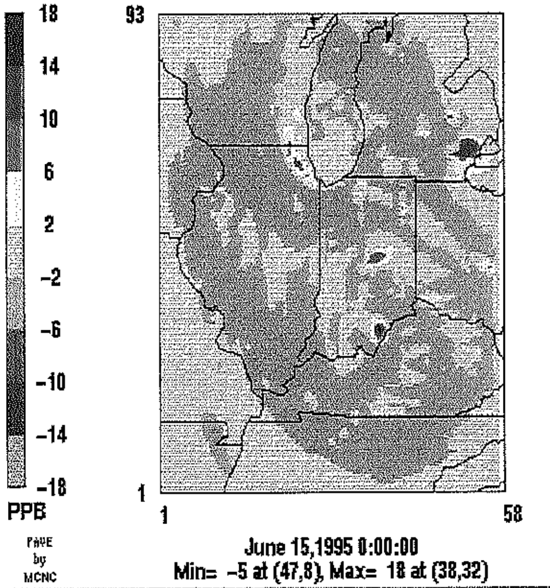
Effect of 50% VOC Red'n in Grid M
(07sip10-v50) - (07sip10): Grid M @ 12 km -- TSIP (B8)



June 25,1995 0:00:00
Min= -7 at (24,63), Max= 1 at (49,52)

Max 1–Hour Ozone Difference

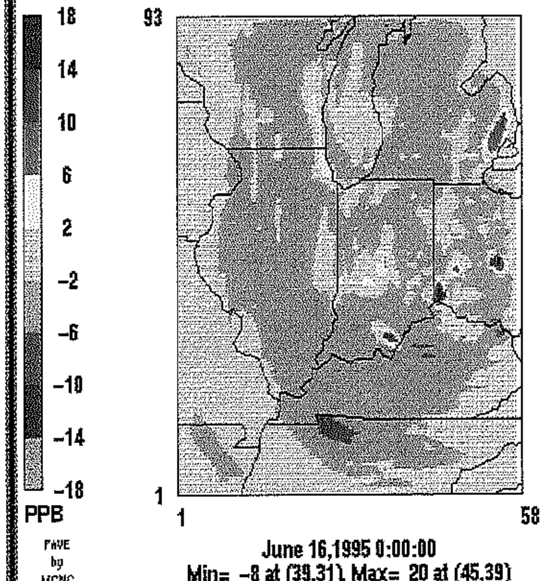
Effect of 25% Low-level NOx Red'n in Grid M
(07sip10–n25) – (07sip10): Grid M @ 12 km –– TSIP (B8)



June 15,1995 0:00:00
Min= -5 at (47,8), Max= 18 at (38,32)

Max 1–Hour Ozone Difference

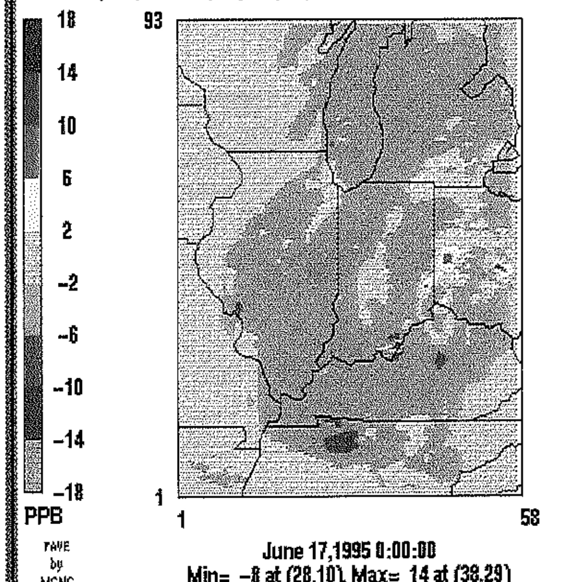
Effect of 25% Low-level NOx Red'n in Grid M
(07sip10–n25) – (07sip10): Grid M @ 12 km –– TSIP (B8)



June 16,1995 0:00:00
Min= -8 at (39,31), Max= 20 at (45,39)

Max 1–Hour Ozone Difference

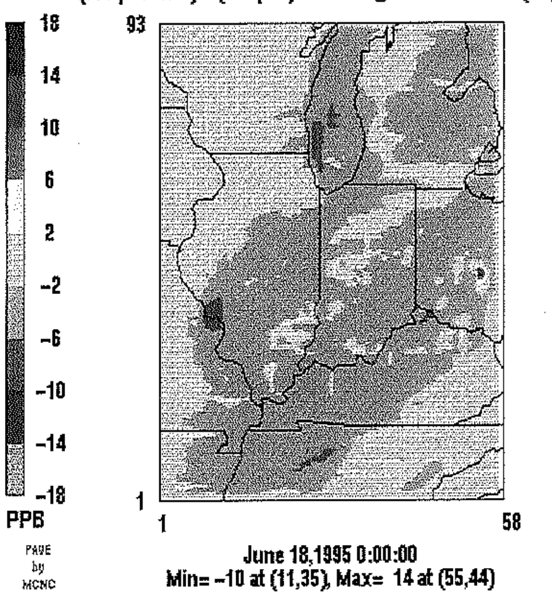
Effect of 25% Low-level NOx Red'n in Grid M
(07sip10–n25) – (07sip10): Grid M @ 12 km –– TSIP (B8)



June 17,1995 0:00:00
Min= -8 at (28,10), Max= 14 at (38,29)

Max 1–Hour Ozone Difference

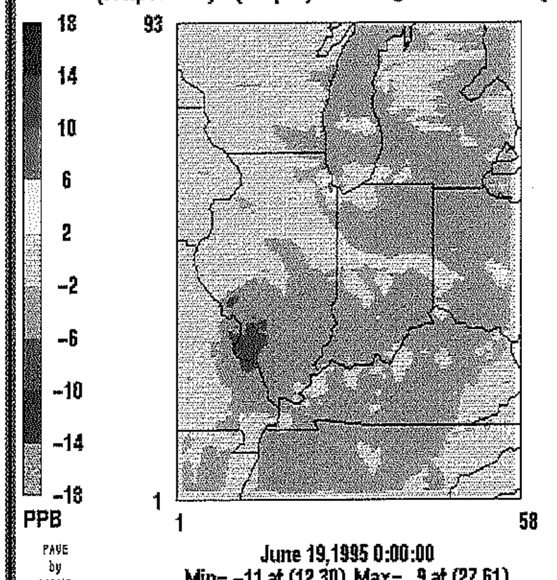
Effect of 25% Low-level NOx Red'n in Grid M
(07sip10–n25) – (07sip10): Grid M @ 12 km –– TSIP (B8)



June 18,1995 0:00:00
Min= -10 at (11,35), Max= 14 at (55,44)

Max 1–Hour Ozone Difference

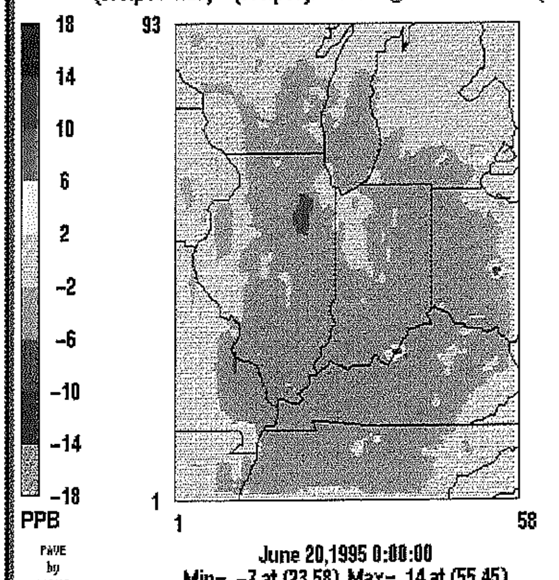
Effect of 25% Low-level NOx Red'n in Grid M
(07sip10–n25) – (07sip10): Grid M @ 12 km –– TSIP (B8)



June 19,1995 0:00:00
Min= -11 at (12,30), Max= 9 at (27,61)

Max 1–Hour Ozone Difference

Effect of 25% Low-level NOx Red'n in Grid M
(07sip10–n25) – (07sip10): Grid M @ 12 km –– TSIP (B8)

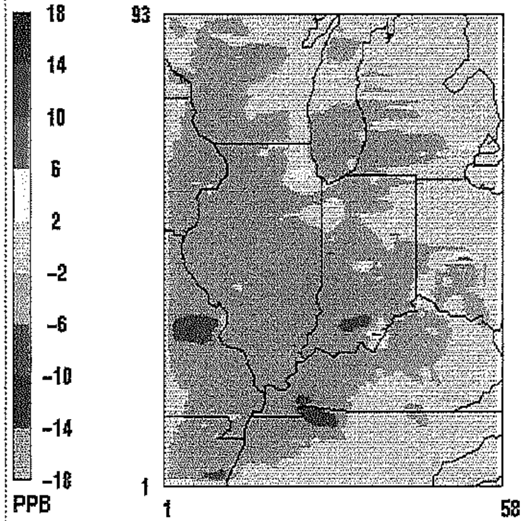


June 20,1995 0:00:00
Min= -7 at (23,58), Max= 14 at (55,45)

18a (cont.)

Max 1–Hour Ozone Difference

Effect of 25% Low–level NOx Red'n in Grid M
(07sip10–n25) – (07sip10): Grid M @ 12 km –– TSIP (B8)

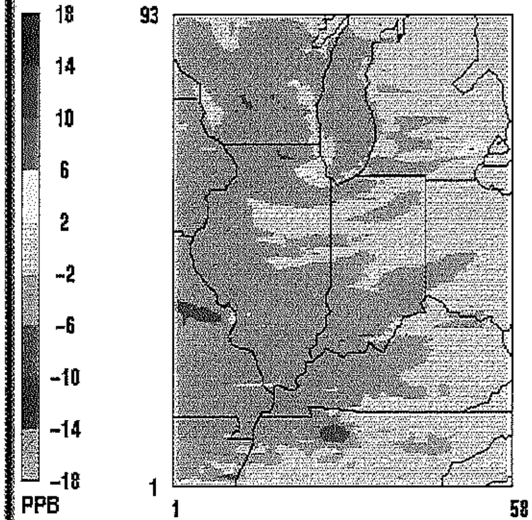


PAVE by MCNC

June 21,1995 0:00:00
Min= -9 at (8,32), Max= 10 at (53,45)

Max 1–Hour Ozone Difference

Effect of 25% Low–level NOx Red'n in Grid M
(07sip10–n25) – (07sip10): Grid M @ 12 km –– TSIP (B8)

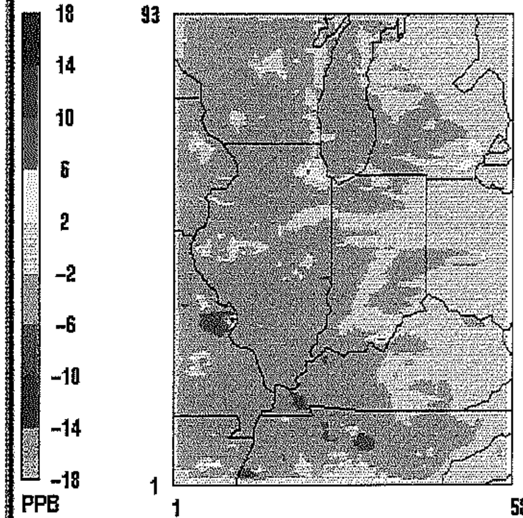


PAVE by MCNC

June 22,1995 0:00:00
Min= -9 at (11,2), Max= 6 at (52,67)

Max 1–Hour Ozone Difference

Effect of 25% Low–level NOx Red'n in Grid M
(07sip10–n25) – (07sip10): Grid M @ 12 km –– TSIP (B8)

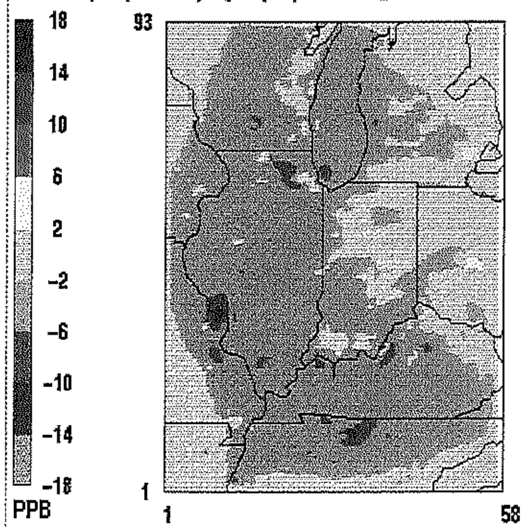


PAVE by MCNC

June 23,1995 0:00:00
Min= -11 at (14,2), Max= 14 at (11,33)

Max 1–Hour Ozone Difference

Effect of 25% Low–level NOx Red'n in Grid M
(07sip10–n25) – (07sip10): Grid M @ 12 km –– TSIP (B8)

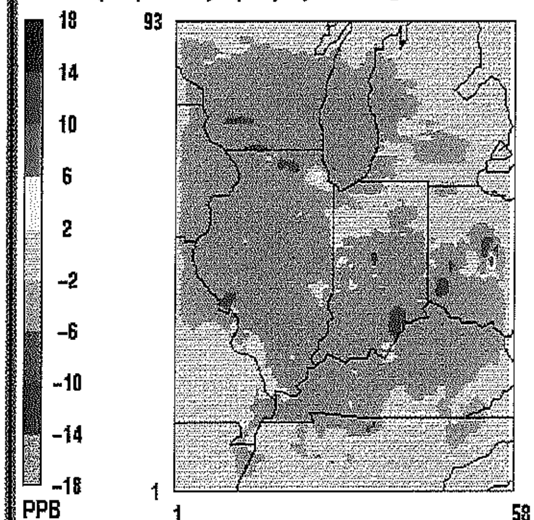


PAVE by MCNC

June 24,1995 0:00:00
Min= -12 at (33,12), Max= 21 at (38,29)

Max 1–Hour Ozone Difference

Effect of 25% Low–level NOx Red'n in Grid M
(07sip10–n25) – (07sip10): Grid M @ 12 km –– TSIP (B8)

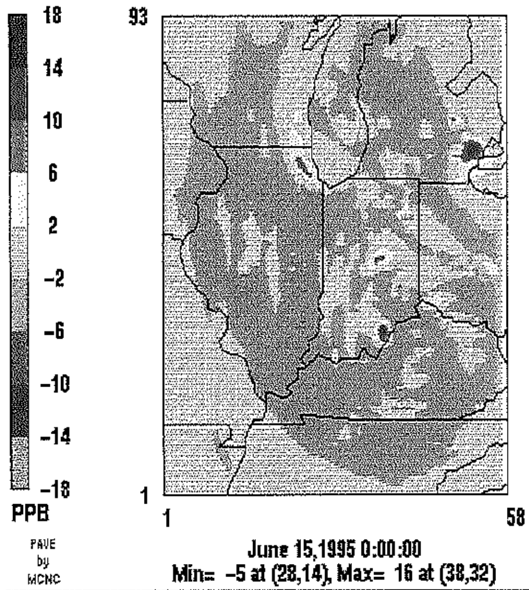


PAVE by MCNC

June 25,1995 0:00:00
Min= -9 at (39,33), Max= 12 at (55,46)

Max 8-Hour Ozone Difference

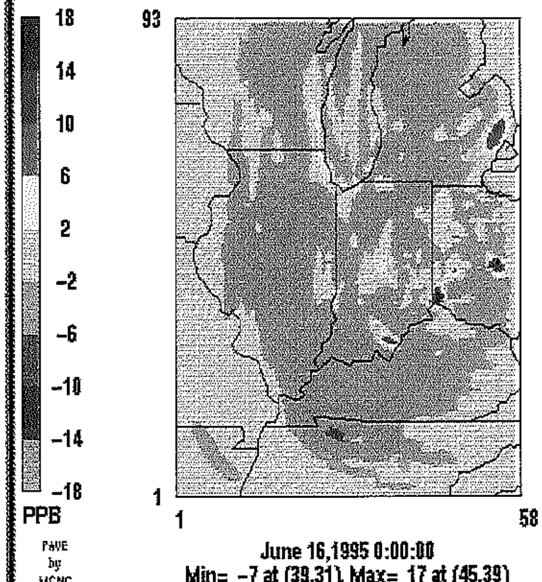
Effect of 25% Low-level NOx Red'n in Grid M
(07sip10-n25) - (07sip10): Grid M @ 12 km --- TSIP (B8)



June 15,1995 0:00:00
Min= -5 at (28,14), Max= 16 at (38,32)

Max 8-Hour Ozone Difference

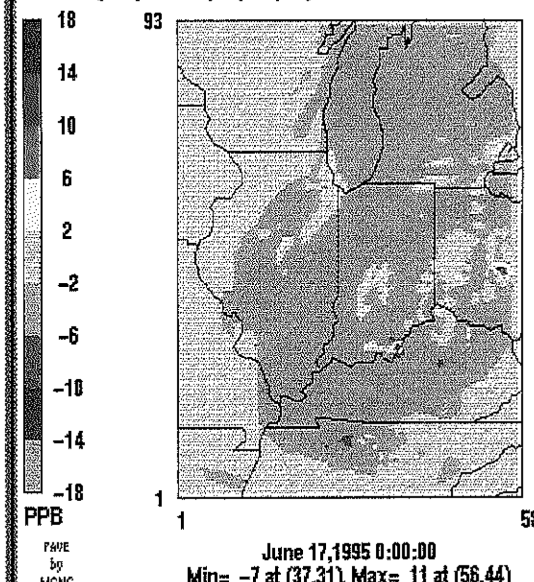
Effect of 25% Low-level NOx Red'n in Grid M
(07sip10-n25) - (07sip10): Grid M @ 12 km --- TSIP (B8)



June 16,1995 0:00:00
Min= -7 at (39,31), Max= 17 at (45,39)

Max 8-Hour Ozone Difference

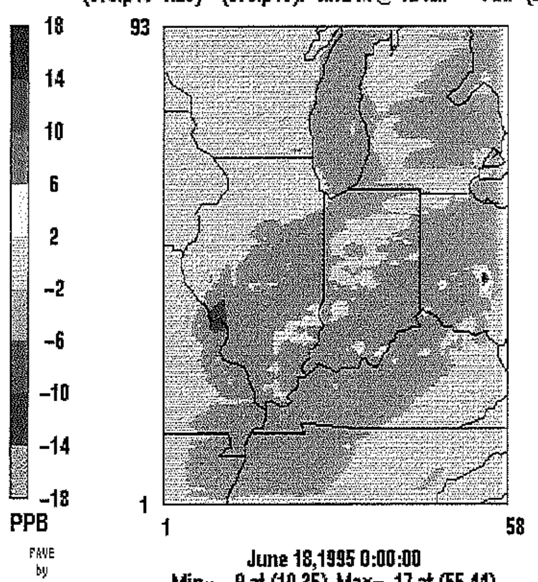
Effect of 25% Low-level NOx Red'n in Grid M
(07sip10-n25) - (07sip10): Grid M @ 12 km --- TSIP (B8)



June 17,1995 0:00:00
Min= -7 at (37,31), Max= 11 at (56,44)

Max 8-Hour Ozone Difference

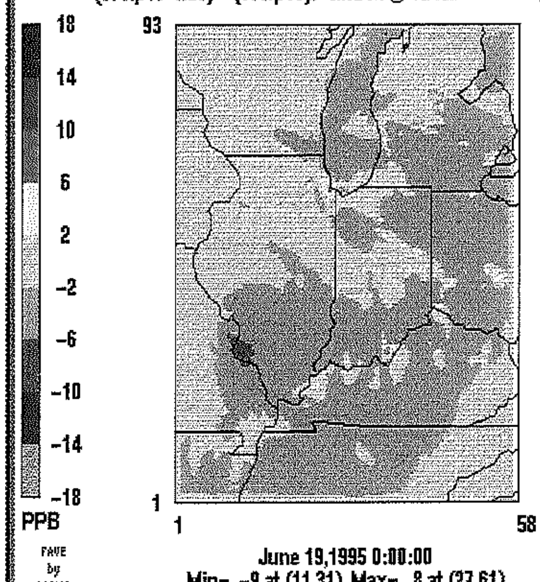
Effect of 25% Low-level NOx Red'n in Grid M
(07sip10-n25) - (07sip10): Grid M @ 12 km --- TSIP (B8)



June 18,1995 0:00:00
Min= -9 at (10,35), Max= 17 at (55,44)

Max 8-Hour Ozone Difference

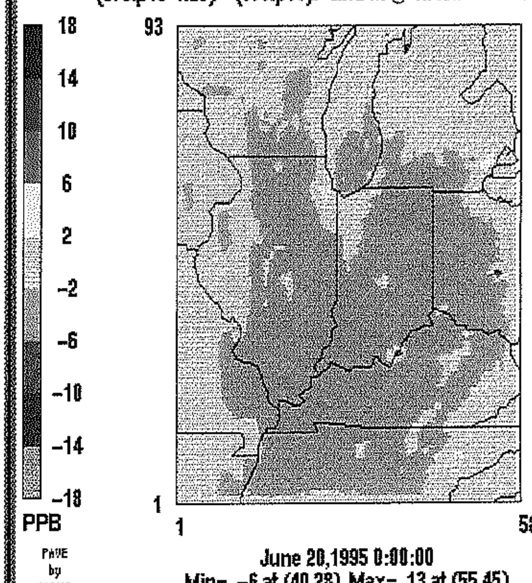
Effect of 25% Low-level NOx Red'n in Grid M
(07sip10-n25) - (07sip10): Grid M @ 12 km --- TSIP (B8)



June 19,1995 0:00:00
Min= -9 at (11,31), Max= 8 at (27,61)

Max 8-Hour Ozone Difference

Effect of 25% Low-level NOx Red'n in Grid M
(07sip10-n25) - (07sip10): Grid M @ 12 km --- TSIP (B8)

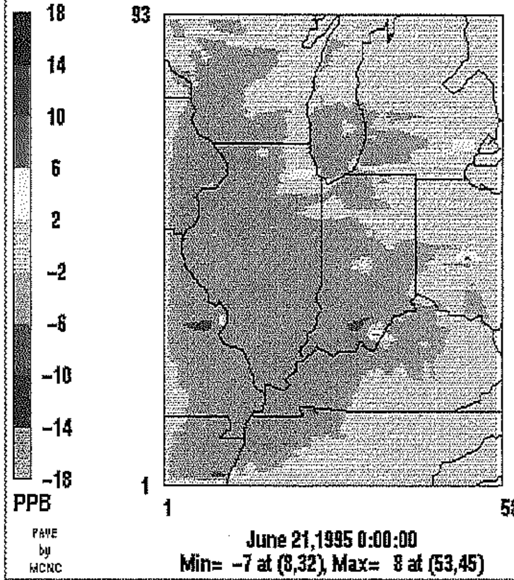


June 20,1995 0:00:00
Min= -6 at (40,28), Max= 13 at (55,45)

18b (cont.)

Max 8–Hour Ozone Difference

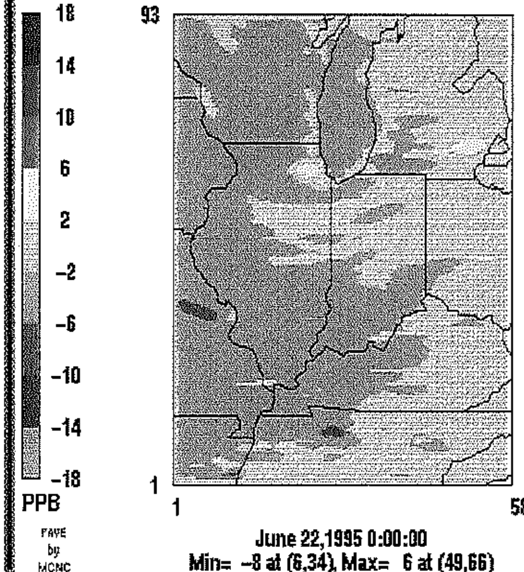
Effect of 25% Low–level NOx Red'n in Grid M
(07sip10–n25) – (07sip10): Grid M @ 12 km –– TSIP (B8)



June 21,1995 0:00:00
Min= -7 at (8,32), Max= 8 at (53,45)

Max 8–Hour Ozone Difference

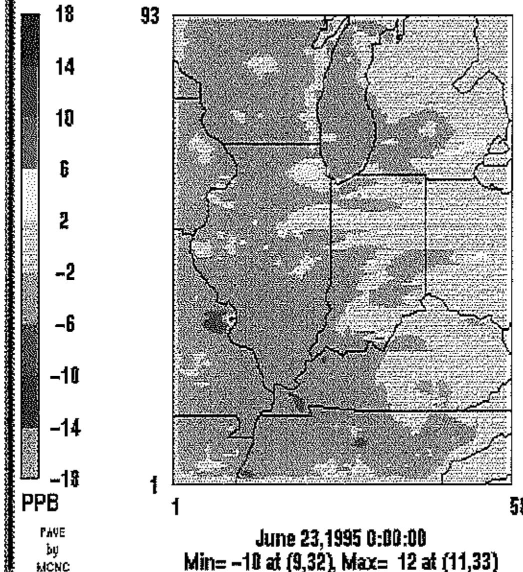
Effect of 25% Low–level NOx Red'n in Grid M
(07sip10–n25) – (07sip10): Grid M @ 12 km –– TSIP (B8)



June 22,1995 0:00:00
Min= -8 at (6,34), Max= 6 at (49,66)

Max 8–Hour Ozone Difference

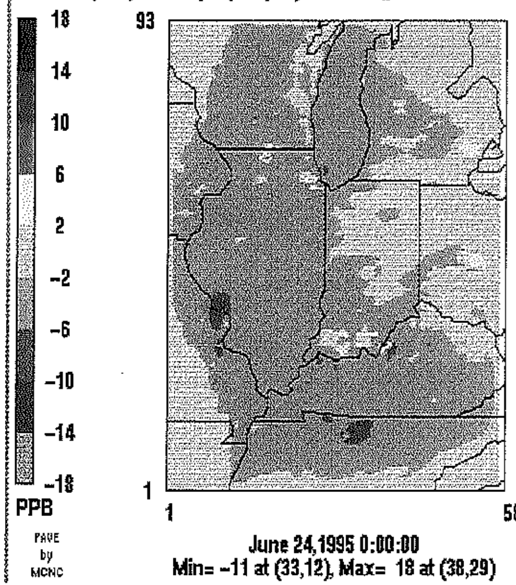
Effect of 25% Low–level NOx Red'n in Grid M
(07sip10–n25) – (07sip10): Grid M @ 12 km –– TSIP (B8)



June 23,1995 0:00:00
Min= -10 at (9,32), Max= 12 at (11,33)

Max 8–Hour Ozone Difference

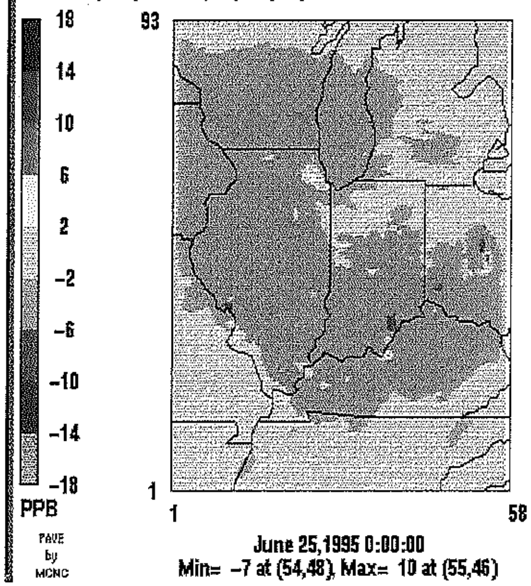
Effect of 25% Low–level NOx Red'n in Grid M
(07sip10–n25) – (07sip10): Grid M @ 12 km –– TSIP (B8)



June 24,1995 0:00:00
Min= -11 at (33,12), Max= 18 at (38,29)

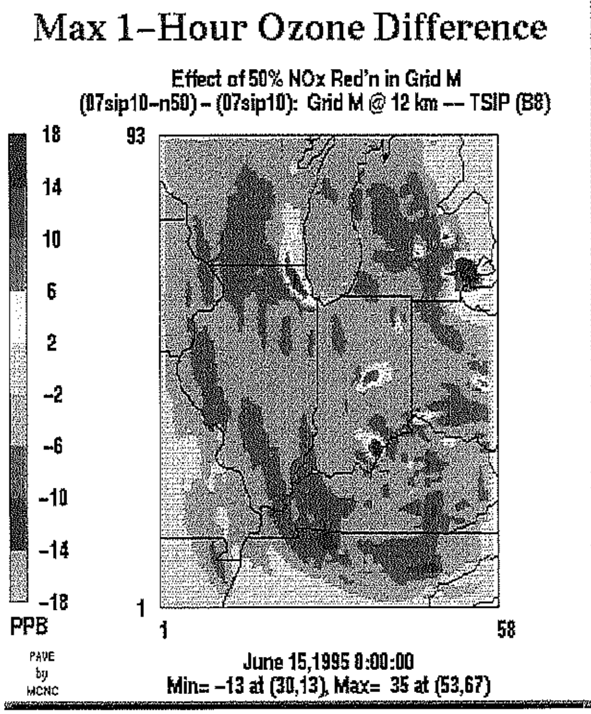
Max 8–Hour Ozone Difference

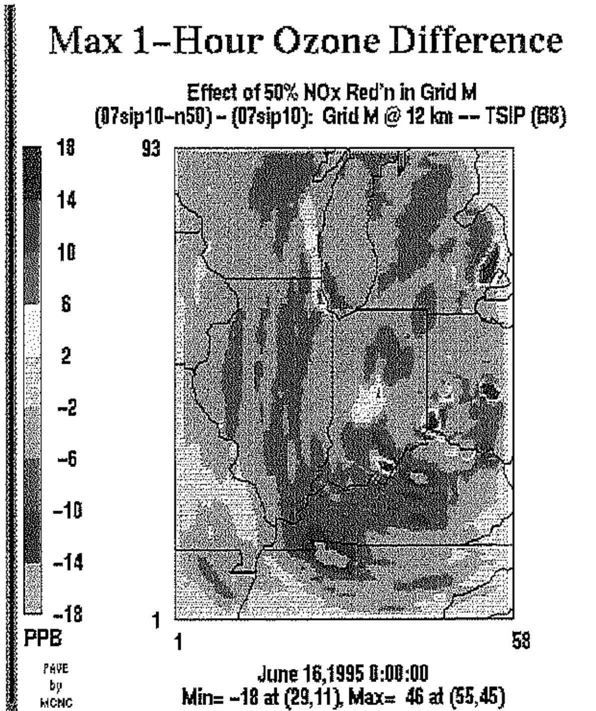
Effect of 25% Low–level NOx Red'n in Grid M
(07sip10–n25) – (07sip10): Grid M @ 12 km –– TSIP (B8)

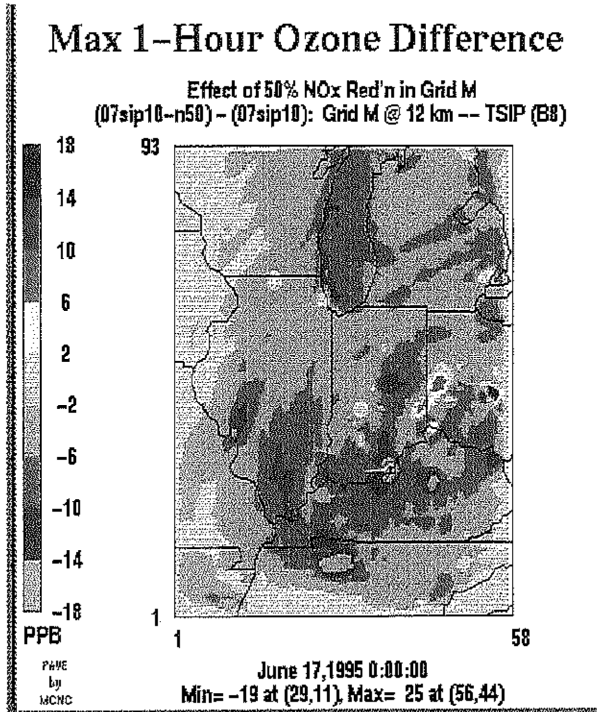


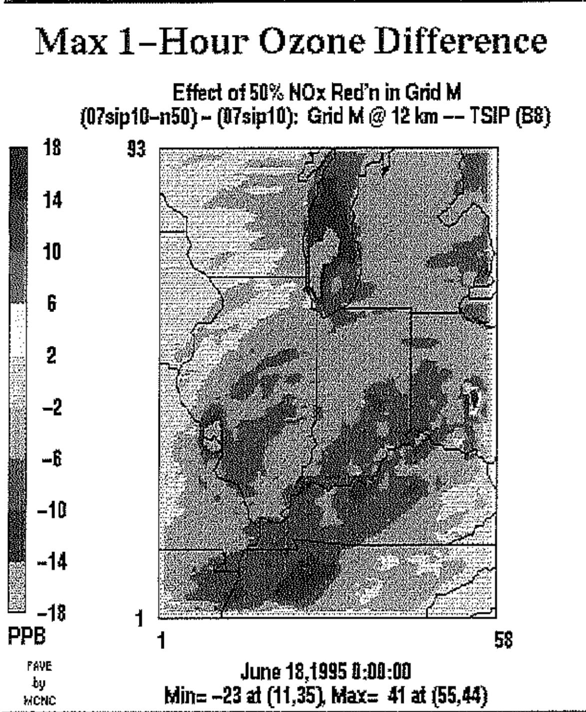
June 25,1995 0:00:00
Min= -7 at (54,48), Max= 10 at (55,46)

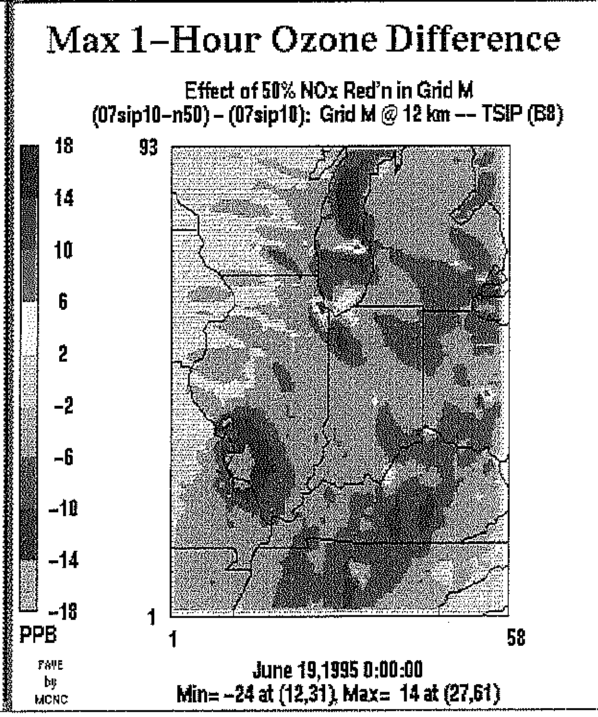
19a

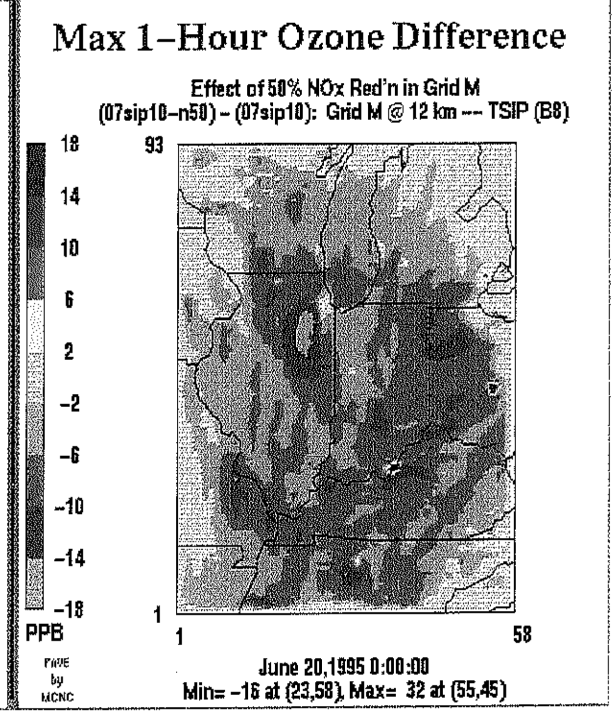

Max 1–Hour Ozone Difference
Effect of 50% NOx Red'n in Grid M
(07sip10–n50) – (07sip10): Grid M @ 12 km –– TSIP (B8)
18
14
10
6
2
-2
-6
-10
-14
-18
PPB
93
1
1
58
PAVE by MCNC
June 15,1995 0:00:00
Min= -13 at (30,13), Max= 35 at (53,67)


Max 1–Hour Ozone Difference
Effect of 50% NOx Red'n in Grid M
(07sip10–n50) – (07sip10): Grid M @ 12 km –– TSIP (B8)
18
14
10
6
2
-2
-6
-10
-14
-18
PPB
93
1
1
58
PAVE by MCNC
June 16,1995 0:00:00
Min= -18 at (29,11), Max= 46 at (55,45)


Max 1–Hour Ozone Difference
Effect of 50% NOx Red'n in Grid M
(07sip10–n50) – (07sip10): Grid M @ 12 km –– TSIP (B8)
18
14
10
6
2
-2
-6
-10
-14
-18
PPB
93
1
1
58
PAVE by MCNC
June 17,1995 0:00:00
Min= -19 at (29,11), Max= 25 at (56,44)


Max 1–Hour Ozone Difference
Effect of 50% NOx Red'n in Grid M
(07sip10–n50) – (07sip10): Grid M @ 12 km –– TSIP (B8)
18
14
10
6
2
-2
-6
-10
-14
-18
PPB
93
1
1
58
PAVE by MCNC
June 18,1995 0:00:00
Min= -23 at (11,35), Max= 41 at (55,44)

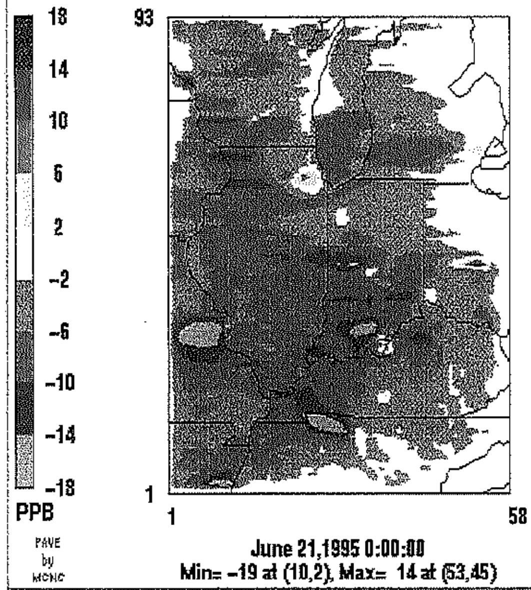

Max 1–Hour Ozone Difference
Effect of 50% NOx Red'n in Grid M
(07sip10–n50) – (07sip10): Grid M @ 12 km –– TSIP (B8)
18
14
10
6
2
-2
-6
-10
-14
-18
PPB
93
1
1
58
PAVE by MCNC
June 19,1995 0:00:00
Min= -24 at (12,31), Max= 14 at (27,61)


Max 1–Hour Ozone Difference
Effect of 50% NOx Red'n in Grid M
(07sip10–n50) – (07sip10): Grid M @ 12 km –– TSIP (B8)
18
14
10
6
2
-2
-6
-10
-14
-18
PPB
93
1
1
58
PAVE by MCNC
June 20,1995 0:00:00
Min= -16 at (23,58), Max= 32 at (55,45)

19a (cont.)

Max 1-Hour Ozone Difference

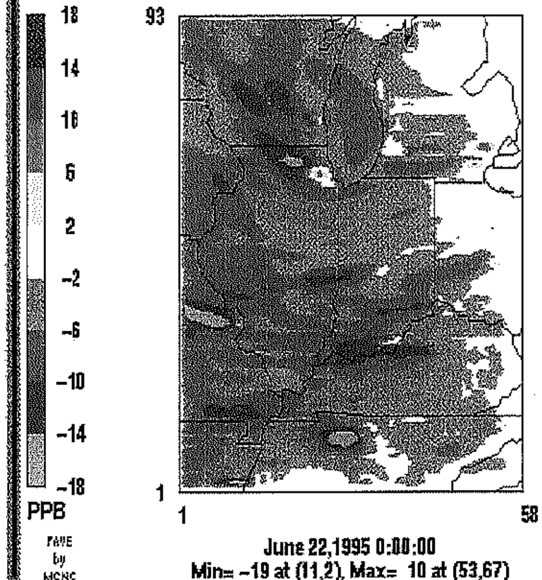
Effect of 50% NOx Red'n in Grid M
(07sip10-n50) - (07sip10): Grid M @ 12 km -- TSIP (B8)



June 21,1995 0:00:00
Min= -19 at (10,2), Max= 14 at (53,45)

Max 1-Hour Ozone Difference

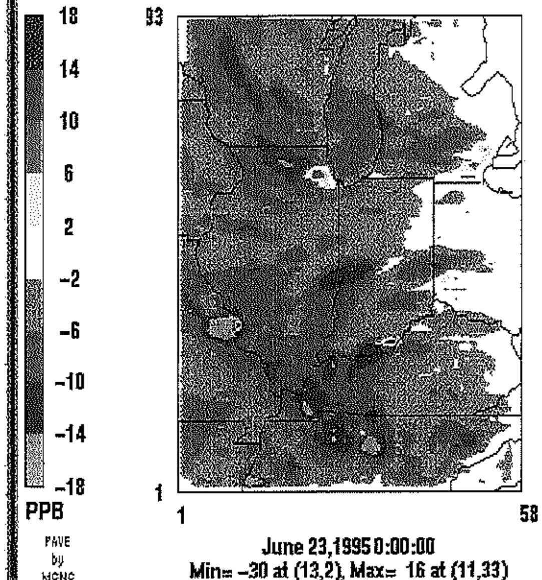
Effect of 50% NOx Red'n in Grid M
(07sip10-n50) - (07sip10): Grid M @ 12 km -- TSIP (B8)



June 22,1995 0:00:00
Min= -19 at (11,2), Max= 10 at (53,67)

Max 1-Hour Ozone Difference

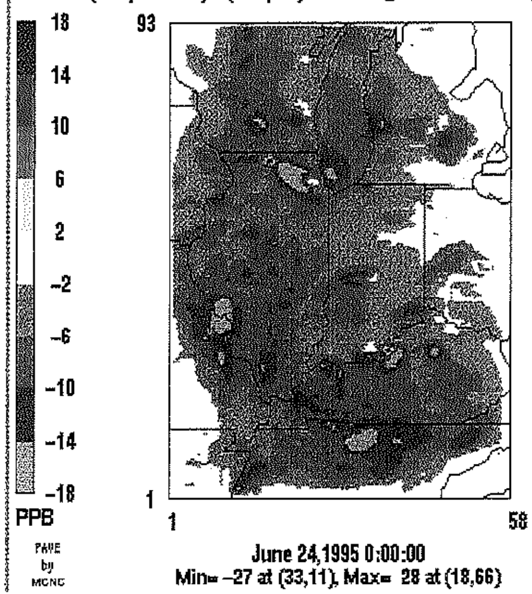
Effect of 50% NOx Red'n in Grid M
(07sip10-n50) - (07sip10): Grid M @ 12 km -- TSIP (B8)



June 23,1995 0:00:00
Min= -30 at (13,2), Max= 16 at (11,33)

Max 1-Hour Ozone Difference

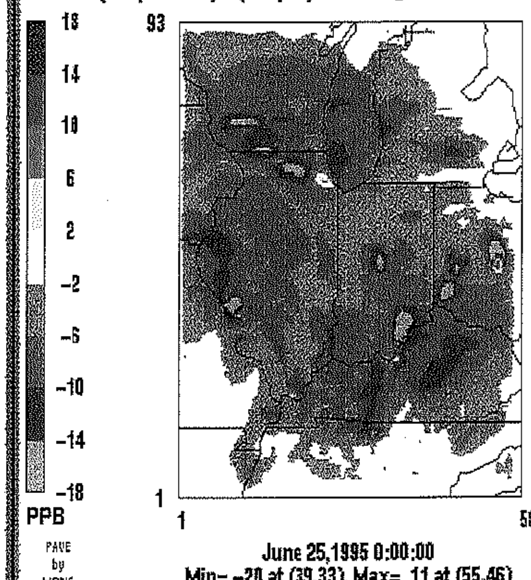
Effect of 50% NOx Red'n in Grid M
(07sip10-n50) - (07sip10): Grid M @ 12 km -- TSIP (B8)



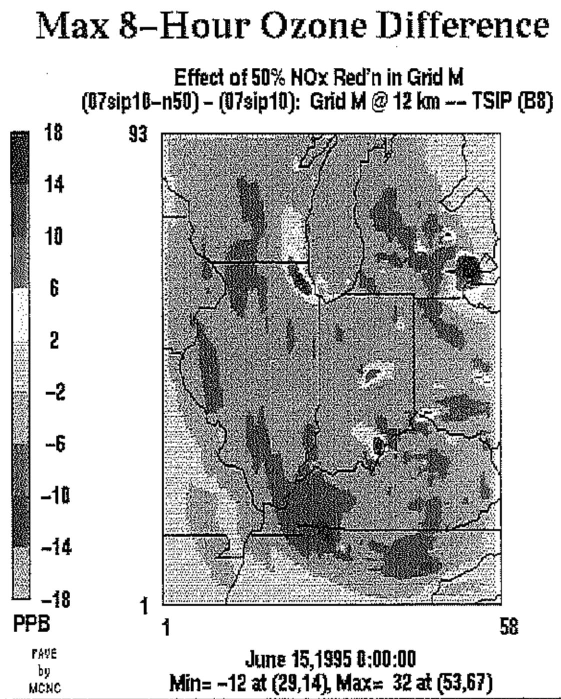
June 24,1995 0:00:00
Min= -27 at (33,11), Max= 28 at (18,66)

Max 1-Hour Ozone Difference

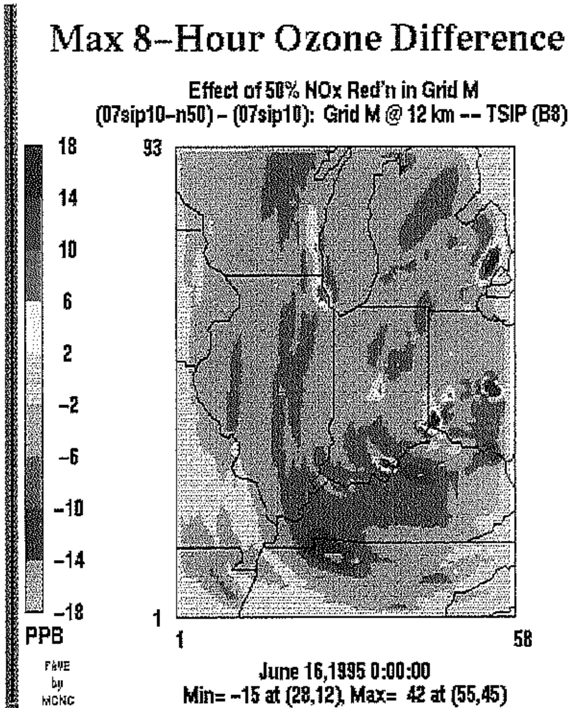
Effect of 50% NOx Red'n in Grid M
(07sip10-n50) - (07sip10): Grid M @ 12 km -- TSIP (B8)



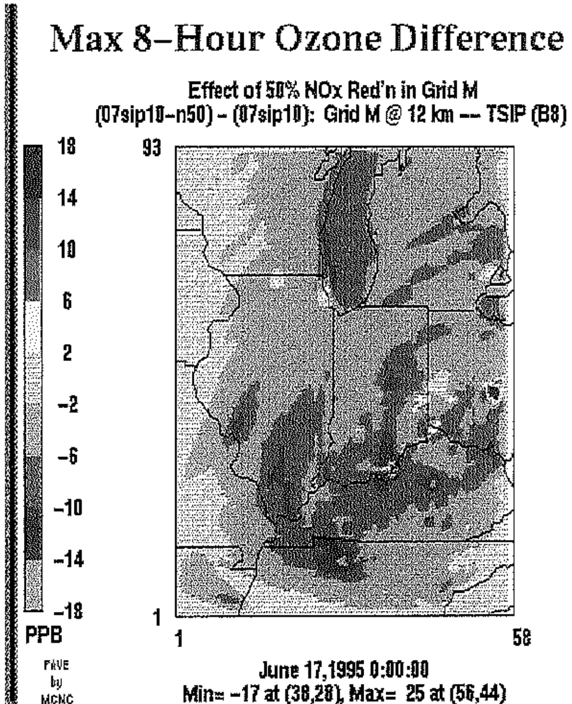
June 25,1995 0:00:00
Min= -20 at (39,33), Max= 11 at (55,46)



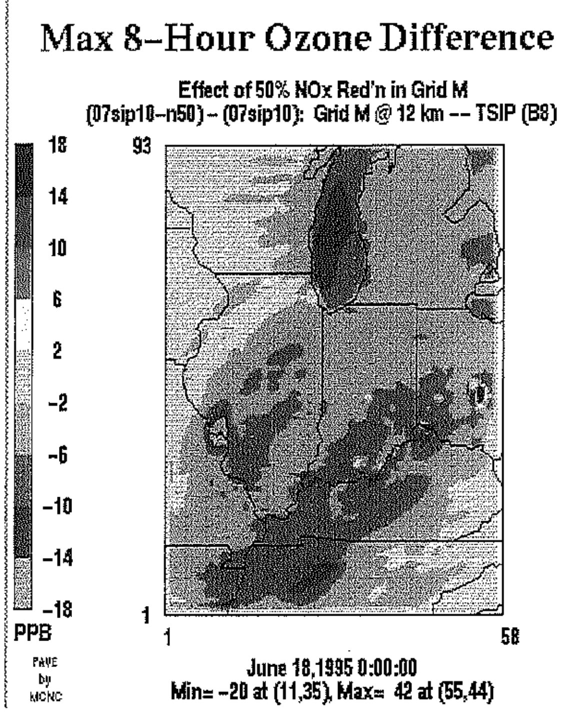
Max 8–Hour Ozone Difference
Effect of 50% NOx Red'n in Grid M
(07sip10–n50) - (07sip10): Grid M @ 12 km -- TSIP (B8)
18
14
10
6
2
-2
-6
-10
-14
-18
PPB
93
1
1
58
PAVE by MCNC
June 15,1995 0:00:00
Min= -12 at (29,14), Max= 32 at (53,67)



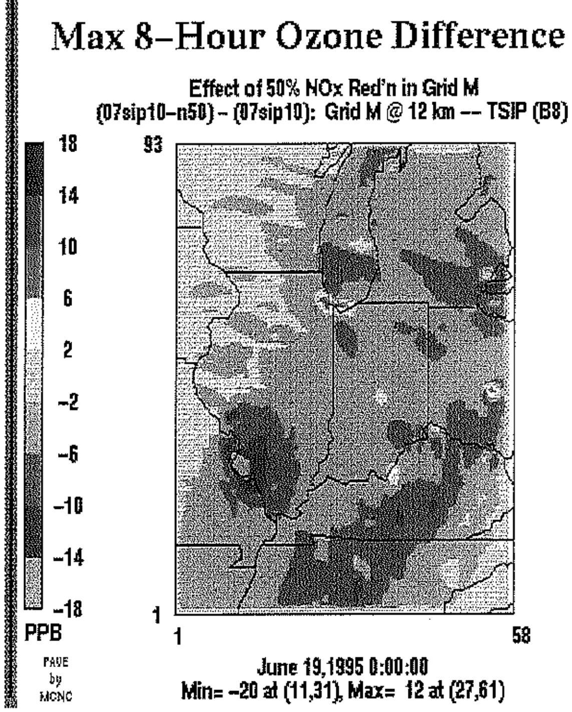
Max 8–Hour Ozone Difference
Effect of 50% NOx Red'n in Grid M
(07sip10–n50) - (07sip10): Grid M @ 12 km -- TSIP (B8)
18
14
10
6
2
-2
-6
-10
-14
-18
PPB
93
1
1
58
PAVE by MCNC
June 16,1995 0:00:00
Min= -15 at (28,12), Max= 42 at (55,45)



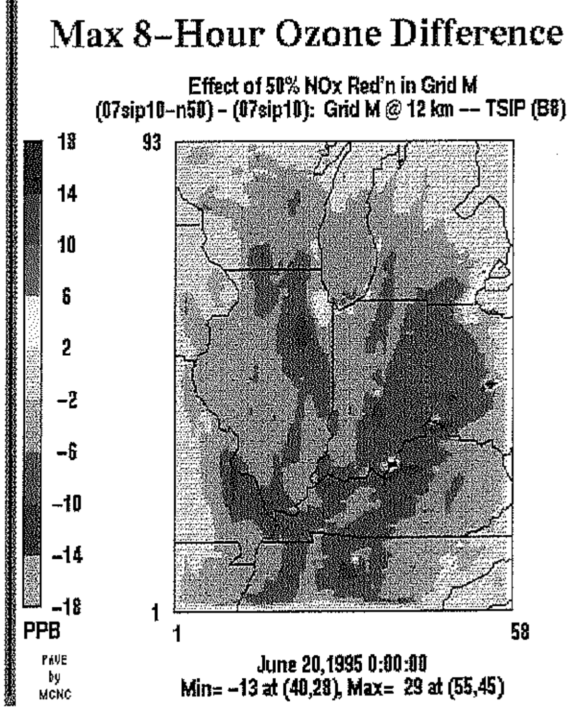
Max 8–Hour Ozone Difference
Effect of 50% NOx Red'n in Grid M
(07sip10–n50) - (07sip10): Grid M @ 12 km -- TSIP (B8)
18
14
10
6
2
-2
-6
-10
-14
-18
PPB
93
1
1
58
PAVE by MCNC
June 17,1995 0:00:00
Min= -17 at (38,28), Max= 25 at (56,44)



Max 8–Hour Ozone Difference
Effect of 50% NOx Red'n in Grid M
(07sip10–n50) - (07sip10): Grid M @ 12 km -- TSIP (B8)
18
14
10
6
2
-2
-6
-10
-14
-18
PPB
93
1
1
58
PAVE by MCNC
June 18,1995 0:00:00
Min= -20 at (11,35), Max= 42 at (55,44)



Max 8–Hour Ozone Difference
Effect of 50% NOx Red'n in Grid M
(07sip10–n50) - (07sip10): Grid M @ 12 km -- TSIP (B8)
18
14
10
6
2
-2
-6
-10
-14
-18
PPB
93
1
1
58
PAVE by MCNC
June 19,1995 0:00:00
Min= -20 at (11,31), Max= 12 at (27,61)

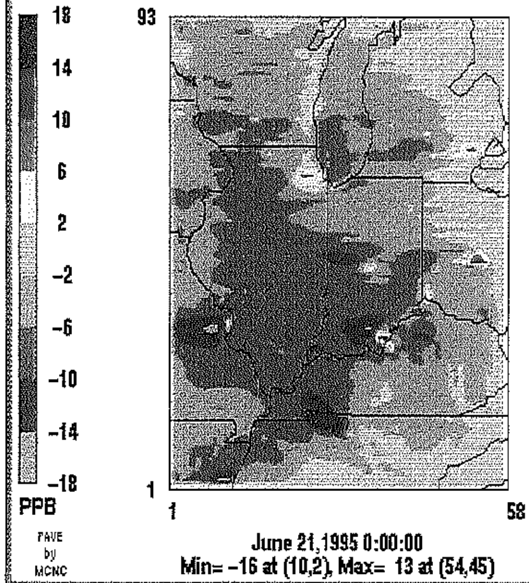


Max 8–Hour Ozone Difference
Effect of 50% NOx Red'n in Grid M
(07sip10–n50) - (07sip10): Grid M @ 12 km -- TSIP (B8)
18
14
10
6
2
-2
-6
-10
-14
-18
PPB
93
1
1
58
PAVE by MCNC
June 20,1995 0:00:00
Min= -13 at (40,28), Max= 29 at (55,45)

19b (cont.)

Max 8-Hour Ozone Difference

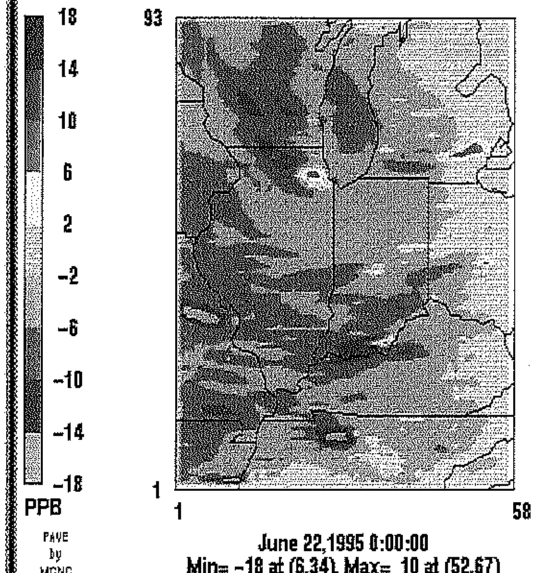
Effect of 50% NOx Red'n in Grid M
(07sip10-n50) - (07sip10): Grid M @ 12 km -- TSIP (B8)



June 21,1995 0:00:00
Min= -16 at (10,2), Max= 13 at (54,45)

Max 8-Hour Ozone Difference

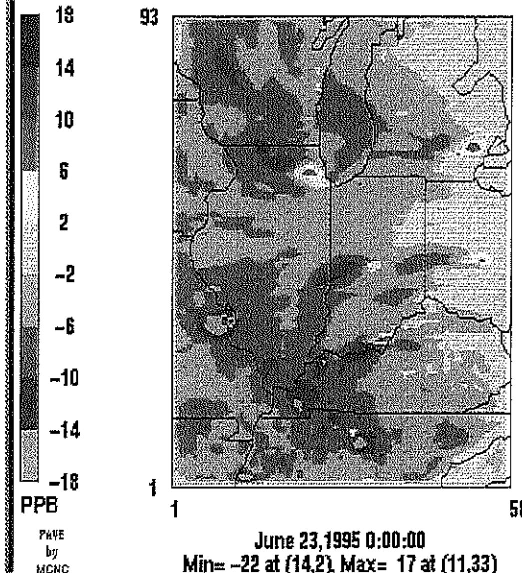
Effect of 50% NOx Red'n in Grid M
(07sip10-n50) - (07sip10): Grid M @ 12 km -- TSIP (B8)



June 22,1995 0:00:00
Min= -18 at (6,34), Max= 10 at (52,67)

Max 8-Hour Ozone Difference

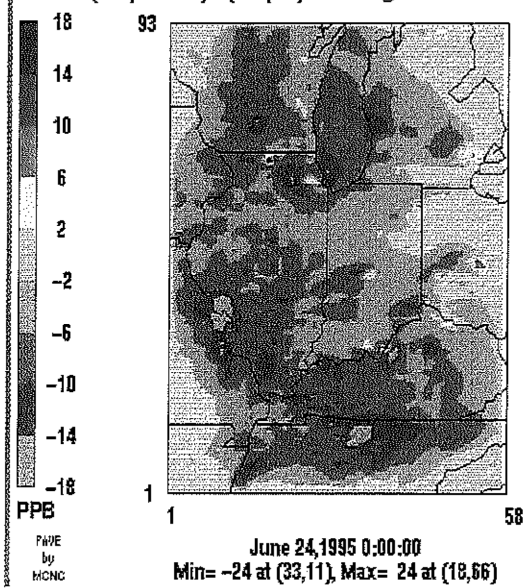
Effect of 50% NOx Red'n in Grid M
(07sip10-n50) - (07sip10): Grid M @ 12 km -- TSIP (B8)



June 23,1995 0:00:00
Min= -22 at (14,2), Max= 17 at (11,33)

Max 8-Hour Ozone Difference

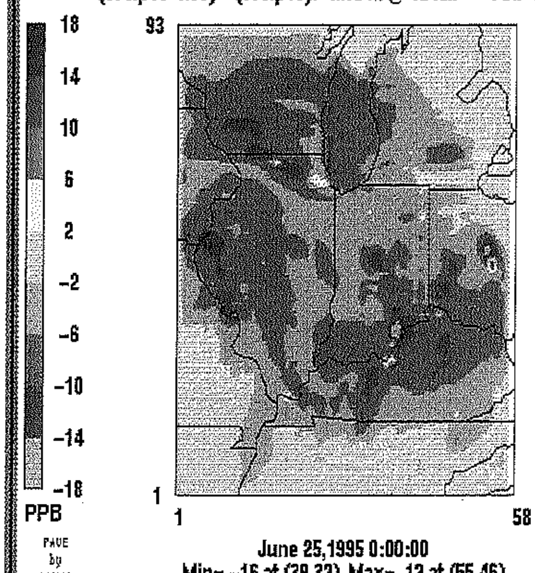
Effect of 50% NOx Red'n in Grid M
(07sip10-n50) - (07sip10): Grid M @ 12 km -- TSIP (B8)



June 24,1995 0:00:00
Min= -24 at (33,11), Max= 24 at (18,66)

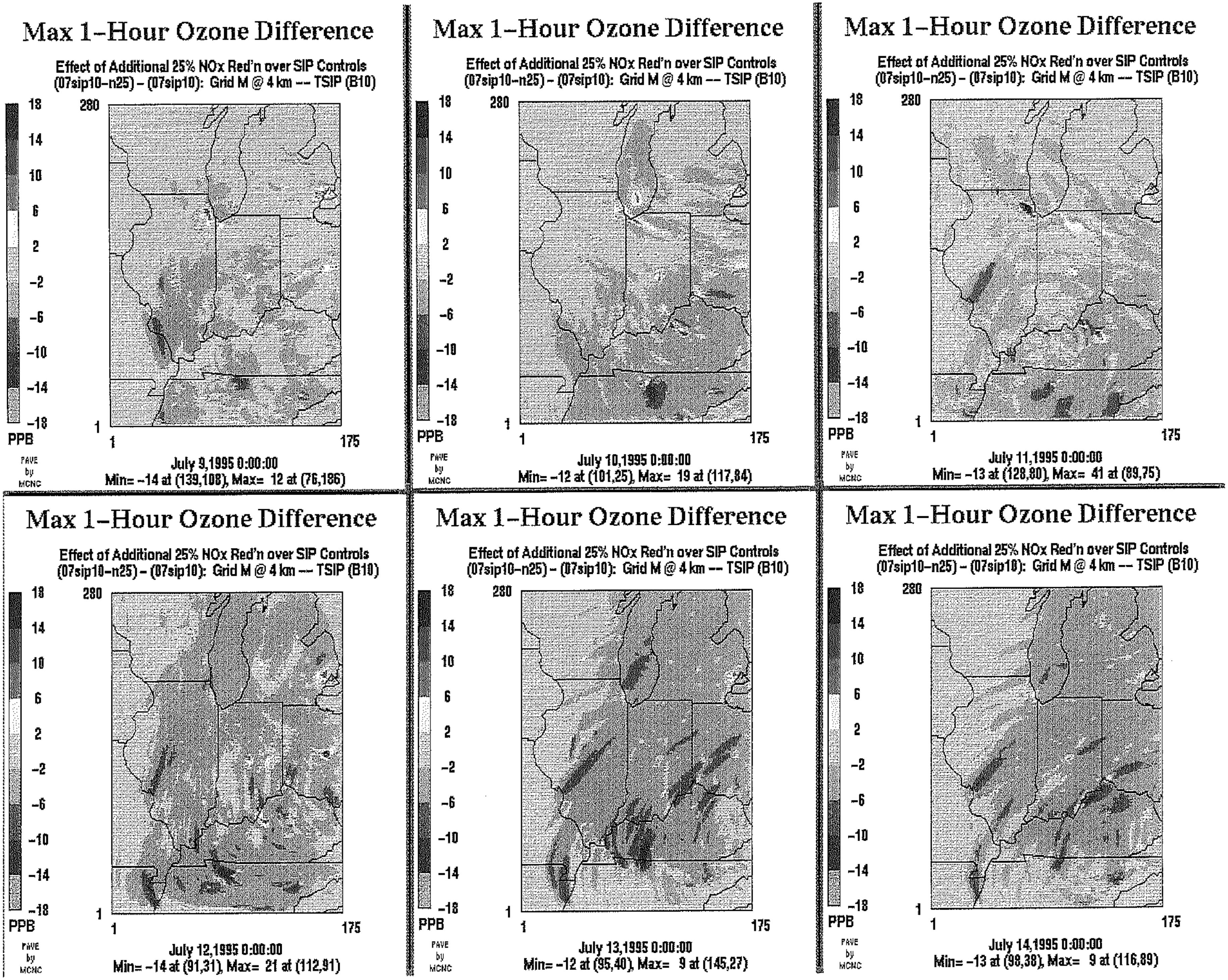
Max 8-Hour Ozone Difference

Effect of 50% NOx Red'n in Grid M
(07sip10-n50) - (07sip10): Grid M @ 12 km -- TSIP (B8)



June 25,1995 0:00:00
Min= -16 at (39,32), Max= 12 at (55,46)

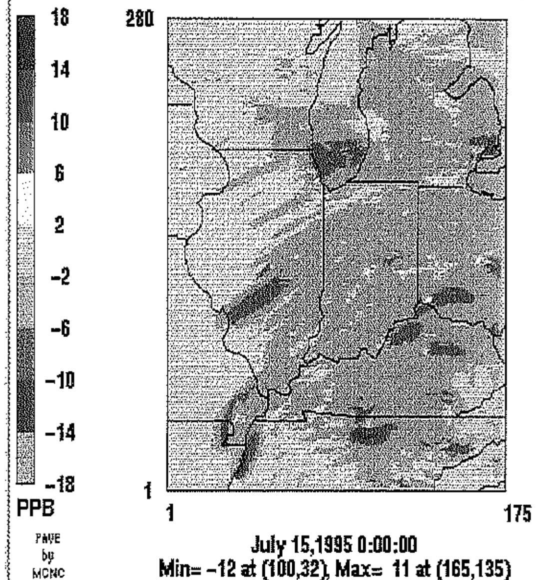
cxva


Max 1-Hour Ozone Difference
Effect of Additional 25% NOx Red'n over SIP Controls
(07sip10-n25) - (07sip10): Grid M @ 4 km -- TSIP (B10)
18 14 10 6 2 -2 -6 -10 -14 -18
PPB
280
1
1
175
PAVE by MCNC
July 9,1995 0:00:00
Min= -14 at (139,108), Max= 12 at (76,186)
Max 1-Hour Ozone Difference
Effect of Additional 25% NOx Red'n over SIP Controls
(07sip10-n25) - (07sip10): Grid M @ 4 km -- TSIP (B10)
July 10,1995 0:00:00
Min= -12 at (101,25), Max= 19 at (117,84)
Max 1-Hour Ozone Difference
Effect of Additional 25% NOx Red'n over SIP Controls
(07sip10-n25) - (07sip10): Grid M @ 4 km -- TSIP (B10)
July 11,1995 0:00:00
Min= -13 at (128,80), Max= 41 at (89,75)
Max 1-Hour Ozone Difference
Effect of Additional 25% NOx Red'n over SIP Controls
(07sip10-n25) - (07sip10): Grid M @ 4 km -- TSIP (B10)
July 12,1995 0:00:00
Min= -14 at (91,31), Max= 21 at (112,91)
Max 1-Hour Ozone Difference
Effect of Additional 25% NOx Red'n over SIP Controls
(07sip10-n25) - (07sip10): Grid M @ 4 km -- TSIP (B10)
July 13,1995 0:00:00
Min= -12 at (95,40), Max= 9 at (145,27)
Max 1-Hour Ozone Difference
Effect of Additional 25% NOx Red'n over SIP Controls
(07sip10-n25) - (07sip10): Grid M @ 4 km -- TSIP (B10)
July 14,1995 0:00:00
Min= -13 at (98,38), Max= 9 at (116,89)

2oa (cont)

Max 1–Hour Ozone Difference

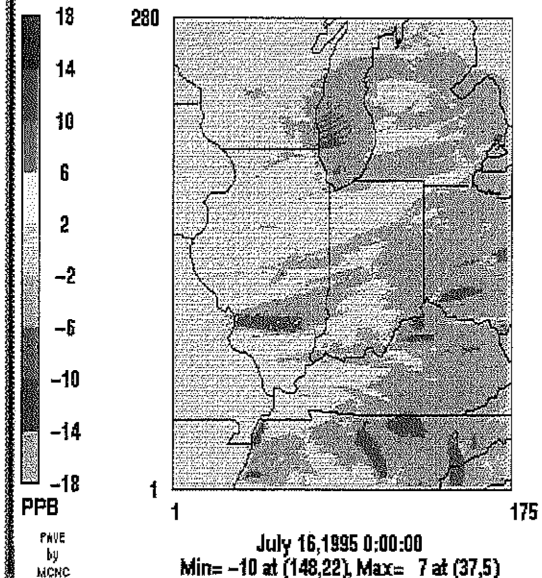
Effect of Additional 25% NOx Red'n over SIP Controls
(07sip10–n25) – (07sip10): Grid M @ 4 km –– TSIP (B10)



July 15,1995 0:00:00
Min= –12 at (100,32), Max= 11 at (165,135)

Max 1–Hour Ozone Difference

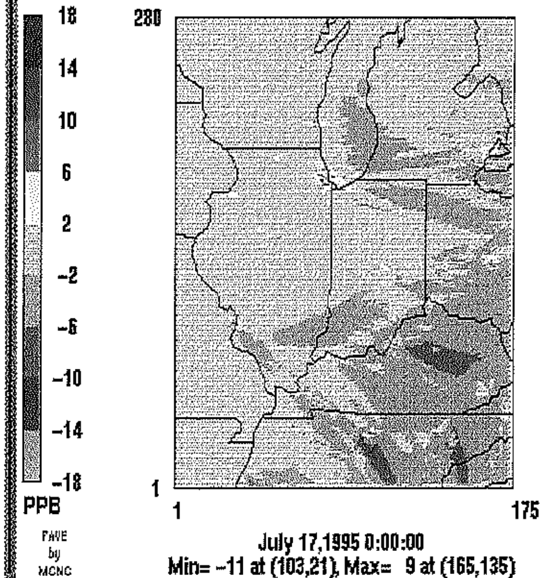
Effect of Additional 25% NOx Red'n over SIP Controls
(07sip10–n25) – (07sip10): Grid M @ 4 km –– TSIP (B10)



July 16,1995 0:00:00
Min= –10 at (148,22), Max= 7 at (37,5)

Max 1–Hour Ozone Difference

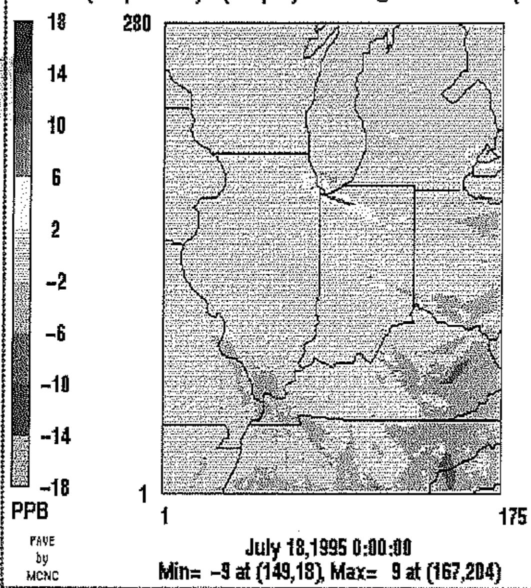
Effect of Additional 25% NOx Red'n over SIP Controls
(07sip10–n25) – (07sip10): Grid M @ 4 km –– TSIP (B10)



July 17,1995 0:00:00
Min= –11 at (103,21), Max= 9 at (165,135)

Max 1–Hour Ozone Difference

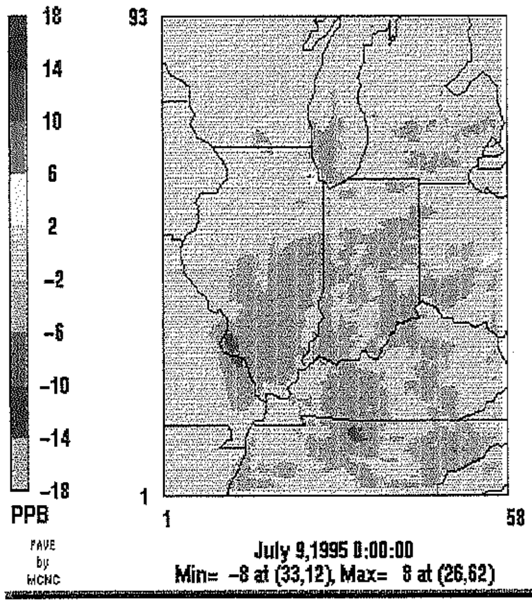
Effect of Additional 25% NOx Red'n over SIP Controls
(07sip10–n25) – (07sip10): Grid M @ 4 km –– TSIP (B10)



July 18,1995 0:00:00
Min= –9 at (149,18), Max= 9 at (167,204)

Max 1-Hour Ozone Difference

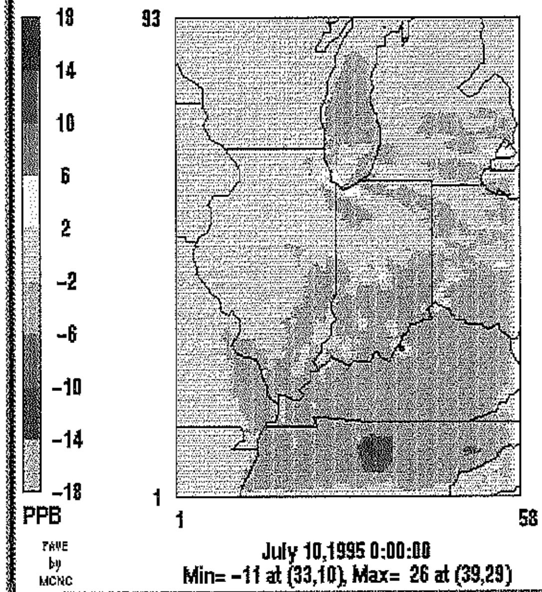
Effect of 25% Low-level NOx Red'n in Grid M
(07sip10-n25) - (07sip10): Grid M @ 12 km -- TSIP (B8)



July 9,1995 0:00:00
Min= -8 at (33,12), Max= 8 at (26,62)

Max 1-Hour Ozone Difference

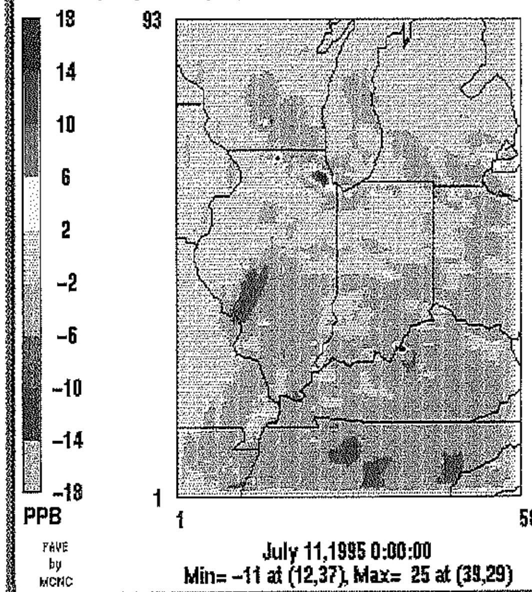
Effect of 25% Low-level NOx Red'n in Grid M
(07sip10-n25) - (07sip10): Grid M @ 12 km -- TSIP (B8)



July 10,1995 0:00:00
Min= -11 at (33,10), Max= 26 at (39,29)

Max 1-Hour Ozone Difference

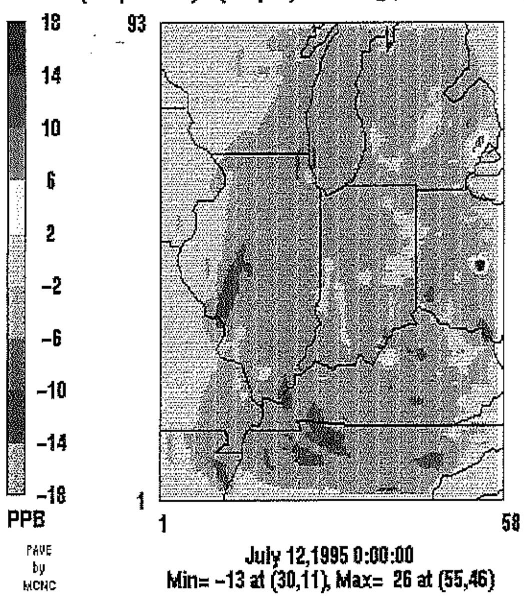
Effect of 25% Low-level NOx Red'n in Grid M
(07sip10-n25) - (07sip10): Grid M @ 12 km -- TSIP (B8)



July 11,1995 0:00:00
Min= -11 at (12,37), Max= 25 at (39,29)

Max 1-Hour Ozone Difference

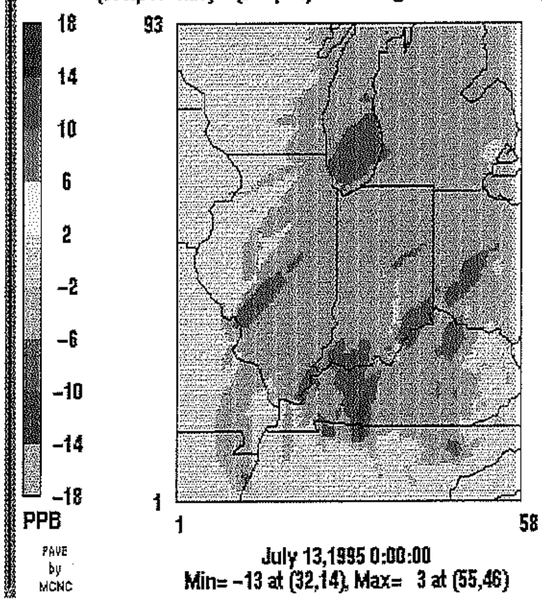
Effect of 25% Low-level NOx Red'n in Grid M
(07sip10-n25) - (07sip10): Grid M @ 12 km -- TSIP (B8)



July 12,1995 0:00:00
Min= -13 at (30,11), Max= 26 at (55,46)

Max 1-Hour Ozone Difference

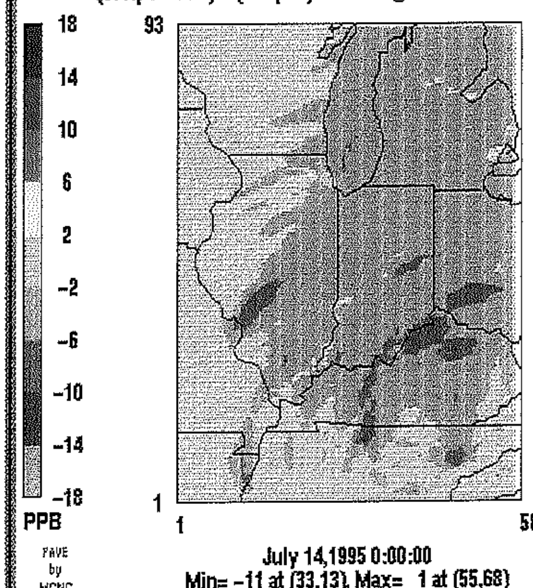
Effect of 25% Low-level NOx Red'n in Grid M
(07sip10-n25) - (07sip10): Grid M @ 12 km -- TSIP (B8)



July 13,1995 0:00:00
Min= -13 at (32,14), Max= 3 at (55,46)

Max 1-Hour Ozone Difference

Effect of 25% Low-level NOx Red'n in Grid M
(07sip10-n25) - (07sip10): Grid M @ 12 km -- TSIP (B8)

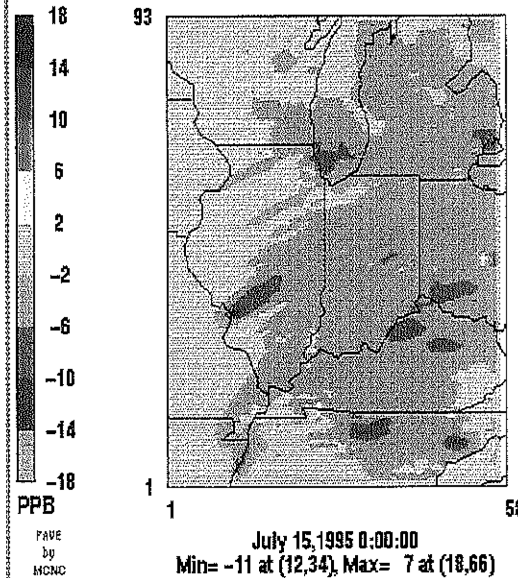


July 14,1995 0:00:00
Min= -11 at (33,13), Max= 1 at (55,68)

20b (cont)

Max 1-Hour Ozone Difference

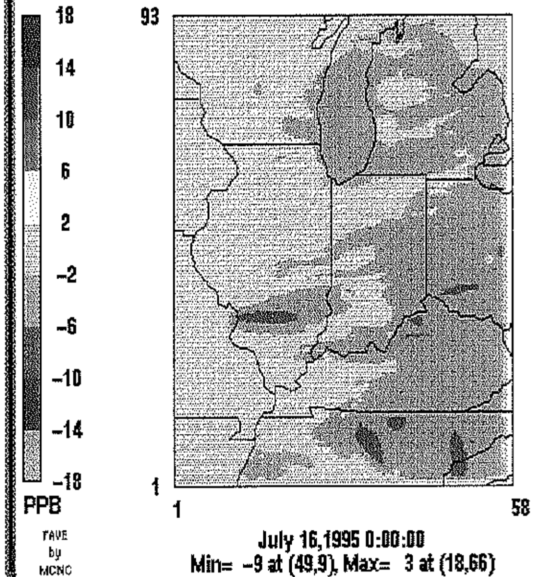
Effect of 25% Low-level NOx Red'n in Grid M
(07sip10-n25) - (07sip10): Grid M @ 12 km --- TSIP (B8)



July 15,1995 0:00:00
Min= -11 at (12,34), Max= 7 at (18,66)

Max 1-Hour Ozone Difference

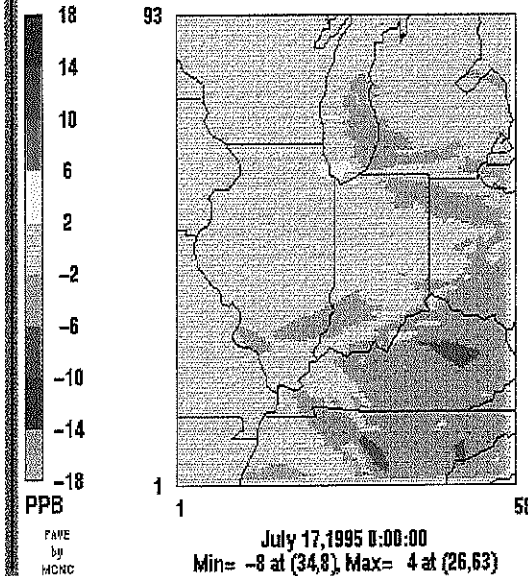
Effect of 25% Low-level NOx Red'n in Grid M
(07sip10-n25) - (07sip10): Grid M @ 12 km --- TSIP (B8)



July 16,1995 0:00:00
Min= -9 at (49,9), Max= 3 at (18,66)

Max 1-Hour Ozone Difference

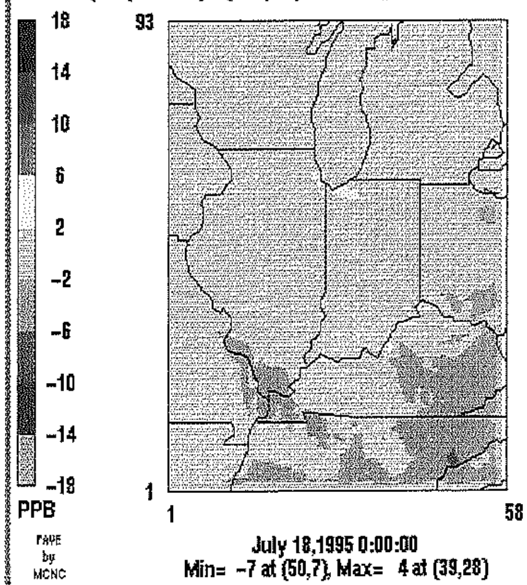
Effect of 25% Low-level NOx Red'n in Grid M
(07sip10-n25) - (07sip10): Grid M @ 12 km --- TSIP (B8)



July 17,1995 0:00:00
Min= -8 at (34,8), Max= 4 at (26,63)

Max 1-Hour Ozone Difference

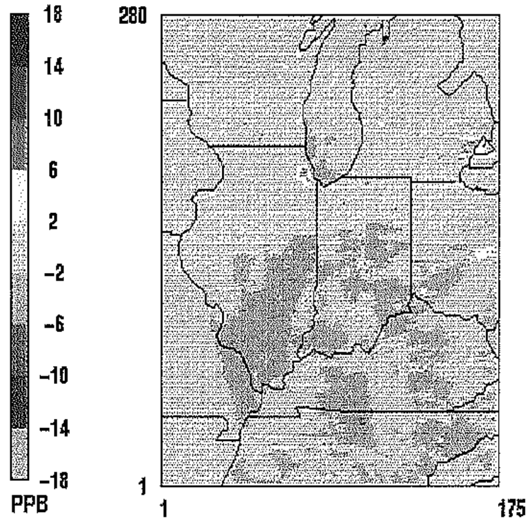
Effect of 25% Low-level NOx Red'n in Grid M
(07sip10-n25) - (07sip10): Grid M @ 12 km --- TSIP (B8)



July 18,1995 0:00:00
Min= -7 at (50,7), Max= 4 at (39,28)

Max 8–Hour Ozone Difference

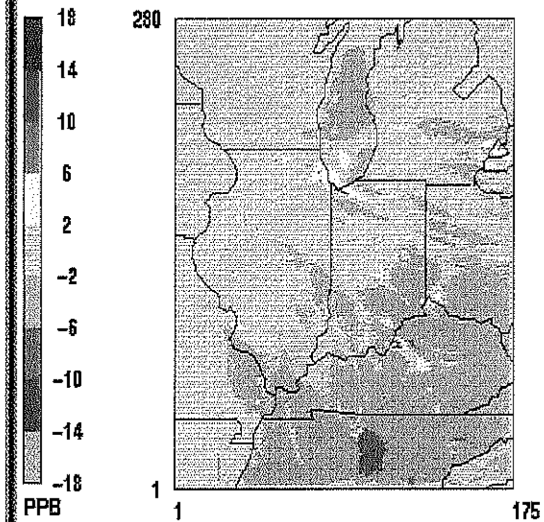
Effect of Additional 25% NOx Controls over SIP Call
(07sip10–n25) – (07sip10): Grid M @ 4 km --- TSIP (B8)



July 9,1995 0:00:00
Min= -10 at (139,108), Max= 13 at (162,138)

Max 8–Hour Ozone Difference

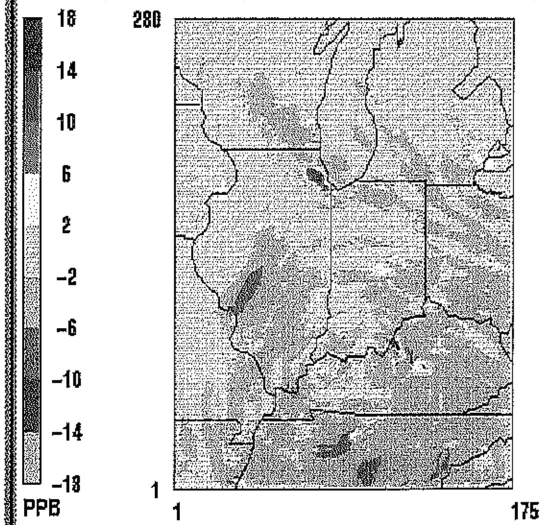
Effect of Additional 25% NOx Controls over SIP Call
(07sip10–n25) – (07sip10): Grid M @ 4 km --- TSIP (B8)



July 10,1995 0:00:00
Min= -10 at (100,27), Max= 10 at (117,84)

Max 8–Hour Ozone Difference

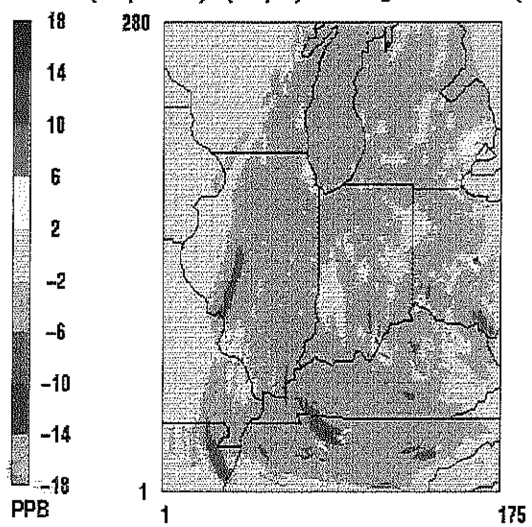
Effect of Additional 25% NOx Controls over SIP Call
(07sip10–n25) – (07sip10): Grid M @ 4 km --- TSIP (B8)



July 11,1995 0:00:00
Min= -9 at (36,111), Max= 36 at (89,75)

Max 8–Hour Ozone Difference

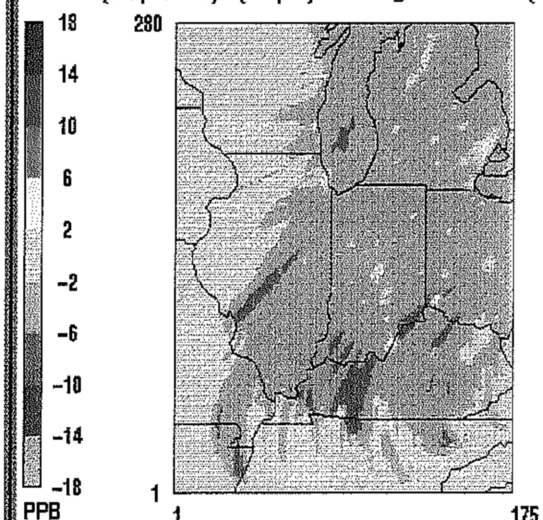
Effect of Additional 25% NOx Controls over SIP Call
(07sip10–n25) – (07sip10): Grid M @ 4 km --- TSIP (B8)



July 12,1995 0:00:00
Min= -12 at (90,31), Max= 16 at (112,91)

Max 8–Hour Ozone Difference

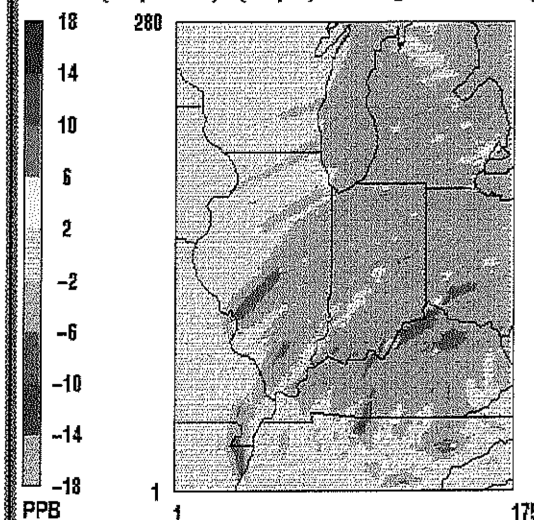
Effect of Additional 25% NOx Controls over SIP Call
(07sip10–n25) – (07sip10): Grid M @ 4 km --- TSIP (B8)



July 13,1995 0:00:00
Min= -11 at (95,41), Max= 7 at (145,27)

Max 8–Hour Ozone Difference

Effect of Additional 25% NOx Controls over SIP Call
(07sip10–n25) – (07sip10): Grid M @ 4 km --- TSIP (B8)

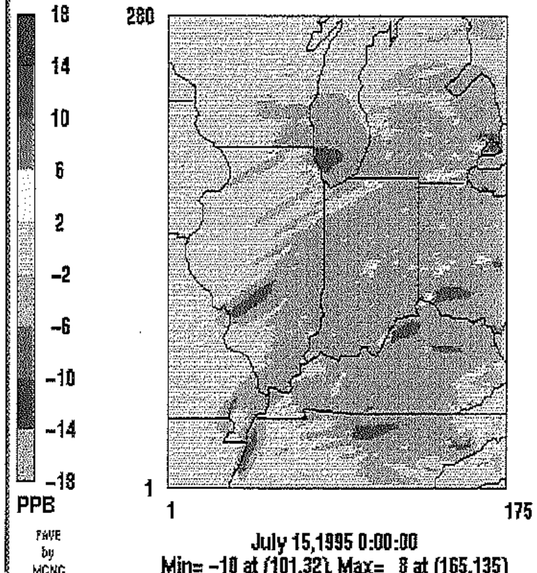


July 14,1995 0:00:00
Min= -12 at (98,38), Max= 7 at (116,89)

20c (cont)

Max 8-Hour Ozone Difference

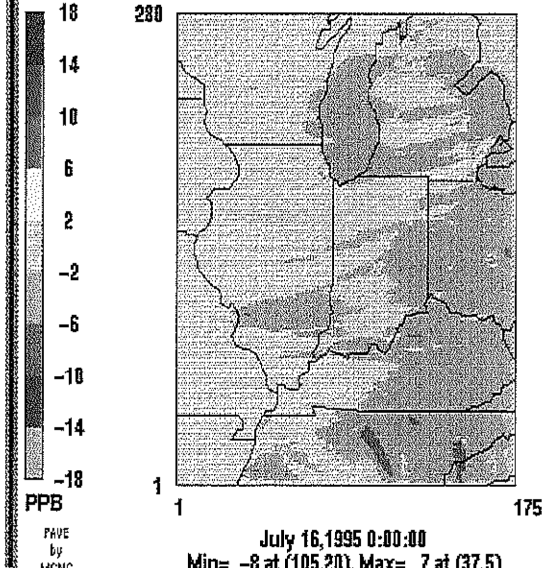
Effect of Additional 25% NOx Controls over SIP Call
(07sip10-n25) - (07sip10): Grid M @ 4 km -- TSIP (B8)



July 15,1995 0:00:00
Min= -10 at (101,32), Max= 8 at (165,135)

Max 8-Hour Ozone Difference

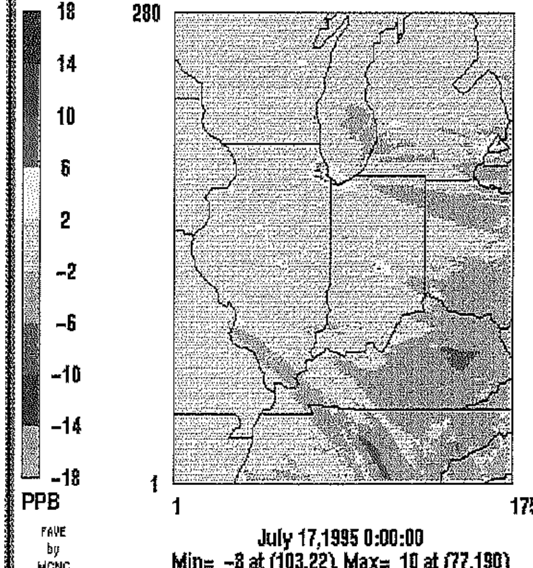
Effect of Additional 25% NOx Controls over SIP Call
(07sip10-n25) - (07sip10): Grid M @ 4 km -- TSIP (B8)



July 16,1995 0:00:00
Min= -8 at (105,20), Max= 7 at (37,5)

Max 8-Hour Ozone Difference

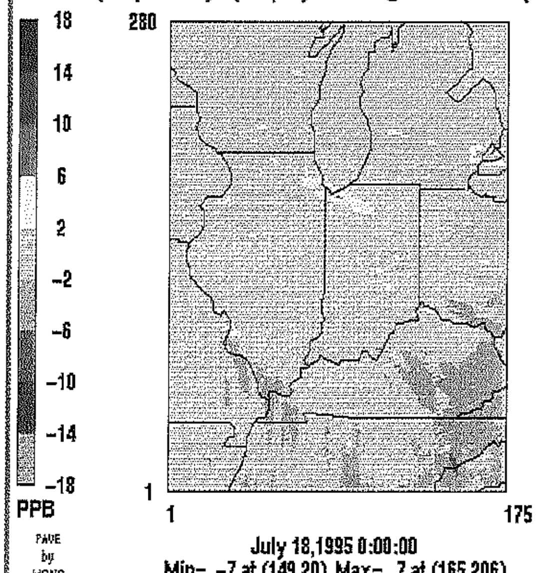
Effect of Additional 25% NOx Controls over SIP Call
(07sip10-n25) - (07sip10): Grid M @ 4 km -- TSIP (B8)



July 17,1995 0:00:00
Min= -8 at (103,22), Max= 10 at (77,190)

Max 8-Hour Ozone Difference

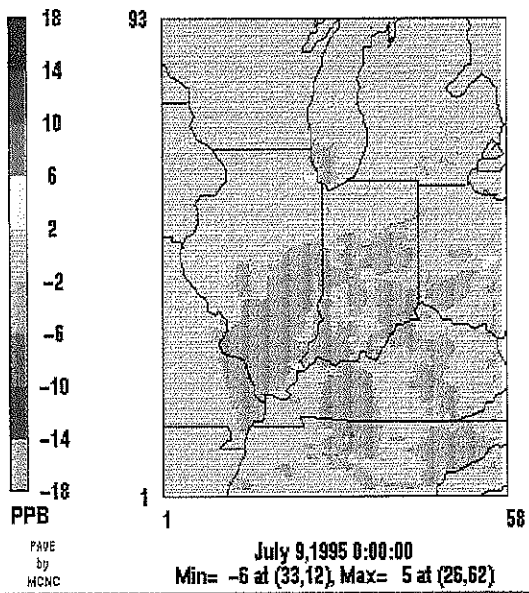
Effect of Additional 25% NOx Controls over SIP Call
(07sip10-n25) - (07sip10): Grid M @ 4 km -- TSIP (B8)



July 18,1995 0:00:00
Min= -7 at (149,20), Max= 7 at (165,206)

Max 8-Hour Ozone Difference

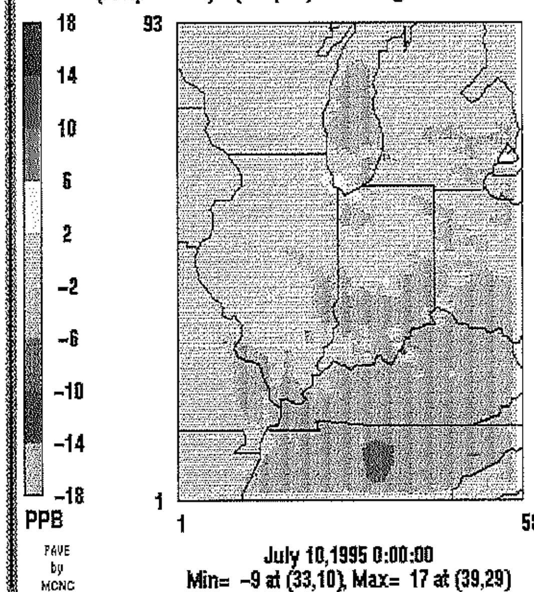
Effect of 25% Low-level NOx Red'n in Grid M
(07sip10-n25) - (07sip10): Grid M @ 12 km -- TSIP (B8)



July 9,1995 0:00:00
Min= -6 at (33,12), Max= 5 at (26,62)

Max 8-Hour Ozone Difference

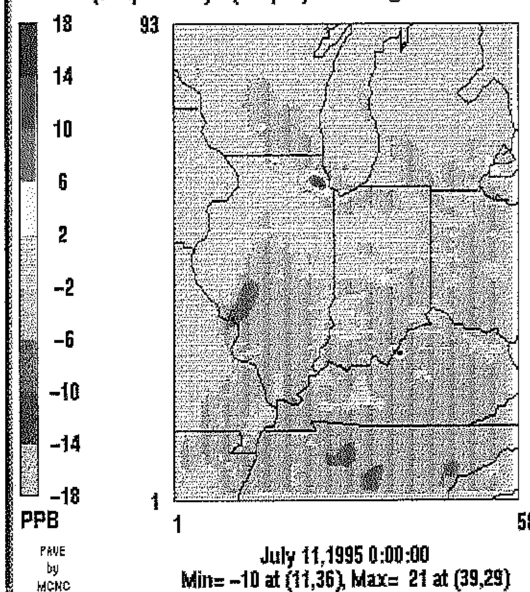
Effect of 25% Low-level NOx Red'n in Grid M
(07sip10-n25) - (07sip10): Grid M @ 12 km -- TSIP (B8)



July 10,1995 0:00:00
Min= -9 at (33,10), Max= 17 at (39,29)

Max 8-Hour Ozone Difference

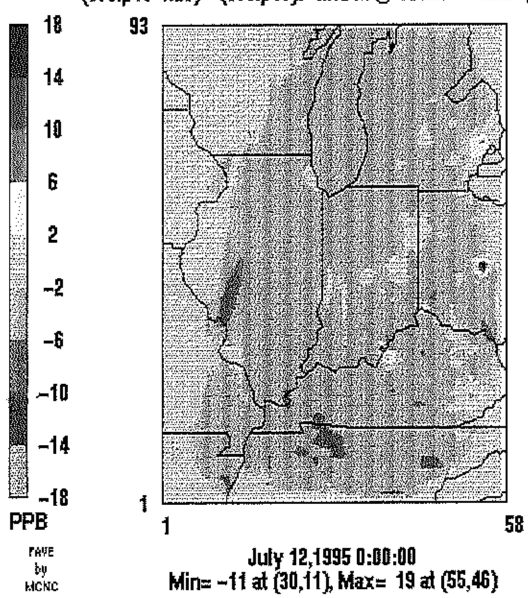
Effect of 25% Low-level NOx Red'n in Grid M
(07sip10-n25) - (07sip10): Grid M @ 12 km -- TSIP (B8)



July 11,1995 0:00:00
Min= -10 at (11,36), Max= 21 at (39,29)

Max 8-Hour Ozone Difference

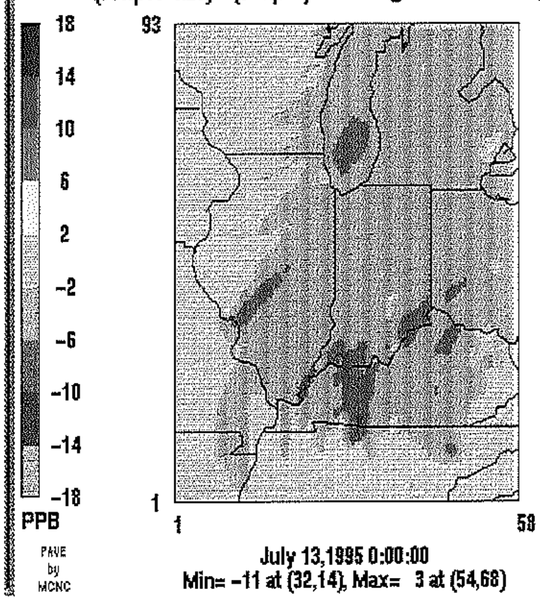
Effect of 25% Low-level NOx Red'n in Grid M
(07sip10-n25) - (07sip10): Grid M @ 12 km -- TSIP (B8)



July 12,1995 0:00:00
Min= -11 at (30,11), Max= 19 at (55,46)

Max 8-Hour Ozone Difference

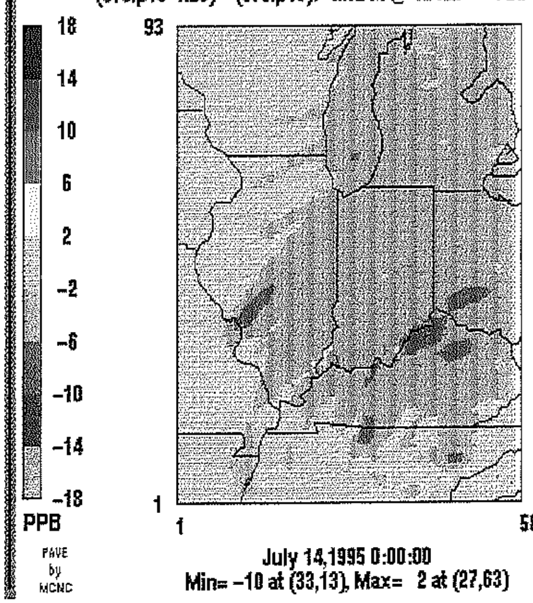
Effect of 25% Low-level NOx Red'n in Grid M
(07sip10-n25) - (07sip10): Grid M @ 12 km -- TSIP (B8)



July 13,1995 0:00:00
Min= -11 at (32,14), Max= 3 at (54,68)

Max 8-Hour Ozone Difference

Effect of 25% Low-level NOx Red'n in Grid M
(07sip10-n25) - (07sip10): Grid M @ 12 km -- TSIP (B8)

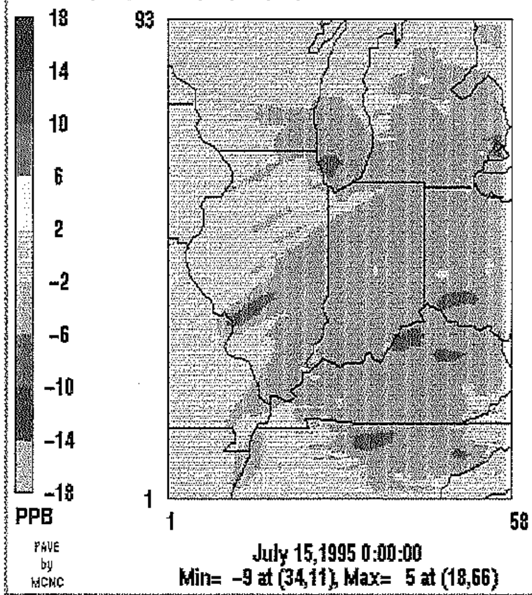


July 14,1995 0:00:00
Min= -10 at (33,13), Max= 2 at (27,63)

20.d (con't)

Max 8–Hour Ozone Difference

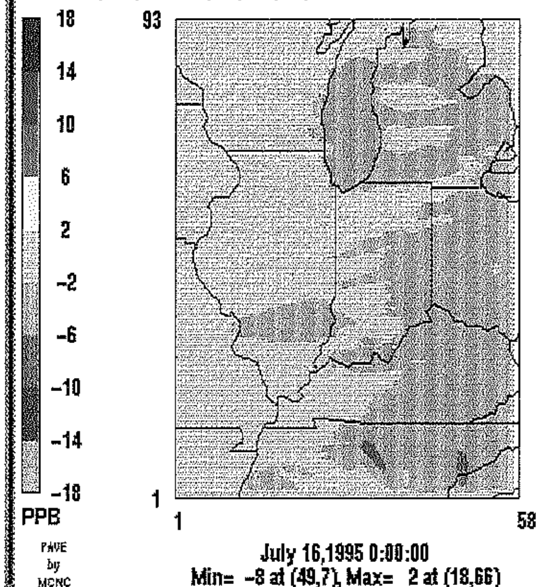
Effect of 25% Low-level NOx Red'n in Grid M
(07sip10–n25) – (07sip10): Grid M @ 12 km –– TSIP (B8)



July 15,1995 0:00:00
Min= -9 at (34,11), Max= 5 at (18,66)

Max 8–Hour Ozone Difference

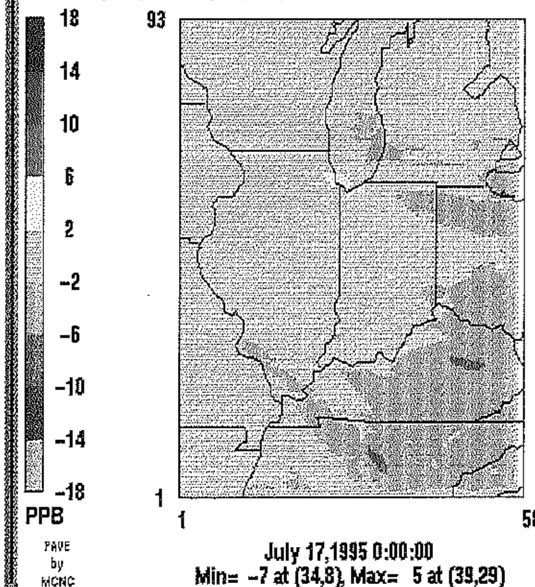
Effect of 25% Low-level NOx Red'n in Grid M
(07sip10–n25) – (07sip10): Grid M @ 12 km –– TSIP (B8)



July 16,1995 0:00:00
Min= -8 at (49,7), Max= 2 at (18,66)

Max 8–Hour Ozone Difference

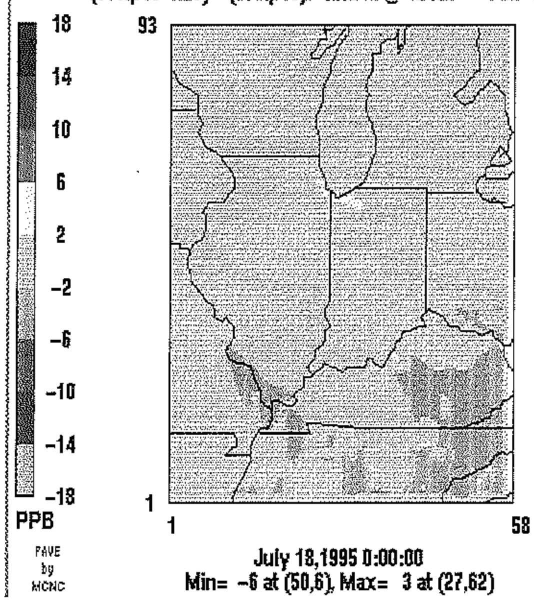
Effect of 25% Low-level NOx Red'n in Grid M
(07sip10–n25) – (07sip10): Grid M @ 12 km –– TSIP (B8)



July 17,1995 0:00:00
Min= -7 at (34,8), Max= 5 at (39,29)

Max 8–Hour Ozone Difference

Effect of 25% Low-level NOx Red'n in Grid M
(07sip10–n25) – (07sip10): Grid M @ 12 km –– TSIP (B8)

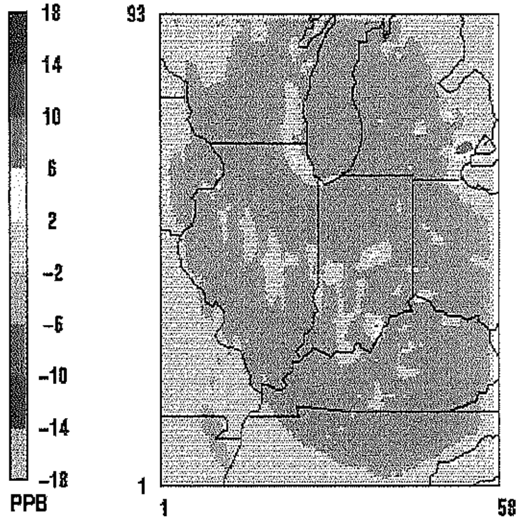


July 18,1995 0:00:00
Min= -6 at (50,6), Max= 3 at (27,62)

21a

Max 1-Hour Ozone Difference

Effect of 25% VOC/NOx Red'n in Grid M
(07sip10-nv25) - (07sip10): Grid M @ 12 km -- TSIP (B8)

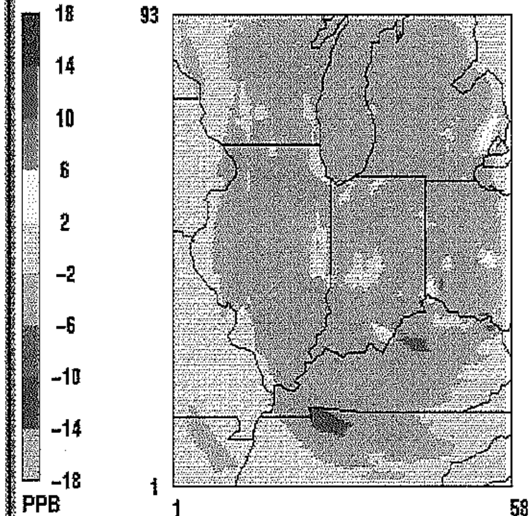


PAVE by MCNC

June 15,1995 0:00:00
Min= -6 at (30,13), Max= 9 at (54,67)

Max 1-Hour Ozone Difference

Effect of 25% VOC/NOx Red'n in Grid M
(07sip10-nv25) - (07sip10): Grid M @ 12 km -- TSIP (B8)

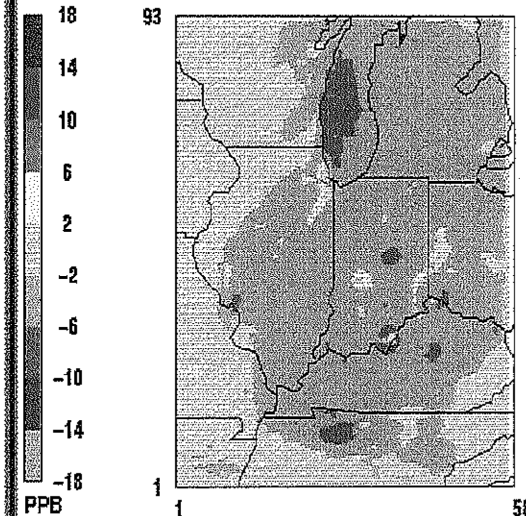


PAVE by MCNC

June 16,1995 0:00:00
Min= -8 at (29,11), Max= 6 at (55,46)

Max 1-Hour Ozone Difference

Effect of 25% VOC/NOx Red'n in Grid M
(07sip10-nv25) - (07sip10): Grid M @ 12 km -- TSIP (B8)

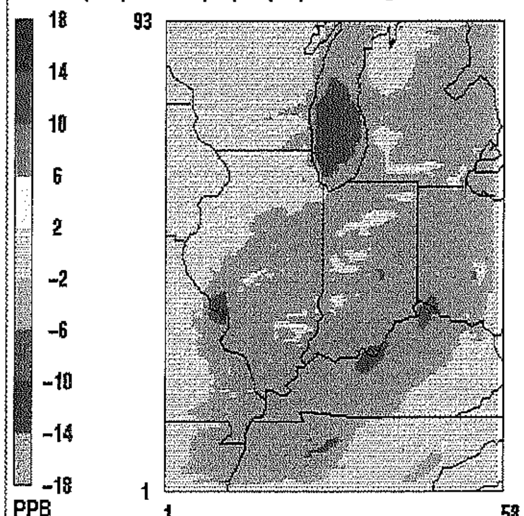


PAVE by MCNC

June 17,1995 0:00:00
Min= -9 at (37,30), Max= 7 at (55,45)

Max 1-Hour Ozone Difference

Effect of 25% VOC/NOx Red'n in Grid M
(07sip10-nv25) - (07sip10): Grid M @ 12 km -- TSIP (B8)

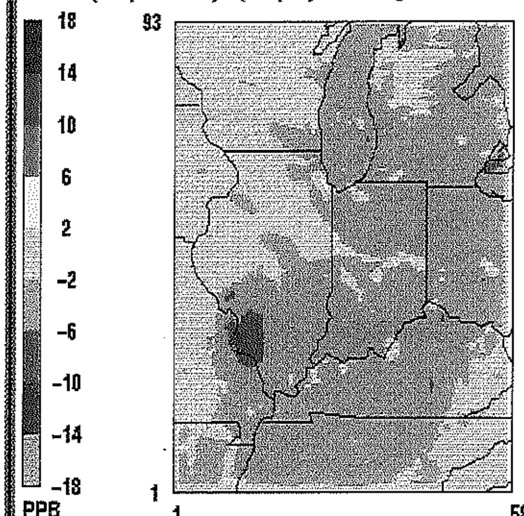


PAVE by MCNC

June 18,1995 0:00:00
Min= -11 at (11,35), Max= 8 at (55,44)

Max 1-Hour Ozone Difference

Effect of 25% VOC/NOx Red'n in Grid M
(07sip10-nv25) - (07sip10): Grid M @ 12 km -- TSIP (B8)

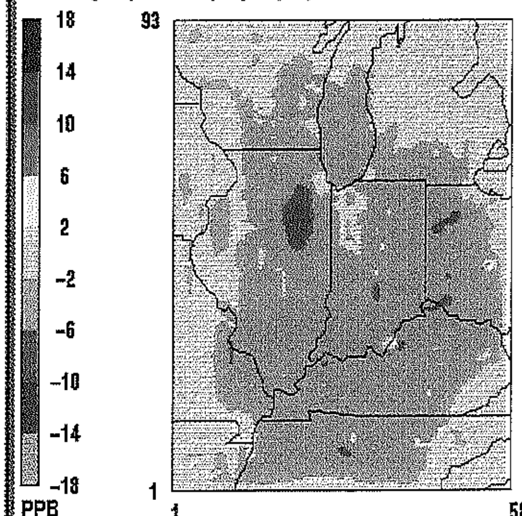


PAVE by MCNC

June 19,1995 0:00:00
Min= -11 at (12,31), Max= 4 at (27,61)

Max 1-Hour Ozone Difference

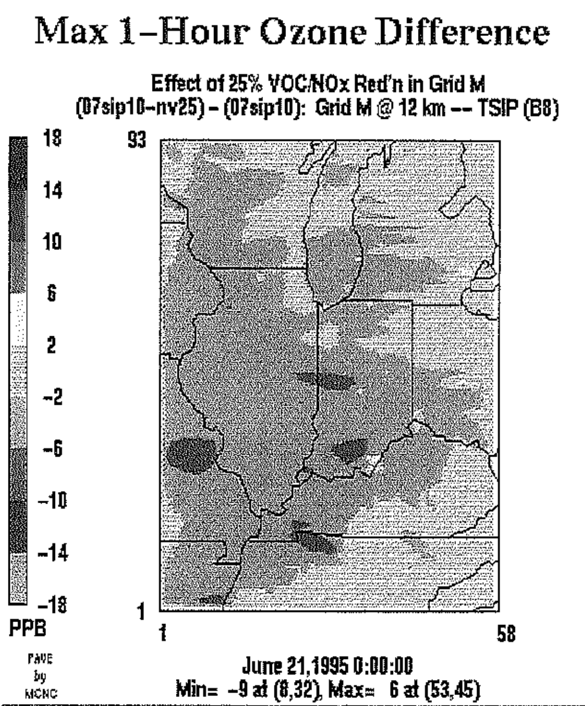
Effect of 25% VOC/NOx Red'n in Grid M
(07sip10-nv25) - (07sip10): Grid M @ 12 km -- TSIP (B8)



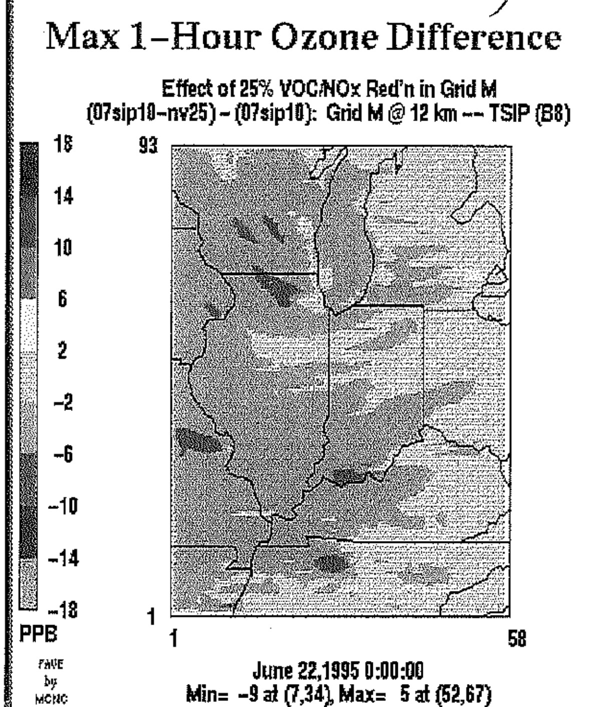
PAVE by MCNC

June 20,1995 0:00:00
Min= -8 at (23,58), Max= 6 at (55,45)

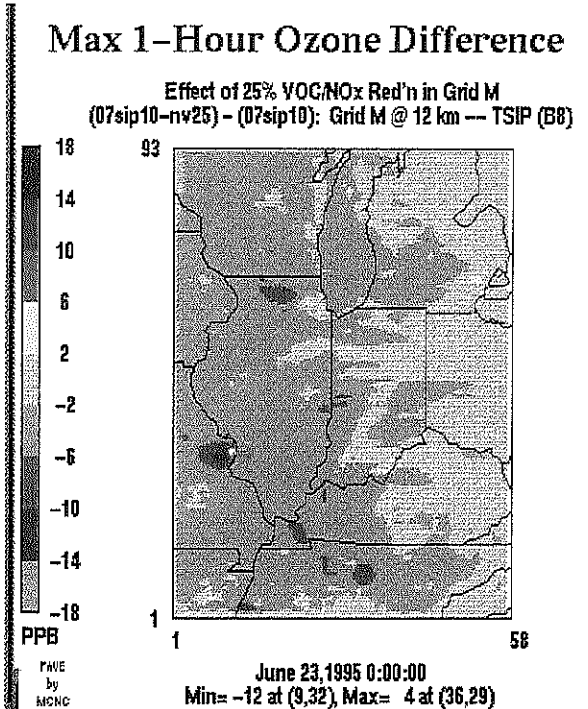
21a (cont.)



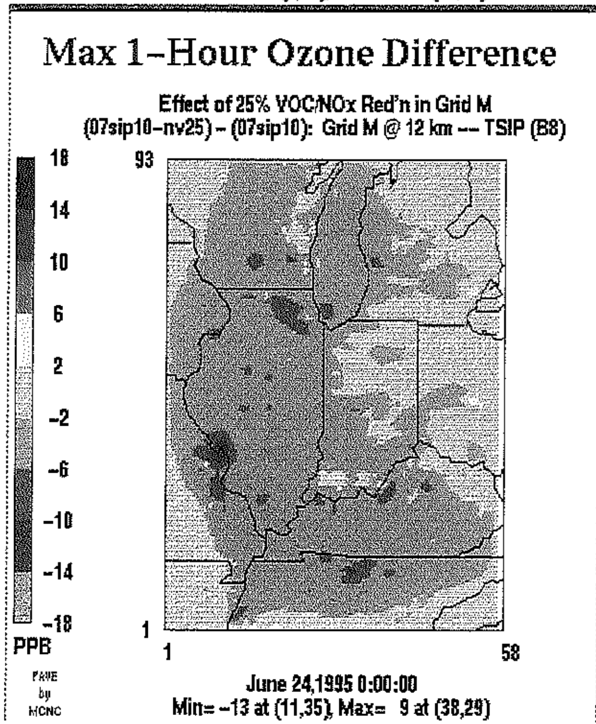
Max 1-Hour Ozone Difference
Effect of 25% VOC/NOx Red'n in Grid M
(07sip10-nv25) - (07sip10): Grid M @ 12 km -- TSIP (B8)
18 14 10 6 2 -2 -6 -10 -14 -18
PPB
93
1
1
58
PAVE by MCNC
June 21,1995 0:00:00
Min= -9 at (8,32), Max= 6 at (53,45)



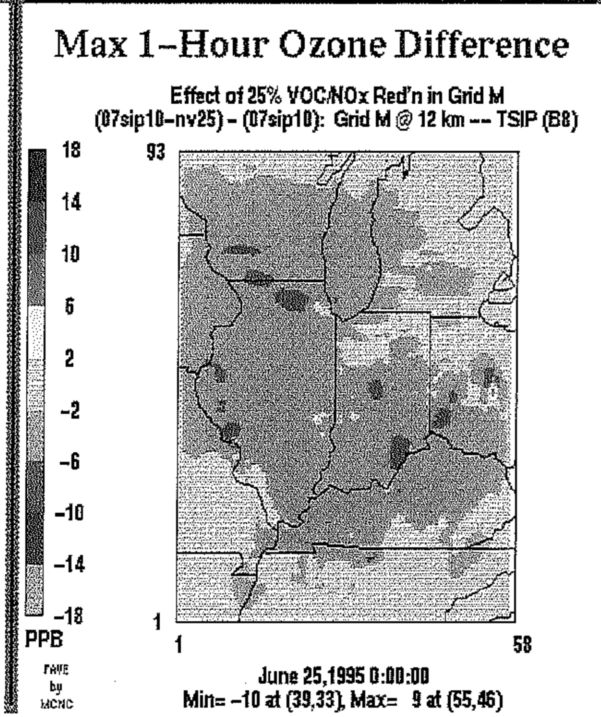
Max 1-Hour Ozone Difference
Effect of 25% VOC/NOx Red'n in Grid M
(07sip10-nv25) - (07sip10): Grid M @ 12 km -- TSIP (B8)
18 14 10 6 2 -2 -6 -10 -14 -18
PPB
93
1
1
58
PAVE by MCNC
June 22,1995 0:00:00
Min= -9 at (7,34), Max= 5 at (52,67)



Max 1-Hour Ozone Difference
Effect of 25% VOC/NOx Red'n in Grid M
(07sip10-nv25) - (07sip10): Grid M @ 12 km -- TSIP (B8)
18 14 10 6 2 -2 -6 -10 -14 -18
PPB
93
1
1
58
PAVE by MCNC
June 23,1995 0:00:00
Min= -12 at (9,32), Max= 4 at (36,29)

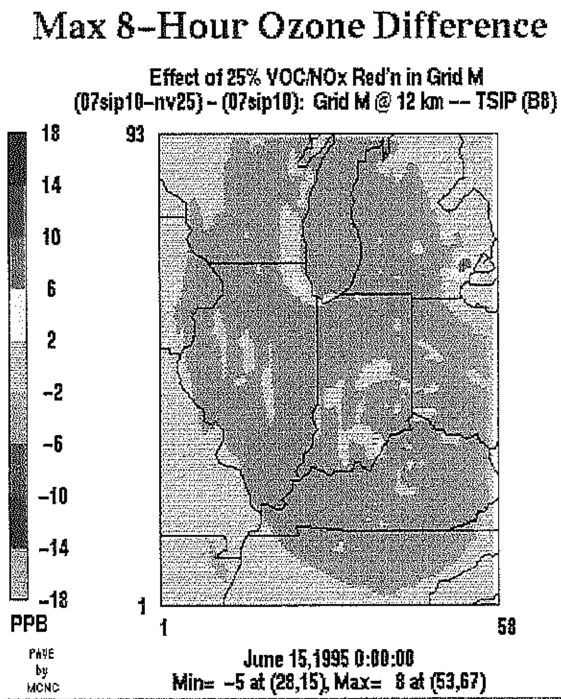


Max 1-Hour Ozone Difference
Effect of 25% VOC/NOx Red'n in Grid M
(07sip10-nv25) - (07sip10): Grid M @ 12 km -- TSIP (B8)
18 14 10 6 2 -2 -6 -10 -14 -18
PPB
93
1
1
58
PAVE by MCNC
June 24,1995 0:00:00
Min= -13 at (11,35), Max= 9 at (38,29)

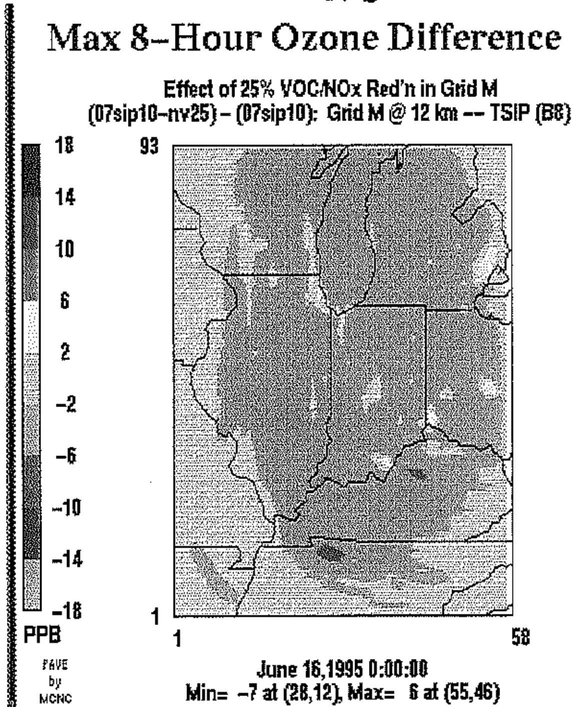


Max 1-Hour Ozone Difference
Effect of 25% VOC/NOx Red'n in Grid M
(07sip10-nv25) - (07sip10): Grid M @ 12 km -- TSIP (B8)
18 14 10 6 2 -2 -6 -10 -14 -18
PPB
93
1
1
58
PAVE by MCNC
June 25,1995 0:00:00
Min= -10 at (39,33), Max= 9 at (55,46)

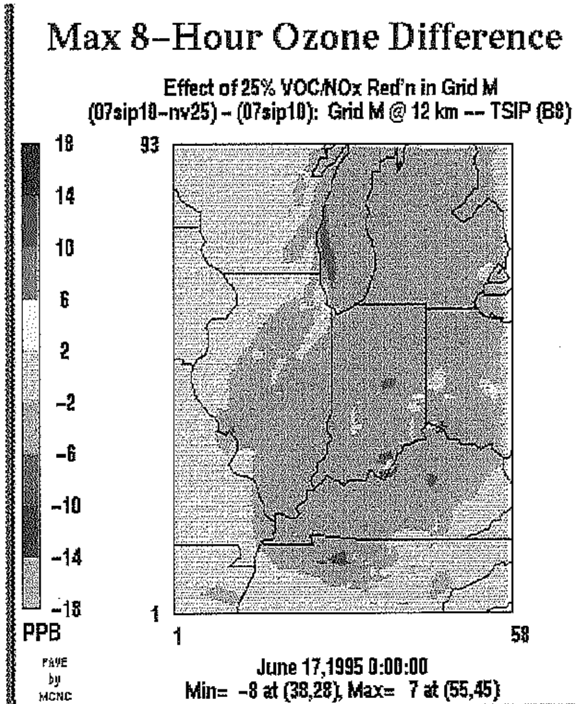
21b



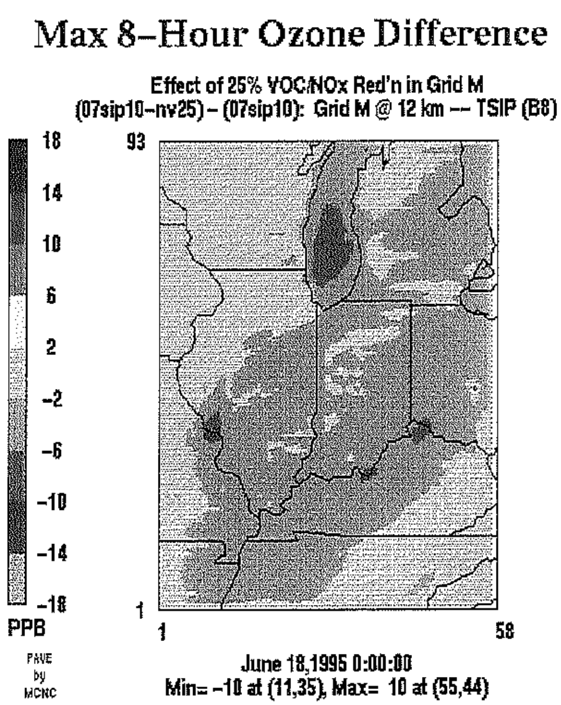
Max 8–Hour Ozone Difference
Effect of 25% VOC/NOx Red'n in Grid M
(07sip10–nv25) – (07sip10): Grid M @ 12 km –– TSIP (B8)
18
14
10
6
2
-2
-6
-10
-14
-18
PPB
PAVE by MCNC
93
1
1
58
June 15,1995 0:00:00
Min= -5 at (28,15), Max= 8 at (53,67)



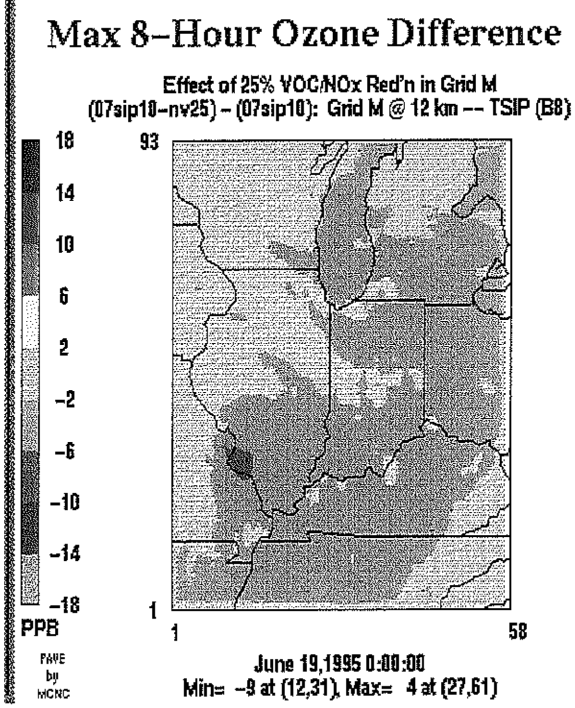
Max 8–Hour Ozone Difference
Effect of 25% VOC/NOx Red'n in Grid M
(07sip10–nv25) – (07sip10): Grid M @ 12 km –– TSIP (B8)
18
14
10
6
2
-2
-6
-10
-14
-18
PPB
PAVE by MCNC
93
1
1
58
June 16,1995 0:00:00
Min= -7 at (28,12), Max= 6 at (55,46)



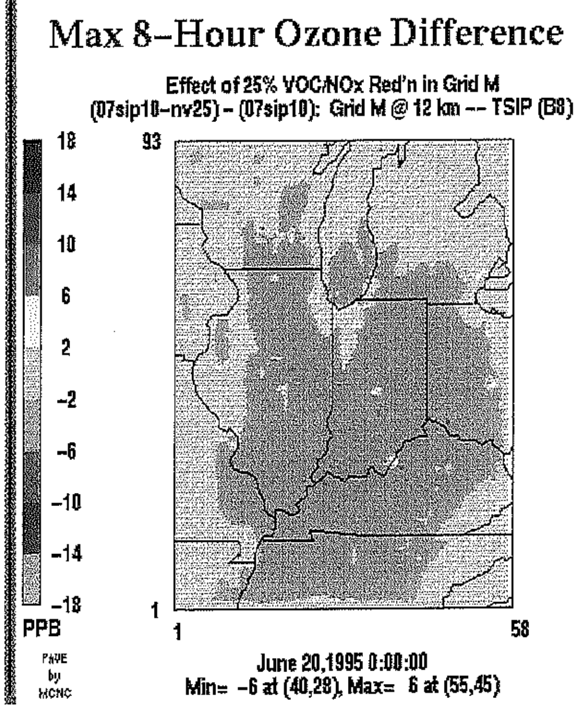
Max 8–Hour Ozone Difference
Effect of 25% VOC/NOx Red'n in Grid M
(07sip10–nv25) – (07sip10): Grid M @ 12 km –– TSIP (B8)
18
14
10
6
2
-2
-6
-10
-14
-18
PPB
PAVE by MCNC
93
1
1
58
June 17,1995 0:00:00
Min= -8 at (38,28), Max= 7 at (55,45)



Max 8–Hour Ozone Difference
Effect of 25% VOC/NOx Red'n in Grid M
(07sip10–nv25) – (07sip10): Grid M @ 12 km –– TSIP (B8)
18
14
10
6
2
-2
-6
-10
-14
-18
PPB
PAVE by MCNC
93
1
1
58
June 18,1995 0:00:00
Min= -10 at (11,35), Max= 10 at (55,44)



Max 8–Hour Ozone Difference
Effect of 25% VOC/NOx Red'n in Grid M
(07sip10–nv25) – (07sip10): Grid M @ 12 km –– TSIP (B8)
18
14
10
6
2
-2
-6
-10
-14
-18
PPB
PAVE by MCNC
93
1
1
58
June 19,1995 0:00:00
Min= -9 at (12,31), Max= 4 at (27,61)

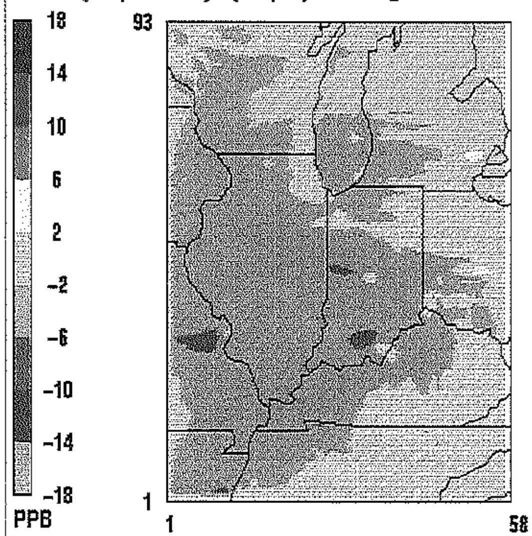


Max 8–Hour Ozone Difference
Effect of 25% VOC/NOx Red'n in Grid M
(07sip10–nv25) – (07sip10): Grid M @ 12 km –– TSIP (B8)
18
14
10
6
2
-2
-6
-10
-14
-18
PPB
PAVE by MCNC
93
1
1
58
June 20,1995 0:00:00
Min= -6 at (40,28), Max= 6 at (55,45)

21b (cont.)

Max 8-Hour Ozone Difference

Effect of 25% VOC/NOx Red'n in Grid M
(07sip10-nv25) - (07sip10): Grid M @ 12 km --- TSIP (B8)

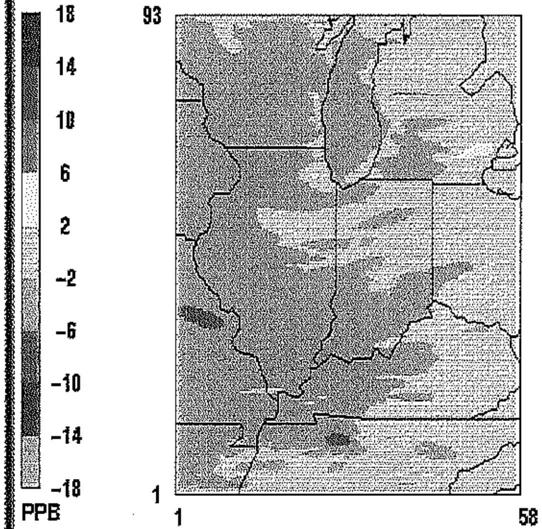


PAVE by MCNC

June 21,1995 0:00:00
Min= -8 at (9,32), Max= 4 at (53,45)

Max 8-Hour Ozone Difference

Effect of 25% VOC/NOx Red'n in Grid M
(07sip10-nv25) - (07sip10): Grid M @ 12 km --- TSIP (B8)

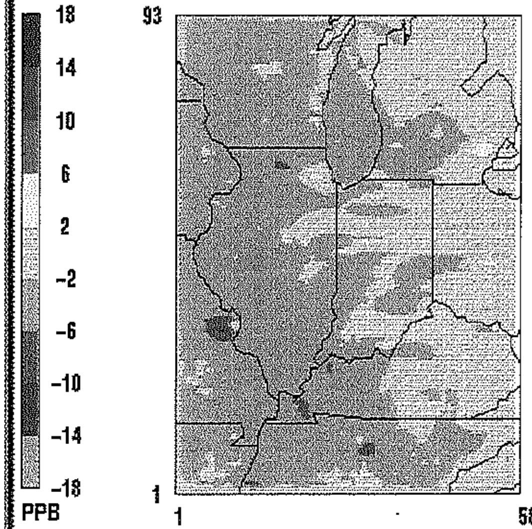


PAVE by MCNC

June 22,1995 0:00:00
Min= -8 at (6,34), Max= 4 at (52,67)

Max 8-Hour Ozone Difference

Effect of 25% VOC/NOx Red'n in Grid M
(07sip10-nv25) - (07sip10): Grid M @ 12 km --- TSIP (B8)

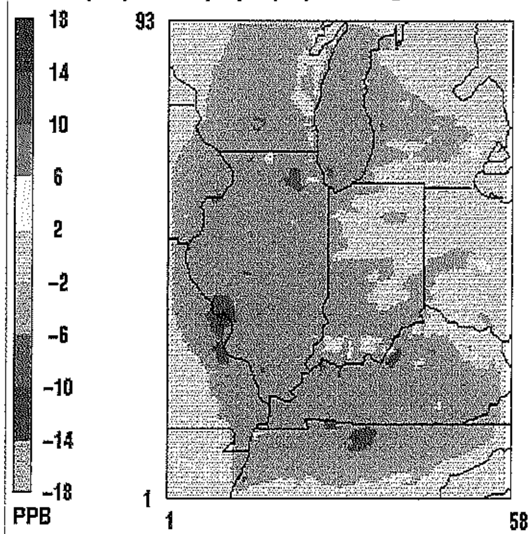


PAVE by MCNC

June 23,1995 0:00:00
Min= -11 at (9,32), Max= 5 at (36,29)

Max 8-Hour Ozone Difference

Effect of 25% VOC/NOx Red'n in Grid M
(07sip10-nv25) - (07sip10): Grid M @ 12 km --- TSIP (B8)

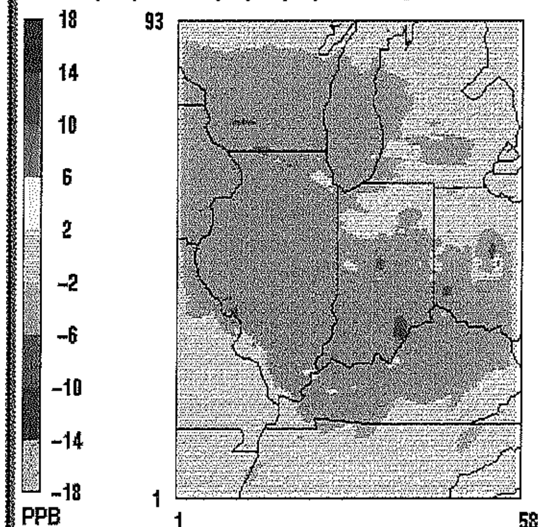


PAVE by MCNC

June 24,1995 0:00:00
Min= -12 at (11,35), Max= 8 at (38,29)

Max 8-Hour Ozone Difference

Effect of 25% VOC/NOx Red'n in Grid M
(07sip10-nv25) - (07sip10): Grid M @ 12 km --- TSIP (B8)



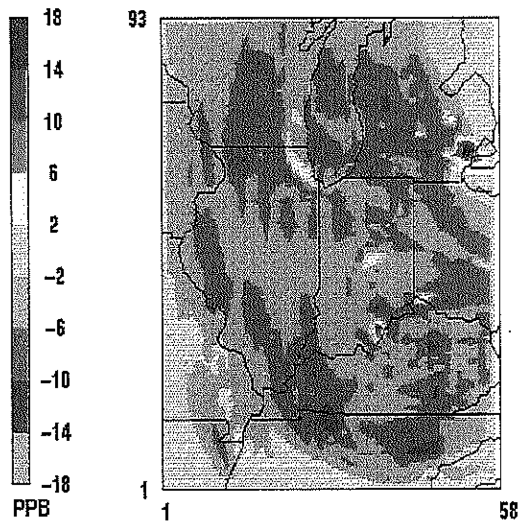
PAVE by MCNC

June 25,1995 0:00:00
Min= -8 at (39,32), Max= 8 at (55,46)

ααa

Max 1-Hour Ozone Difference

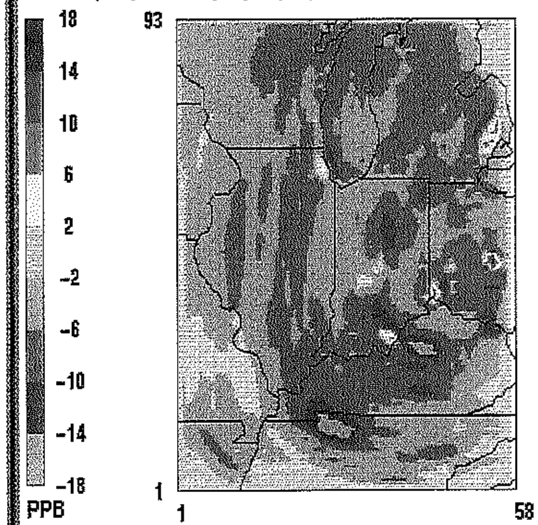
Effect of 50% VOC/NOx Red'n in Grid M
(07sip10-nv50) - (07sip10): Grid M @ 12 km -- TSIP (B8)



June 15,1995 0:00:00
Min= -14 at (30,13), Max= 21 at (53,67)

Max 1-Hour Ozone Difference

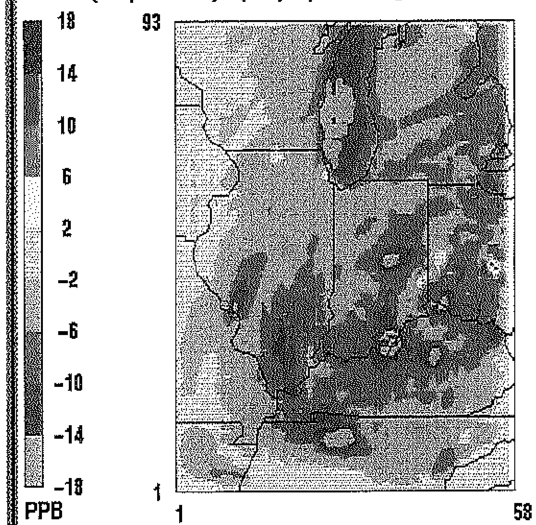
Effect of 50% VOC/NOx Red'n in Grid M
(07sip10-nv50) - (07sip10): Grid M @ 12 km -- TSIP (B8)



June 16,1995 0:00:00
Min= -18 at (29,11), Max= 16 at (55,45)

Max 1-Hour Ozone Difference

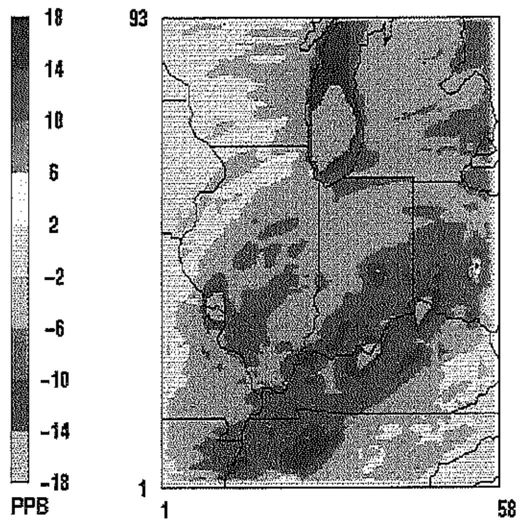
Effect of 50% VOC/NOx Red'n in Grid M
(07sip10-nv50) - (07sip10): Grid M @ 12 km -- TSIP (B8)



June 17,1995 0:00:00
Min= -20 at (30,11), Max= 12 at (55,45)

Max 1-Hour Ozone Difference

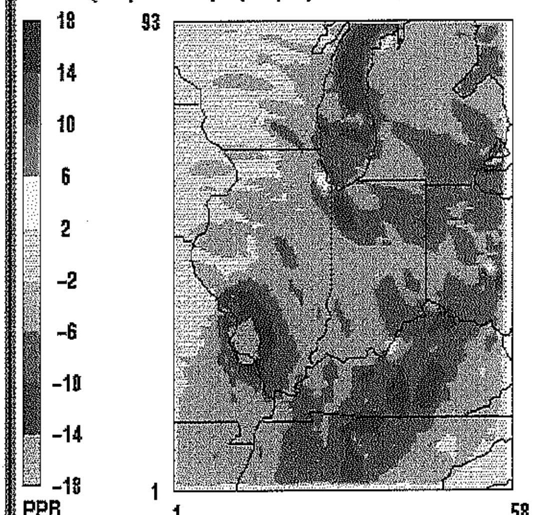
Effect of 50% VOC/NOx Red'n in Grid M
(07sip10-nv50) - (07sip10): Grid M @ 12 km -- TSIP (B8)



June 18,1995 0:00:00
Min= -24 at (11,34), Max= 15 at (55,44)

Max 1-Hour Ozone Difference

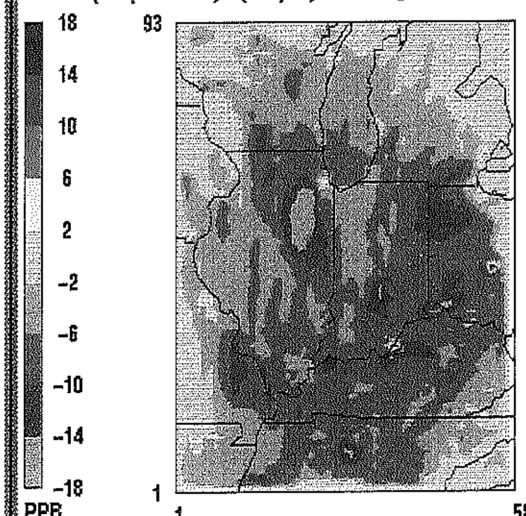
Effect of 50% VOC/NOx Red'n in Grid M
(07sip10-nv50) - (07sip10): Grid M @ 12 km -- TSIP (B8)



June 19,1995 0:00:00
Min= -24 at (12,31), Max= 6 at (27,61)

Max 1-Hour Ozone Difference

Effect of 50% VOC/NOx Red'n in Grid M
(07sip10-nv50) - (07sip10): Grid M @ 12 km -- TSIP (B8)

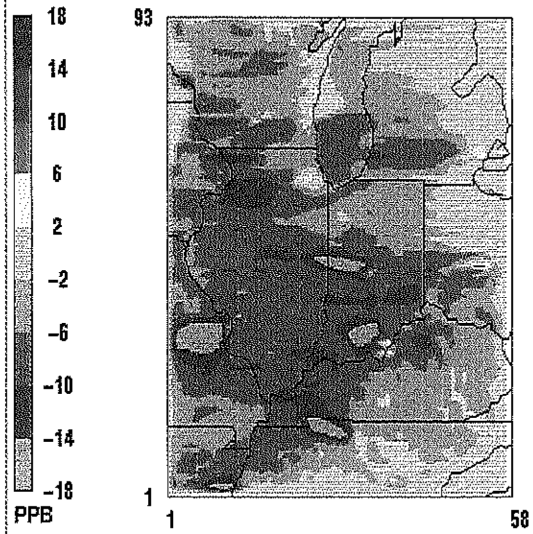


June 20,1995 0:00:00
Min= -17 at (23,58), Max= 14 at (55,45)

22a (cont.)

Max 1-Hour Ozone Difference

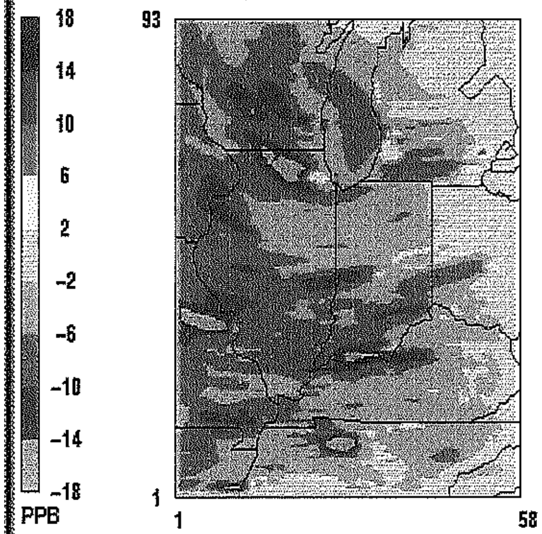
Effect of 50% VOC/NOx Red'n in Grid M
(07sip10-nv50) - (07sip10): Grid M @ 12 km -- TSIP (B8)



June 21,1995 0:00:00
Min= -20 at (8,32), Max= 8 at (53,45)

Max 1-Hour Ozone Difference

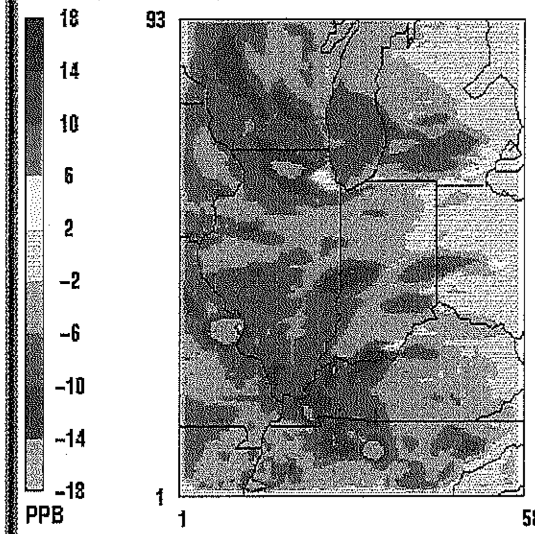
Effect of 50% VOC/NOx Red'n in Grid M
(07sip10-nv50) - (07sip10): Grid M @ 12 km -- TSIP (B8)



June 22,1995 0:00:00
Min= -20 at (6,34), Max= 8 at (53,67)

Max 1-Hour Ozone Difference

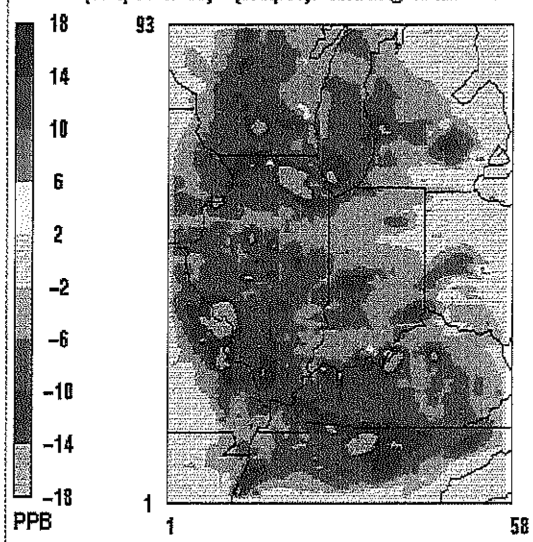
Effect of 50% VOC/NOx Red'n in Grid M
(07sip10-nv50) - (07sip10): Grid M @ 12 km -- TSIP (B8)



June 23,1995 0:00:00
Min= -30 at (13,2), Max= 7 at (37,29)

Max 1-Hour Ozone Difference

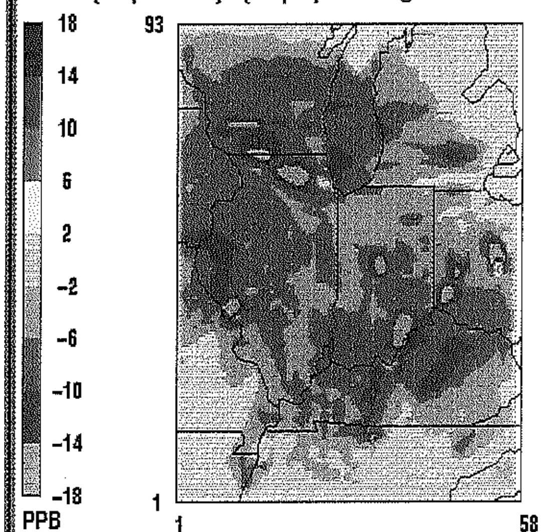
Effect of 50% VOC/NOx Red'n in Grid M
(07sip10-nv50) - (07sip10): Grid M @ 12 km -- TSIP (B8)



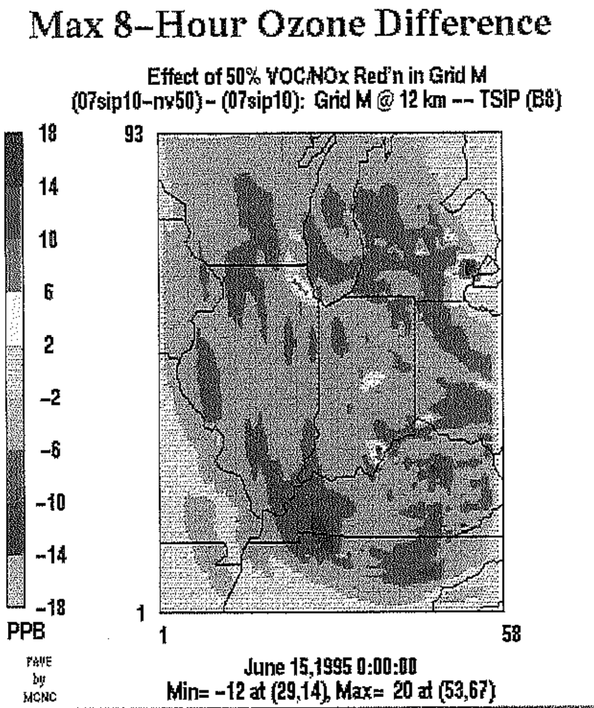
June 24,1995 0:00:00
Min= -30 at (11,35), Max= 13 at (38,29)

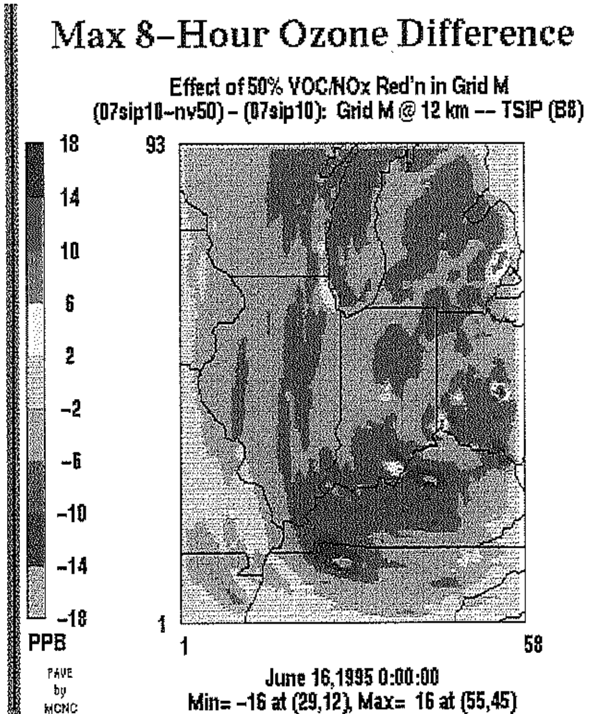
Max 1-Hour Ozone Difference

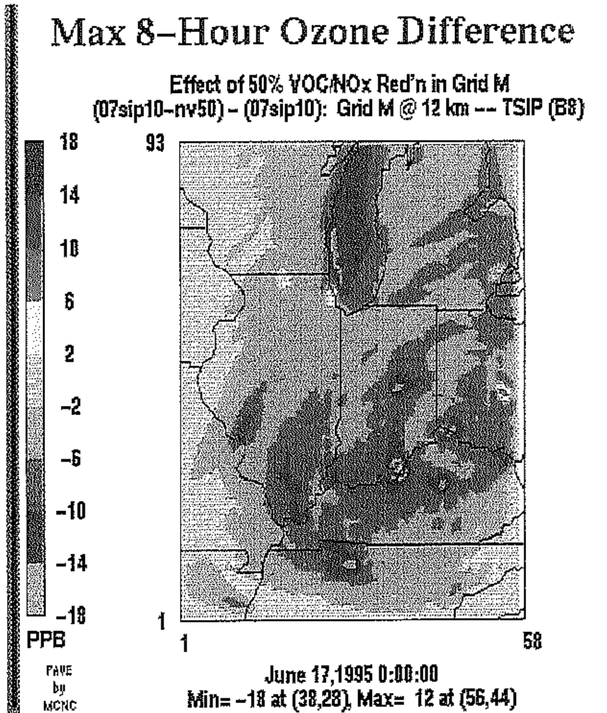
Effect of 50% VOC/NOx Red'n in Grid M
(07sip10-nv50) - (07sip10): Grid M @ 12 km -- TSIP (B8)

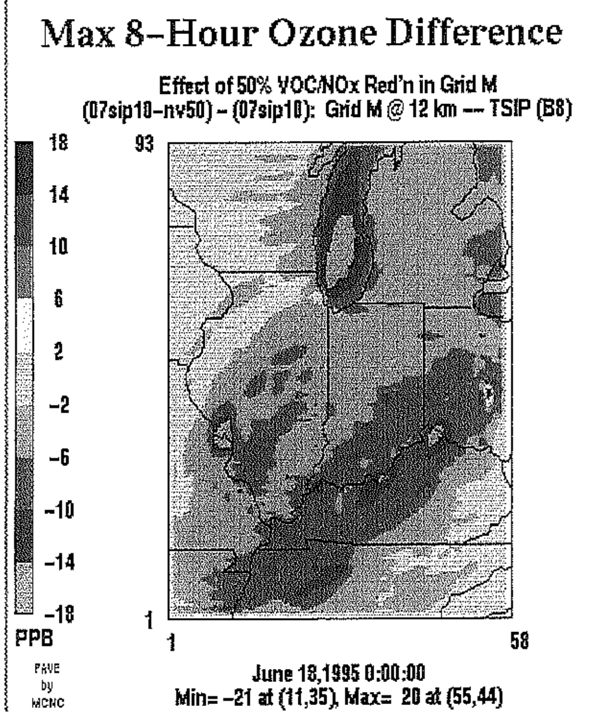


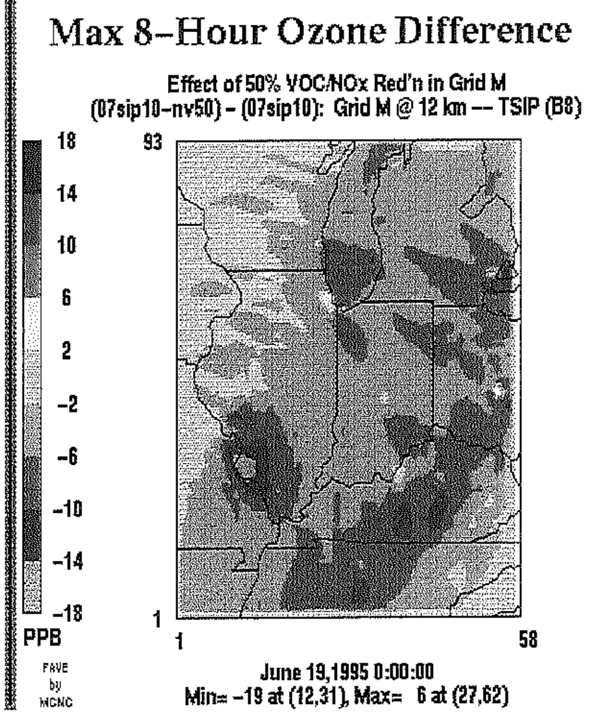
June 25,1995 0:00:00
Min= -21 at (39,33), Max= 9 at (55,45)

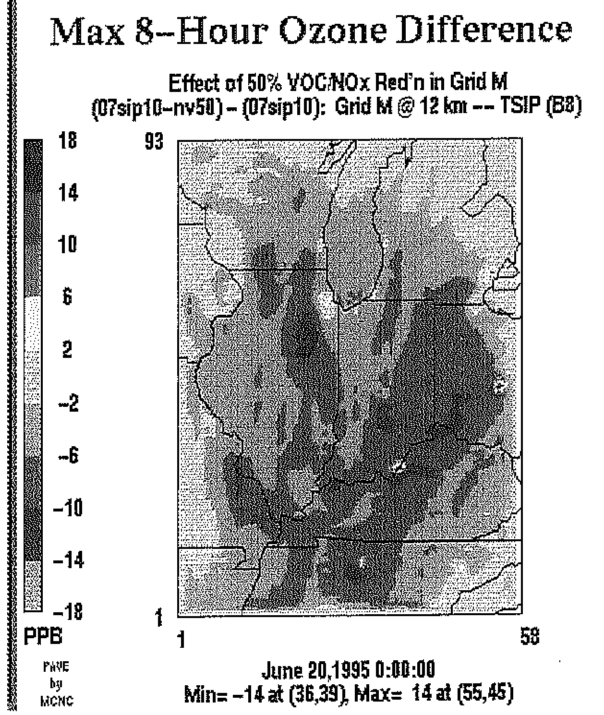

Max 8–Hour Ozone Difference
Effect of 50% VOC/NOx Red'n in Grid M
(07sip10–nv50) – (07sip10): Grid M @ 12 km –– TSIP (B8)
18
14
10
6
2
–2
–6
–10
–14
–18
PPB
93
1
1
58
PAVE by MCNC
June 15,1995 0:00:00
Min= –12 at (29,14), Max= 20 at (53,67)


Max 8–Hour Ozone Difference
Effect of 50% VOC/NOx Red'n in Grid M
(07sip10–nv50) – (07sip10): Grid M @ 12 km –– TSIP (B8)
18
14
10
6
2
–2
–6
–10
–14
–18
PPB
93
1
1
58
PAVE by MCNC
June 16,1995 0:00:00
Min= –16 at (29,12), Max= 16 at (55,45)


Max 8–Hour Ozone Difference
Effect of 50% VOC/NOx Red'n in Grid M
(07sip10–nv50) – (07sip10): Grid M @ 12 km –– TSIP (B8)
18
14
10
6
2
–2
–6
–10
–14
–18
PPB
93
1
1
58
PAVE by MCNC
June 17,1995 0:00:00
Min= –18 at (38,28), Max= 12 at (56,44)


Max 8–Hour Ozone Difference
Effect of 50% VOC/NOx Red'n in Grid M
(07sip10–nv50) – (07sip10): Grid M @ 12 km –– TSIP (B8)
18
14
10
6
2
–2
–6
–10
–14
–18
PPB
93
1
1
58
PAVE by MCNC
June 18,1995 0:00:00
Min= –21 at (11,35), Max= 20 at (55,44)

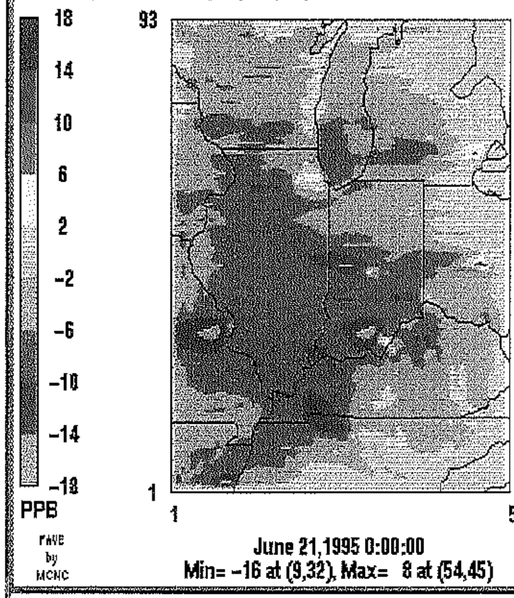

Max 8–Hour Ozone Difference
Effect of 50% VOC/NOx Red'n in Grid M
(07sip10–nv50) – (07sip10): Grid M @ 12 km –– TSIP (B8)
18
14
10
6
2
–2
–6
–10
–14
–18
PPB
93
1
1
58
PAVE by MCNC
June 19,1995 0:00:00
Min= –19 at (12,31), Max= 6 at (27,62)


Max 8–Hour Ozone Difference
Effect of 50% VOC/NOx Red'n in Grid M
(07sip10–nv50) – (07sip10): Grid M @ 12 km –– TSIP (B8)
18
14
10
6
2
–2
–6
–10
–14
–18
PPB
93
1
1
58
PAVE by MCNC
June 20,1995 0:00:00
Min= –14 at (36,39), Max= 14 at (55,45)

22b (cont.)

Max 8–Hour Ozone Difference

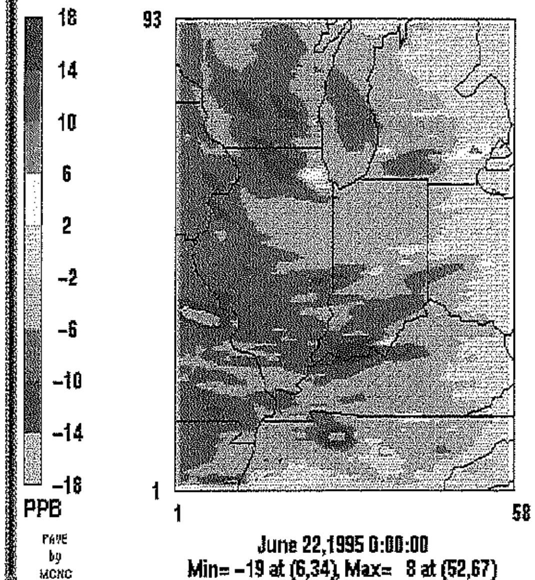
Effect of 50% VOC/NOx Red'n in Grid M
(07sip10–nv50) – (07sip10): Grid M @ 12 km –– TSIP (B8)



June 21,1995 0:00:00
Min= -16 at (9,32), Max= 8 at (54,45)

Max 8–Hour Ozone Difference

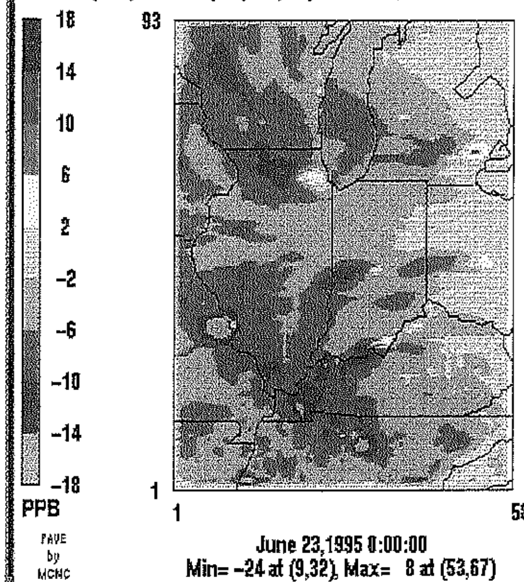
Effect of 50% VOC/NOx Red'n in Grid M
(07sip10–nv50) – (07sip10): Grid M @ 12 km –– TSIP (B8)



June 22,1995 0:00:00
Min= -19 at (6,34), Max= 8 at (52,67)

Max 8–Hour Ozone Difference

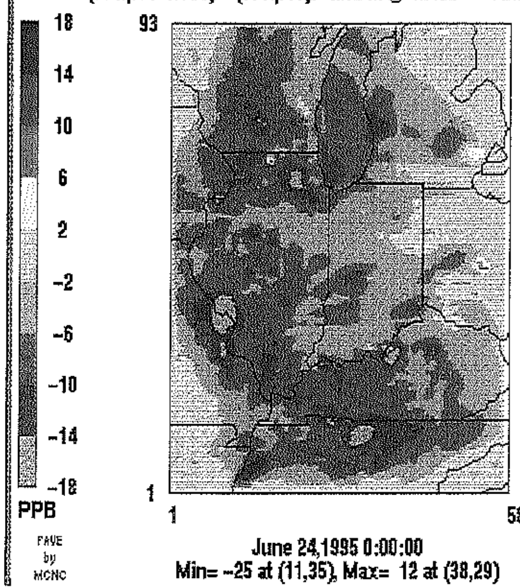
Effect of 50% VOC/NOx Red'n in Grid M
(07sip10–nv50) – (07sip10): Grid M @ 12 km –– TSIP (B8)



June 23,1995 0:00:00
Min= -24 at (9,32), Max= 8 at (53,67)

Max 8–Hour Ozone Difference

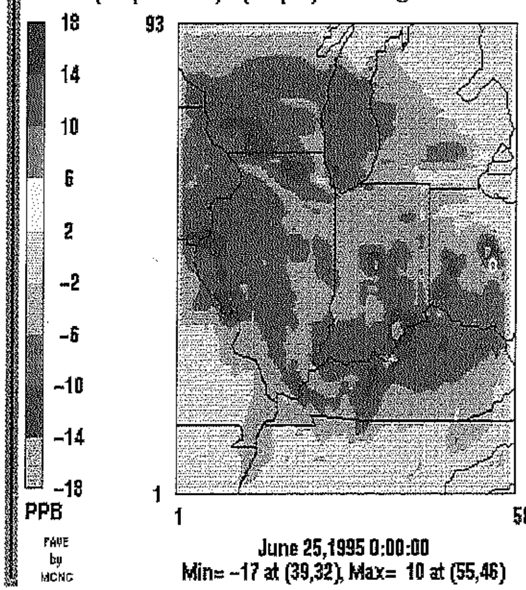
Effect of 50% VOC/NOx Red'n in Grid M
(07sip10–nv50) – (07sip10): Grid M @ 12 km –– TSIP (B8)



June 24,1995 0:00:00
Min= -25 at (11,35), Max= 12 at (38,29)

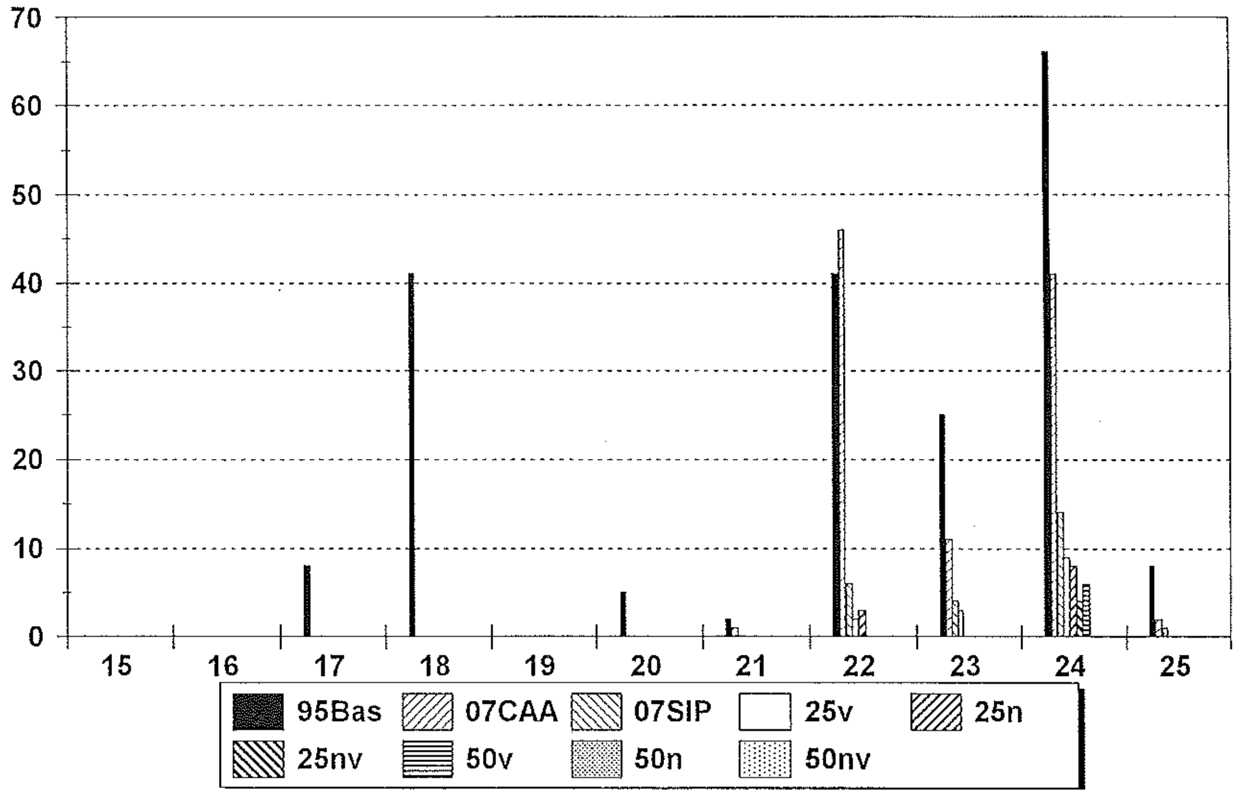
Max 8–Hour Ozone Difference

Effect of 50% VOC/NOx Red'n in Grid M
(07sip10–nv50) – (07sip10): Grid M @ 12 km –– TSIP (B8)

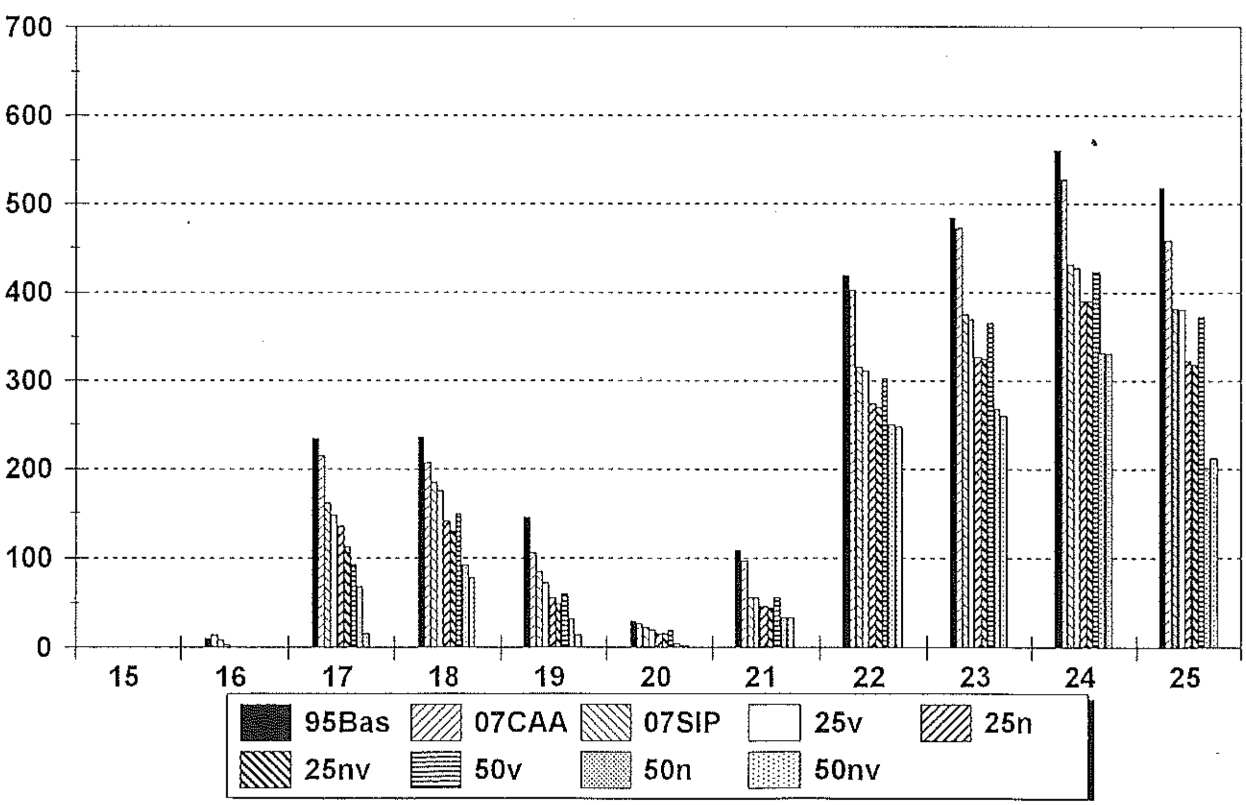


June 25,1995 0:00:00
Min= -17 at (39,32), Max= 10 at (55,46)

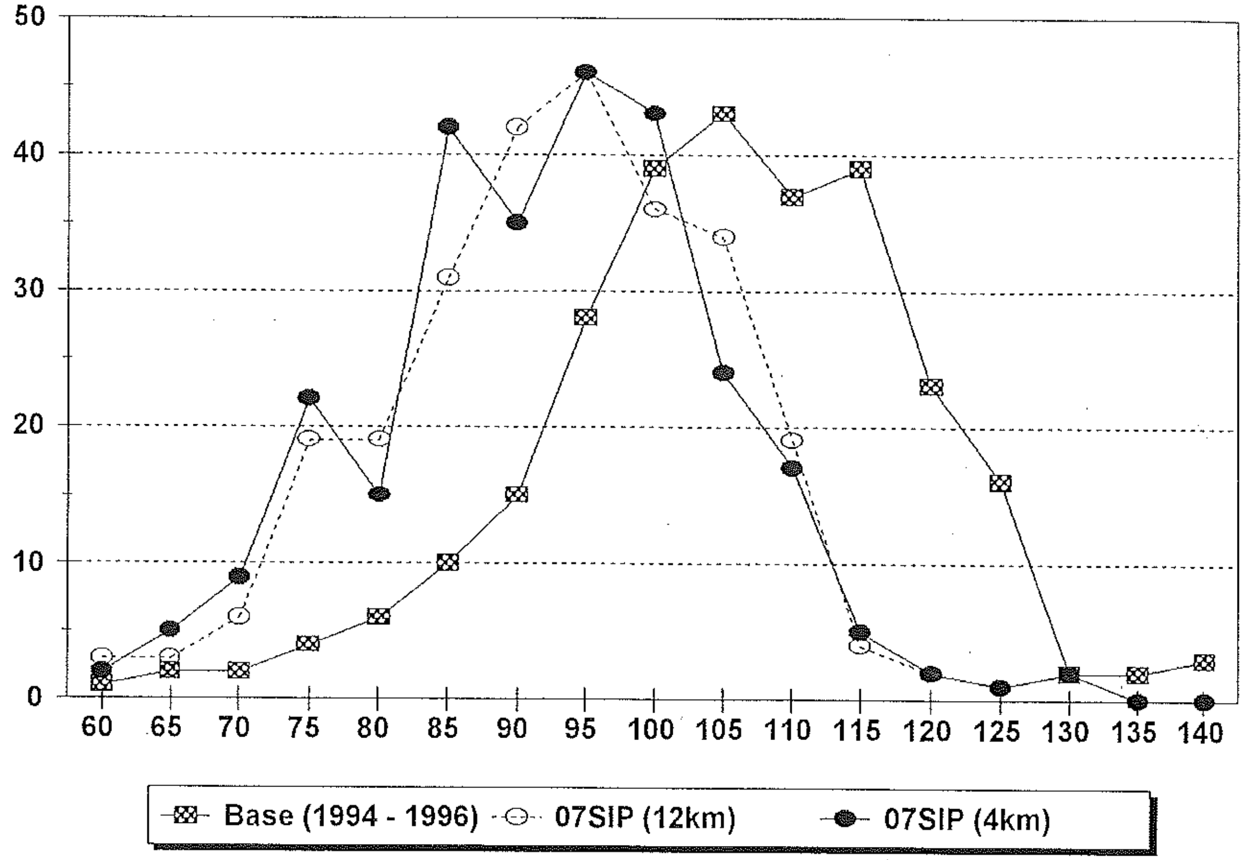
No. Grid Cells > 120 ppb (1-Hour)
Lake Michigan Area



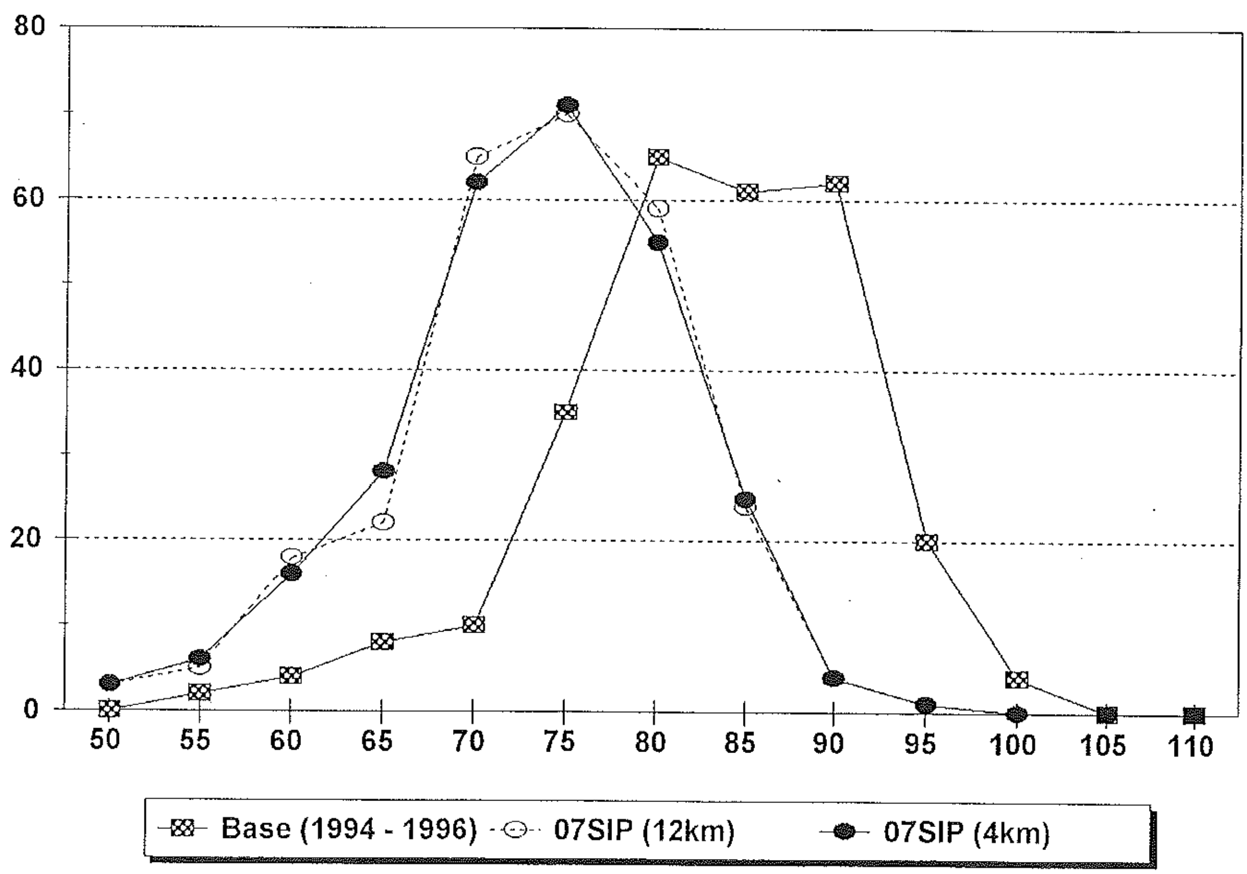
No. Grid Cells > 80 ppb (8-Hour)
Lake Michigan Area

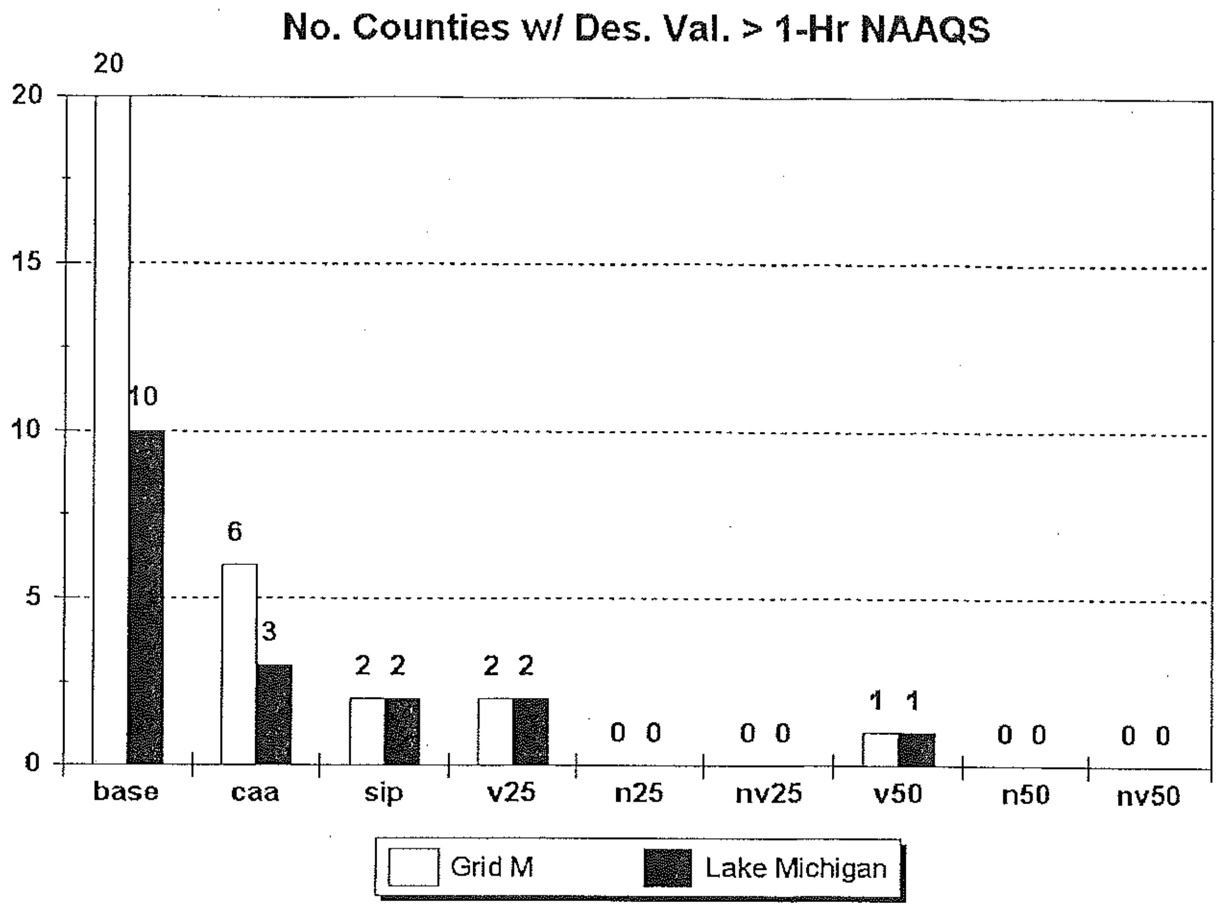


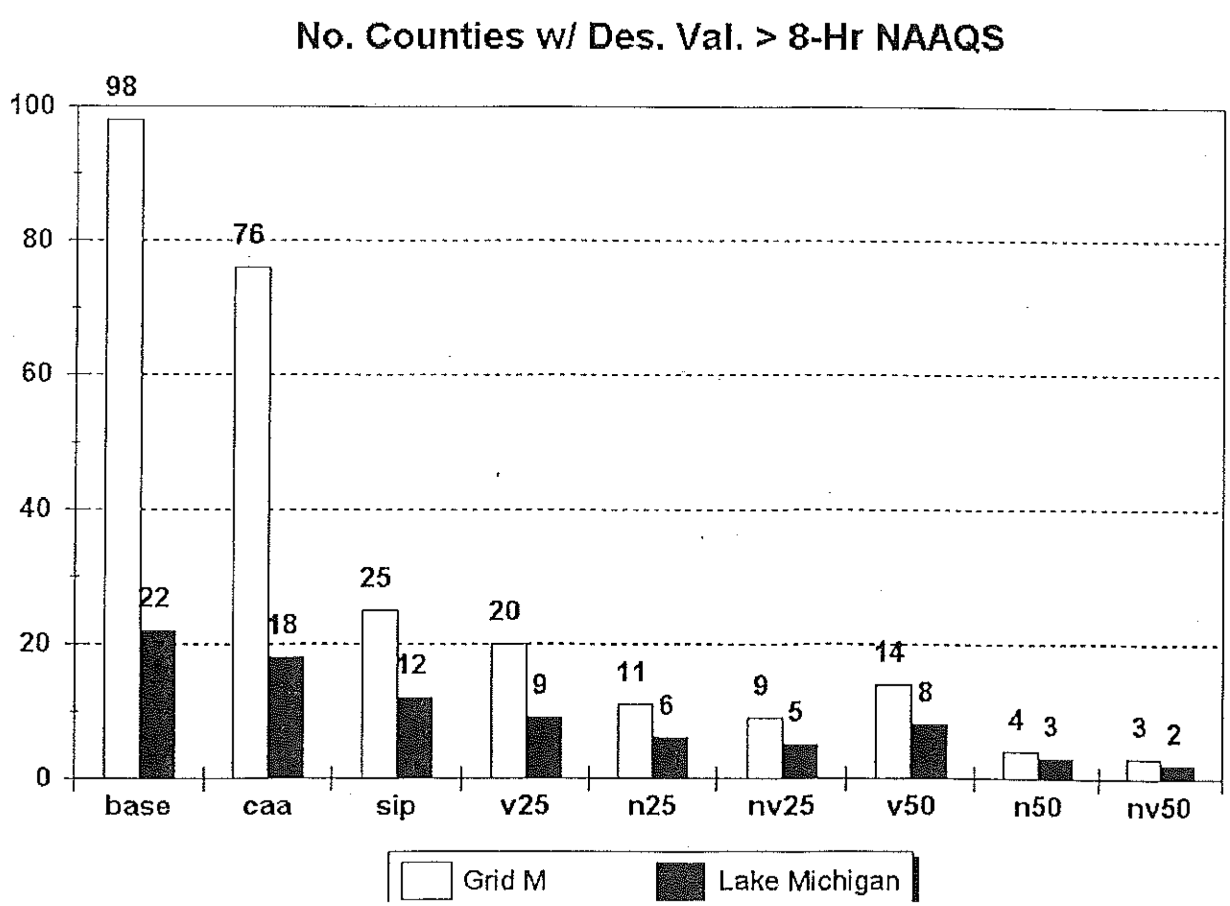
Histogram of 1-Hour Design Values

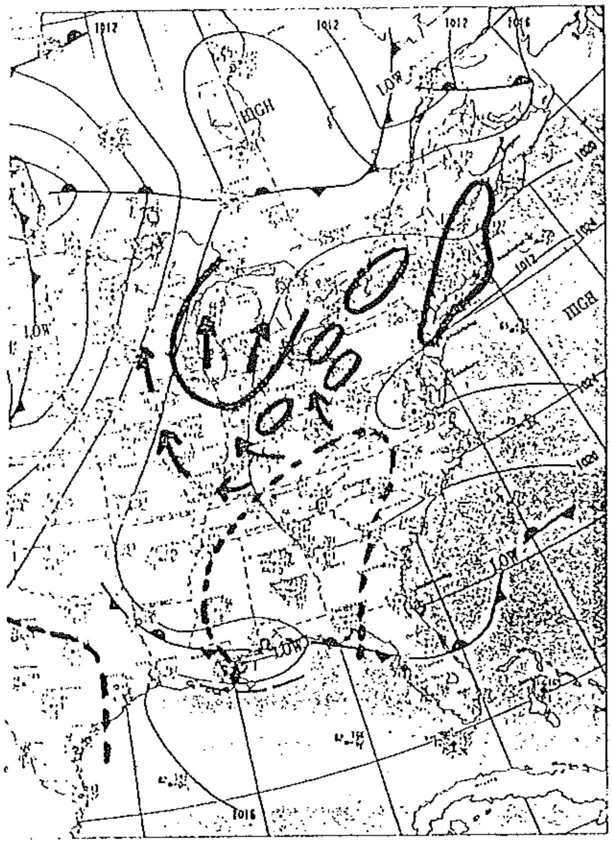


Histogram of 8-Hour Design Values

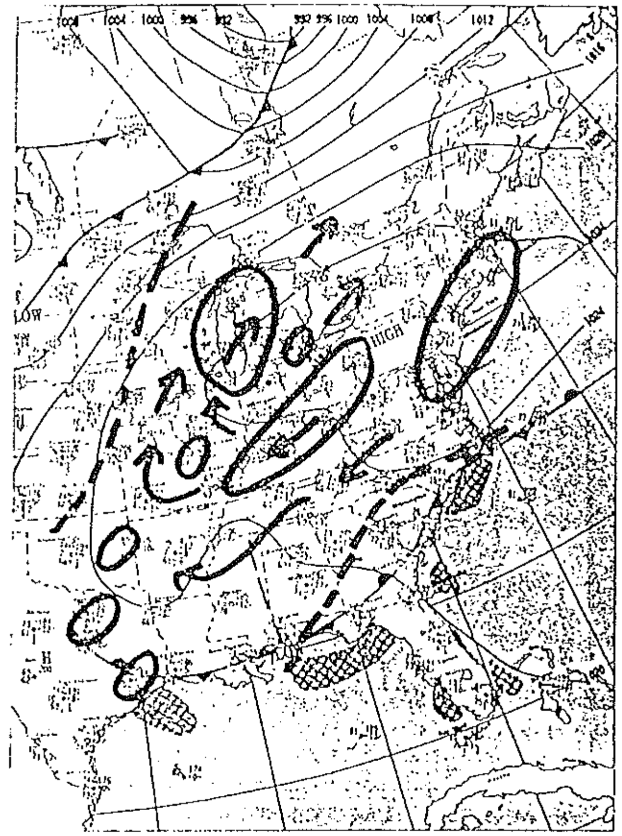



No. Counties w/ Des. Val. > 1-Hr NAAQS
20
15
10
5
0
20
10
6
3
2 2
2 2
0 0
0 0
1 1
0 0
0 0
base
caa
sip
v25
n25
nv25
v50
n50
nv50
Grid M
Lake Michigan

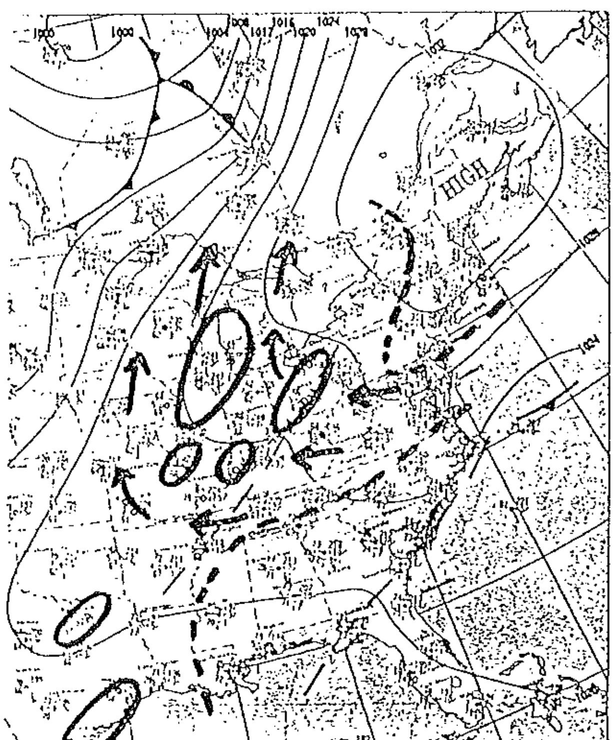

No. Counties w/ Des. Val. > 8-Hr NAAQS
100
80
60
40
20
0
98
22
76
18
25
12
20
9
11
6
9
5
14
8
4
3
3
2
base
caa
sip
v25
n25
nv25
v50
n50
nv50
Grid M
Lake Michigan



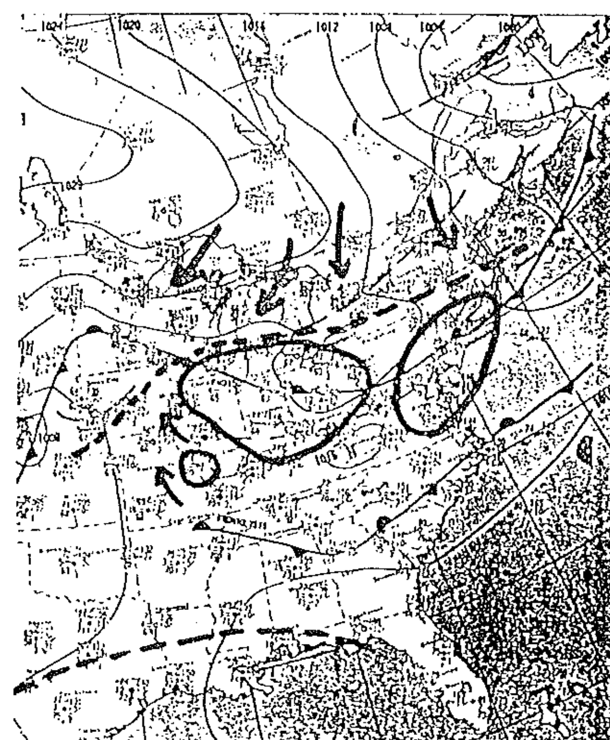
a. June 26, 1991



b. July 16, 1991



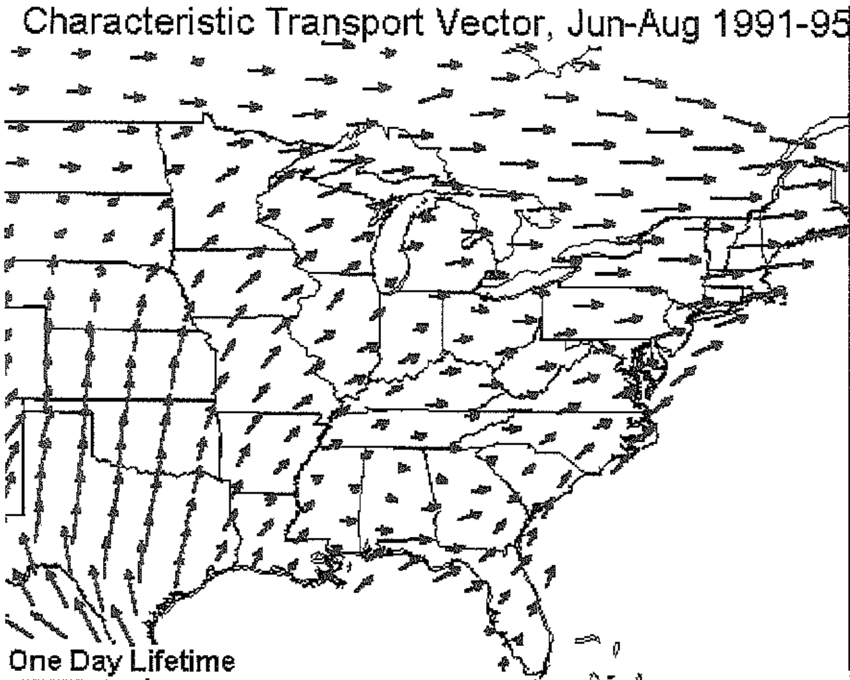
c. August 25, 1991

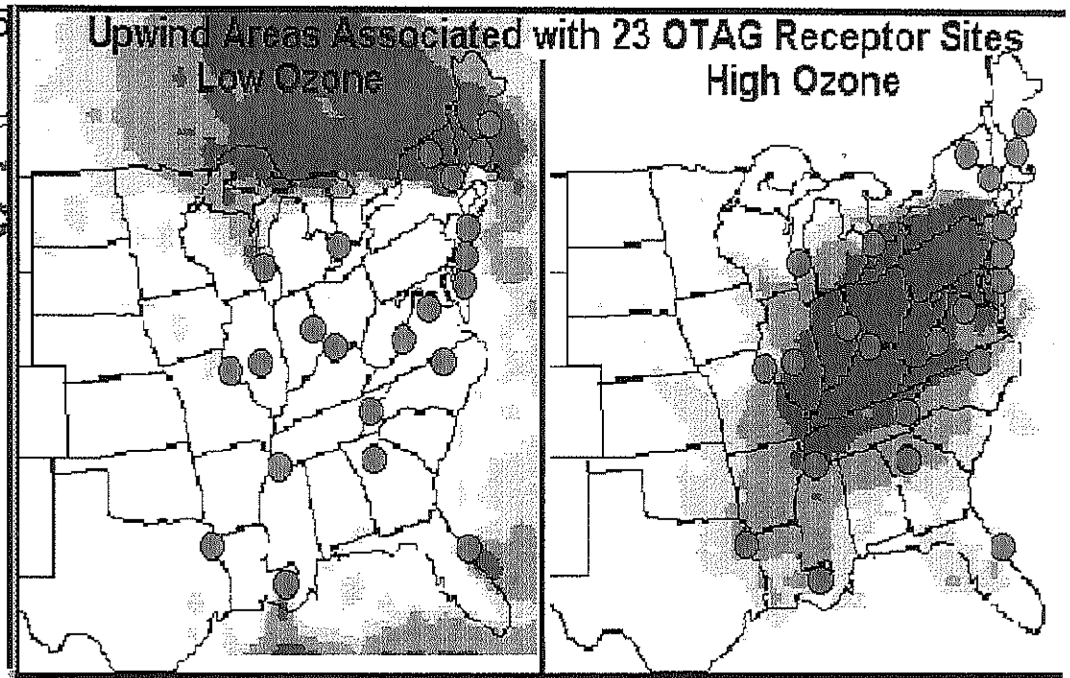


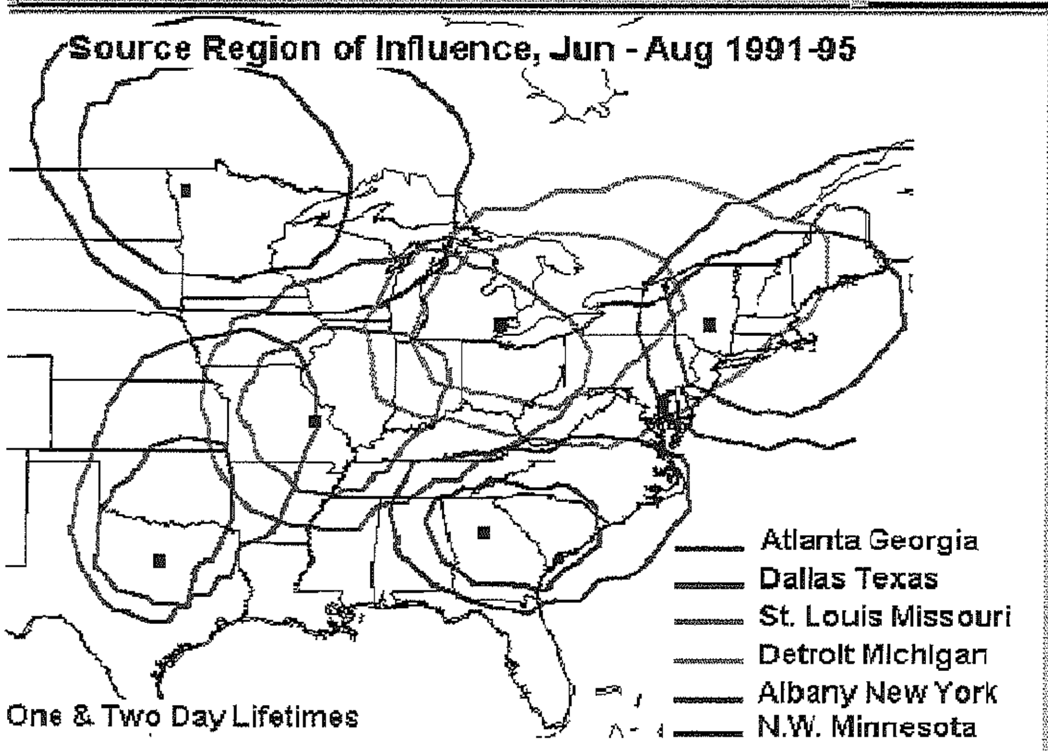
d. June 21, 1991

ozone > 100 ppb

ozone < 50 ppb







Spatial Extent of Several Ozone Clouds in the Eastern United States
(Short Term Daily Maximum Ozone 1985-1994)