Appendix D

Sub-domain modeling Case Studies

Computationally efficient sub-domain models have been constructed that replicate the behavior of a full 3-D model photochemical and that replicate the 3-D model's response to emission events. Multiple sub-domains were considered.

One set of sub-domains (corresponding to the areas shown in Figures 49, 50 and 51) was matched to CAMx simulation FY07i CS03_harCap GOES1 (Future Year 2007, Control Strategy 3 with additional highly reactive VOC reductions, with meteorology modified using GOES data, but not including the mixing height correction, simulation at 4 km horizontal resolution). These sub-domains will be referred to as FY 07i CS03_harcap GOES1 Deer Park 8/25, FY 07 CS03_harcap GOES1 Deer Park 8/30, FY 07 CS03_harcap GOES1 Baytown 8/28 and FY 07 CS03_harcap GOES1 Chocolate Bayou 8/28. Upwind and downwind sub-domains in each of these areas will be denoted by the suffix source and plume, respectively.

Another set of sub-domains (corresponding to the areas shown in Figures 49, 50 and 51) was matched to CAMx simulation FY07i CS03_harCap GOES1 (1 km) (Future Year 2007, Control Strategy 3 with additional highly reactive VOC reductions, with meteorology modified using GOES data, but not including the mixing height correction, simulation at 1 km horizontal resolution). These sub-domains will be referred to as FY 07i CS03_harcap GOES1 1km Deer Park 8/25, FY 07 CS03_harcap GOES1 1km Deer Park 8/30, and FY 07 CS03_harcap GOES1 1km Baytown 8/28. Upwind and downwind sub-domains in each of these areas will be denoted by the suffix source and plume, respectively.

A third set of sub-domains (corresponding to the areas shown in Figures 49, 50 and 51) was matched to CAMx simulation FY07i CS03_harCap GOES2 (Future Year 2007, Control Strategy 3 with additional highly reactive VOC reductions, with meteorology modified using GOES data, including the mixing height correction, simulation at 4 km horizontal resolution). These sub-domains will be referred to as FY 07i CS03_harcap GOES2 Deer Park 8/25, and FY 07 CS03_harcap GOES2 Deer Park 8/30. Upwind and downwind sub-domains in each of these areas will be denoted by the suffix source and plume, respectively. This is the set of sub-domains most consistent with the attainment demonstration.

A fourth set of sub-domains (corresponding to the areas shown in Figures 49, 50 and 51) was matched to CAMx simulation FY07i CS03_harCap GOES2 (1 km) (Future Year 2007, Control Strategy 3 with additional highly reactive VOC reductions, with meteorology modified using GOES data, including the mixing height correction, simulation at 1 km horizontal resolution). These sub-domains will be referred to as FY 07i CS03_harcap GOES2 1km Deer Park 8/25, and FY 07 CS03_harcap GOES2 1km Deer Park 8/30. Upwind and downwind sub-domains in each of these areas will be denoted by the suffix source and plume, respectively.

A fifth set of sub-domains was matched to CAMx simulation FY 07d CS03 (Future Year 2007, Control Strategy 3, with meteorology modified using GOES data, but not including

the mixing height correction). These sub-domains will be referred to as FY 07d CS03 GOES1 Deer Park 8/25, FY 07d CS03 GOES1 Deer Park 8/30, and FY 07d CS03 GOES1 Chocolate Bayou 8/28. Upwind and downwind sub-domains in each of these areas will be denoted by the suffix source and plume, respectively. These simulations have been done at 4 km resolution.

A sixth set of sub-domains was matched to CAMx simulation FY 07d CS04 (Future Year 2007, Control Strategy 4, with meteorology modified using GOES data, but not including the mixing height correction). These sub-domains will be referred to as FY 07d CS04 GOES1 Deer Park 8/25, FY 07d CS04 GOES1 Baytown 8/28, and FYd 07 CS04 GOES1 GOES1 Deer Park 8/30. Upwind and downwind sub-domains in each of these areas will be denoted by the suffix source and plume, respectively. These simulations have been done at 1 km resolution.

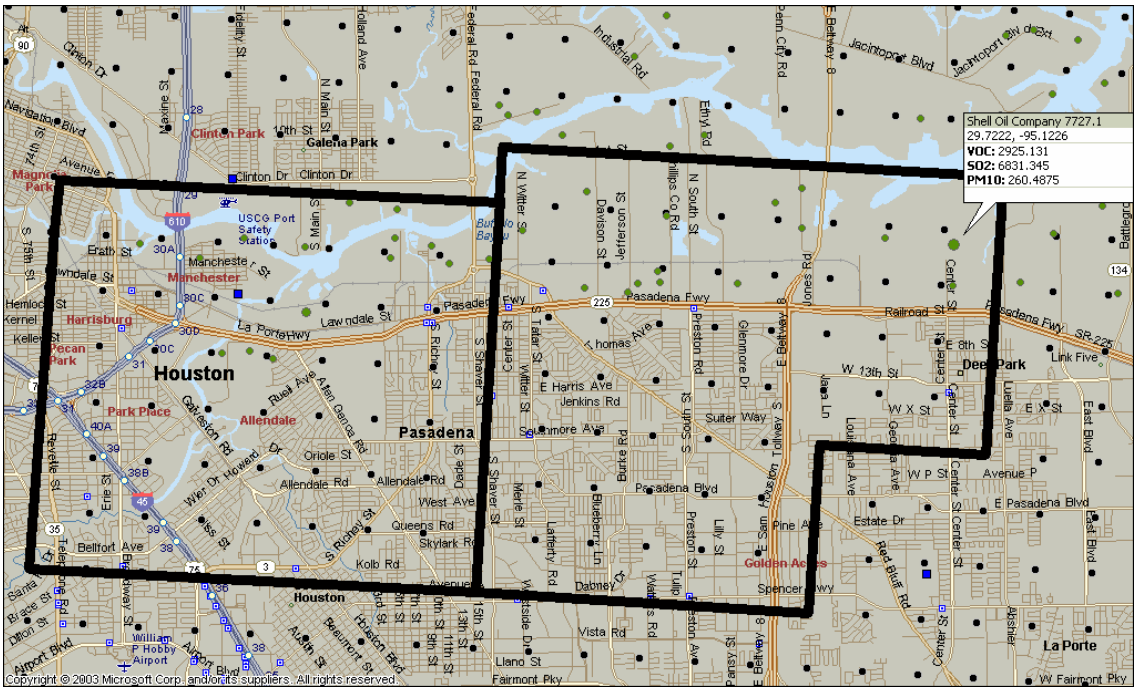
For each set of sub-domain analyses, the following information is provided:

- Map of sub-domain
- Process analysis data from the full 3-D model and the base case sub-domain model
- Response of the sub-domain model to added emissions

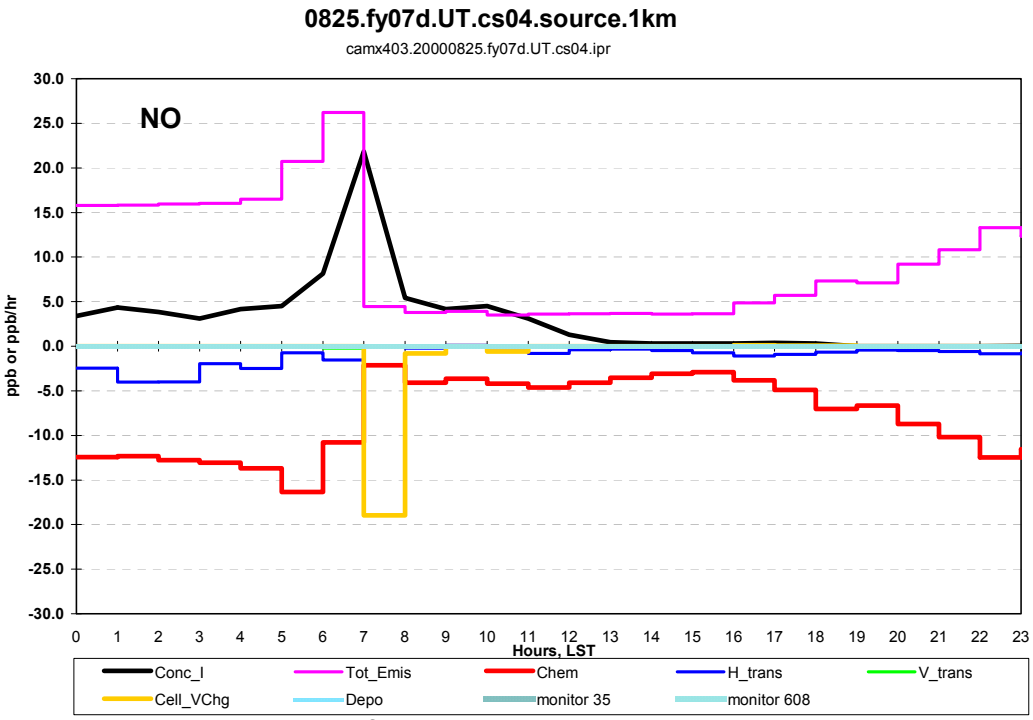
Results for fy07d.cs04.goes1 (1km resolution) and fy07d.cs03.goes1 (4km resolution)

8/25 Deer Park (fy07d.cs04.1km.goes1)
8/28 Baytown (fy07d.cs04.1km.goes1)
8/28 Chocolate Bayou (fy07d.cs03.4km.goes1)
8/30 Deer Park (fy07d.cs04.1km.goes1)

FY 07d CS04 Deer Park 8/25



8-25_00 Process Analysis Box outlined in black. Black Dots represent lower left hand corner of 1 km grid cells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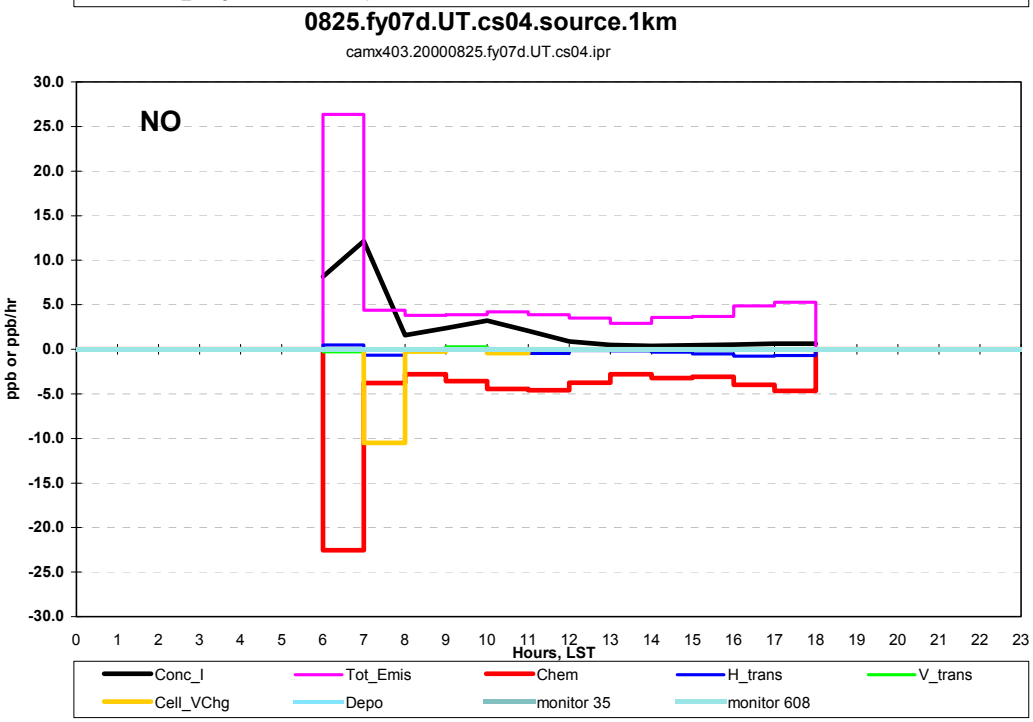
Hours, LST
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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Chem
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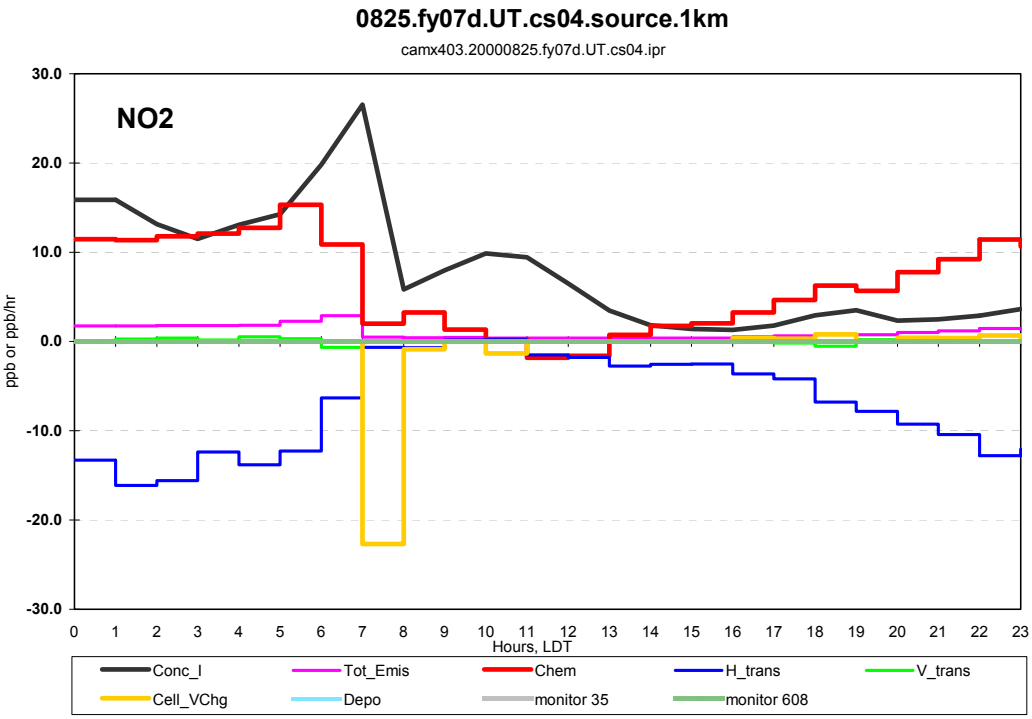
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-10.0
-20.0
-30.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Hours, LDT
Conc_I
Tot_Emis
Chem
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V_trans
Cell_VChg
Depo
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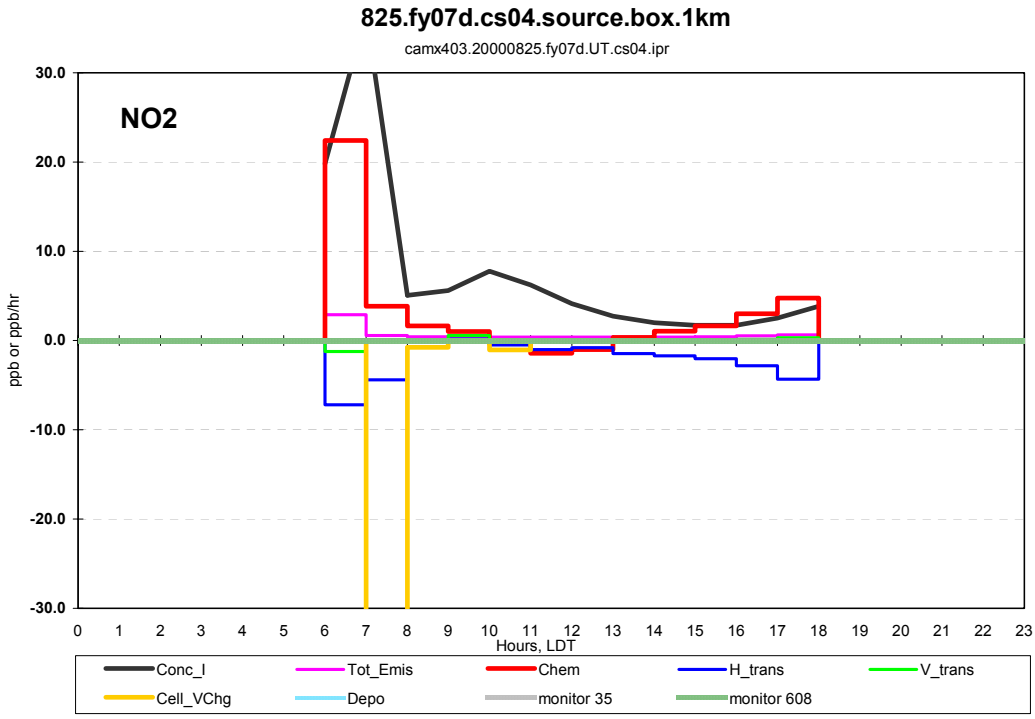
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Hours, LDT
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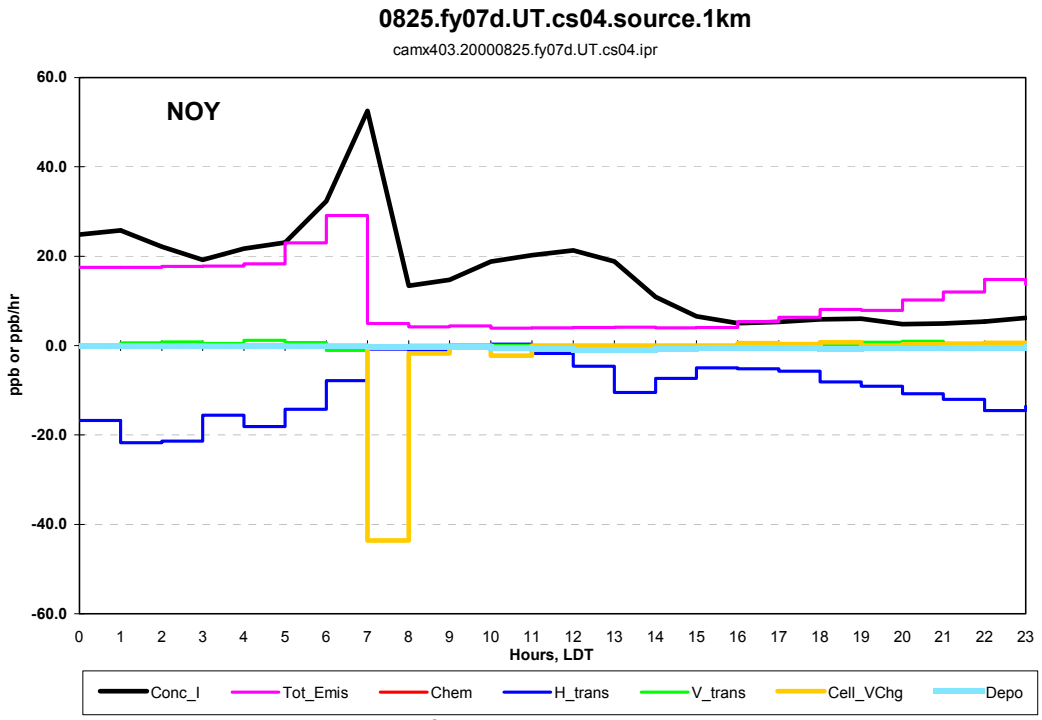
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0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Hours, LDT
Conc_I
Tot_Emis
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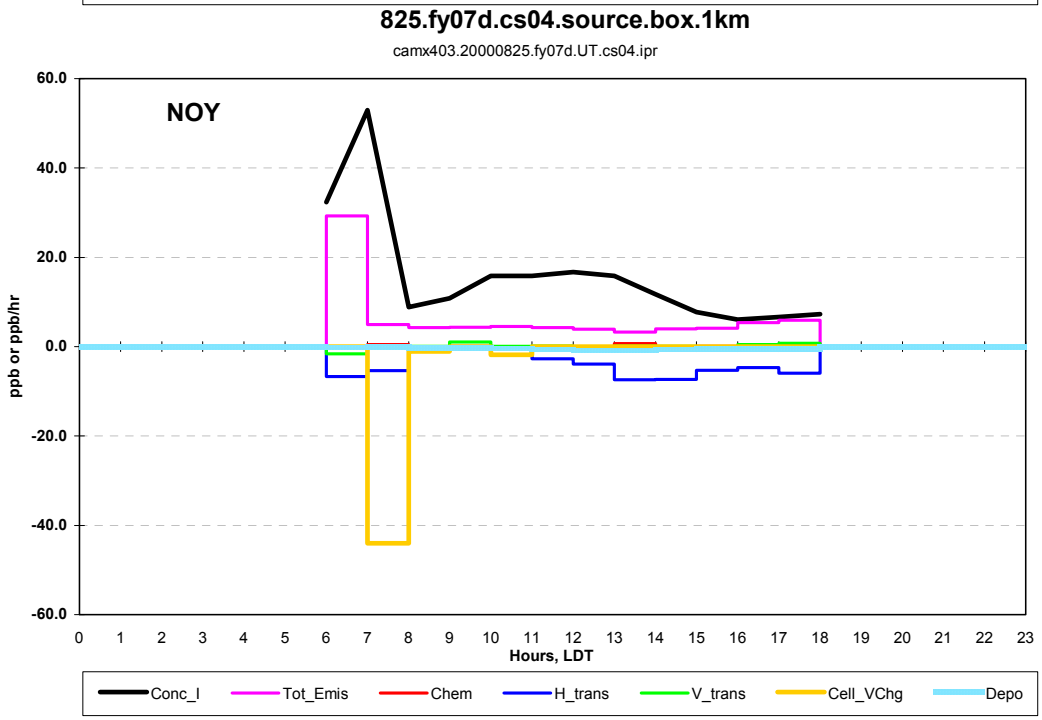
V_trans
Cell_VChg
Depo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Hours, LDT
Conc_I
Tot_Emis
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Cell_VChg
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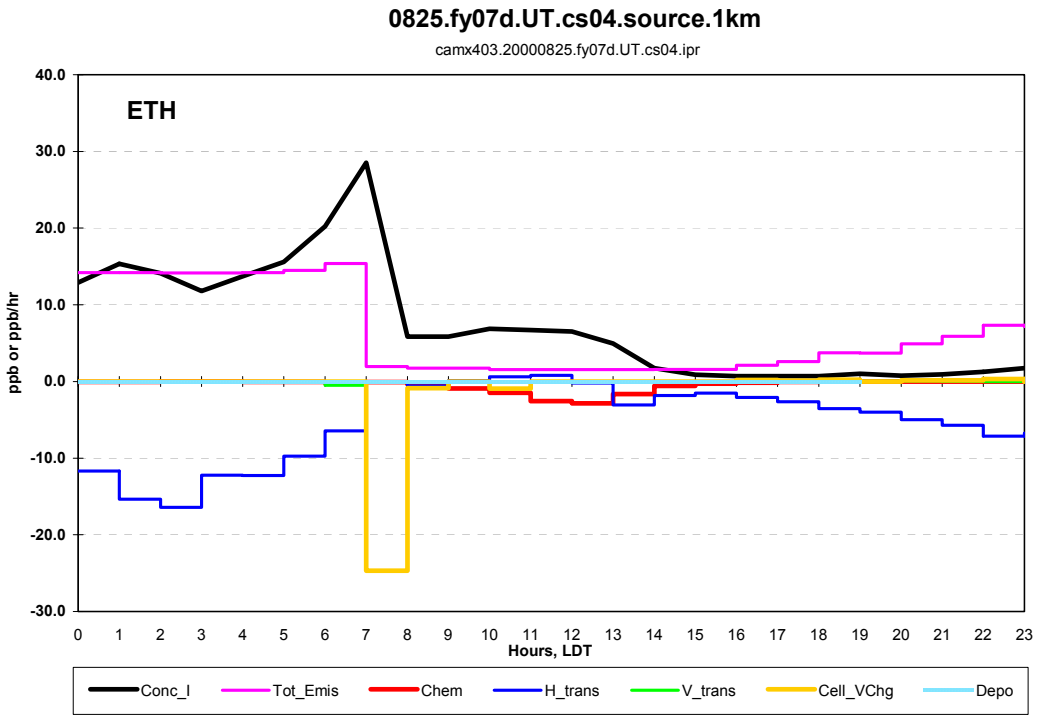
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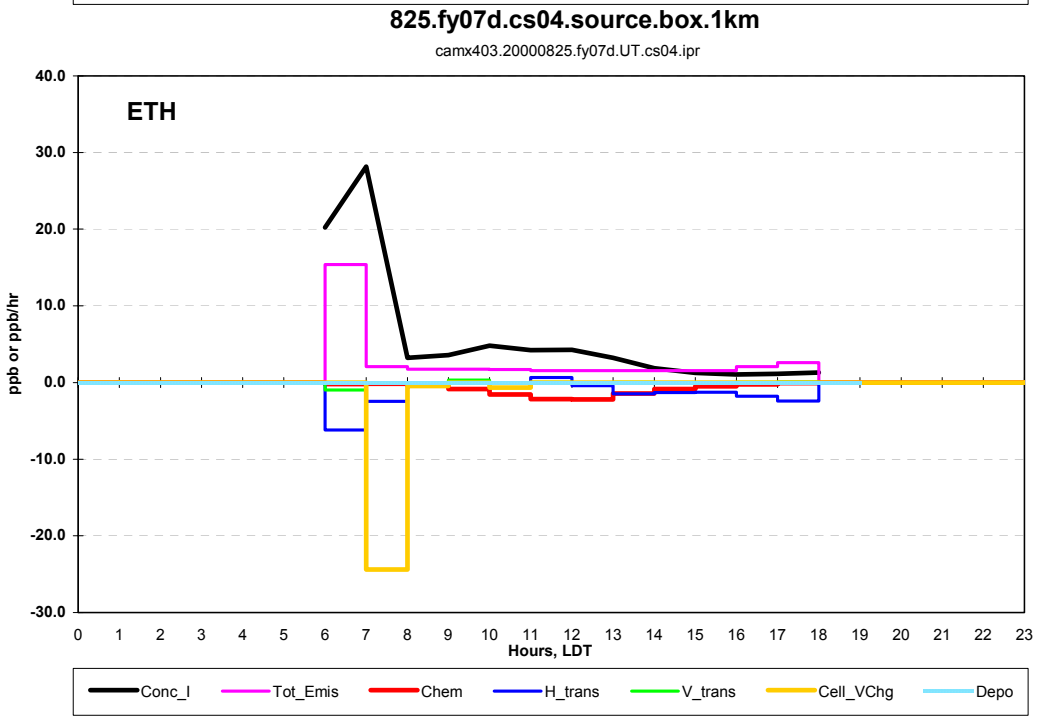
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Hours, LDT
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H_trans
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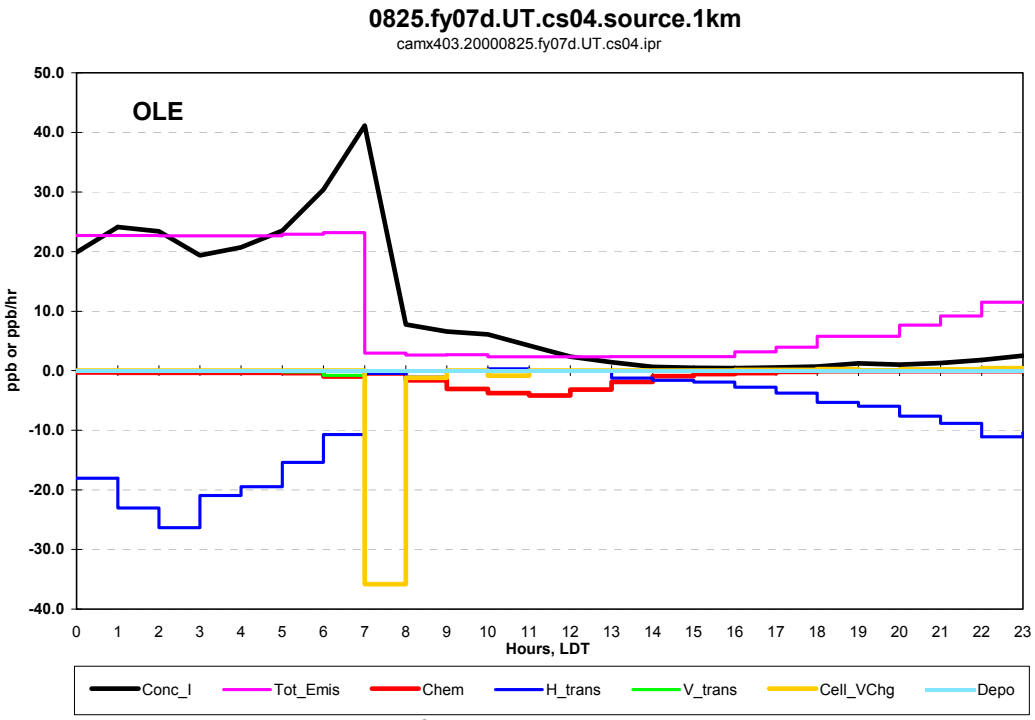
Cell_VChg
Depo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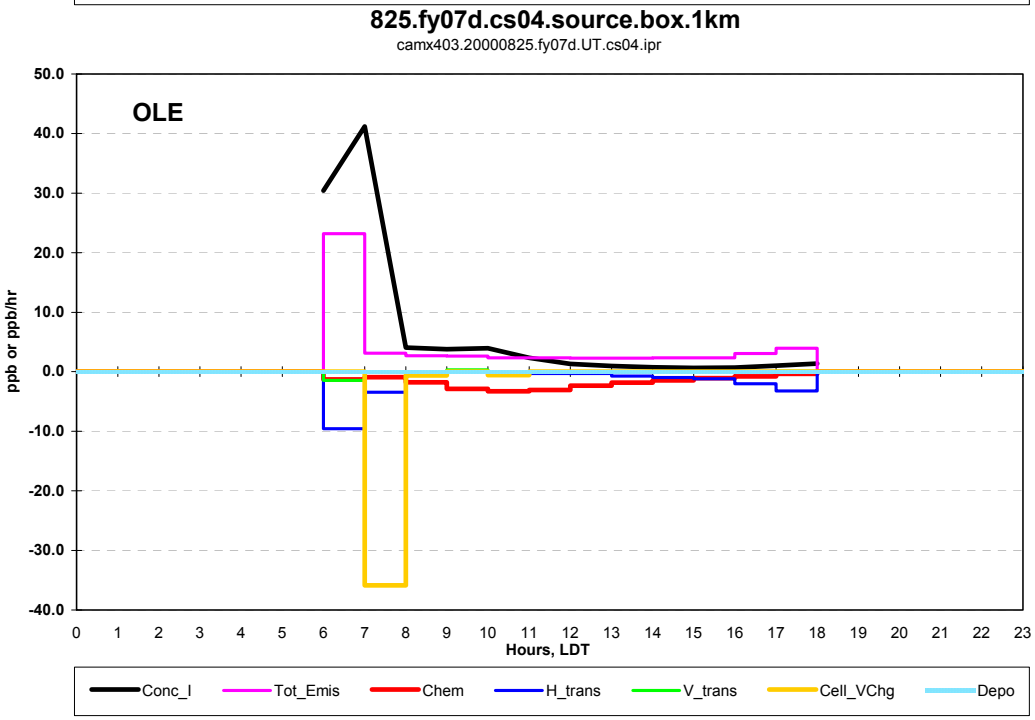
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Cell_VChg
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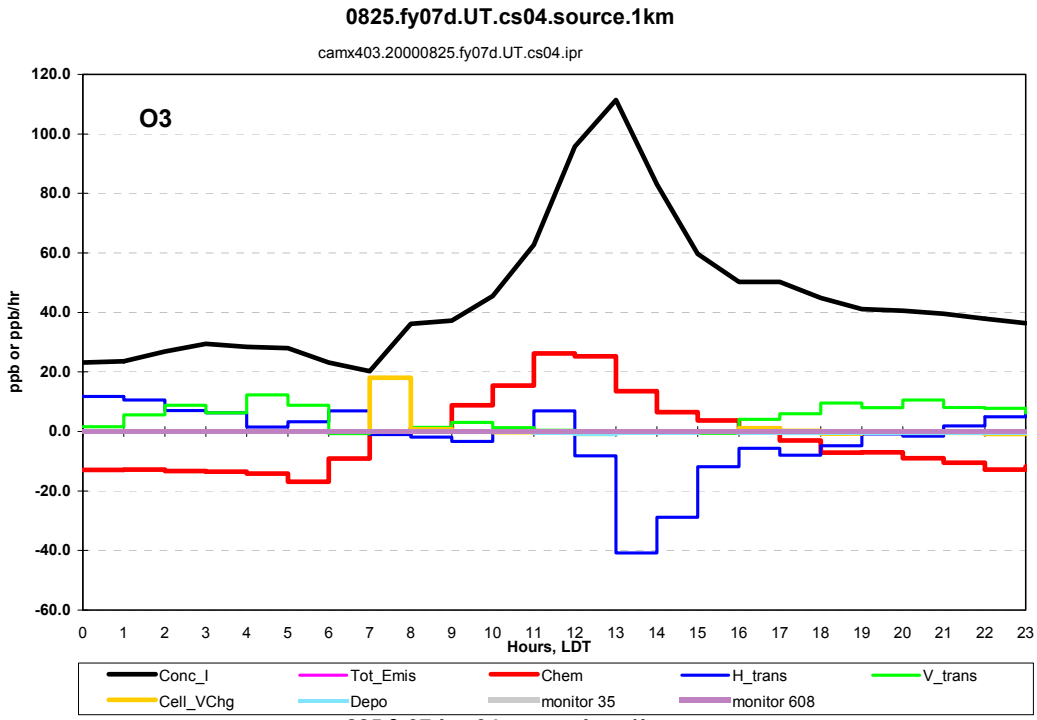
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Tot_Emis
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Cell_VChg
Depo
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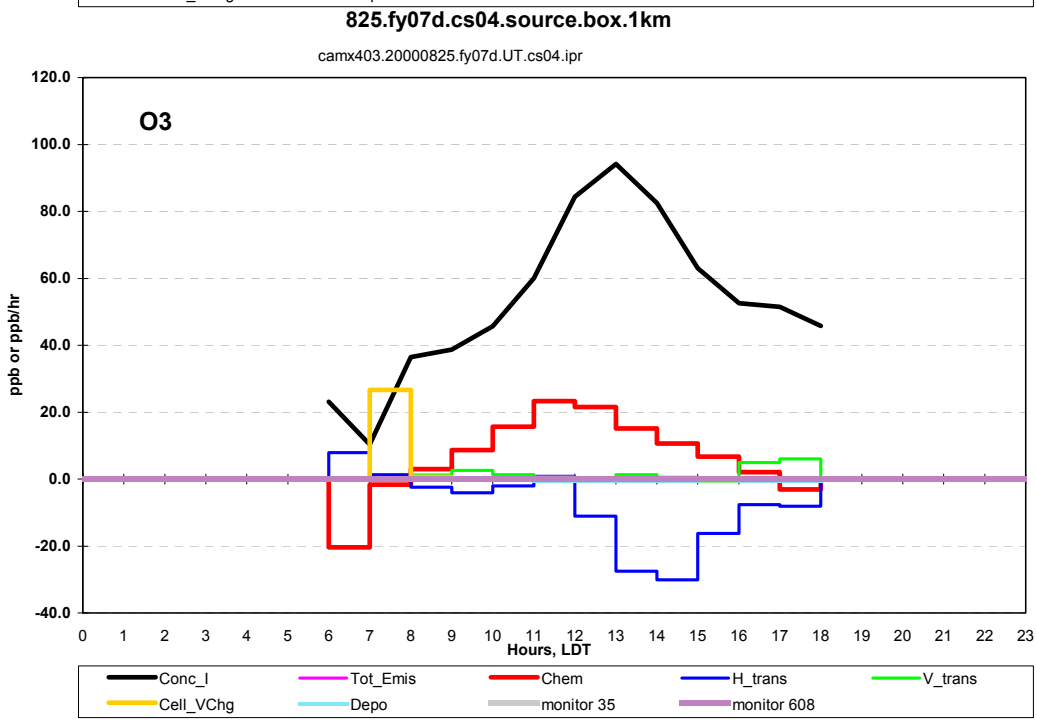
monitor 608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O3
ppb or ppb/hr
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40.0
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-20.0
-40.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Hours, LDT
Conc_I
Tot_Emis
Chem
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Depo
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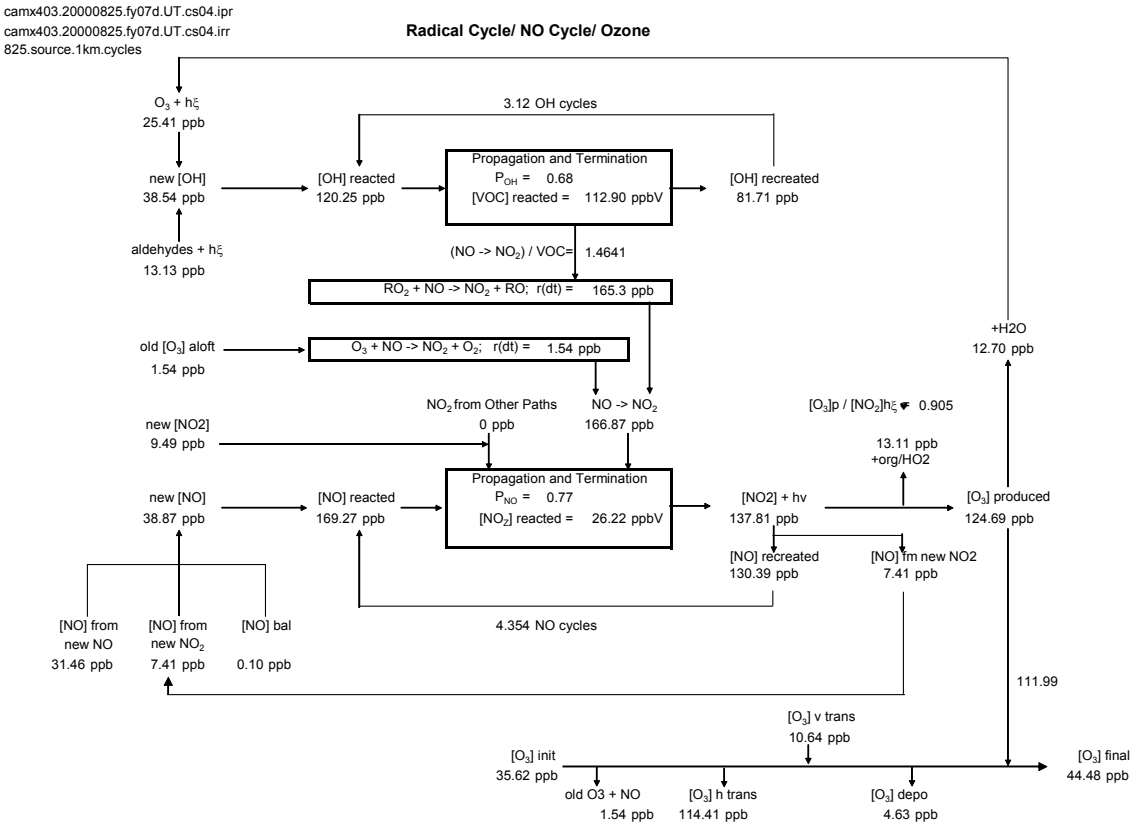
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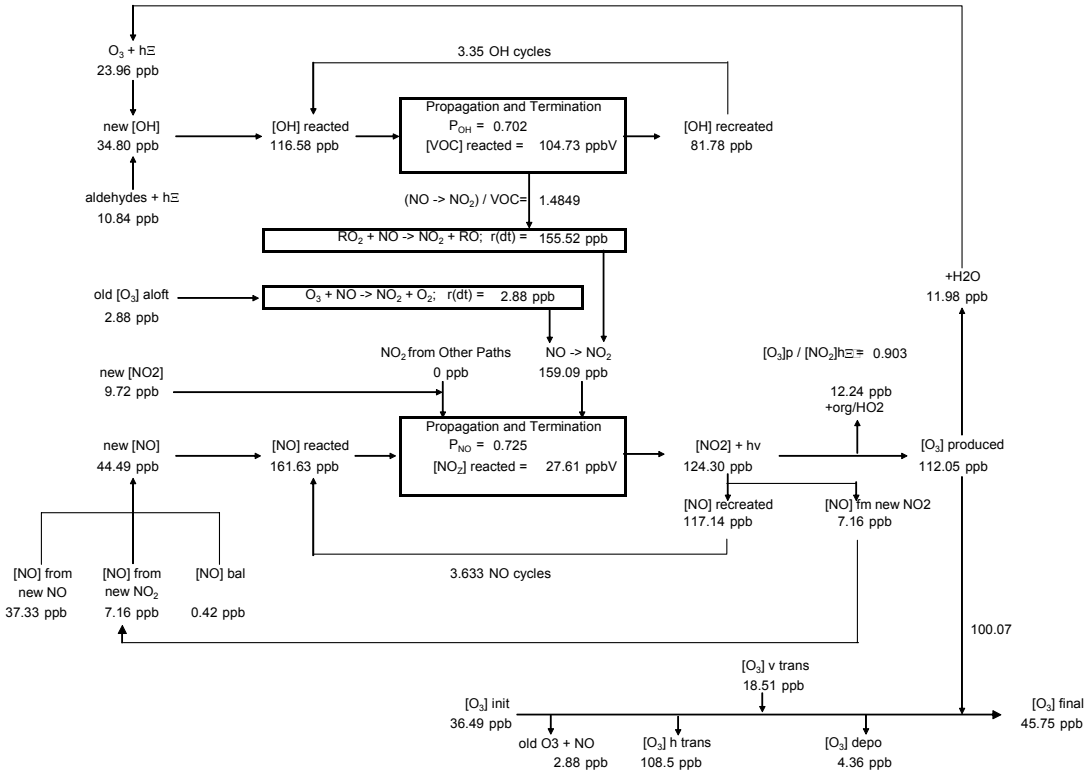
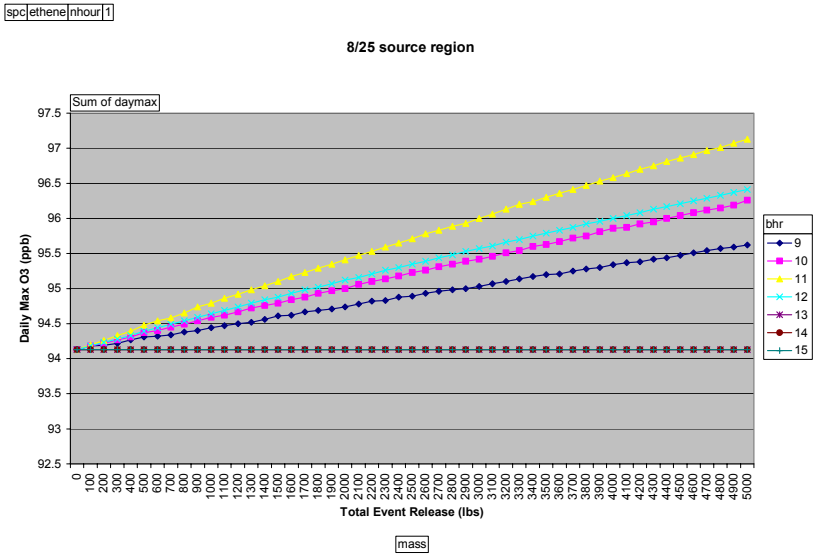
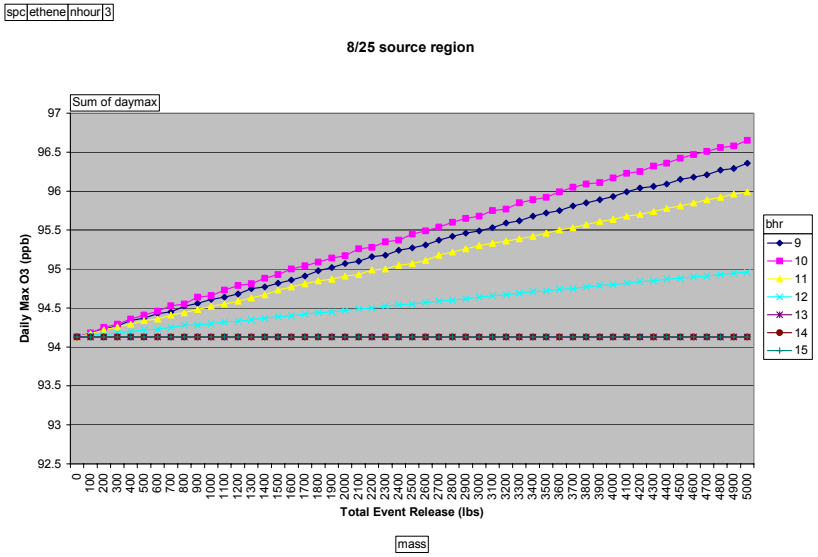
camx403.20000825.fy07d.UT.cs04.irr
825.source.1km.cycles
Radical Cycle/ NO Cycle/ Ozone
O3 + hξ
25.41 ppb
3.12 OH cycles
new [OH]
38.54 ppb
[OH] reacted
120.25 ppb
Propagation and Termination
POH = 0.68
[VOC] reacted = 112.90 ppbV
[OH] recreated
81.71 ppb
aldehydes + hξ
13.13 ppb
(NO -> NO2) / VOC= 1.4641
RO2 + NO -> NO2 + RO; r(dt) = 165.3 ppb
old [O3] aloft
1.54 ppb
O3 + NO -> NO2 + O2; r(dt) = 1.54 ppb
+H2O
12.70 ppb
NO2 from Other Paths
0 ppb
NO -> NO2
166.87 ppb
[O3]p / [NO2]hξ = 0.905
new [NO2]
9.49 ppb
13.11 ppb
+org/HO2
new [NO]
38.87 ppb
[NO] reacted
169.27 ppb
Propagation and Termination
PNO = 0.77
[NO2] reacted = 26.22 ppbV
[NO2] + hv
137.81 ppb
[O3] produced
124.69 ppb
[NO] recreated
130.39 ppb
[NO] fm new NO2
7.41 ppb
[NO] from
new NO
31.46 ppb
[NO] from
new NO2
7.41 ppb
[NO] bal
0.10 ppb
4.354 NO cycles
111.99
[O3] v trans
10.64 ppb
[O3] init
35.62 ppb
[O3] final
44.48 ppb
old O3 + NO
1.54 ppb
[O3] h trans
114.41 ppb
[O3] depo
4.63 ppb

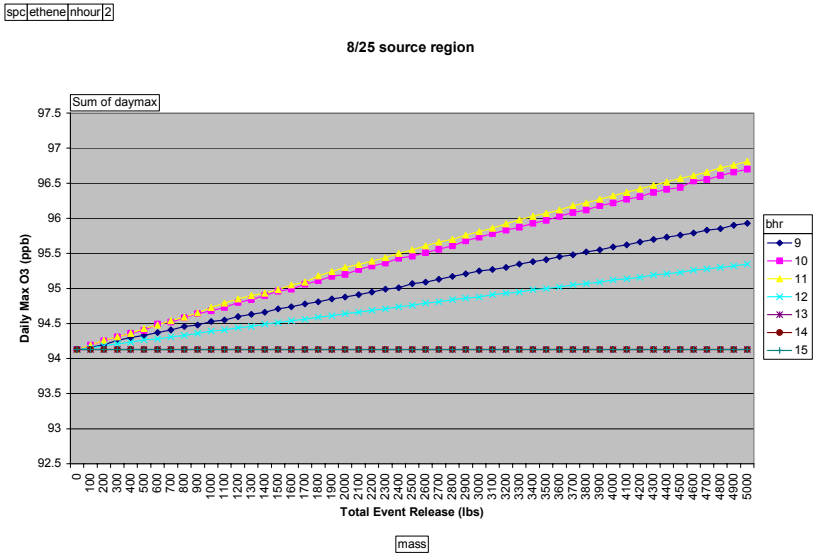
825.source.1km.box.cycles

Radical Cycle/ NO Cycle/ Ozone

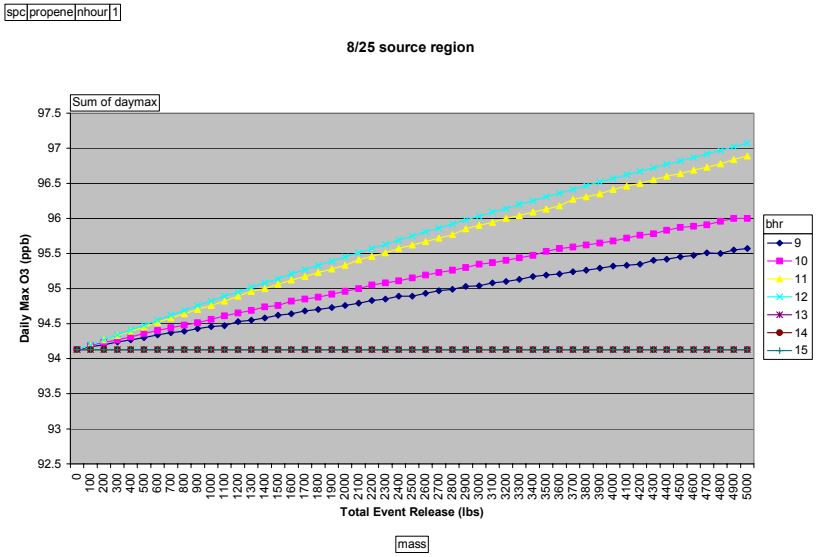


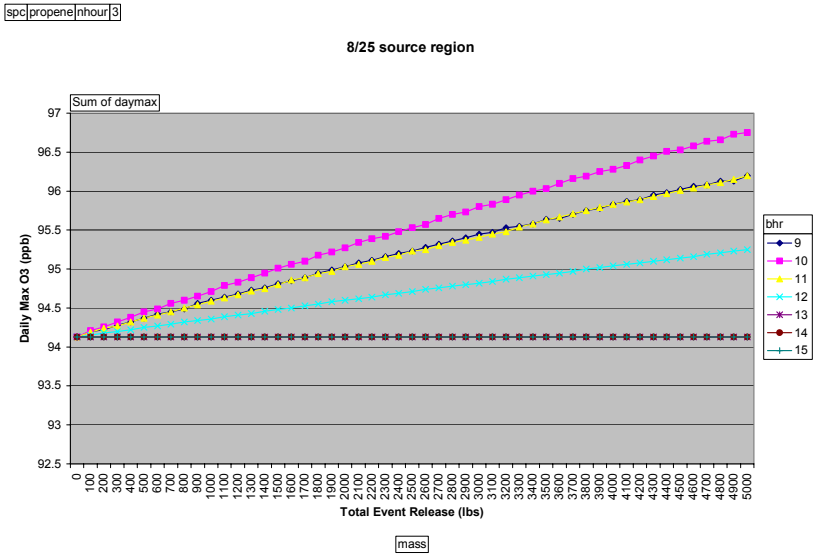


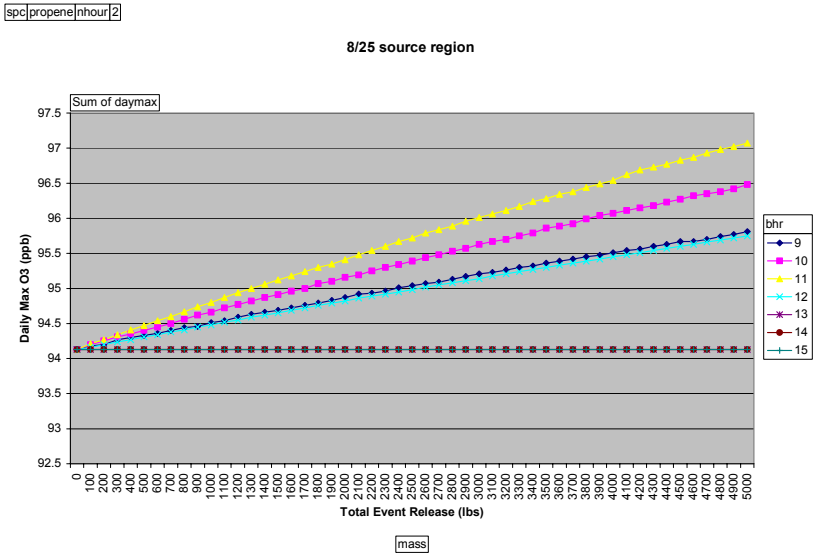




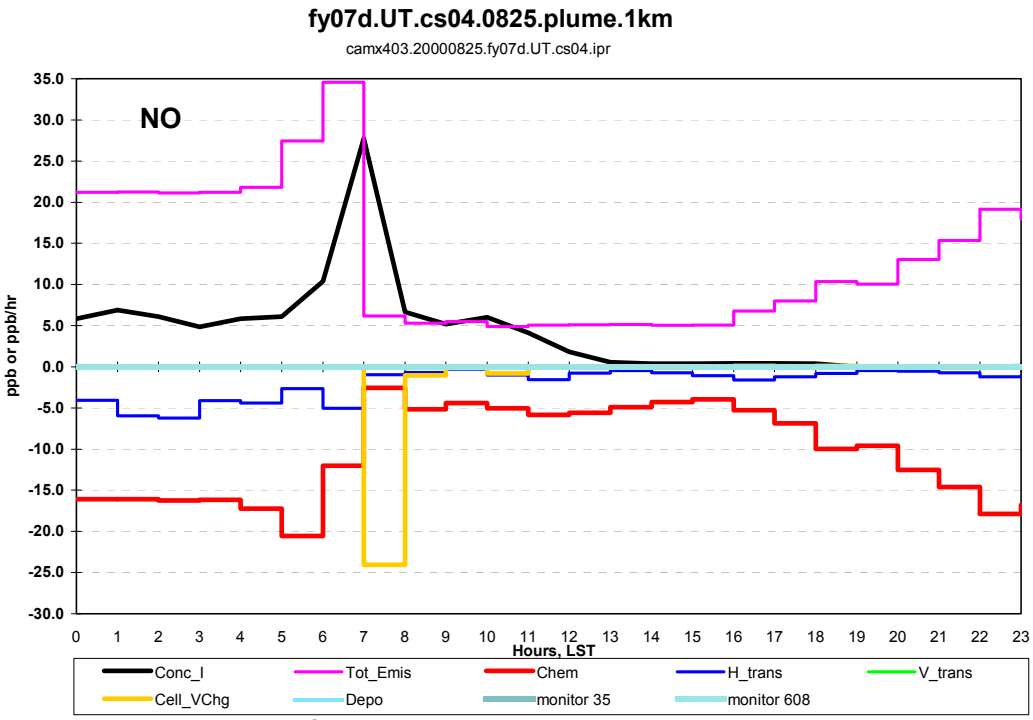
Sensitivity of daily max to the Ethene emission in "Source region" of Deer Park, Aug. 25: Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)







Sensitivity of daily max to the Propene emission in "Source region" of Deer Park, Aug. 25: Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)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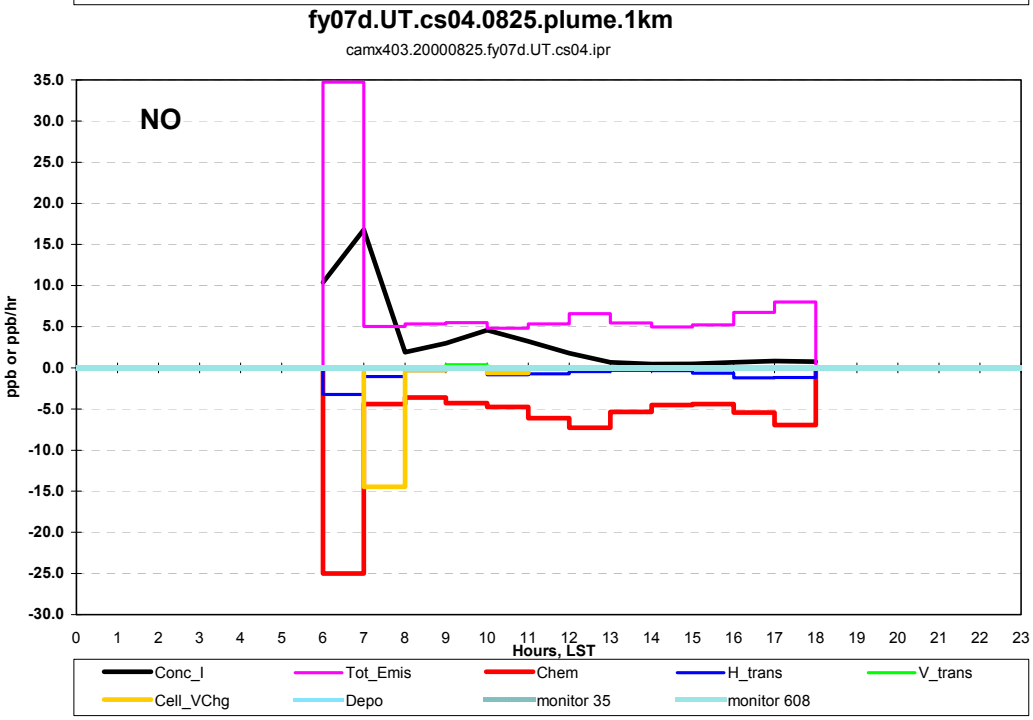
monitor 35
monitor 608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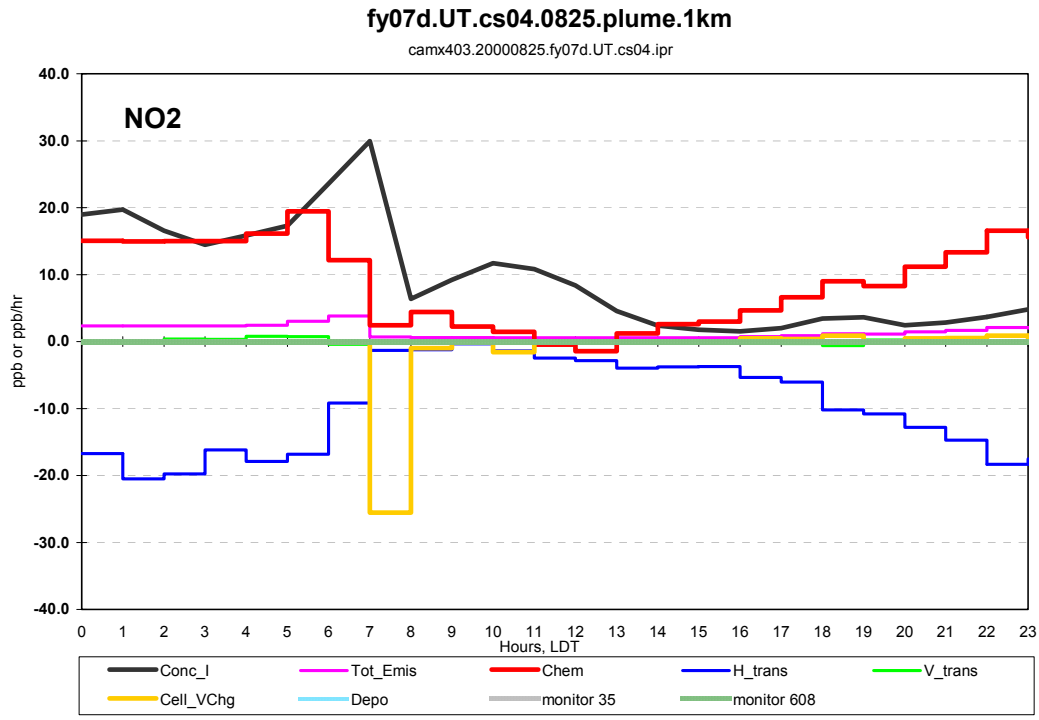
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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Cell_VChg
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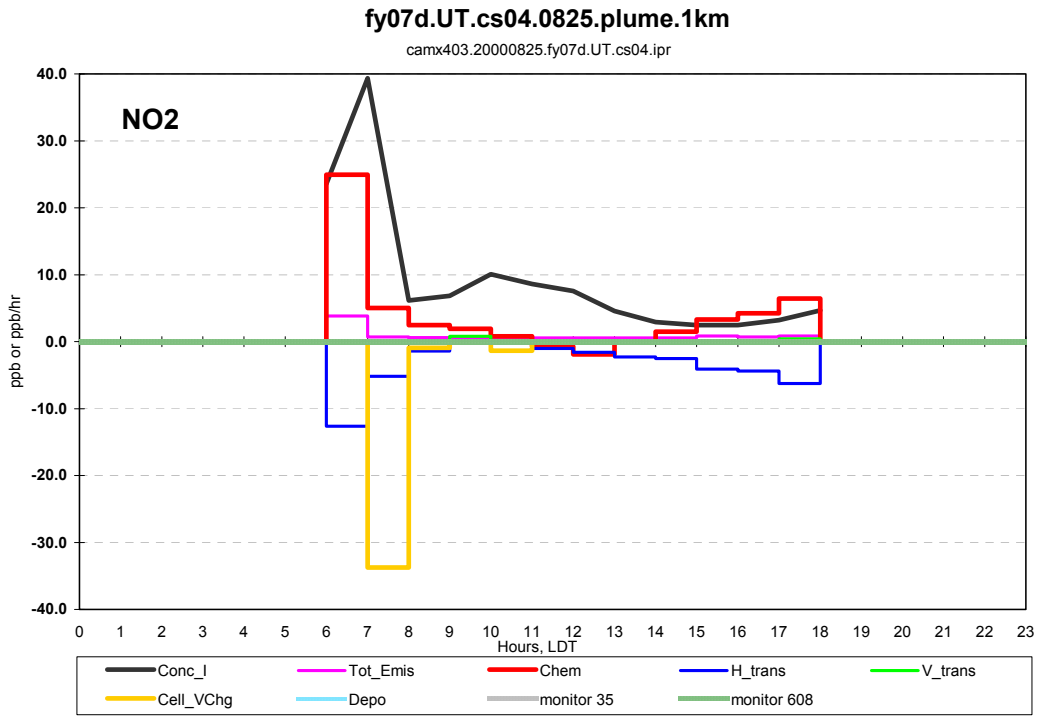
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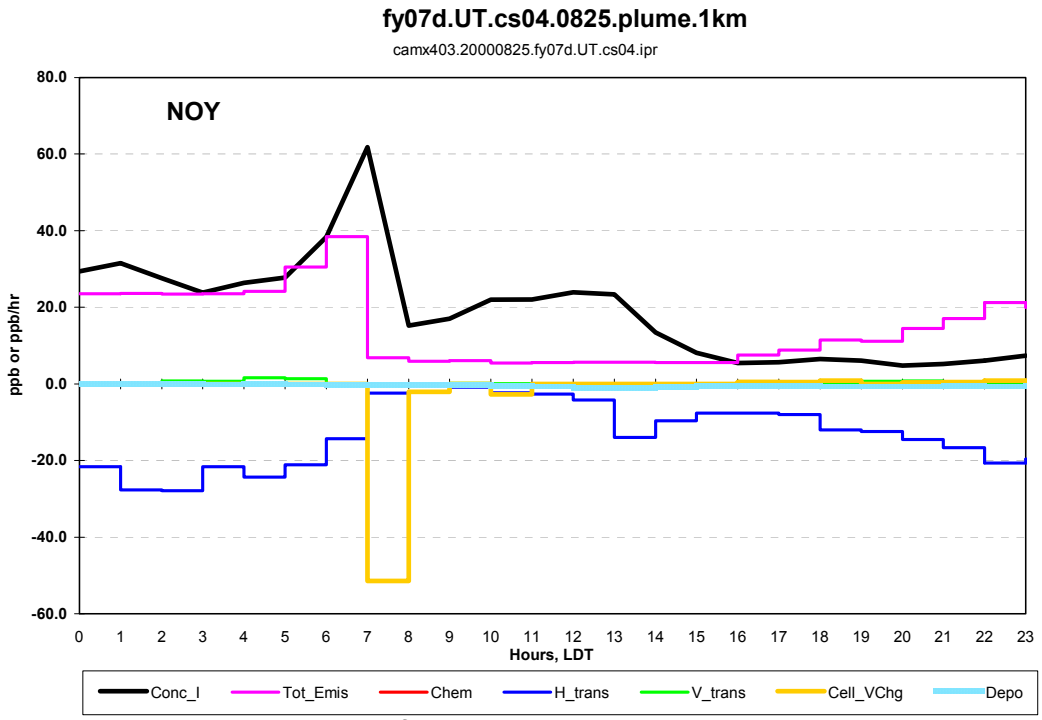
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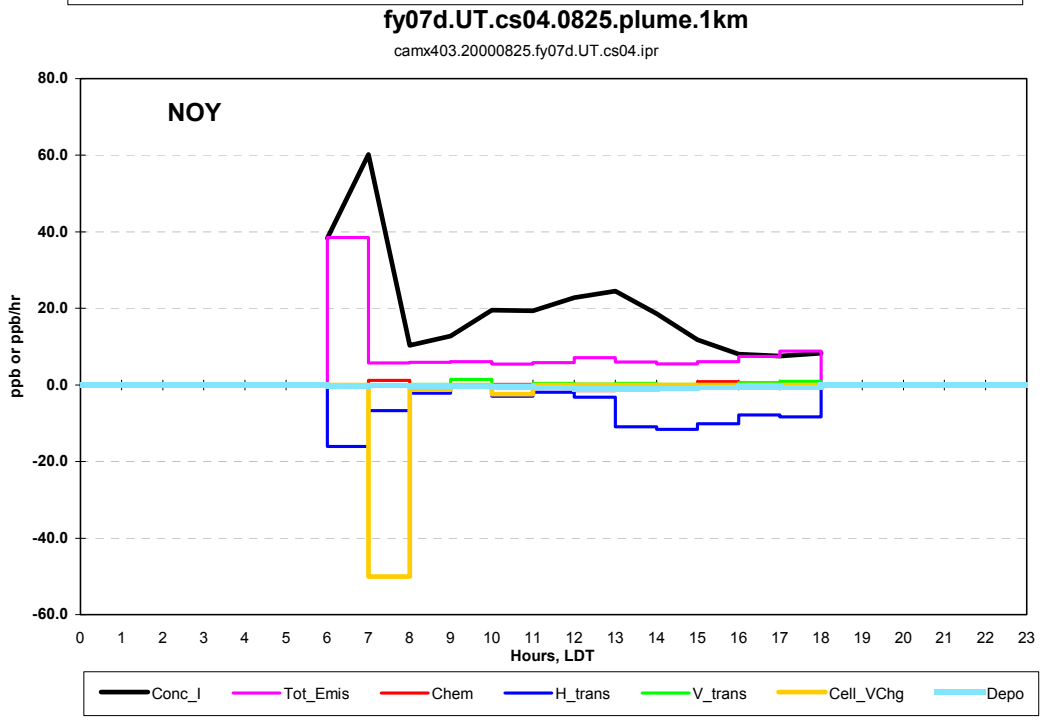
Depo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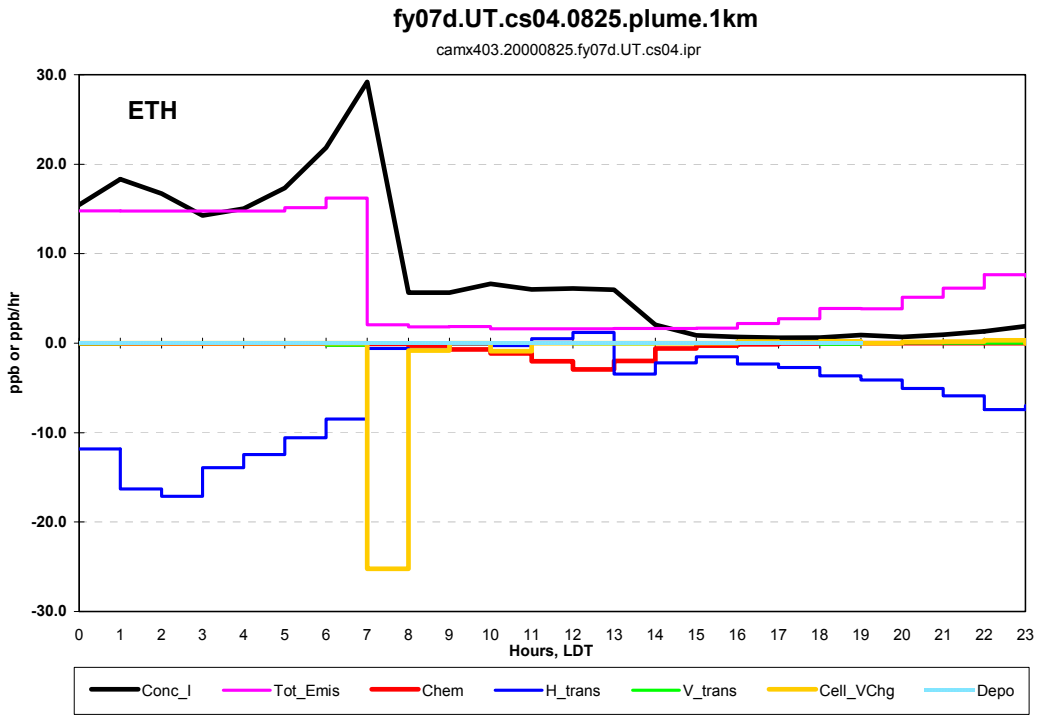
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0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Hours, LDT
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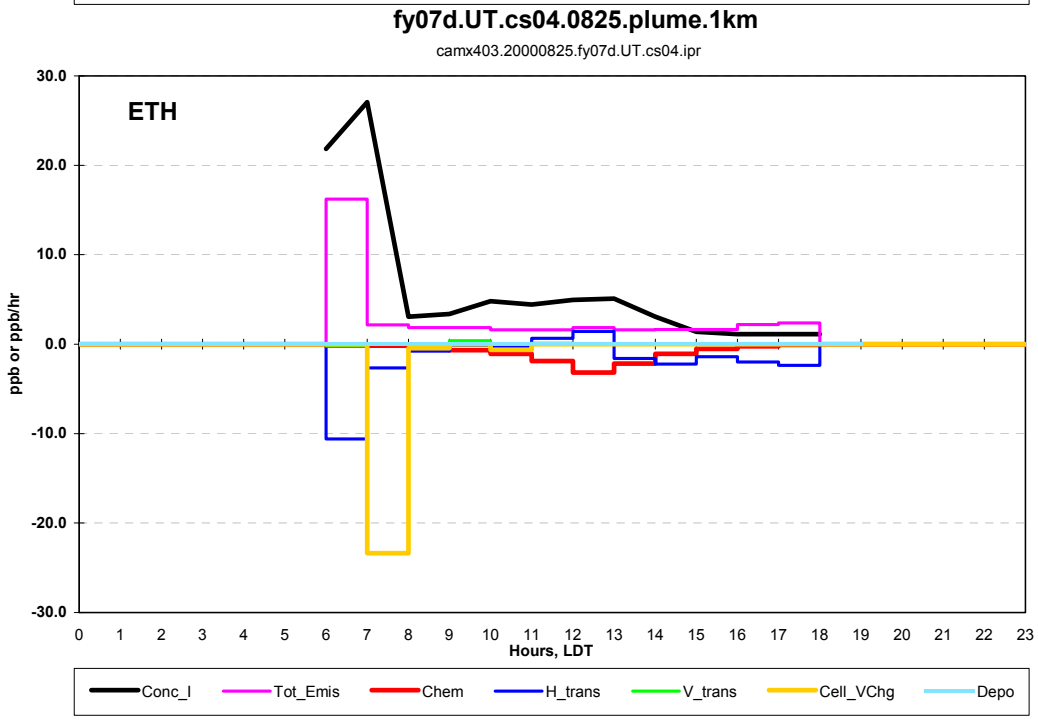
Depo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ppb or ppb/hr
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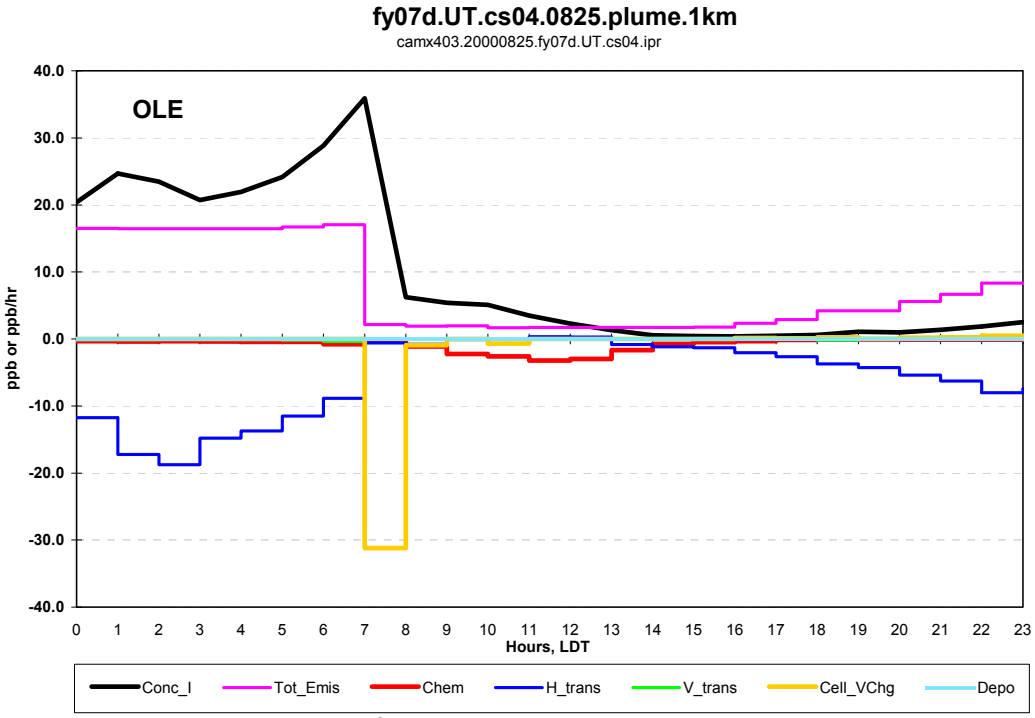
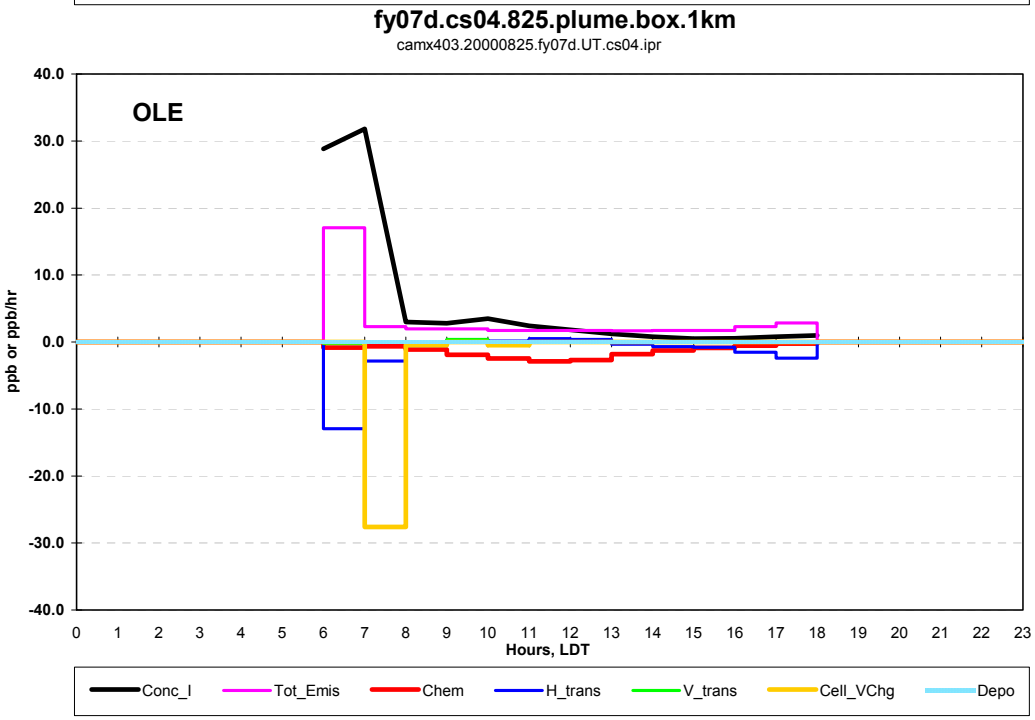
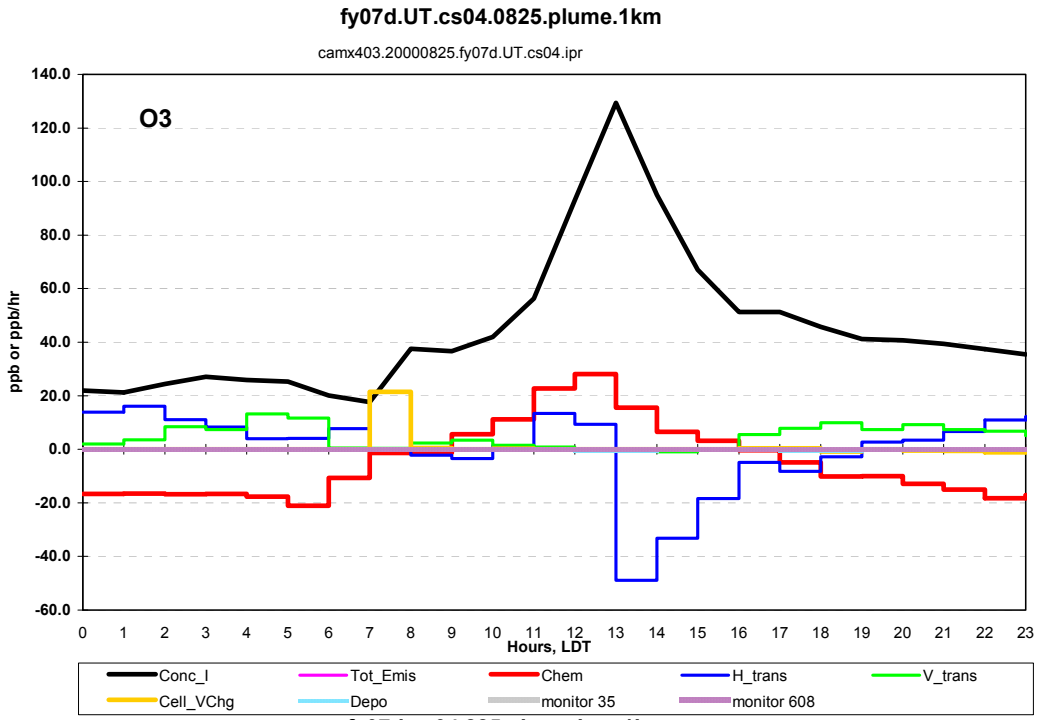
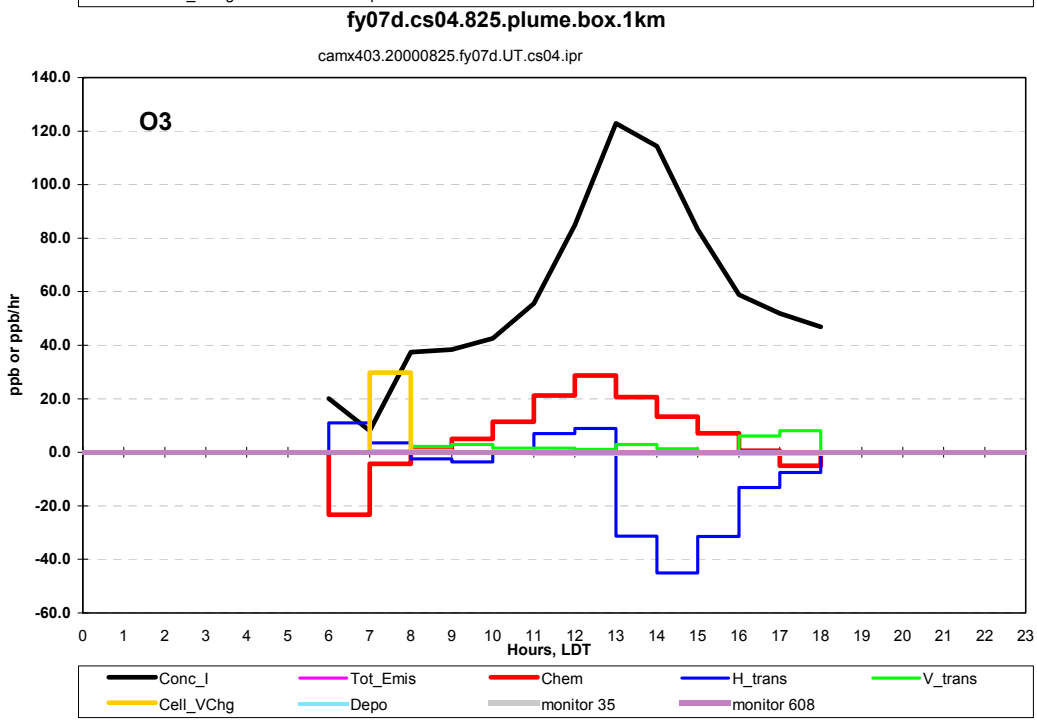
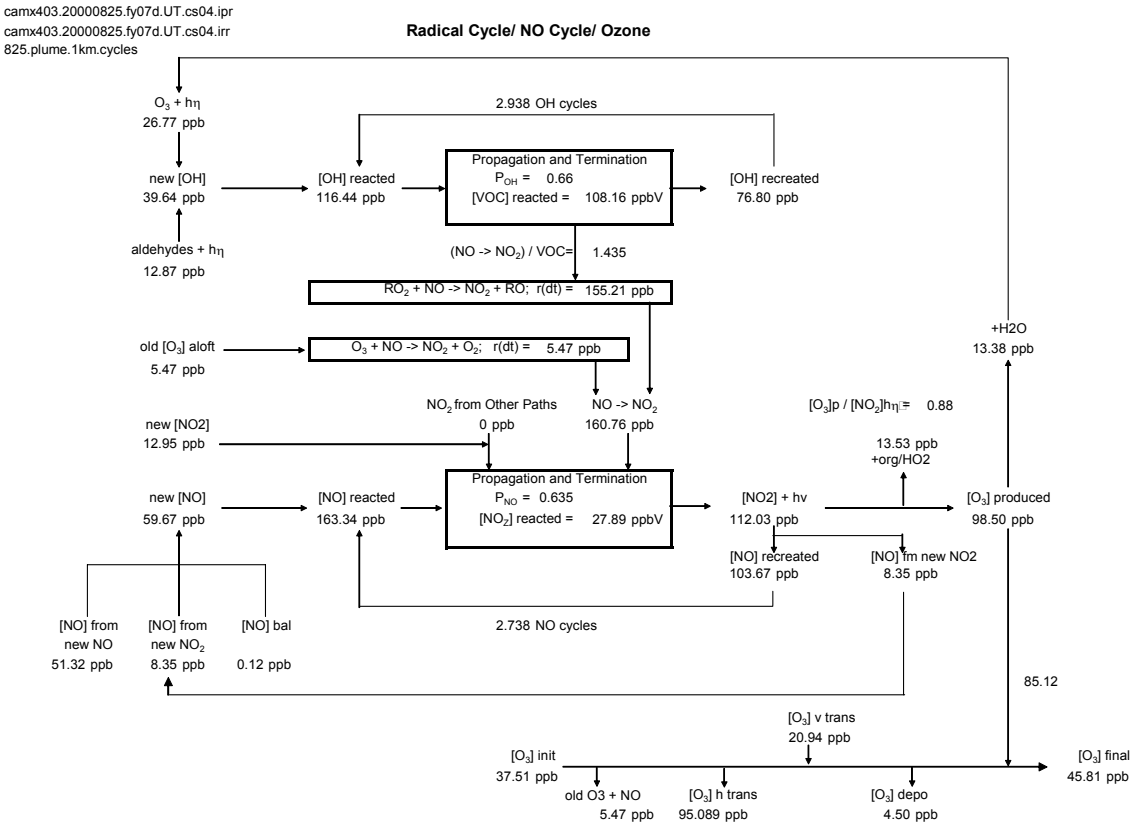
20.0
10.0
0.0
-10.0
-20.0
-30.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo


fy07d.UT.cs04.0825.plume.1km
camx403.20000825.fy07d.UT.cs04.ipr
OLE
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo


fy07d.cs04.825.plume.box.1km
camx403.20000825.fy07d.UT.cs04.ipr
OLE
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo

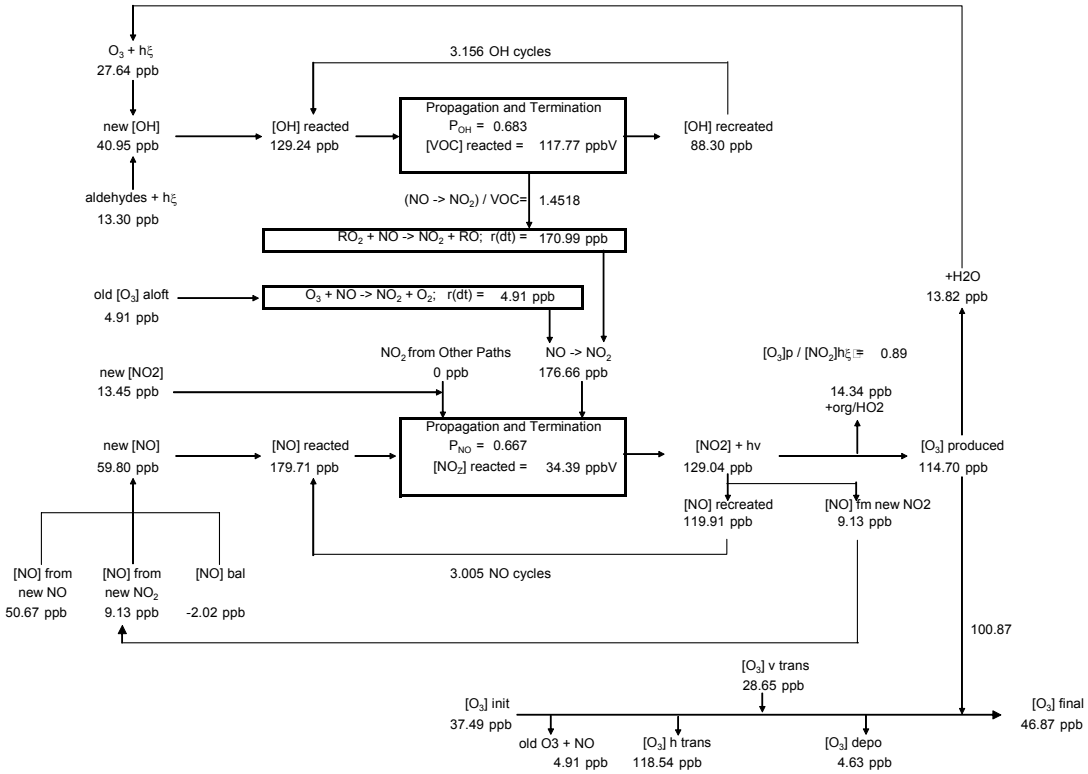

fy07d.UT.cs04.0825.plume.1km
camx403.20000825.fy07d.UT.cs04.ipr
O3
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608

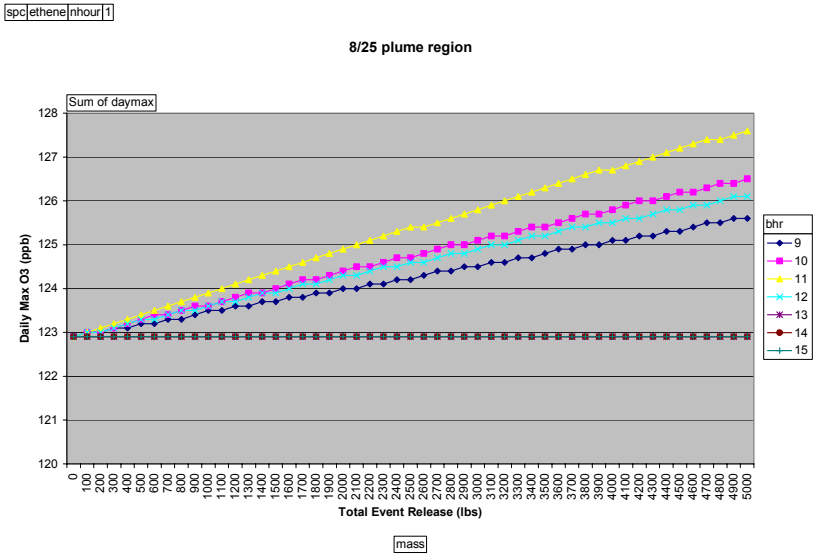

fy07d.cs04.825.plume.box.1km
camx403.20000825.fy07d.UT.cs04.ipr
O3
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608

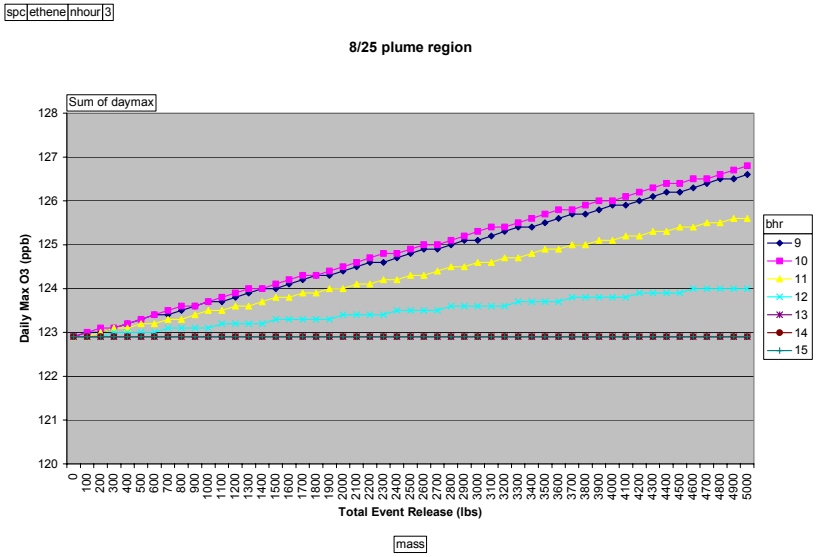

camx403.20000825.fy07d.UT.cs04.ipr
camx403.20000825.fy07d.UT.cs04.irr
825.plume.1km.cycles
Radical Cycle/ NO Cycle/ Ozone
O3 + hη
26.77 ppb
2.938 OH cycles
new [OH]
39.64 ppb
[OH] reacted
116.44 ppb
Propagation and Termination
POH = 0.66
[VOC] reacted = 108.16 ppbV
[OH] recreated
76.80 ppb
aldehydes + hη
12.87 ppb
(NO -> NO2) / VOC= 1.435
RO2 + NO -> NO2 + RO; r(dt) = 155.21 ppb
+H2O
13.38 ppb
old [O3] aloft
5.47 ppb
O3 + NO -> NO2 + O2; r(dt) = 5.47 ppb
NO2 from Other Paths
0 ppb
NO -> NO2
160.76 ppb
[O3]p / [NO2]hη = 0.88
new [NO2]
12.95 ppb
13.53 ppb
+org/HO2
new [NO]
59.67 ppb
[NO] reacted
163.34 ppb
Propagation and Termination
PNO = 0.635
[NO2] reacted = 27.89 ppbV
[NO2] + hv
112.03 ppb
[O3] produced
98.50 ppb
[NO] recreated
103.67 ppb
[NO] fm new NO2
8.35 ppb
[NO] from
new NO
51.32 ppb
[NO] from
new NO2
8.35 ppb
[NO] bal
0.12 ppb
2.738 NO cycles
85.12
[O3] v trans
20.94 ppb
[O3] init
37.51 ppb
[O3] final
45.81 ppb
old O3 + NO
5.47 ppb
[O3] h trans
95.089 ppb
[O3] depo
4.50 ppb

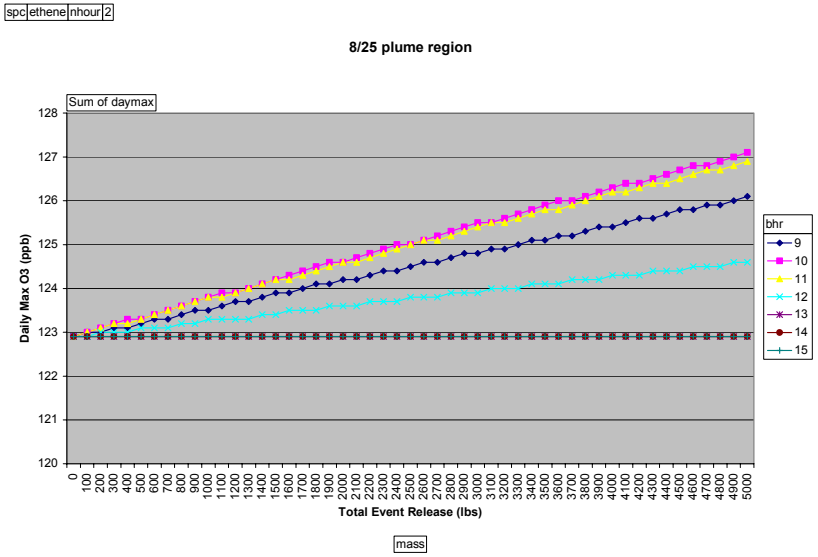
825.plume.1km.box.cycles

Radical Cycle/ NO Cycle/ Ozone

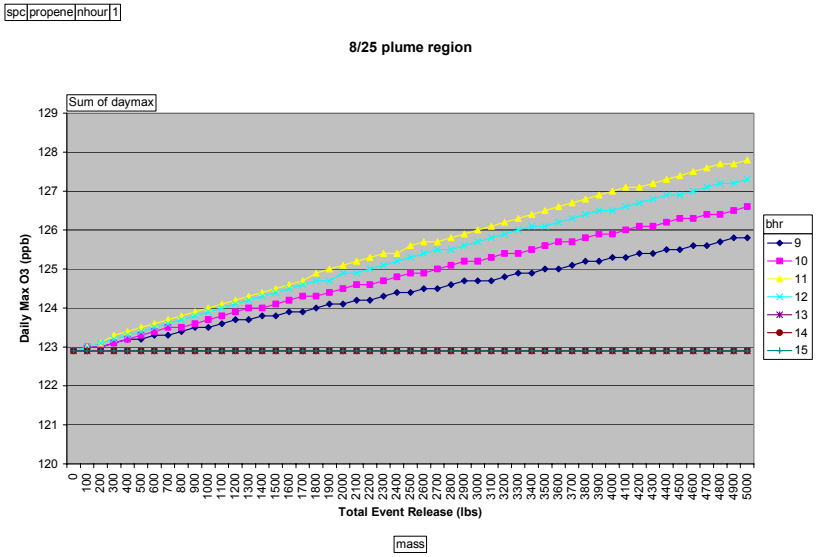


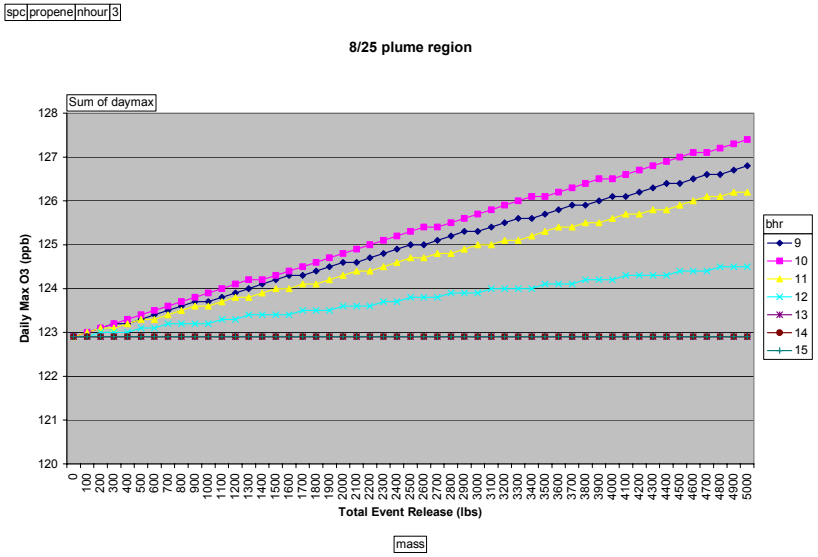


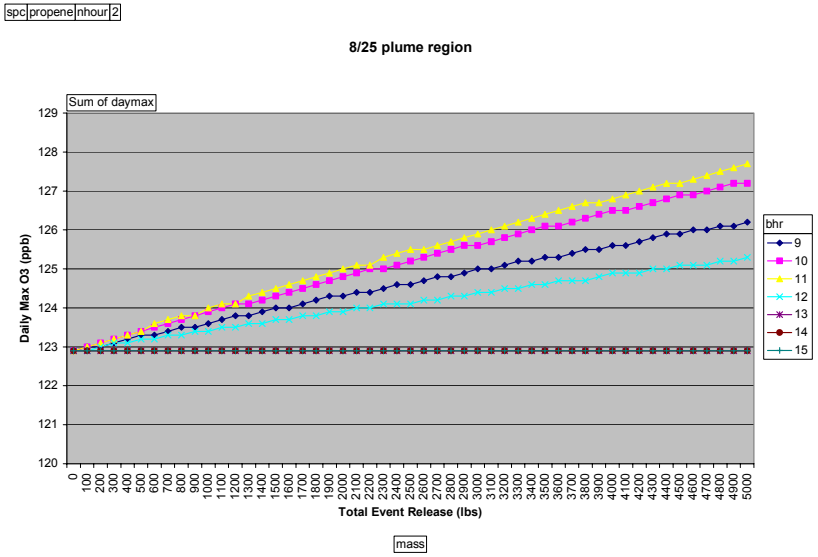




Sensitivity of daily max to the Ethene emission in "Plume region" of Deer Park, Aug. 25: Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)

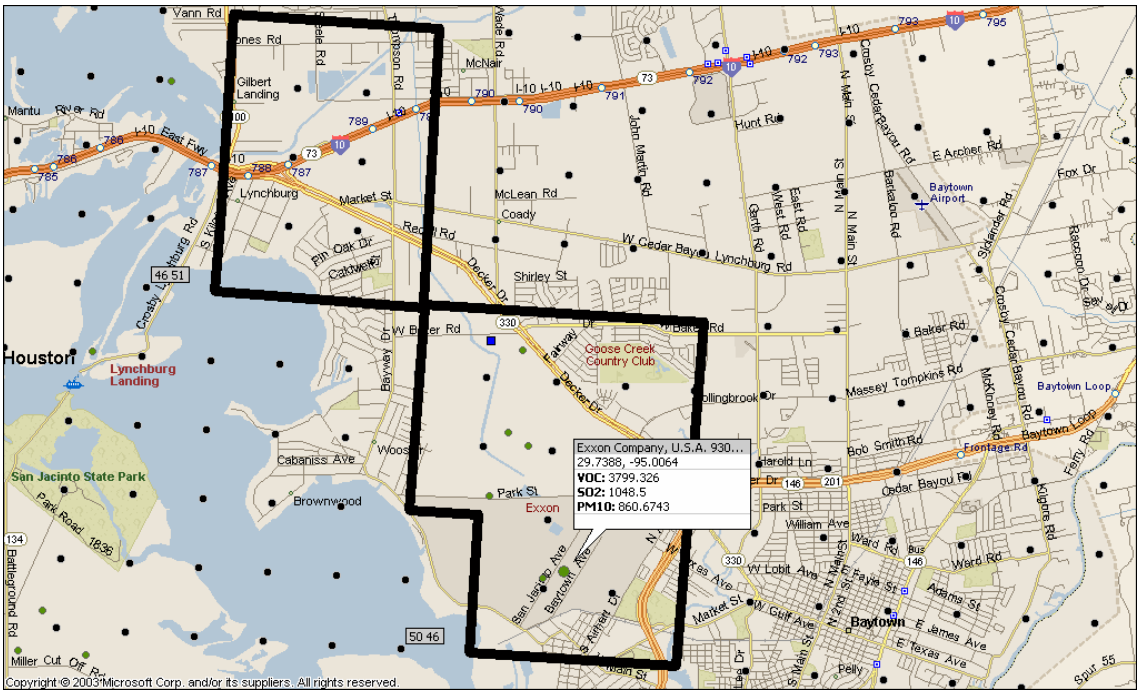




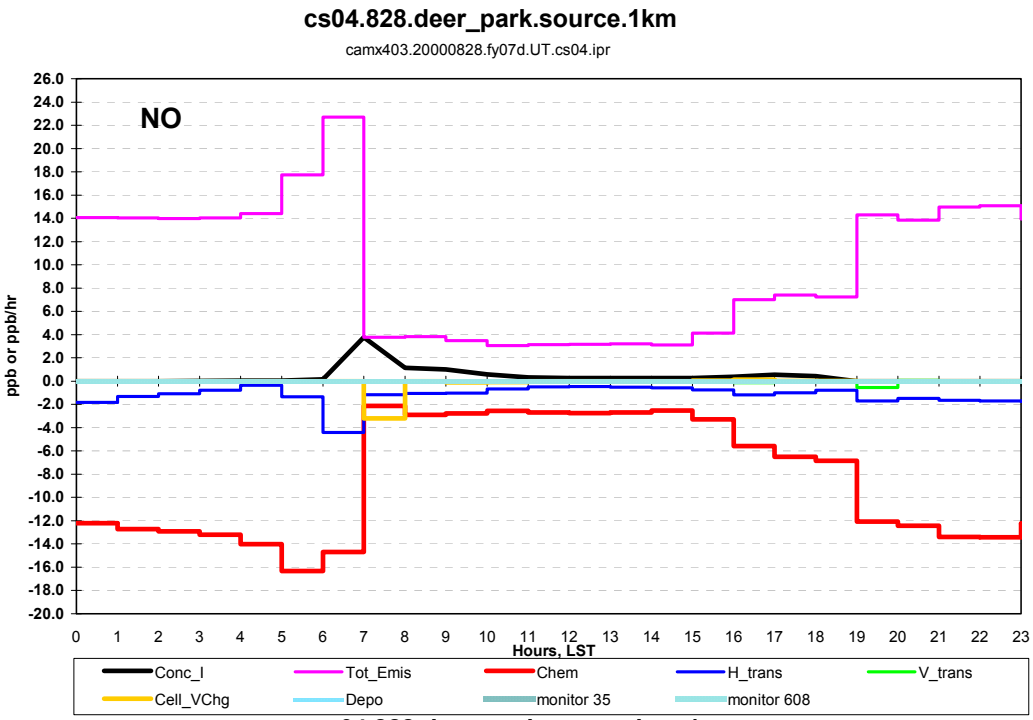


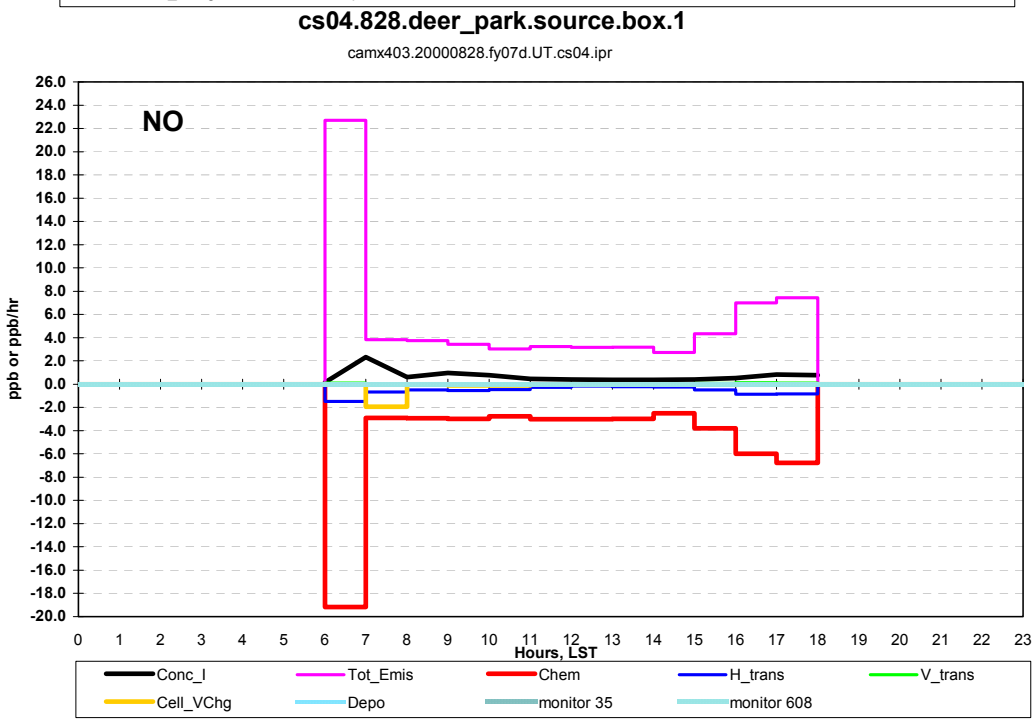
Sensitivity of daily max to the Propene emission in "Plume region" of Deer Park, Aug. 25: Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)

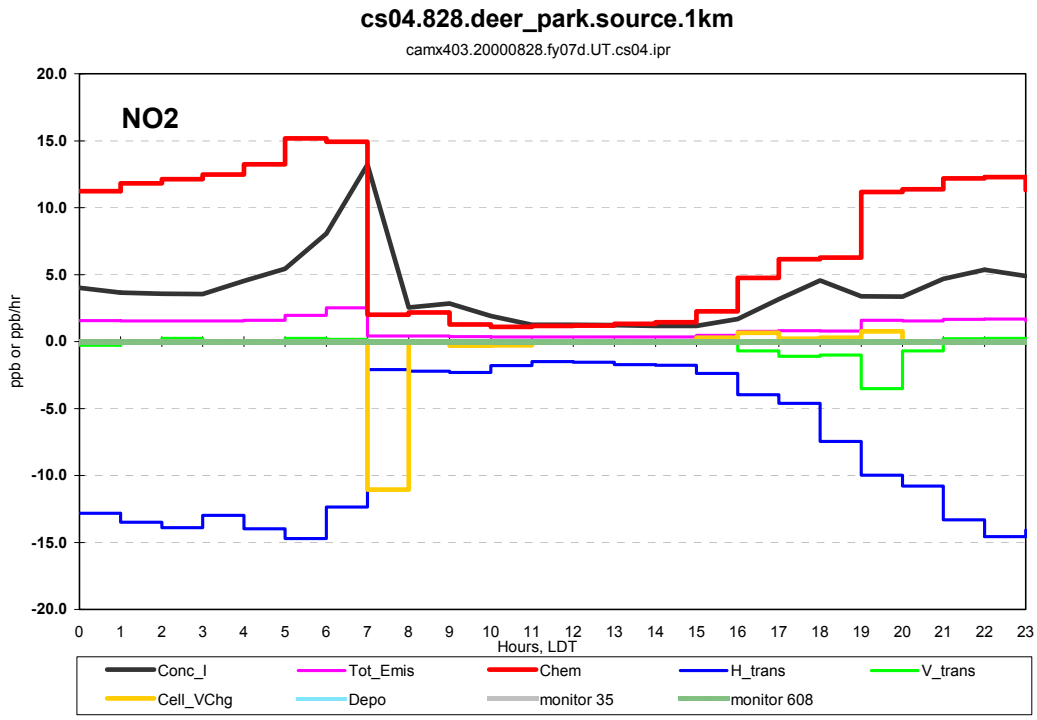
FY 07d CS04 Baytown 8/28

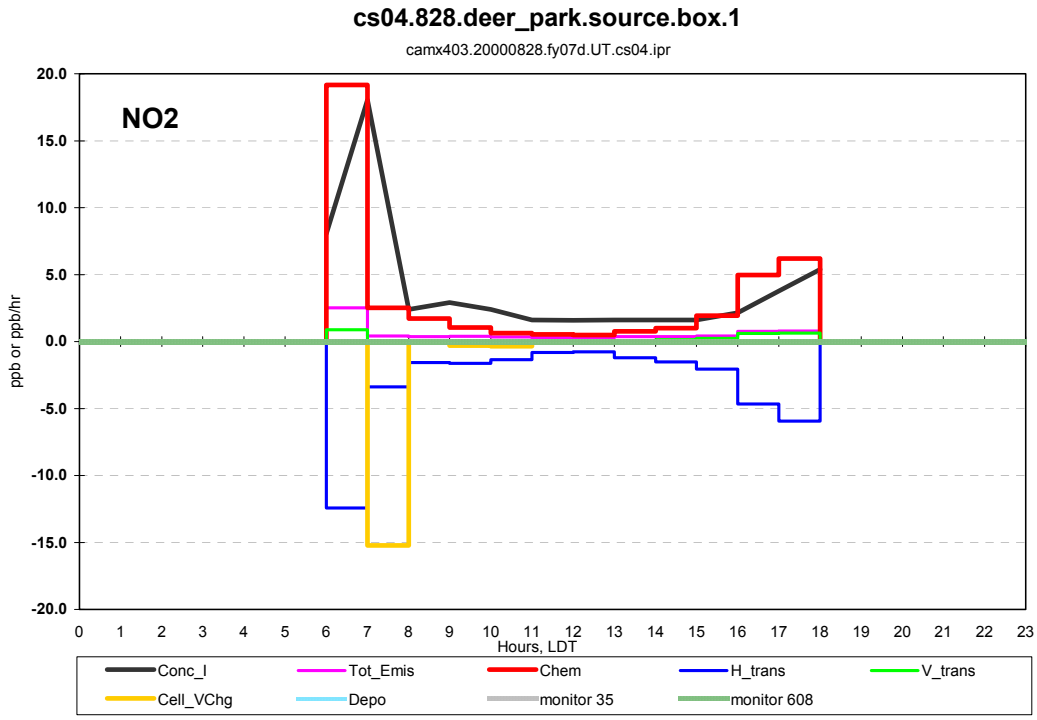


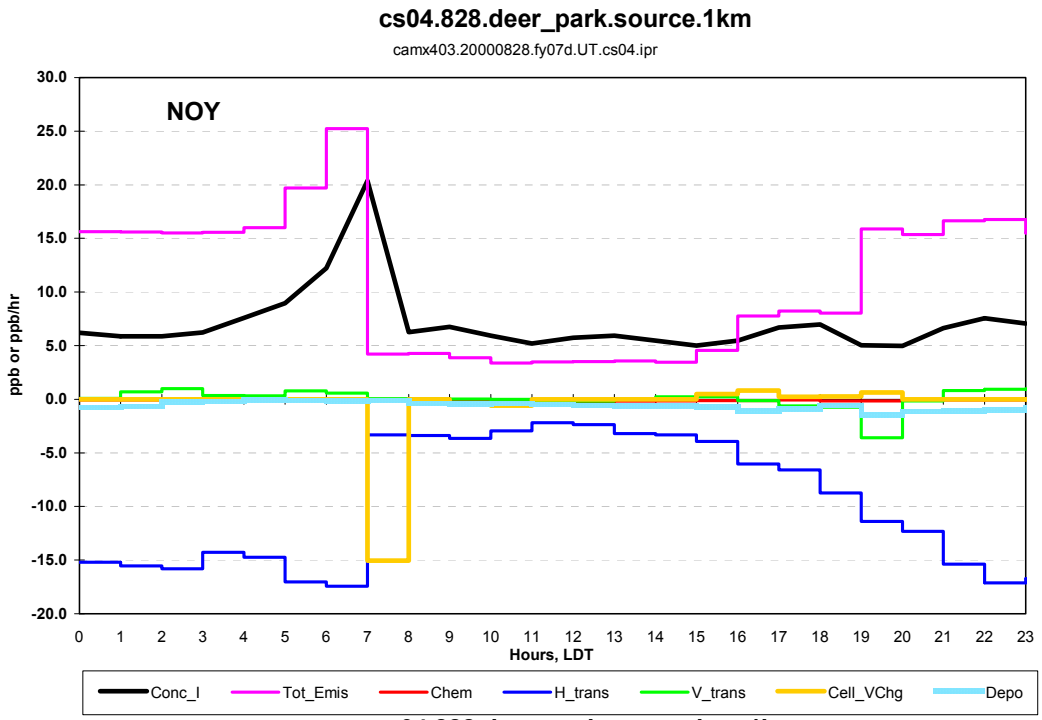
8_28_00 Process Analysis Box outlined in black. Black Dots represent lower left hand corner of 1 km grid cells

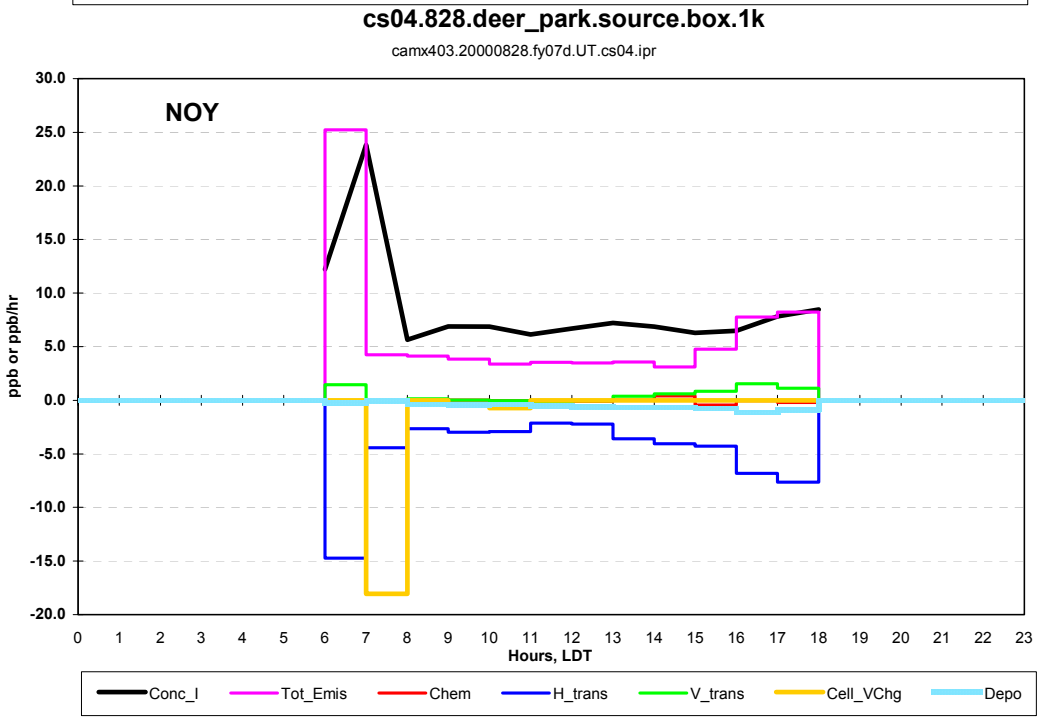

cs04.828.deer_park.source.1km
camx403.20000828.fy07d.UT.cs04.ipr
NO
ppb or ppb/hr
Hours, LST
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608

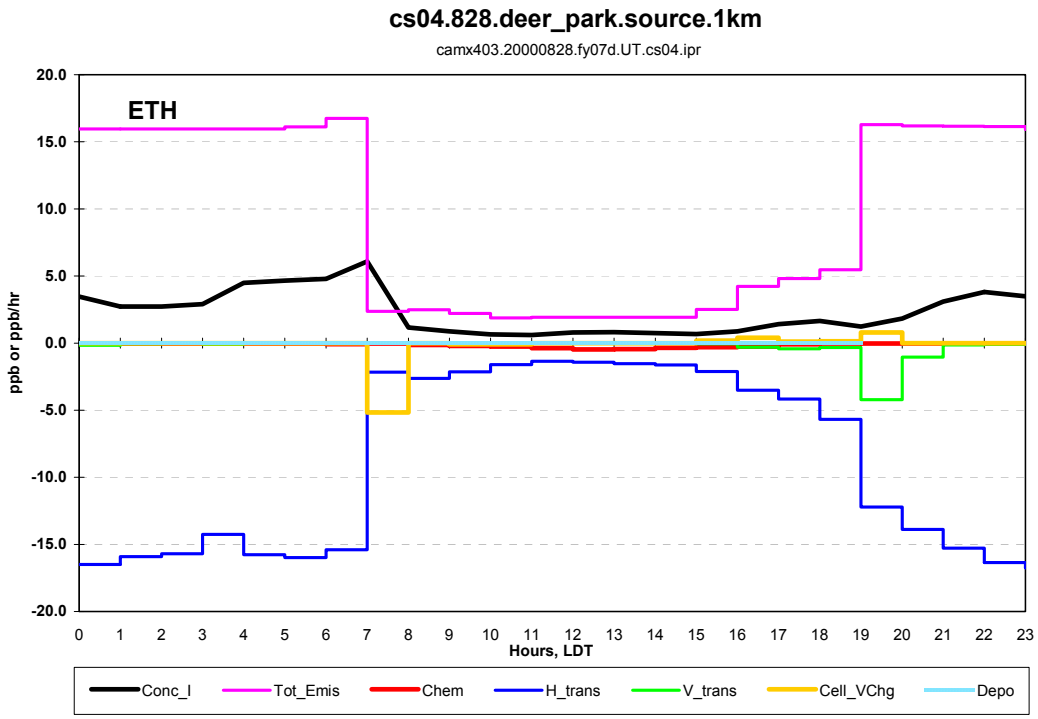

cs04.828.deer_park.source.box.1
camx403.20000828.fy07d.UT.cs04.ipr
NO
ppb or ppb/hr
Hours, LST
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608

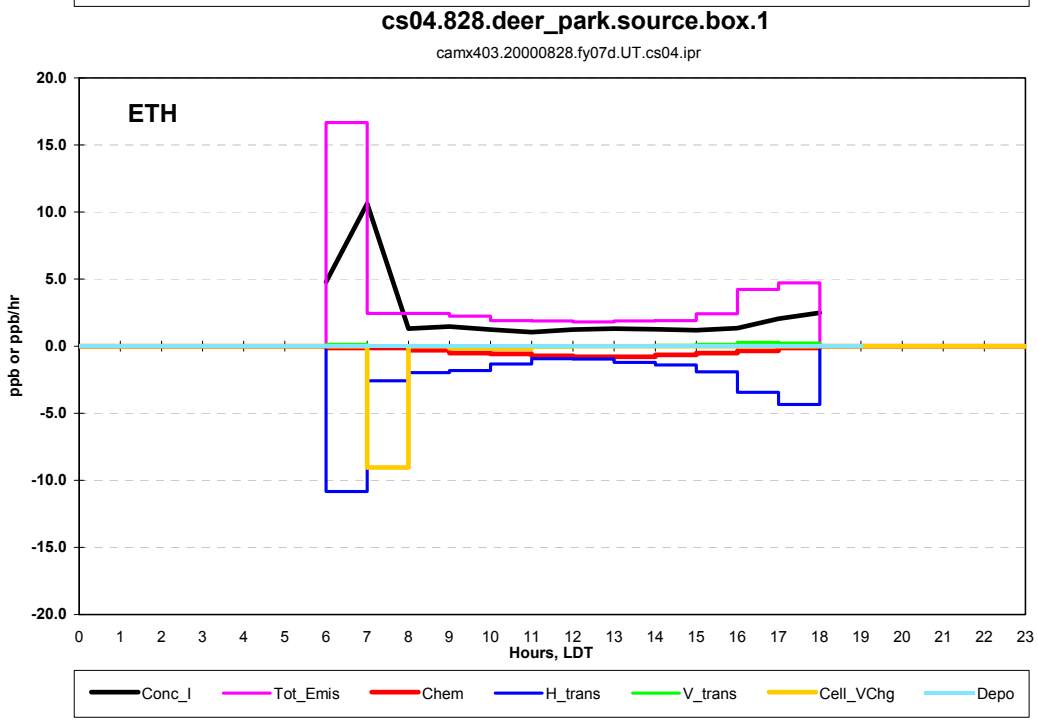

cs04.828.deer_park.source.1km
camx403.20000828.fy07d.UT.cs04.ipr
NO2
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608

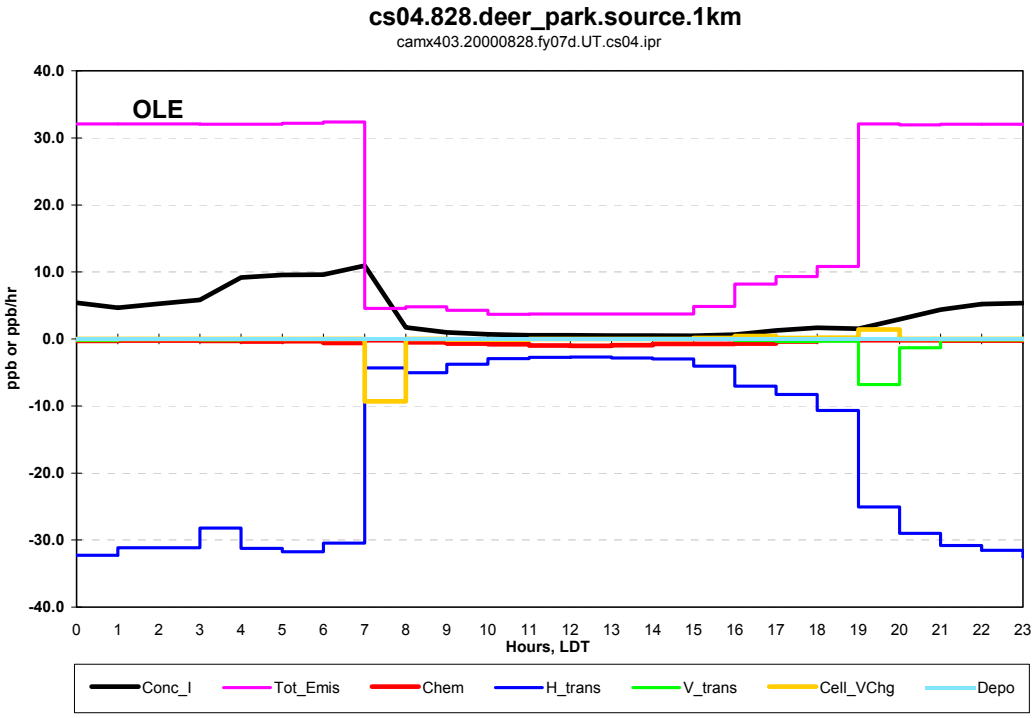

cs04.828.deer_park.source.box.1
camx403.20000828.fy07d.UT.cs04.ipr
NO2
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608

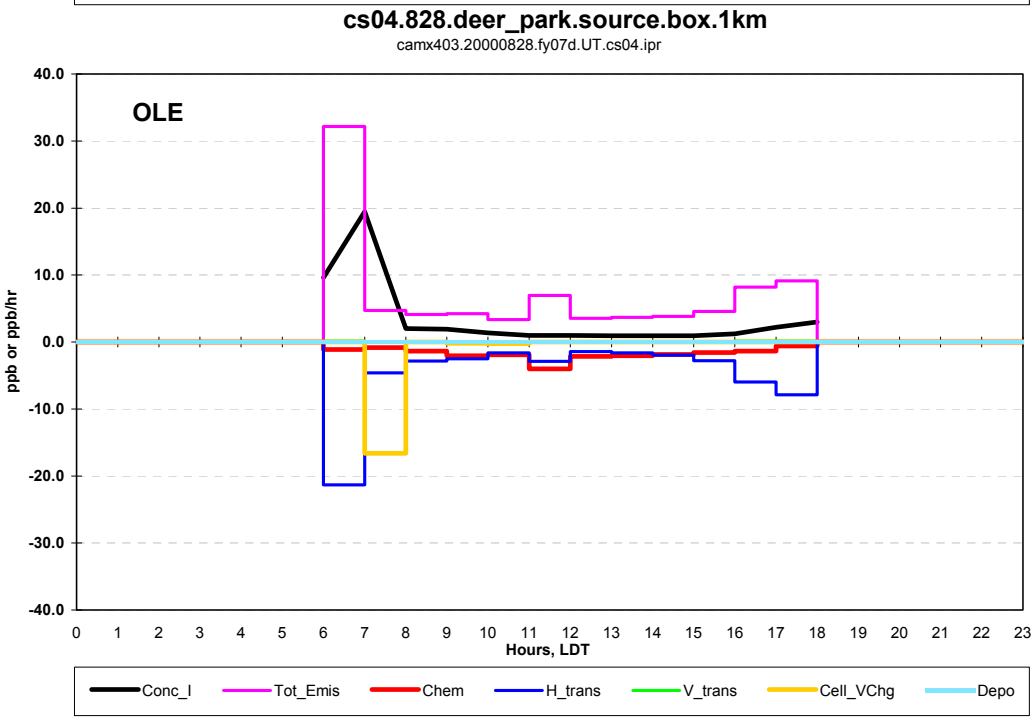

cs04.828.deer_park.source.1km
camx403.20000828.fy07d.UT.cs04.ipr
NOY
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo

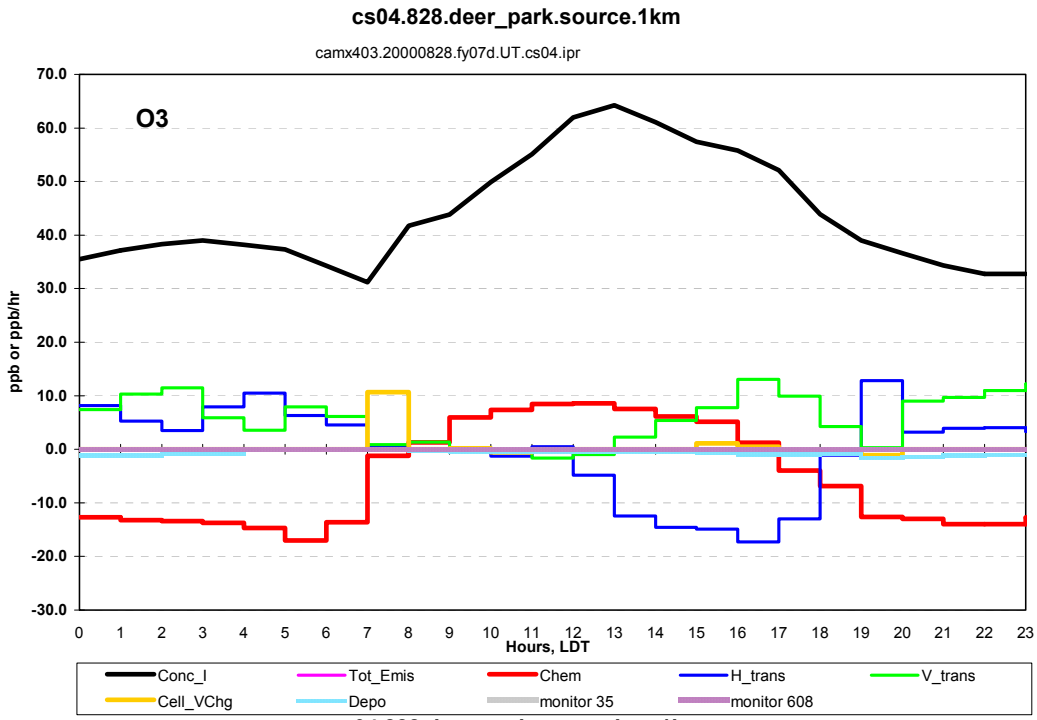

cs04.828.deer_park.source.box.1k
camx403.20000828.fy07d.UT.cs04.ipr
NOY
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo

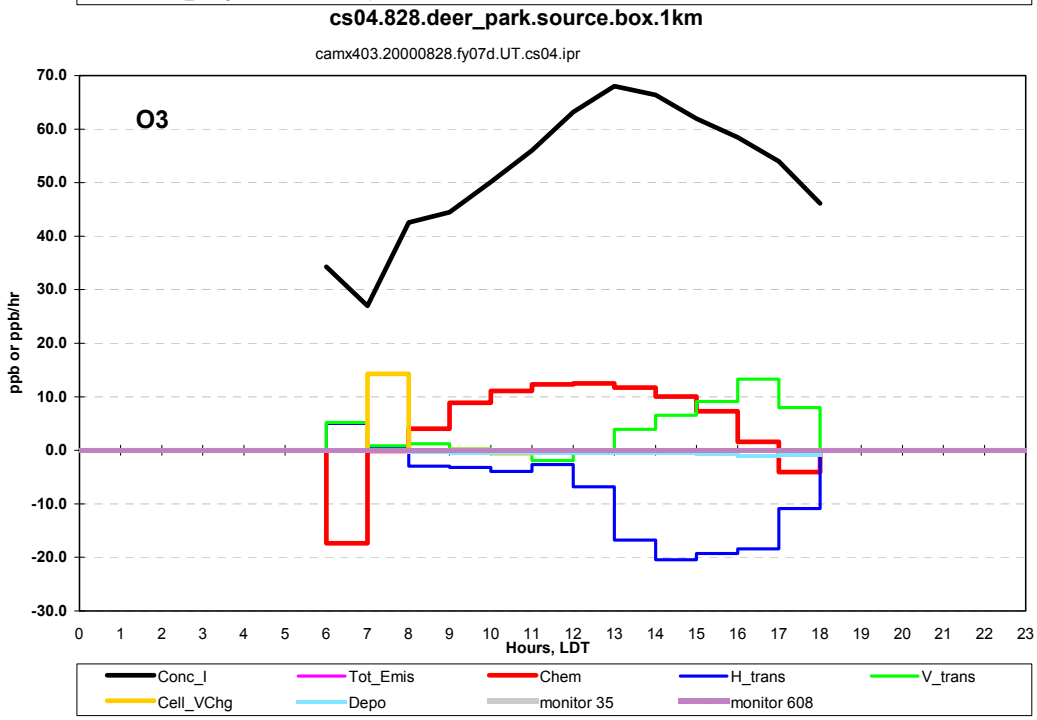

cs04.828.deer_park.source.1km
camx403.20000828.fy07d.UT.cs04.ipr
ETH
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo

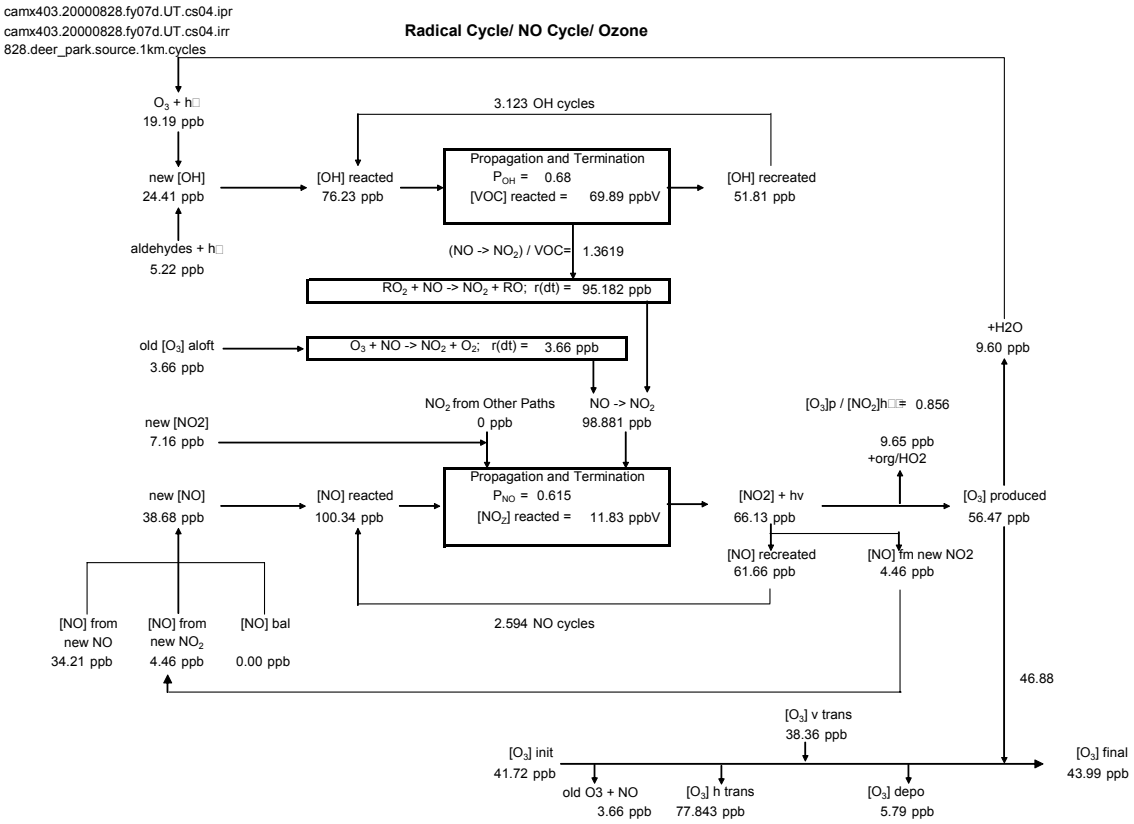

cs04.828.deer_park.source.box.1
camx403.20000828.fy07d.UT.cs04.ipr
ETH
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo

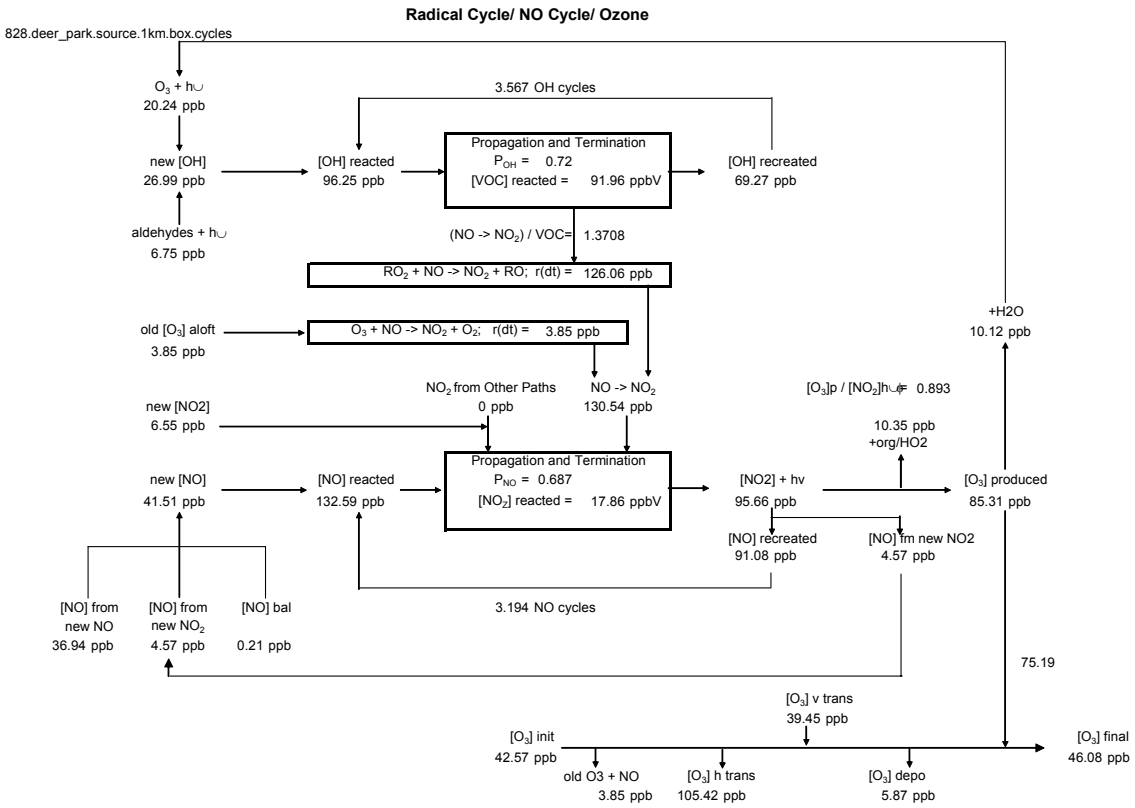

cs04.828.deer_park.source.1km
camx403.20000828.fy07d.UT.cs04.ipr
OLE
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo

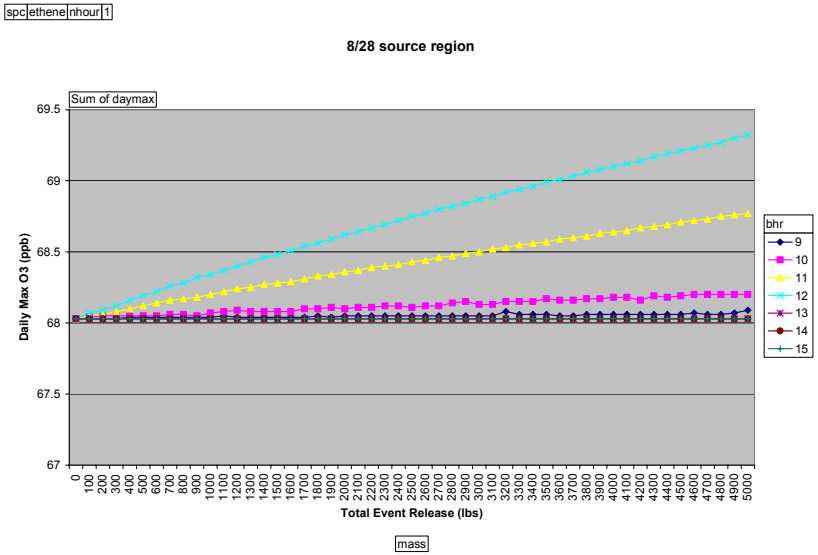

cs04.828.deer_park.source.box.1km
camx403.20000828.fy07d.UT.cs04.ipr
OLE
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo

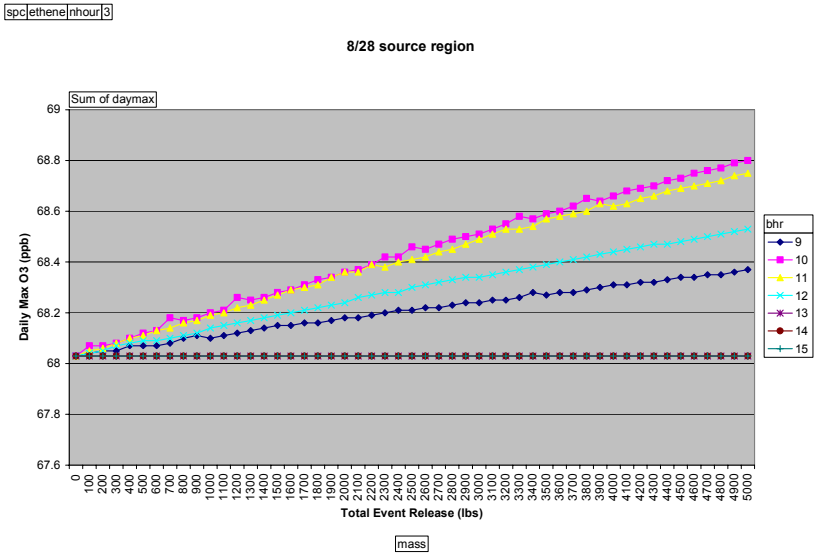

cs04.828.deer_park.source.1km
camx403.20000828.fy07d.UT.cs04.ipr
O3
ppb or ppb/hr
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
-10.0
-20.0
-30.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608

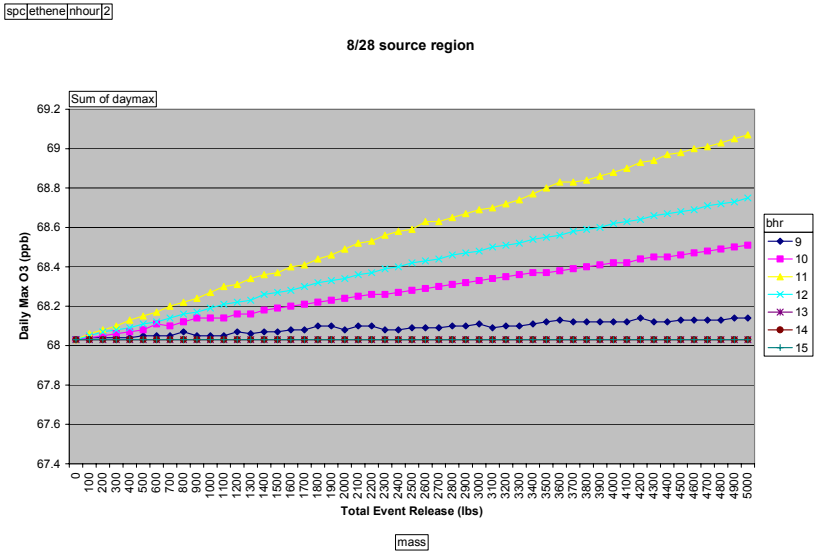

cs04.828.deer_park.source.box.1km
camx403.20000828.fy07d.UT.cs04.ipr
O3
ppb or ppb/hr
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
-10.0
-20.0
-30.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608


camx403.20000828.fy07d.UT.cs04.ipr
camx403.20000828.fy07d.UT.cs04.irr
828.deer_park.source.1km.cycles
Radical Cycle/ NO Cycle/ Ozone
O3 + h
19.19 ppb
3.123 OH cycles
new [OH]
24.41 ppb
[OH] reacted
76.23 ppb
Propagation and Termination
POH = 0.68
[VOC] reacted = 69.89 ppbV
[OH] recreated
51.81 ppb
aldehydes + h
5.22 ppb
(NO -> NO2) / VOC= 1.3619
RO2 + NO -> NO2 + RO; r(dt) = 95.182 ppb
+H2O
9.60 ppb
old [O3] aloft
3.66 ppb
O3 + NO -> NO2 + O2; r(dt) = 3.66 ppb
NO2 from Other Paths
0 ppb
NO -> NO2
98.881 ppb
[O3]p / [NO2]h = 0.856
new [NO2]
7.16 ppb
9.65 ppb
+org/HO2
new [NO]
38.68 ppb
[NO] reacted
100.34 ppb
Propagation and Termination
PNO = 0.615
[NO2] reacted = 11.83 ppbV
[NO2] + hv
66.13 ppb
[O3] produced
56.47 ppb
[NO] recreated
61.66 ppb
[NO] fm new NO2
4.46 ppb
[NO] from
new NO
34.21 ppb
[NO] from
new NO2
4.46 ppb
[NO] bal
0.00 ppb
2.594 NO cycles
46.88
[O3] v trans
38.36 ppb
[O3] init
41.72 ppb
[O3] final
43.99 ppb
old O3 + NO
3.66 ppb
[O3] h trans
77.843 ppb
[O3] depo
5.79 ppb

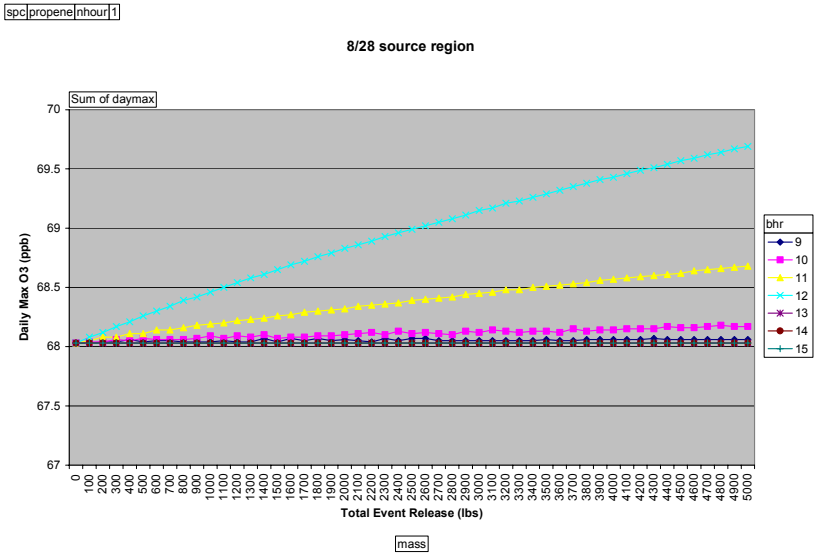

Radical Cycle/ NO Cycle/ Ozone
828.deer_park.source.1km.box.cycles
O3 + hν
20.24 ppb
3.567 OH cycles
new [OH]
26.99 ppb
[OH] reacted
96.25 ppb
Propagation and Termination
POH = 0.72
[VOC] reacted = 91.96 ppbV
[OH] recreated
69.27 ppb
aldehydes + hν
6.75 ppb
(NO -> NO2) / VOC= 1.3708
RO2 + NO -> NO2 + RO; r(dt) = 126.06 ppb
old [O3] aloft
3.85 ppb
O3 + NO -> NO2 + O2; r(dt) = 3.85 ppb
+H2O
10.12 ppb
NO2 from Other Paths
0 ppb
NO -> NO2
130.54 ppb
[O3]p / [NO2]hν= 0.893
new [NO2]
6.55 ppb
10.35 ppb
+org/HO2
Propagation and Termination
PNO = 0.687
[NO2] reacted = 17.86 ppbV
new [NO]
41.51 ppb
[NO] reacted
132.59 ppb
[NO2] + hv
95.66 ppb
[O3] produced
85.31 ppb
[NO] recreated
91.08 ppb
[NO] fm new NO2
4.57 ppb
[NO] from
new NO
36.94 ppb
[NO] from
new NO2
4.57 ppb
[NO] bal
0.21 ppb
3.194 NO cycles
75.19
[O3] v trans
39.45 ppb
[O3] init
42.57 ppb
[O3] final
46.08 ppb
old O3 + NO
3.85 ppb
[O3] h trans
105.42 ppb
[O3] depo
5.87 ppb

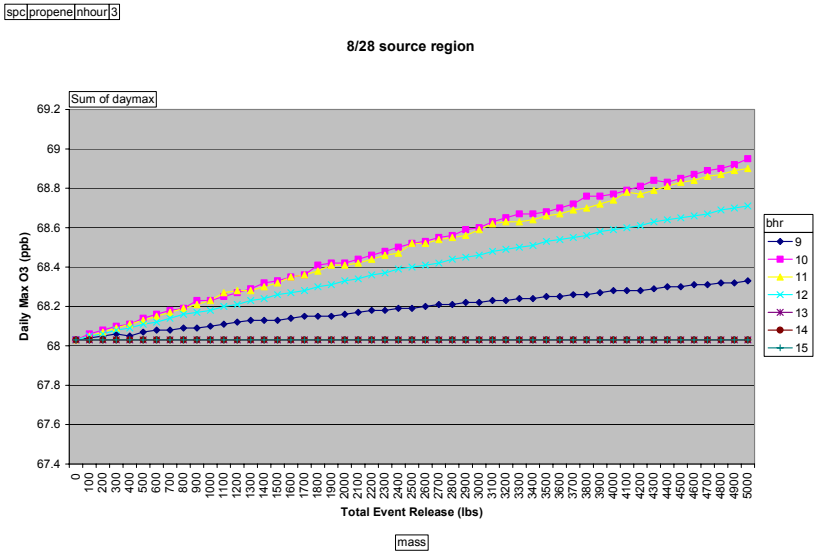


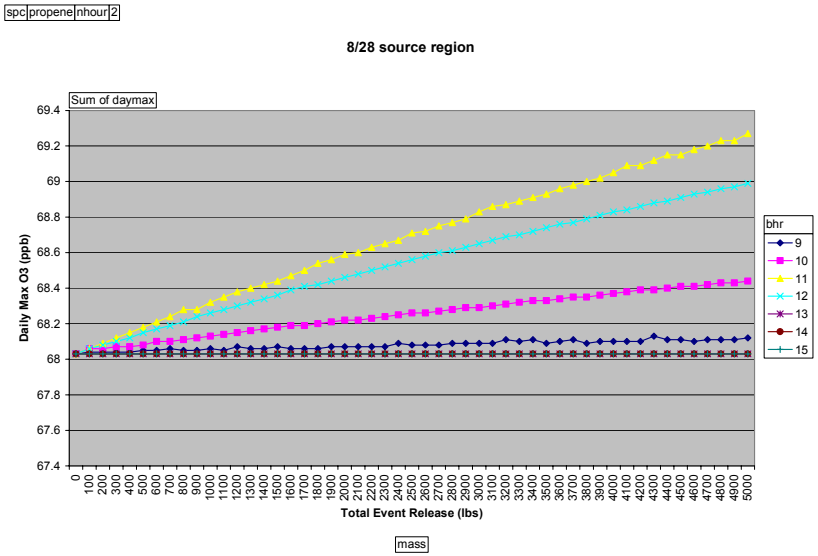




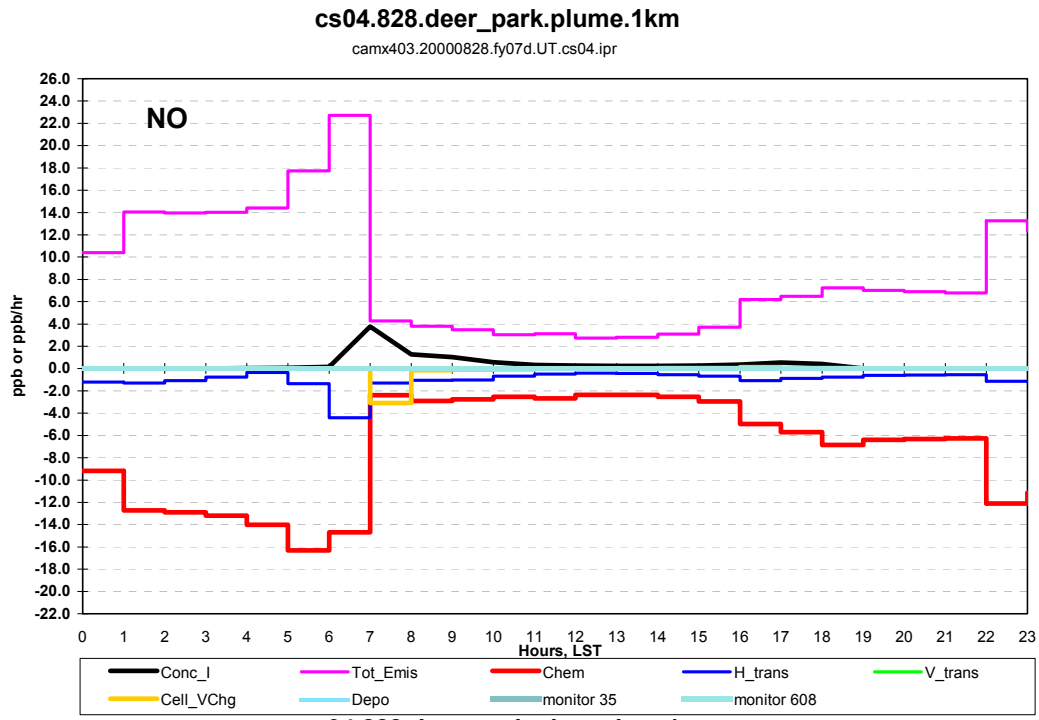
Sensitivity of daily max to the Ethene emission in "Source region" of Baytown, Aug. 28: Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)

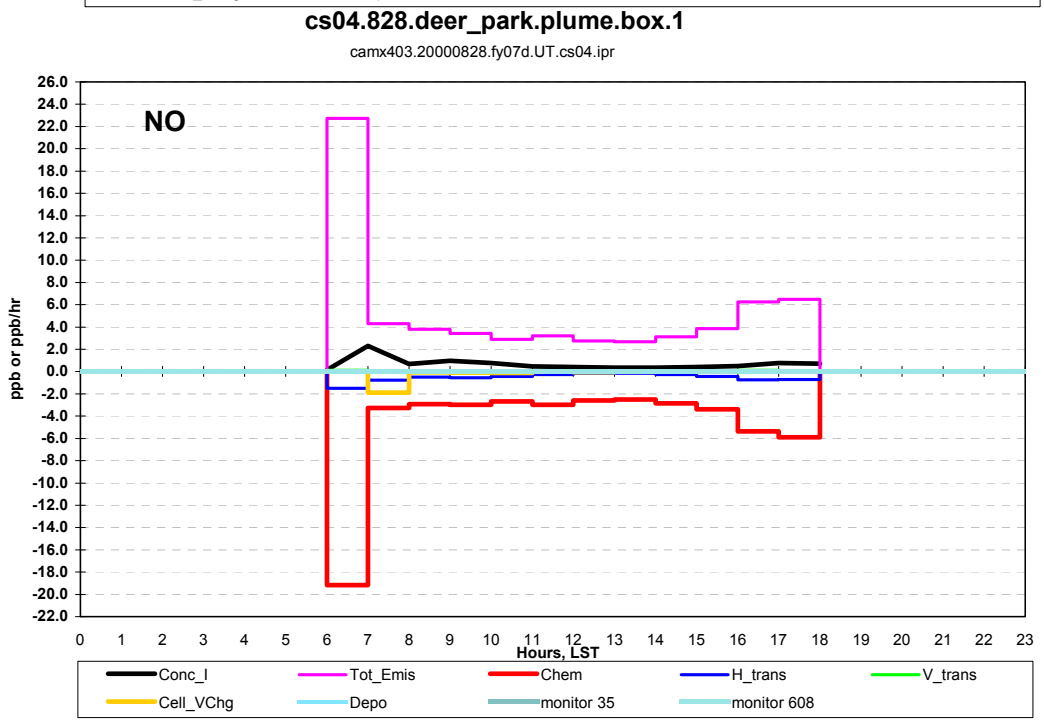


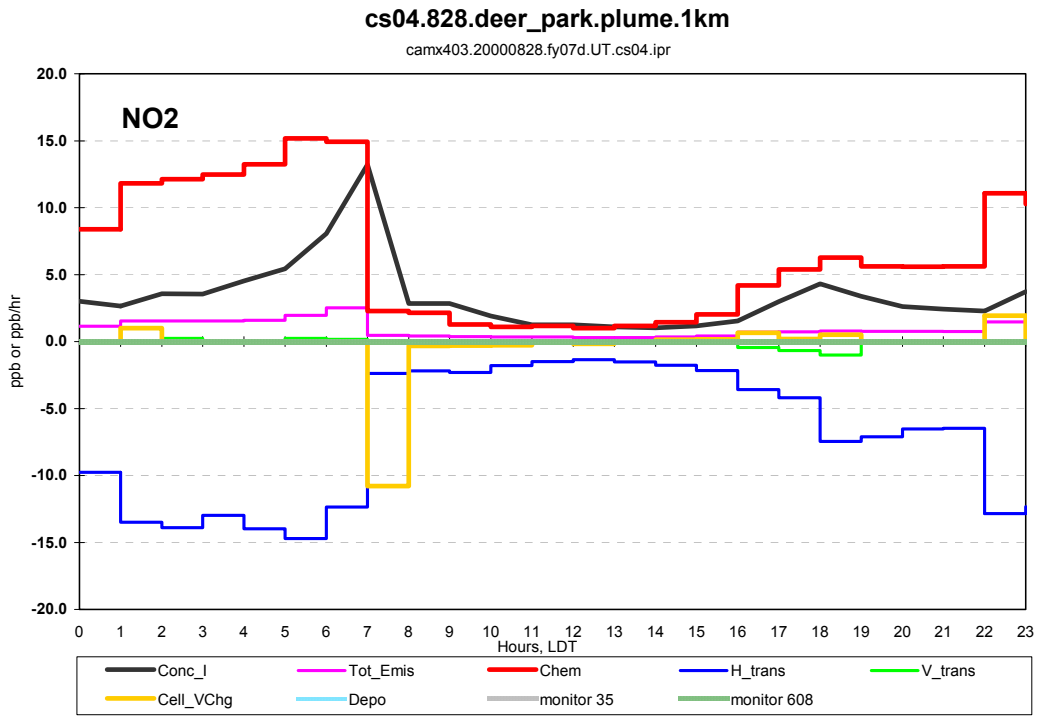


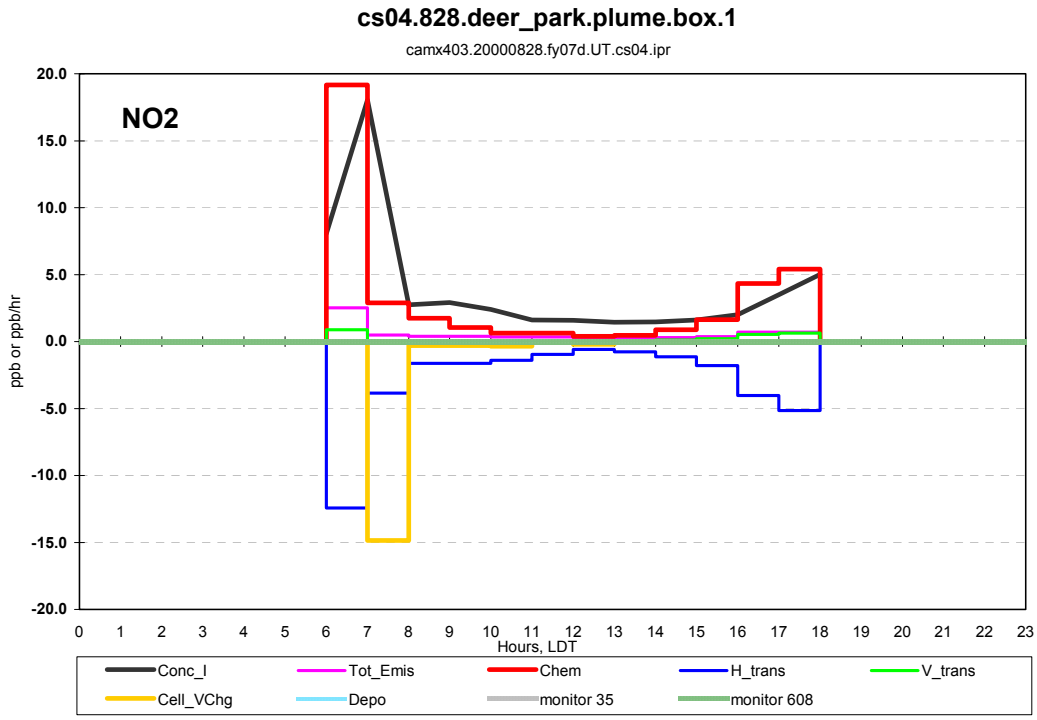


Sensitivity of daily max to the Propene emission in "Source region" of Baytown, Aug. 28: Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)


cs04.828.deer_park.plume.1km
camx403.20000828.fy07d.UT.cs04.ipr
NO
ppb or ppb/hr
Hours, LST
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608


cs04.828.deer_park.plume.box.1
camx403.20000828.fy07d.UT.cs04.ipr
NO
ppb or ppb/hr
Hours, LST
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608


cs04.828.deer_park.plume.1km
camx403.20000828.fy07d.UT.cs04.ipr
NO2
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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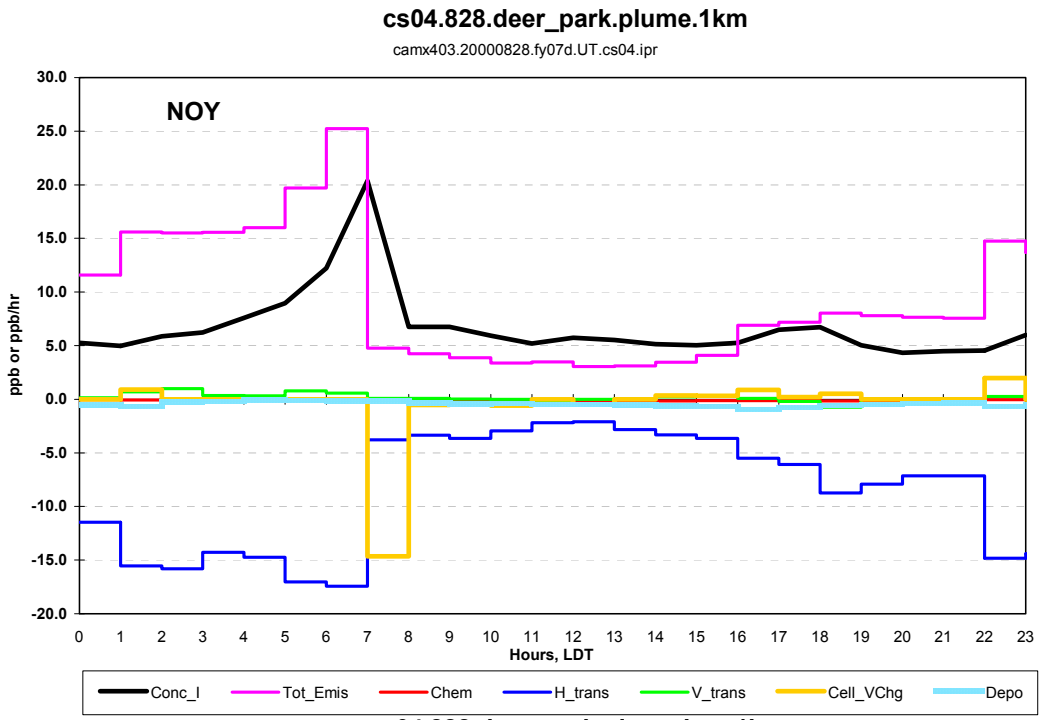
camx403.20000828.fy07d.UT.cs04.ipr
NO2
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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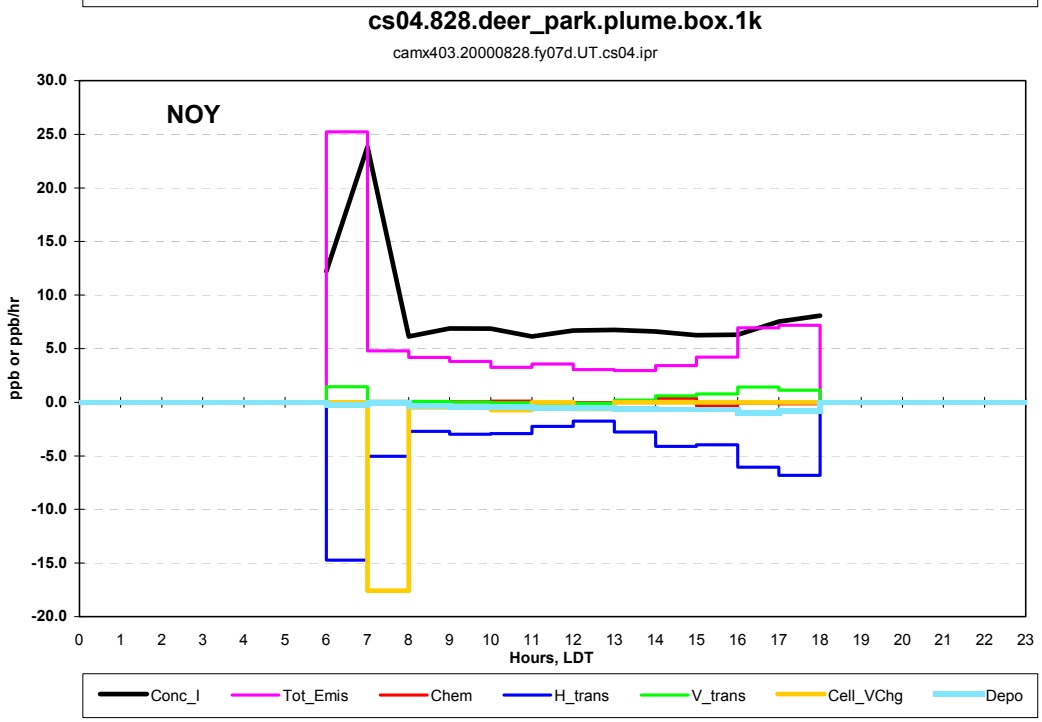
camx403.20000828.fy07d.UT.cs04.ipr
NOY
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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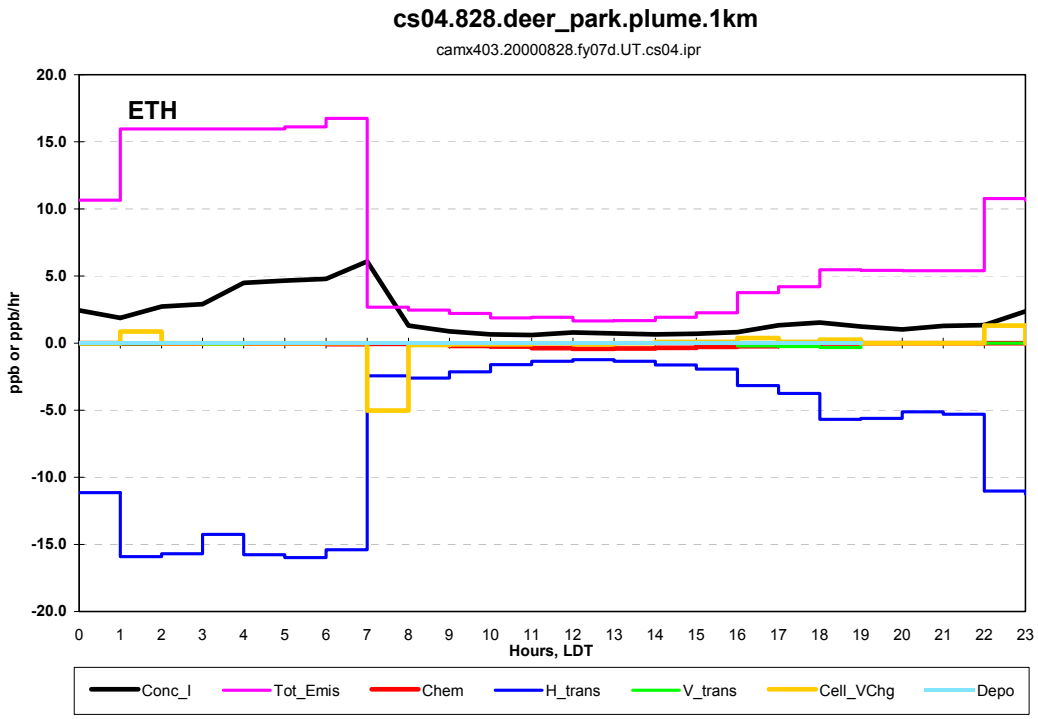
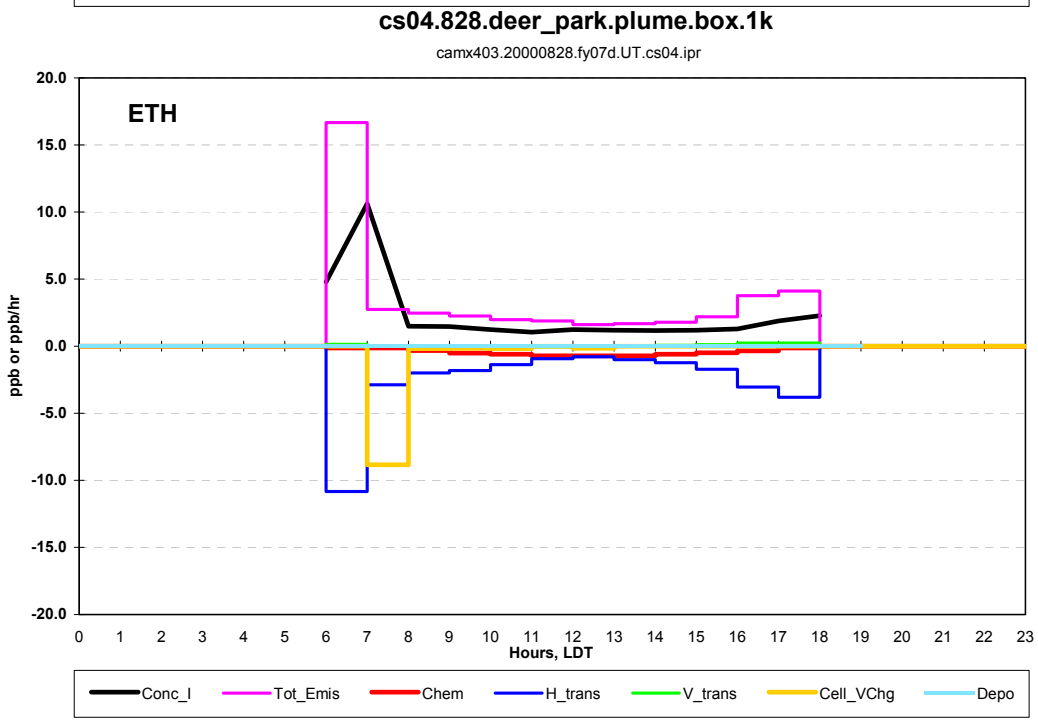
camx403.20000828.fy07d.UT.cs04.ipr
NOY
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo


cs04.828.deer_park.plume.1km
camx403.20000828.fy07d.UT.cs04.ipr
ETH
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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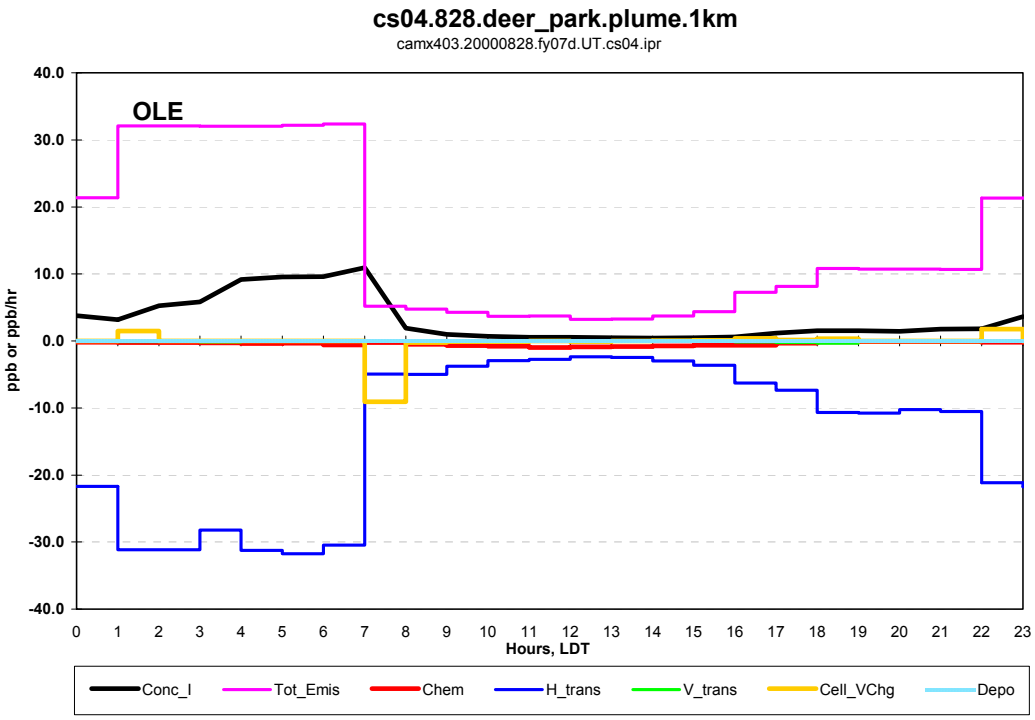
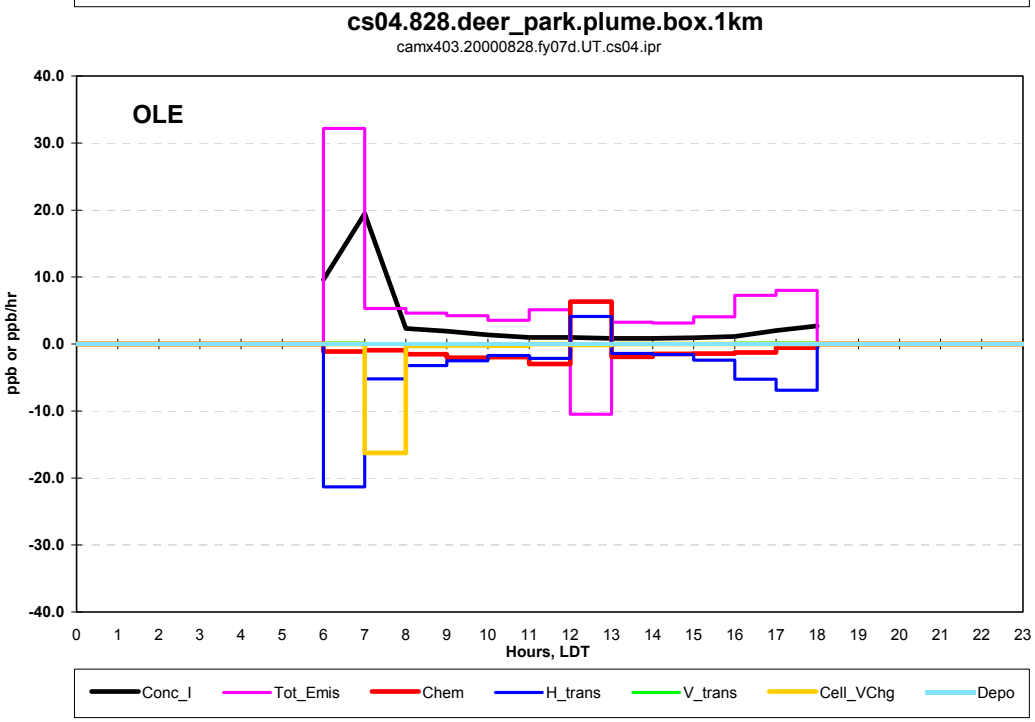
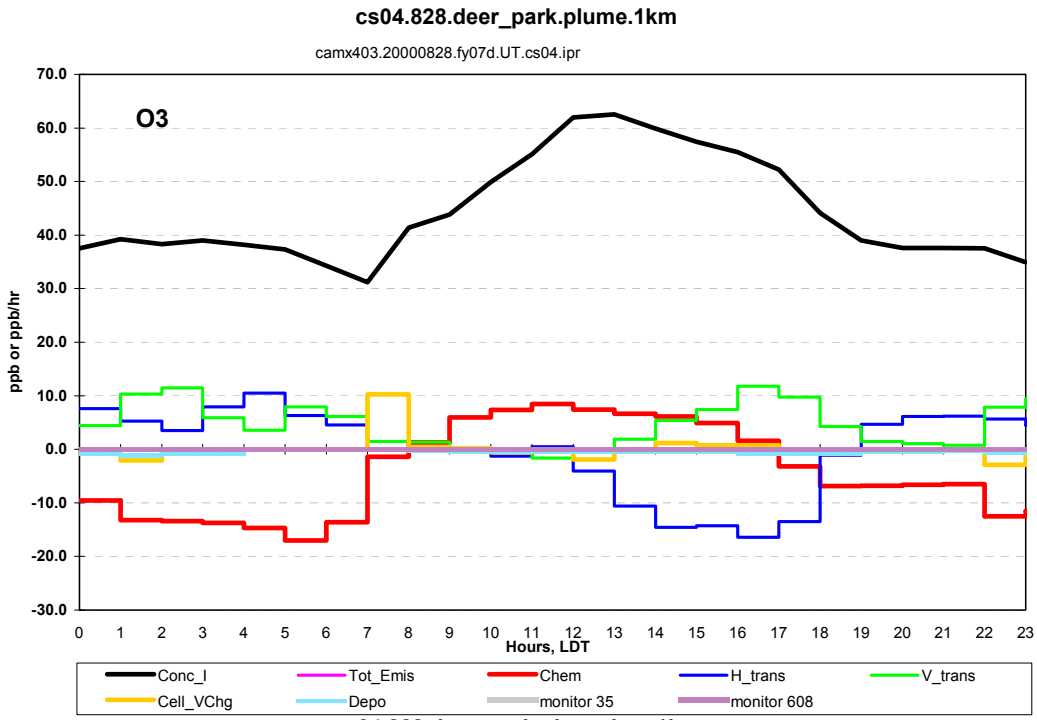
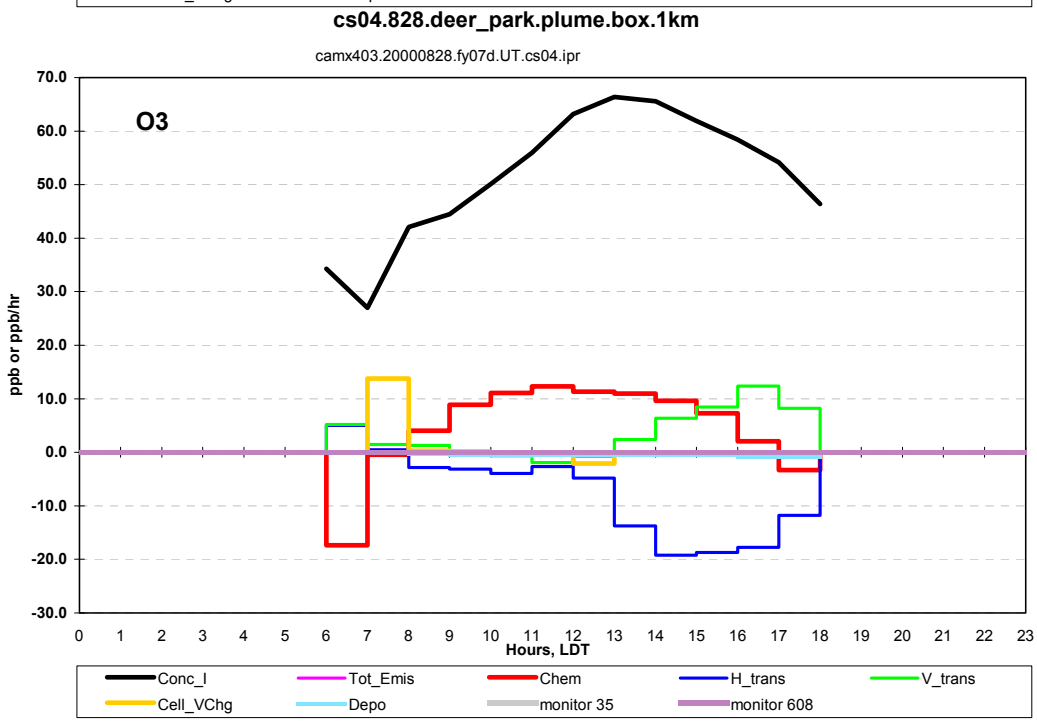
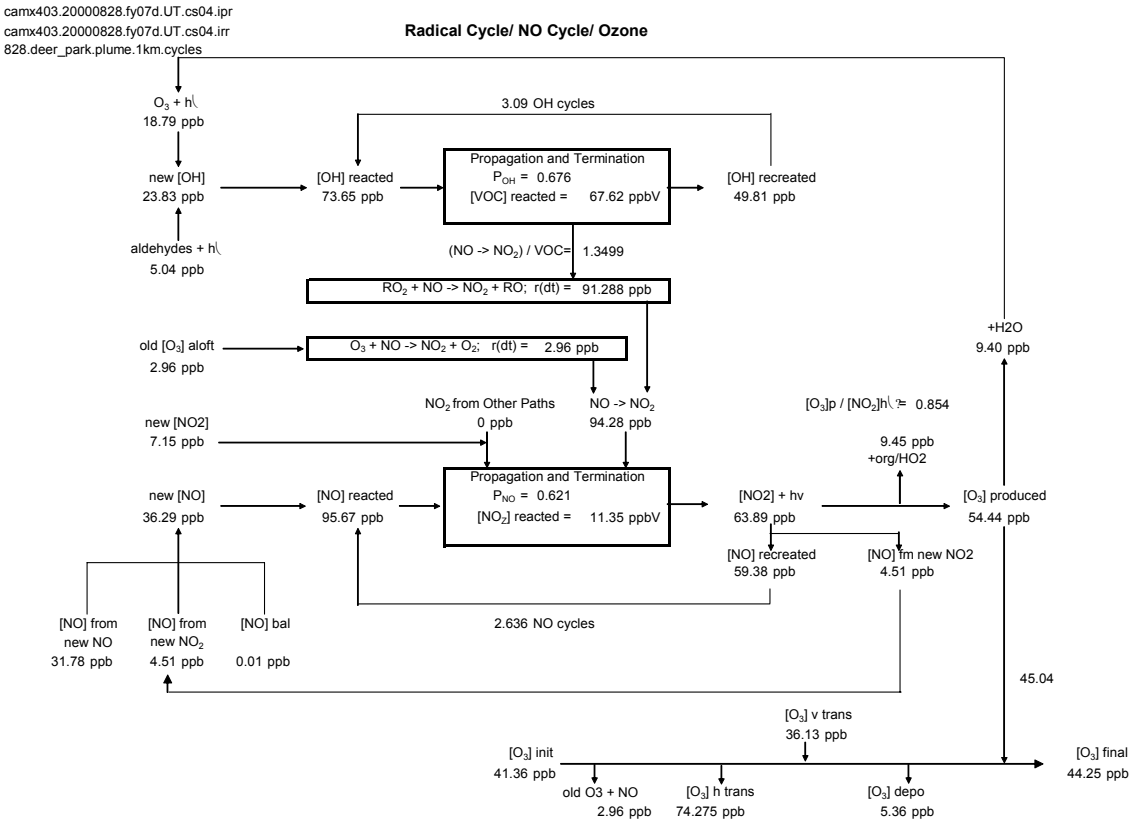
camx403.20000828.fy07d.UT.cs04.ipr
ETH
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo

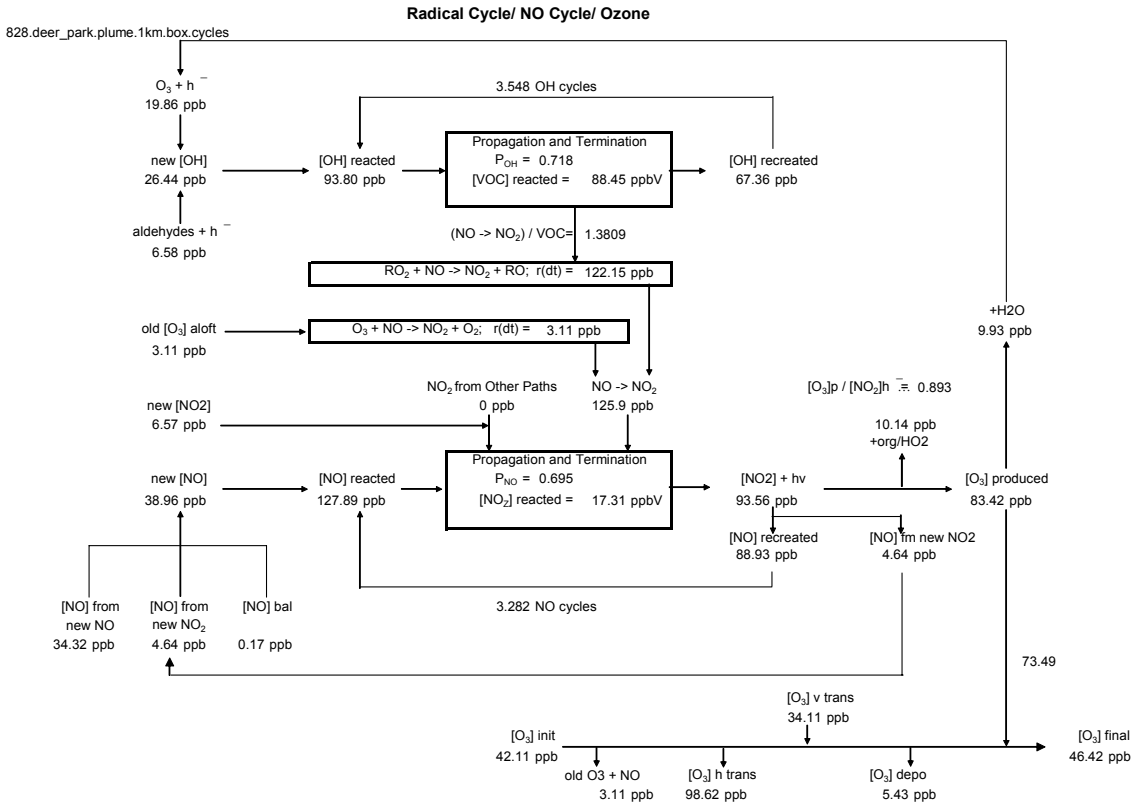

cs04.828.deer_park.plume.1km
camx403.20000828.fy07d.UT.cs04.ipr
OLE
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo

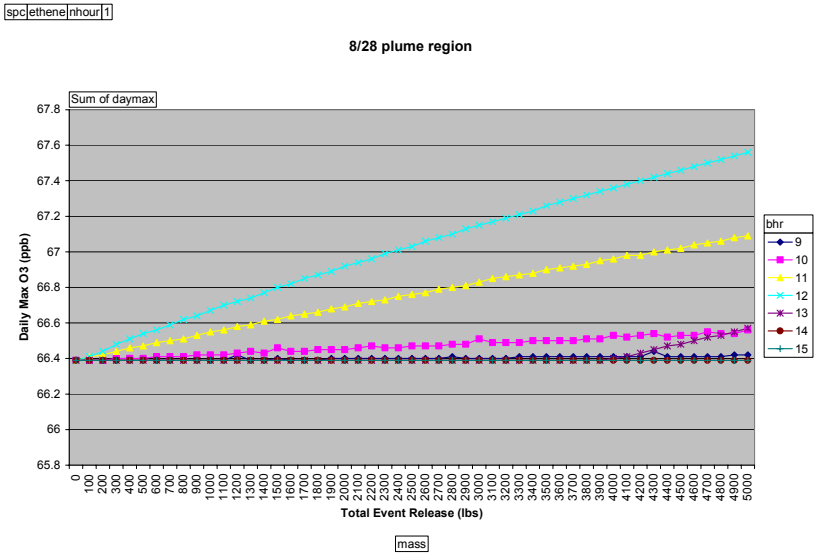

cs04.828.deer_park.plume.box.1km
camx403.20000828.fy07d.UT.cs04.ipr
OLE
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo

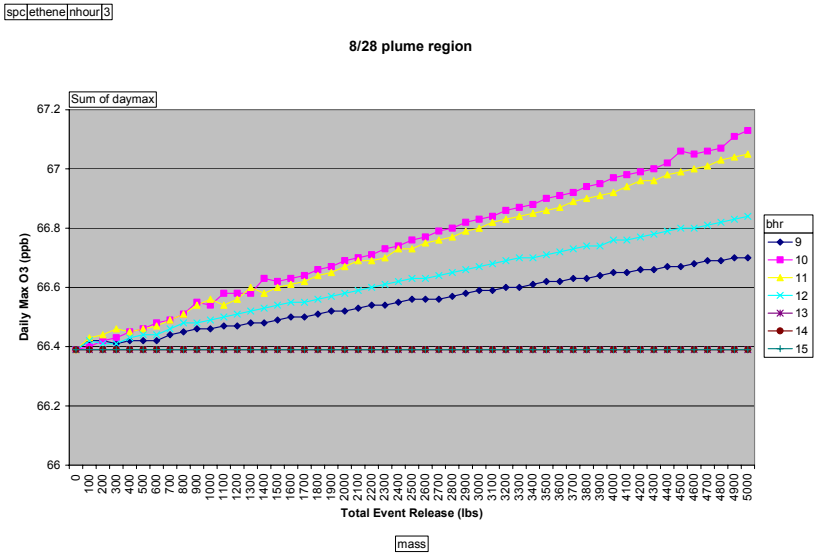

cs04.828.deer_park.plume.1km
camx403.20000828.fy07d.UT.cs04.ipr
O3
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608

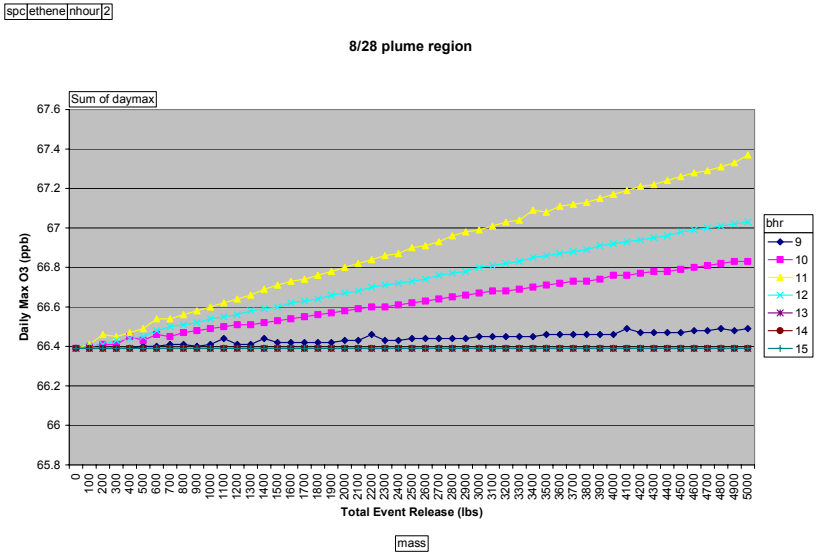

cs04.828.deer_park.plume.box.1km
camx403.20000828.fy07d.UT.cs04.ipr
O3
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608


camx403.20000828.fy07d.UT.cs04.ipr
camx403.20000828.fy07d.UT.cs04.irr
828.deer_park.plume.1km.cycles
Radical Cycle/ NO Cycle/ Ozone
O3 + h\
18.79 ppb
3.09 OH cycles
new [OH]
23.83 ppb
[OH] reacted
73.65 ppb
Propagation and Termination
POH = 0.676
[VOC] reacted = 67.62 ppbV
[OH] recreated
49.81 ppb
aldehydes + h\
5.04 ppb
(NO -> NO2) / VOC= 1.3499
RO2 + NO -> NO2 + RO; r(dt) = 91.288 ppb
old [O3] aloft
2.96 ppb
O3 + NO -> NO2 + O2; r(dt) = 2.96 ppb
+H2O
9.40 ppb
NO2 from Other Paths
0 ppb
NO -> NO2
94.28 ppb
[O3]p / [NO2]h\ = 0.854
new [NO2]
7.15 ppb
9.45 ppb
+org/HO2
Propagation and Termination
PNO = 0.621
[NO2] reacted = 11.35 ppbV
new [NO]
36.29 ppb
[NO] reacted
95.67 ppb
[NO2] + hv
63.89 ppb
[O3] produced
54.44 ppb
[NO] recreated
59.38 ppb
[NO] fm new NO2
4.51 ppb
[NO] from
new NO
31.78 ppb
[NO] from
new NO2
4.51 ppb
[NO] bal
0.01 ppb
2.636 NO cycles
45.04
[O3] v trans
36.13 ppb
[O3] init
41.36 ppb
[O3] final
44.25 ppb
old O3 + NO
2.96 ppb
[O3] h trans
74.275 ppb
[O3] depo
5.36 ppb

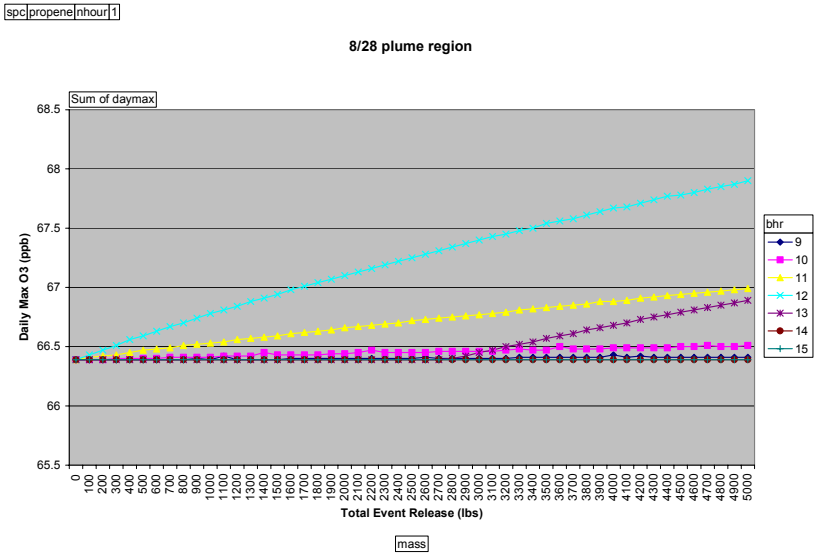

Radical Cycle/ NO Cycle/ Ozone
828.deer_park.plume.1km.box.cycles
O3 + h
19.86 ppb
3.548 OH cycles
new [OH]
26.44 ppb
[OH] reacted
93.80 ppb
Propagation and Termination
POH = 0.718
[VOC] reacted = 88.45 ppbV
[OH] recreated
67.36 ppb
aldehydes + h
6.58 ppb
(NO -> NO2) / VOC= 1.3809
RO2 + NO -> NO2 + RO; r(dt) = 122.15 ppb
+H2O
9.93 ppb
old [O3] aloft
3.11 ppb
O3 + NO -> NO2 + O2; r(dt) = 3.11 ppb
NO2 from Other Paths
0 ppb
NO -> NO2
125.9 ppb
[O3]p / [NO2]h = 0.893
new [NO2]
6.57 ppb
10.14 ppb
+org/HO2
new [NO]
38.96 ppb
[NO] reacted
127.89 ppb
Propagation and Termination
PNO = 0.695
[NOZ] reacted = 17.31 ppbV
[NO2] + hv
93.56 ppb
[O3] produced
83.42 ppb
[NO] recreated
88.93 ppb
[NO] fm new NO2
4.64 ppb
[NO] from
new NO
34.32 ppb
[NO] from
new NO2
4.64 ppb
[NO] bal
0.17 ppb
3.282 NO cycles
73.49
[O3] v trans
34.11 ppb
[O3] init
42.11 ppb
[O3] final
46.42 ppb
old O3 + NO
3.11 ppb
[O3] h trans
98.62 ppb
[O3] depo
5.43 ppb

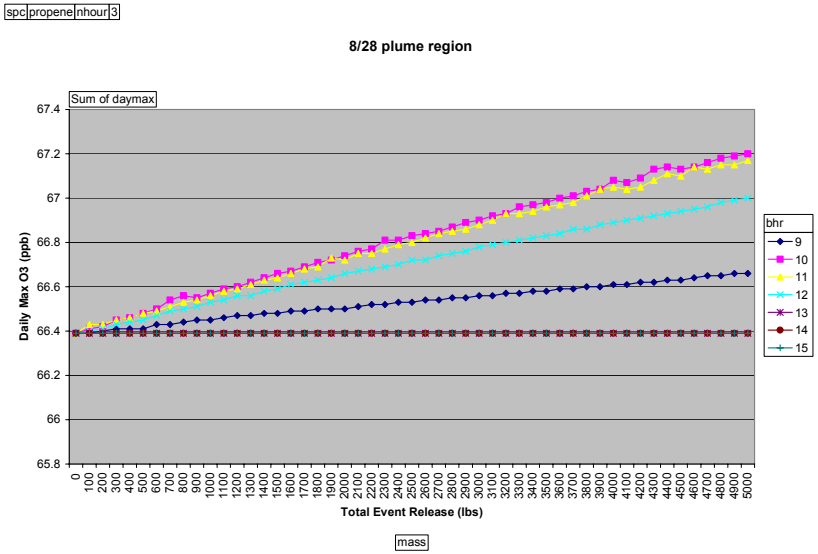


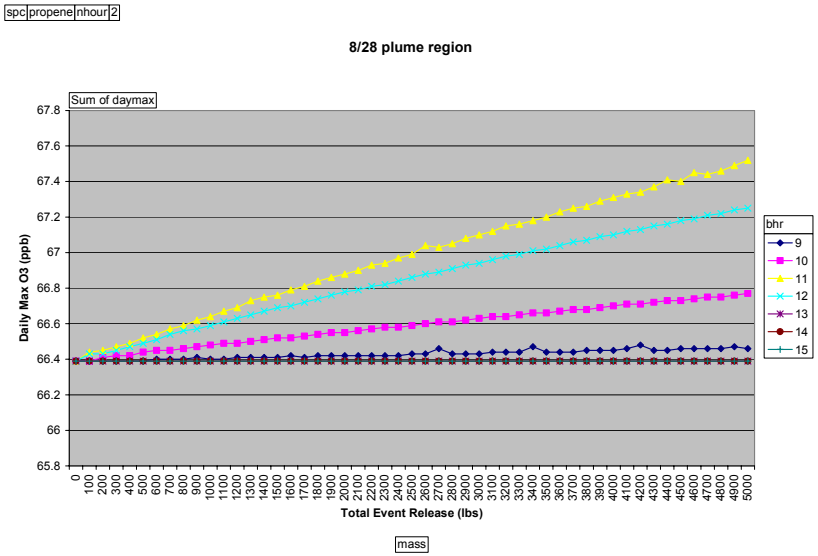




Sensitivity of daily max to the Ethene emission in "Plume region" of Baytown, Aug. 28: Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)

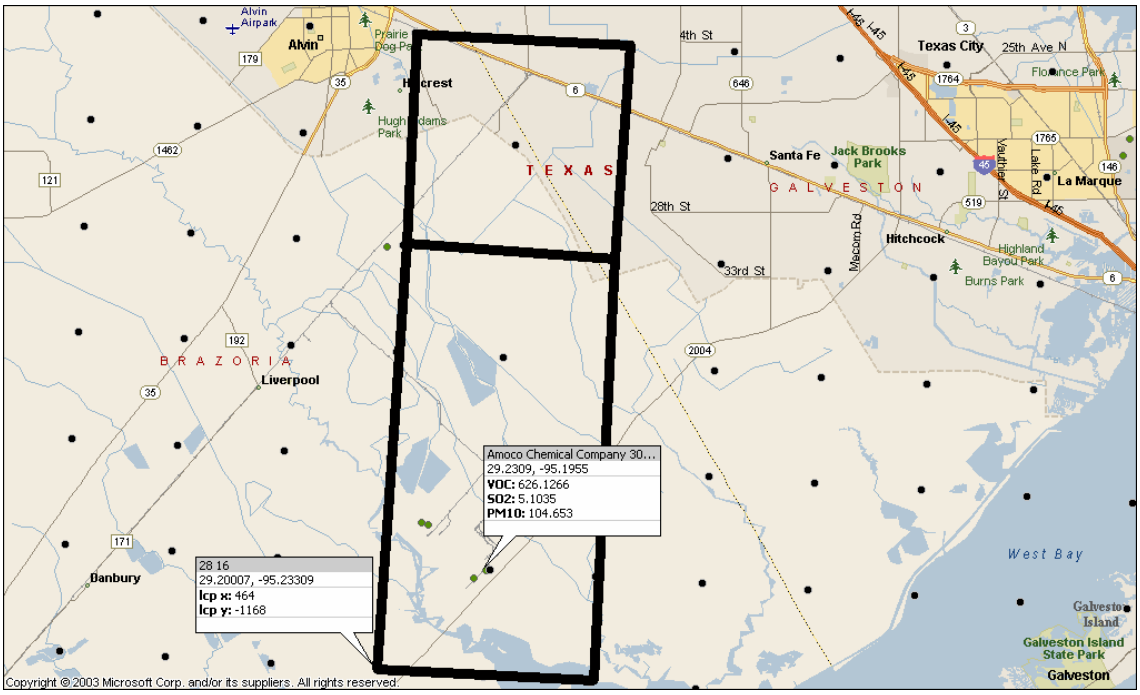




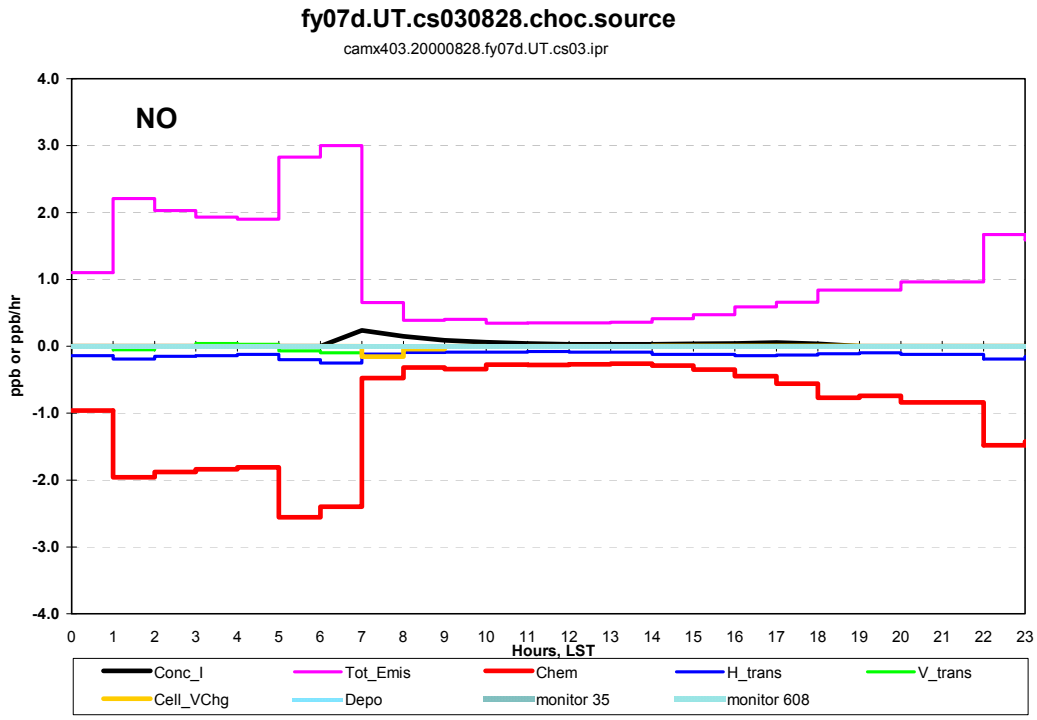


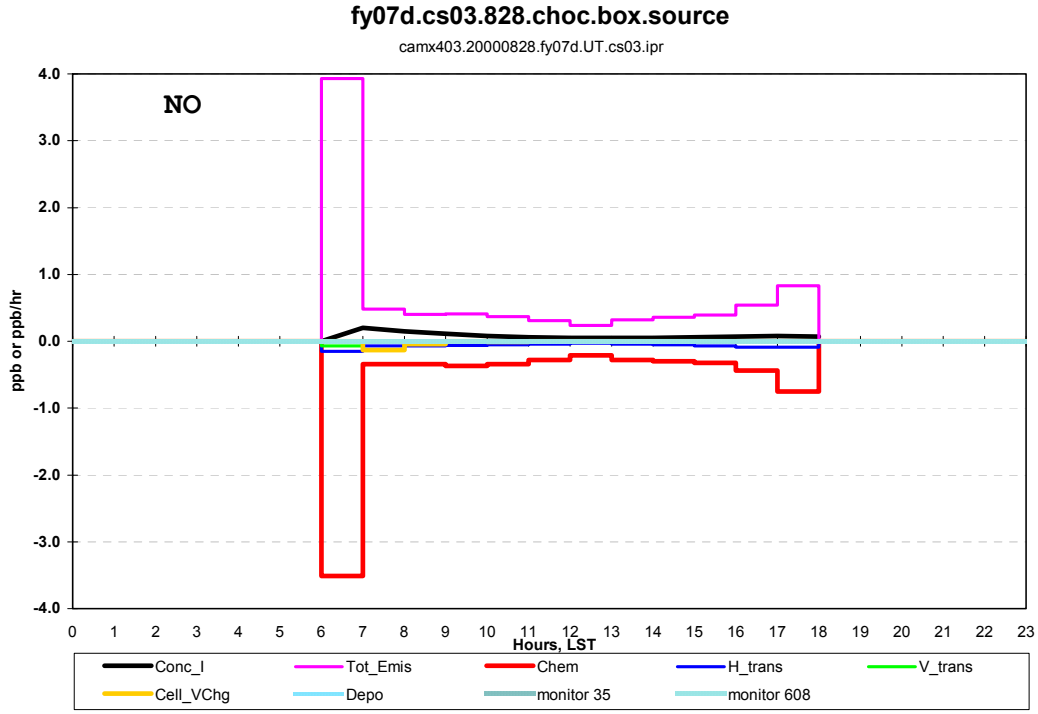
Sensitivity of daily max to the Propene emission in "Plume region" of Baytown, Aug. 28: Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)

FY07d.CS03 Chocolate Bayou 8/28



8_28_00 Process Analysis Box outlined in black. Black Dots represent lower left hand corner of 4km grid cells


fy07d.UT.cs030828.choc.source
camx403.20000828.fy07d.UT.cs03.ipr
NO
ppb or ppb/hr
Hours, LST
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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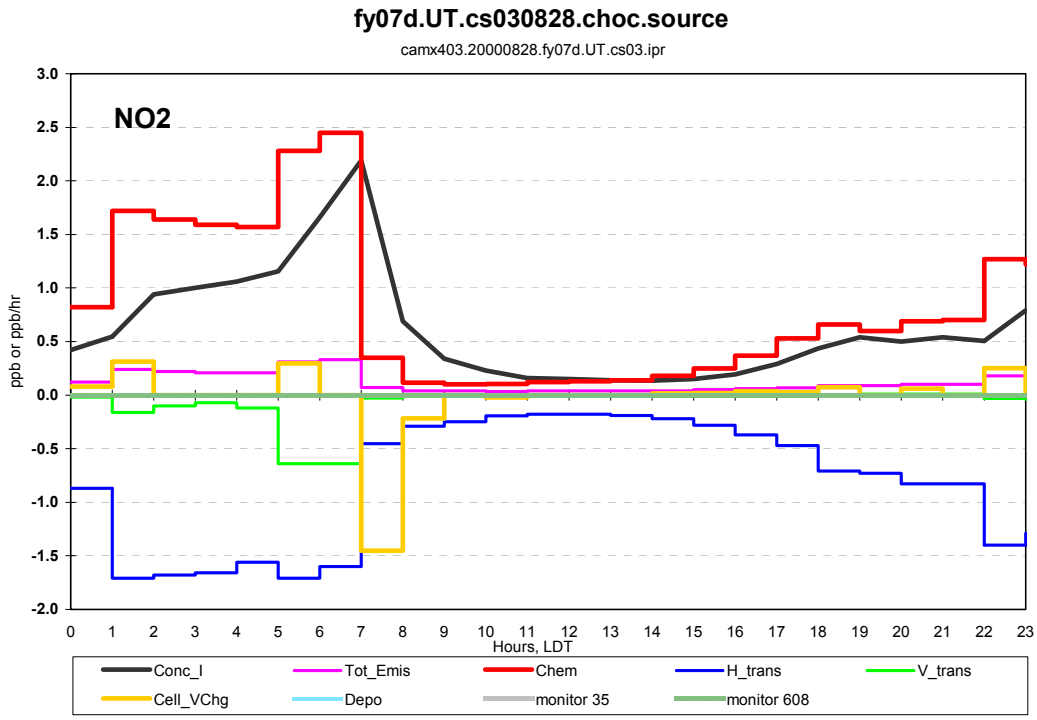
NO
ppb or ppb/hr
Hours, LST
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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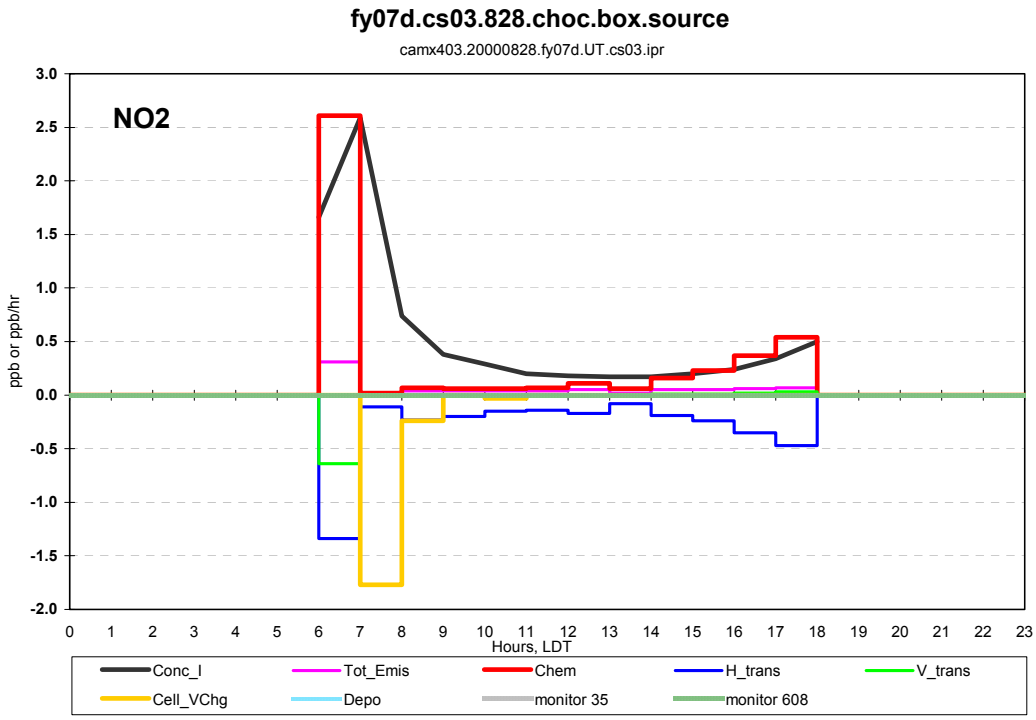
NO2
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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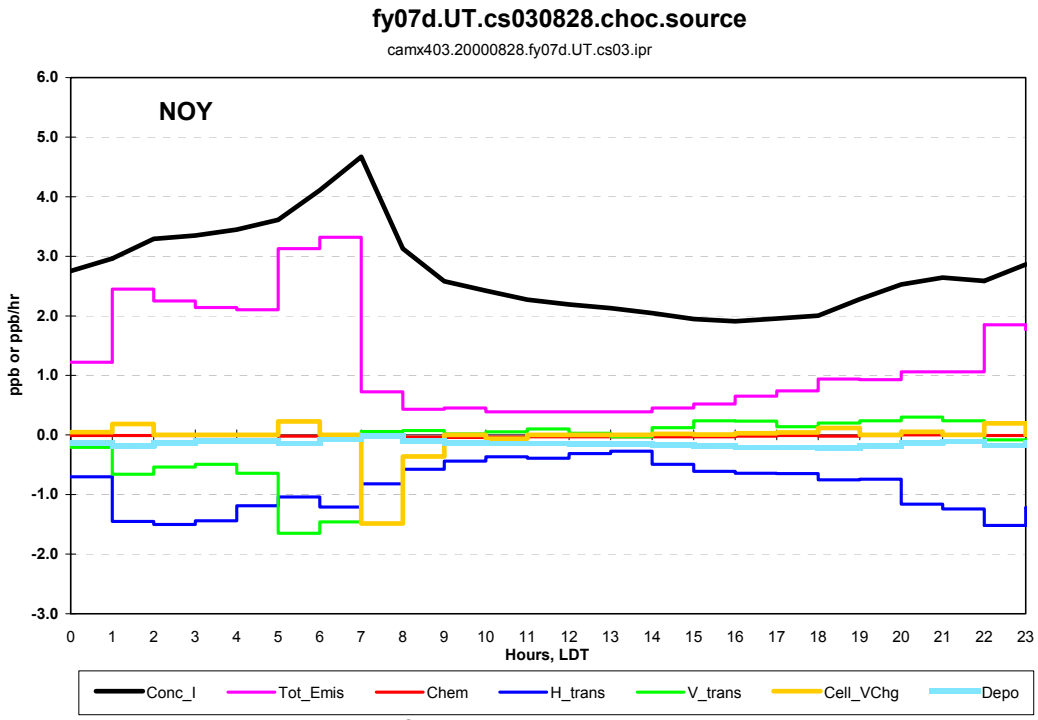
NO2
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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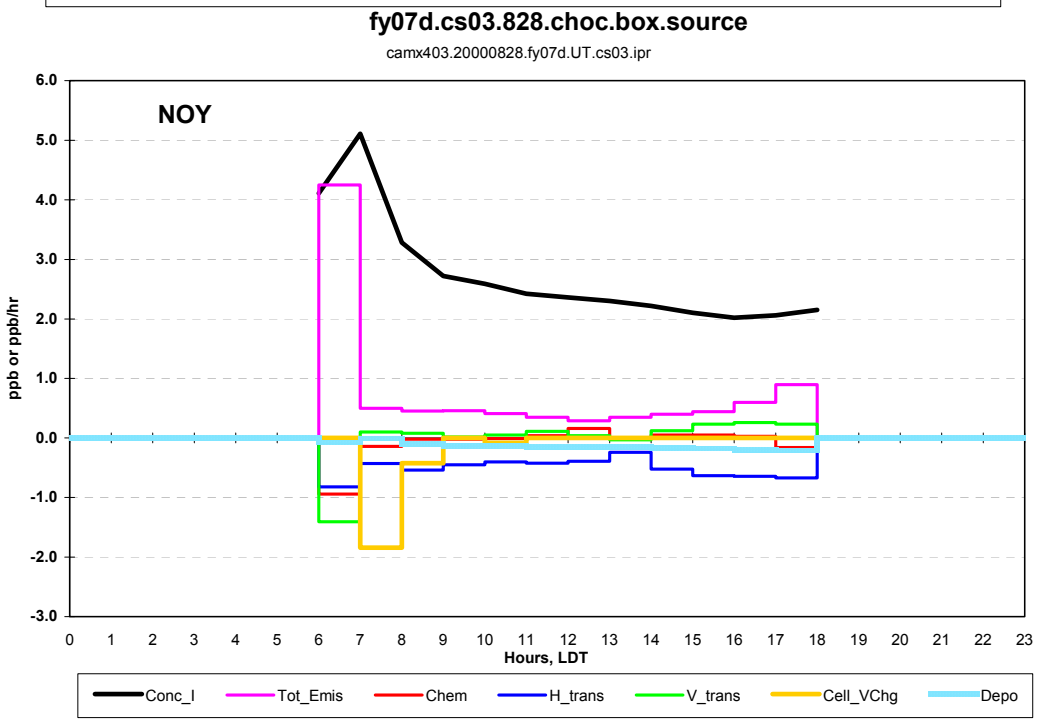
NOY
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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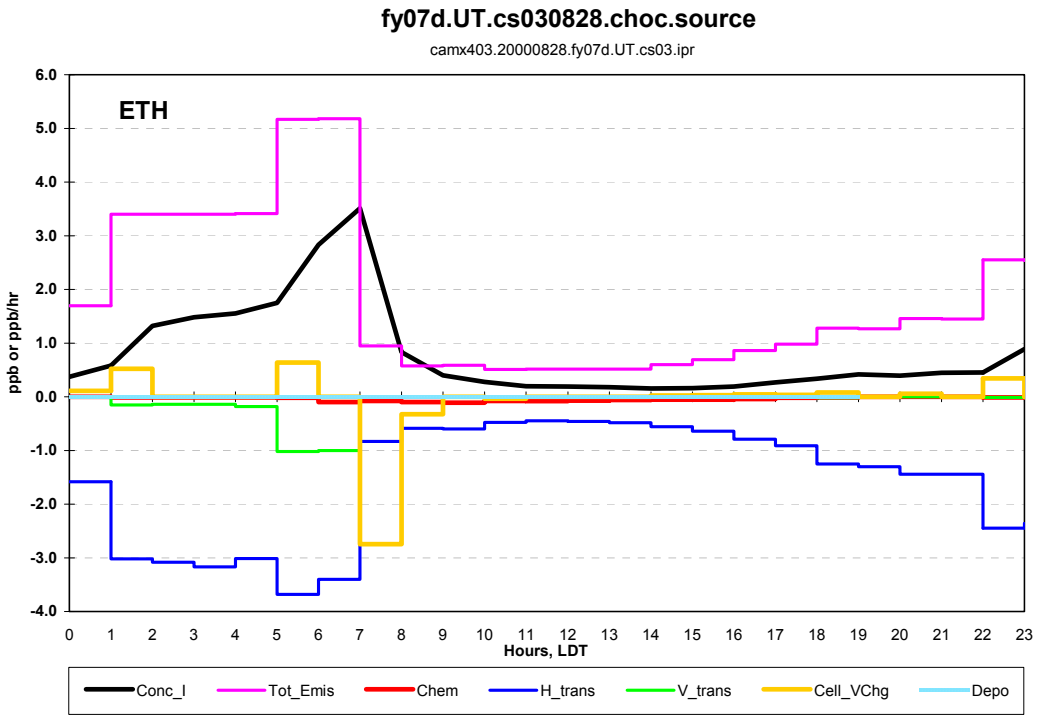
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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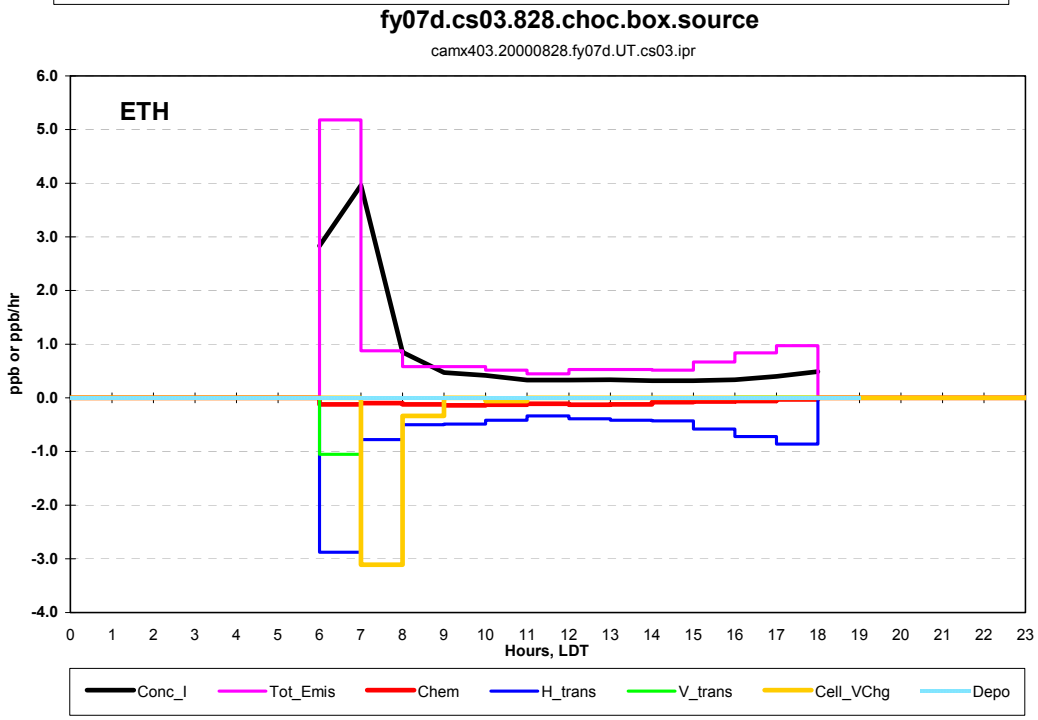
ETH
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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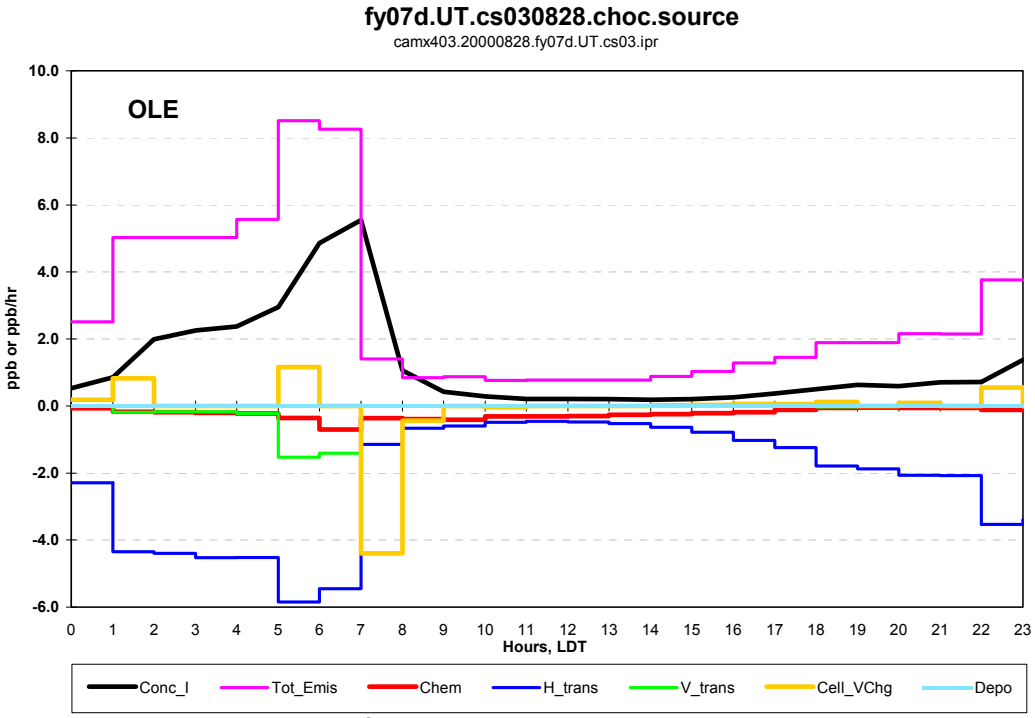
ETH
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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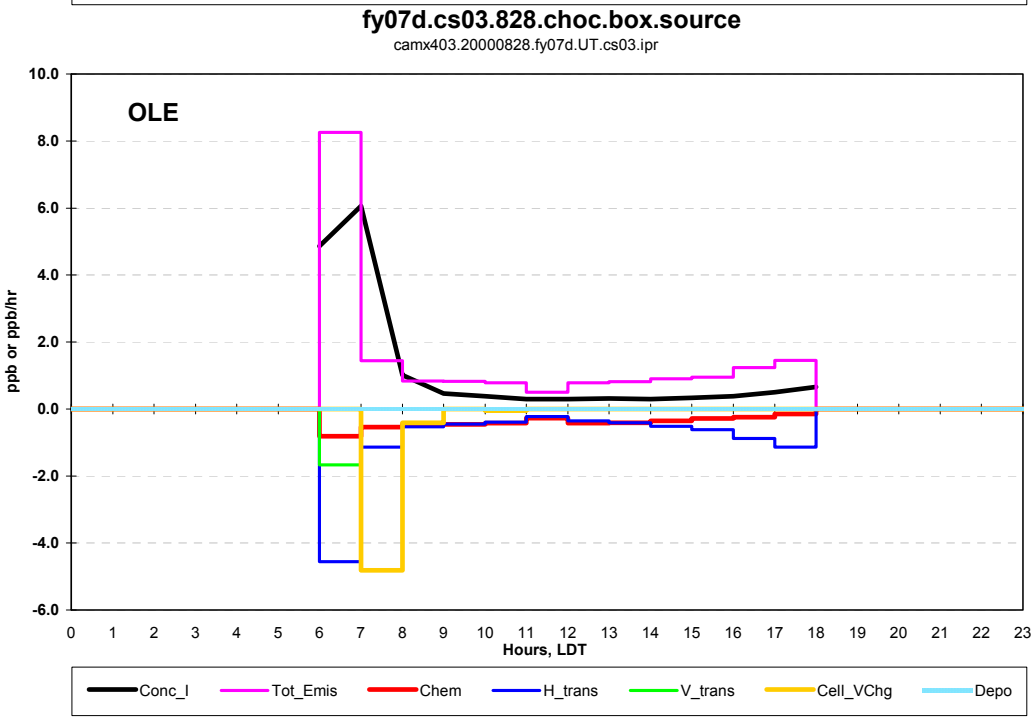
OLE
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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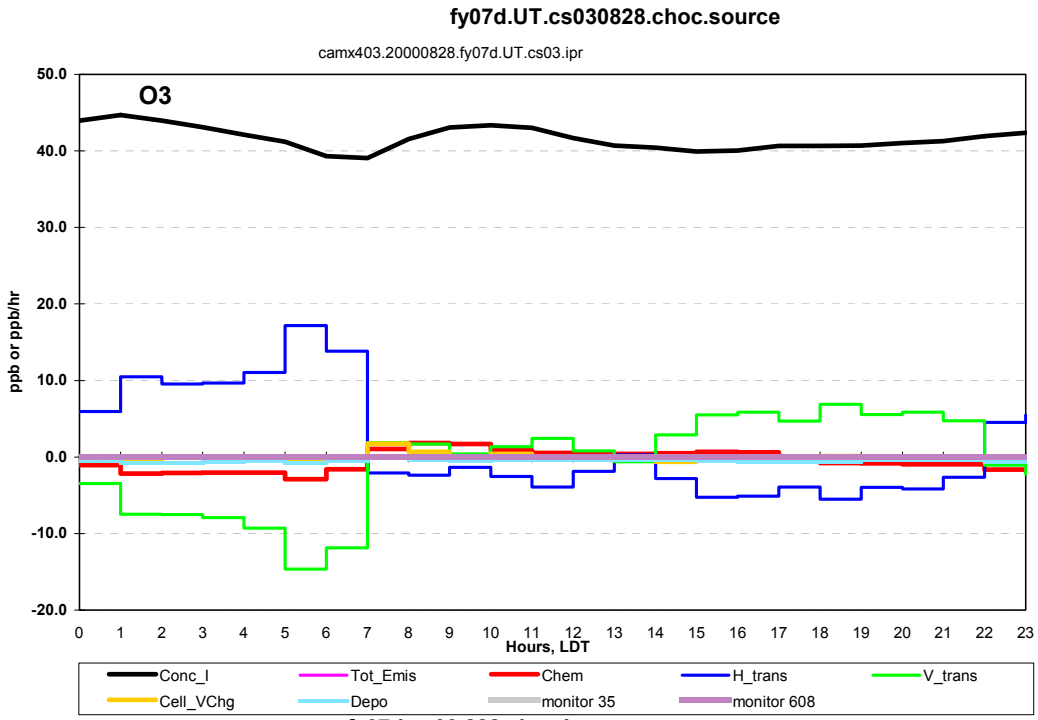
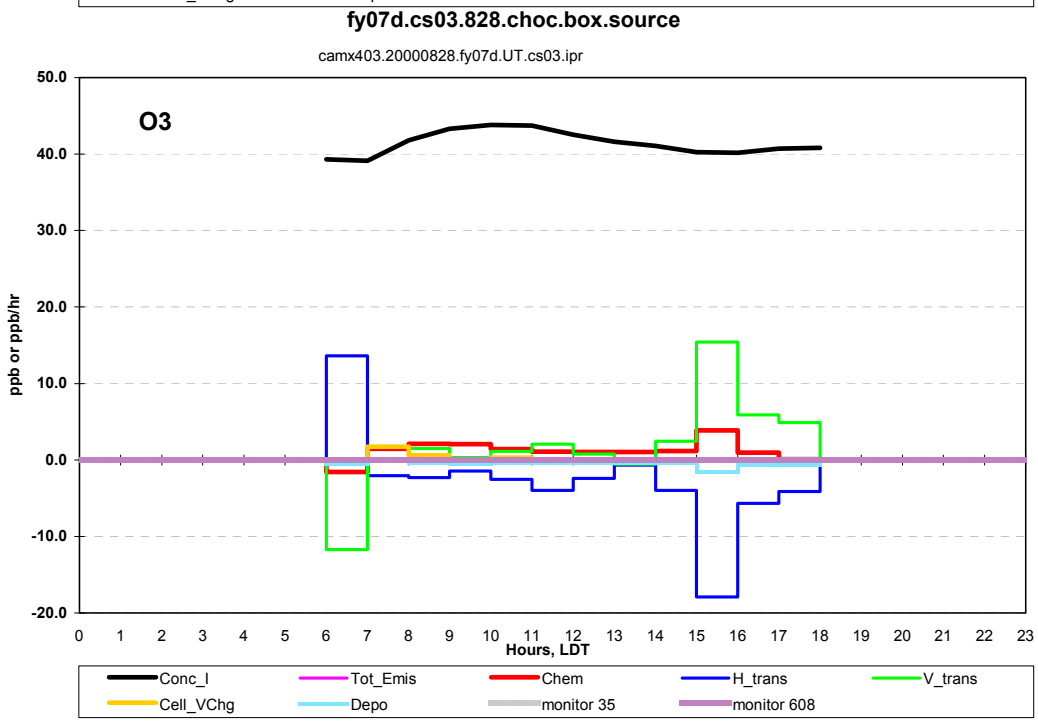
camx403.20000828.fy07d.UT.cs03.ipr
OLE
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo


fy07d.UT.cs030828.choc.source
camx403.20000828.fy07d.UT.cs03.ipr
O3
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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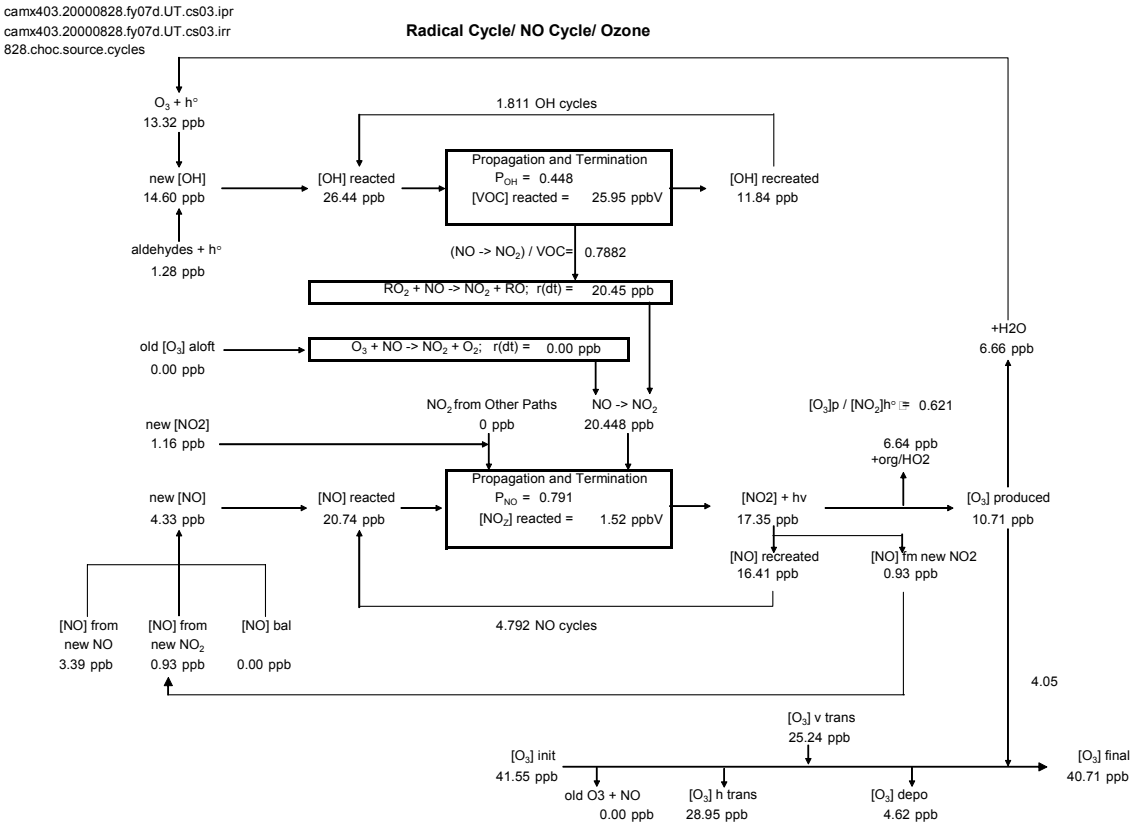
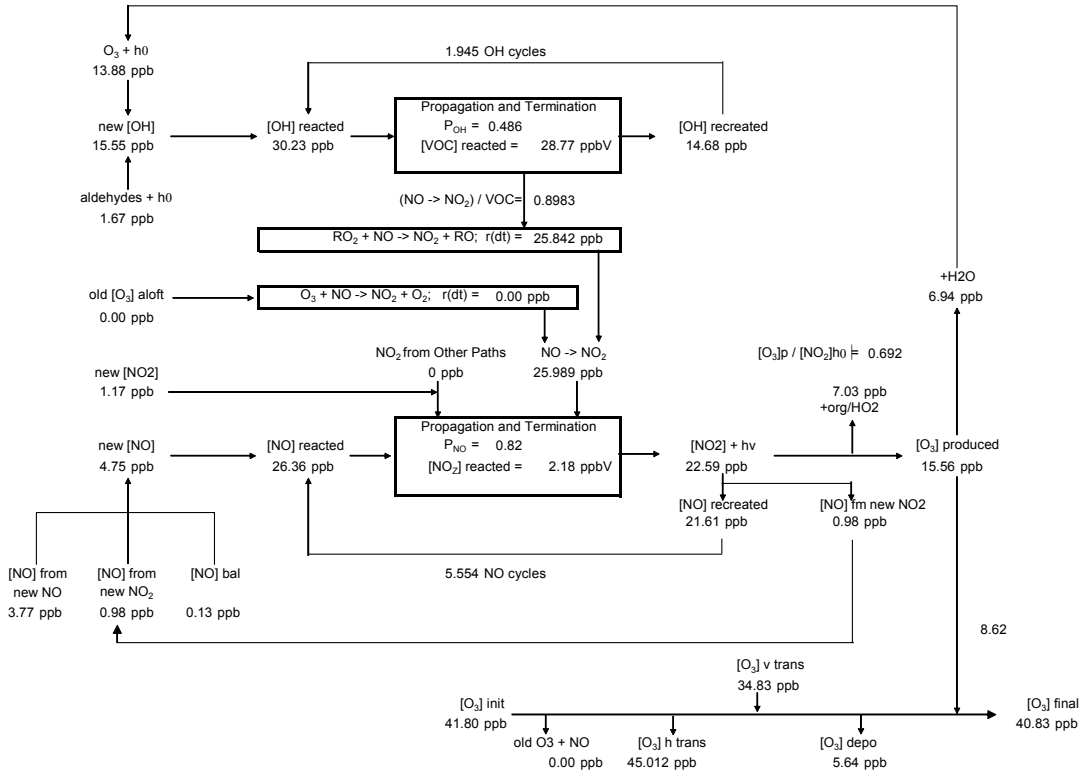
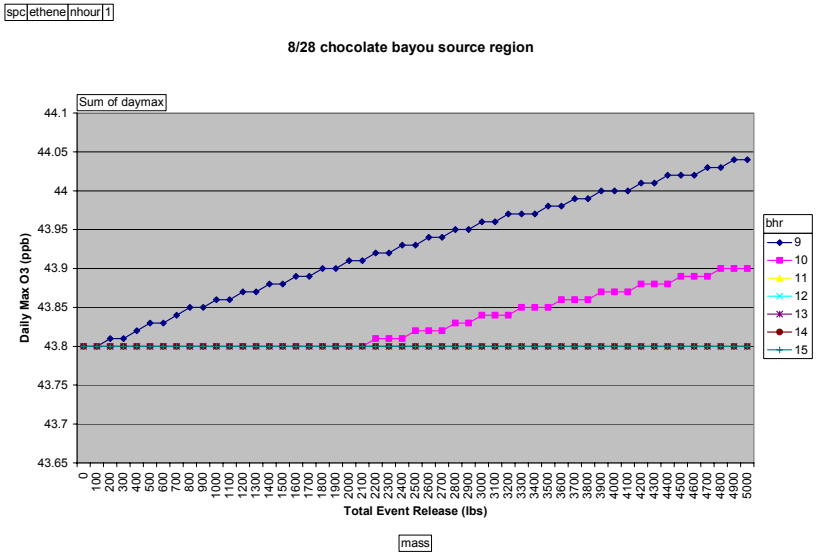
camx403.20000828.fy07d.UT.cs03.ipr
O3
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608

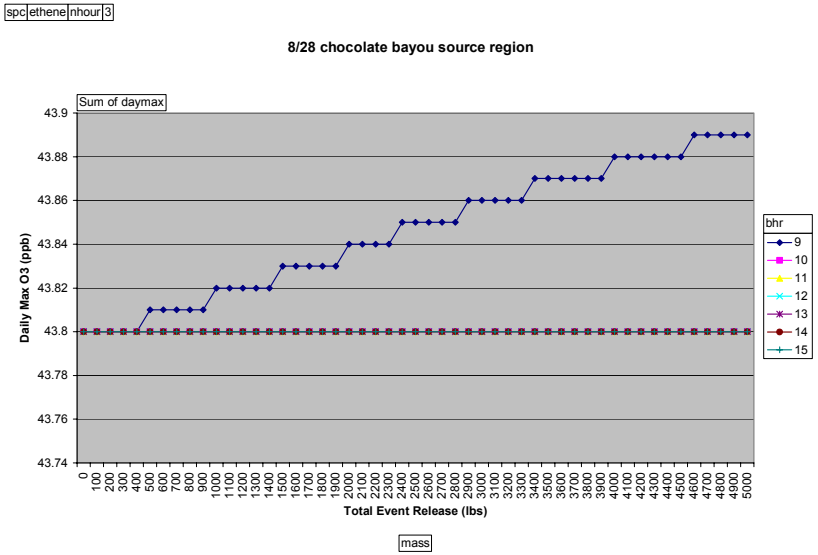

camx403.20000828.fy07d.UT.cs03.ipr
camx403.20000828.fy07d.UT.cs03.irr
828.choc.source.cycles
Radical Cycle/ NO Cycle/ Ozone
O3 + h°
13.32 ppb
1.811 OH cycles
new [OH]
14.60 ppb
[OH] reacted
26.44 ppb
Propagation and Termination
POH = 0.448
[VOC] reacted = 25.95 ppbV
[OH] recreated
11.84 ppb
aldehydes + h°
1.28 ppb
(NO -> NO2) / VOC= 0.7882
RO2 + NO -> NO2 + RO; r(dt) = 20.45 ppb
+H2O
6.66 ppb
old [O3] aloft
0.00 ppb
O3 + NO -> NO2 + O2; r(dt) = 0.00 ppb
NO2 from Other Paths
0 ppb
NO -> NO2
20.448 ppb
[O3]p / [NO2]h° = 0.621
new [NO2]
1.16 ppb
6.64 ppb
+org/HO2
new [NO]
4.33 ppb
[NO] reacted
20.74 ppb
Propagation and Termination
PNO = 0.791
[NO2] reacted = 1.52 ppbV
[NO2] + hv
17.35 ppb
[O3] produced
10.71 ppb
[NO] recreated
16.41 ppb
[NO] fm new NO2
0.93 ppb
[NO] from new NO
3.39 ppb
[NO] from new NO2
0.93 ppb
[NO] bal
0.00 ppb
4.792 NO cycles
4.05
[O3] v trans
25.24 ppb
[O3] init
41.55 ppb
[O3] final
40.71 ppb
old O3 + NO
0.00 ppb
[O3] h trans
28.95 ppb
[O3] depo
4.62 ppb

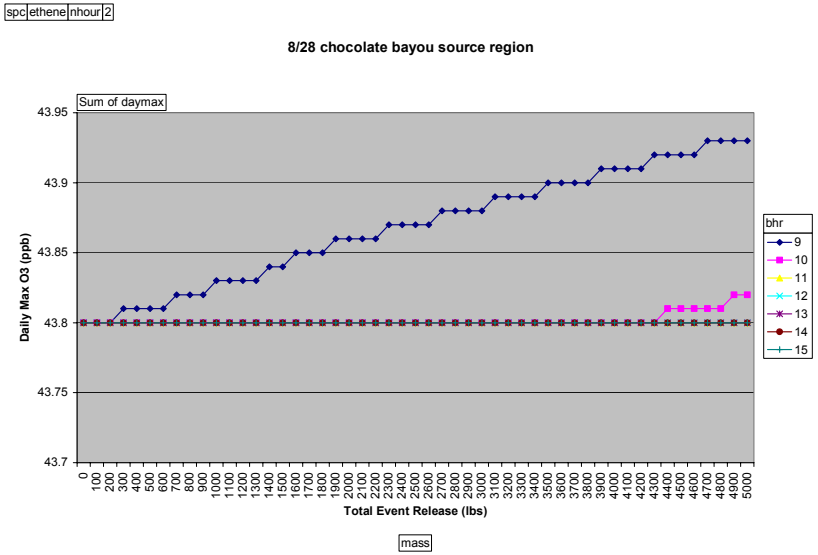
828.choc.source.box.cycles

Radical Cycle/ NO Cycle/ Ozone

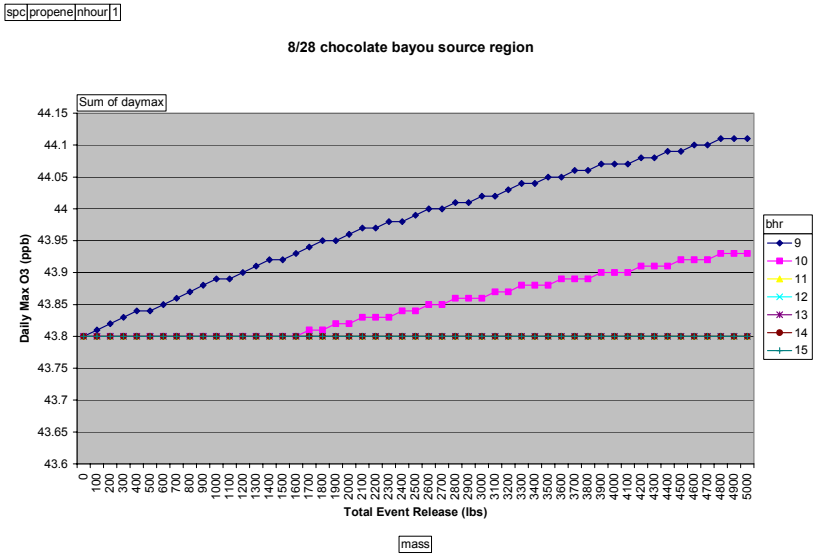


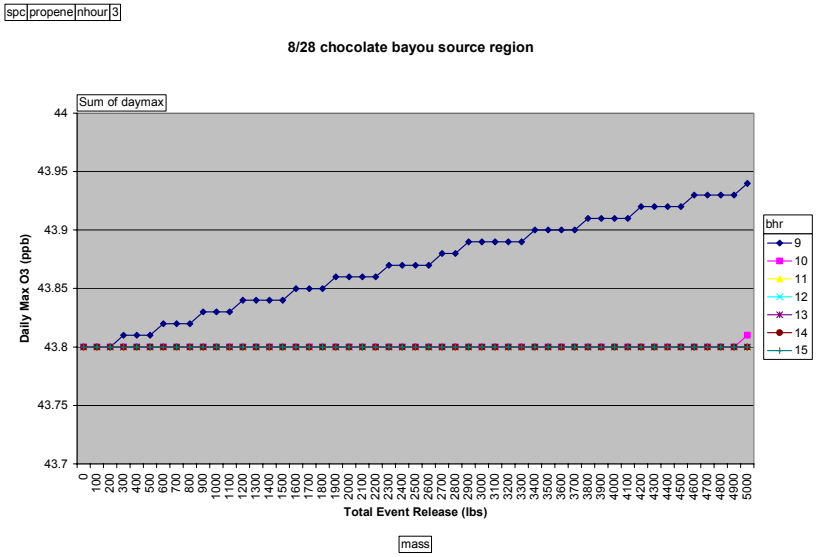


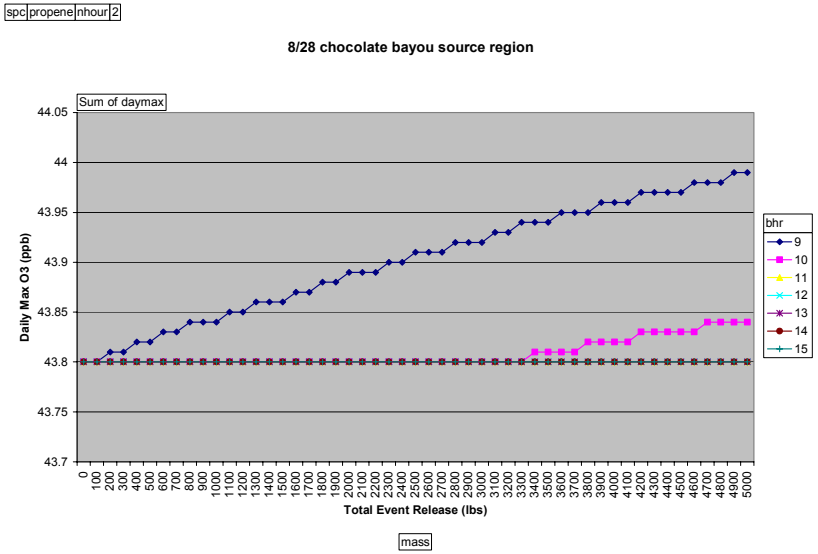




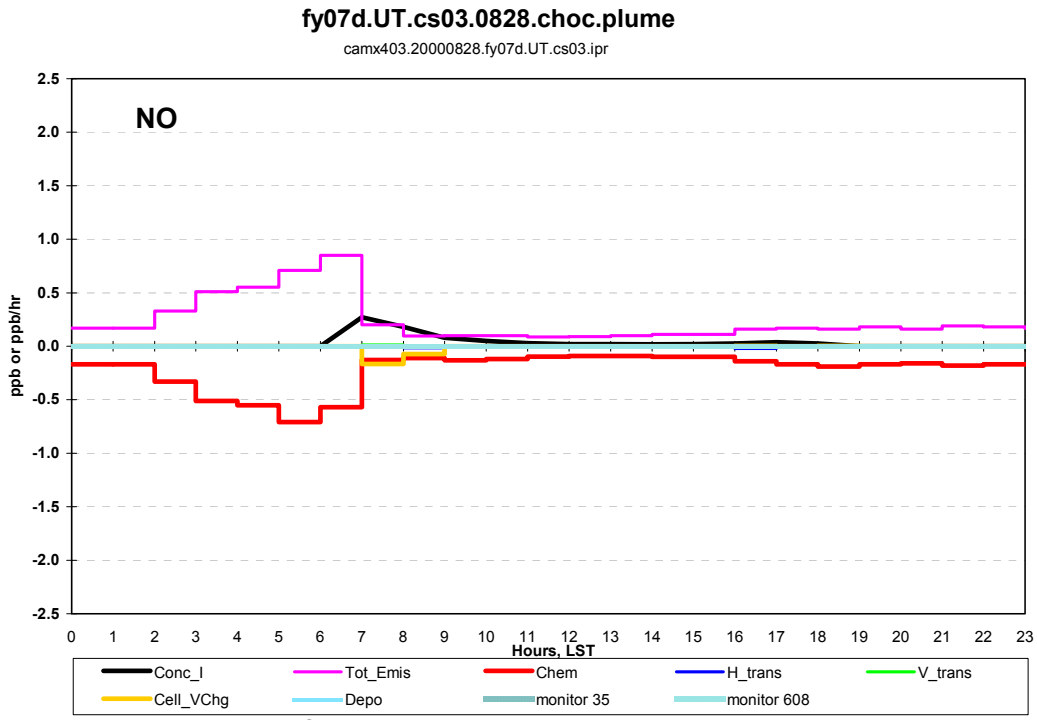
Sensitivity of daily max to the Ethene emission in "Source region" of Chocolate Bayou, Aug. 28: Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)







Sensitivity of daily max to the Propene emission in "Source region" of Chocolate Bayou, Aug. 28: Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)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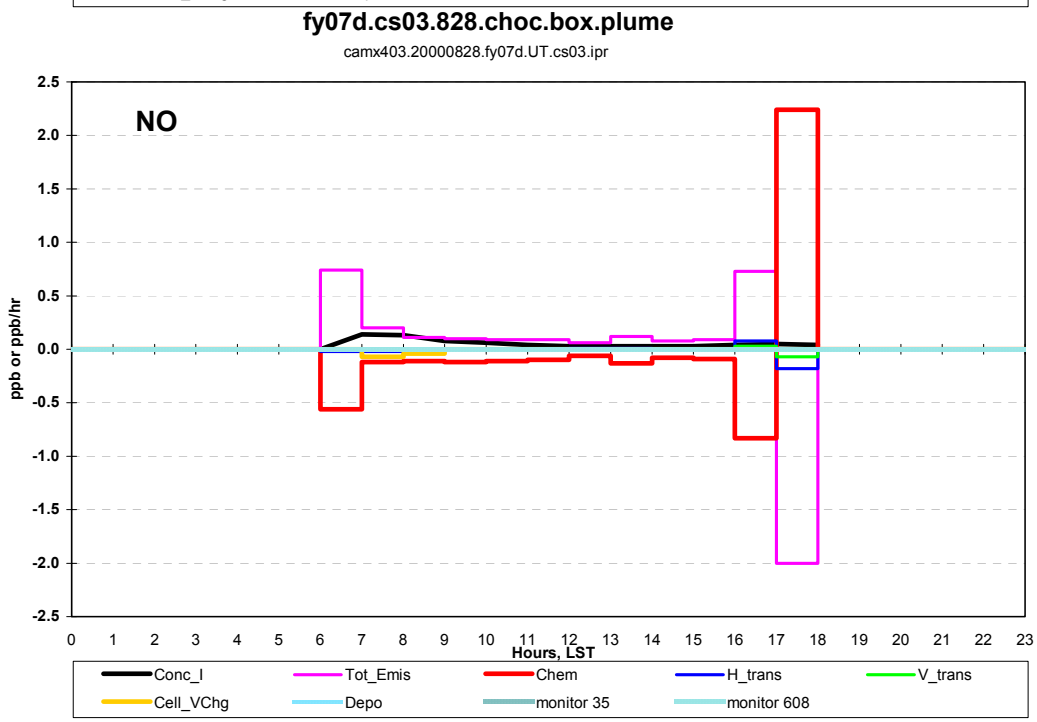
camx403.20000828.fy07d.UT.cs03.ipr
NO
ppb or ppb/hr
Hours, LST
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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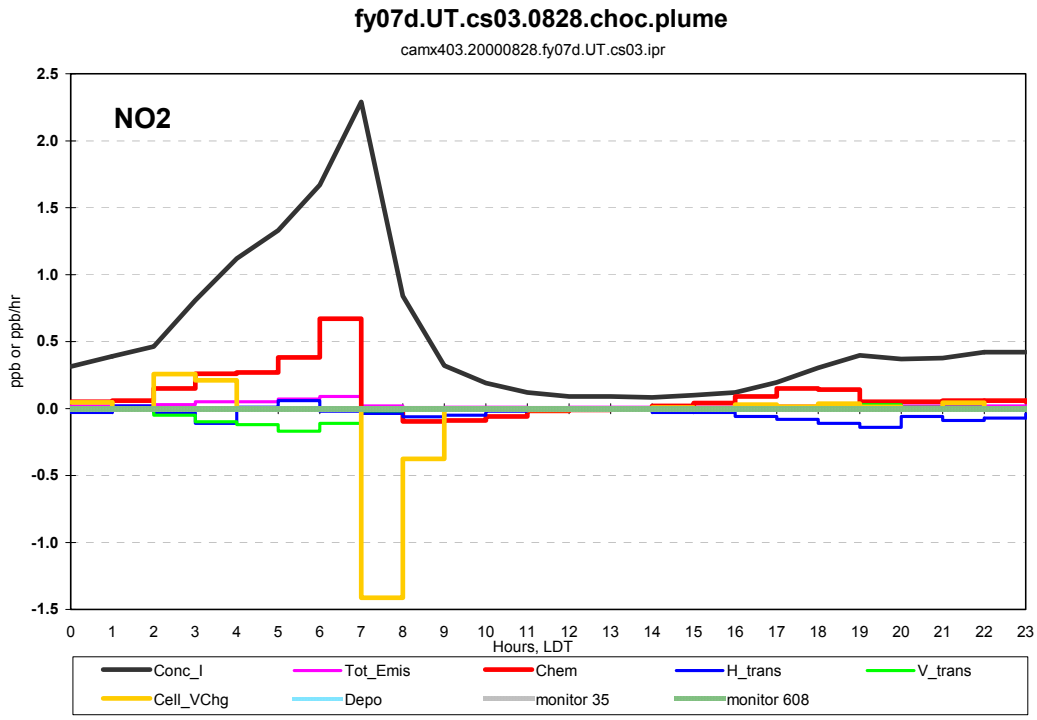
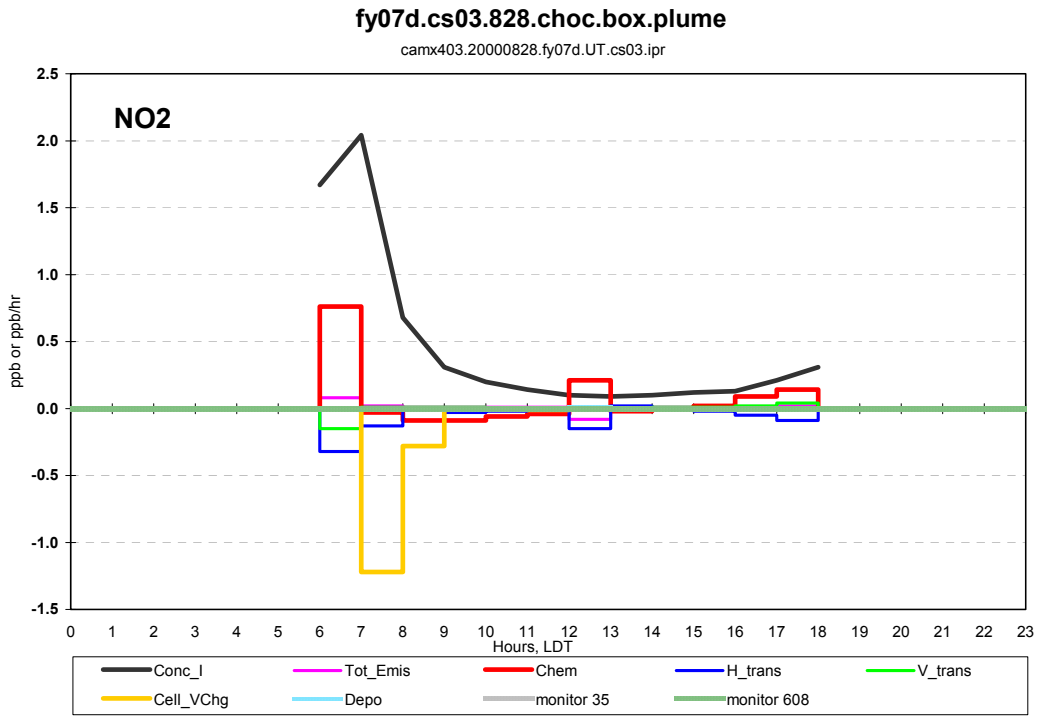
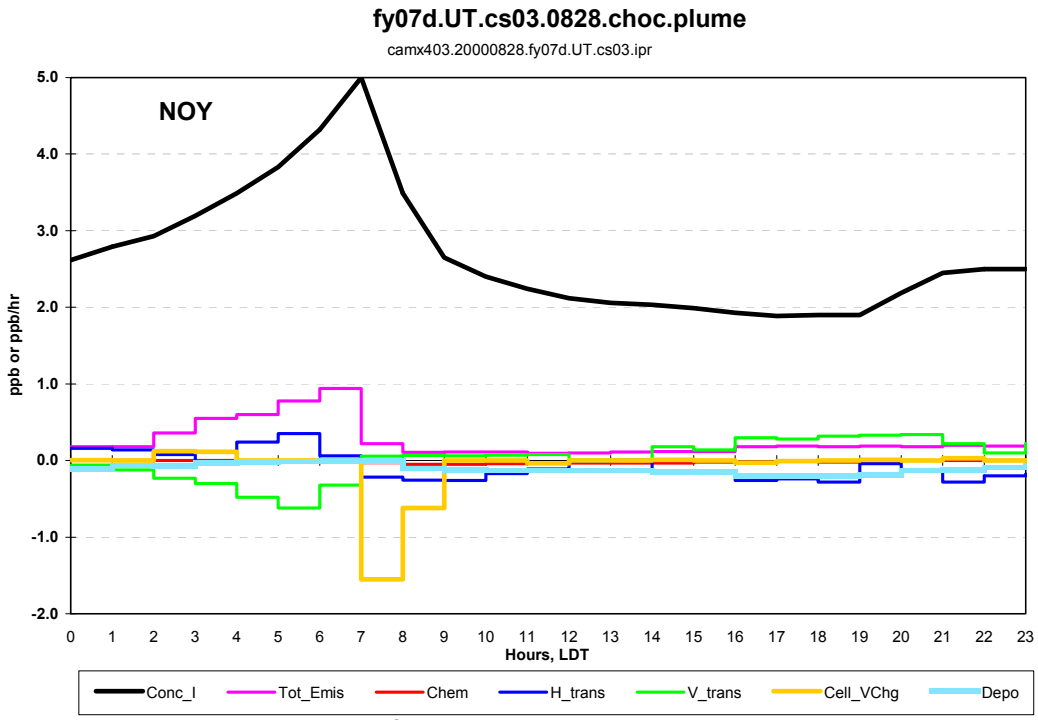
camx403.20000828.fy07d.UT.cs03.ipr
NO
ppb or ppb/hr
Hours, LST
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608


fy07d.UT.cs03.0828.choc.plume
camx403.20000828.fy07d.UT.cs03.ipr
NO2
ppb or ppb/hr
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
-1.5
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608


fy07d.cs03.828.choc.box.plume
camx403.20000828.fy07d.UT.cs03.ipr
NO2
ppb or ppb/hr
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
-1.5
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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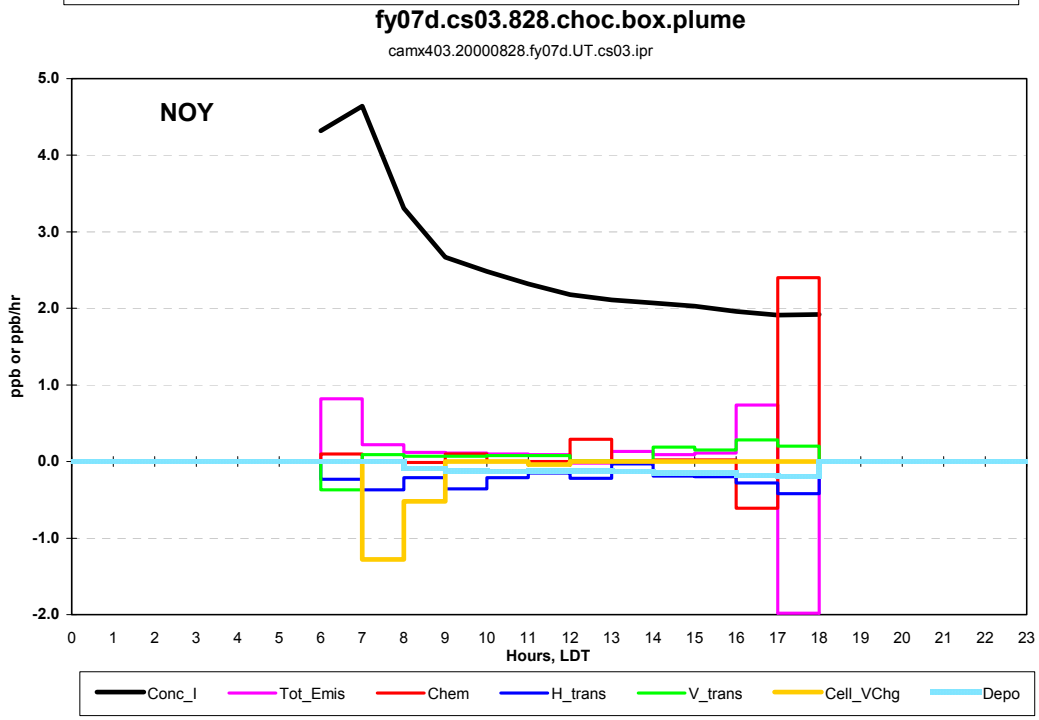
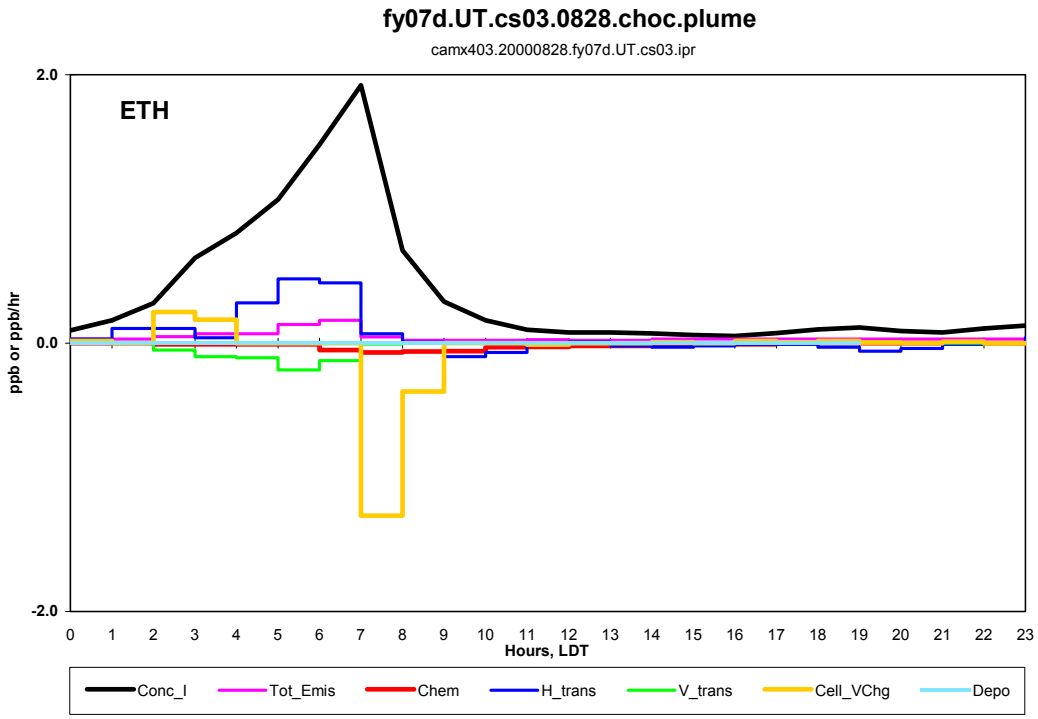
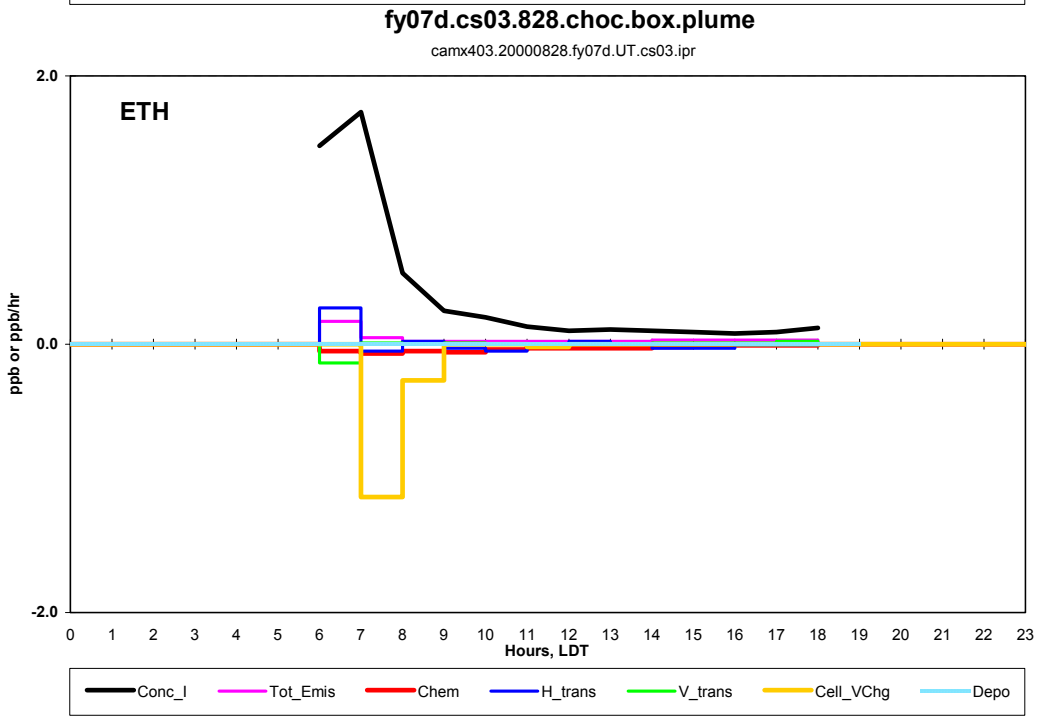
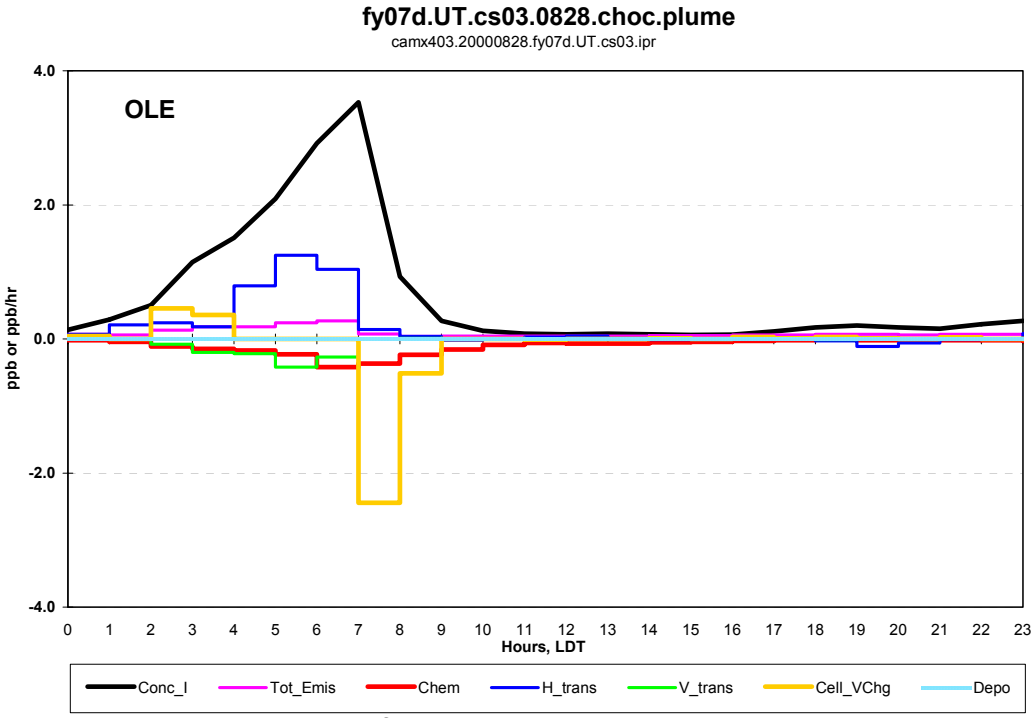
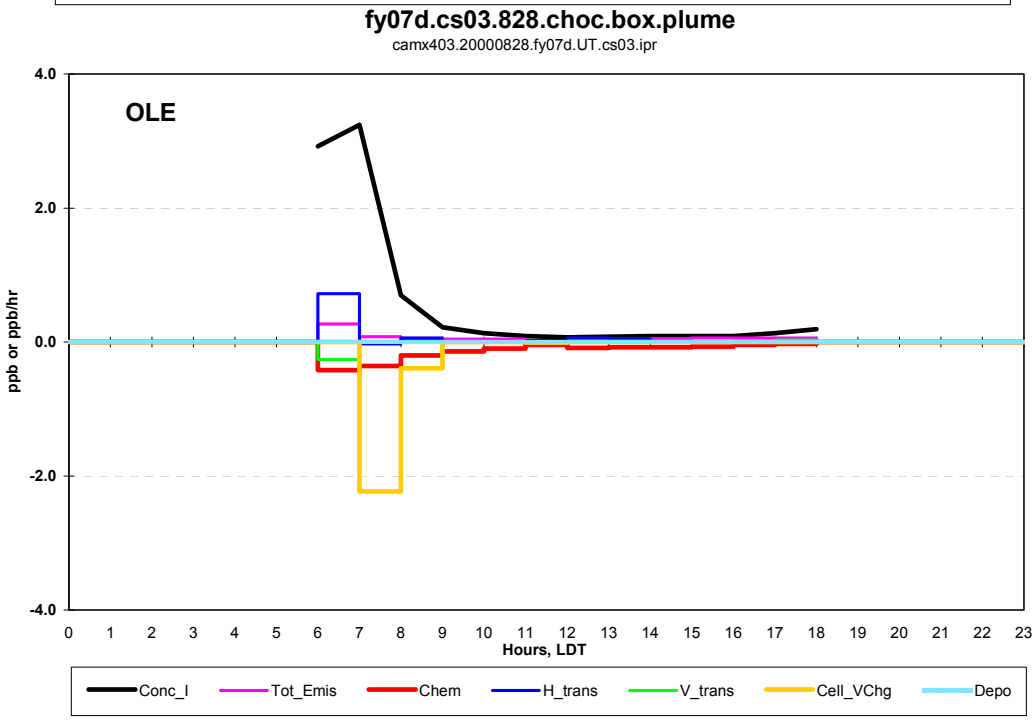
camx403.20000828.fy07d.UT.cs03.ipr
NOY
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo

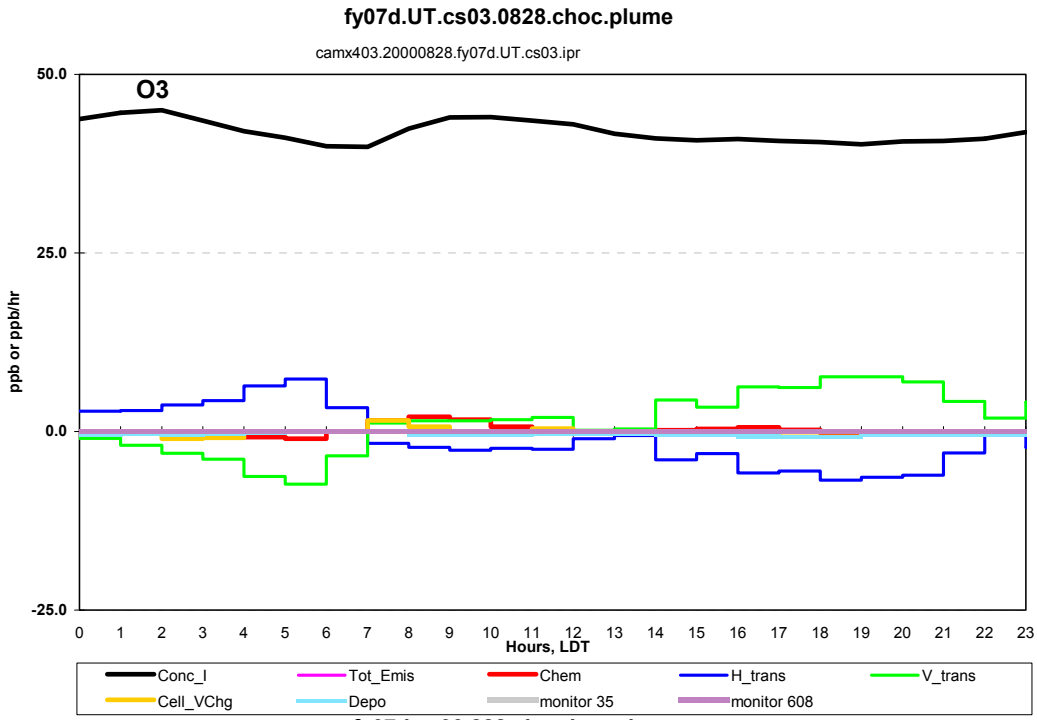

fy07d.cs03.828.choc.box.plume
camx403.20000828.fy07d.UT.cs03.ipr
NOY
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo

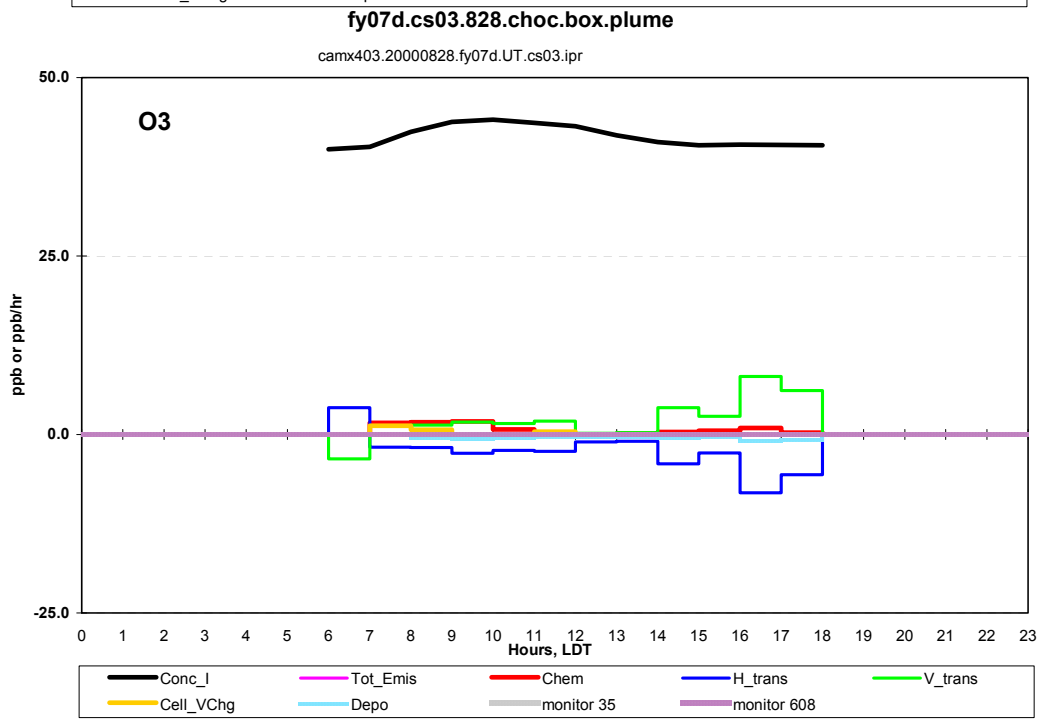

fy07d.UT.cs03.0828.choc.plume
camx403.20000828.fy07d.UT.cs03.ipr
ETH
2.0
0.0
-2.0
ppb or ppb/hr
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo

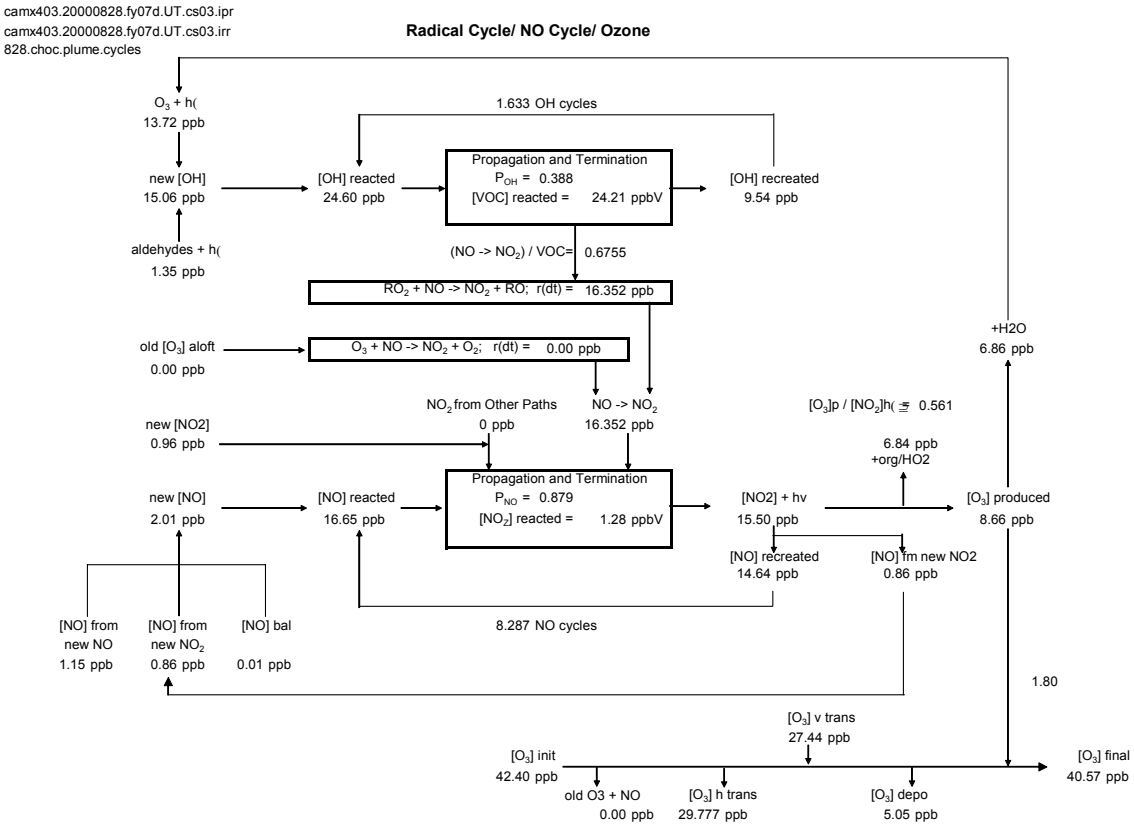

fy07d.cs03.828.choc.box.plume
camx403.20000828.fy07d.UT.cs03.ipr
ETH
2.0
0.0
-2.0
ppb or ppb/hr
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo


fy07d.UT.cs03.0828.choc.plume
camx403.20000828.fy07d.UT.cs03.ipr
OLE
ppb or ppb/hr
4.0
2.0
0.0
-2.0
-4.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo


fy07d.cs03.828.choc.box.plume
camx403.20000828.fy07d.UT.cs03.ipr
OLE
ppb or ppb/hr
4.0
2.0
0.0
-2.0
-4.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo

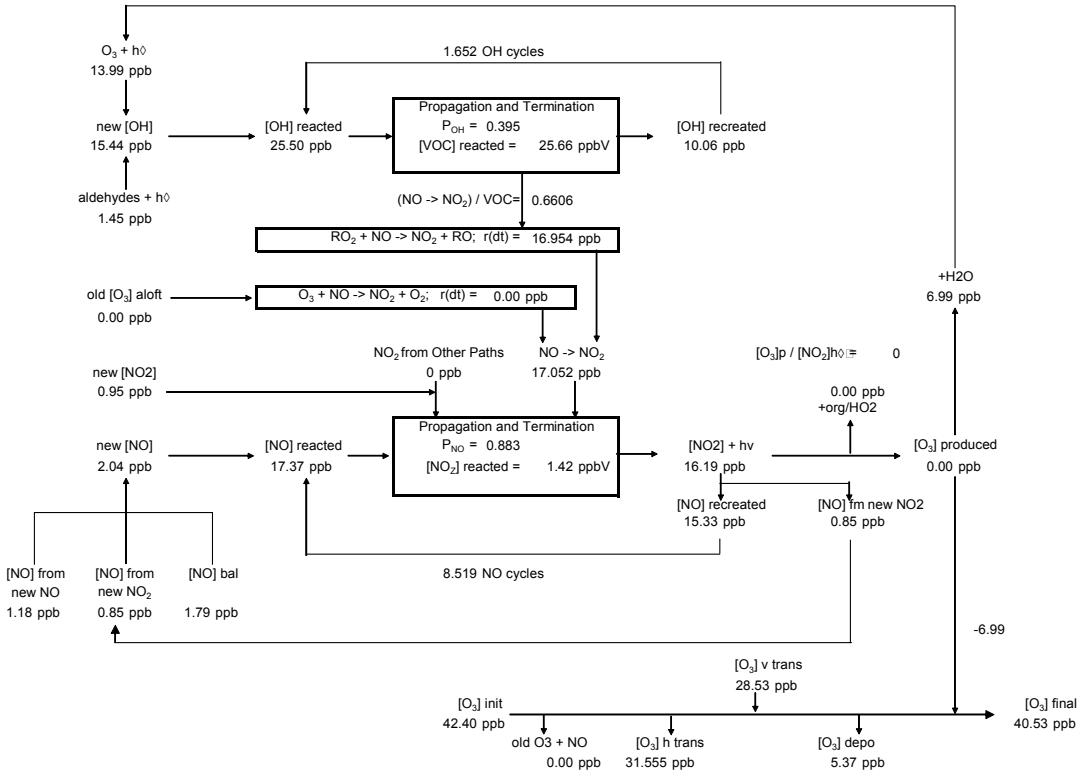

fy07d.UT.cs03.0828.choc.plume
camx403.20000828.fy07d.UT.cs03.ipr
O3
50.0
25.0
0.0
-25.0
ppb or ppb/hr
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608


fy07d.cs03.828.choc.box.plume
camx403.20000828.fy07d.UT.cs03.ipr
O3
50.0
25.0
0.0
-25.0
ppb or ppb/hr
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608

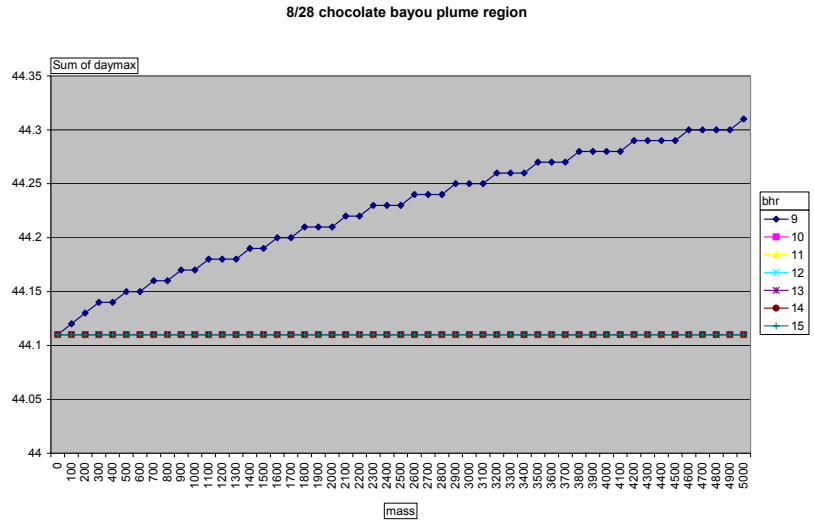

camx403.20000828.fy07d.UT.cs03.ipr
camx403.20000828.fy07d.UT.cs03.irr
828.choc.plume.cycles
Radical Cycle/ NO Cycle/ Ozone
O3 + h(
13.72 ppb
1.633 OH cycles
new [OH]
15.06 ppb
[OH] reacted
24.60 ppb
Propagation and Termination
POH = 0.388
[VOC] reacted = 24.21 ppbV
[OH] recreated
9.54 ppb
aldehydes + h(
1.35 ppb
(NO -> NO2) / VOC= 0.6755
RO2 + NO -> NO2 + RO; r(dt) = 16.352 ppb
+H2O
6.86 ppb
old [O3] aloft
0.00 ppb
O3 + NO -> NO2 + O2; r(dt) = 0.00 ppb
NO2 from Other Paths
0 ppb
NO -> NO2
16.352 ppb
[O3]p / [NO2]h(≅ 0.561
new [NO2]
0.96 ppb
6.84 ppb
+org/HO2
Propagation and Termination
PNO = 0.879
[NO2] reacted = 1.28 ppbV
new [NO]
2.01 ppb
[NO] reacted
16.65 ppb
[NO2] + hv
15.50 ppb
[O3] produced
8.66 ppb
[NO] recreated
14.64 ppb
[NO] fm new NO2
0.86 ppb
[NO] from
new NO
1.15 ppb
[NO] from
new NO2
0.86 ppb
[NO] bal
0.01 ppb
8.287 NO cycles
1.80
[O3] v trans
27.44 ppb
[O3] init
42.40 ppb
[O3] final
40.57 ppb
old O3 + NO
0.00 ppb
[O3] h trans
29.777 ppb
[O3] depo
5.05 ppb

828.choc.plume.box.cycles

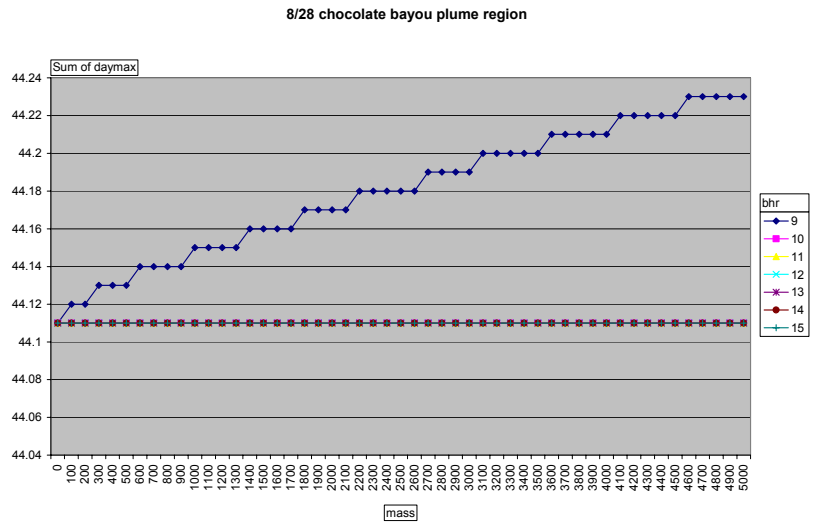
Radical Cycle/ NO Cycle/ Ozone



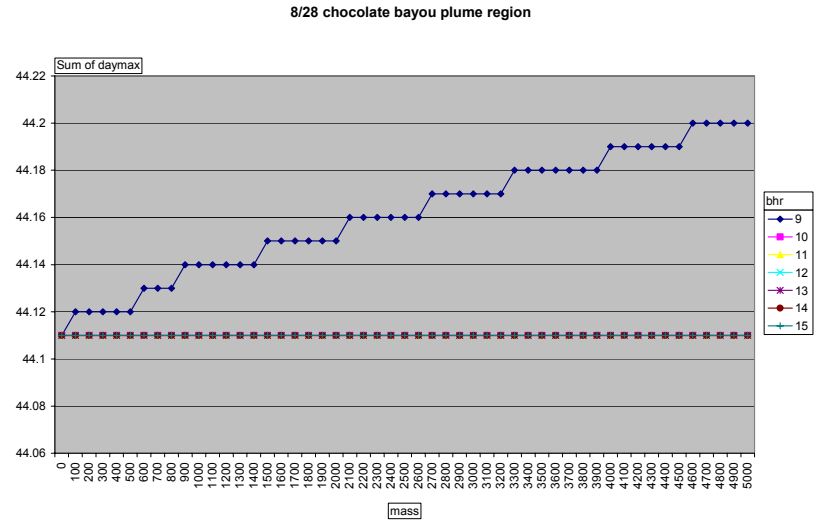
spc ethene nhour 1



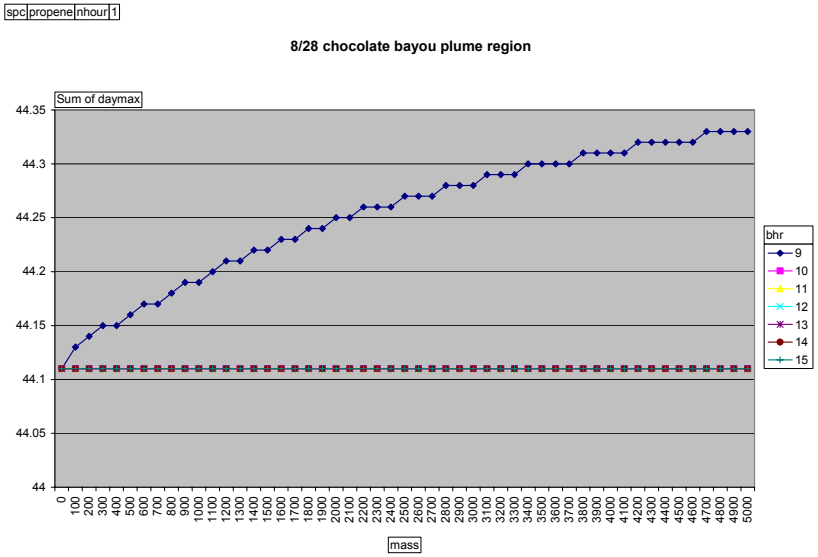
spc ethene nhour 2

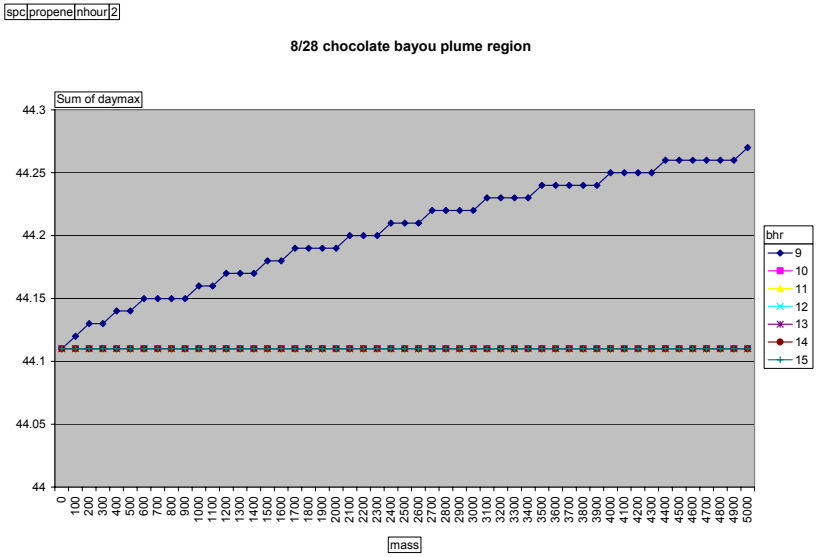


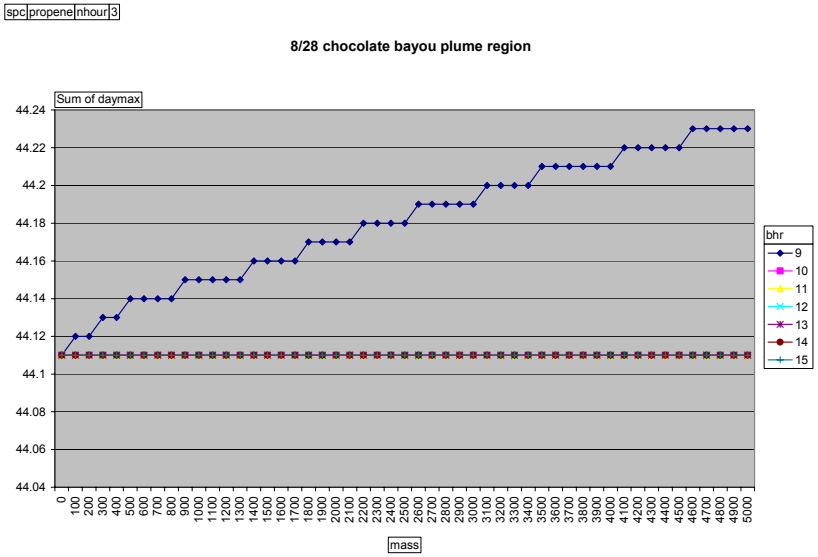
spc ethene nhour 3



Sensitivity of daily max to the Ethene emission in "Plume region" of Chocolate Bayou, Aug. 28: Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)

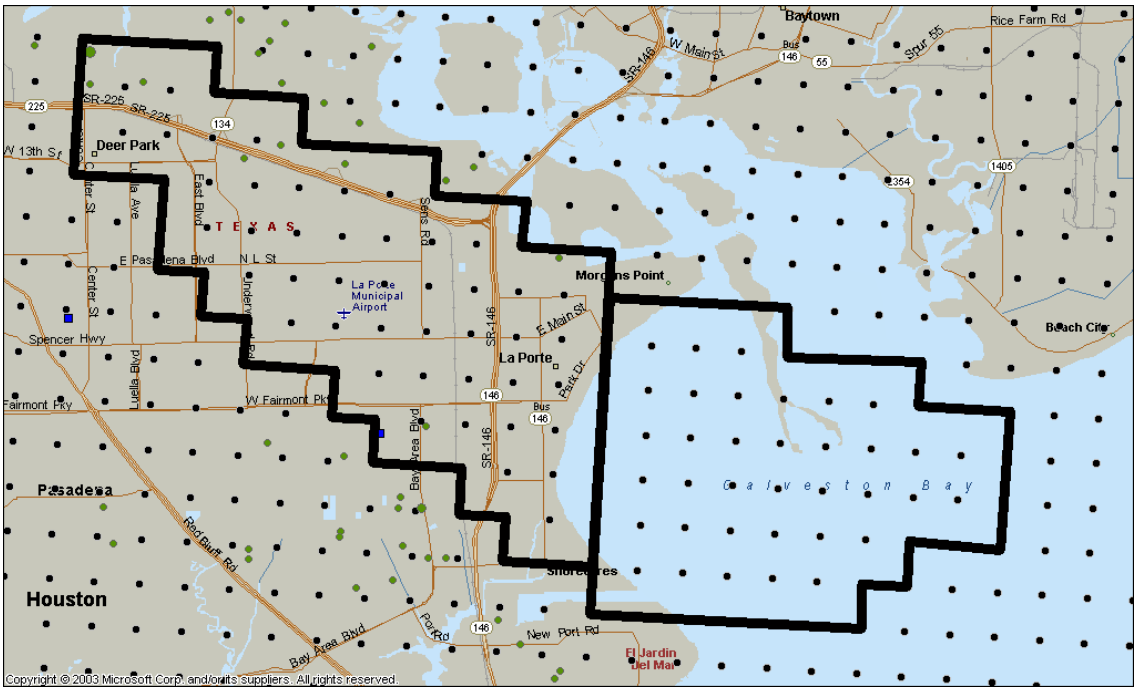




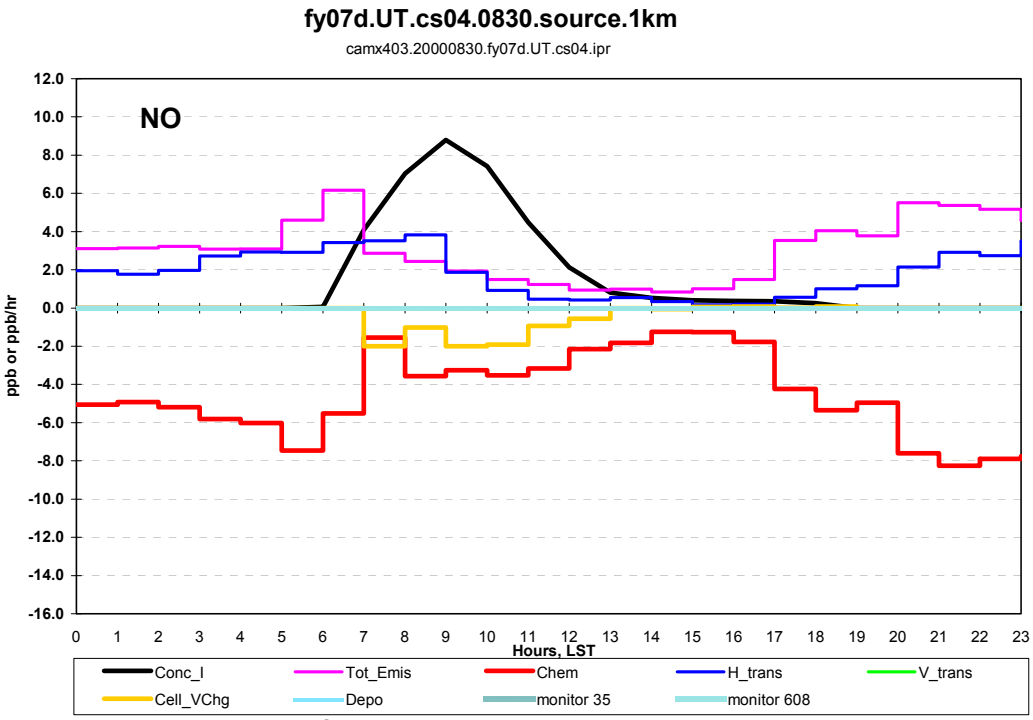


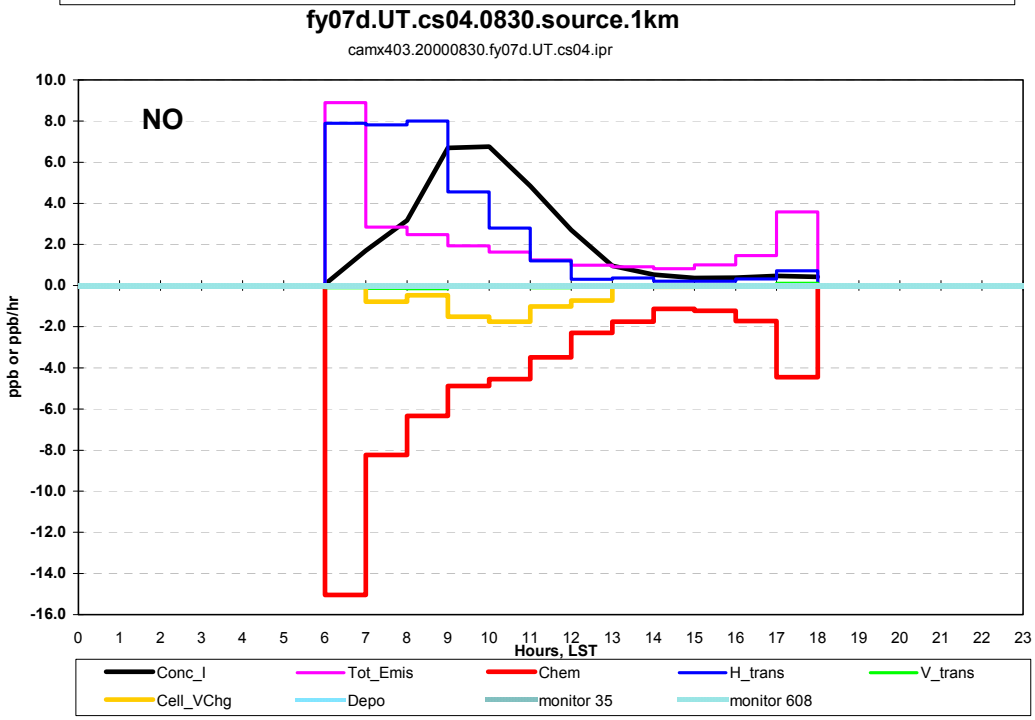
Sensitivity of daily max to the Propene emission in "Plume region" of Chocolate Bayou, Aug. 28: Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)

FY07d.CS04 Deer Park 8/30



8_30_00 Process Analysis Box outlined in black. Black Dots represent lower left hand corner of 1 km grid cells


fy07d.UT.cs04.0830.source.1km
camx403.20000830.fy07d.UT.cs04.ipr
NO
ppb or ppb/hr
Hours, LST
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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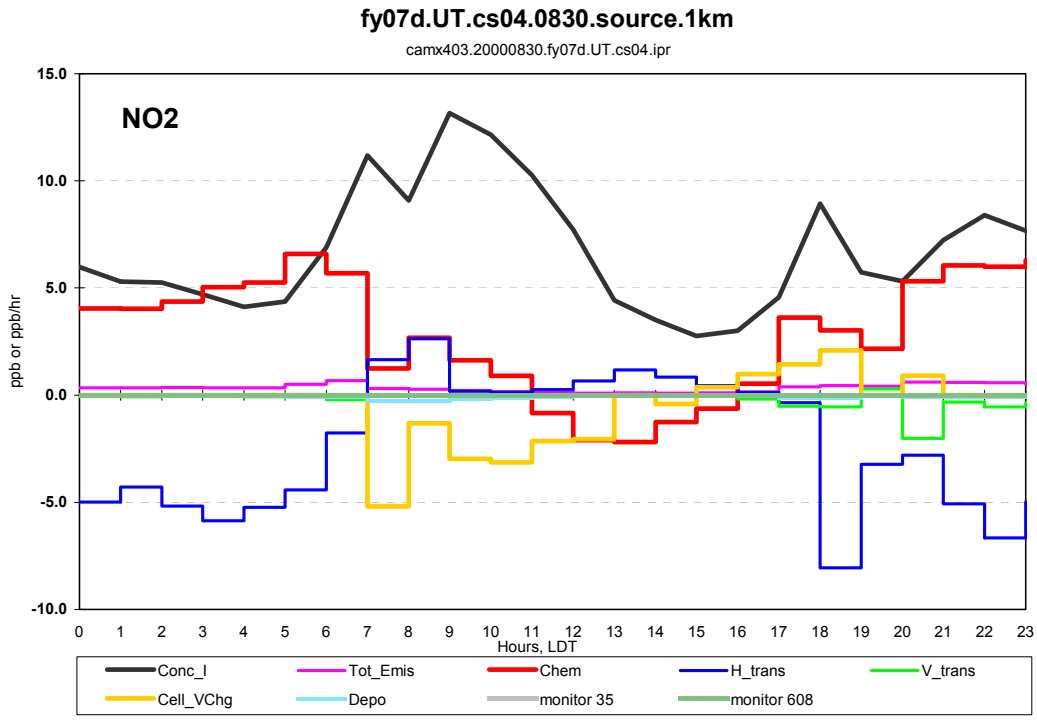
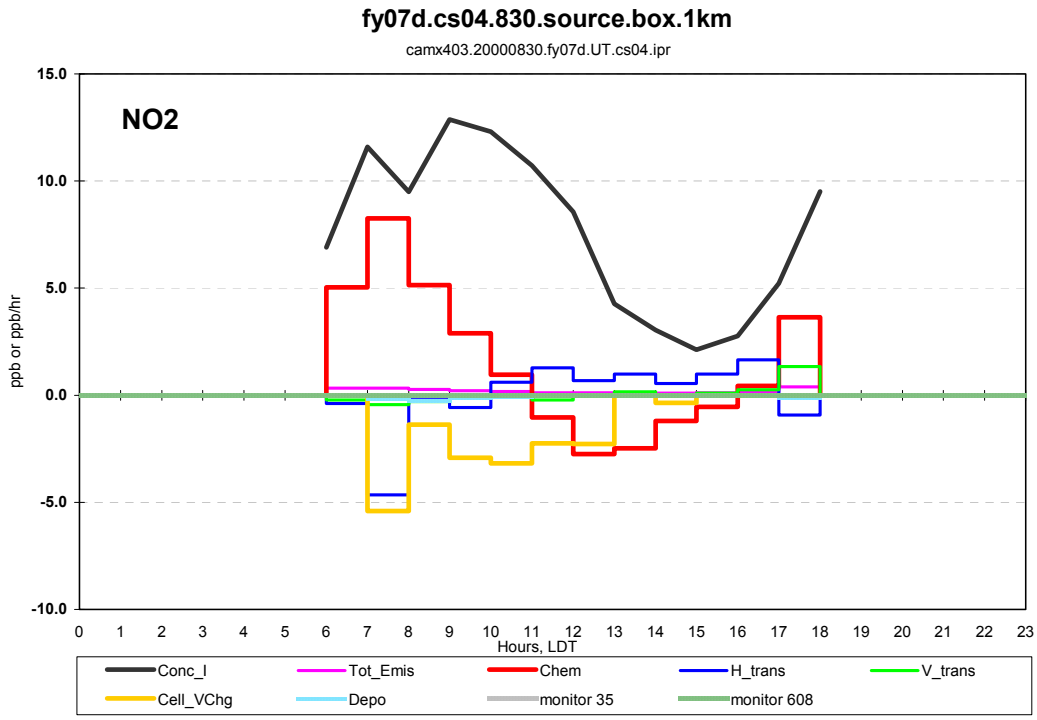
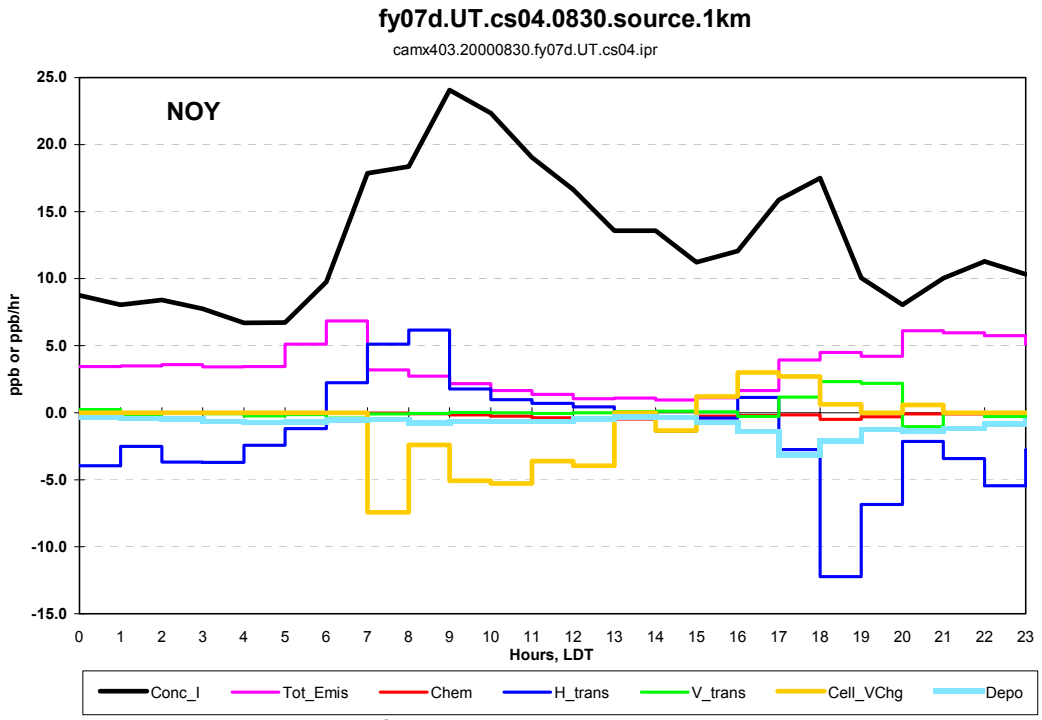
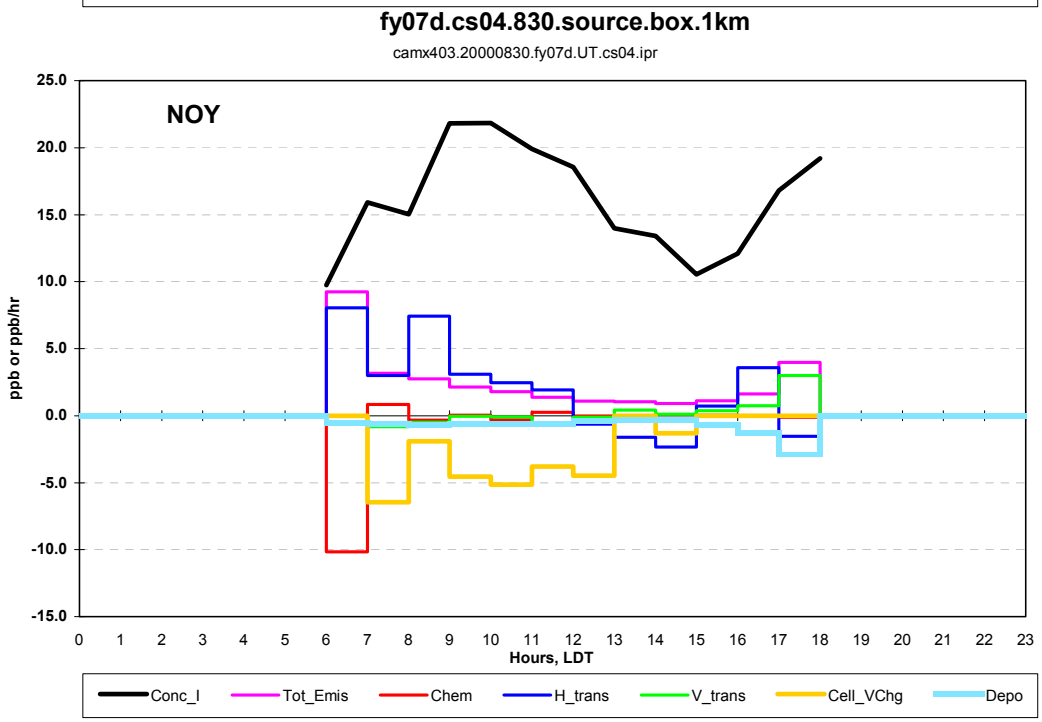
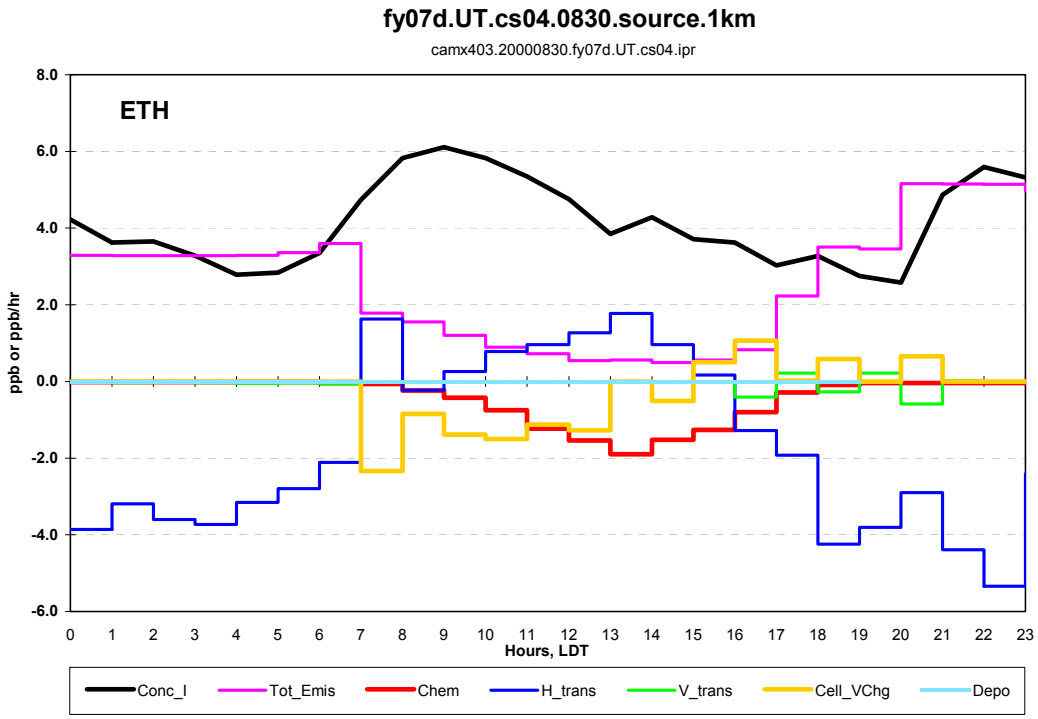
camx403.20000830.fy07d.UT.cs04.ipr
NO
ppb or ppb/hr
Hours, LST
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608

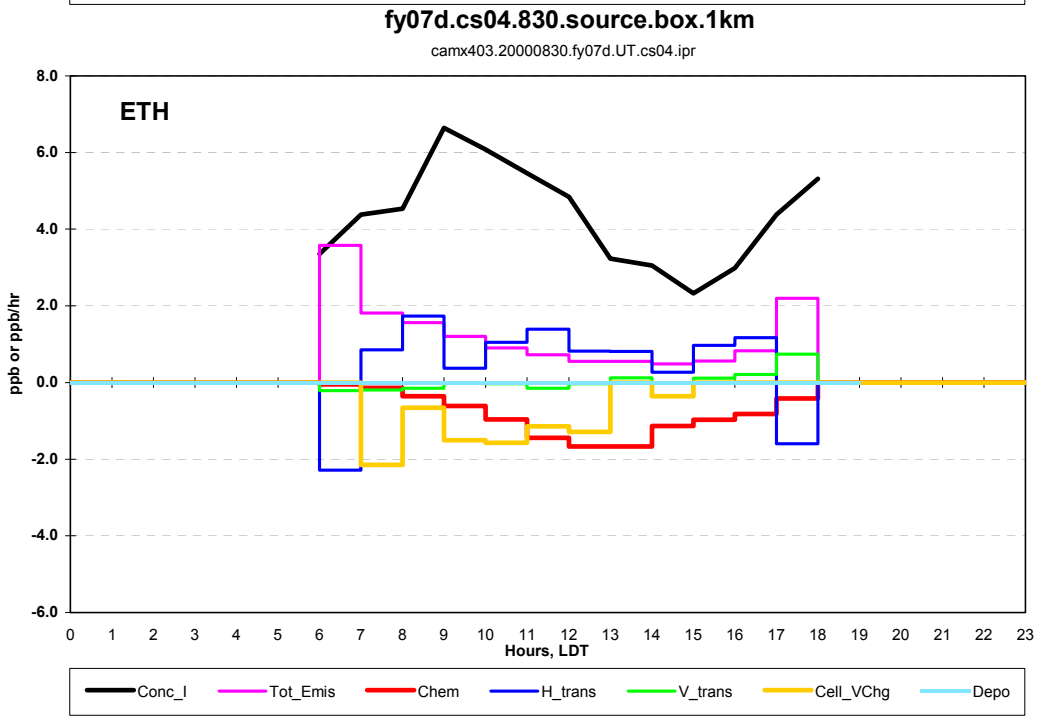

fy07d.UT.cs04.0830.source.1km
camx403.20000830.fy07d.UT.cs04.ipr
NO2
ppb or ppb/hr
15.0
10.0
5.0
0.0
-5.0
-10.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608

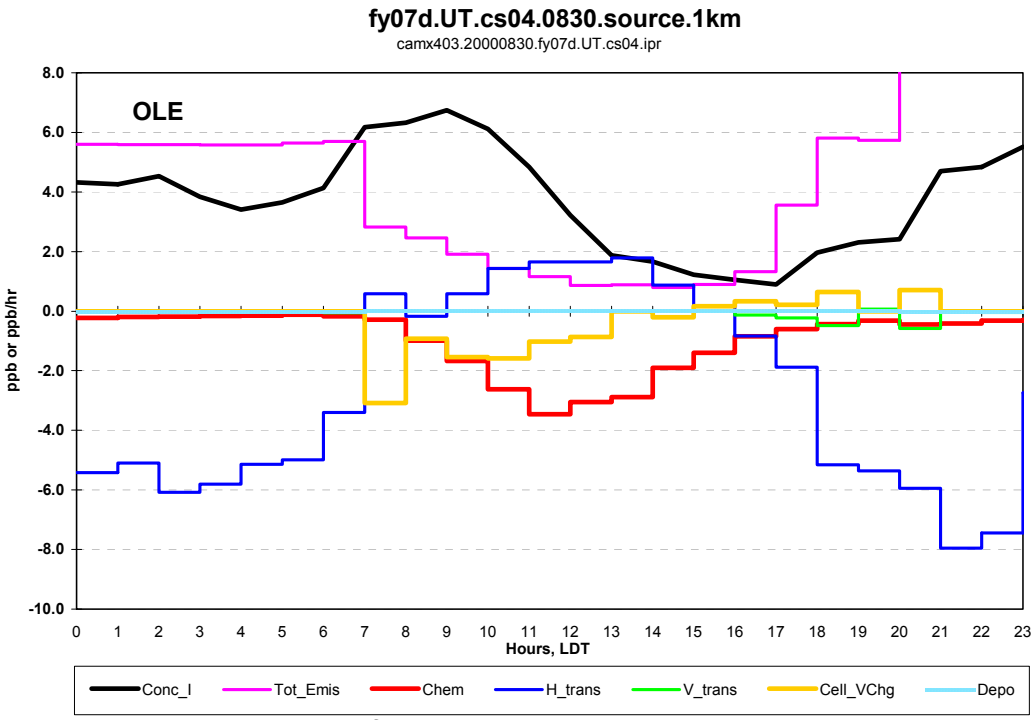

fy07d.cs04.830.source.box.1km
camx403.20000830.fy07d.UT.cs04.ipr
NO2
ppb or ppb/hr
15.0
10.0
5.0
0.0
-5.0
-10.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608

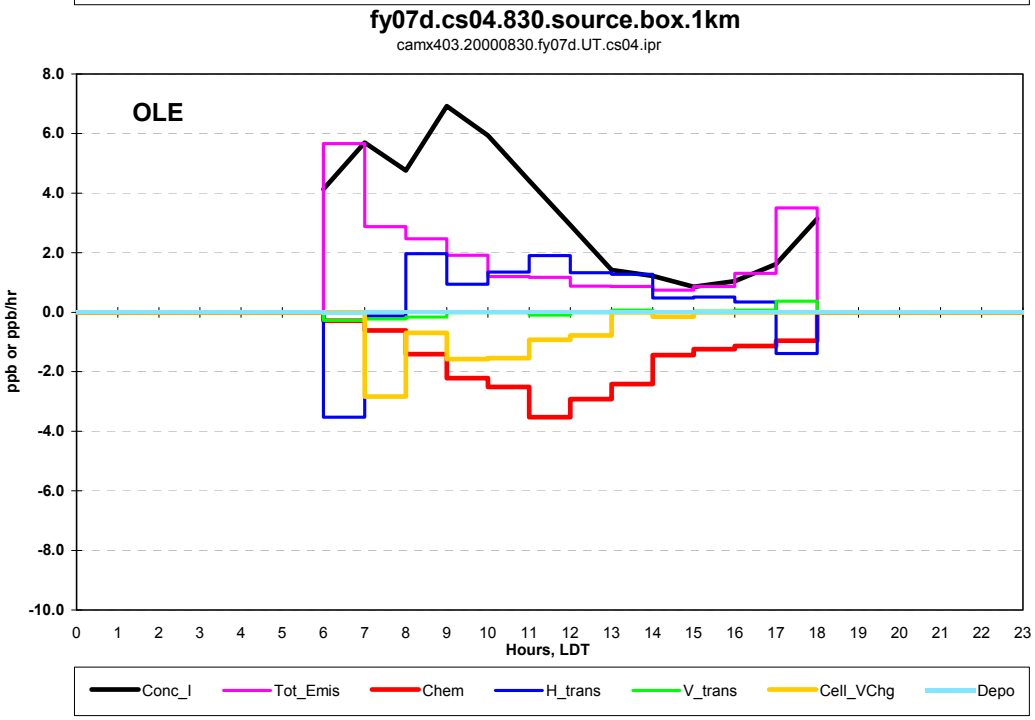

fy07d.UT.cs04.0830.source.1km
camx403.20000830.fy07d.UT.cs04.ipr
NOY
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo

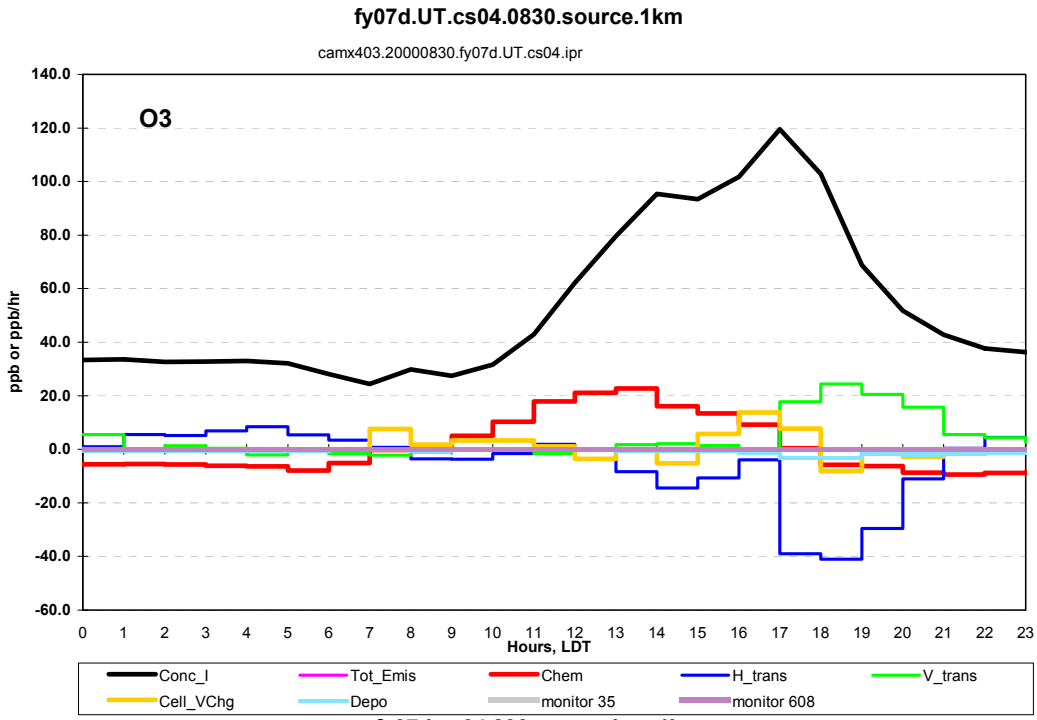

fy07d.cs04.830.source.box.1km
camx403.20000830.fy07d.UT.cs04.ipr
NOY
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo

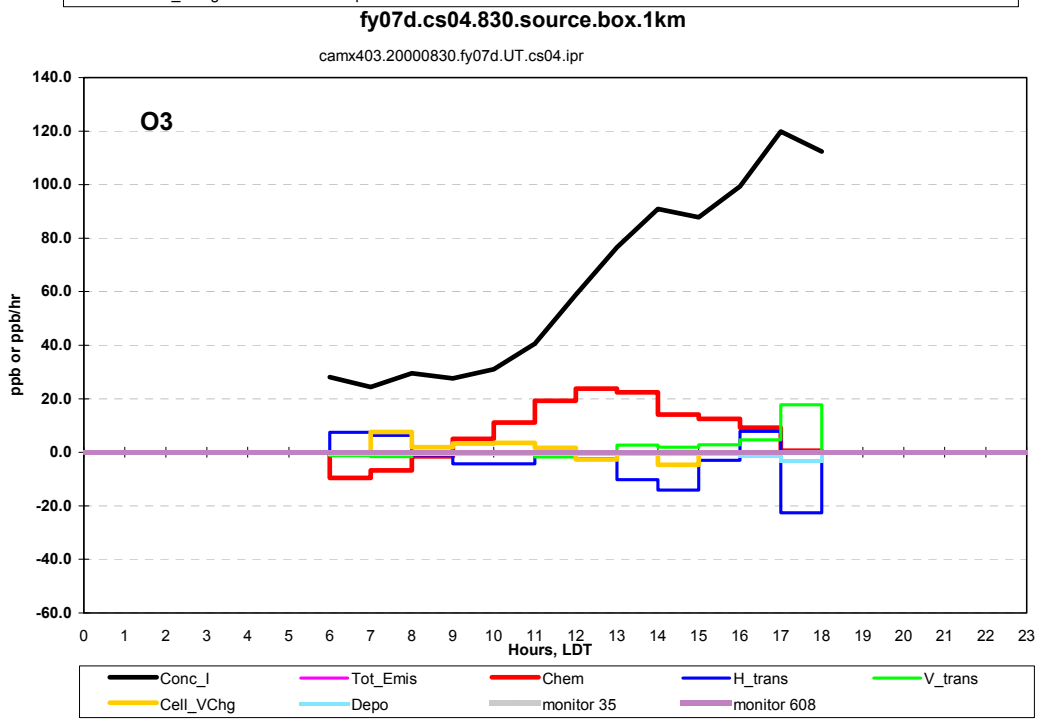

fy07d.UT.cs04.0830.source.1km
camx403.20000830.fy07d.UT.cs04.ipr
ETH
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo

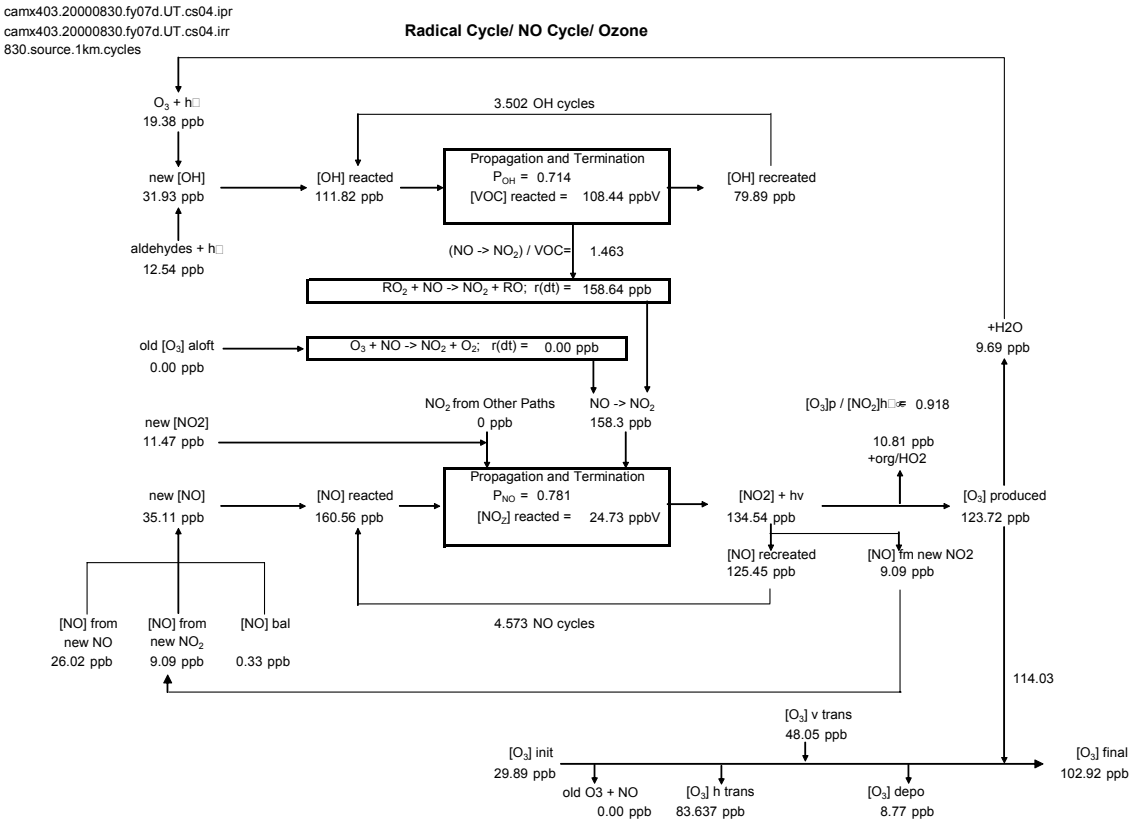

fy07d.cs04.830.source.box.1km
camx403.20000830.fy07d.UT.cs04.ipr
ETH
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo


fy07d.UT.cs04.0830.source.1km
camx403.20000830.fy07d.UT.cs04.ipr
OLE
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo


fy07d.cs04.830.source.box.1km
camx403.20000830.fy07d.UT.cs04.ipr
OLE
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo

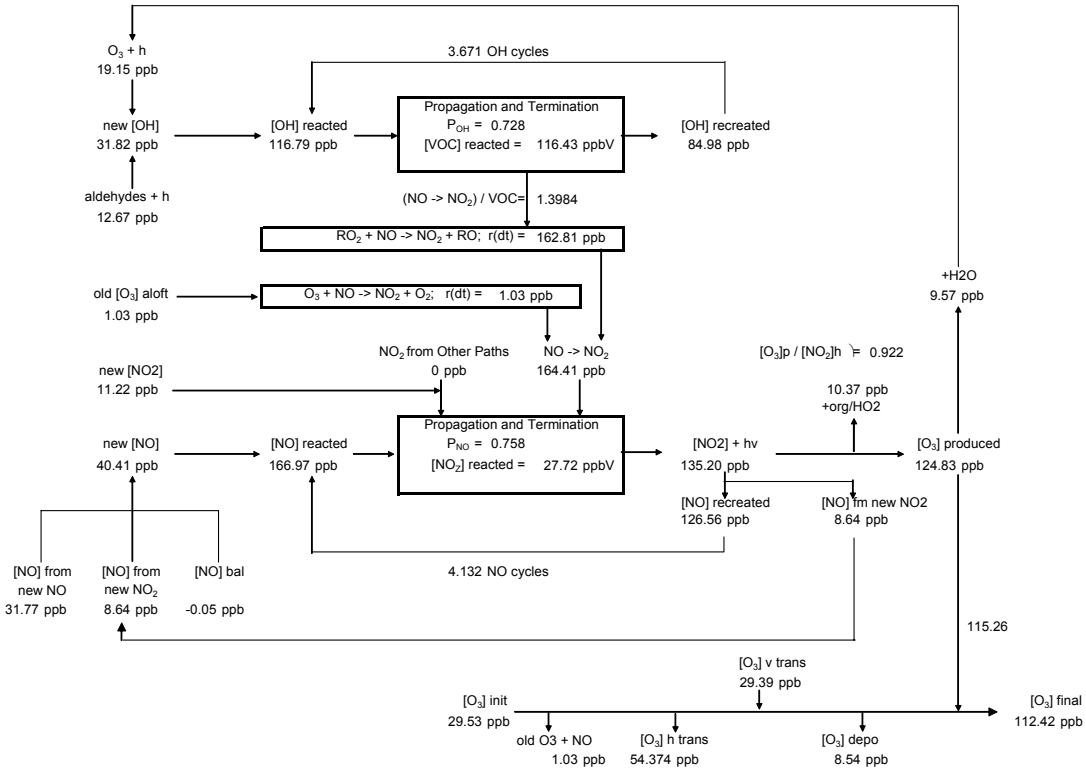

fy07d.UT.cs04.0830.source.1km
camx403.20000830.fy07d.UT.cs04.ipr
O3
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608

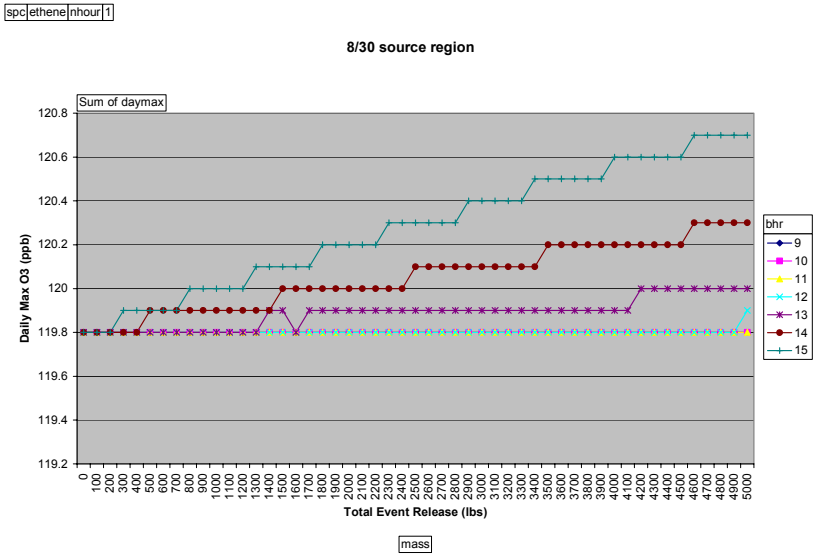

fy07d.cs04.830.source.box.1km
camx403.20000830.fy07d.UT.cs04.ipr
O3
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608

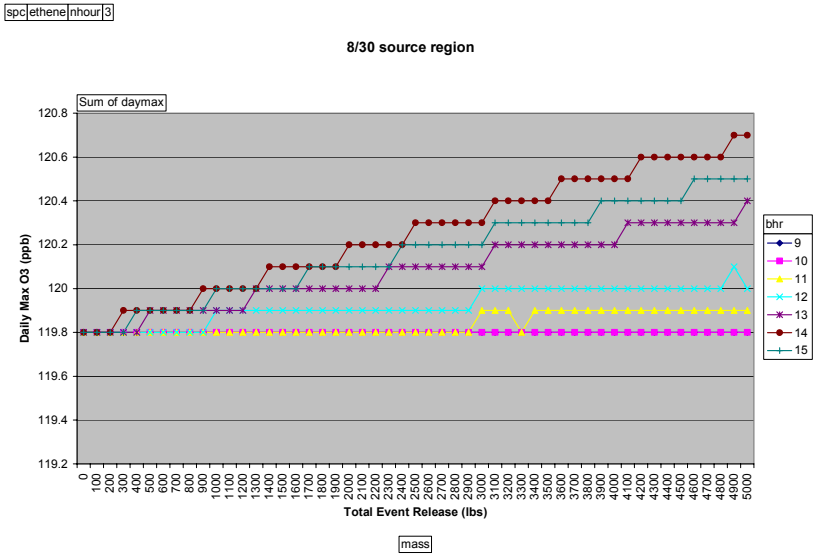

camx403.20000830.fy07d.UT.cs04.ipr
camx403.20000830.fy07d.UT.cs04.irr
830.source.1km.cycles
Radical Cycle/ NO Cycle/ Ozone
O3 + h
19.38 ppb
3.502 OH cycles
new [OH]
31.93 ppb
[OH] reacted
111.82 ppb
Propagation and Termination
POH = 0.714
[VOC] reacted = 108.44 ppbV
[OH] recreated
79.89 ppb
aldehydes + h
12.54 ppb
(NO -> NO2) / VOC= 1.463
RO2 + NO -> NO2 + RO; r(dt) = 158.64 ppb
old [O3] aloft
0.00 ppb
O3 + NO -> NO2 + O2; r(dt) = 0.00 ppb
+H2O
9.69 ppb
NO2 from Other Paths
0 ppb
NO -> NO2
158.3 ppb
[O3]p / [NO2]h = 0.918
new [NO2]
11.47 ppb
10.81 ppb
+org/HO2
Propagation and Termination
PNO = 0.781
[NO2] reacted = 24.73 ppbV
new [NO]
35.11 ppb
[NO] reacted
160.56 ppb
[NO2] + hv
134.54 ppb
[O3] produced
123.72 ppb
[NO] recreated
125.45 ppb
[NO] fm new NO2
9.09 ppb
[NO] from
new NO
26.02 ppb
[NO] from
new NO2
9.09 ppb
[NO] bal
0.33 ppb
4.573 NO cycles
114.03
[O3] v trans
48.05 ppb
[O3] init
29.89 ppb
[O3] final
102.92 ppb
old O3 + NO
0.00 ppb
[O3] h trans
83.637 ppb
[O3] depo
8.77 ppb

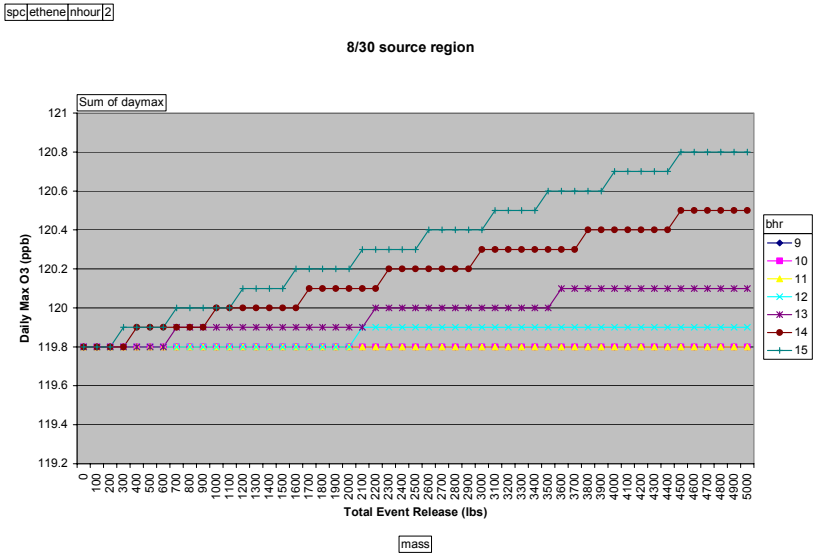
830.source.1km.box.cycles

Radical Cycle/ NO Cycle/ Ozone

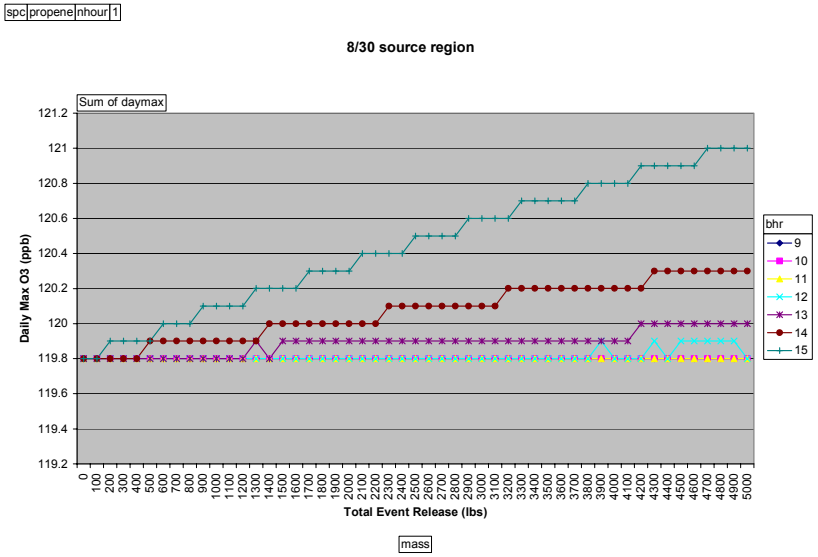


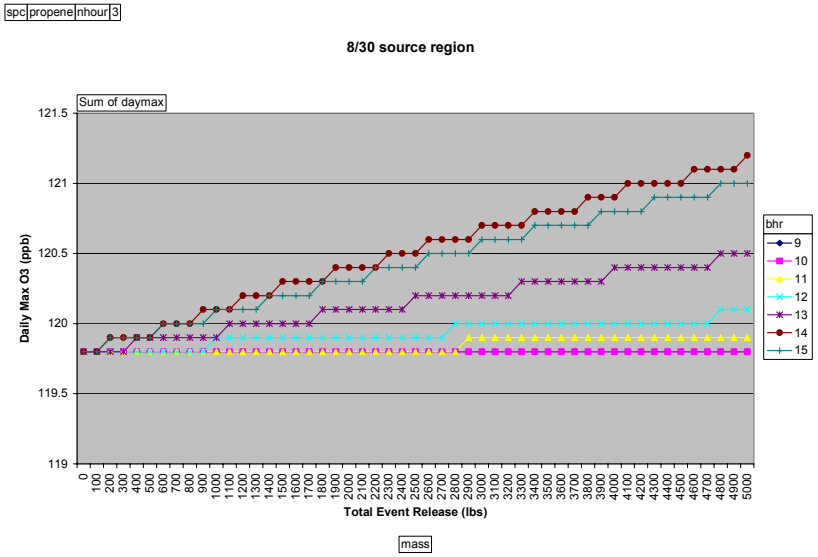


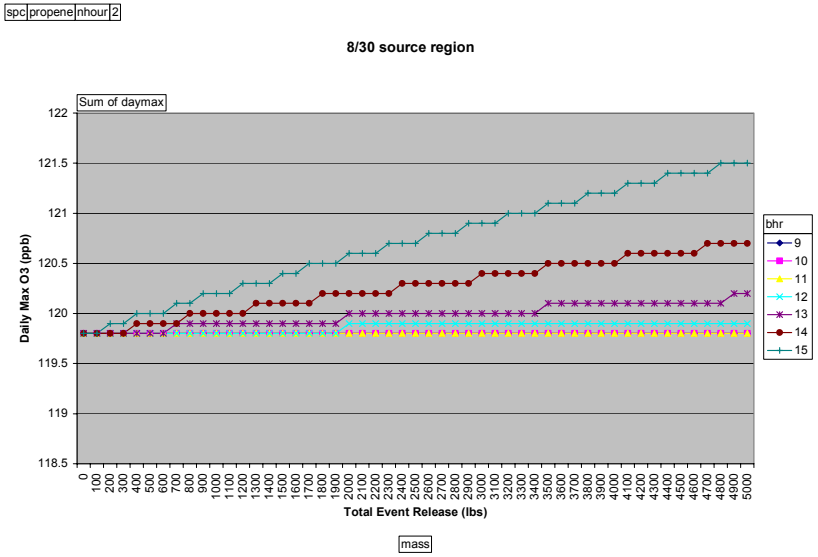




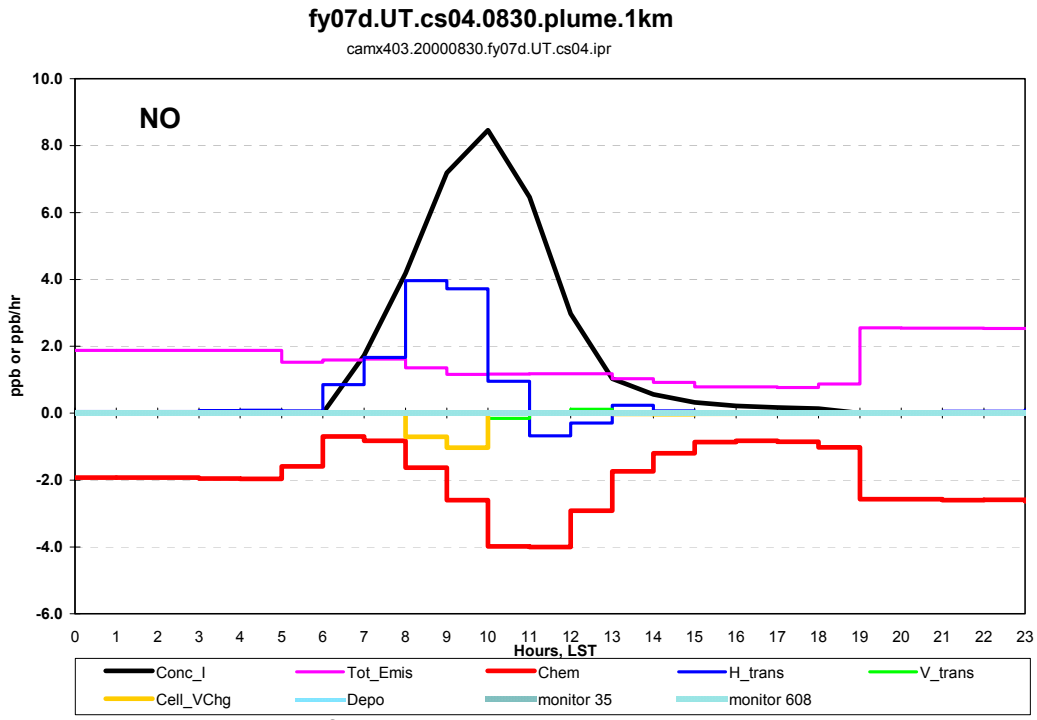
Sensitivity of daily max to the Ethene emission in "Source region" of Deer Park, Aug. 30: Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)

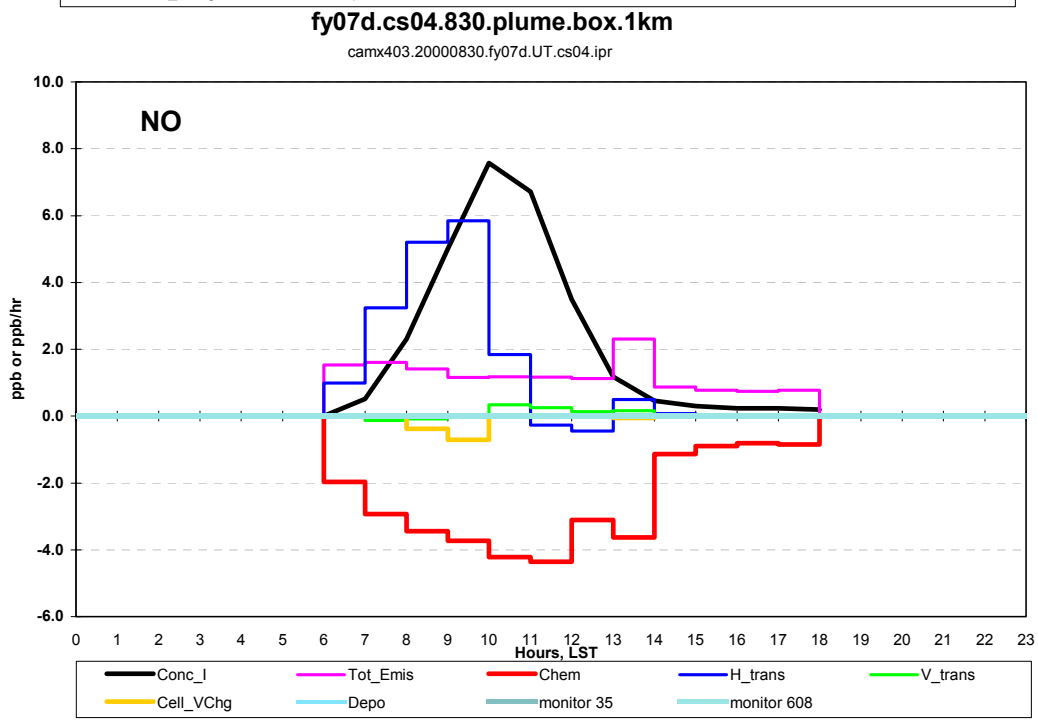


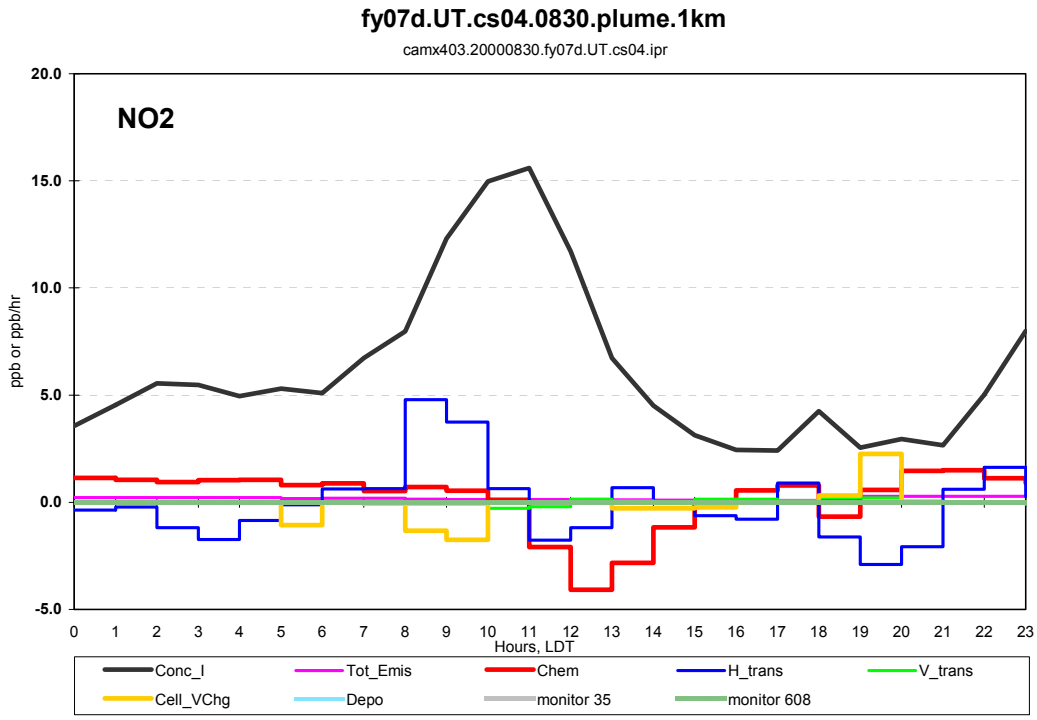


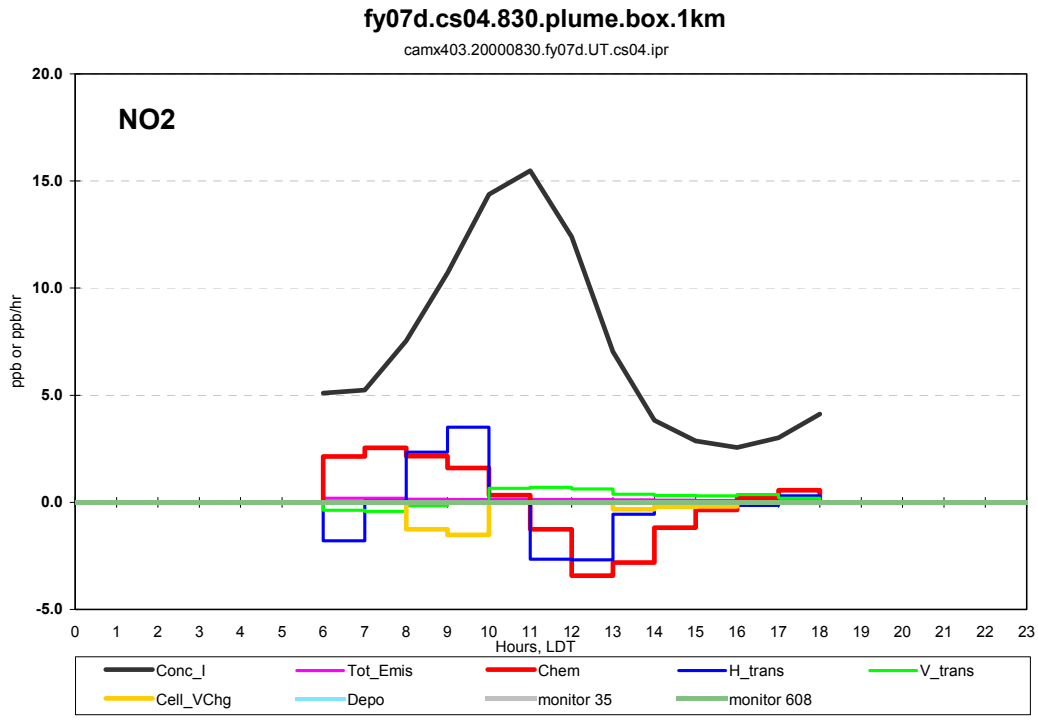


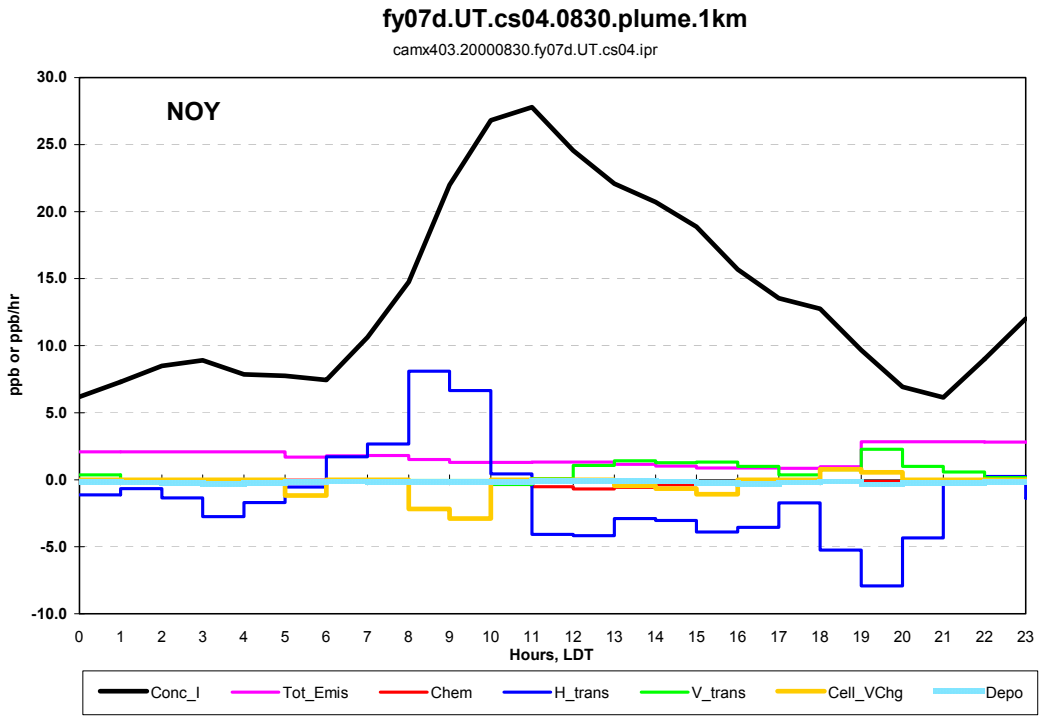
Sensitivity of daily max to the Propene emission in "Source region" of Deer Park, Aug. 30: Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)

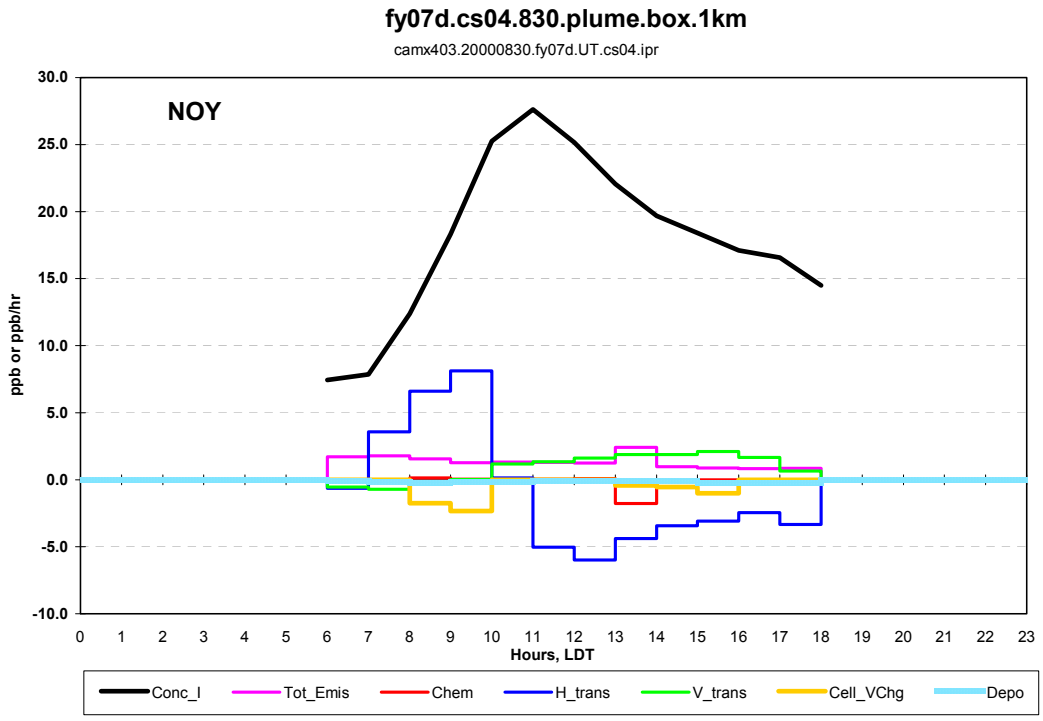

fy07d.UT.cs04.0830.plume.1km
camx403.20000830.fy07d.UT.cs04.ipr
NO
ppb or ppb/hr
Hours, LST
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608

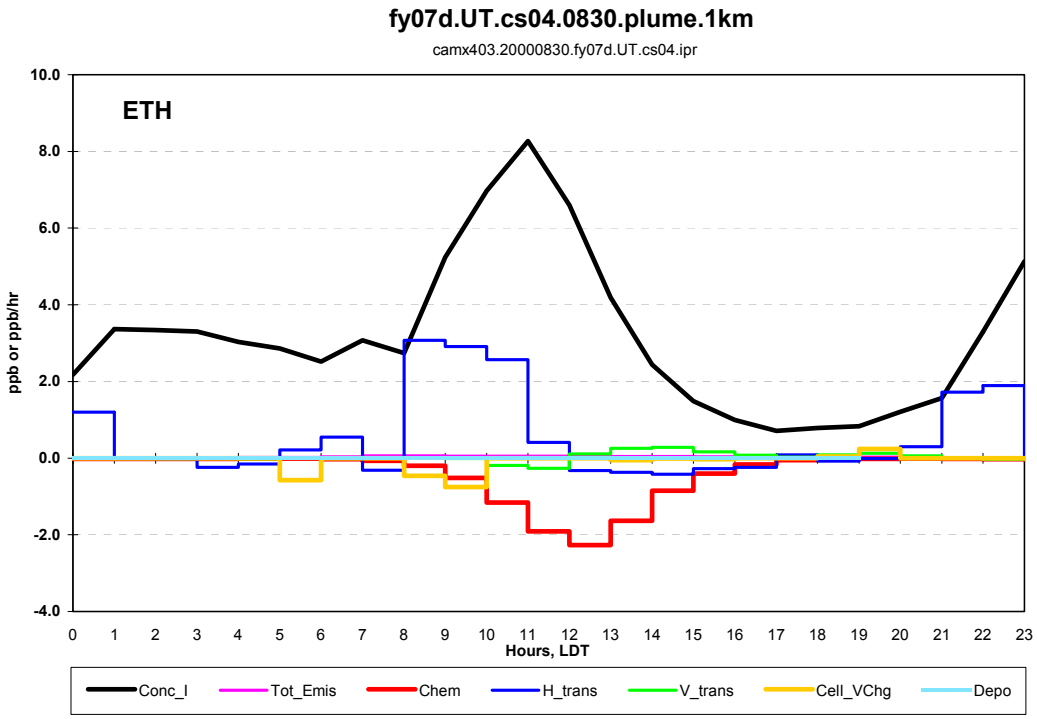

fy07d.cs04.830.plume.box.1km
camx403.20000830.fy07d.UT.cs04.ipr
NO
ppb or ppb/hr
Hours, LST
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608

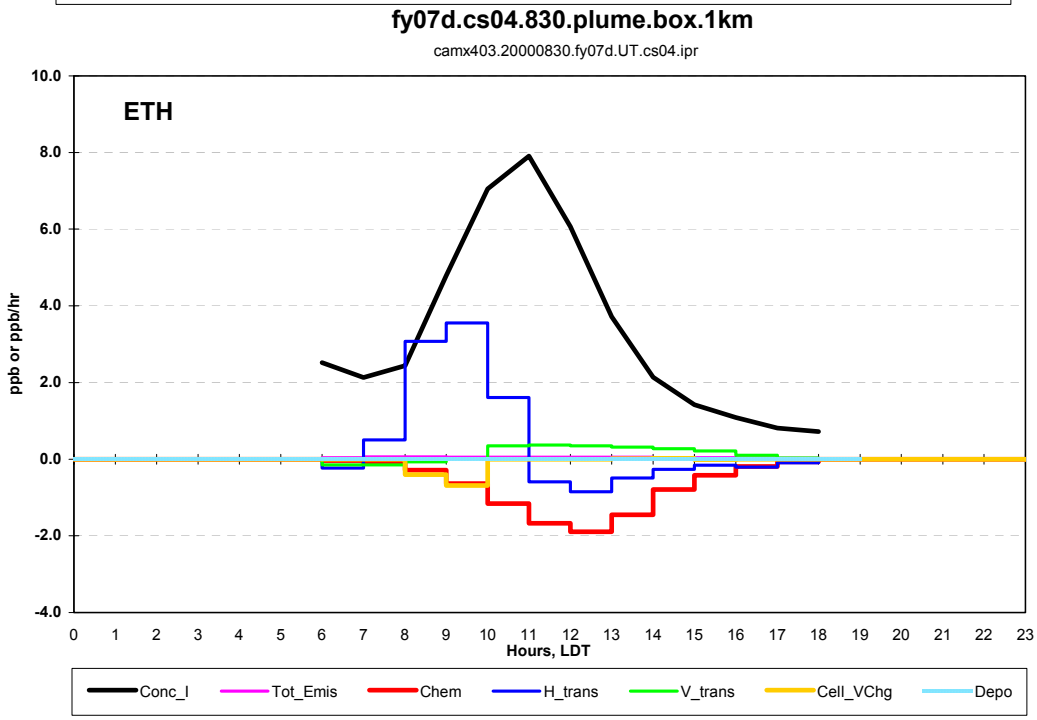

fy07d.UT.cs04.0830.plume.1km
camx403.20000830.fy07d.UT.cs04.ipr
NO2
ppb or ppb/hr
20.0
15.0
10.0
5.0
0.0
-5.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608

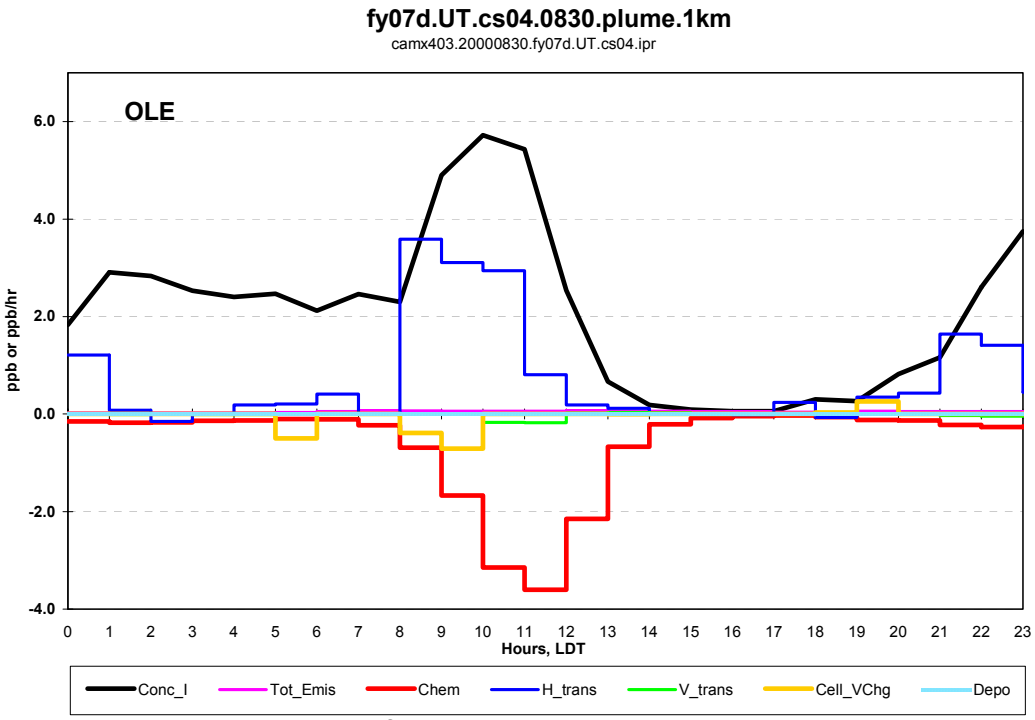

fy07d.cs04.830.plume.box.1km
camx403.20000830.fy07d.UT.cs04.ipr
NO2
ppb or ppb/hr
20.0
15.0
10.0
5.0
0.0
-5.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608

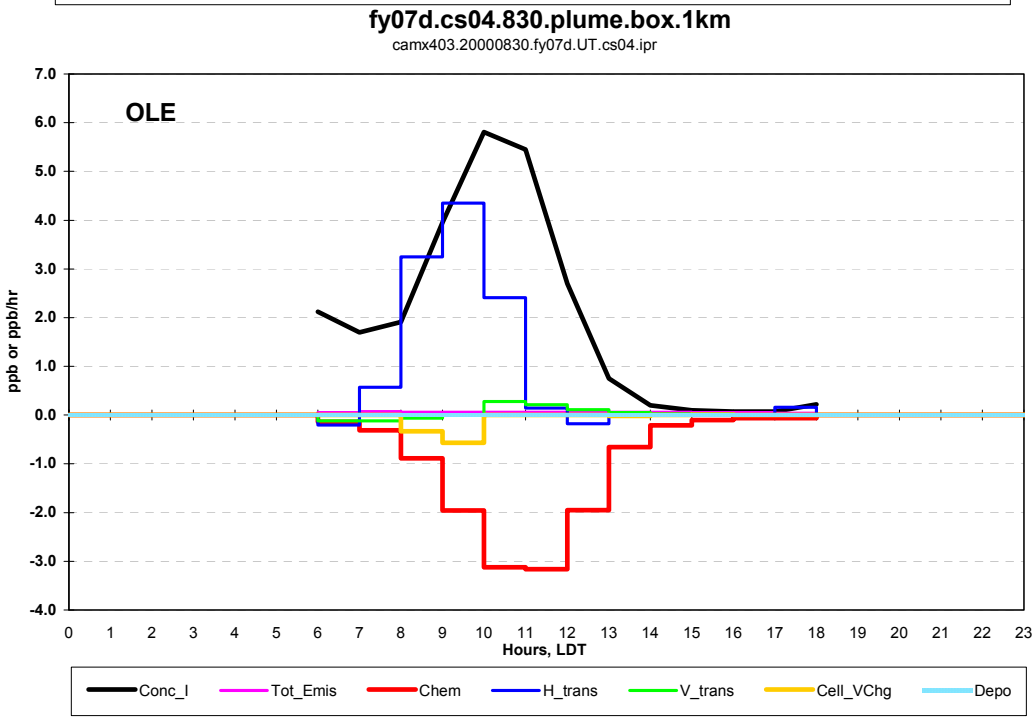

fy07d.UT.cs04.0830.plume.1km
camx403.20000830.fy07d.UT.cs04.ipr
NOY
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo

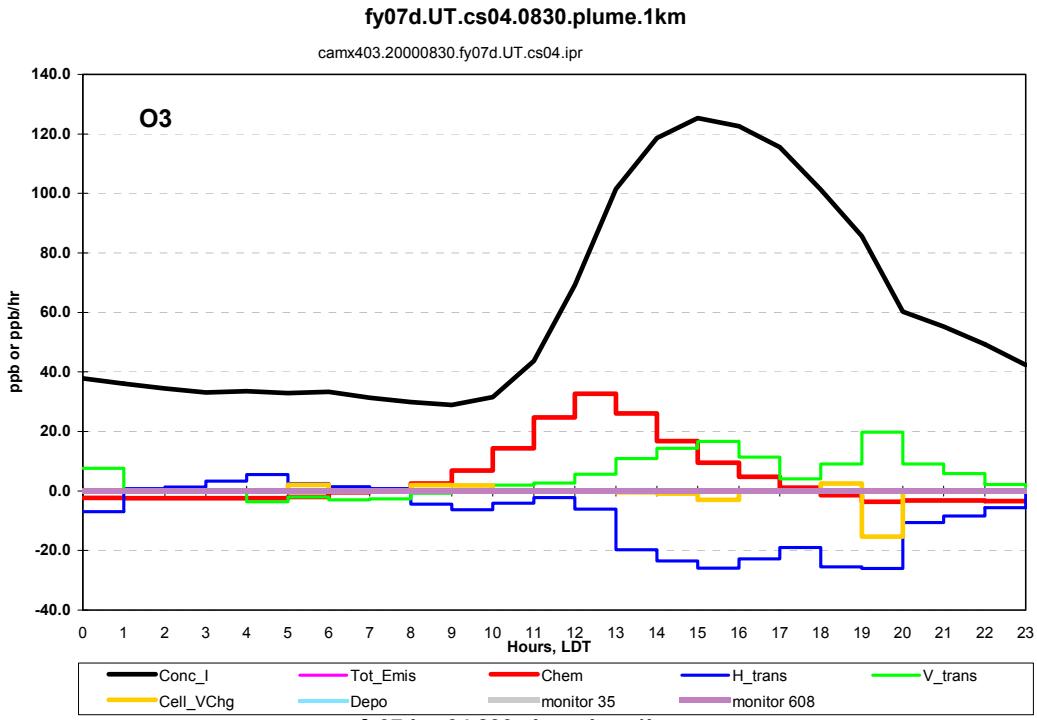

fy07d.cs04.830.plume.box.1km
camx403.20000830.fy07d.UT.cs04.ipr
NOY
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo

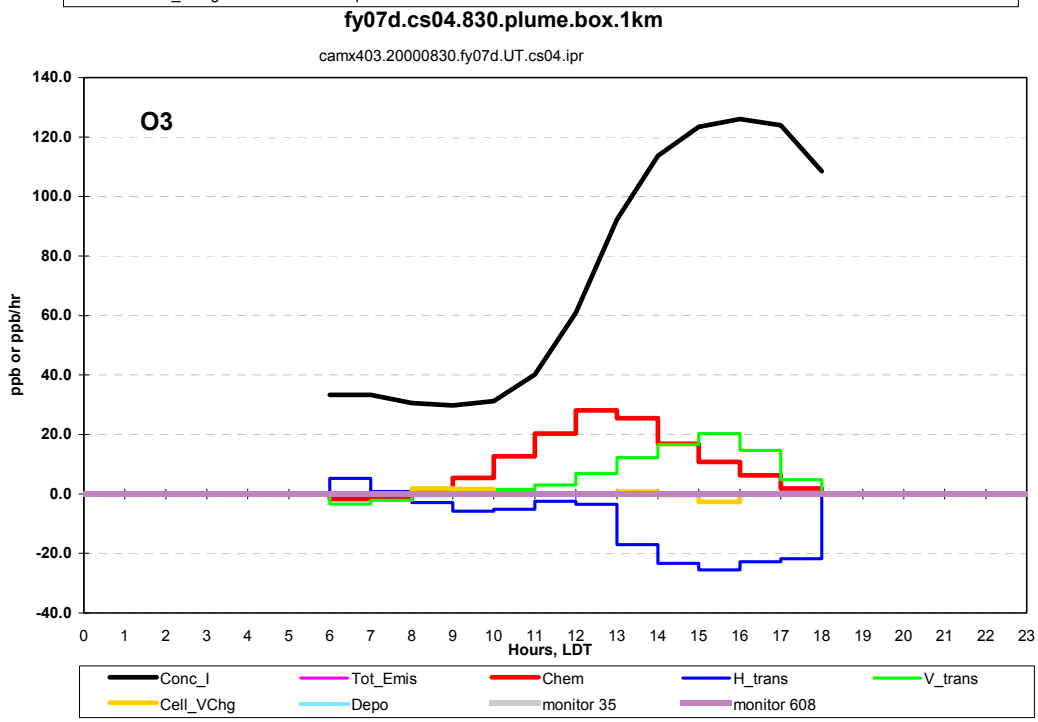

fy07d.UT.cs04.0830.plume.1km
camx403.20000830.fy07d.UT.cs04.ipr
ETH
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo

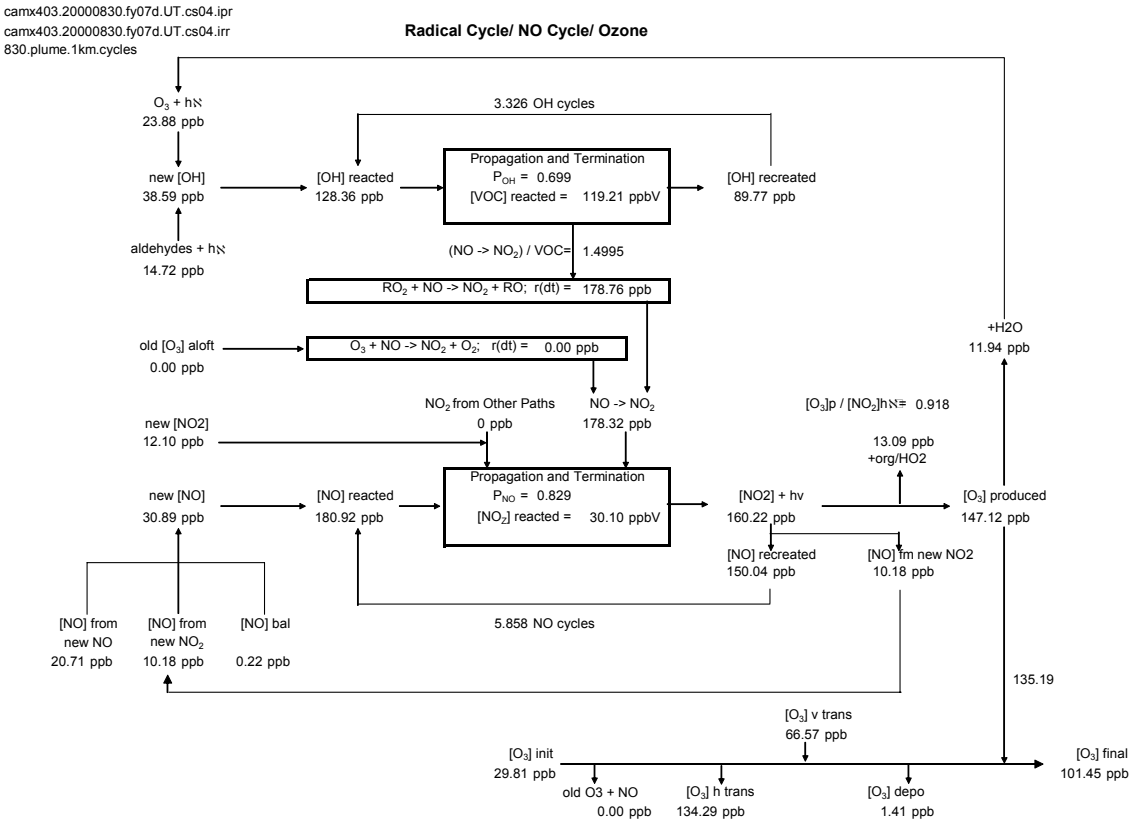

fy07d.cs04.830.plume.box.1km
camx403.20000830.fy07d.UT.cs04.ipr
ETH
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo


fy07d.UT.cs04.0830.plume.1km
camx403.20000830.fy07d.UT.cs04.ipr
OLE
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo


fy07d.cs04.830.plume.box.1km
camx403.20000830.fy07d.UT.cs04.ipr
OLE
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo

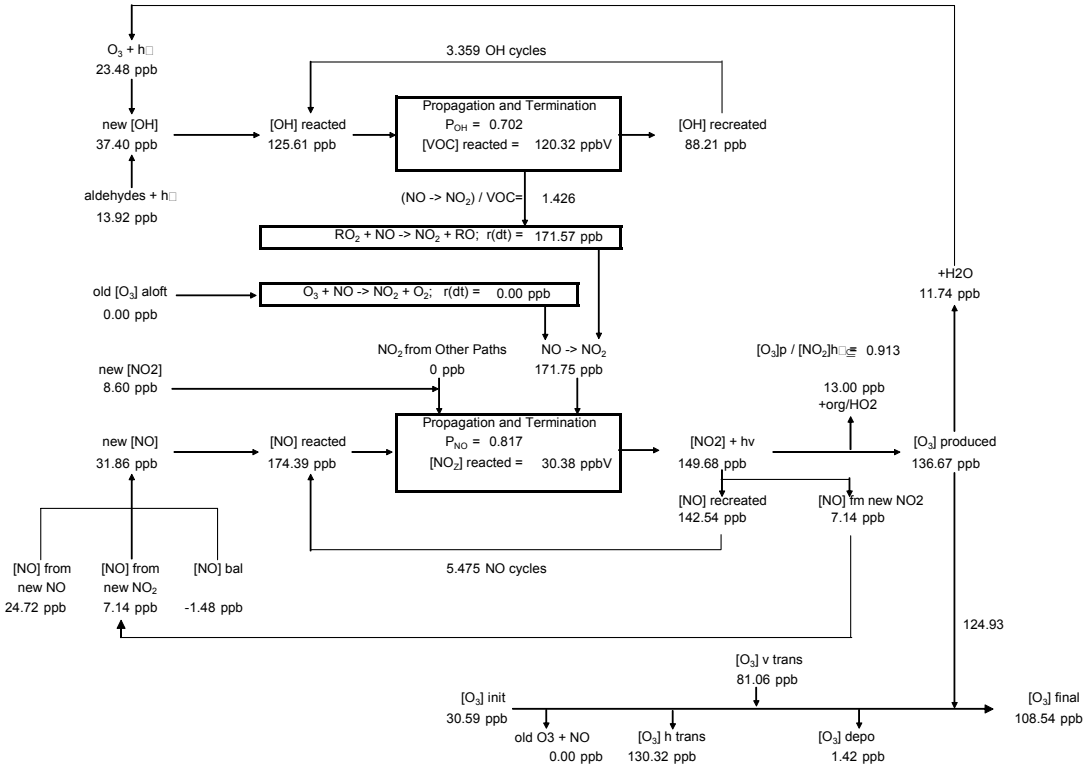

fy07d.UT.cs04.0830.plume.1km
camx403.20000830.fy07d.UT.cs04.ipr
O3
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608

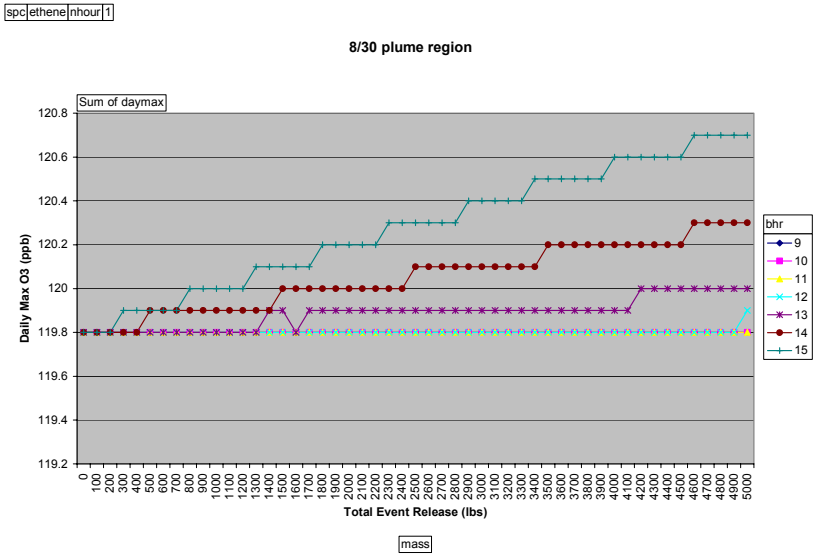

fy07d.cs04.830.plume.box.1km
camx403.20000830.fy07d.UT.cs04.ipr
O3
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608

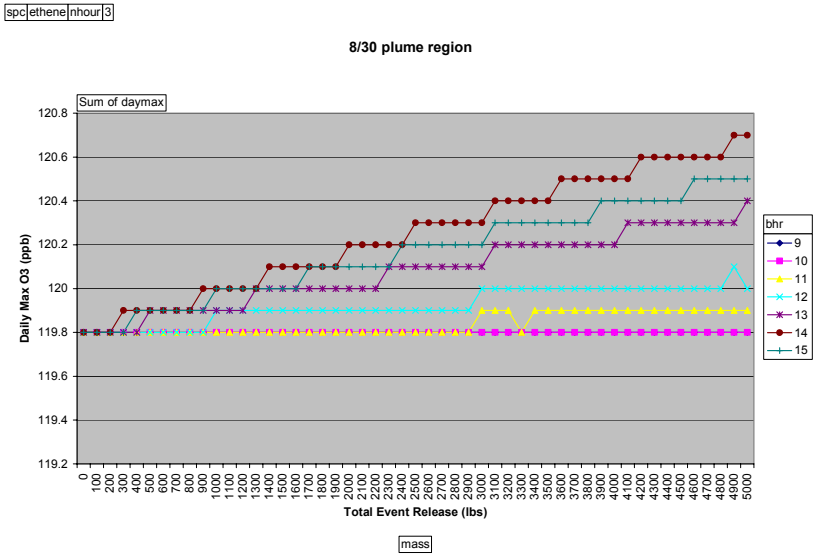

camx403.20000830.fy07d.UT.cs04.ipr
camx403.20000830.fy07d.UT.cs04.irr
830.plume.1km.cycles
Radical Cycle/ NO Cycle/ Ozone
O3 + hא
23.88 ppb
3.326 OH cycles
new [OH]
38.59 ppb
[OH] reacted
128.36 ppb
Propagation and Termination
POH = 0.699
[VOC] reacted = 119.21 ppbV
[OH] recreated
89.77 ppb
aldehydes + hא
14.72 ppb
(NO -> NO2) / VOC= 1.4995
RO2 + NO -> NO2 + RO; r(dt) = 178.76 ppb
+H2O
11.94 ppb
old [O3] aloft
0.00 ppb
O3 + NO -> NO2 + O2; r(dt) = 0.00 ppb
NO2 from Other Paths
0 ppb
NO -> NO2
178.32 ppb
[O3]p / [NO2]hא= 0.918
new [NO2]
12.10 ppb
13.09 ppb
+org/HO2
Propagation and Termination
PNO = 0.829
[NO2] reacted = 30.10 ppbV
new [NO]
30.89 ppb
[NO] reacted
180.92 ppb
[NO2] + hv
160.22 ppb
[O3] produced
147.12 ppb
[NO] recreated
150.04 ppb
[NO] fm new NO2
10.18 ppb
[NO] from
new NO
20.71 ppb
[NO] from
new NO2
10.18 ppb
[NO] bal
0.22 ppb
5.858 NO cycles
135.19
[O3] v trans
66.57 ppb
[O3] init
29.81 ppb
[O3] final
101.45 ppb
old O3 + NO
0.00 ppb
[O3] h trans
134.29 ppb
[O3] depo
1.41 ppb

830.plume.1km.box.cycles

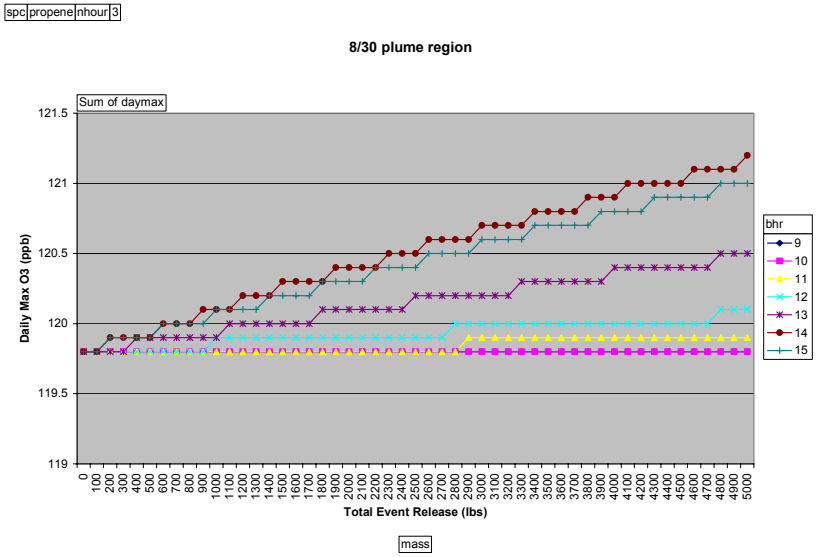
Radical Cycle/ NO Cycle/ Ozone







Sensitivity of daily max to the Ethene emission in "Plume region" of Deer Park, Aug. 30: Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)



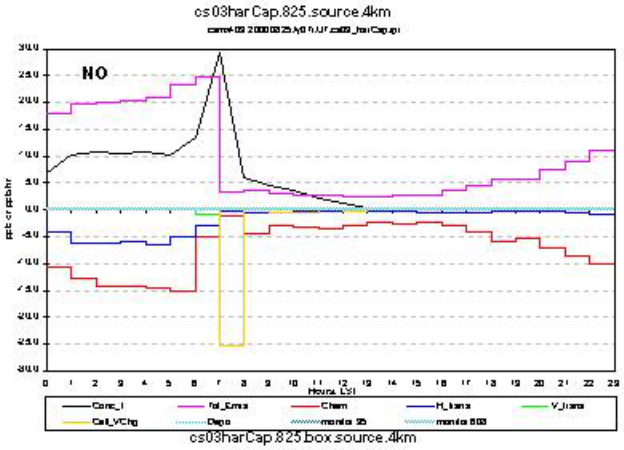
Sensitivity of daily max to the Propene emission in "Plume region" of Deer Park, Aug. 30: Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)

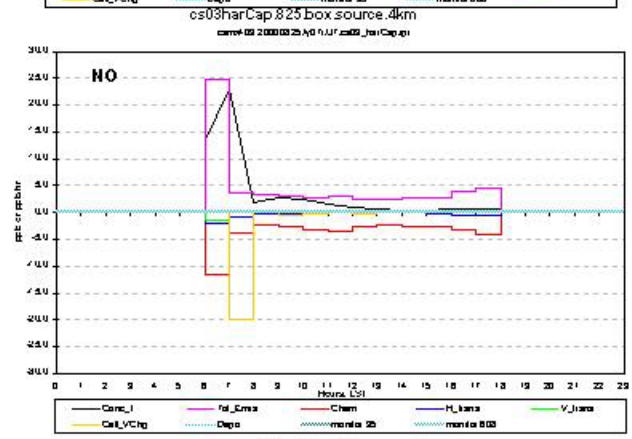
Results for fy07i.cs03_harCap.goes1 (4km resolution)

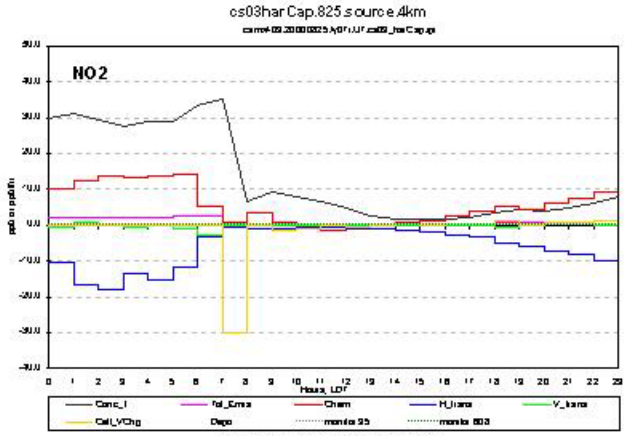
8/25 Deer Park (fy07i.cs03_harCap.4km.goes1)
8/28 Baytown (fy07i.cs03_harCap.4km.goes1)
8/28 Chocolate Bayou (fy07i.cs03_harCap.4km.goes1)
8/30 Deer Park (fy07i.cs03_harCap.4km.goes1)

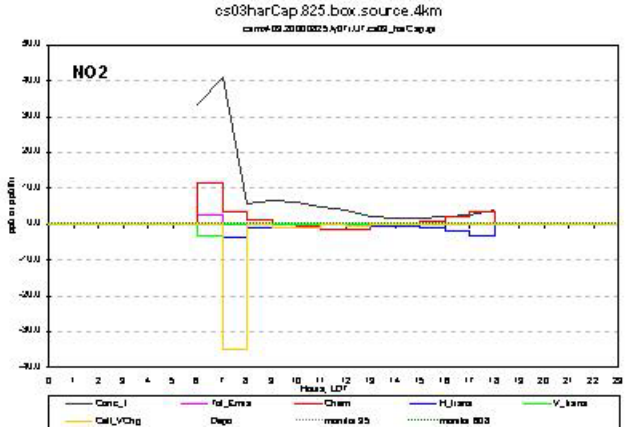
August 25 - Future Year 2007 (fyo7i.cs03_harCap)

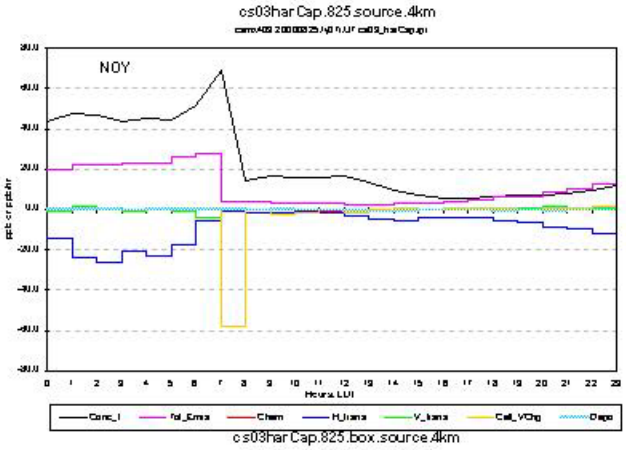
8_25_00 Process Analysis Box outlined in black. Black Dots represent lower left hand corner of 4 km grid cells

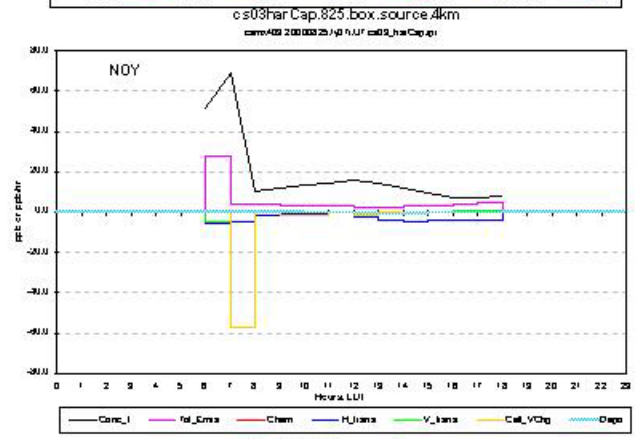

cs03harCap.825.source.4km
NO
Hours, LST
Conc_I
fol_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 803

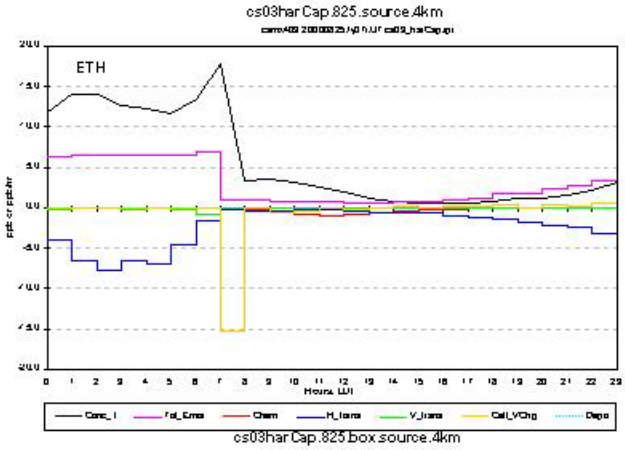

cs03harCap.825.box.source.4km
NO
Hours, LST
Conc_I
fol_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 803

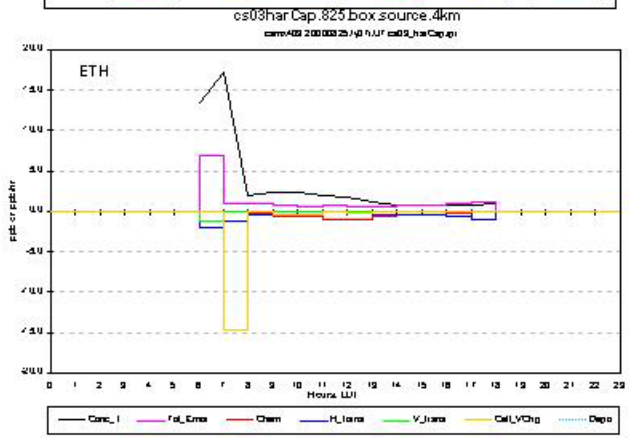

cs03harCap.825.source.4km
NO2
Hours, LDT
Conc_I
fol_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 803

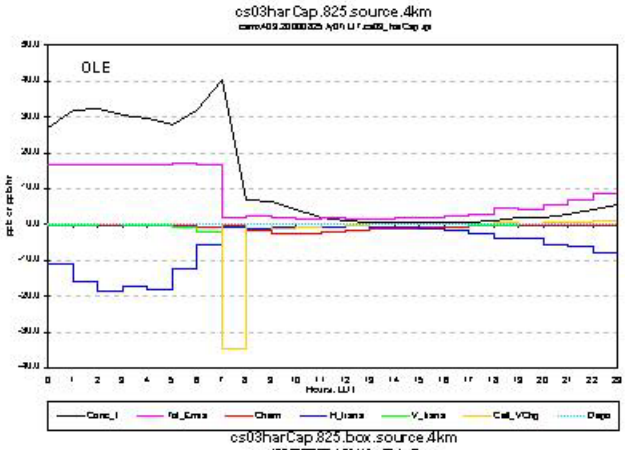

cs03harCap.825.box.source.4km
NO2
Hours, LDT
Conc_I
fol_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 803

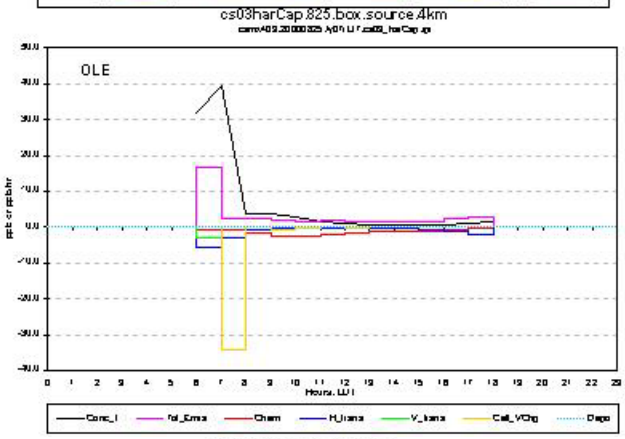

cs03harCap.825.source.4km
NOY
Hours LDT
Conc_I
Fol_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo

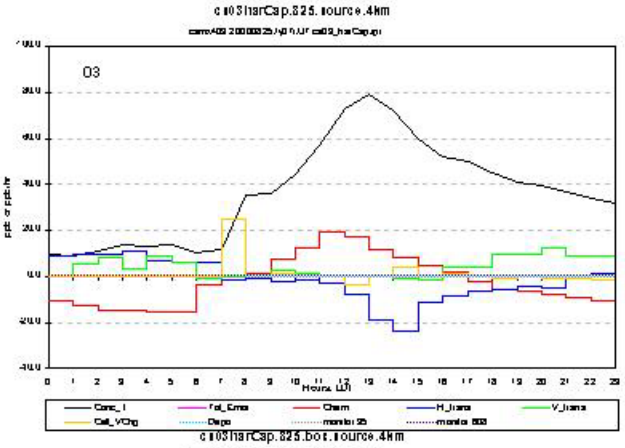

cs03harCap.825.box.source.4km
NOY
Hours LDT
Conc_I
Fol_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo

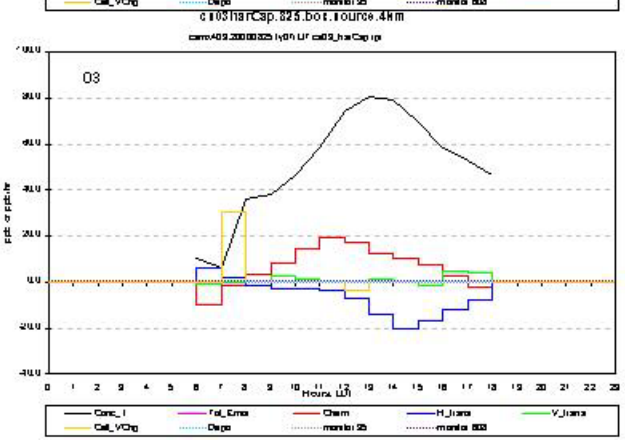

cs03harCap.825.source.4km
ETH
Hours LDT
Conc_I
Fol_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo

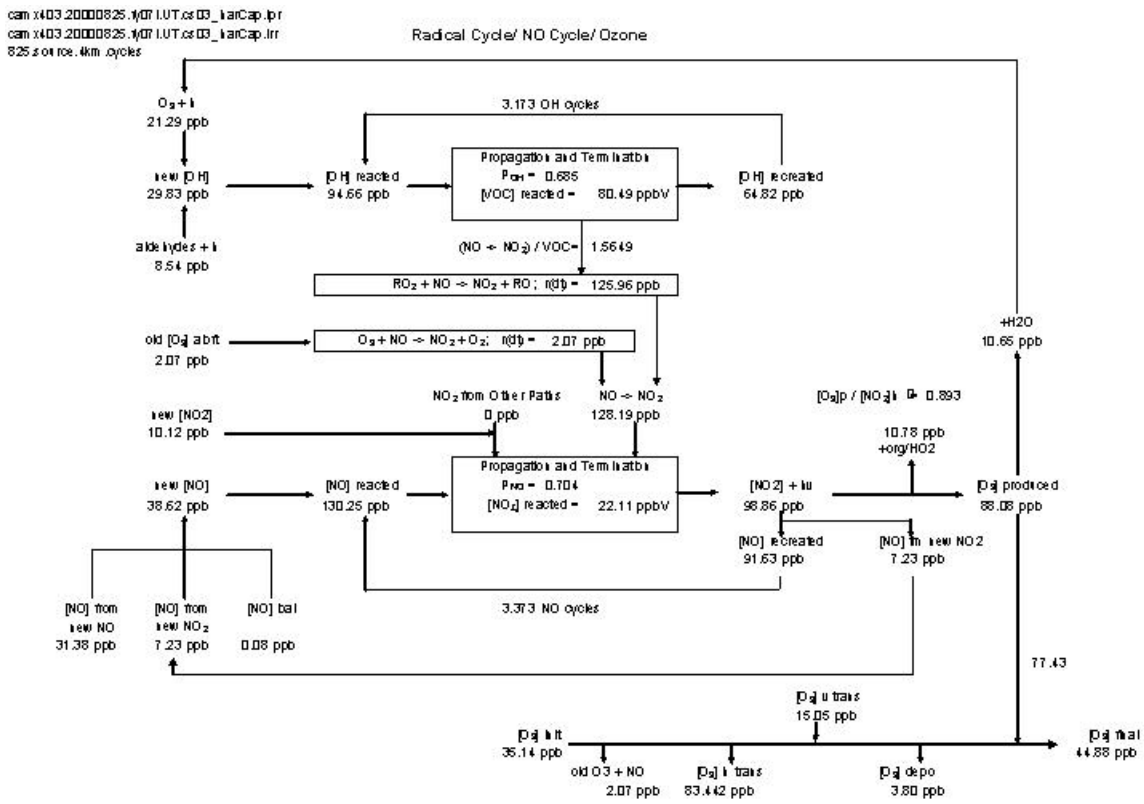

cs03harCap.825.box.source.4km
ETH
Hours LDT
Conc_I
Fol_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo

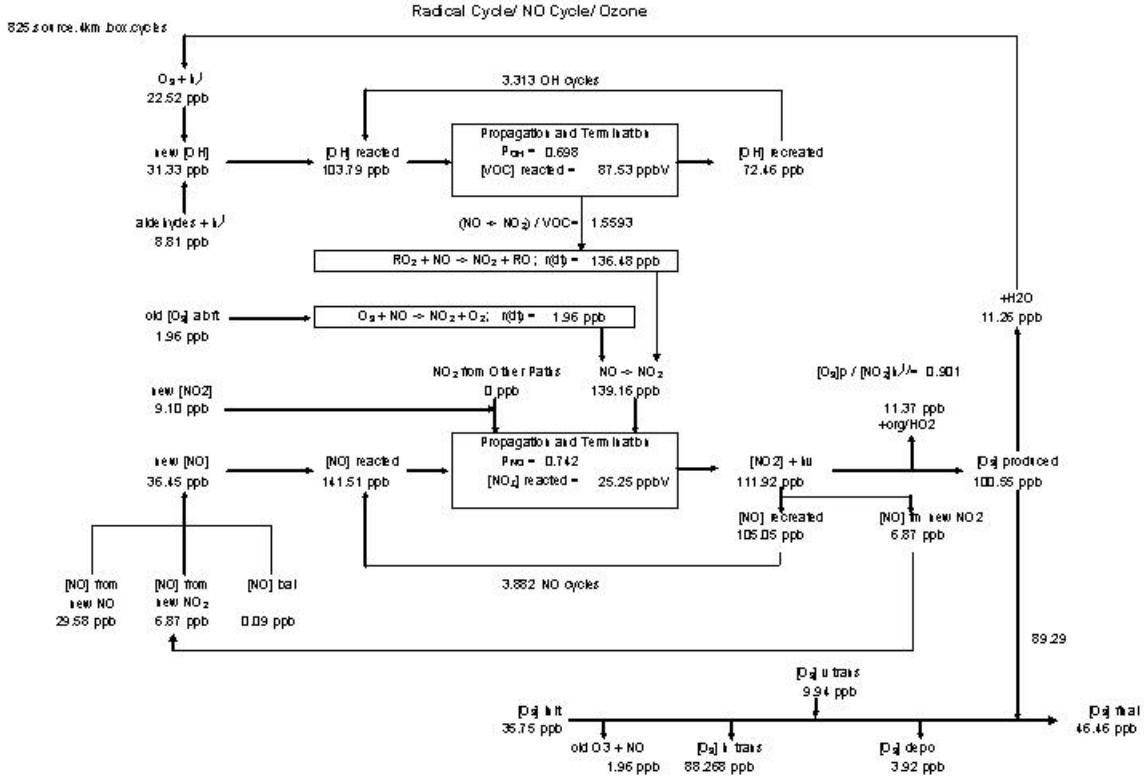

cs03harCap.825.source.4km
OLE
Hours, LDT
Conc_I
Chem
H_trans
V_trans
Cell_VChg
Depo

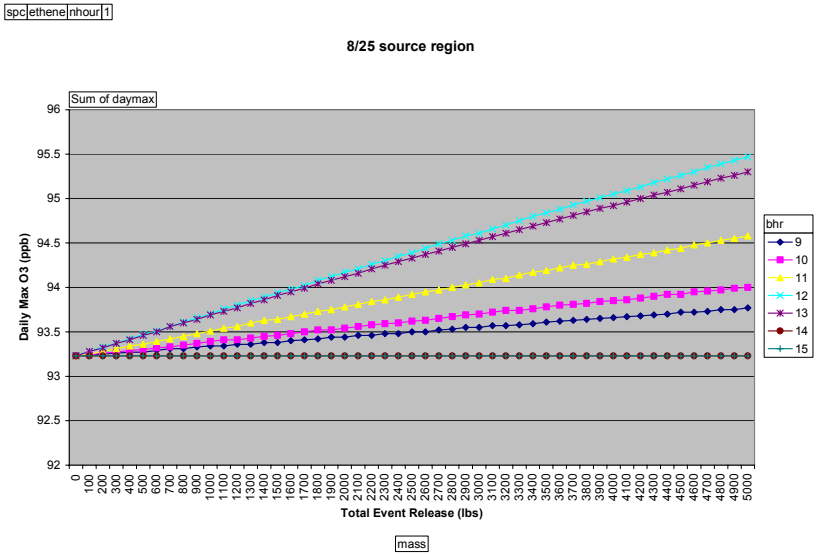

cs03harCap.825.box.source.4km
OLE
Hours, LDT
Conc_I
Chem
H_trans
V_trans
Cell_VChg
Depo

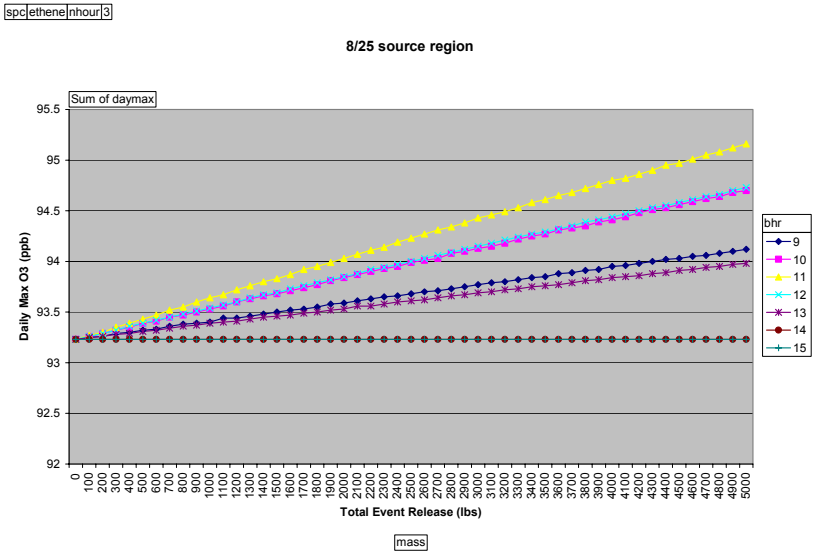

cs03harCap.825.source.4km
O3
Hours, LDT
Conc_I
Chem
H_trans
V_trans
Cell_VChg
Depo

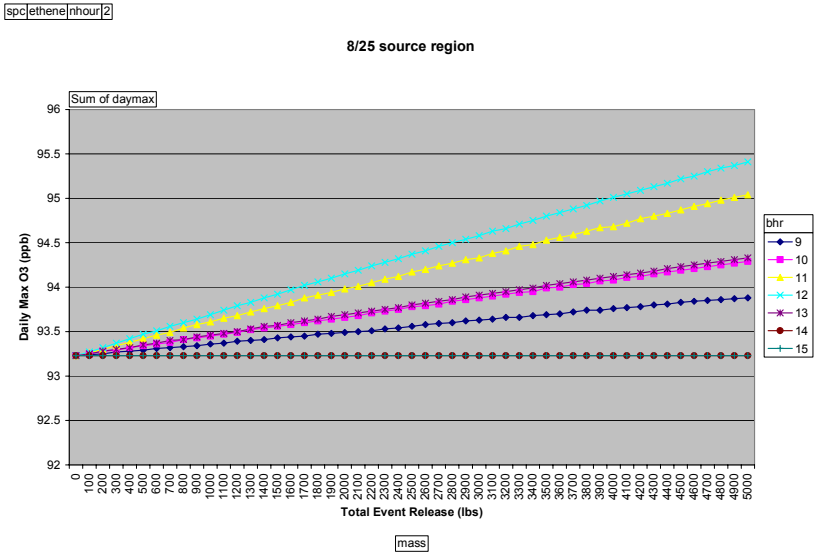

cs03harCap.825.box.source.4km
O3
Hours, LDT
Conc_I
Chem
H_trans
V_trans
Cell_VChg
Depo


Radical Cycle/ NO Cycle/ Ozone
3.173 OH cycles
Propagation and Termination
[VOC] reacted = 80.49 ppbV
(NO → NO2) / VOC= 1.5649
RO2 + NO → NO2 + RO ; n(t) = 125.96 ppb
O3 + NO → NO2 + O2; n(t) = 2.07 ppb
NO2 from Other Paths
0 ppb
NO → NO2
128.19 ppb
10.78 ppb
+org/HO2
+H2O
10.65 ppb
Propagation and Termination
[NO2] reacted = 22.11 ppbV
[NO] reacted
130.25 ppb
[NO2] + hν
98.86 ppb
[O3] produced
88.08 ppb
[NO] recreated
91.63 ppb
[NO] from new NO2
7.23 ppb
3.373 NO cycles
77.43
[O3] in trans
15.05 ppb
[O3] final
44.88 ppb
old O3 + NO
2.07 ppb
[O3] depo
3.80 ppb

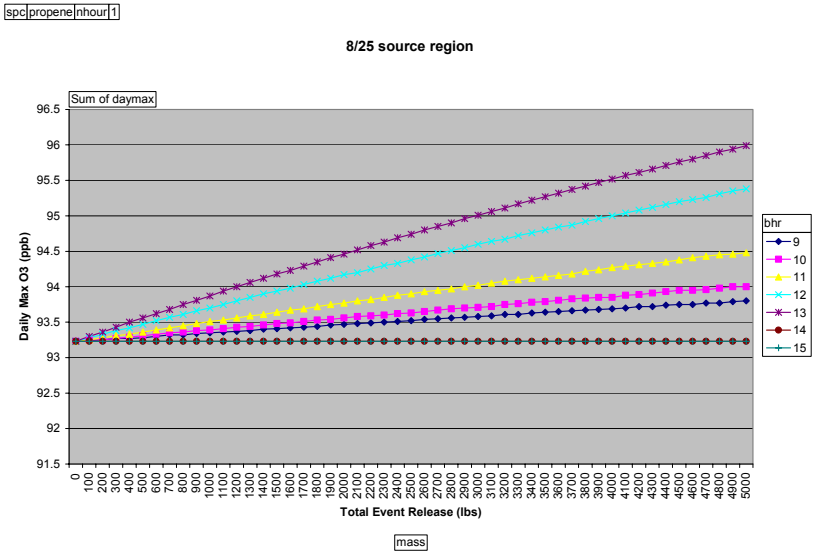

Radical Cycle/ NO Cycle/ Ozone
3.313 OH cycles
Propagation and Termination
[VOC] reacted = 87.53 ppbV
(NO → NO2) / VOC= 1.5593
RO2 + NO → NO2 + RO ; n(t) = 136.48 ppb
O3 + NO → NO2 + O2; n(t) = 1.96 ppb
NO2 from Other Paths
0 ppb
NO → NO2
139.16 ppb
11.37 ppb
+org/HO2
+H2O
11.26 ppb
Propagation and Termination
[VOC] reacted = 25.25 ppbV
[NO] reacted
141.51 ppb
[NO2] + hν
111.92 ppb
[O3] produced
100.55 ppb
[NO] recreated
105.05 ppb
[NO] from new NO2
6.87 ppb
3.882 NO cycles
89.29
[O3] in trans
9.94 ppb
[O3] final
46.46 ppb
old O3 + NO
1.96 ppb
[O3] depo
3.92 ppb

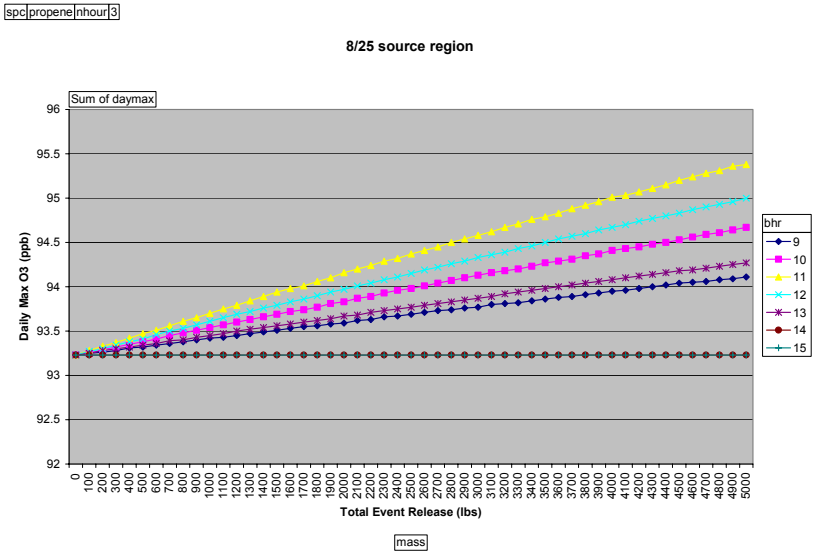


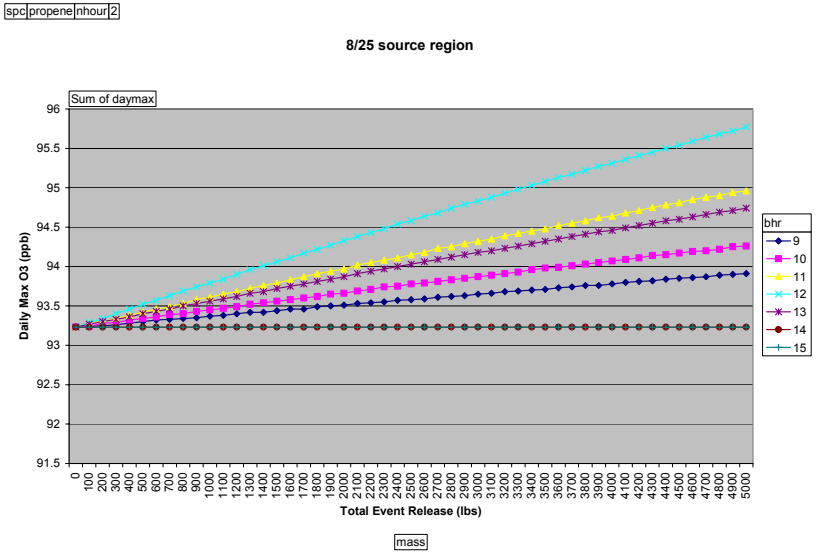




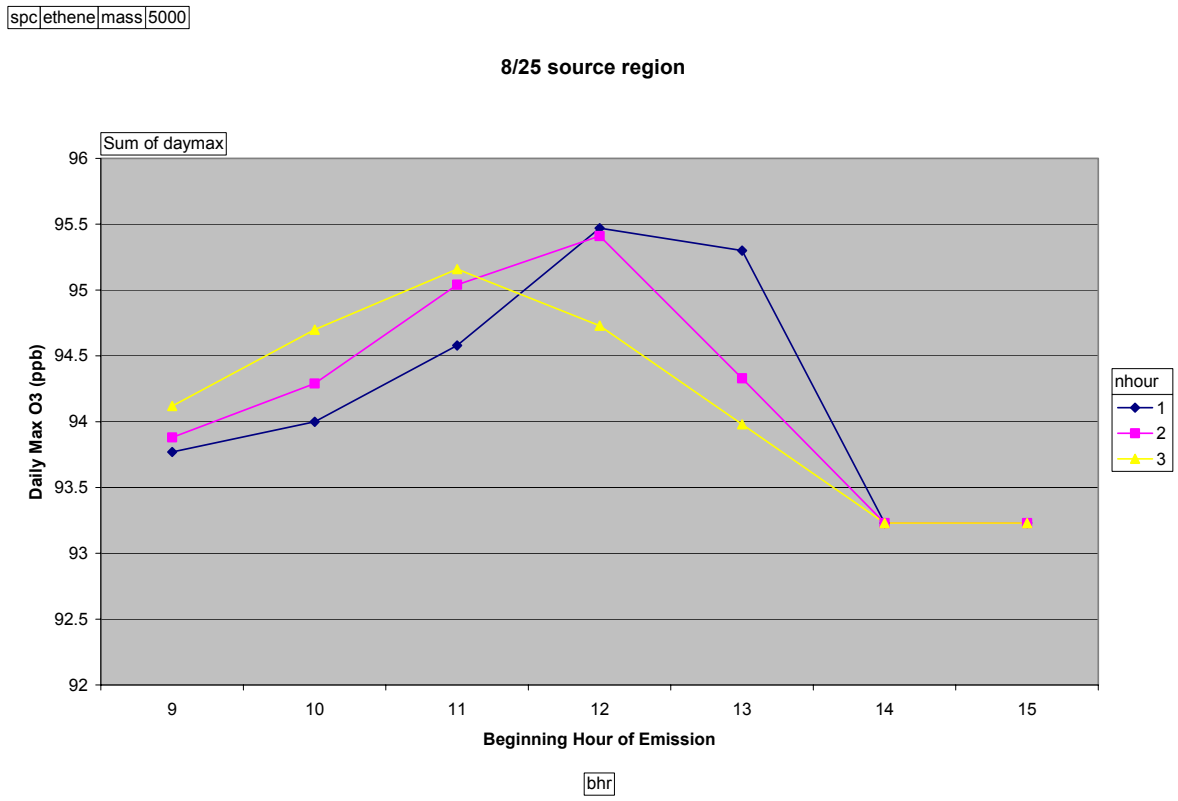
Sensitivity of Daily Max Ozone to the Ethene emission magnitude in "Source region" of Deer Park, Aug. 25, 4km resolution (GOES1 Met): Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)



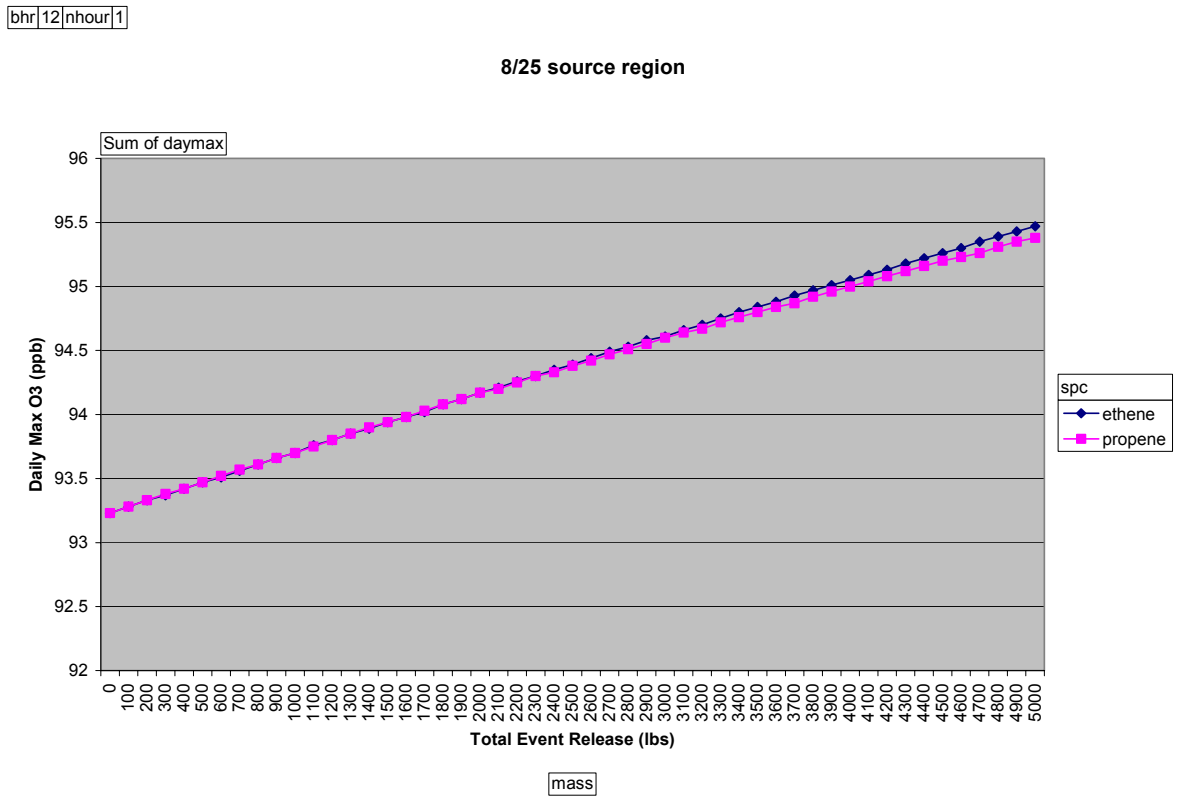




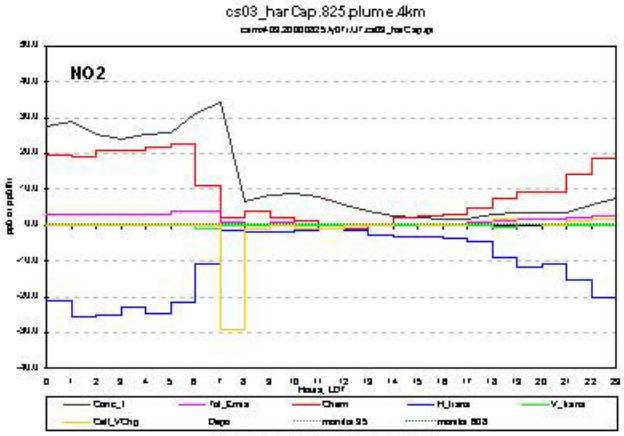
Sensitivity of Daily Max Ozone to the Propene emission magnitude in "Source region" of Deer Park, Aug. 25, 4km resolution (GOES1 Met): Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)

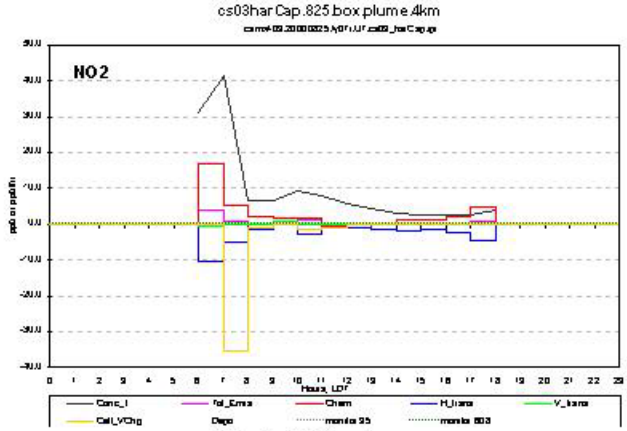


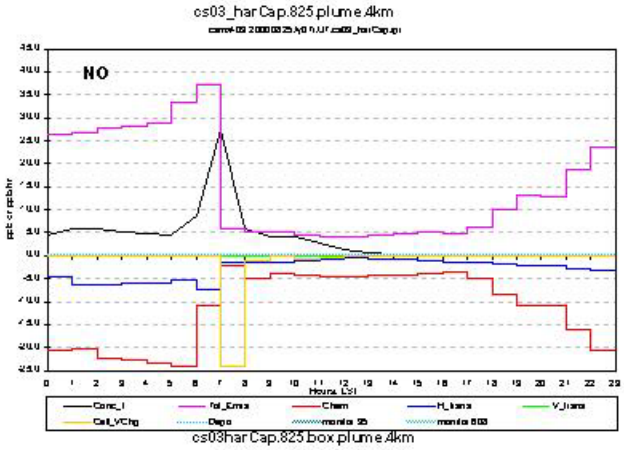
Sensitivity of Daily Max Ozone to the Ethene emission timing (beginning of emission) in "Source region" of Deer Park, Aug. 25, 4km resolution (GOES1 Met): All emissions are 5000 lbs. Legend shows the number of hours of emission event

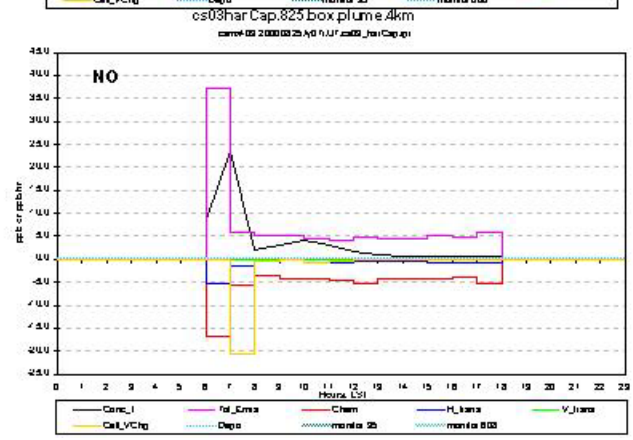


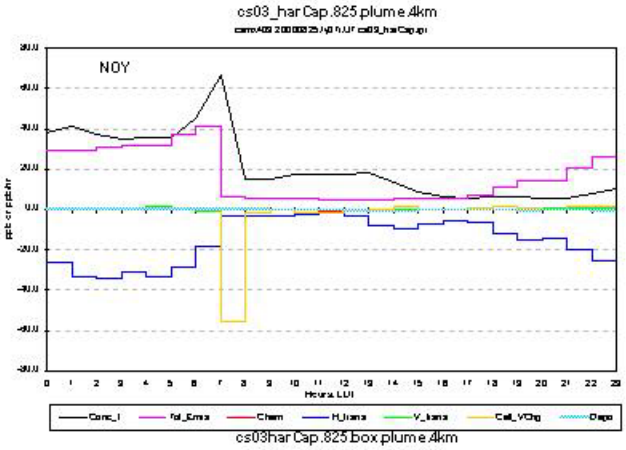
Sensitivity of Daily Max Ozone to the emission species (Ethene and Propene) in "Source region" of Deer Park, Aug. 25, 4km resolution (GOES1 Met): All emissions are between 12:00 to 13:00. Legend shows the number of hours of emission event

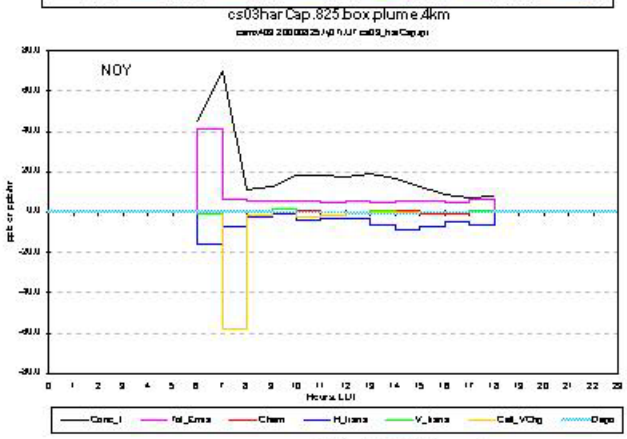

cs03_harCap.825.plume.4km
NO2
Hours_LDT
Conc_I
fol_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 95
monitor 803

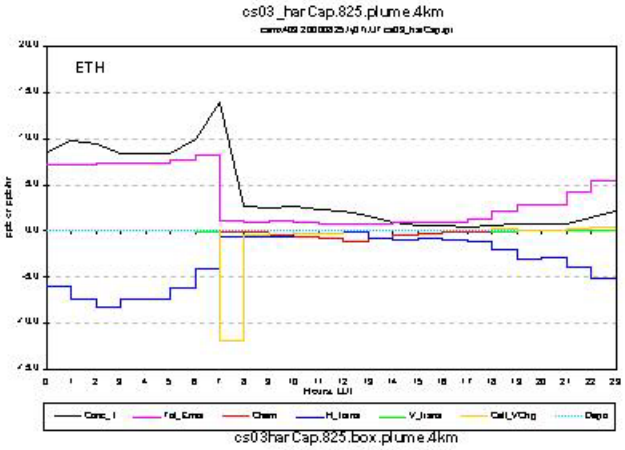

cs03harCap.825.box.plume.4km
NO2
Hours_LDT
Conc_I
fol_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 95
monitor 803

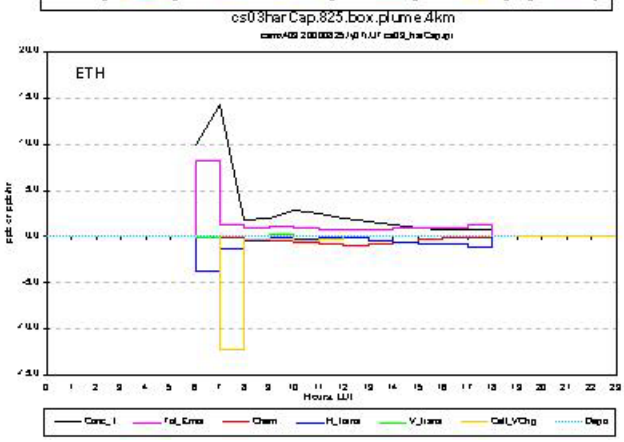

cs03_harCap.825.plume.4km
NO
Hours_LST
Conc_I
fol_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 95
monitor 803

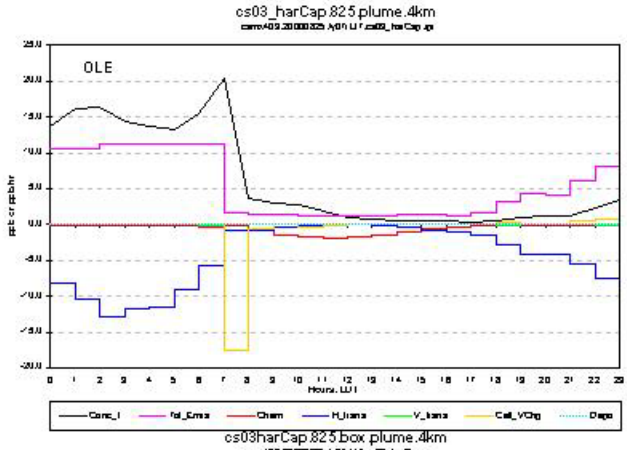

cs03harCap.825.box.plume.4km
NO
Hours_LST
Conc_I
fol_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 95
monitor 803

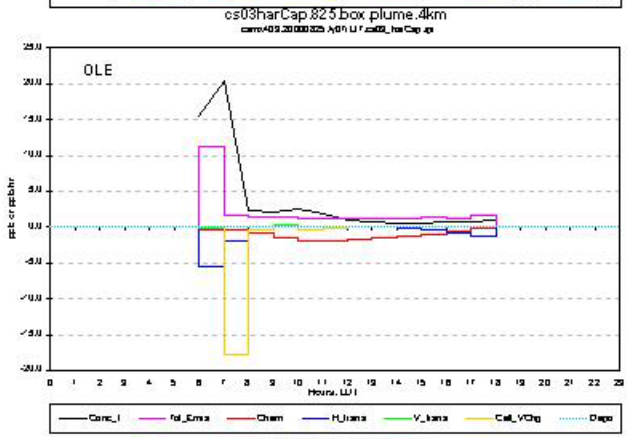

cs03_harCap.825.plume.4km
NOY
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo

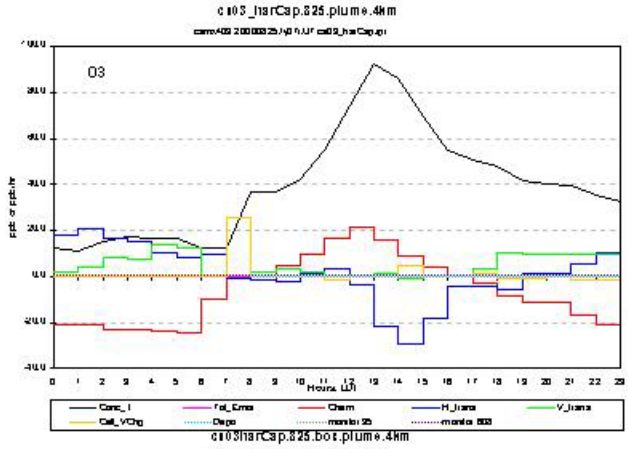

cs03harCap.825.box.plume.4km
NOY
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo

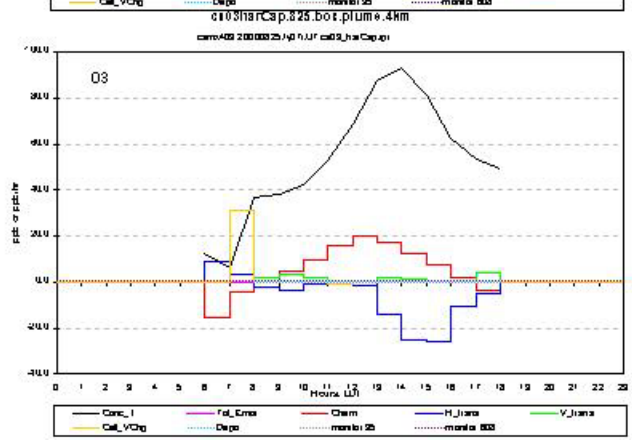

cs03_harCap.825.plume.4km
ETH
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo

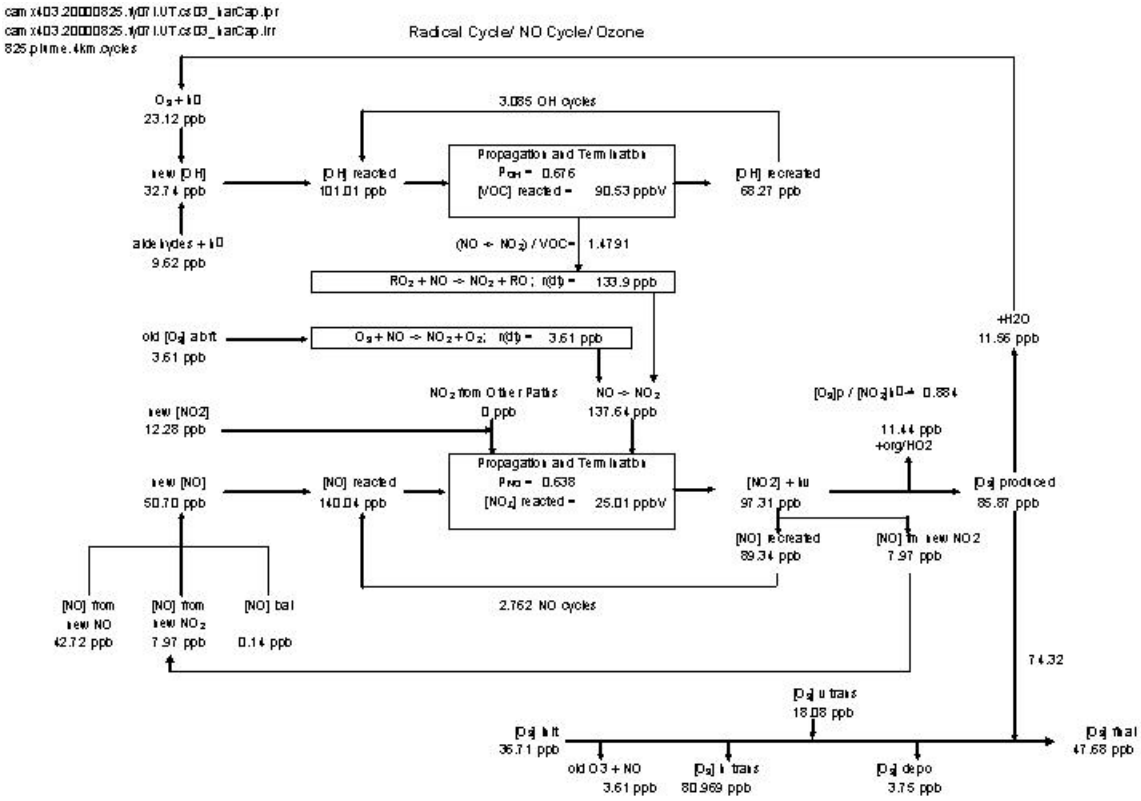

cs03harCap.825.box.plume.4km
ETH
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo

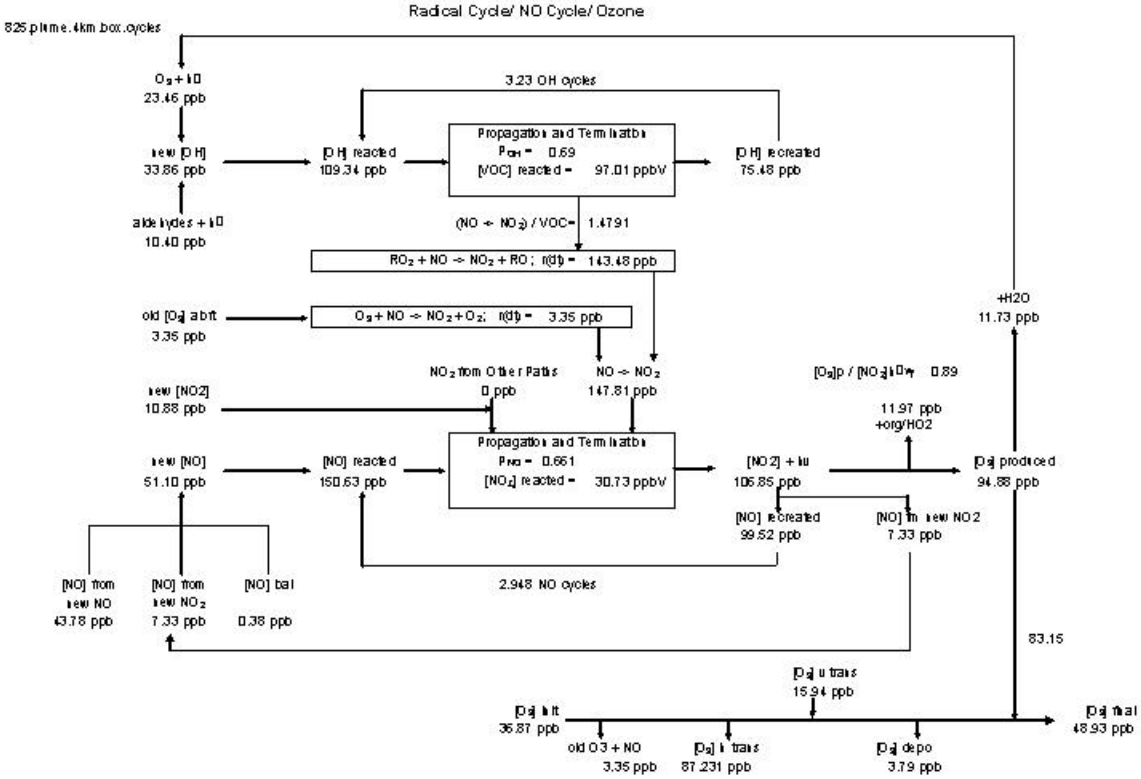

cs03_harCap.825.plume.4km
OLE
Hours, LUT
Conc_I
Chem
H_trans
V_trans
Cell_VChg
Depo

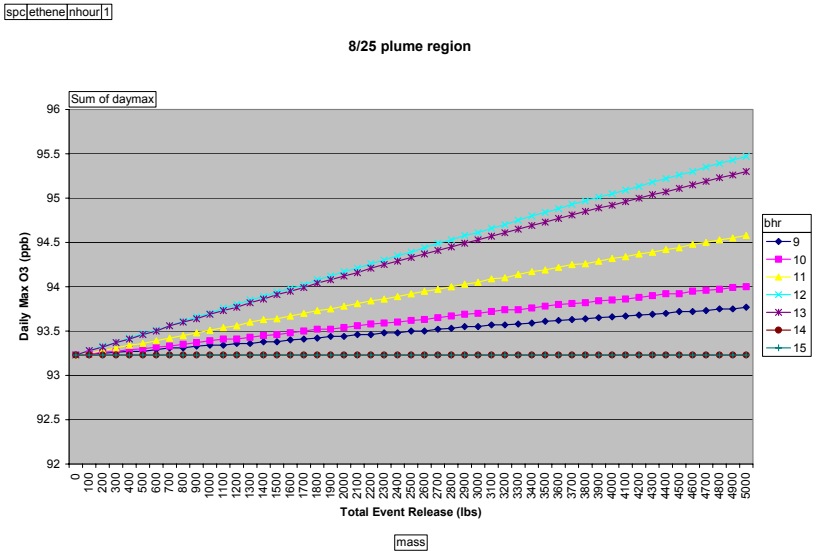

cs03harCap.825.box.plume.4km
OLE
Hours, LUT
Conc_I
Chem
H_trans
V_trans
Cell_VChg
Depo

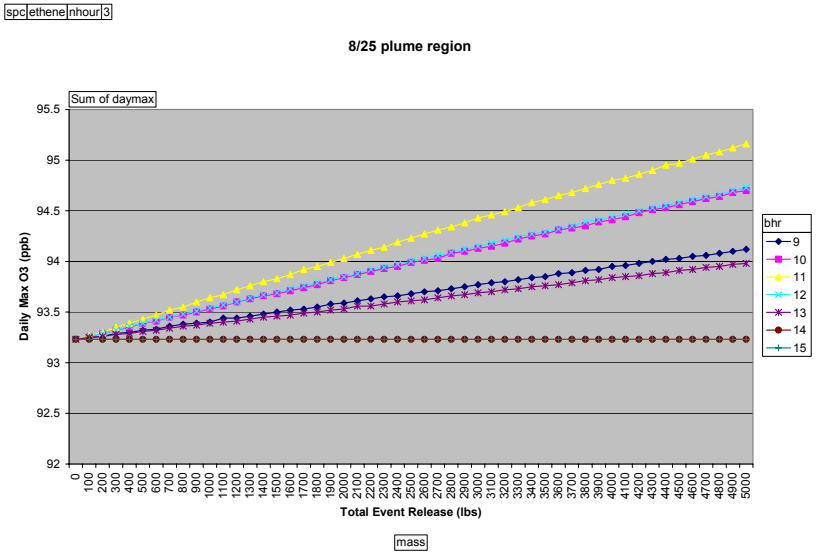

cs03_harCap.825.plume.4km
O3
Hours, LUT
Conc_I
Chem
H_trans
V_trans
Cell_VChg
Depo

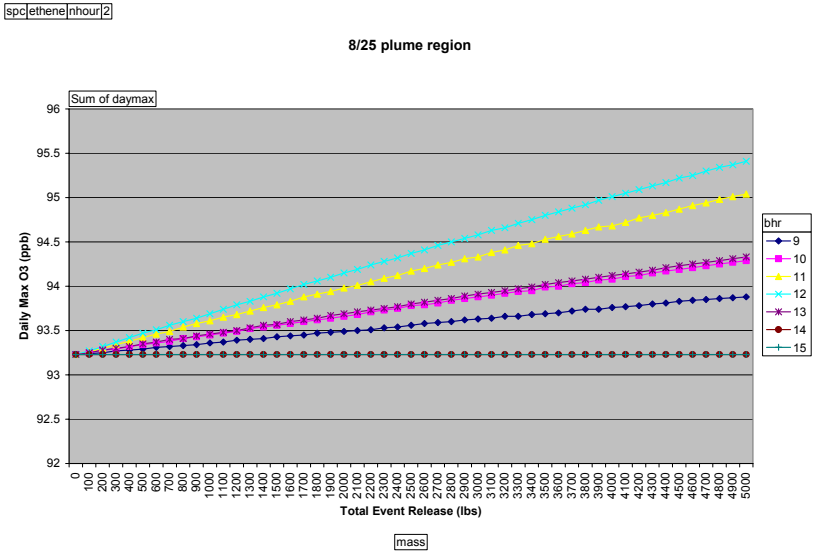

cs03harCap.825.box.plume.4km
O3
Hours, LUT
Conc_I
Chem
H_trans
V_trans
Cell_VChg
Depo


cam x403.20000825.ly071.UT.cs03_narCap.lpr
cam x403.20000825.ly071.UT.cs03_narCap.lrr
825 plume.4km.cycles
Radical Cycle/ NO Cycle/ Ozone
O3 + hν
23.12 ppb
3.085 OH cycles
new [OH]
32.74 ppb
[OH] reacted
101.01 ppb
Propagation and Termination
POH = 0.676
[VOC] reacted = 90.53 ppbV
[OH] recreated
68.27 ppb
aldehydes + hν
9.62 ppb
(NO → NO2) / VOC= 1.4791
RO2 + NO → NO2 + RO ; n(t) = 133.9 ppb
old [O3] abrt
3.61 ppb
O3 + NO → NO2 + O2; n(t) = 3.61 ppb
+H2O
11.66 ppb
NO2 from Other Paths
0 ppb
NO → NO2
137.64 ppb
[O3]p / [NO2]hν→ 0.884
new [NO2]
12.28 ppb
11.44 ppb
+org/HO2
new [NO]
50.70 ppb
[NO] reacted
140.04 ppb
Propagation and Termination
PNO = 0.638
[NO2] reacted = 25.01 ppbV
[NO2] + hν
97.31 ppb
[O3] produced
85.87 ppb
[NO] recreated
89.34 ppb
[NO] from new NO2
7.97 ppb
[NO] from
new NO
42.72 ppb
[NO] from
new NO2
7.97 ppb
[NO] bal
0.14 ppb
2.762 NO cycles
74.32
[O3] u trans
18.08 ppb
[O3] init
36.71 ppb
[O3] final
47.68 ppb
old O3 + NO
3.61 ppb
[O3] h trans
80.969 ppb
[O3] depo
3.75 ppb

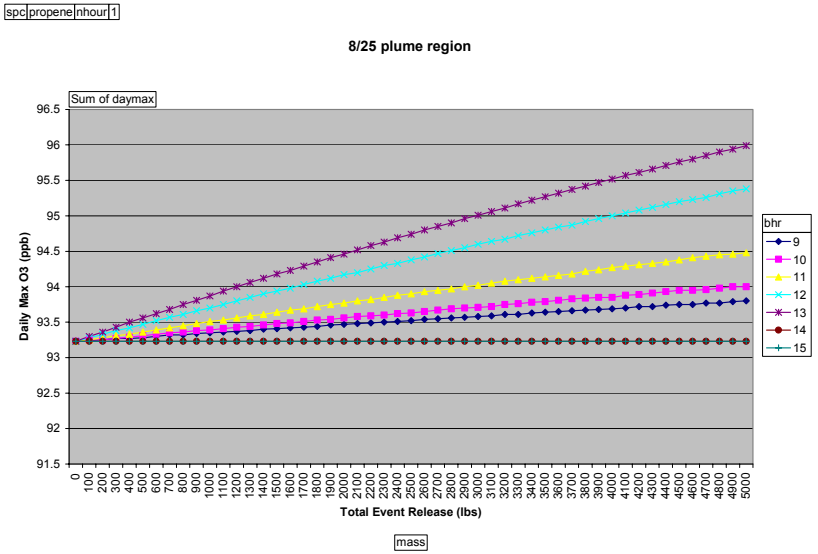

Radical Cycle/ NO Cycle/ Ozone
825 plume.4km.box.cycles
O3 + hν
23.46 ppb
3.23 OH cycles
new [OH]
33.86 ppb
[OH] reacted
109.34 ppb
Propagation and Termination
POH = 0.69
[VOC] reacted = 97.01 ppbV
[OH] recreated
75.48 ppb
aldehydes + hν
10.40 ppb
(NO → NO2) / VOC= 1.4791
RO2 + NO → NO2 + RO ; n(t) = 143.48 ppb
old [O3] abrt
3.35 ppb
O3 + NO → NO2 + O2; n(t) = 3.35 ppb
+H2O
11.73 ppb
NO2 from Other Paths
0 ppb
NO → NO2
147.81 ppb
[O3]p / [NO2]hν→ 0.89
new [NO2]
10.88 ppb
11.97 ppb
+org/HO2
new [NO]
51.10 ppb
[NO] reacted
150.63 ppb
Propagation and Termination
PNO = 0.661
[NO2] reacted = 30.73 ppbV
[NO2] + hν
106.85 ppb
[O3] produced
94.88 ppb
[NO] recreated
99.52 ppb
[NO] from new NO2
7.33 ppb
[NO] from
new NO
43.78 ppb
[NO] from
new NO2
7.33 ppb
[NO] bal
0.38 ppb
2.948 NO cycles
83.15
[O3] u trans
15.94 ppb
[O3] init
36.87 ppb
[O3] final
48.93 ppb
old O3 + NO
3.35 ppb
[O3] h trans
87.231 ppb
[O3] depo
3.79 ppb

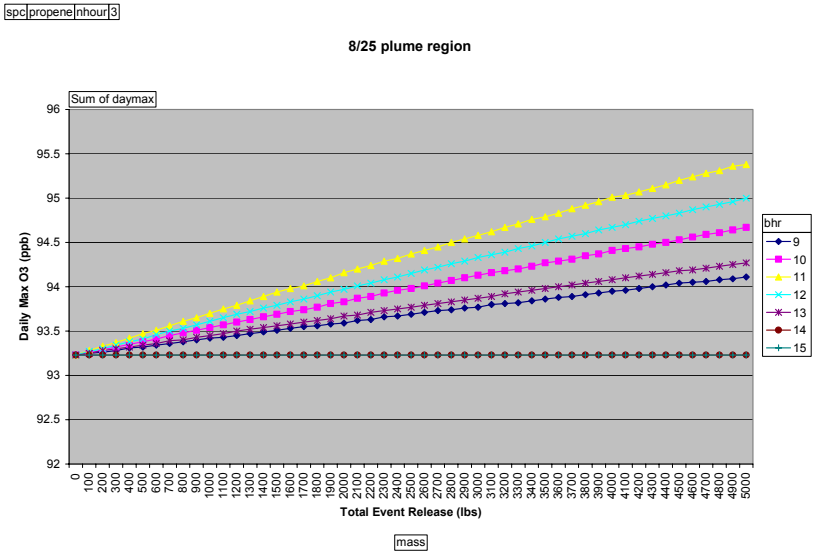


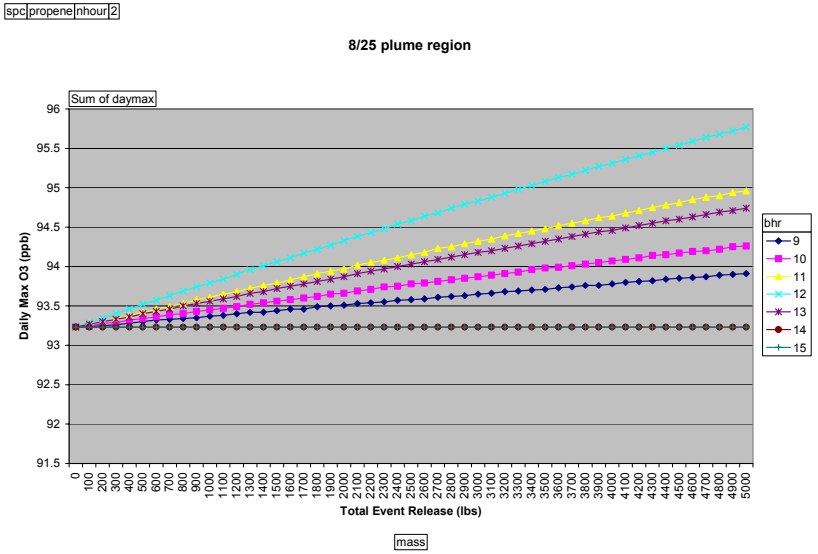




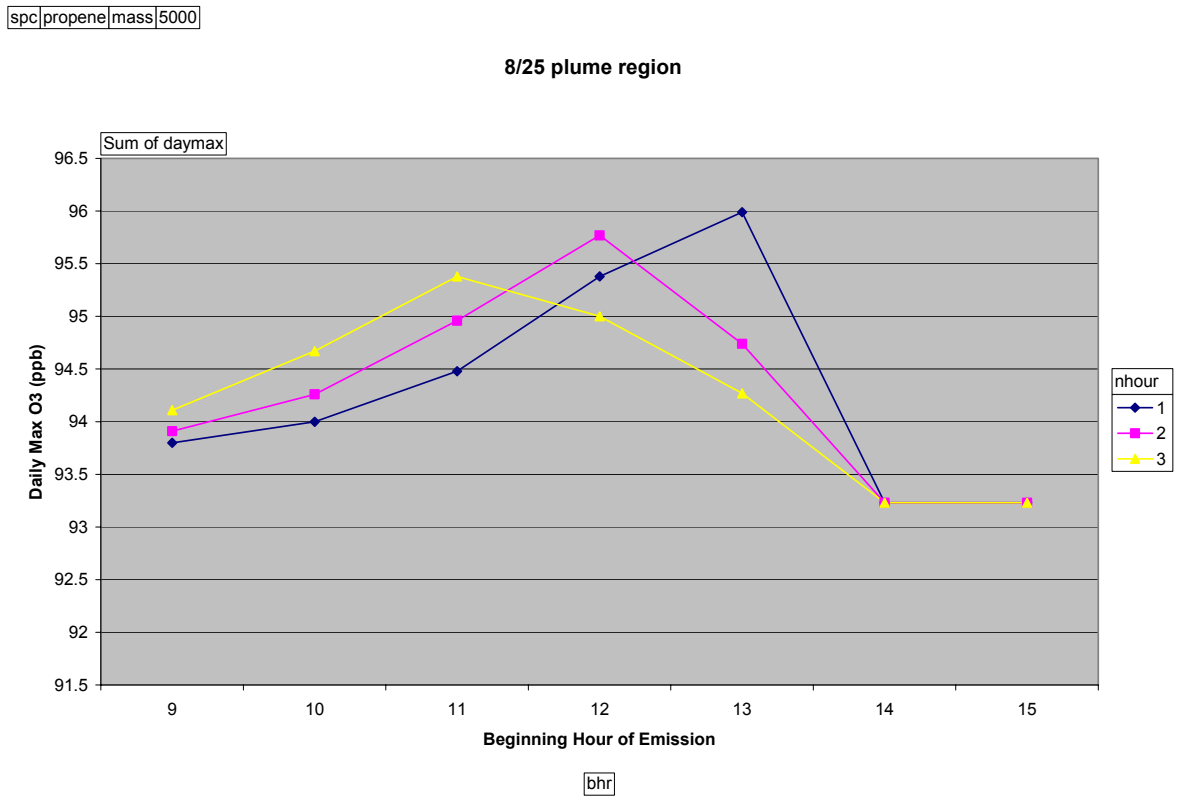
Sensitivity of Daily Max Ozone to the Ethene emission magnitude in "Plume region" of Deer Park, Aug. 25, 4km resolution (GOES1 Met): Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)



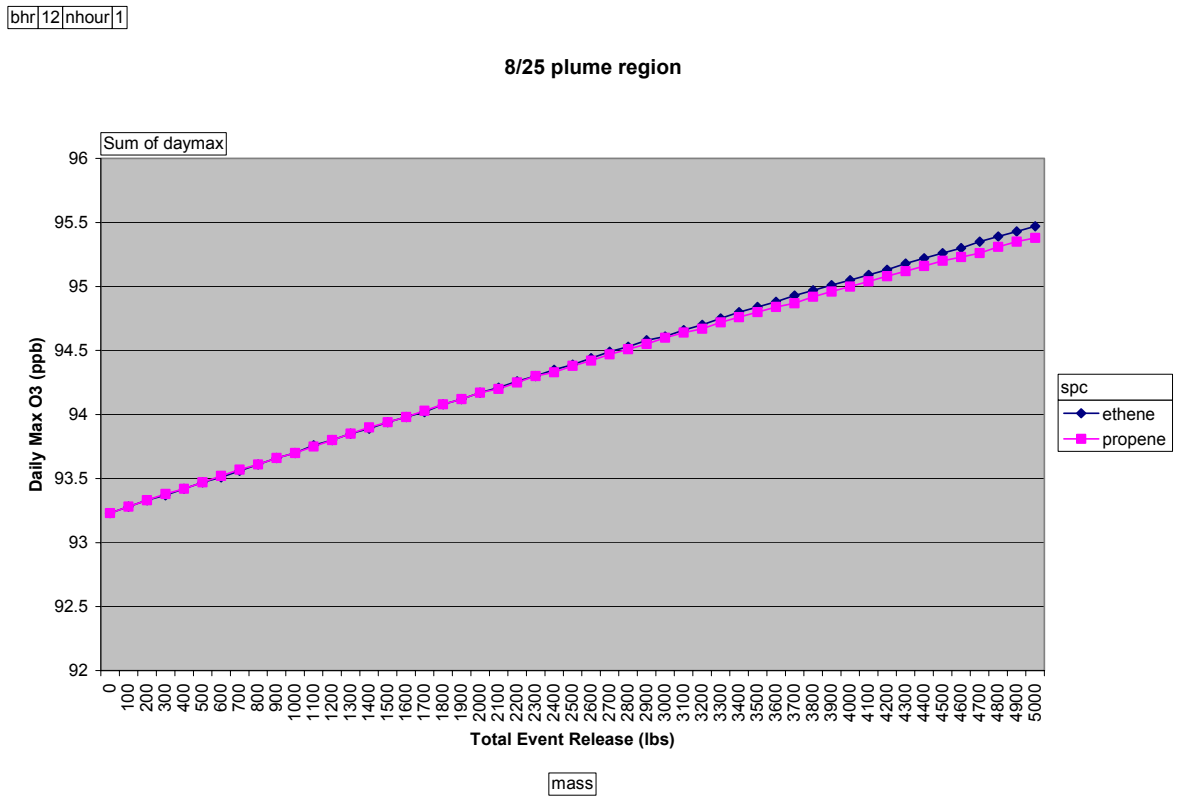




Sensitivity of Daily Max Ozone to the Propene emission magnitude in “Plume region” of Deer Park, Aug. 25, 4km resolution (GOES1 Met): Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)

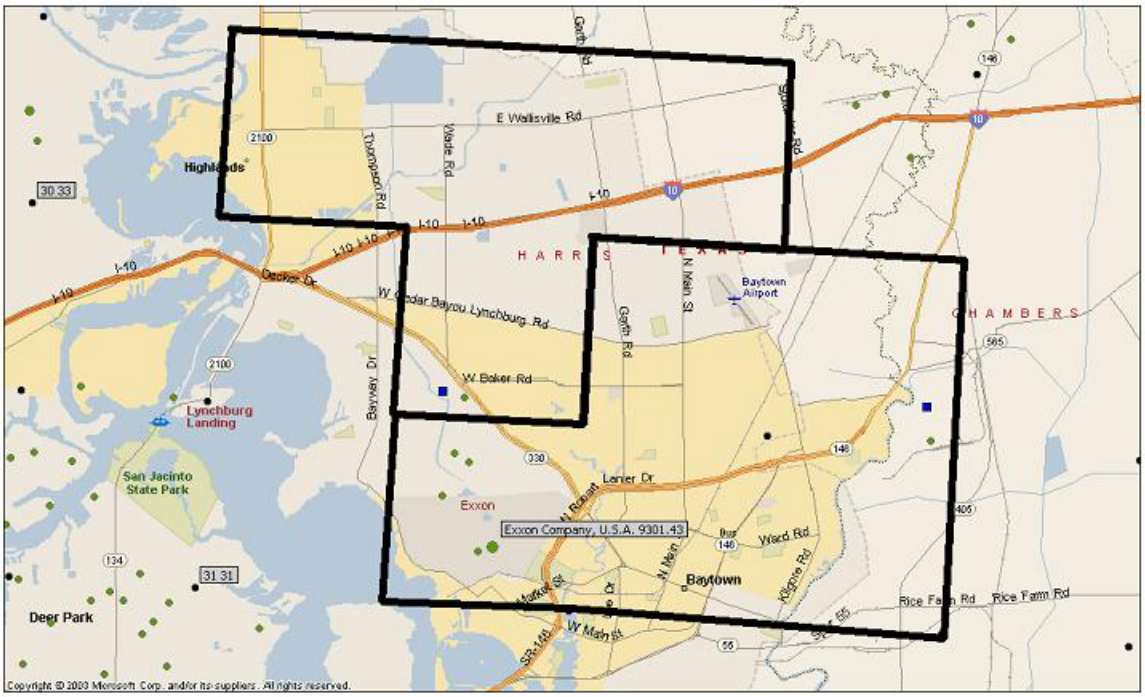


Sensitivity of Daily Max Ozone to the Ethene emission timing (beginning of emission) in "Plume region" of Deer Park, Aug. 25, 4km resolution (GOES1 Met): All emissions are 5000 lbs. Legend shows the number of hours of emission event



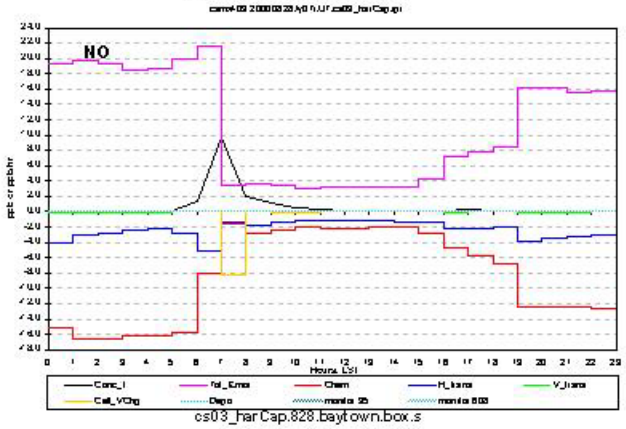
Sensitivity of Daily Max Ozone to the emission species (Ethene and Propene) in "Plume region" of Deer Park, Aug. 25, 4km resolution (GOES1 Met): All emissions are between 12:00 to 13:00. Legend shows the number of hours of emission event

August 28 - Future Year 2007 (fyo7i.cs03_harCap)

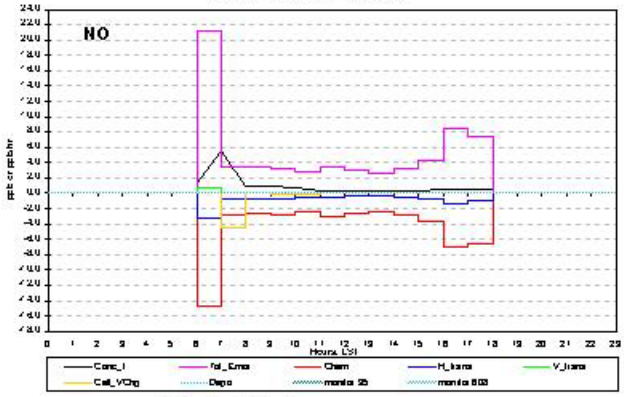


8_28_00 Process Analysis Box outlined in black. Black Dots represent lower left hand corner of 4 km grid cells

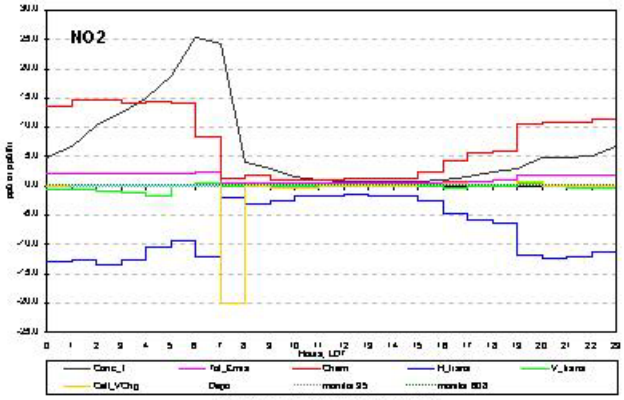
cs03_harCap.828.baytown.sourc



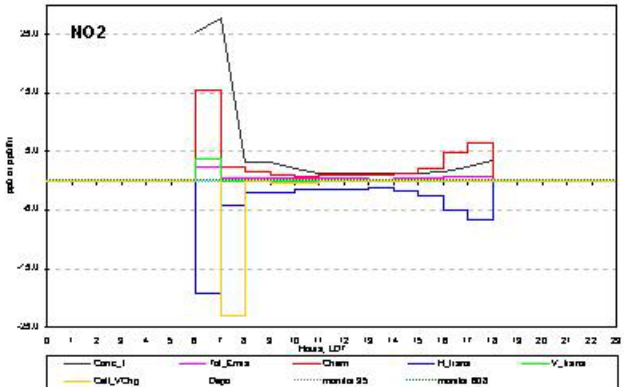
cs03_harCap.828.baytown.box.s

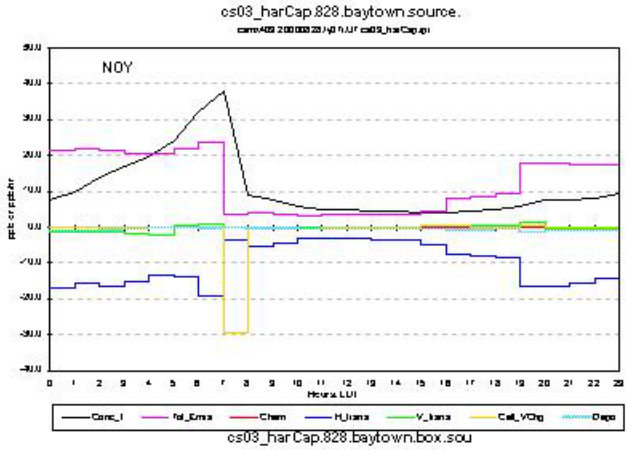


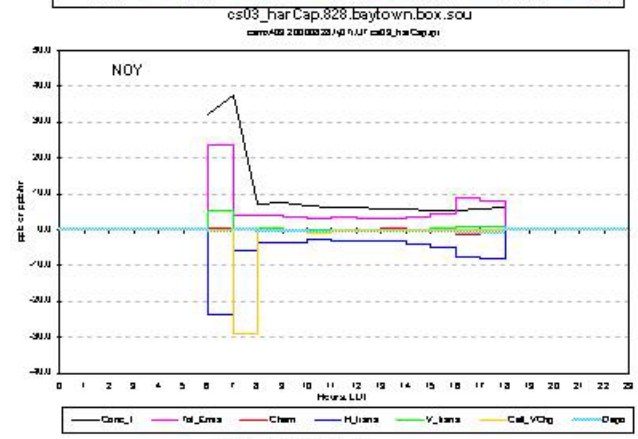
cs03_harCap.828.baytown.sourc

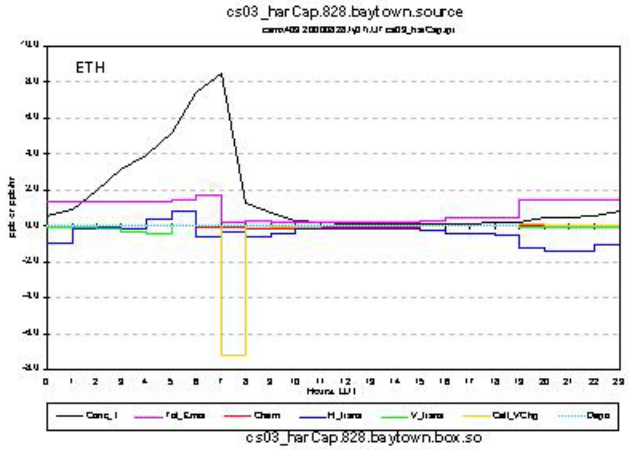


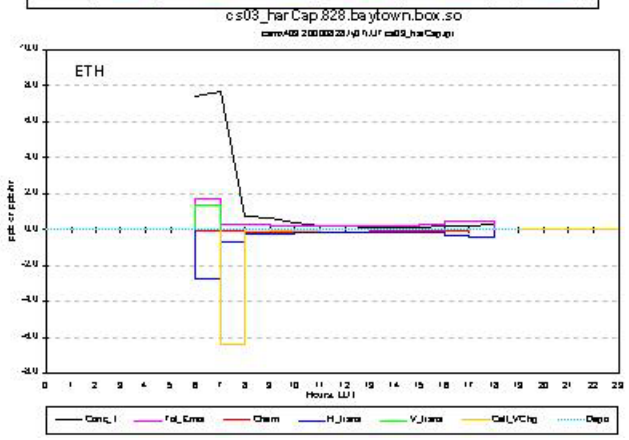
cs03_harCap.828.baytown.box.s

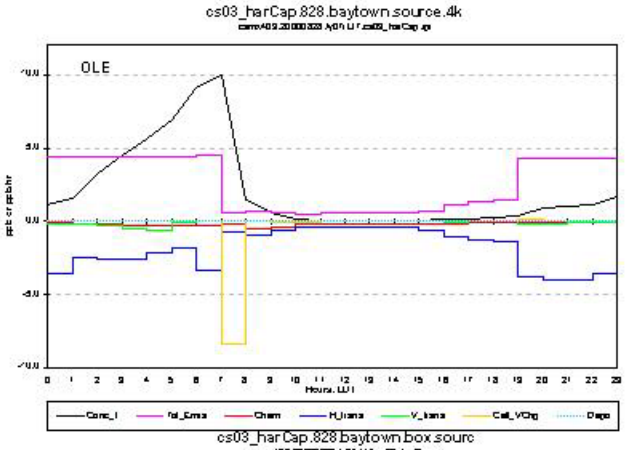


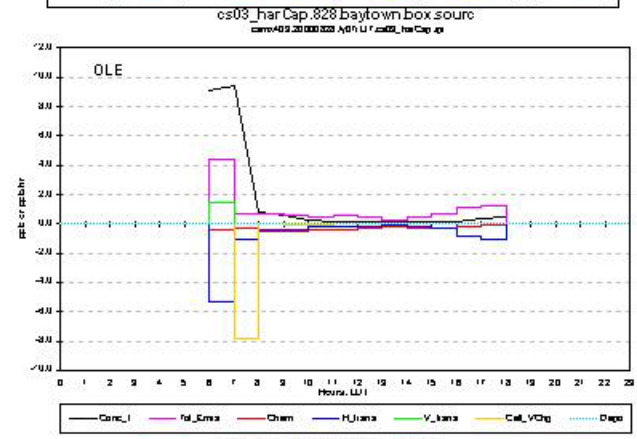

cs03_harCap.828.baytown.source.
NOY
Hours LDT
Conc_I
Fol_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo

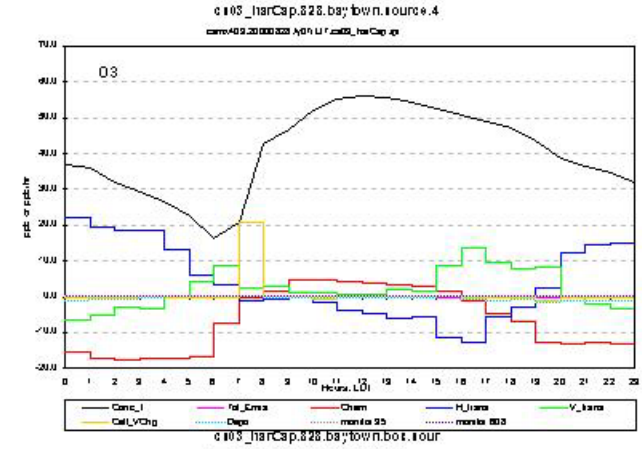

cs03_harCap.828.baytown.box.sou
NOY
Hours LDT
Conc_I
Fol_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo

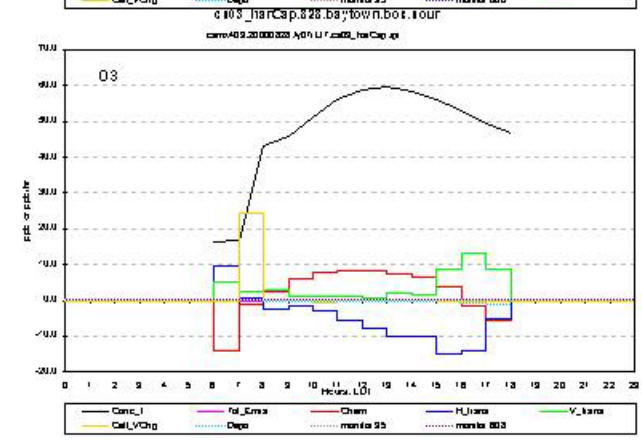

cs03_harCap.828.baytown.source
ETH
Hours LDT
Conc_I
Fol_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo

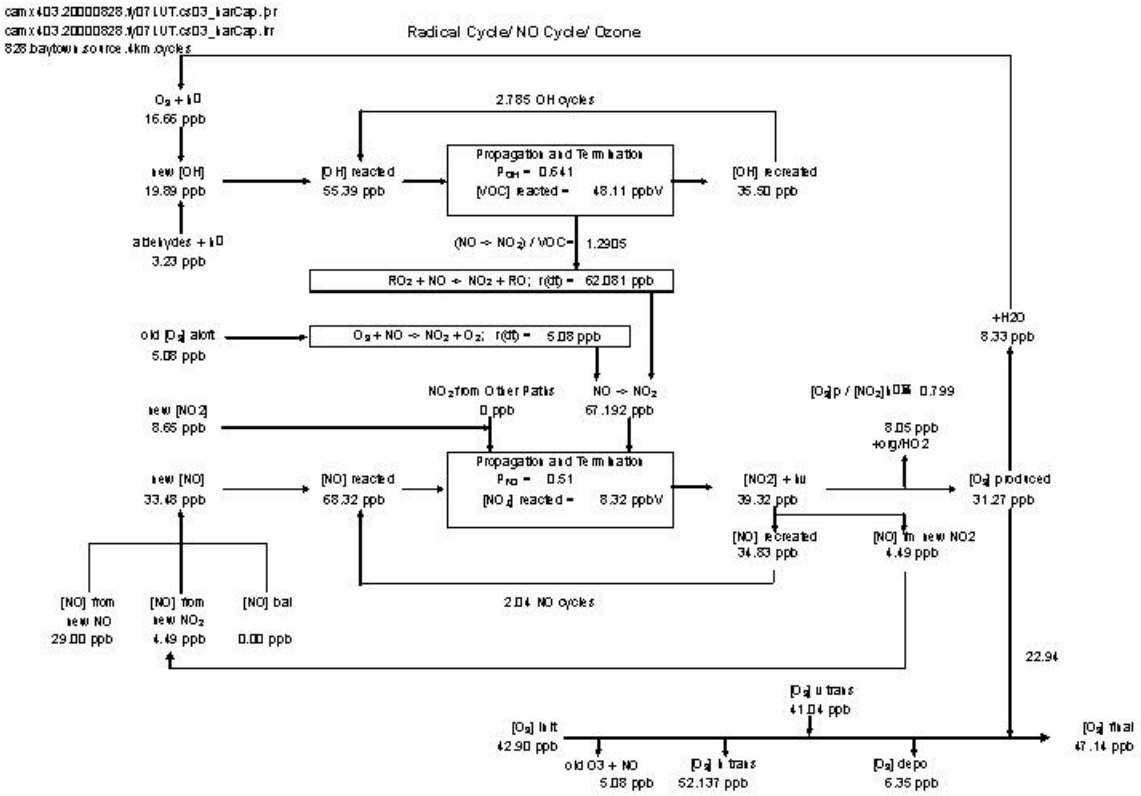

cs03_harCap.828.baytown.box.so
ETH
Hours LDT
Conc_I
Fol_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo

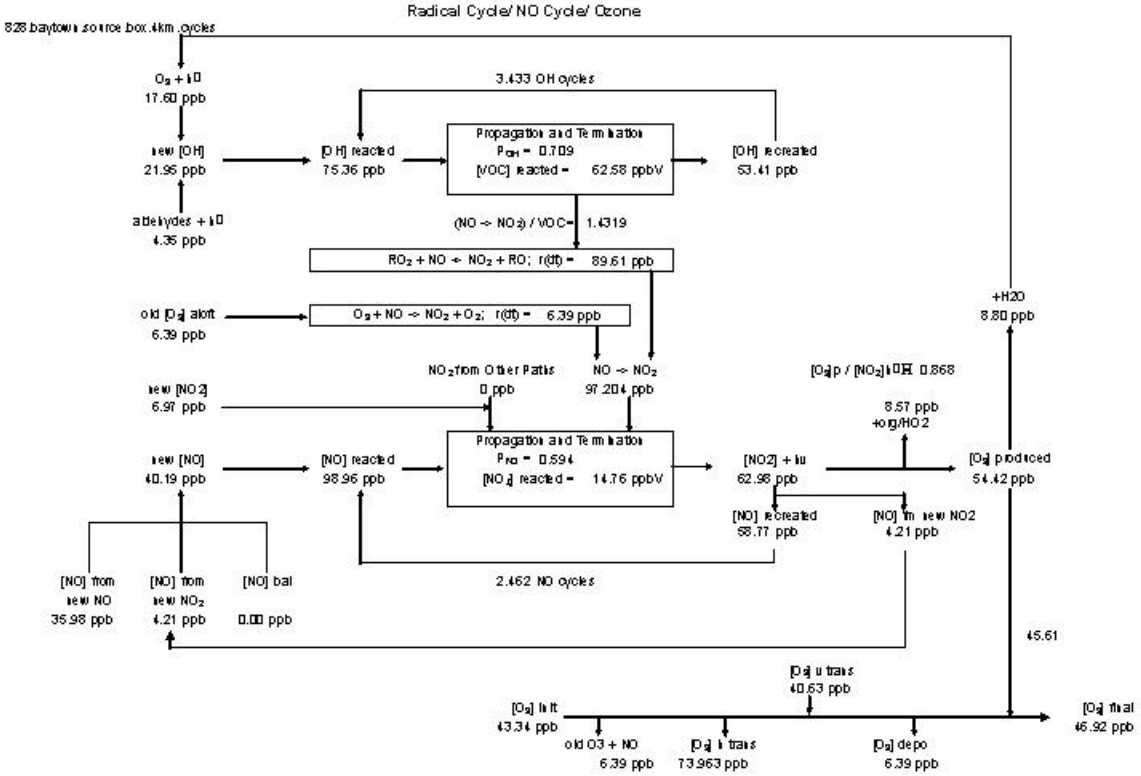

cs03_harCap.828.baytown.source.4k
OLE
Hours, LDT
Conc_I
Chem
Depo

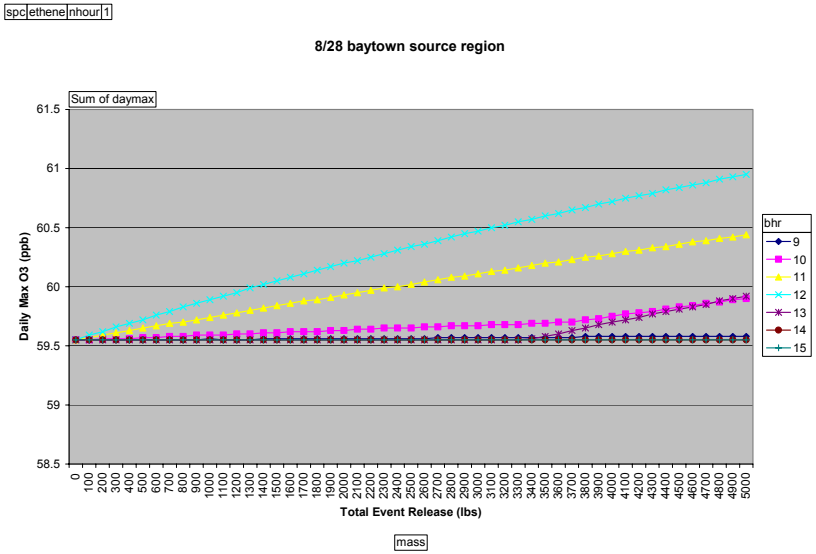

cs03_harCap.828.baytown.box.sourc
OLE
Hours, LDT
Conc_I
Chem
Depo

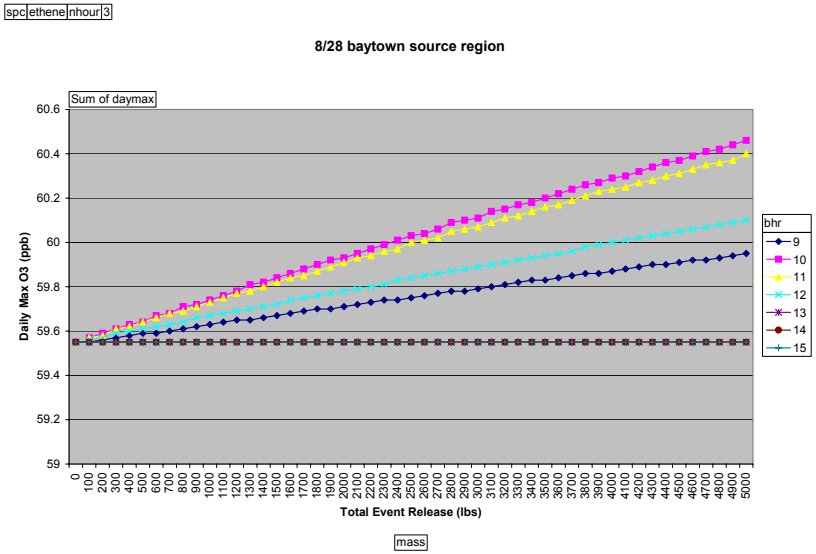

cs03_harCap.828.baytown.source.4
O3
Hours, LDT
Conc_I
Chem
Depo

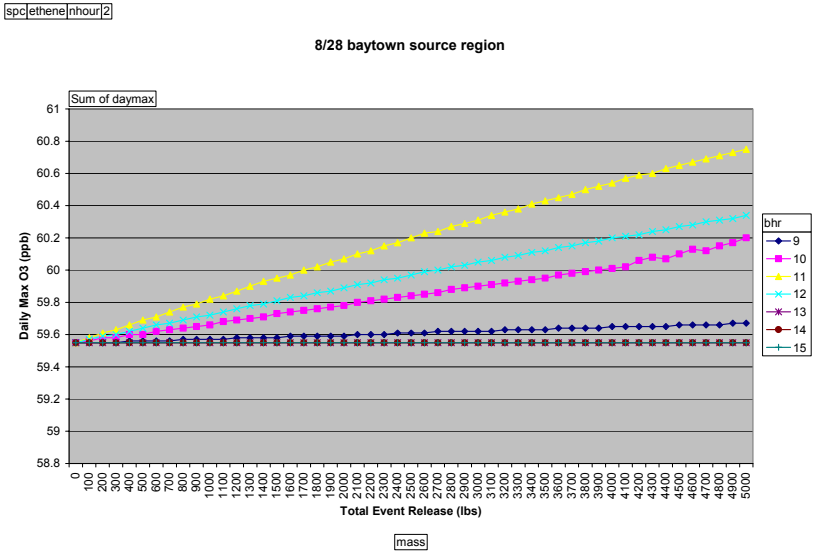

cs03_harCap.828.baytown.box.sour
O3
Hours, LDT
Conc_I
Chem
Depo


camx403.20000828.y07LUT.cs03_karCap.pr
camx403.20000828.y07LUT.cs03_karCap.irr
828.baytown.source.4km.cycles
Radical Cycle/ NO Cycle/ Ozone
O3 + hν
16.66 ppb
2.785 OH cycles
new [OH]
19.89 ppb
[OH] reacted
55.39 ppb
Propagation and Termination
POH = 0.641
[VOC] reacted = 48.11 ppbV
[OH] recreated
35.50 ppb
aldehydes + hν
3.23 ppb
(NO -> NO2) / VOC= 1.2905
RO2 + NO -> NO2 + RO; r(dt) = 62.081 ppb
old [O3] aloft
5.08 ppb
O3 + NO -> NO2 + O2; r(dt) = 5.08 ppb
+H2O
8.33 ppb
NO2 from Other Paths
0 ppb
NO -> NO2
67.192 ppb
[O3]p / [NO2]tot= 0.799
new [NO2]
8.65 ppb
8.05 ppb
+org/HO2
new [NO]
33.48 ppb
[NO] reacted
68.32 ppb
Propagation and Termination
PNO = 0.51
[NO2] reacted = 8.32 ppbV
[NO2] + hν
39.32 ppb
[O3] produced
31.27 ppb
[NO] recreated
34.83 ppb
[NO] from new NO2
4.49 ppb
[NO] from new NO
29.00 ppb
[NO] from new NO2
4.49 ppb
[NO] bal
0.00 ppb
2.04 NO cycles
22.94
[O3] vertrans
41.04 ppb
[O3] lift
42.90 ppb
[O3] final
47.14 ppb
old O3 + NO
5.08 ppb
[O3] horizontrans
52.137 ppb
[O3] depo
6.35 ppb

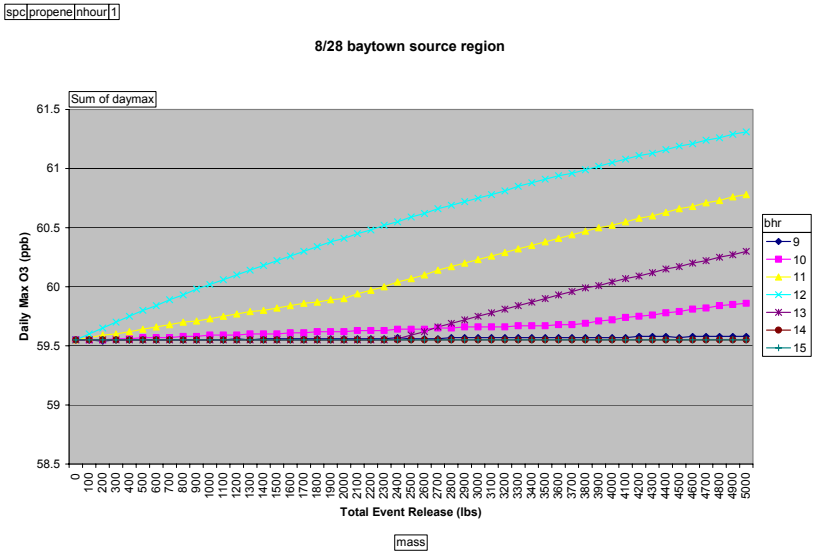

Radical Cycle/ NO Cycle/ Ozone
828.baytown.source.box.4km.cycles
O3 + hν
17.60 ppb
3.433 OH cycles
new [OH]
21.96 ppb
[OH] reacted
75.36 ppb
Propagation and Termination
POH = 0.709
[VOC] reacted = 62.58 ppbV
[OH] recreated
53.41 ppb
aldehydes + hν
4.36 ppb
(NO -> NO2) / VOC= 1.4319
RO2 + NO -> NO2 + RO; r(dt) = 89.61 ppb
old [O3] aloft
6.39 ppb
O3 + NO -> NO2 + O2; r(dt) = 6.39 ppb
+H2O
8.80 ppb
NO2 from Other Paths
0 ppb
NO -> NO2
97.204 ppb
[O3]p / [NO2]tot= 0.868
new [NO2]
6.97 ppb
8.57 ppb
+org/HO2
new [NO]
40.19 ppb
[NO] reacted
98.96 ppb
Propagation and Termination
PNO = 0.594
[NO2] reacted = 14.76 ppbV
[NO2] + hν
62.98 ppb
[O3] produced
54.42 ppb
[NO] recreated
58.77 ppb
[NO] from new NO2
4.21 ppb
[NO] from new NO
35.98 ppb
[NO] from new NO2
4.21 ppb
[NO] bal
0.00 ppb
2.462 NO cycles
45.61
[O3] vertrans
40.63 ppb
[O3] lift
43.34 ppb
[O3] final
46.92 ppb
old O3 + NO
6.39 ppb
[O3] horizontrans
73.963 ppb
[O3] depo
6.39 ppb

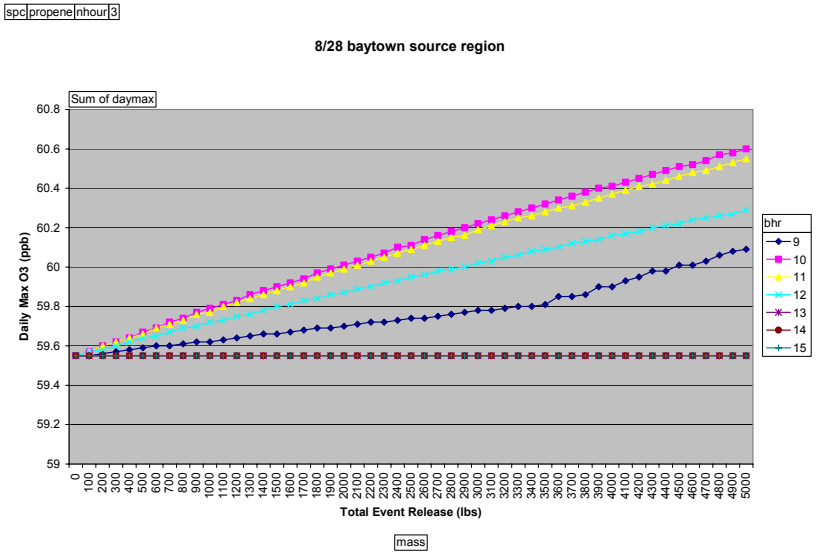


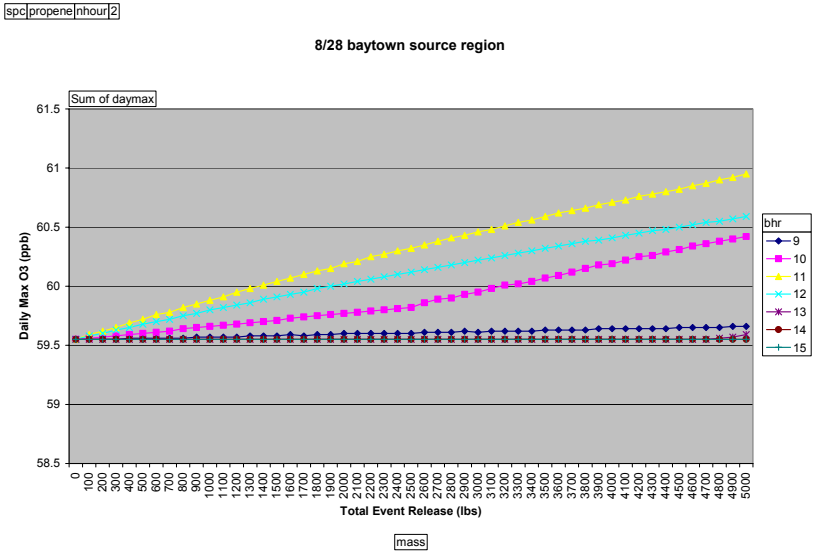




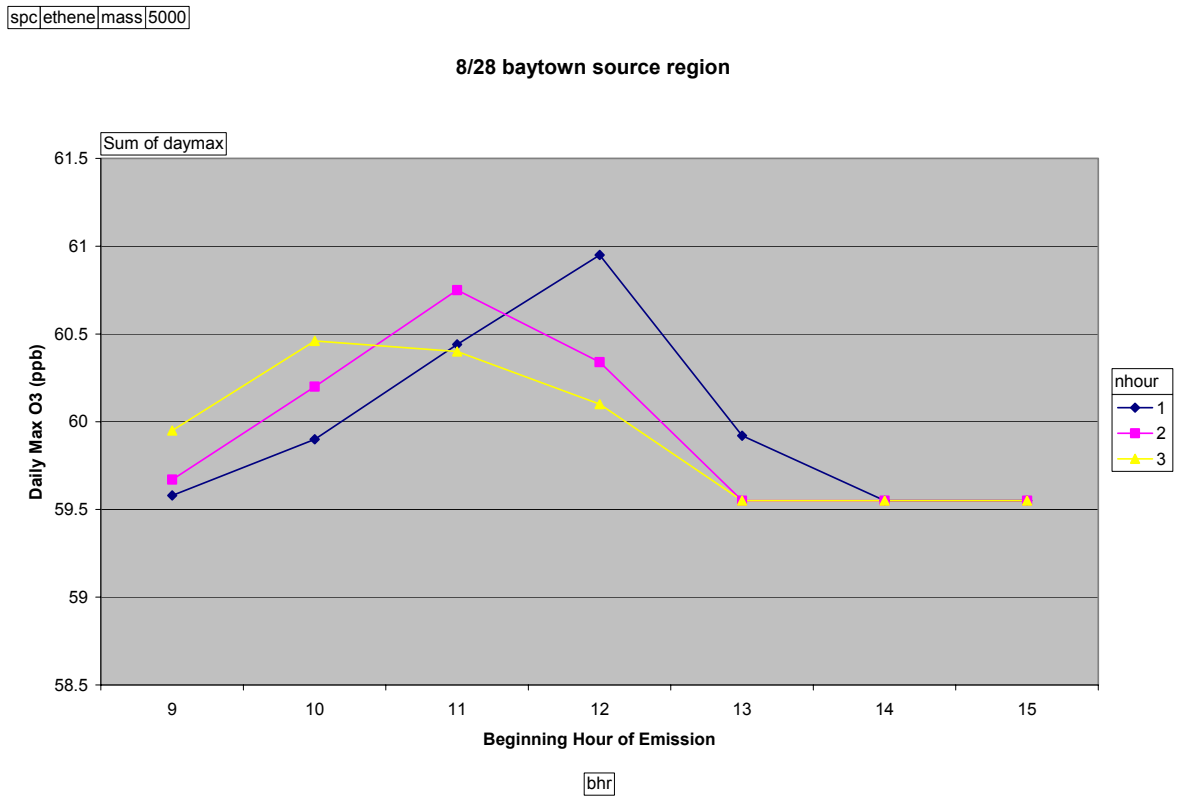
Sensitivity of Daily Max Ozone to the Ethene emission magnitude in "Source region" of Baytown, Aug. 28, 4km resolution (GOES1 Met): Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)



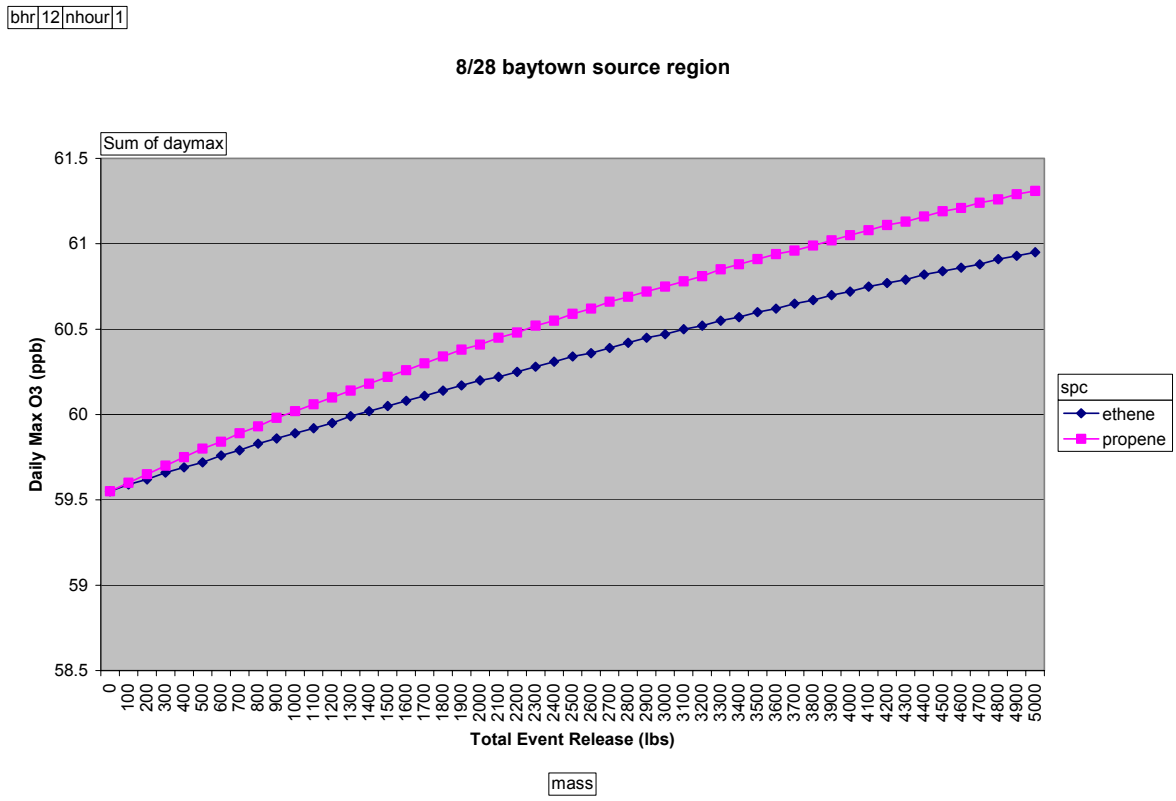




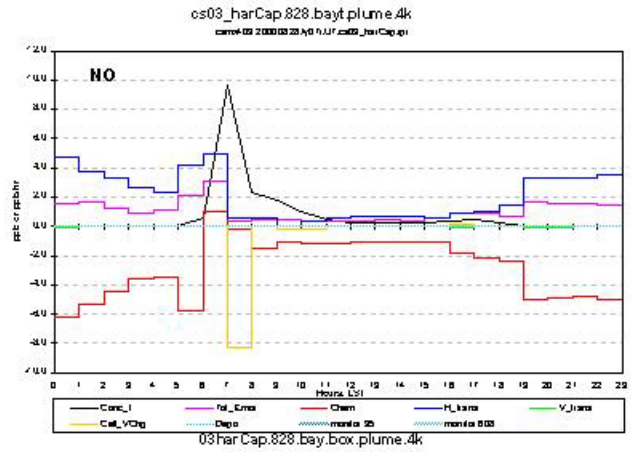
Sensitivity of Daily Max Ozone to the Propene emission magnitude in "Source region" of Baytown, Aug. 28, 4km resolution (GOES1 Met): Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)

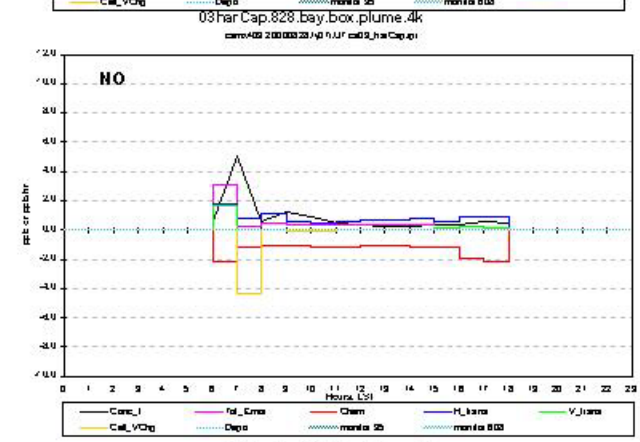


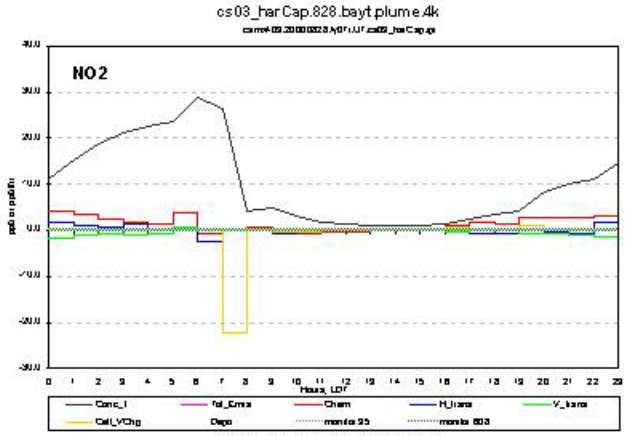
Sensitivity of Daily Max Ozone to the Ethene emission timing (beginning of emission) in "Source region" of Baytown, Aug. 28, 4km resolution (GOES1 Met): All emissions are 5000 lbs. Legend shows the number of hours of emission event

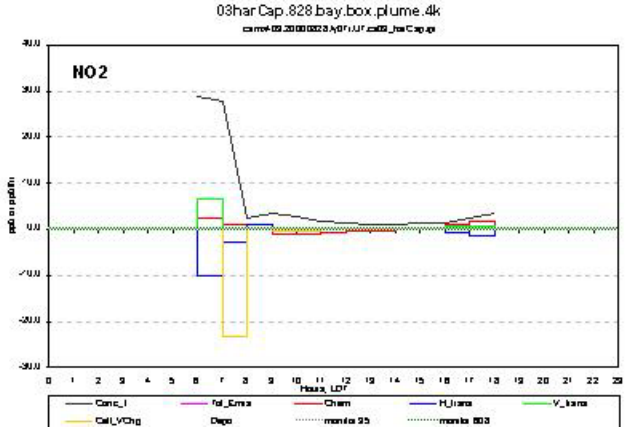


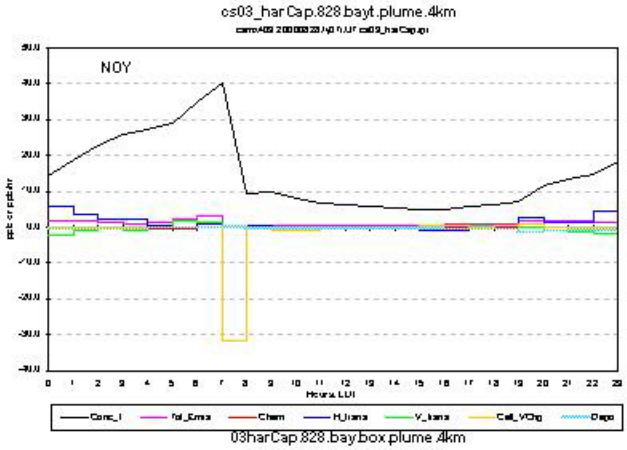
Sensitivity of Daily Max Ozone to the emission species (Ethene and Propene) in "Source region" of Baytown, Aug. 28, 4km resolution (GOES1 Met): All emissions are between 12:00 to 13:00. Legend shows the number of hours of emission event

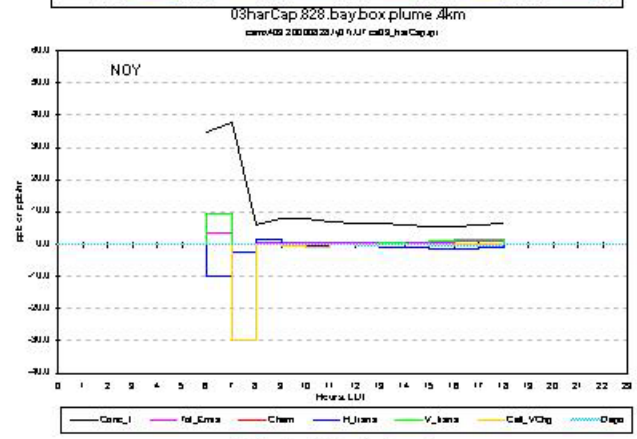

cs03_harCap.828.bayt.plume.4k
NO
Hours, LST
Conc_I
fol_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 803

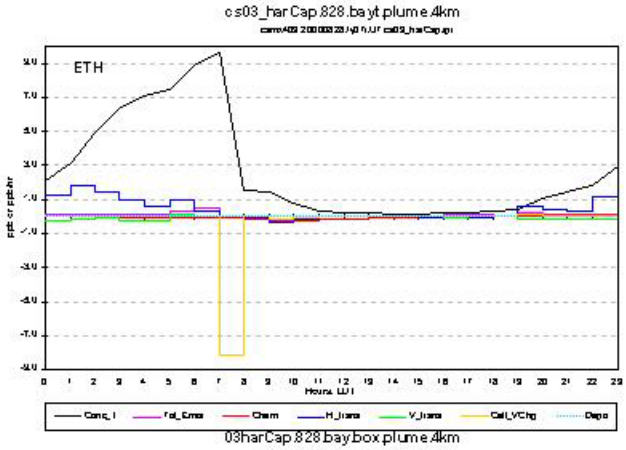

03harCap.828.bay.box.plume.4k
NO
Hours, LST
Conc_I
fol_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 803

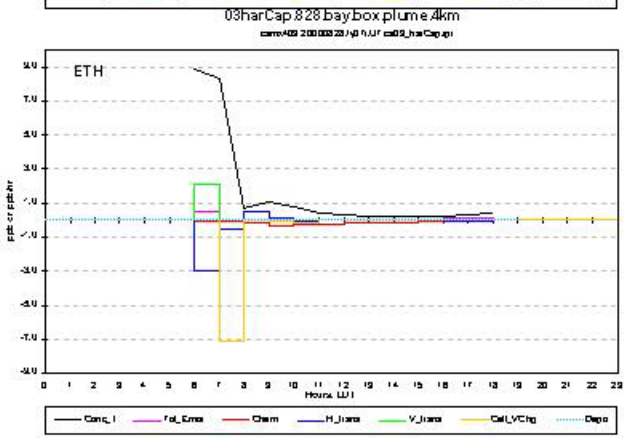

cs03_harCap.828.bayt.plume.4k
NO2
Hours, LDT
Conc_I
fol_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 803

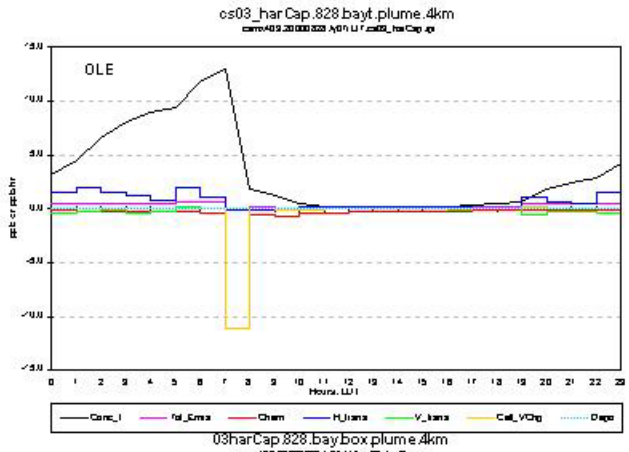

03harCap.828.bay.box.plume.4k
NO2
Hours, LDT
Conc_I
fol_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 803

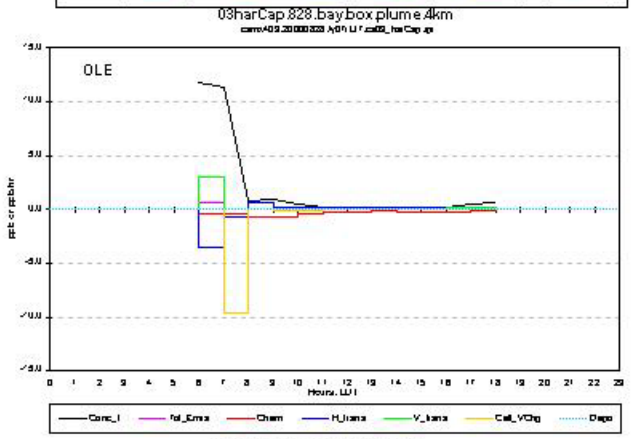

cs03_harCap.828.bayt.plume.4km
NOY
Conc_I
Fol_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo

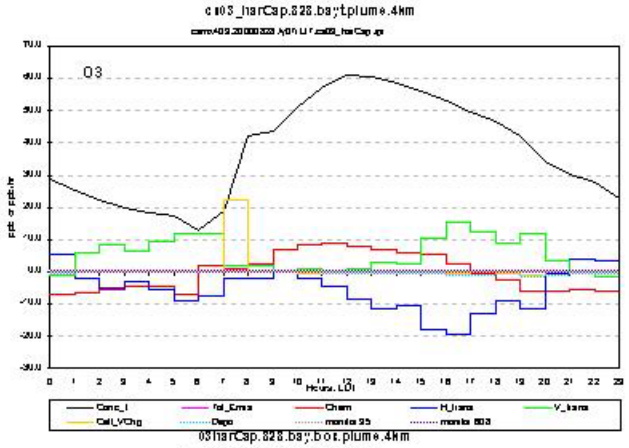

03harCap.828.bay.box.plume.4km
NOY
Conc_I
Fol_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo

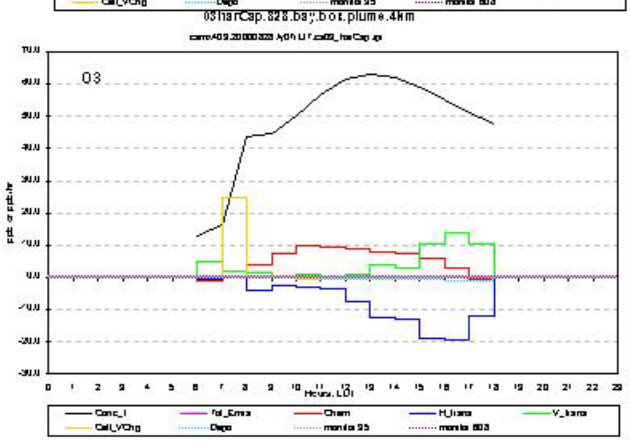

cs03_harCap.828.bayt.plume.4km
ETH
Conc_I
Fol_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo

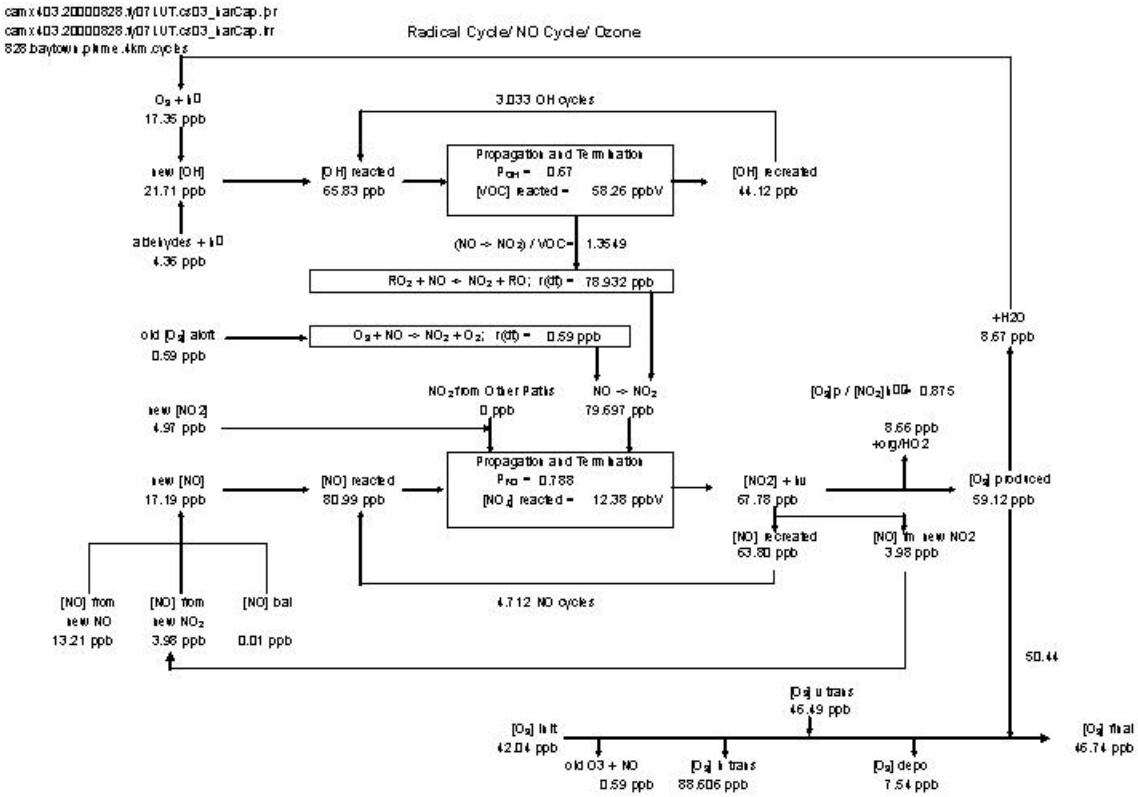

03harCap.828.bay.box.plume.4km
ETH
Conc_I
Fol_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo

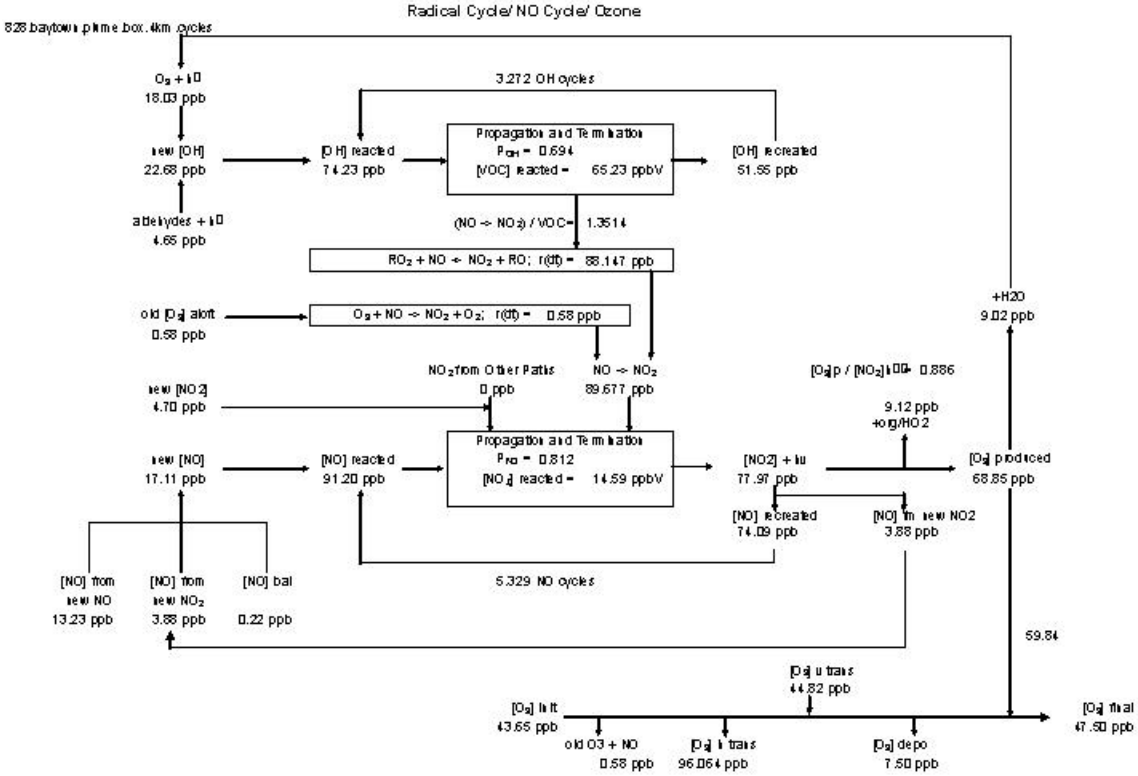

cs03_harCap.828.bayt.plume.4km
OLE
Hours, LDT
Conc_I
fol_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo

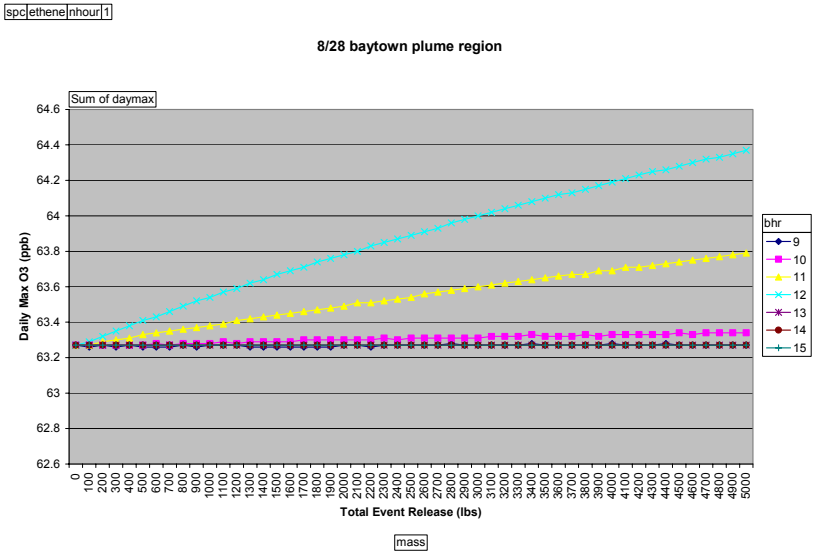

03harCap.828.bay.box.plume.4km
OLE
Hours, LDT
Conc_I
fol_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo

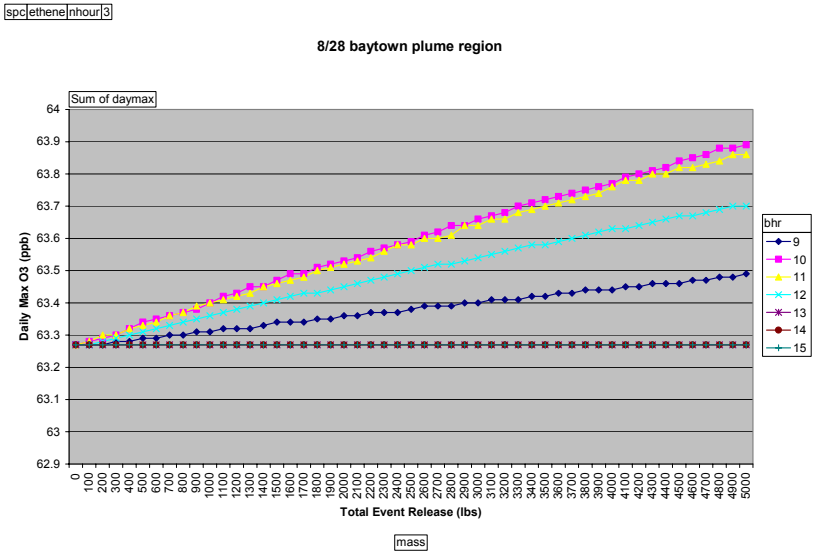

cs03_harCap.828.bay.t.plume.4km
O3
Hours, LDT
Conc_I
fol_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 25
monitor 803

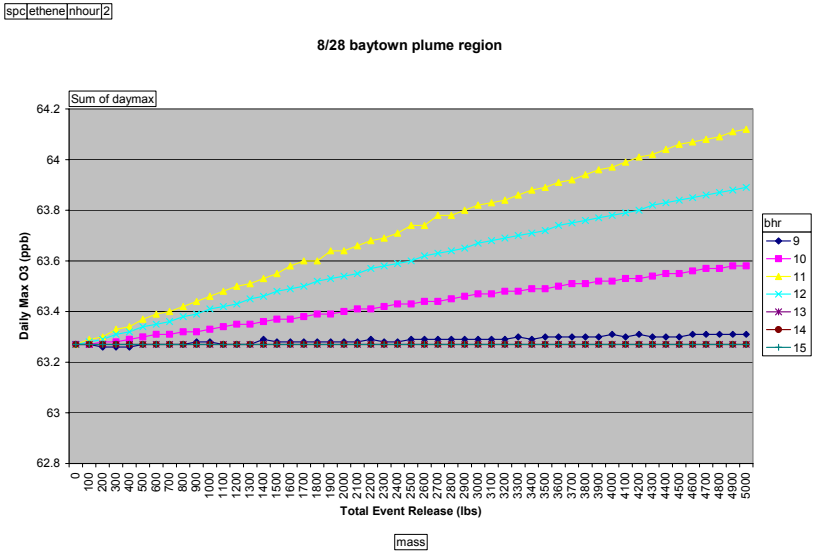

03harCap.828.bay.box.plume.4km
O3
Hours, LDT
Conc_I
fol_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 25
monitor 803


camx403.20000828.y07LUT.cs03_karCap.pr
camx403.20000828.y07LUT.cs03_karCap.irr
828.baytown.prime.4km.cycles
Radical Cycle/ NO Cycle/ Ozone
O3 + hν
17.35 ppb
3.033 OH cycles
new [OH]
21.71 ppb
[OH] reacted
65.83 ppb
Propagation and Termination
POH = 0.67
[VOC] reacted = 58.26 ppbV
[OH] recreated
44.12 ppb
aldehydes + hν
4.36 ppb
(NO -> NO2) / VOC= 1.3549
RO2 + NO -> NO2 + RO; r(dt) = 78.932 ppb
old [O3] aloft
0.59 ppb
O3 + NO -> NO2 + O2; r(dt) = 0.59 ppb
+H2O
8.67 ppb
NO2 from Other Paths
0 ppb
NO -> NO2
79.697 ppb
[O3]p / [NO2]hν= 0.875
new [NO2]
4.97 ppb
8.66 ppb
+org/HO2
new [NO]
17.19 ppb
[NO] reacted
80.99 ppb
Propagation and Termination
PNO = 0.788
[NO2] reacted = 12.38 ppbV
[NO2] + hν
67.78 ppb
[O3] produced
59.12 ppb
[NO] recreated
63.80 ppb
[NO] fm new NO2
3.98 ppb
[NO] from new NO
13.21 ppb
[NO] from new NO2
3.98 ppb
[NO] bal
0.01 ppb
4.712 NO cycles
50.44
[O3] u trans
46.49 ppb
[O3] lift
42.04 ppb
[O3] final
45.74 ppb
old O3 + NO
0.59 ppb
[O3] l trans
88.606 ppb
[O3] depo
7.54 ppb

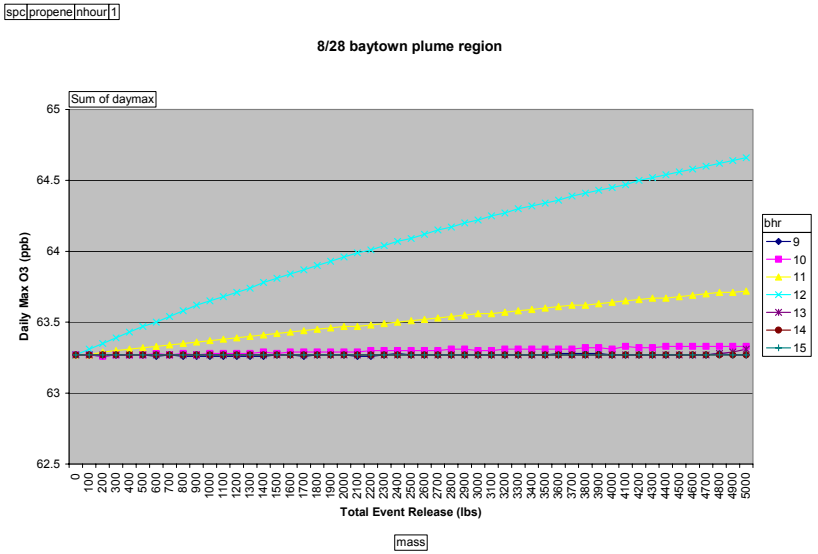

Radical Cycle/ NO Cycle/ Ozone
828.baytown.prime.box.4km.cycles
O3 + hν
18.03 ppb
3.272 OH cycles
new [OH]
22.68 ppb
[OH] reacted
74.23 ppb
Propagation and Termination
POH = 0.694
[VOC] reacted = 65.23 ppbV
[OH] recreated
51.55 ppb
aldehydes + hν
4.65 ppb
(NO -> NO2) / VOC= 1.3514
RO2 + NO -> NO2 + RO; r(dt) = 88.147 ppb
old [O3] aloft
0.58 ppb
O3 + NO -> NO2 + O2; r(dt) = 0.58 ppb
+H2O
9.02 ppb
NO2 from Other Paths
0 ppb
NO -> NO2
89.677 ppb
[O3]p / [NO2]hν= 0.886
new [NO2]
4.70 ppb
9.12 ppb
+org/HO2
new [NO]
17.11 ppb
[NO] reacted
91.20 ppb
Propagation and Termination
PNO = 0.812
[NO2] reacted = 14.59 ppbV
[NO2] + hν
77.97 ppb
[O3] produced
68.85 ppb
[NO] recreated
74.09 ppb
[NO] fm new NO2
3.88 ppb
[NO] from new NO
13.23 ppb
[NO] from new NO2
3.88 ppb
[NO] bal
0.22 ppb
5.329 NO cycles
59.84
[O3] u trans
44.82 ppb
[O3] lift
43.65 ppb
[O3] final
47.50 ppb
old O3 + NO
0.58 ppb
[O3] l trans
96.064 ppb
[O3] depo
7.50 ppb

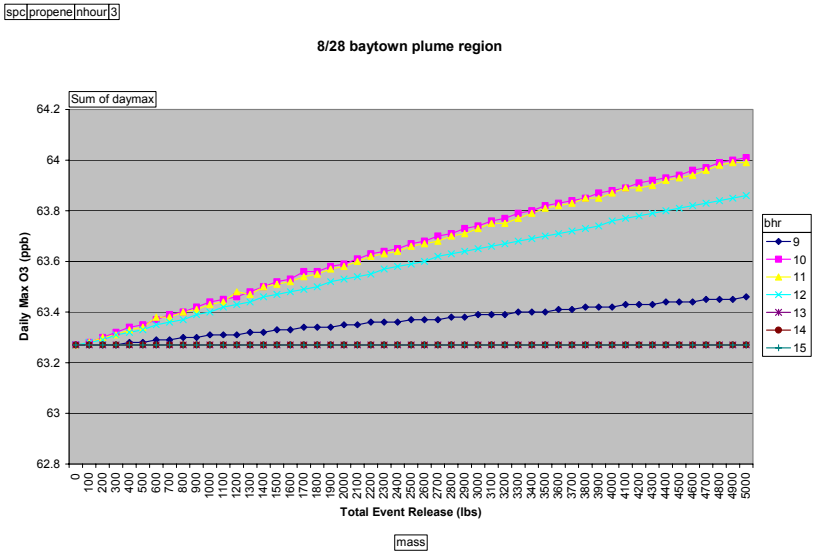


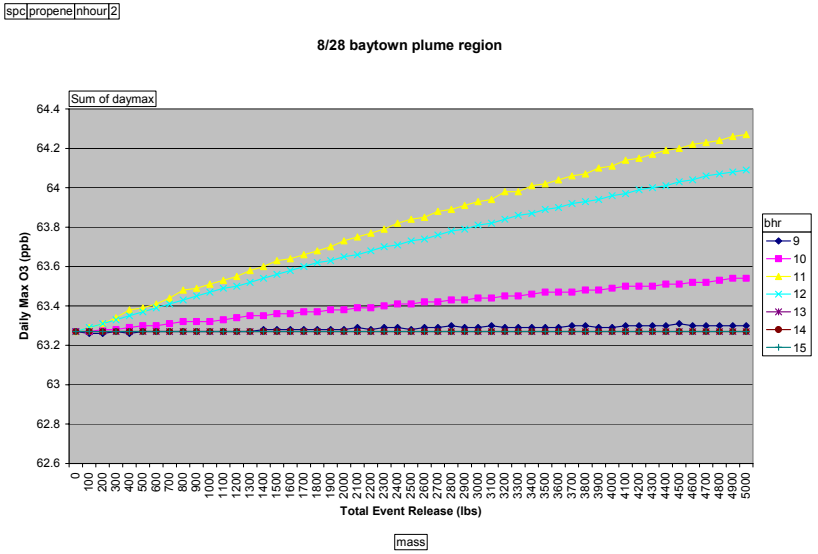




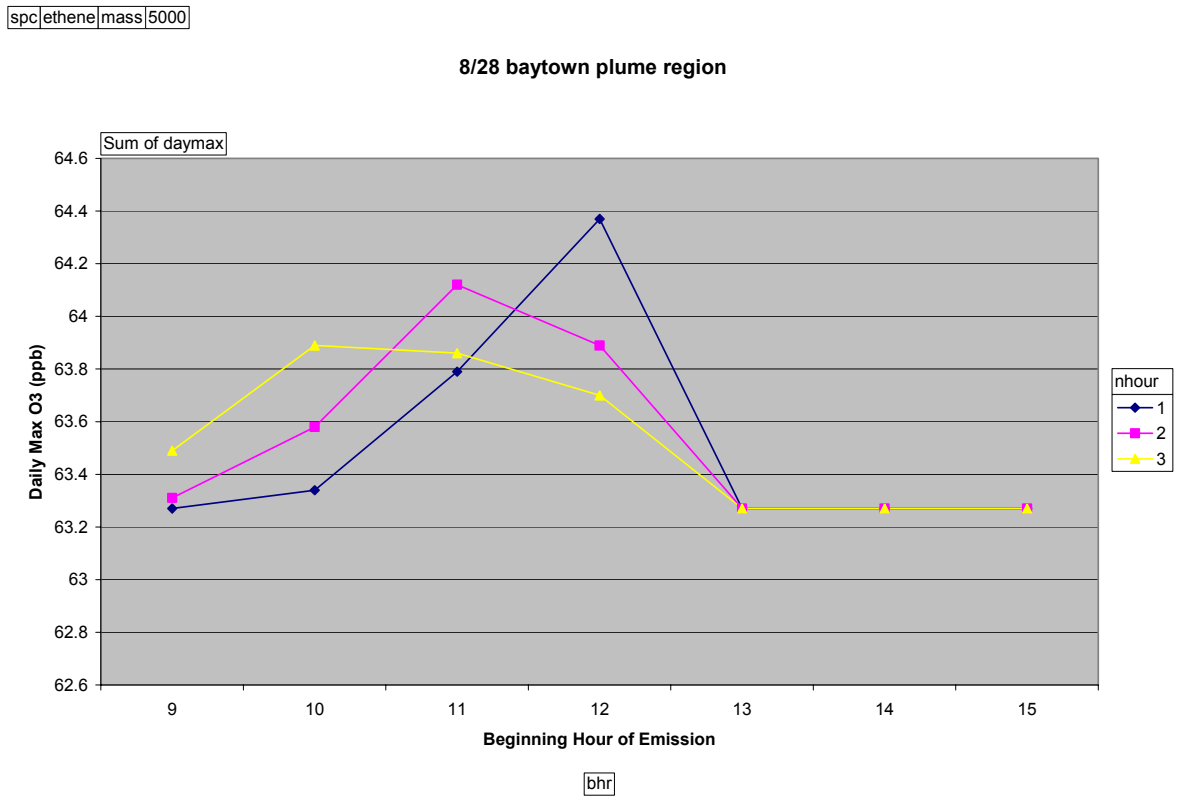
Sensitivity of Daily Max Ozone to the Ethene emission magnitude in "Plume region" of Baytown, Aug. 28, 4km resolution (GOES1 Met): Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)



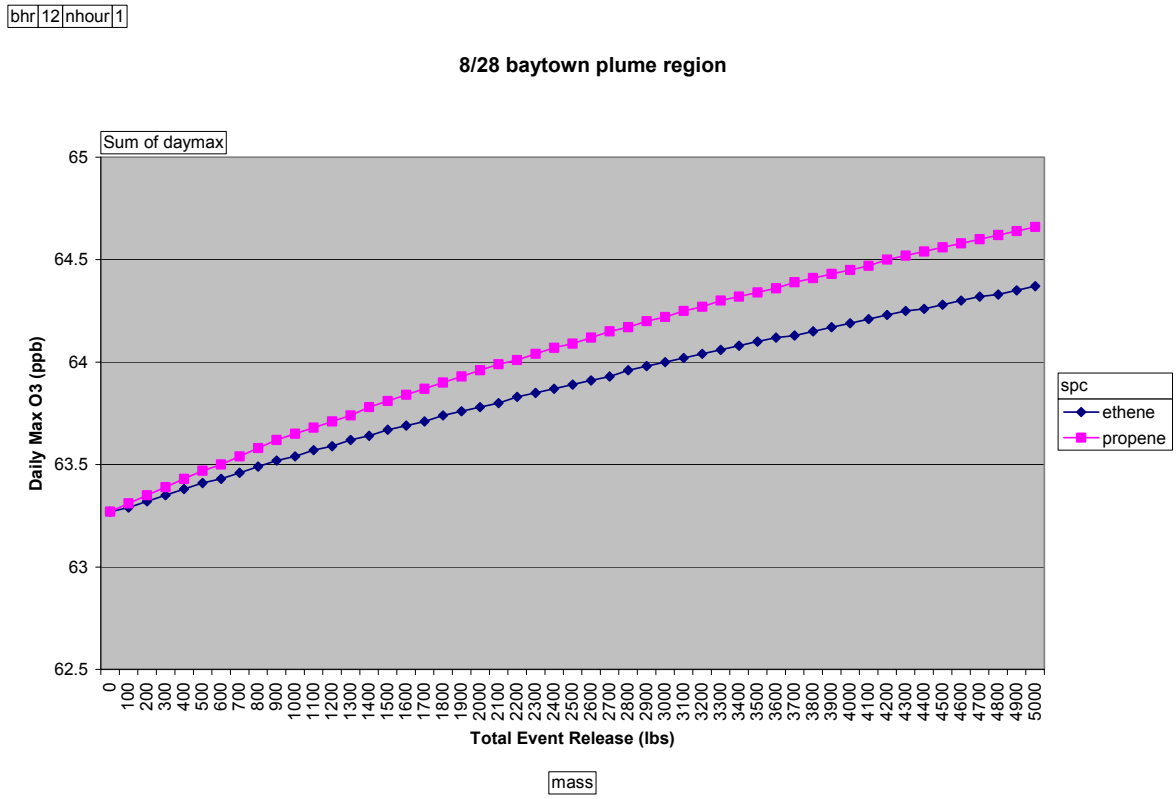




Sensitivity of Daily Max Ozone to the Propene emission magnitude in "Plume region" of Baytown, Aug. 28, 4km resolution (GOES1 Met): Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)

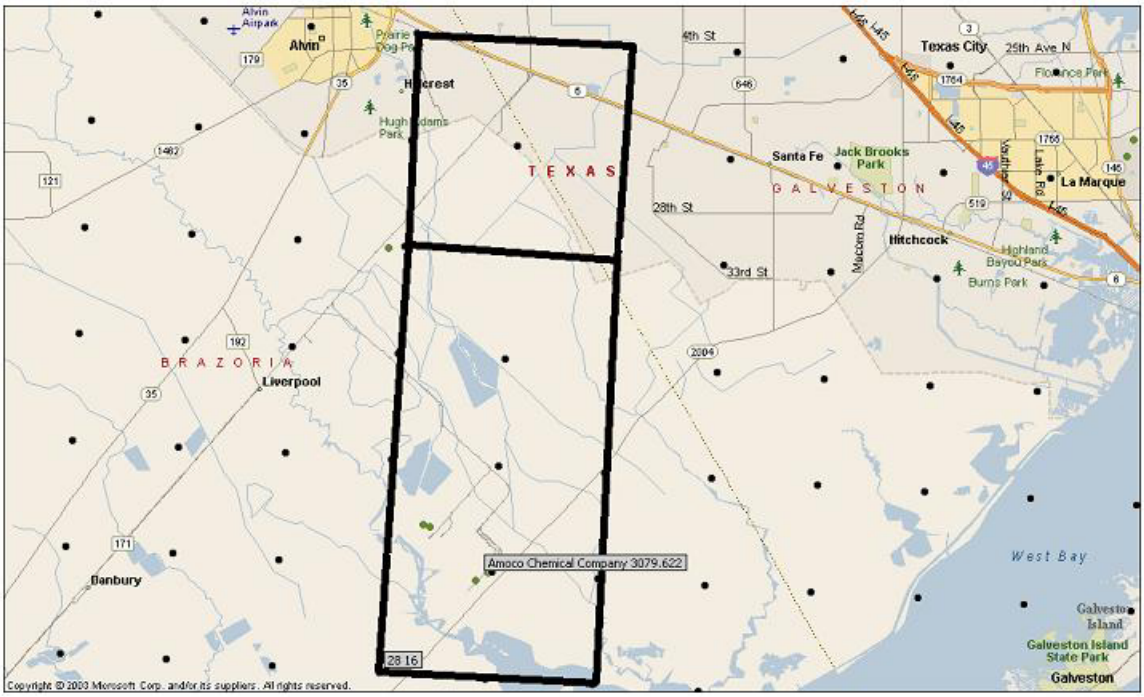


Sensitivity of Daily Max Ozone to the Ethene emission timing (beginning of emission) in "Plume region" of Baytown, Aug. 28, 4km resolution (GOES1 Met): All emissions are 5000 lbs. Legend shows the number of hours of emission event

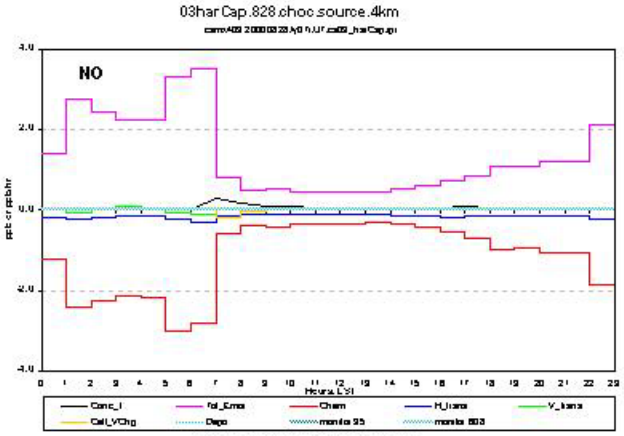


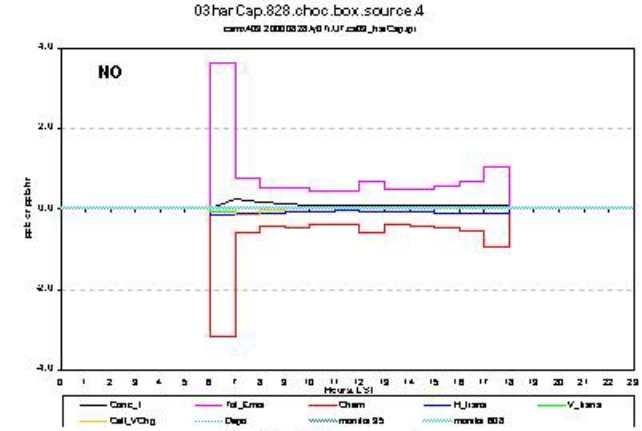
Sensitivity of Daily Max Ozone to the emission species (Ethene and Propene) in "Plume region" of Baytown, Aug. 28, 4km resolution (GOES1 Met): All emissions are between 12:00 to 13:00. Legend shows the number of hours of emission event

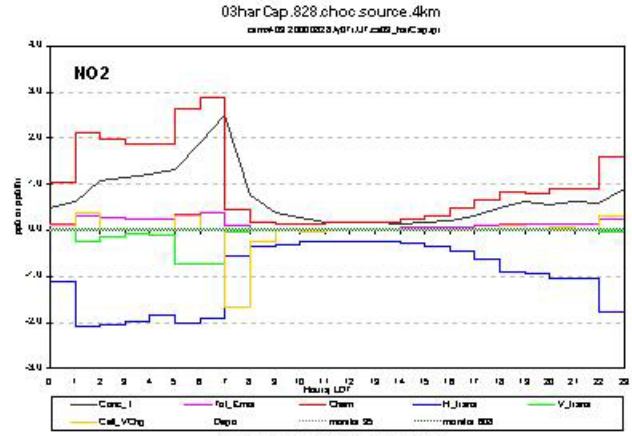
August 28 - Future Year 2007 (fyo7i.cs03_harCap)

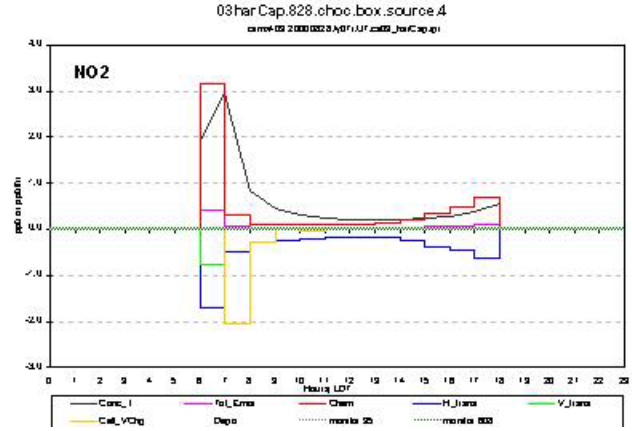


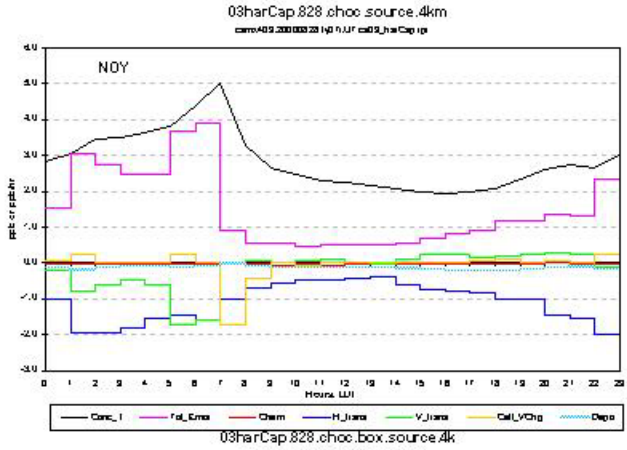
8_28_00 Process Analysis Box outlined in black. Black Dots represent lower left hand corner of 4 km grid cells

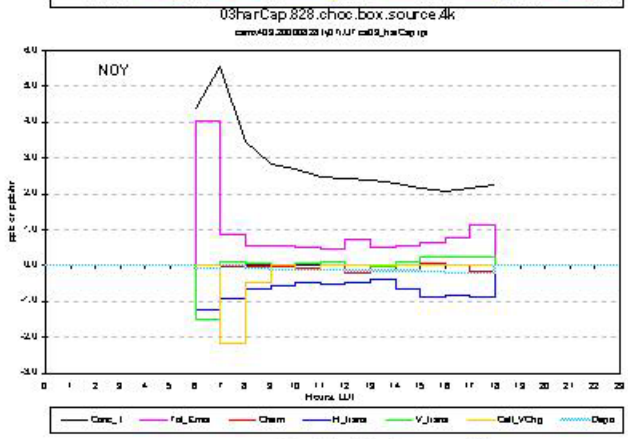

03harCap.828.choc.source.4km
NO
Conc_I
fol_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 95
monitor 603

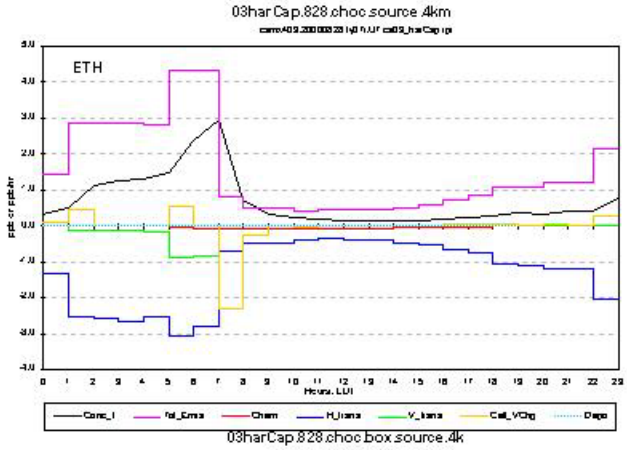

03harCap.828.choc.box.source.4
NO
Conc_I
fol_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 95
monitor 603

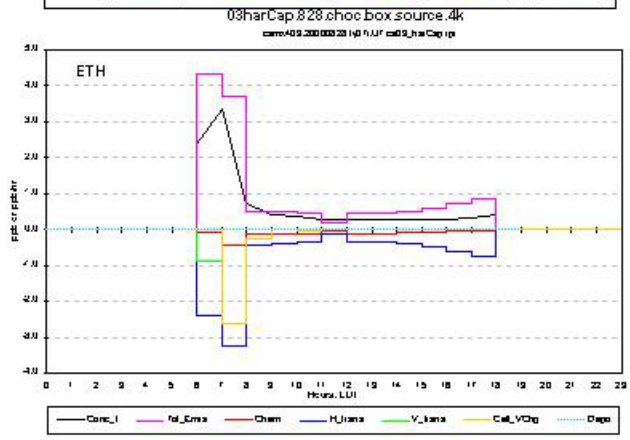

03harCap.828.choc.source.4km
NO2
Conc_I
fol_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 95
monitor 603

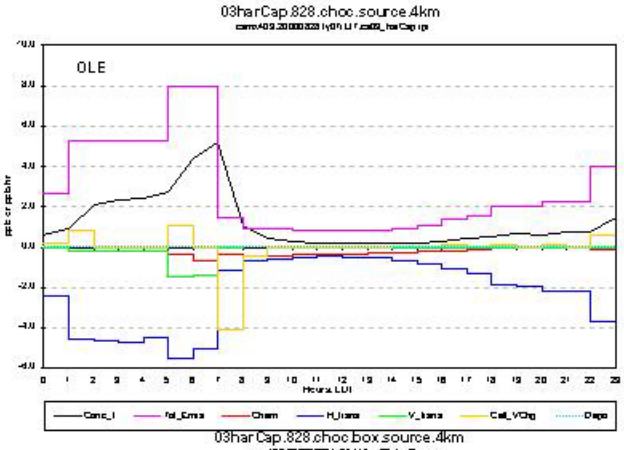

03harCap.828.choc.box.source.4
NO2
Conc_I
fol_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 95
monitor 603

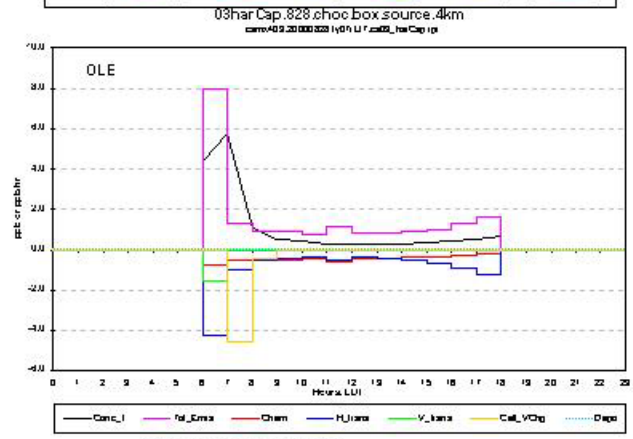

03harCap.828.choc.source.4km
NOY
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo

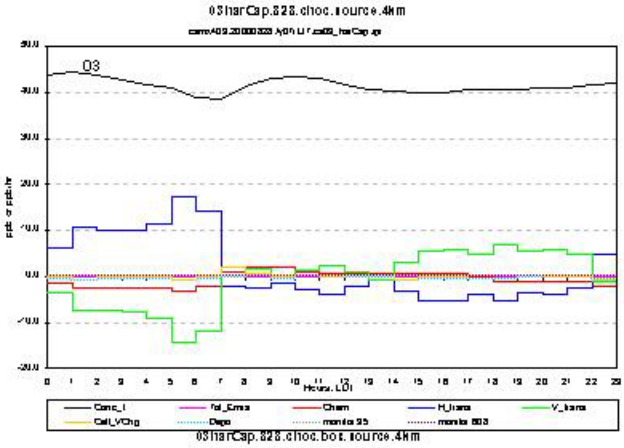

03harCap.828.choc.box.source.4k
NOY
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo

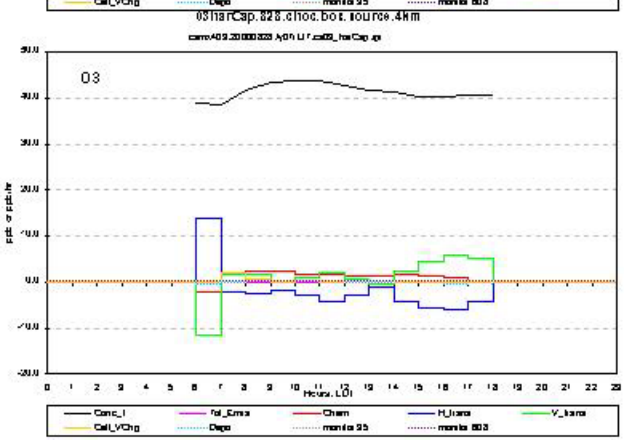

03harCap.828.choc.source.4km
ETH
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo

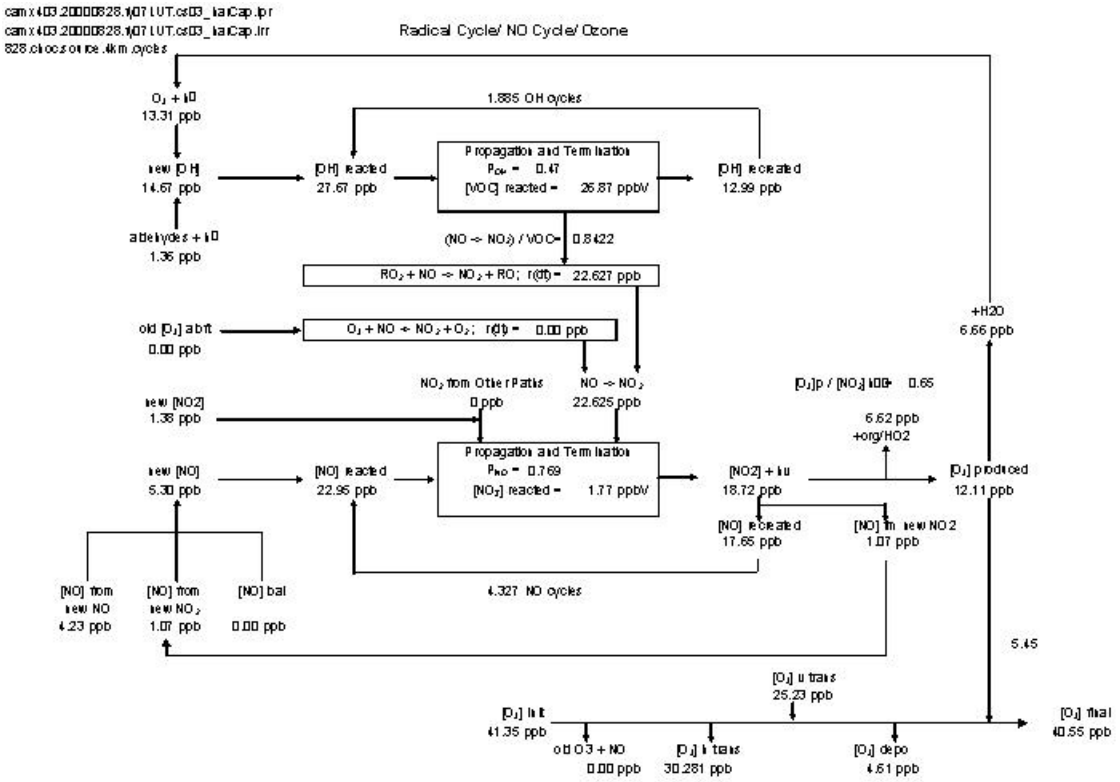

03harCap.828.choc.box.source.4k
ETH
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo

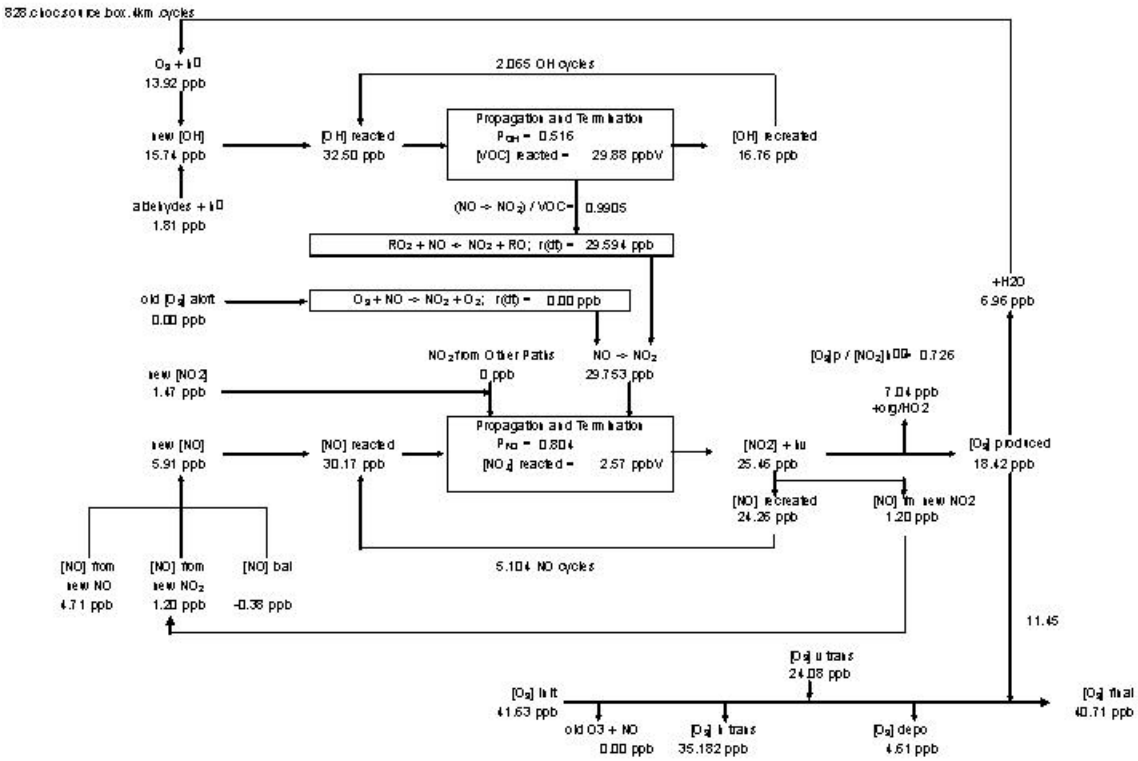

03harCap.828.choc.source.4km
OLE
Conc_I
fol_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo

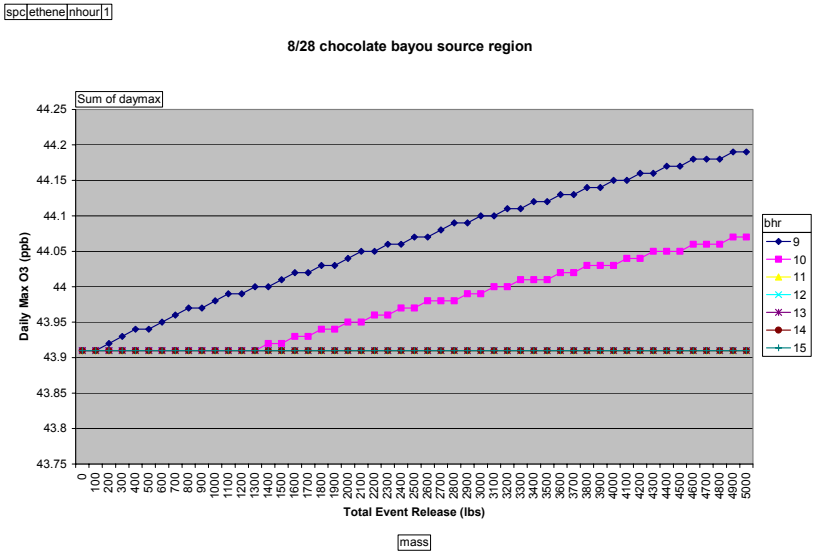

03harCap.828.choc.box.source.4km
OLE
Conc_I
fol_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo

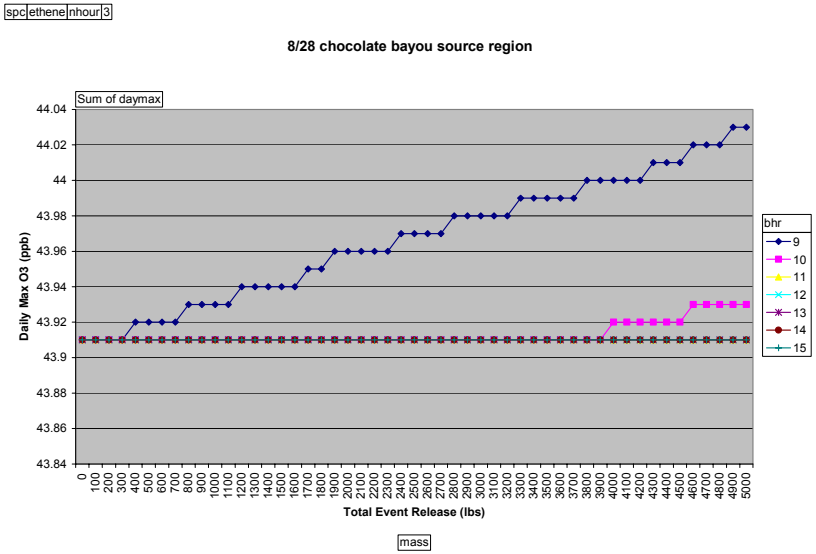

03harCap.828.choc.source.4km
O3
Conc_I
fol_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 95
monitor 503

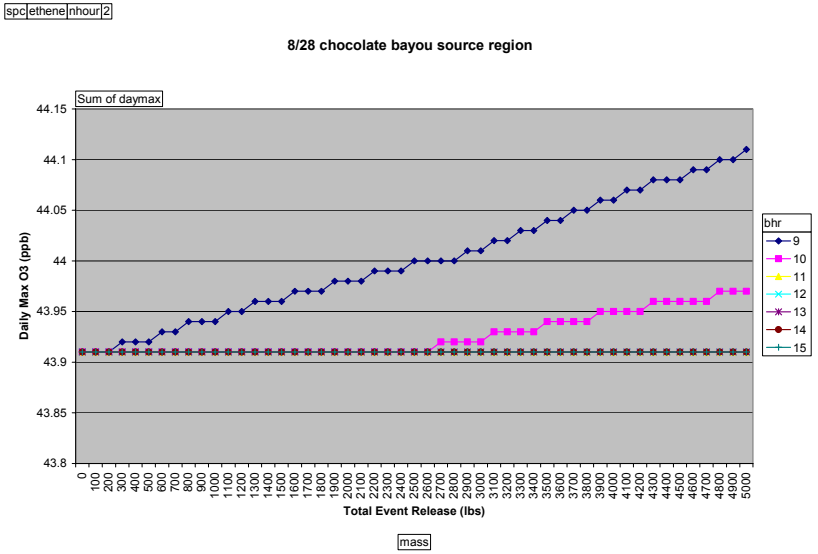

03harCap.828.choc.box.source.4km
O3
Conc_I
fol_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 95
monitor 503


Radical Cycle/ NO Cycle/ Ozone
1.885 OH cycles
Propagation and Termination
[VOC] reacted = 26.87 ppbV
[OH] reacted 27.67 ppb
[OH] recreated 12.99 ppb
new [OH] 14.67 ppb
1.36 ppb
RO2 + NO -> NO2 + RO; r(dt) = 22.627 ppb
old [O3] abrt 0.00 ppb
O3 + NO -> NO2 + O2; r(dt) = 0.00 ppb
+H2O 6.66 ppb
NO2 from Other Paths 0 ppb
NO -> NO2 22.625 ppb
new [NO2] 1.38 ppb
6.62 ppb +org/HO2
Propagation and Termination
[NO2] reacted = 1.77 ppbV
new [NO] 5.30 ppb
[NO] reacted 22.95 ppb
[NO2] + hu 18.72 ppb
[O3] produced 12.11 ppb
[NO] recreated 17.65 ppb
[NO] fm new NO2 1.07 ppb
[NO] from new NO 4.23 ppb
[NO] from new NO2 1.07 ppb
[NO] bal 0.00 ppb
4.327 NO cycles
5.45
[O3] u trans 25.23 ppb
[O3] init 41.35 ppb
[O3] final 40.55 ppb
old O3 + NO 0.00 ppb
[O3] h trans 30.281 ppb
[O3] depo 4.61 ppb

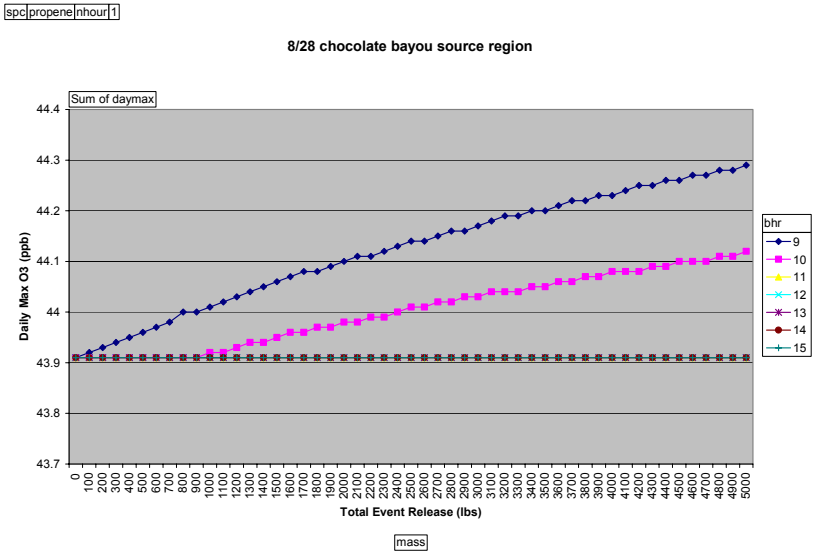

2.065 OH cycles
Propagation and Termination
[VOC] reacted = 29.88 ppbV
[OH] reacted 32.50 ppb
[OH] recreated 16.76 ppb
new [OH] 15.74 ppb
1.81 ppb
RO2 + NO -> NO2 + RO; r(dt) = 29.594 ppb
old [O3] aloft 0.00 ppb
O3 + NO -> NO2 + O2; r(dt) = 0.00 ppb
+H2O 6.96 ppb
NO2 from Other Paths 0 ppb
NO -> NO2 29.753 ppb
new [NO2] 1.47 ppb
7.04 ppb +org/HO2
Propagation and Termination
[NO2] reacted = 2.57 ppbV
new [NO] 5.91 ppb
[NO] reacted 30.17 ppb
[NO2] + hu 25.46 ppb
[O3] produced 18.42 ppb
[NO] recreated 24.26 ppb
[NO] fm new NO2 1.20 ppb
[NO] from new NO 4.71 ppb
[NO] from new NO2 1.20 ppb
[NO] bal -0.38 ppb
5.104 NO cycles
11.45
[O3] u trans 24.08 ppb
[O3] init 41.63 ppb
[O3] final 40.71 ppb
old O3 + NO 0.00 ppb
[O3] h trans 35.182 ppb
[O3] depo 4.61 ppb

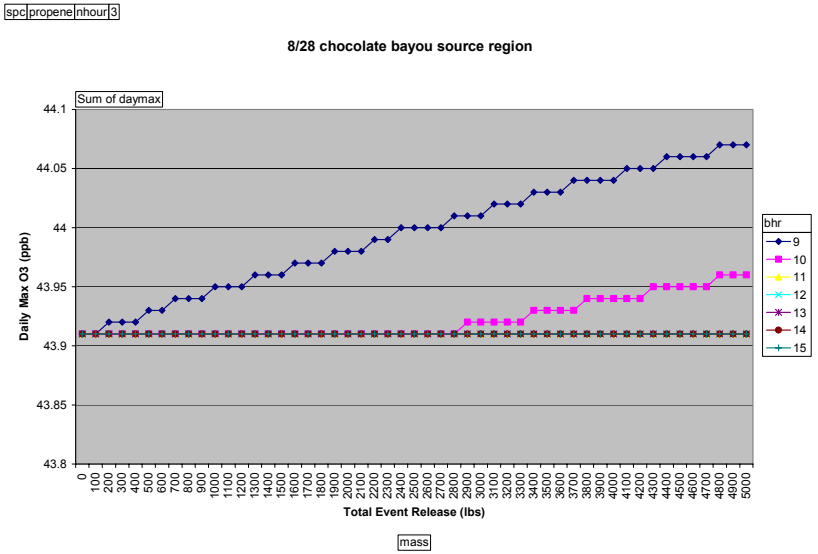


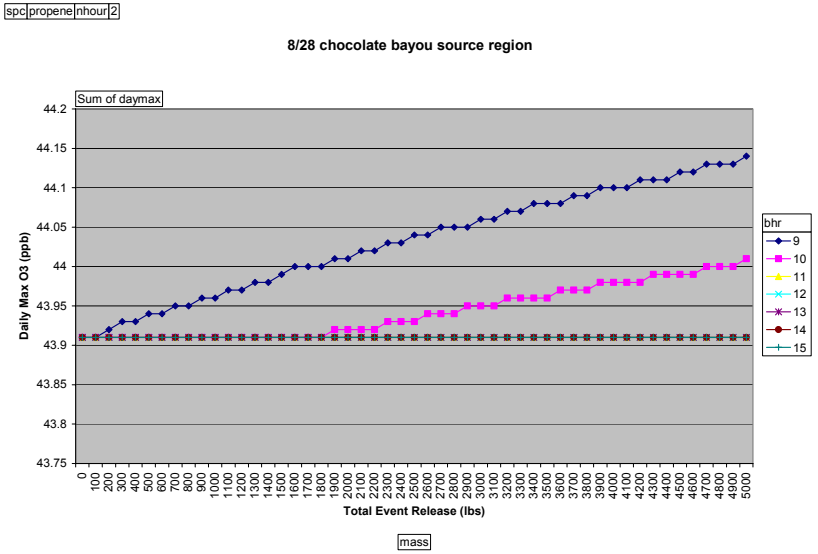




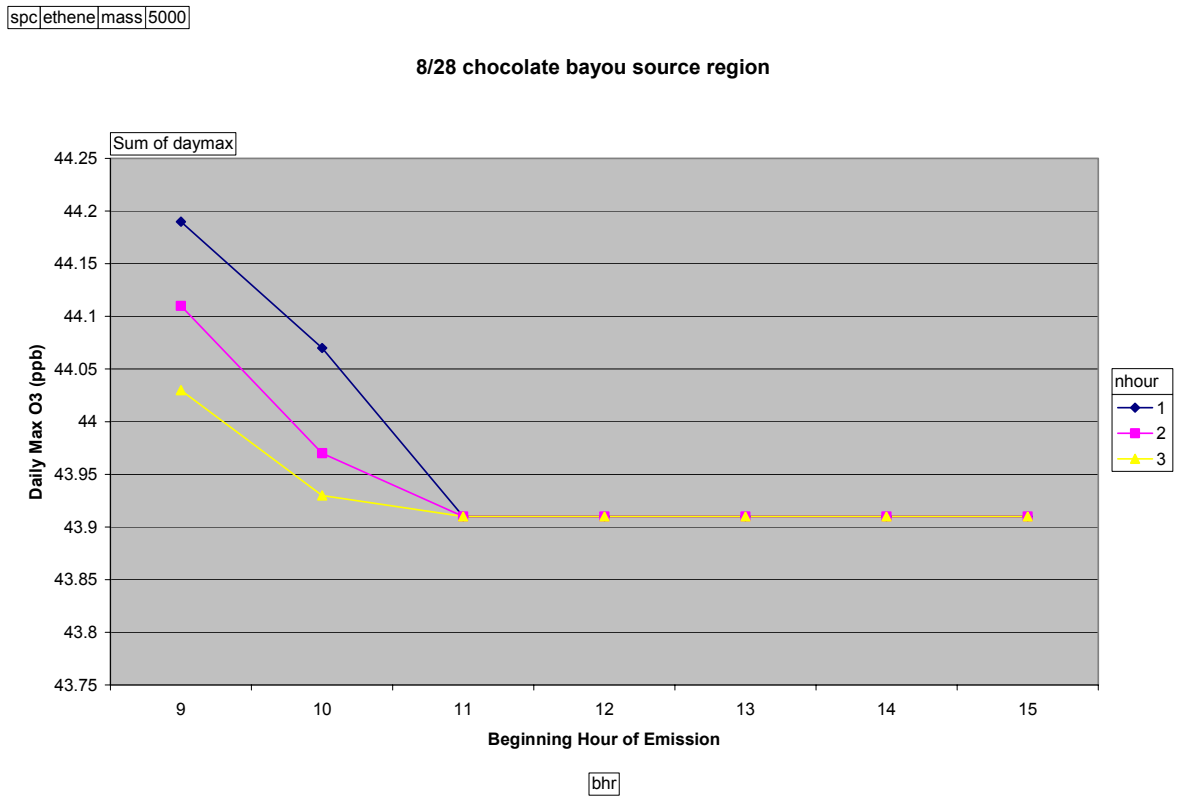
Sensitivity of Daily Max Ozone to the Ethene emission magnitude in "Source region" of Chocolate Bayou, Aug. 28, 4km resolution (GOES1 Met): Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)



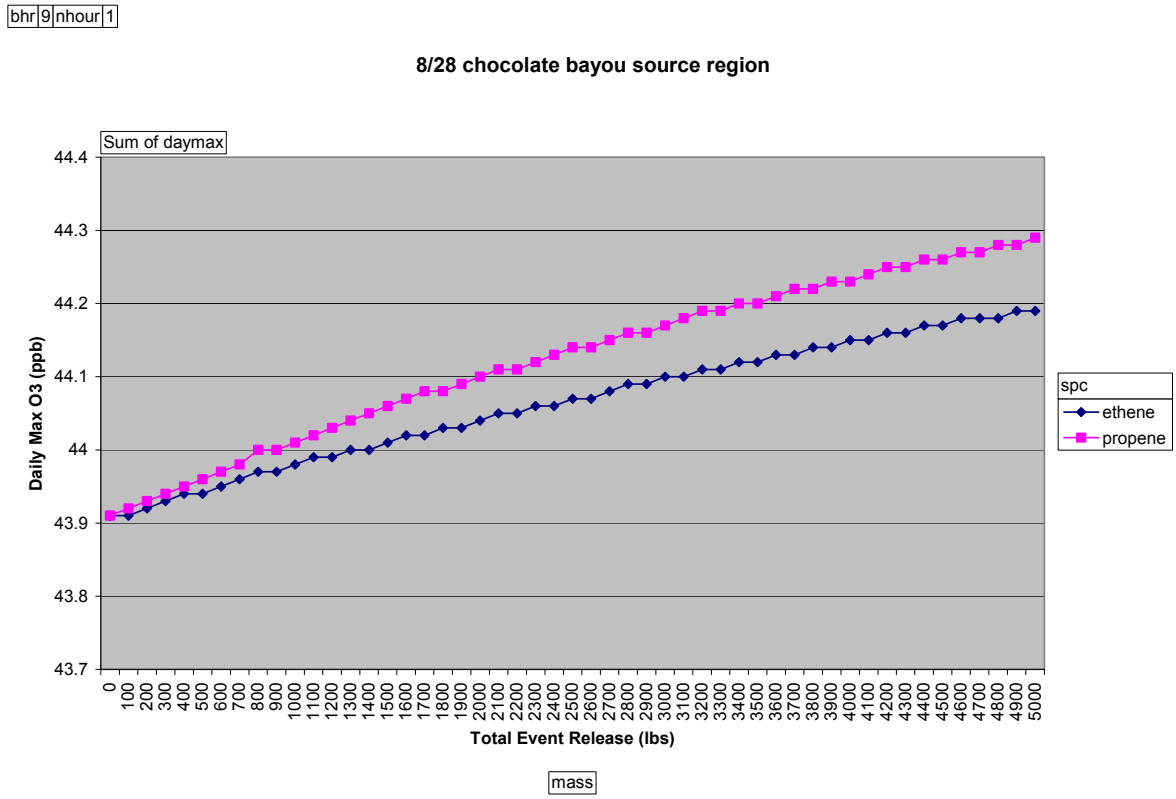




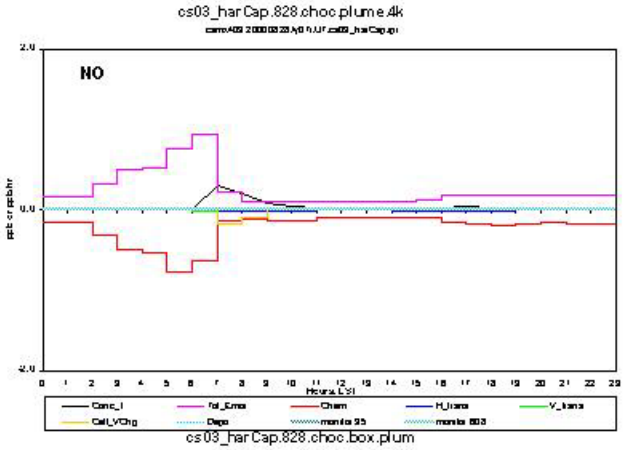
Sensitivity of Daily Max Ozone to the Propene emission magnitude in "Source region" of Chocolate Bayou, Aug. 28, 4km resolution (GOES1 Met): Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)

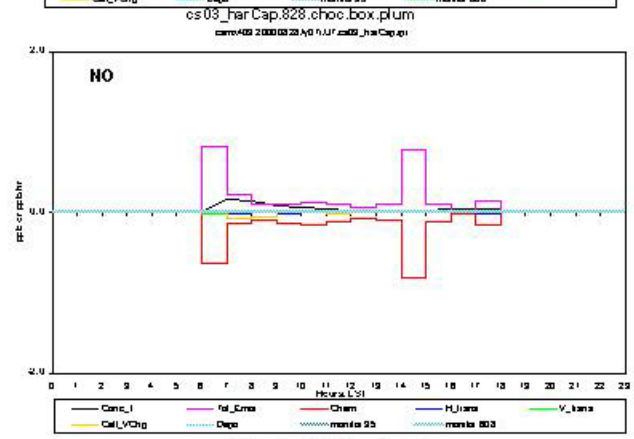


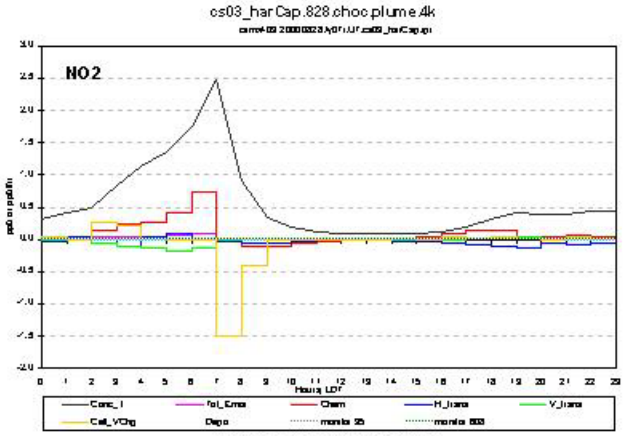
Sensitivity of Daily Max Ozone to the Ethene emission timing (beginning of emission) in "Source region" of Chocolate Bayou, Aug. 28, 4km resolution (GOES1 Met): All emissions are 5000 lbs. Legend shows the number of hours of emission event

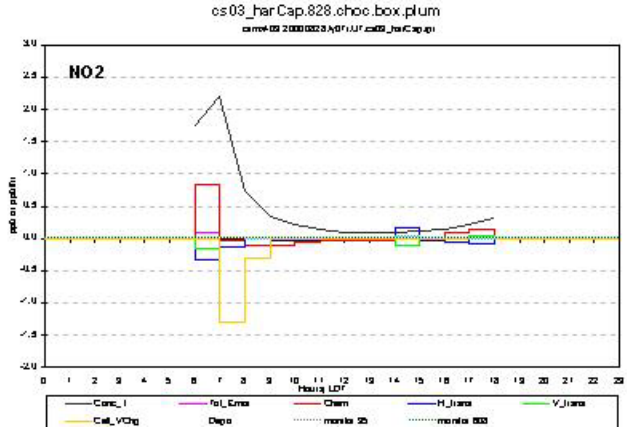


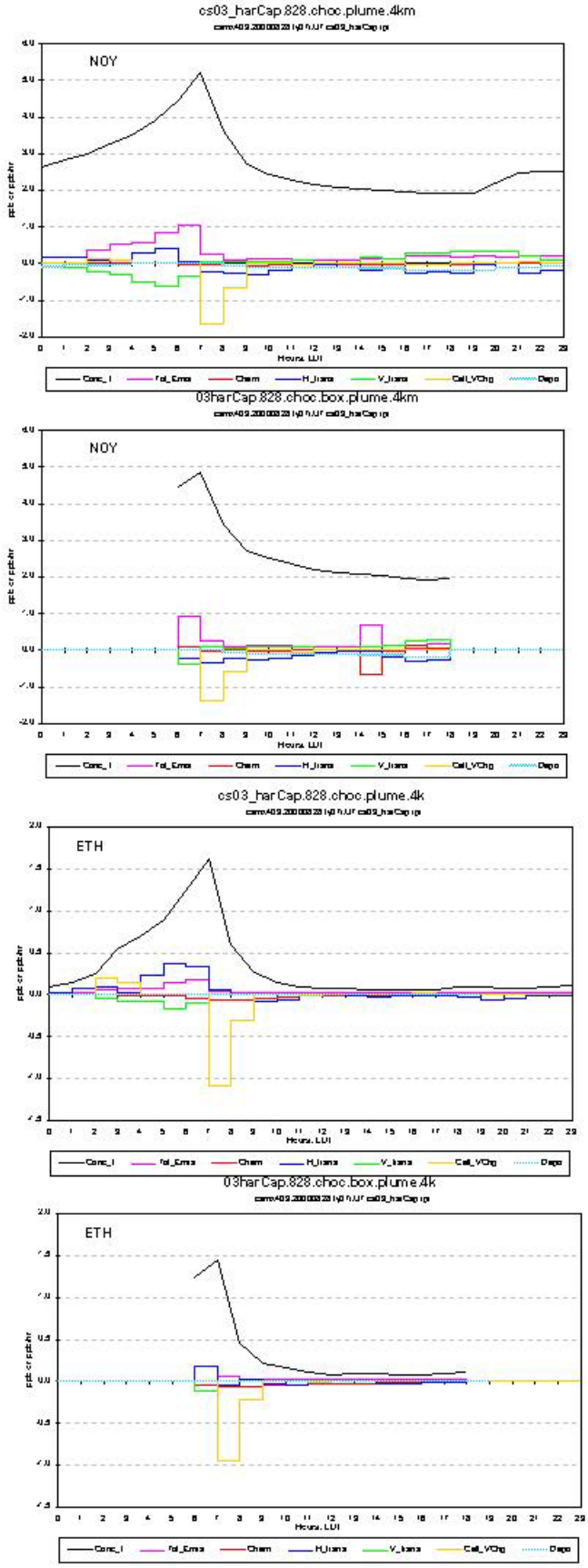
Sensitivity of Daily Max Ozone to the emission species (Ethene and Propene) in "Source region" of Chocolate Bayou, Aug. 28, 4km resolution (GOES1 Met): All emissions are between 09:00 to 10:00. Legend shows the number of hours of emission event

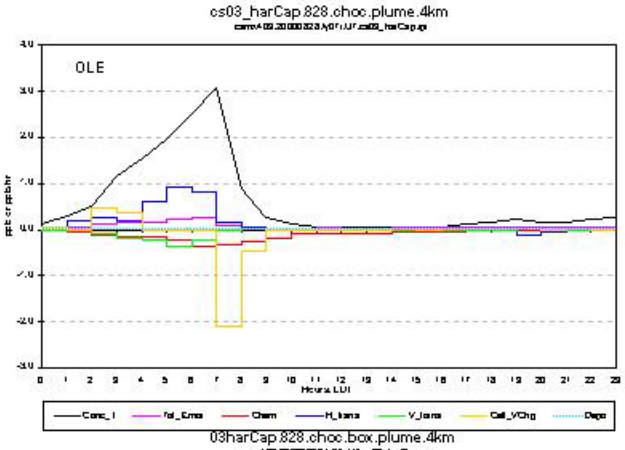

cs03_harCap.828.choc.plume.4k
NO
Conc_I
fol_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 95
monitor 803

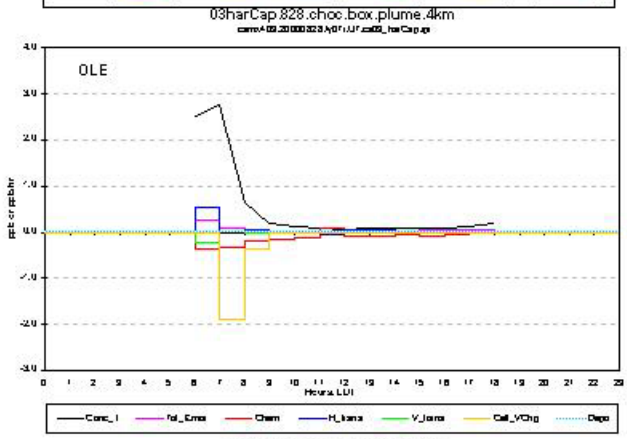

cs03_harCap.828.choc.box.plum
NO
Conc_I
fol_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 95
monitor 803

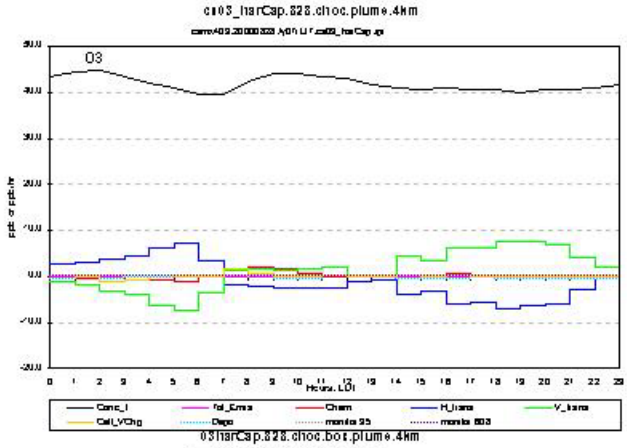

cs03_harCap.828.choc.plume.4k
NO2
Conc_I
fol_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 95
monitor 803

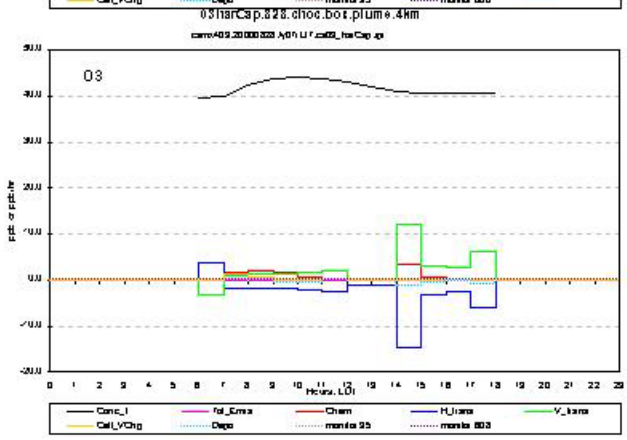

cs03_harCap.828.choc.box.plum
NO2
Conc_I
fol_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 95
monitor 803

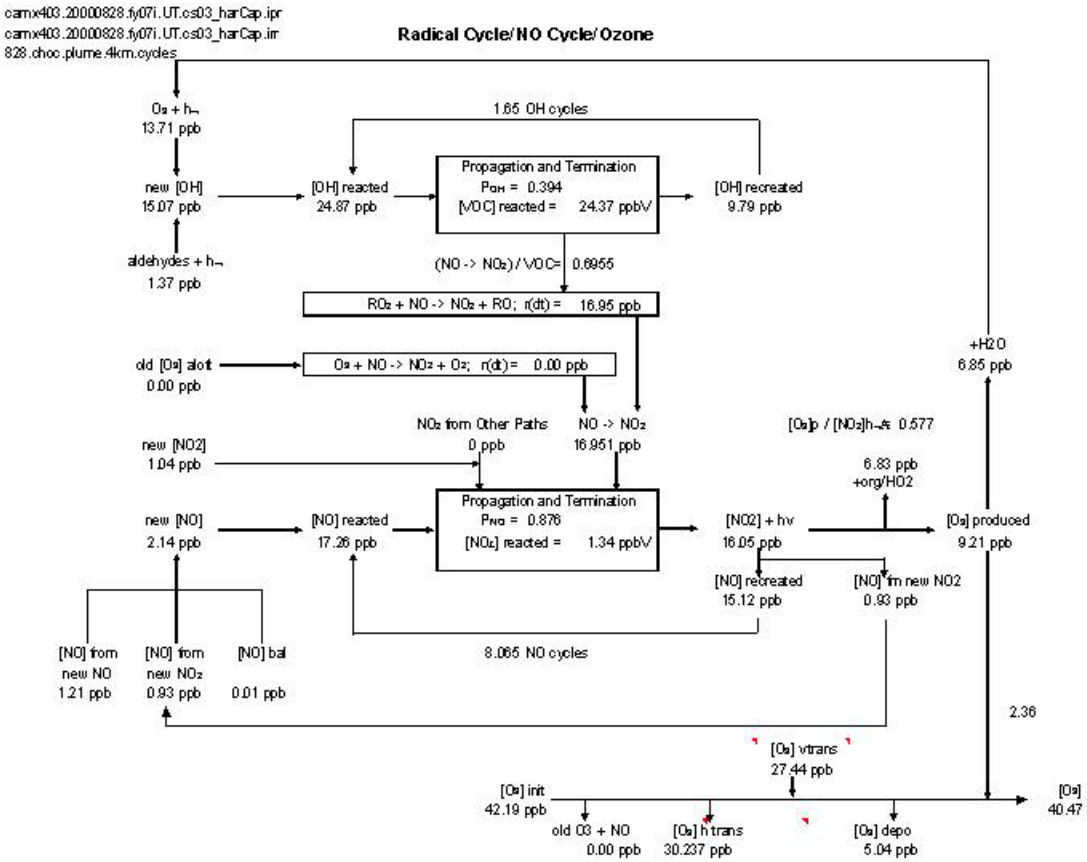

cs03_harCap.828.choc.plume.4km
NOY
03harCap.828.choc.box.plume.4km
NOY
cs03_harCap.828.choc.plume.4k
ETH
03harCap.828.choc.box.plume.4k
ETH

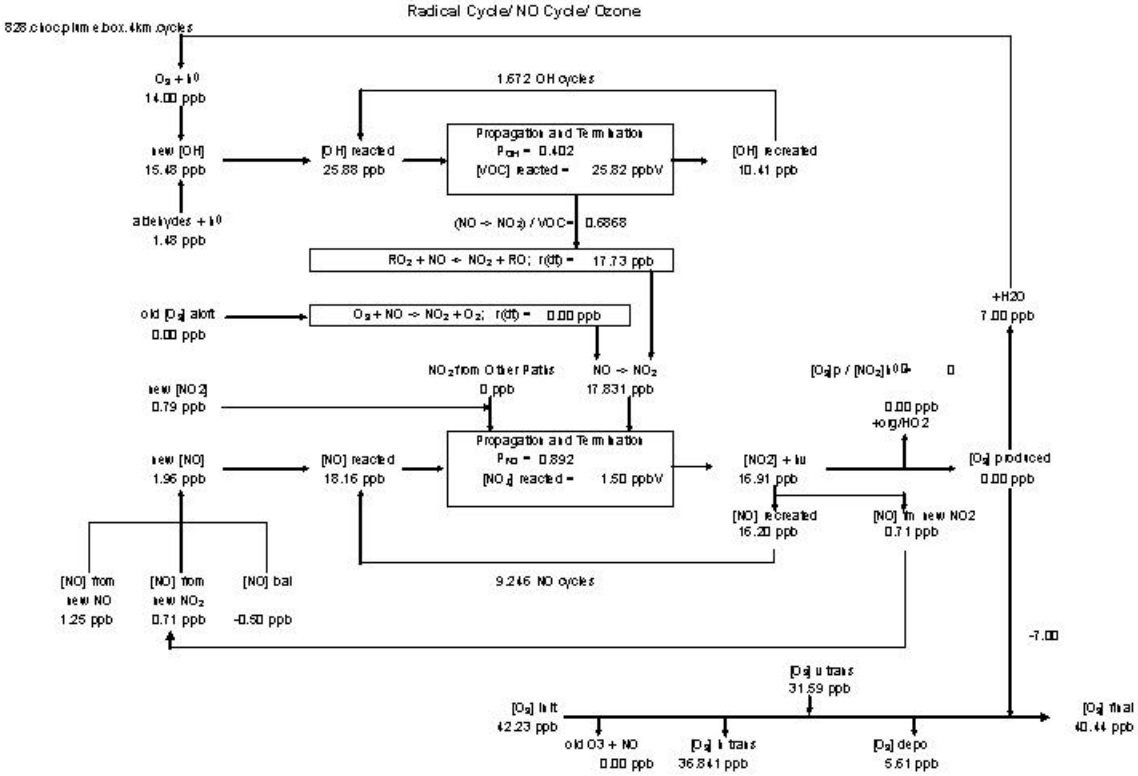

cs03_harCap.828.choc.plume.4km
OLE
Hours LDT
Conc_I
fol_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo

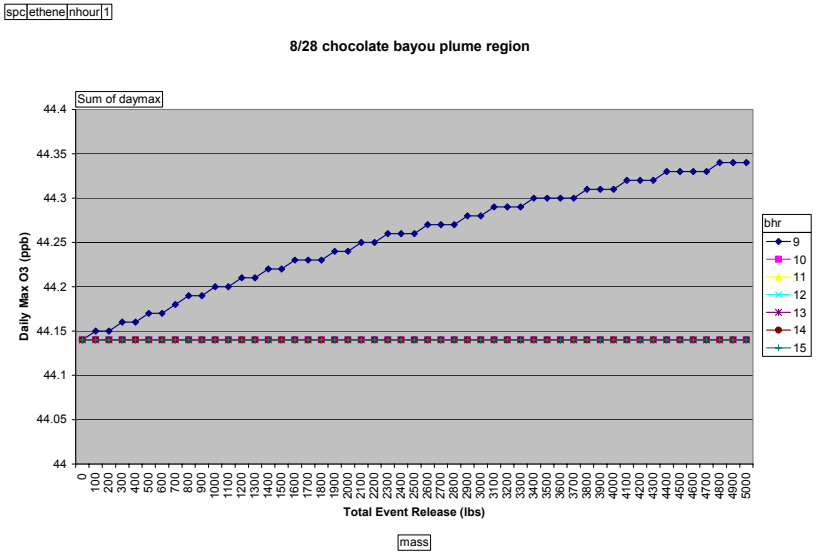

03harCap.828.choc.box.plume.4km
OLE
Hours LDT
Conc_I
fol_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo

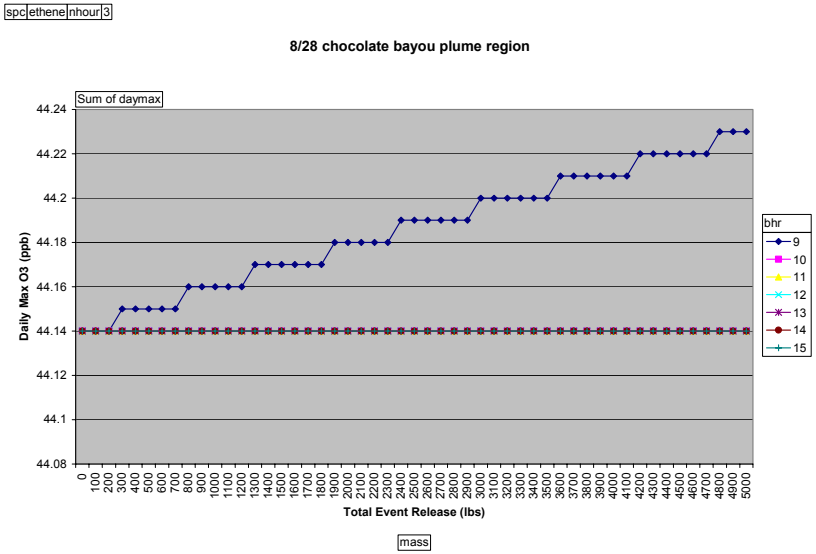

cs03_harCap.828.choc.plume.4km
O3
Hours LDT
Conc_I
fol_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 95
monitor 803

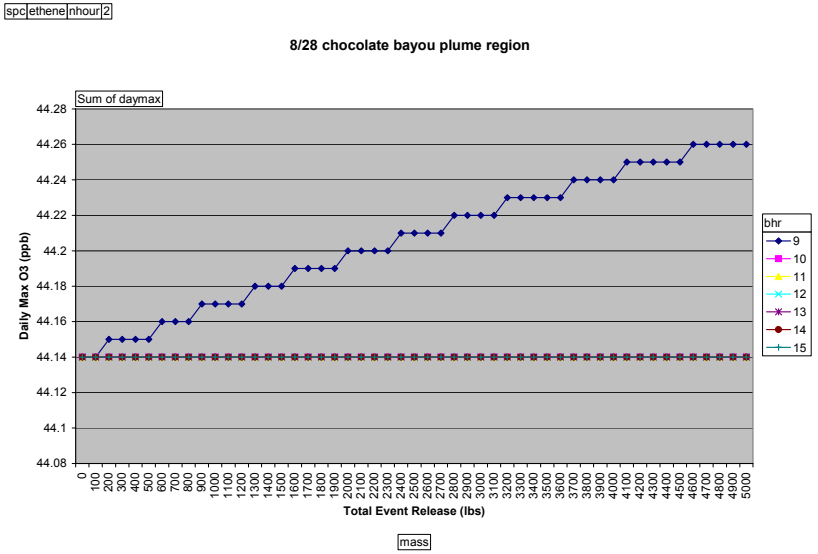

03harCap.828.choc.box.plume.4km
O3
Hours LDT
Conc_I
fol_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 95
monitor 803


camx403.20000828.fy07i.UT.cs03_harCap.ipr
camx403.20000828.fy07i.UT.cs03_harCap.irr
828.choc.plume.4km.cycles
Radical Cycle/ NO Cycle/ Ozone
O3 + hν
13.71 ppb
1.65 OH cycles
new [OH]
15.07 ppb
[OH] reacted
24.87 ppb
Propagation and Termination
POH = 0.394
[VOC] reacted = 24.37 ppbV
[OH] recreated
9.79 ppb
aldehydes + hν
1.37 ppb
(NO -> NO2) / VOC= 0.6955
RO2 + NO -> NO2 + RO; r(dt) = 16.95 ppb
+H2O
6.85 ppb
old [O3] aloft
0.00 ppb
O3 + NO -> NO2 + O2; r(dt) = 0.00 ppb
NO2 from Other Paths
0 ppb
NO -> NO2
16.951 ppb
[O3]p / [NO2]hν= 0.577
new [NO2]
1.04 ppb
6.83 ppb
+org/HO2
new [NO]
2.14 ppb
[NO] reacted
17.26 ppb
Propagation and Termination
PNO = 0.876
[NOx] reacted = 1.34 ppbV
[NO2] + hν
16.05 ppb
[O3] produced
9.21 ppb
[NO] recreated
15.12 ppb
[NO] fm new NO2
0.93 ppb
[NO] from new NO
1.21 ppb
[NO] from new NO2
0.93 ppb
[NO] bal
0.01 ppb
8.065 NO cycles
2.36
[O3] vtrans
27.44 ppb
[O3] init
42.19 ppb
[O3]
40.47
old O3 + NO
0.00 ppb
[O3] htrans
30.237 ppb
[O3] depo
5.04 ppb

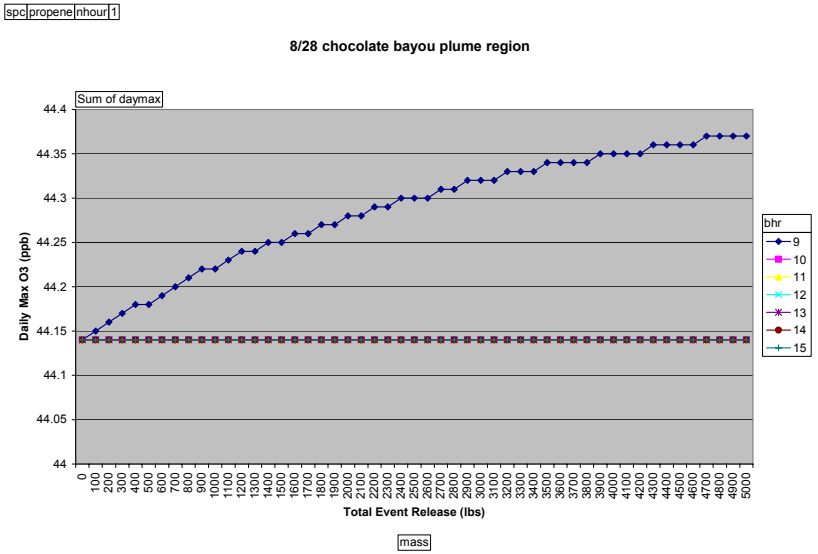

Radical Cycle/ NO Cycle/ Ozone
828.choc.plume.box.4km.cycles
O3 + hν
14.00 ppb
1.672 OH cycles
new [OH]
15.48 ppb
[OH] reacted
25.88 ppb
Propagation and Termination
POH = 0.402
[VOC] reacted = 25.82 ppbV
[OH] recreated
10.41 ppb
aldehydes + hν
1.48 ppb
(NO -> NO2) / VOC= 0.6868
RO2 + NO -> NO2 + RO; r(dt) = 17.73 ppb
+H2O
7.00 ppb
old [O3] aloft
0.00 ppb
O3 + NO -> NO2 + O2; r(dt) = 0.00 ppb
NO2 from Other Paths
0 ppb
NO -> NO2
17.831 ppb
[O3]p / [NO2]hν= 0
new [NO2]
0.79 ppb
0.00 ppb
+org/HO2
new [NO]
1.96 ppb
[NO] reacted
18.16 ppb
Propagation and Termination
PNO = 0.892
[NOx] reacted = 1.50 ppbV
[NO2] + hν
16.91 ppb
[O3] produced
0.00 ppb
[NO] recreated
16.20 ppb
[NO] fm new NO2
0.71 ppb
[NO] from new NO
1.25 ppb
[NO] from new NO2
0.71 ppb
[NO] bal
-0.50 ppb
9.246 NO cycles
-7.00
[O3] vtrans
31.59 ppb
[O3] init
42.23 ppb
[O3] final
40.44 ppb
old O3 + NO
0.00 ppb
[O3] htrans
36.841 ppb
[O3] depo
5.61 ppb

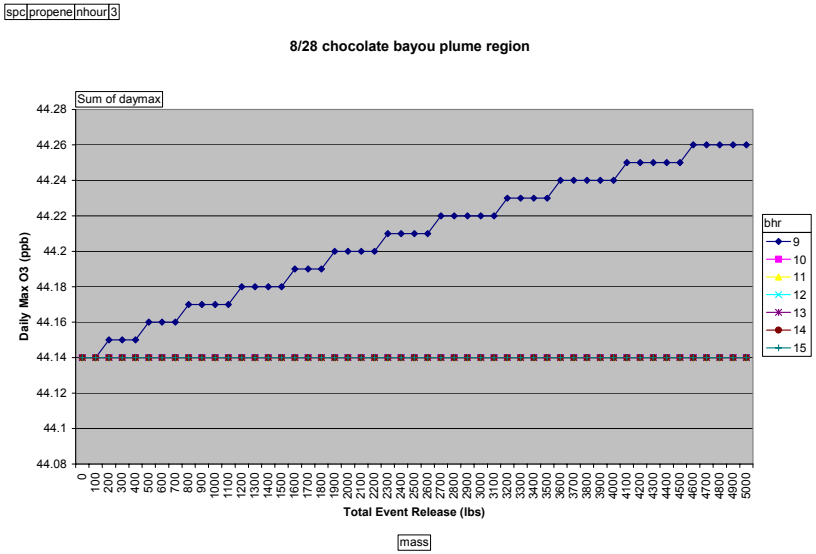


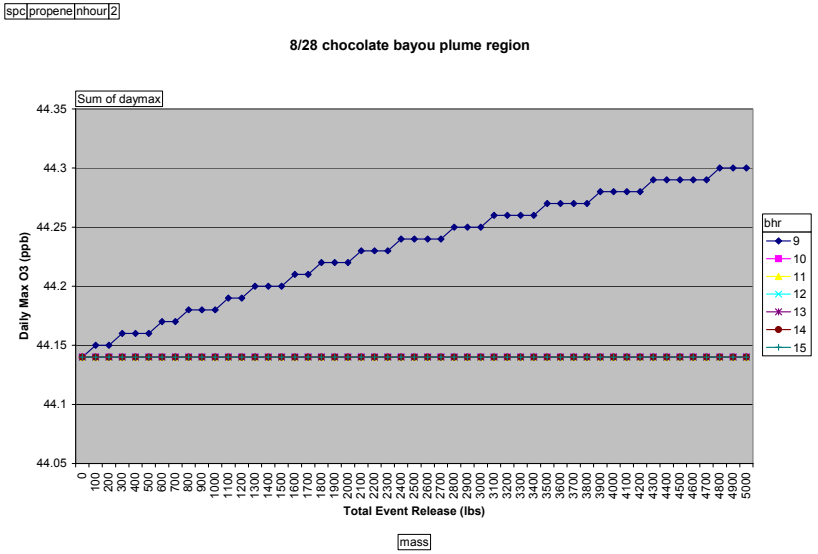




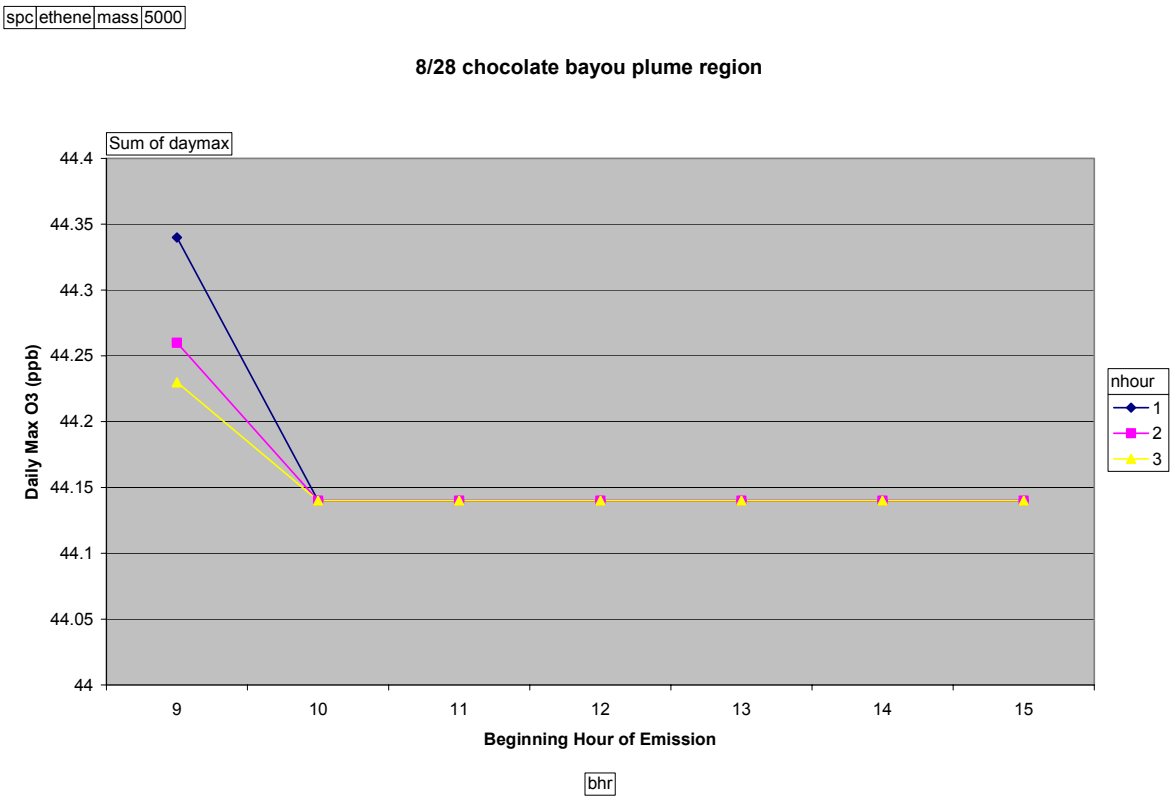
Sensitivity of Daily Max Ozone to the Ethene emission magnitude in "Plume region" of Chocolate Bayou, Aug. 28, 4km resolution (GOES1 Met): Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)



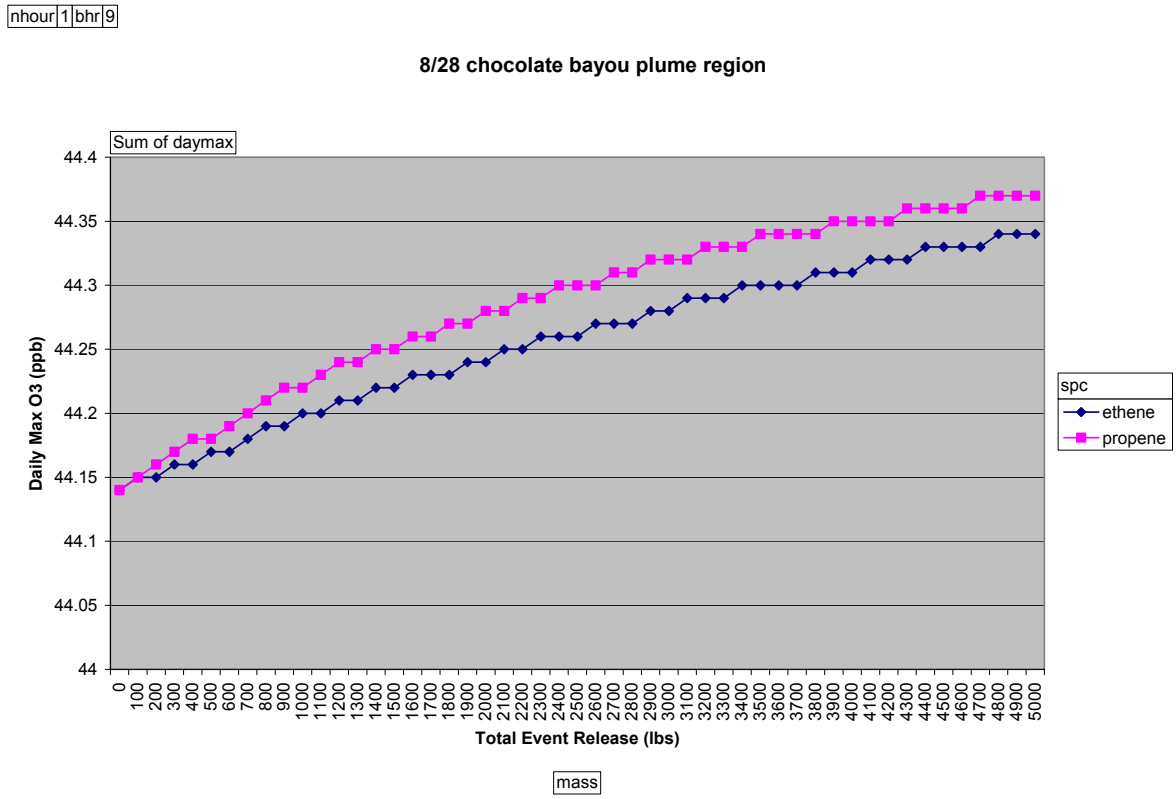




Sensitivity of Daily Max Ozone to the Propene emission magnitude in "Plume region" of Chocolate Bayou, Aug. 28, 4km resolution (GOES1 Met): Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)

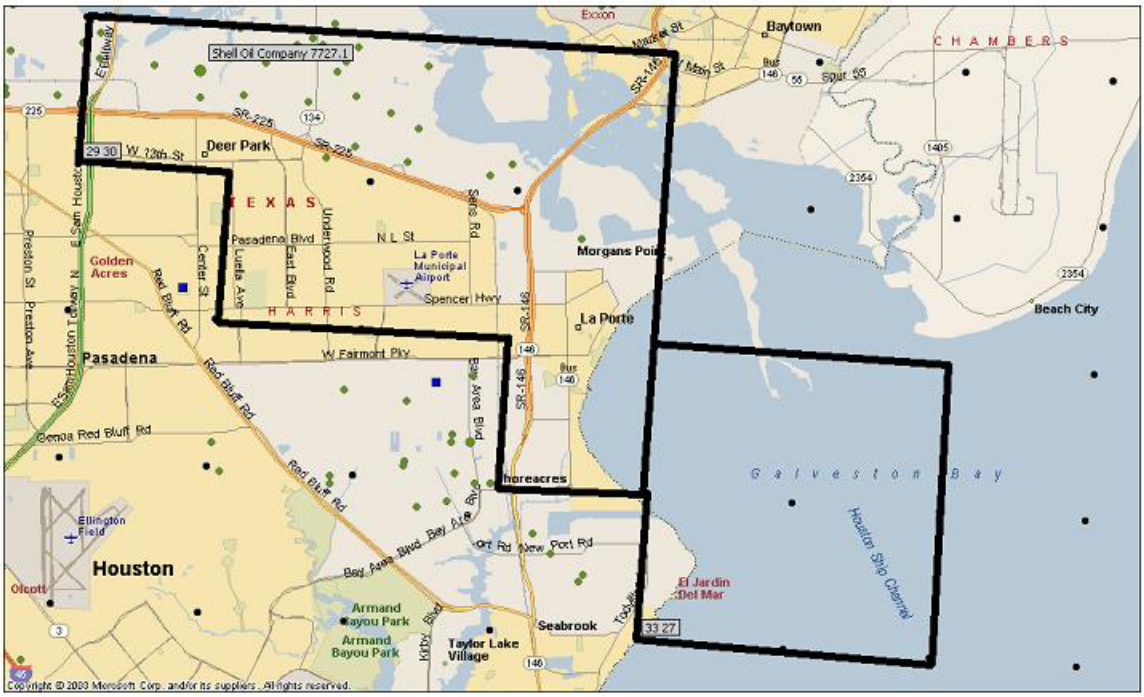


Sensitivity of Daily Max Ozone to the Ethene emission timing (beginning of emission) in "Plume region" of Chocolate Bayou, Aug. 28, 4km resolution (GOES1 Met): All emissions are 5000 lbs. Legend shows the number of hours of emission event

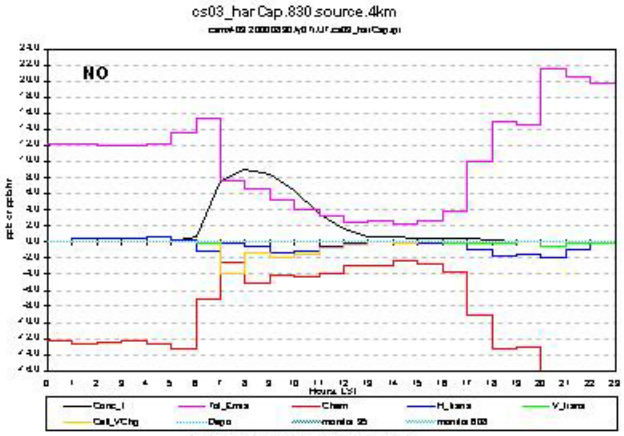


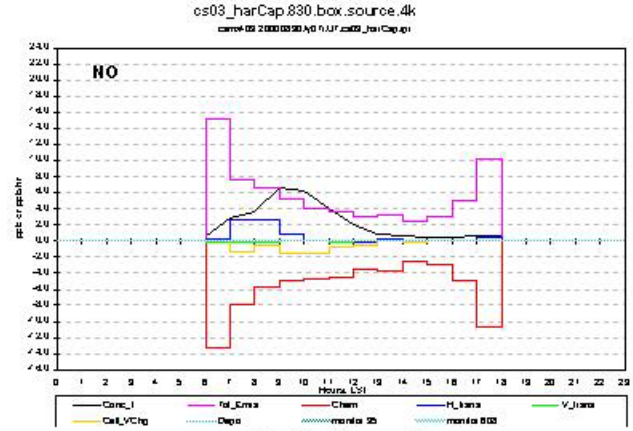
Sensitivity of Daily Max Ozone to the emission species (Ethene and Propene) in "Plume region" of Chocolate Bayou, Aug. 28, 4km resolution (GOES1 Met): All emissions are between 09:00 to 10:00. Legend shows the number of hours of emission event

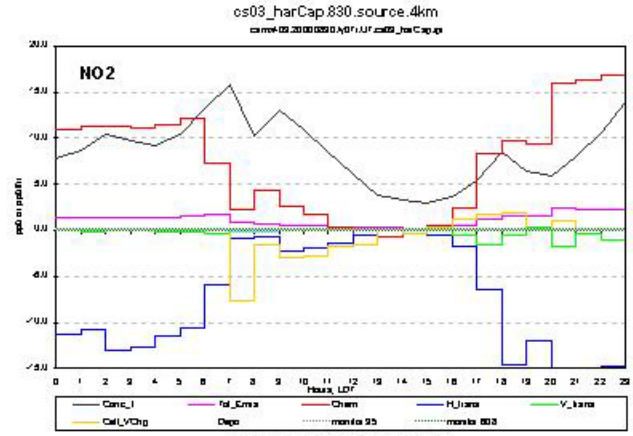
August 30 - Future Year 2007 (fyo7i.cs03_harCap)

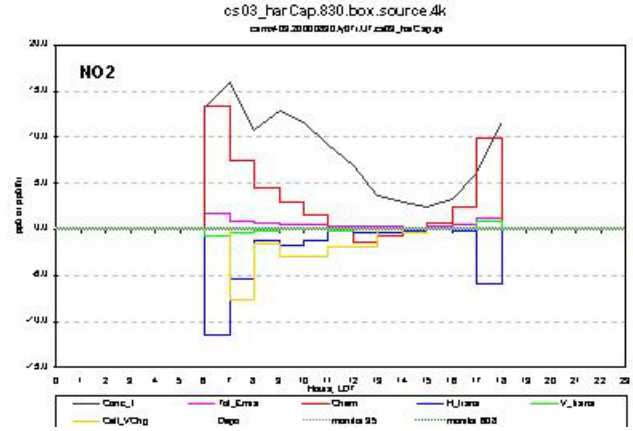


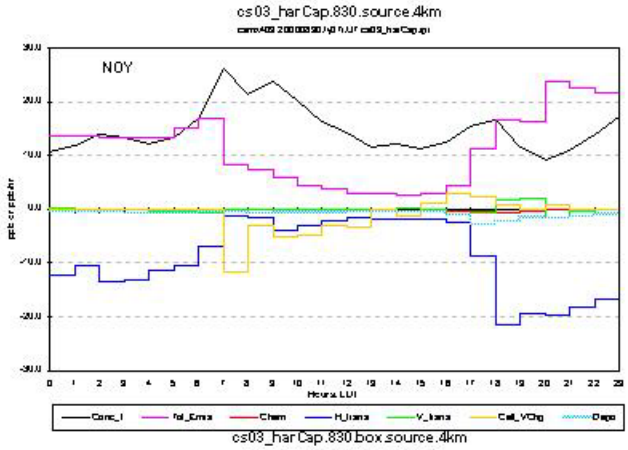
8_30_00 Process Analysis Box outlined in black. Black Dots represent lower left hand corner of 4 km grid cells

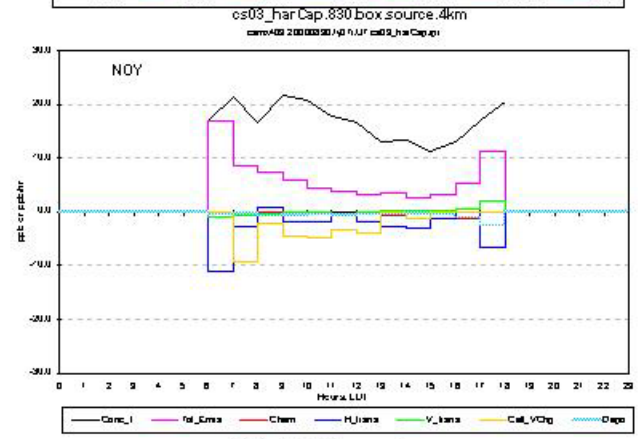

cs03_harCap.830.source.4km
NO
Hours, LST
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 803

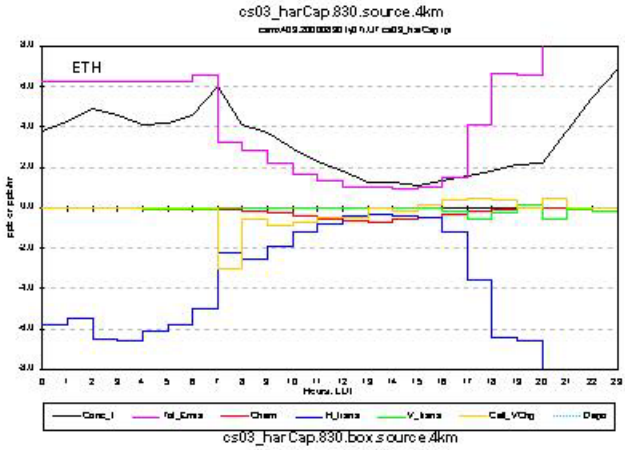

cs03_harCap.830.box.source.4k
NO
Hours, LST
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 803

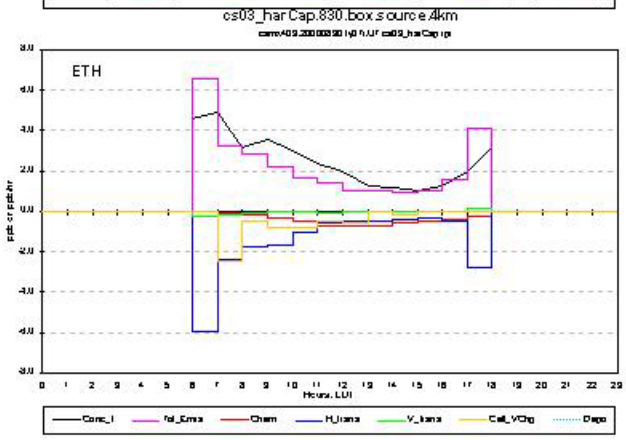

cs03_harCap.830.source.4km
NO2
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 803

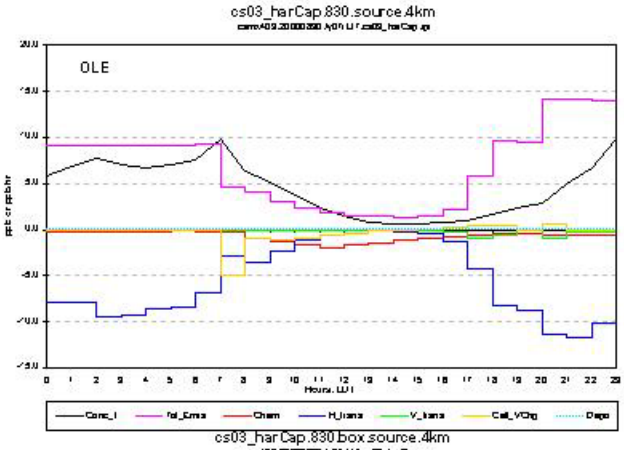

cs03_harCap.830.box.source.4k
NO2
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 803

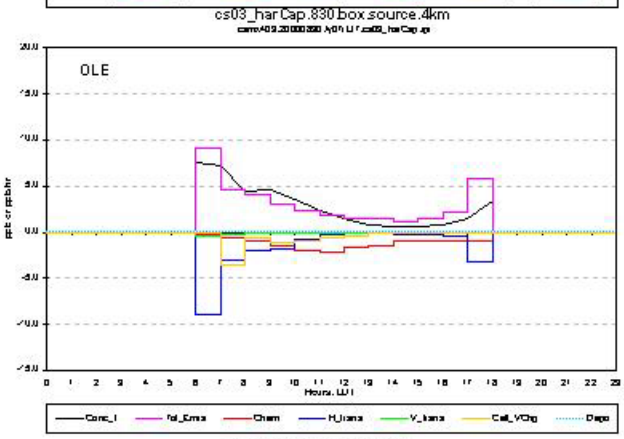

cs03_harCap.830.source.4km
NOY
Conc_I
Chem
H_trans
V_trans
Cell_VChg
Depo

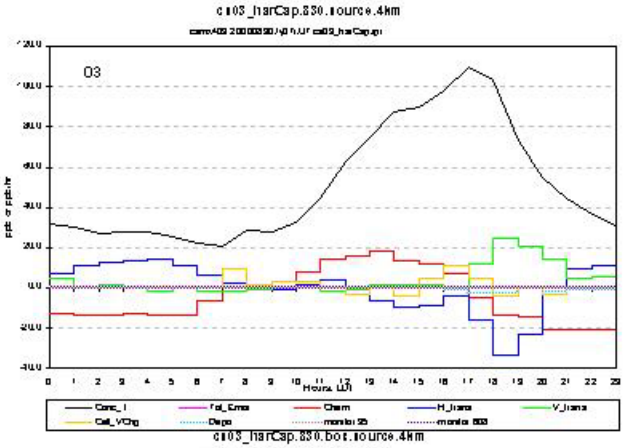

cs03_harCap.830.box.source.4km
NOY
Conc_I
Chem
H_trans
V_trans
Cell_VChg
Depo

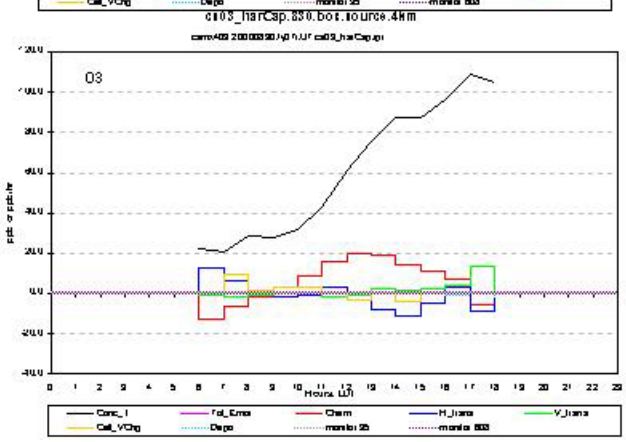

cs03_harCap.830.source.4km
ETH
Conc_I
Chem
H_trans
V_trans
Cell_VChg
Depo

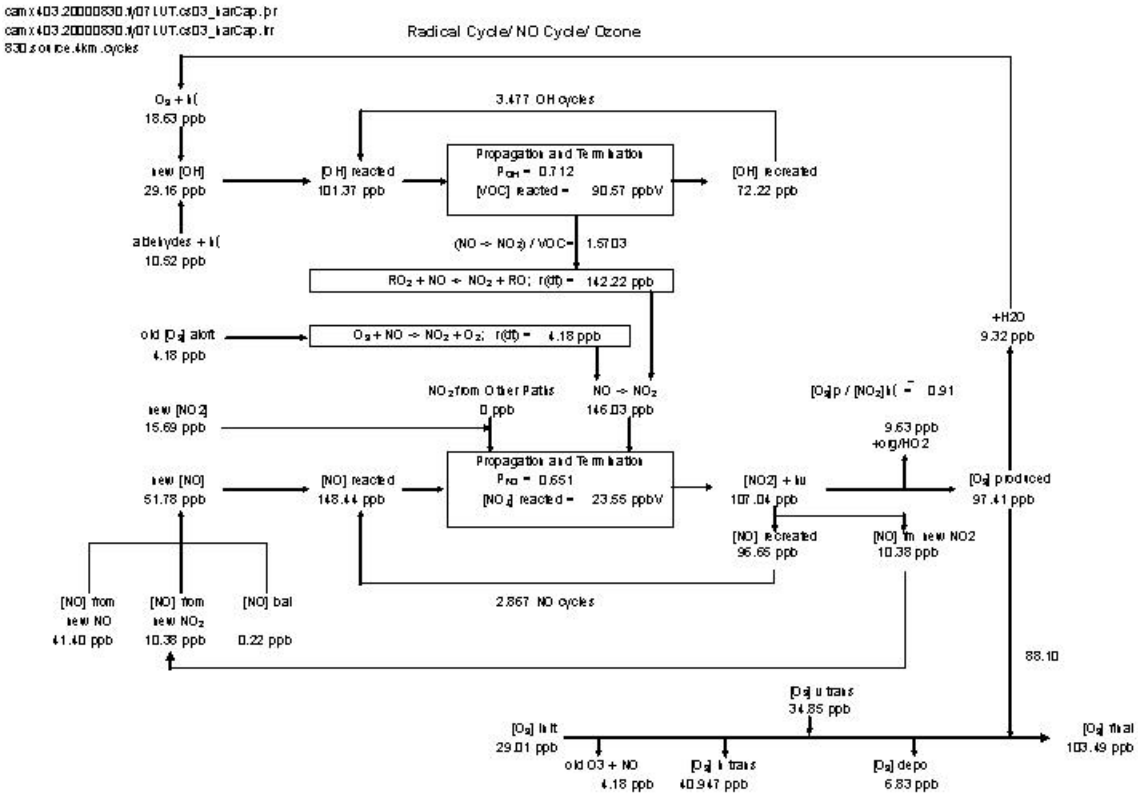

cs03_harCap.830.box.source.4km
ETH
Conc_I
Chem
H_trans
V_trans
Cell_VChg
Depo

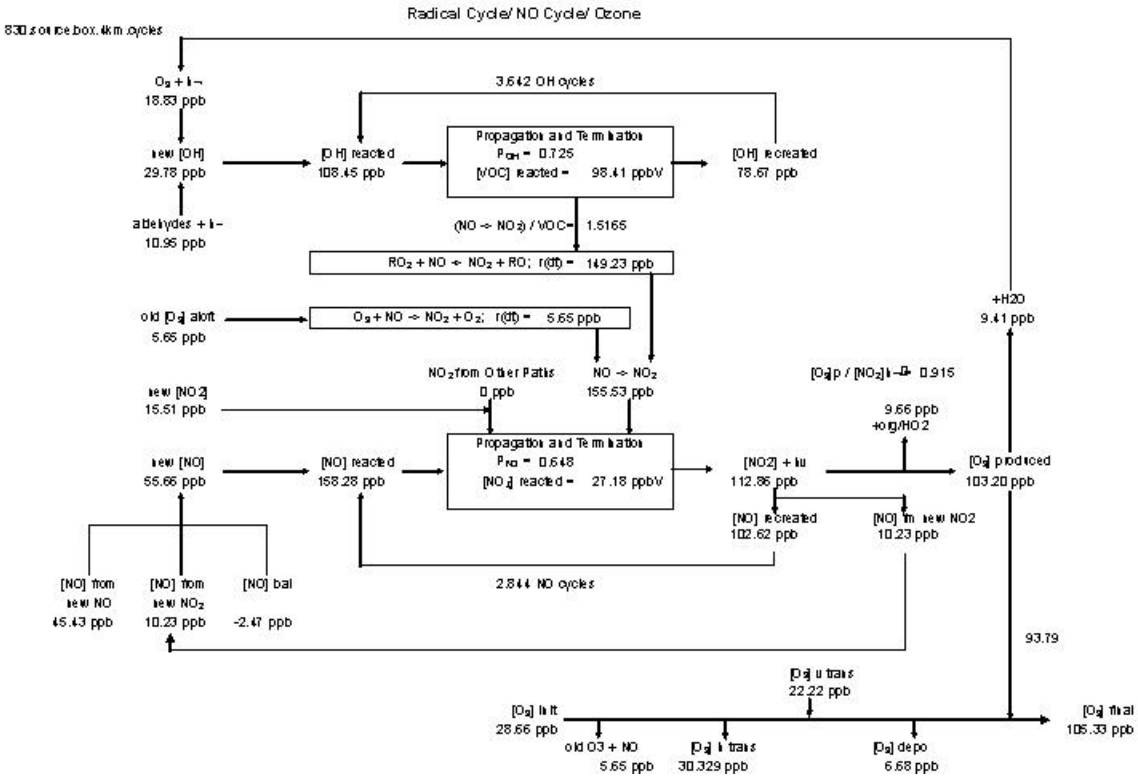

cs03_harCap.830.source.4km
OLE
Hours, LUT
Conc_I
Chem
H_trans
V_trans
Cell_VChg
Depo

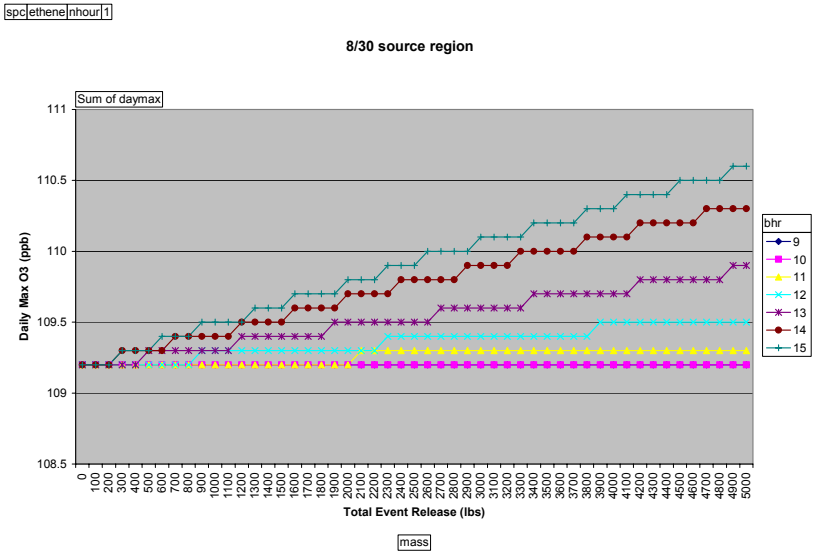

cs03_harCap.830.box.source.4km
OLE
Hours, LUT
Conc_I
Chem
H_trans
V_trans
Cell_VChg
Depo

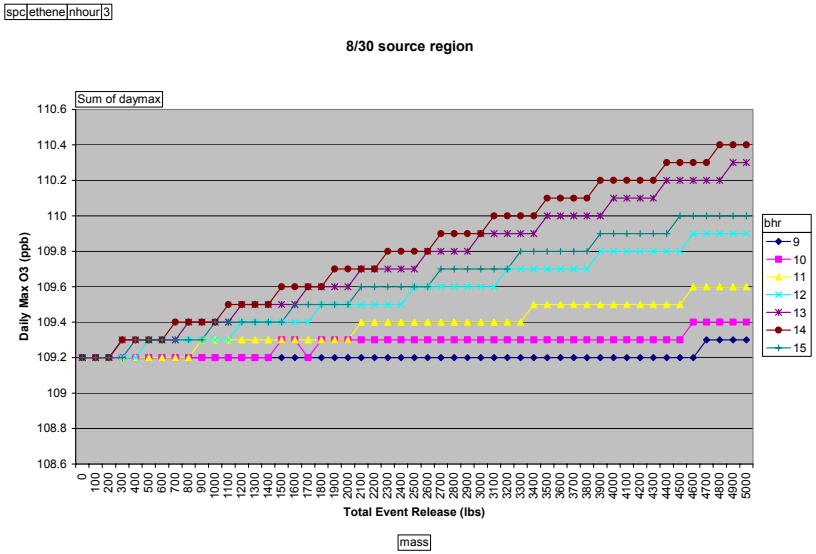

cs03_harCap.830.source.4km
O3
Hours, LUT
Conc_I
Chem
H_trans
V_trans
Cell_VChg
Depo

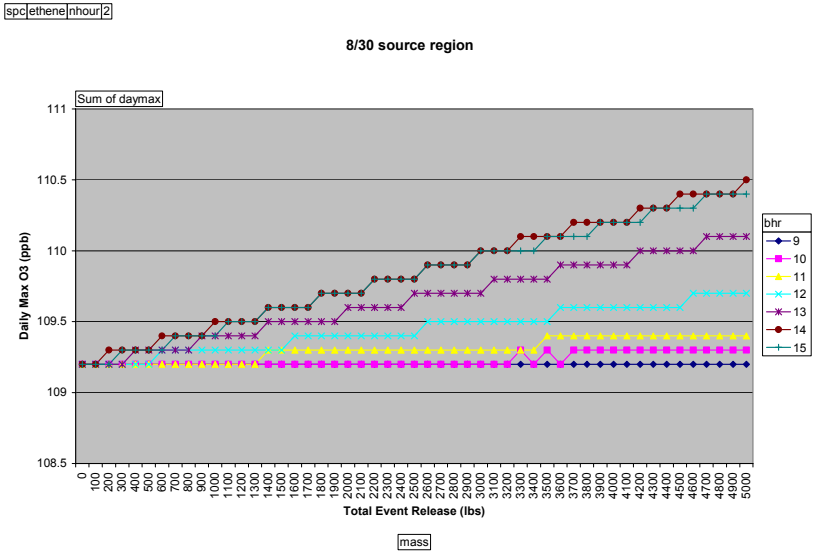

cs03_harCap.830.box.source.4km
O3
Hours, LUT
Conc_I
Chem
H_trans
V_trans
Cell_VChg
Depo


camx403.20000830.ly07LUT.cs03_karCap.pr
camx403.20000830.ly07LUT.cs03_karCap.irr
830source.4km.cycles
Radical Cycle/ NO Cycle/ Ozone
3.477 OH cycles
18.63 ppb
new [OH]
29.16 ppb
[OH] reacted
101.37 ppb
Propagation and Termination
[VOC] reacted = 90.57 ppbV
[OH] recreated
72.22 ppb
10.52 ppb
(NO -> NO2) / VOC= 1.5703
RO2 + NO -> NO2 + RO; r(dt) = 142.22 ppb
old [O3] aloft
4.18 ppb
O3 + NO -> NO2 + O2; r(dt) = 4.18 ppb
+H2O
9.32 ppb
NO2 from Other Paths
0 ppb
NO -> NO2
146.03 ppb
new [NO2]
15.69 ppb
9.63 ppb
+org/HO2
new [NO]
51.78 ppb
[NO] reacted
148.44 ppb
Propagation and Termination
[NO2] reacted = 23.55 ppbV
[NO2] + hν
107.04 ppb
[O3] produced
97.41 ppb
[NO] recreated
96.65 ppb
[NO] from new NO2
10.38 ppb
2.867 NO cycles
[NO] from new NO
41.40 ppb
[NO] from new NO2
10.38 ppb
[NO] bal
0.22 ppb
88.10
[O3] in trans
34.85 ppb
[O3] initial
29.01 ppb
[O3] final
103.49 ppb
old O3 + NO
4.18 ppb
[O3] out trans
40.947 ppb
[O3] depo
6.83 ppb

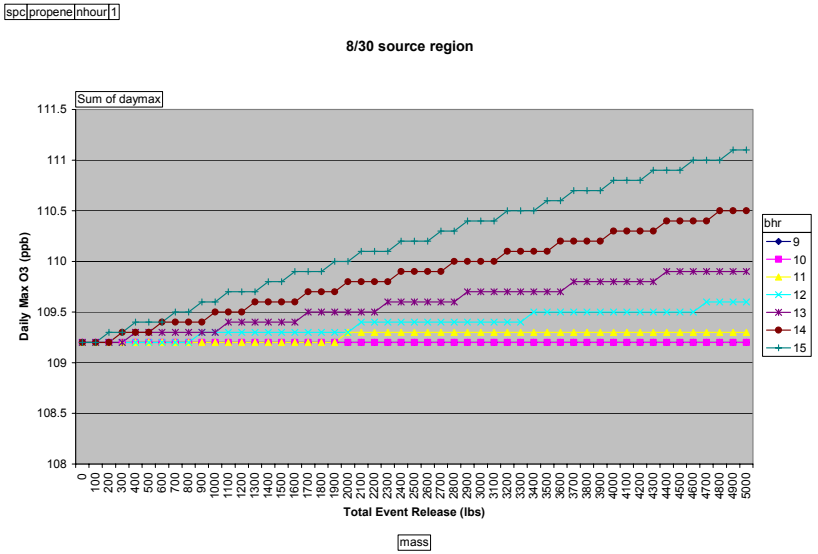

Radical Cycle/ NO Cycle/ Ozone
830source.box.4km.cycles
3.642 OH cycles
18.83 ppb
new [OH]
29.78 ppb
[OH] reacted
108.45 ppb
Propagation and Termination
[VOC] reacted = 98.41 ppbV
[OH] recreated
78.67 ppb
10.95 ppb
(NO -> NO2) / VOC= 1.5165
RO2 + NO -> NO2 + RO; r(dt) = 149.23 ppb
old [O3] aloft
5.65 ppb
O3 + NO -> NO2 + O2; r(dt) = 5.65 ppb
+H2O
9.41 ppb
NO2 from Other Paths
0 ppb
NO -> NO2
155.53 ppb
new [NO2]
15.51 ppb
9.66 ppb
+org/HO2
new [NO]
55.66 ppb
[NO] reacted
158.28 ppb
Propagation and Termination
[NO2] reacted = 27.18 ppbV
[NO2] + hν
112.86 ppb
[O3] produced
103.20 ppb
[NO] recreated
102.62 ppb
[NO] from new NO2
10.23 ppb
2.844 NO cycles
[NO] from new NO
45.43 ppb
[NO] from new NO2
10.23 ppb
[NO] bal
-2.47 ppb
93.79
[O3] out trans
22.22 ppb
[O3] initial
28.66 ppb
[O3] final
105.33 ppb
old O3 + NO
5.65 ppb
[O3] in trans
30.329 ppb
[O3] depo
6.68 ppb

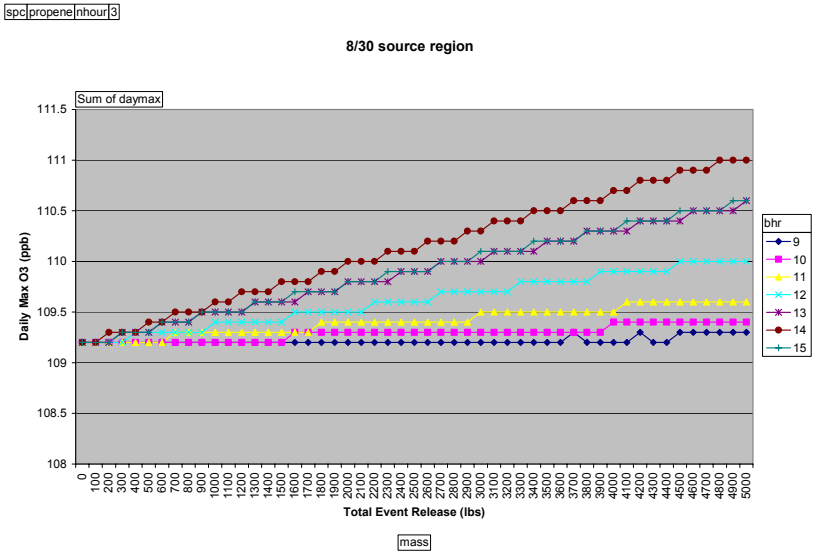


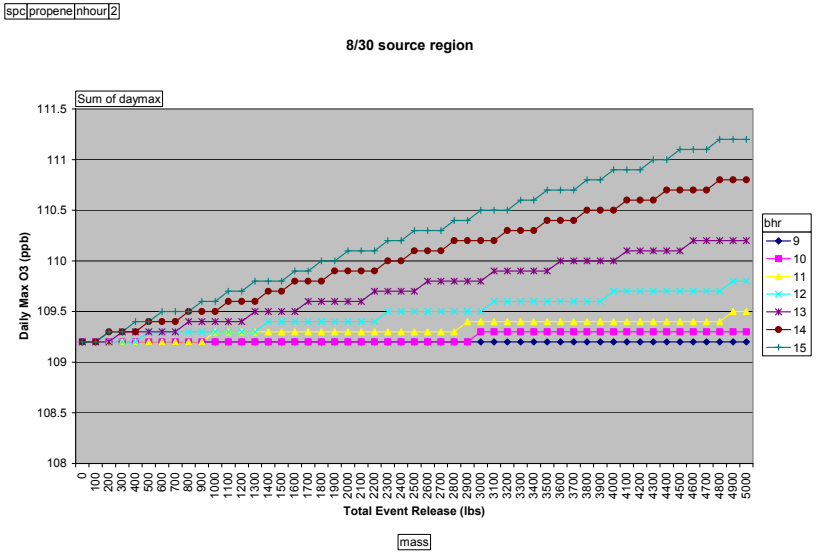




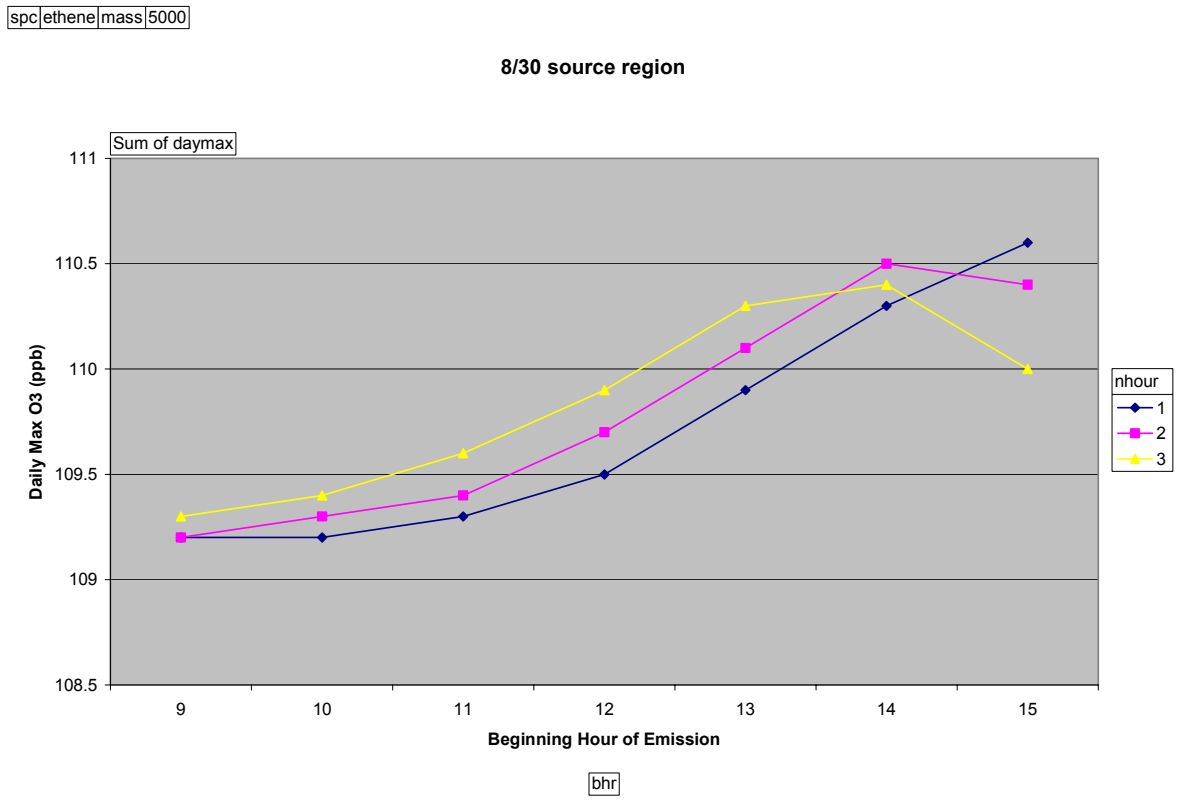
Sensitivity of Daily Max Ozone to the Ethene emission magnitude in "Source region" of Deer Park, Aug. 30, 4km resolution (GOES1 Met): Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)



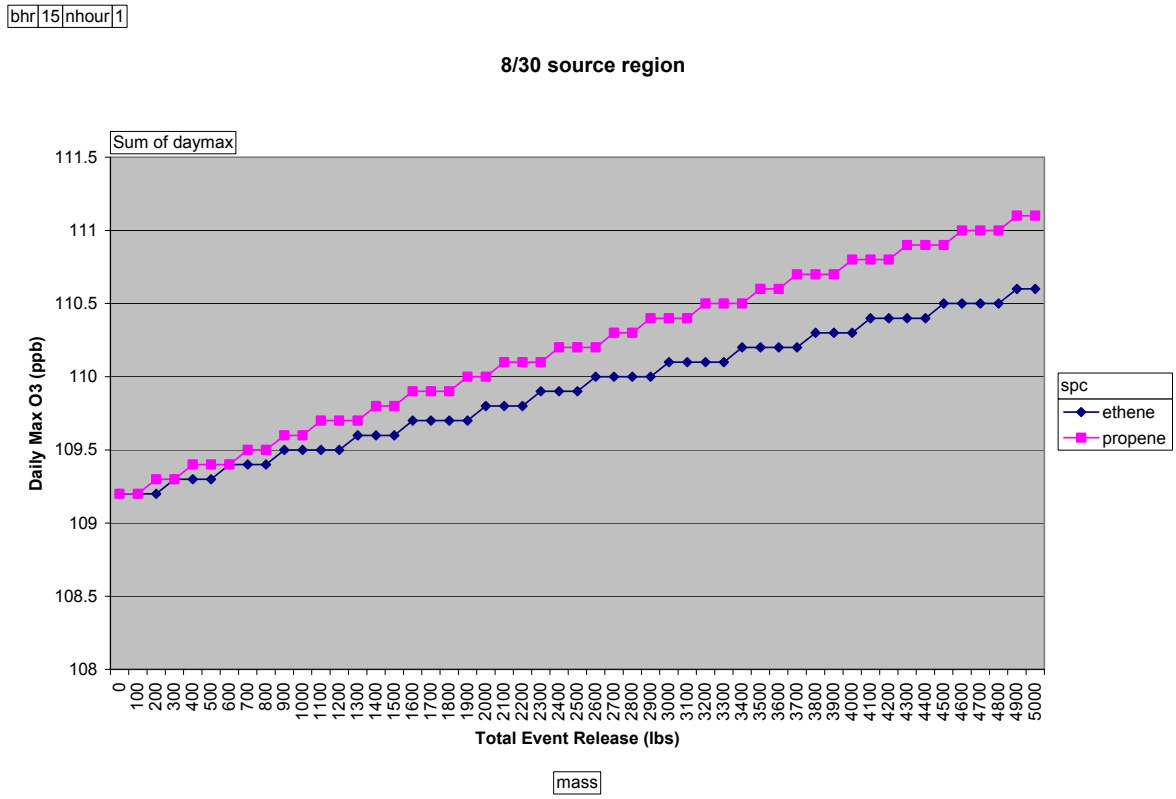




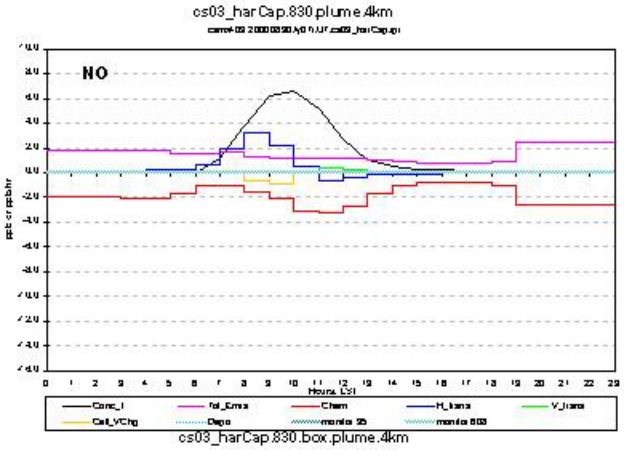
Sensitivity of Daily Max Ozone to the Propene emission magnitude in "Source region" of Deer Park, Aug. 30, 4km resolution (GOES1 Met): Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)

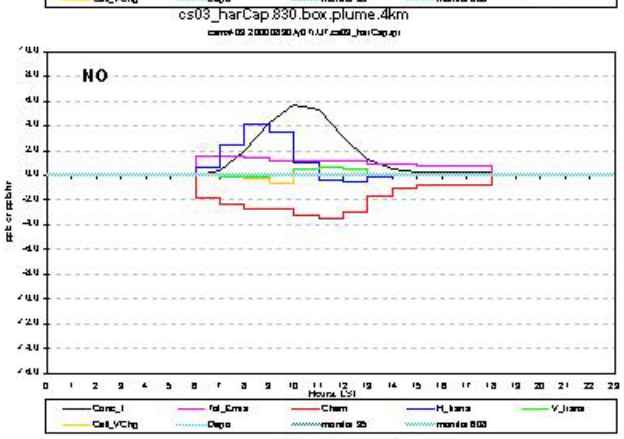


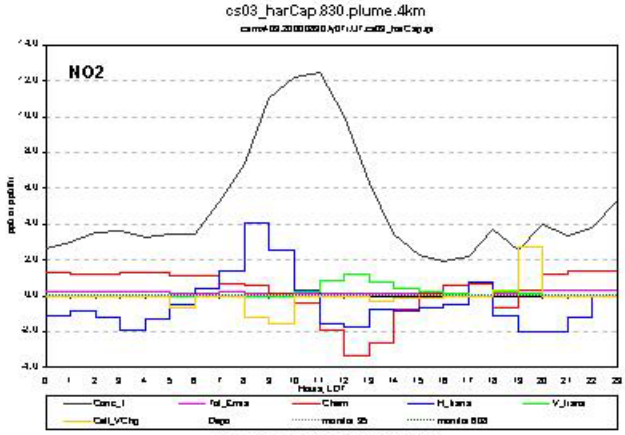
Sensitivity of Daily Max Ozone to the Ethene emission timing (beginning of emission) in "Source region" of Deer Park, Aug. 30, 4km resolution (GOES1 Met): All emissions are 5000 lbs. Legend shows the number of hours of emission event

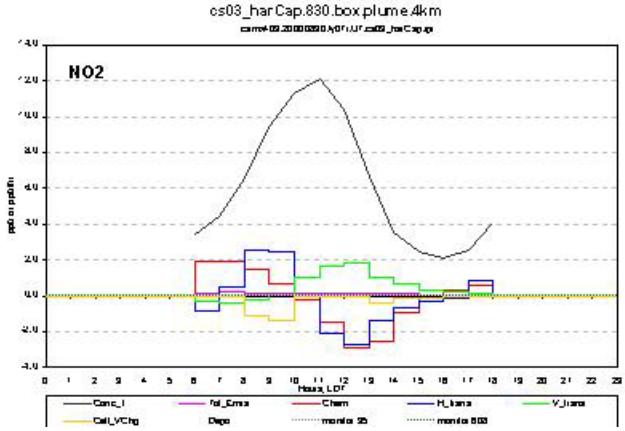


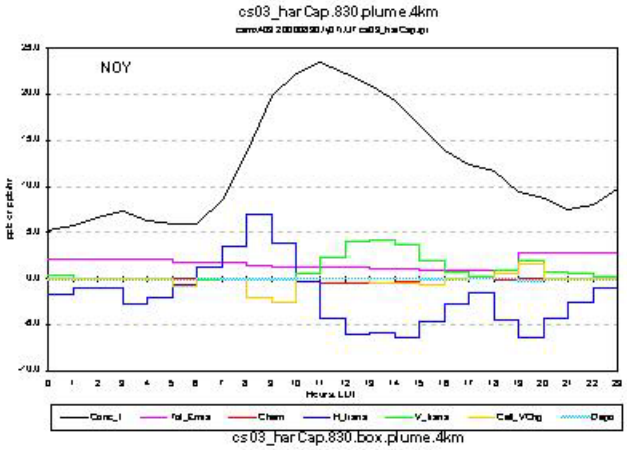
Sensitivity of Daily Max Ozone to the emission species (Ethene and Propene) in "Source region" of Deer Park, Aug. 30, 4km resolution (GOES1 Met): All emissions are between 15:00 to 16:00. Legend shows the number of hours of emission event

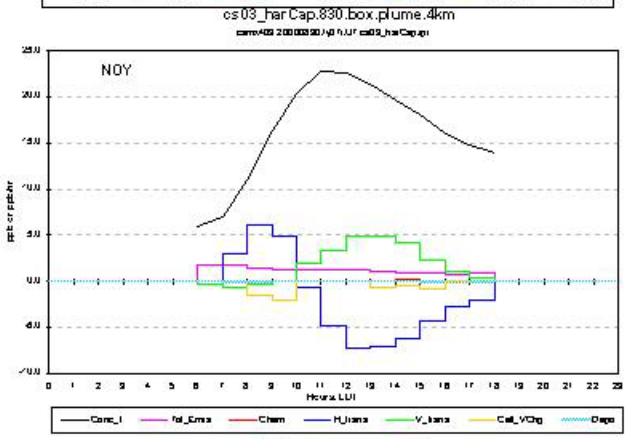

cs03_harCap.830.plume.4km
NO
Hours, LST
Conc_I
fol_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 503

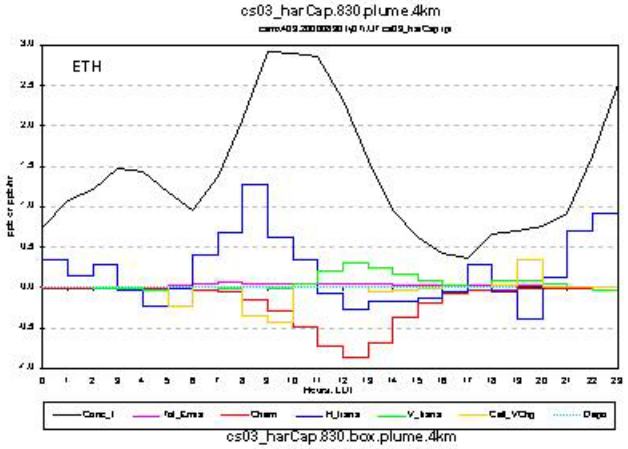

cs03_harCap.830.box.plume.4km
NO
Hours, LST
Conc_I
fol_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 503

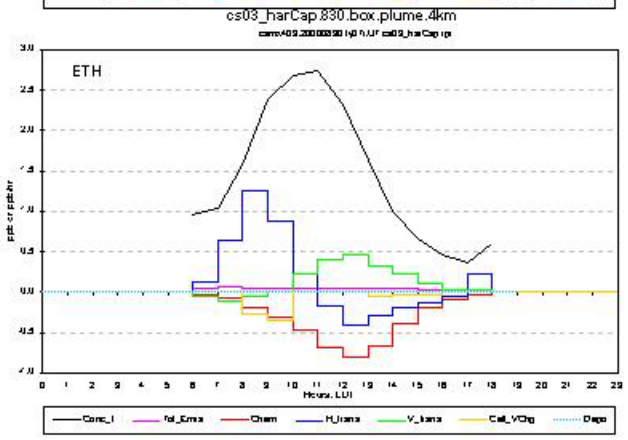

cs03_harCap.830.plume.4km
NO2
Hours, LDT
Conc_I
fol_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 503

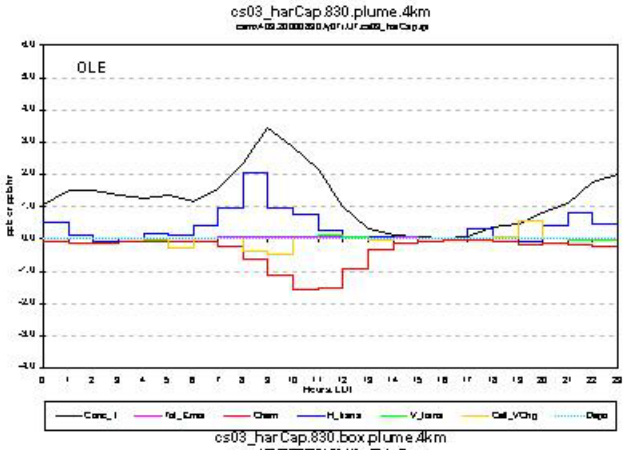

cs03_harCap.830.box.plume.4km
NO2
Hours, LDT
Conc_I
fol_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 503

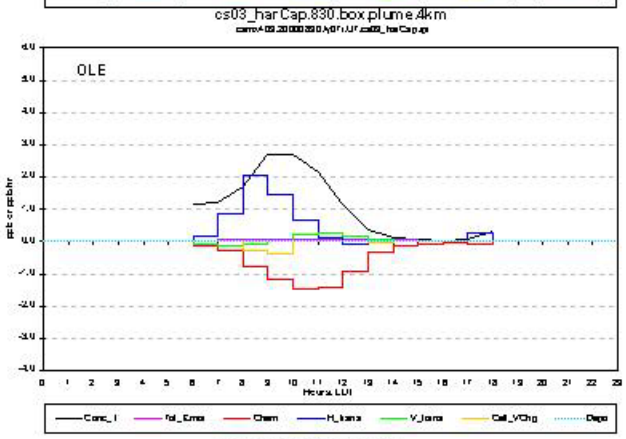

cs03_harCap.830.plume.4km
NOY
Hours LDT
Conc_I
Chem
H_trans
V_trans
Cell_VChg
Depo

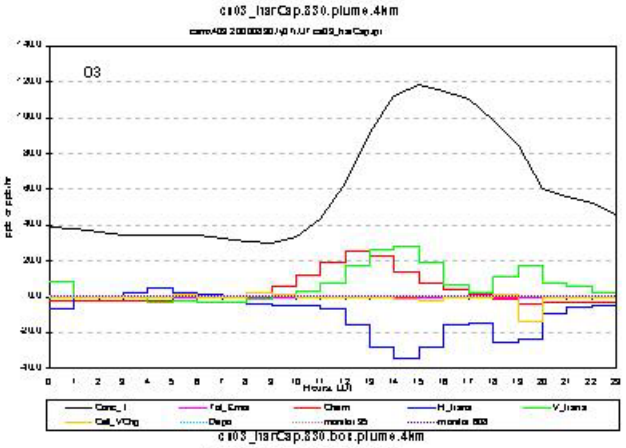

cs03_harCap.830.box.plume.4km
NOY
Hours LDT
Conc_I
Chem
H_trans
V_trans
Cell_VChg
Depo

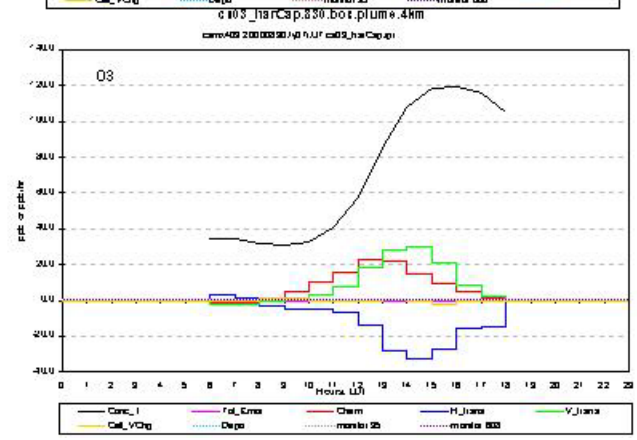

cs03_harCap.830.plume.4km
ETH
Hours LDT
Conc_I
Chem
H_trans
V_trans
Cell_VChg
Depo

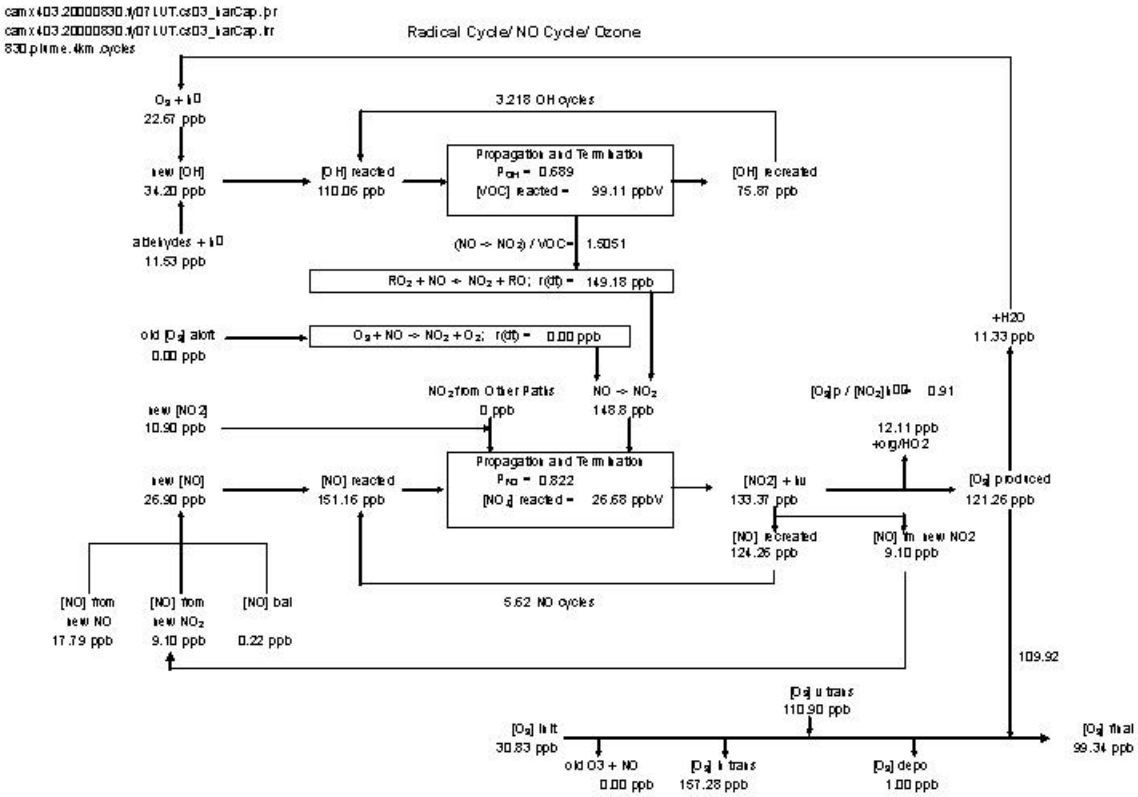

cs03_harCap.830.box.plume.4km
ETH
Hours LDT
Conc_I
Chem
H_trans
V_trans
Cell_VChg
Depo

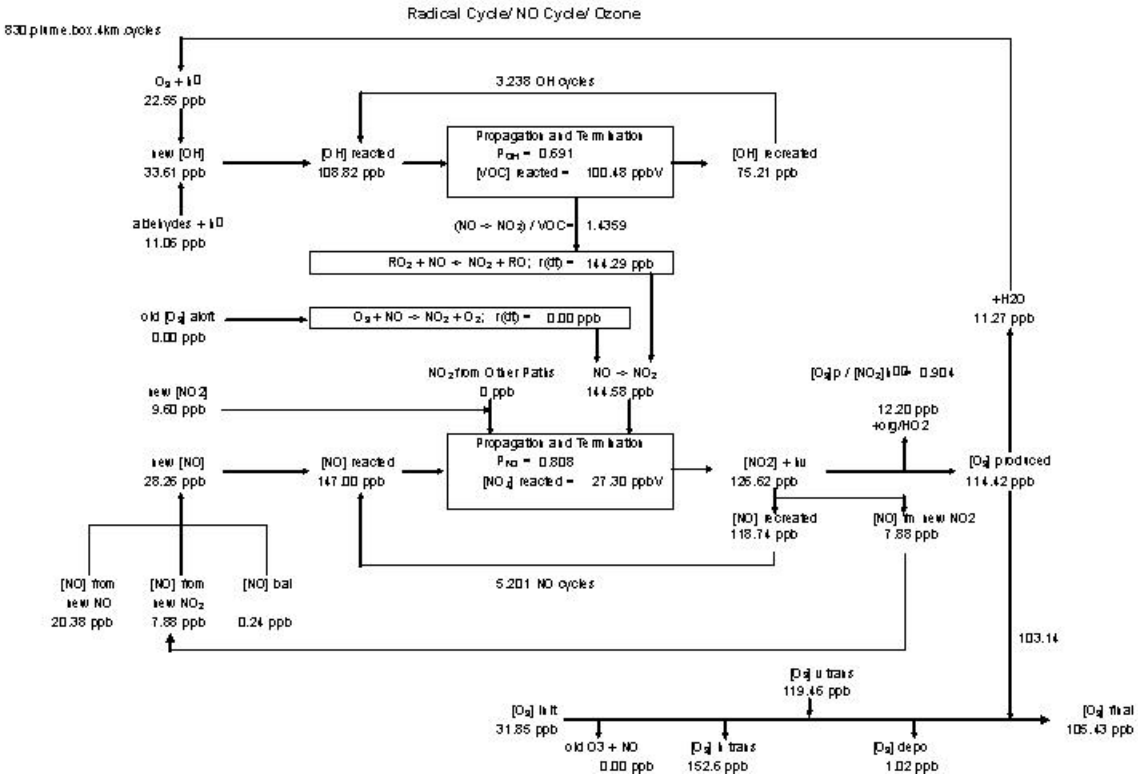

cs03_harCap.830.plume.4km
OLE
Hours LDT
Conc_I
fol_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo

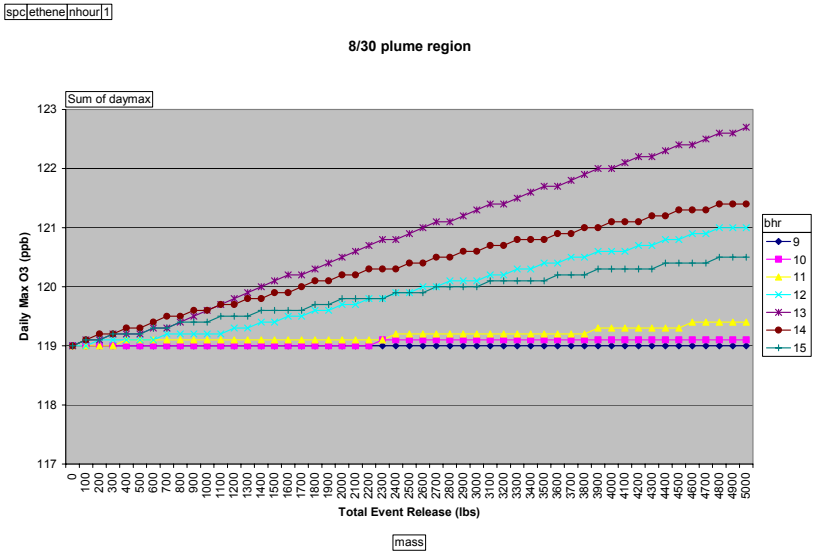

cs03_harCap.830.box.plume.4km
OLE
Hours LDT
Conc_I
fol_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo

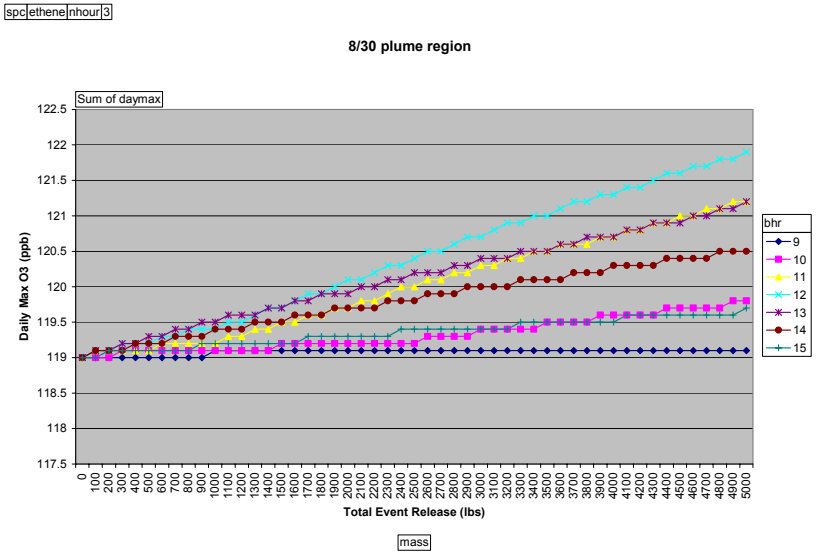

cs03_harCap.830.plume.4km
O3
Hours LDT
Conc_I
fol_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 95
monitor 603

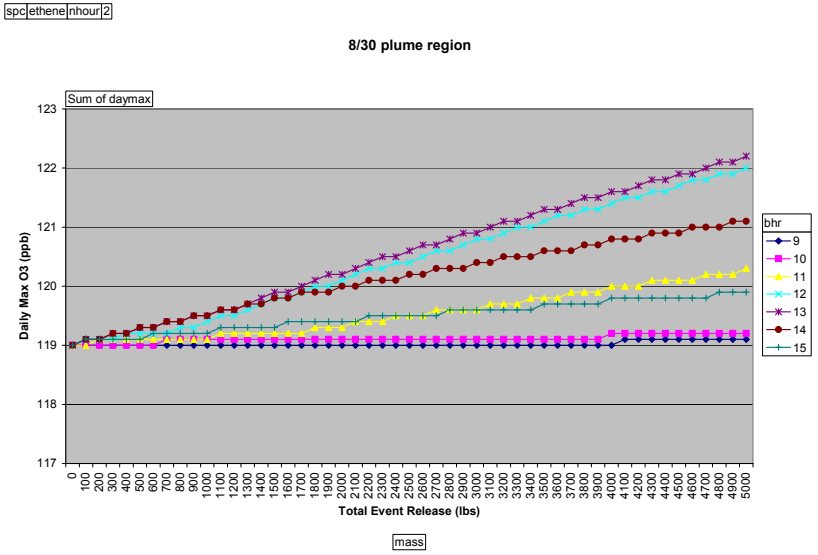

cs03_harCap.830.box.plume.4km
O3
Hours LDT
Conc_I
fol_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 95
monitor 603


camx403.20000830.y07LUT.cs03_barCap.pr
camx403.20000830.y07LUT.cs03_barCap.irr
830plume.4km.cycles
Radical Cycle/ NO Cycle/ Ozone
3.218 OH cycles
22.67 ppb
new [OH]
34.20 ppb
[OH] reacted
110.06 ppb
Propagation and Termination
[VOC] reacted = 99.11 ppbV
[OH] recreated
75.87 ppb
aldehydes + HO
11.53 ppb
(NO -> NO2) / VOC= 1.5051
RO2 + NO -> NO2 + RO; r(dt) = 149.18 ppb
old [O3] aloft
0.00 ppb
O3 + NO -> NO2 + O2; r(dt) = 0.00 ppb
+H2O
11.33 ppb
NO2 from Other Paths
0 ppb
NO -> NO2
148.8 ppb
new [NO2]
10.90 ppb
12.11 ppb
+org/HO2
new [NO]
26.90 ppb
[NO] reacted
151.16 ppb
Propagation and Termination
[NO2] reacted = 26.68 ppbV
[NO2] + hu
133.37 ppb
[O3] produced
121.26 ppb
[NO] recreated
124.26 ppb
[NO] fm new NO2
9.10 ppb
[NO] from new NO
17.79 ppb
[NO] from new NO2
9.10 ppb
[NO] bal
0.22 ppb
5.62 NO cycles
109.92
[O3] u trans
110.90 ppb
[O3] lift
30.83 ppb
old O3 + NO
0.00 ppb
[O3] l trans
157.28 ppb
[O3] depo
1.00 ppb
[O3] final
99.34 ppb

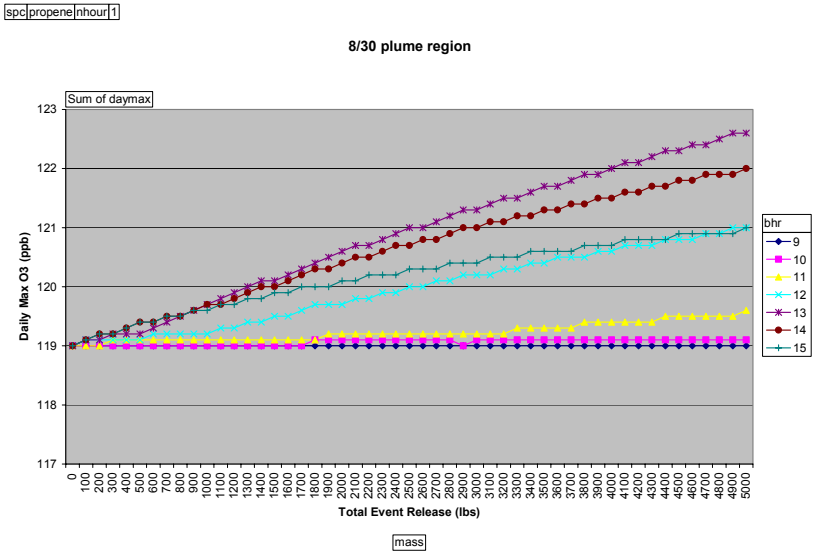

830plume.box.4km.cycles
Radical Cycle/ NO Cycle/ Ozone
3.238 OH cycles
22.55 ppb
new [OH]
33.61 ppb
[OH] reacted
108.82 ppb
Propagation and Termination
[VOC] reacted = 100.48 ppbV
[OH] recreated
75.21 ppb
aldehydes + HO
11.06 ppb
(NO -> NO2) / VOC= 1.4359
RO2 + NO -> NO2 + RO; r(dt) = 144.29 ppb
old [O3] aloft
0.00 ppb
O3 + NO -> NO2 + O2; r(dt) = 0.00 ppb
+H2O
11.27 ppb
NO2 from Other Paths
0 ppb
NO -> NO2
144.58 ppb
new [NO2]
9.60 ppb
12.20 ppb
+org/HO2
new [NO]
28.26 ppb
[NO] reacted
147.00 ppb
Propagation and Termination
[NO2] reacted = 27.30 ppbV
[NO2] + hu
126.62 ppb
[O3] produced
114.42 ppb
[NO] recreated
118.74 ppb
[NO] fm new NO2
7.88 ppb
[NO] from new NO
20.38 ppb
[NO] from new NO2
7.88 ppb
[NO] bal
0.24 ppb
5.201 NO cycles
103.14
[O3] u trans
119.46 ppb
[O3] lift
31.85 ppb
old O3 + NO
0.00 ppb
[O3] l trans
152.6 ppb
[O3] depo
1.02 ppb
[O3] final
105.43 ppb

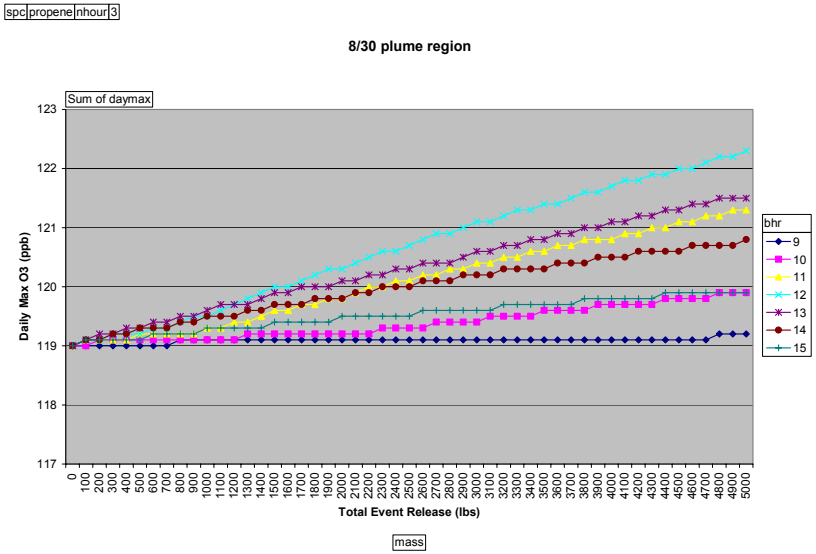


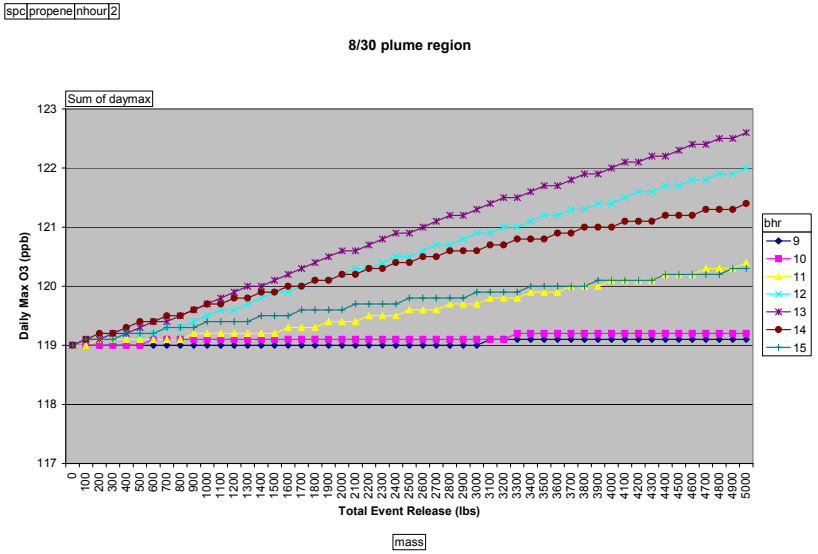




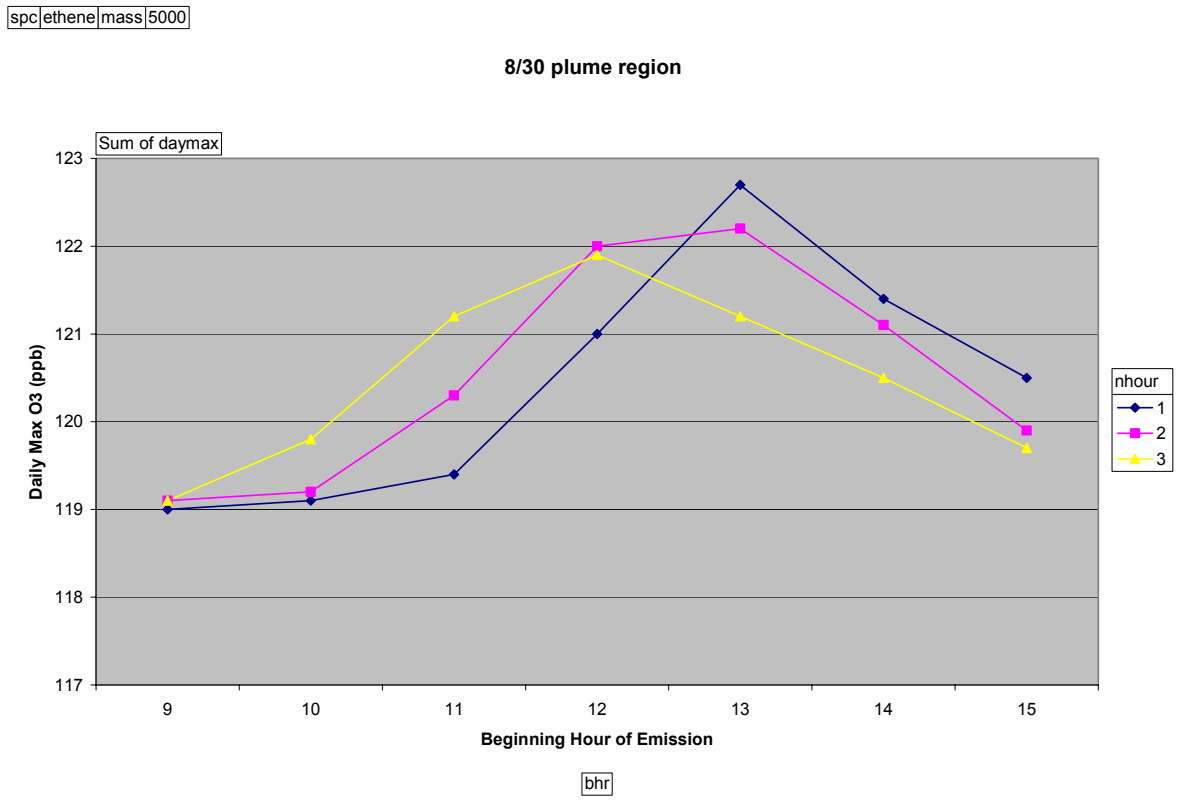
Sensitivity of Daily Max Ozone to the Ethene emission magnitude in “Plume region” of Deer Park, Aug. 30, 4km resolution (GOES1 Met): Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)



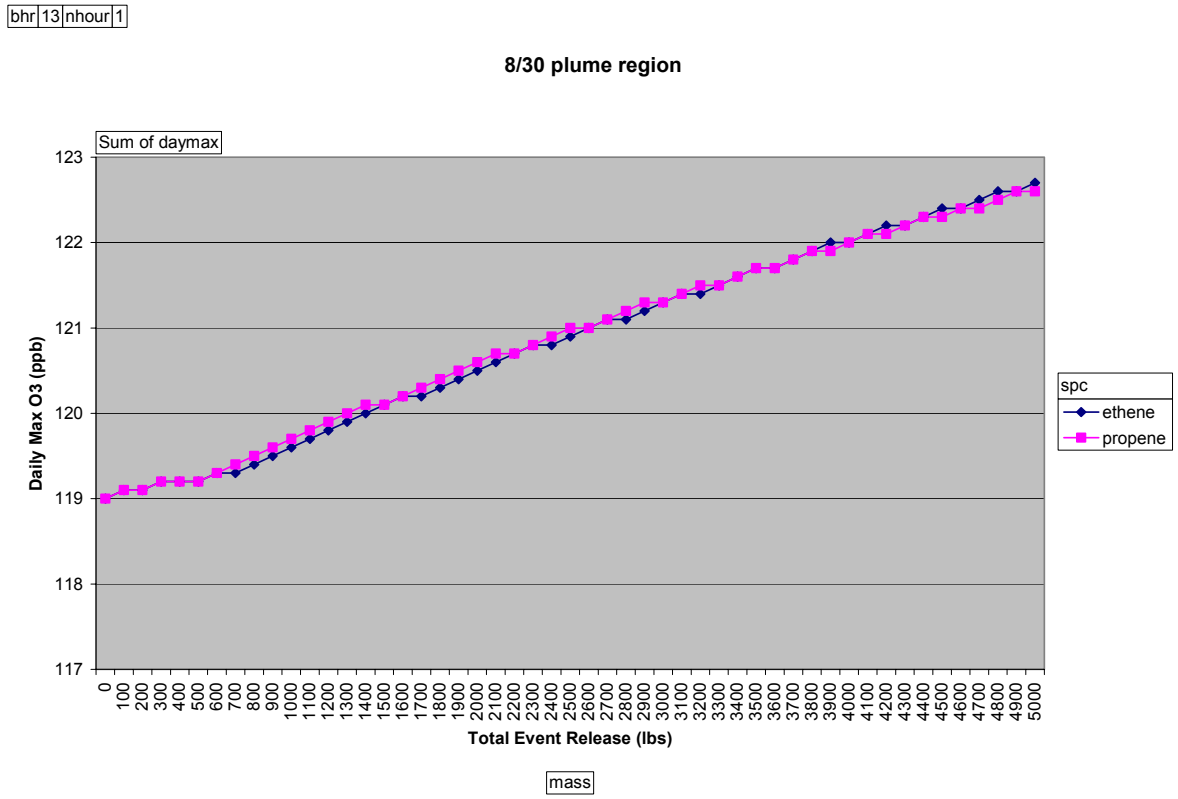




Sensitivity of Daily Max Ozone to the Propene emission magnitude in "Plume region" of Deer Park, Aug. 30, 4km resolution (GOES1 Met): Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)



Sensitivity of Daily Max Ozone to the Ethene emission timing (beginning of emission) in "Plume region" of Deer Park, Aug. 30, 4km resolution (GOES1 Met): All emissions are 5000 lbs. Legend shows the number of hours of emission event

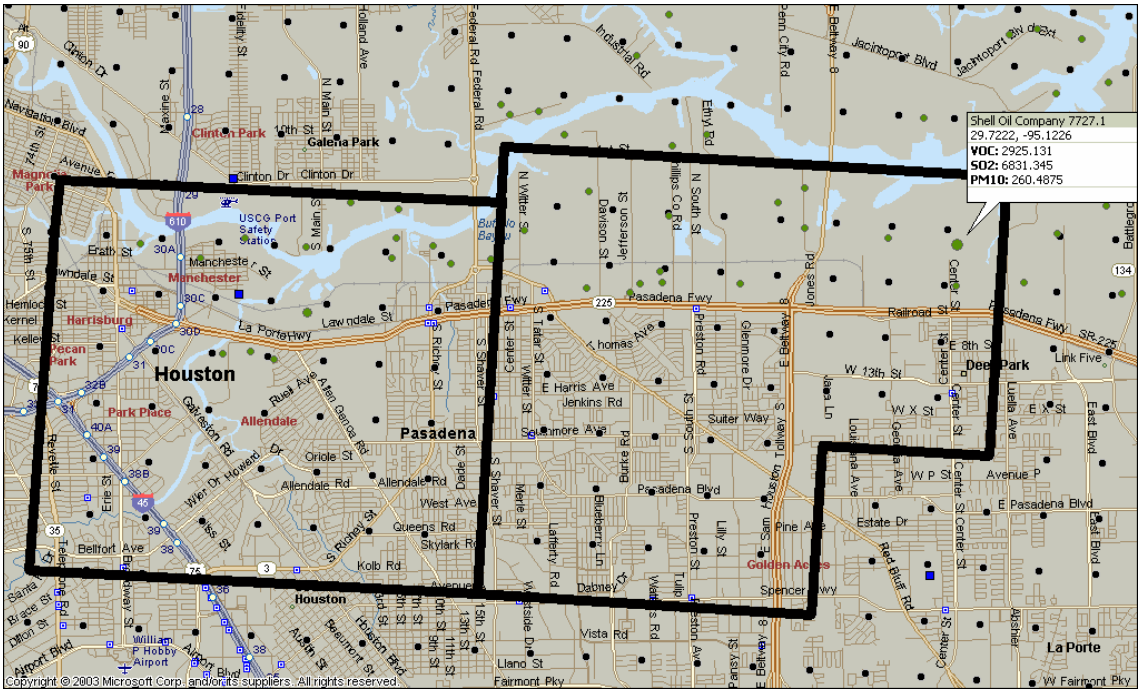


Sensitivity of Daily Max Ozone to the emission species (Ethene and Propene) in "Plume region" of Deer Park, Aug. 30, 4km resolution (GOES1 Met): All emissions are between 13:00 to 14:00. Legend shows the number of hours of emission event

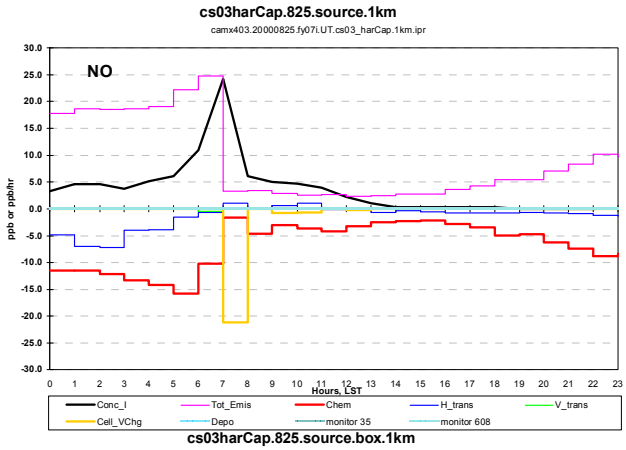
Results for fy07i.cs03_harCap.goes1 (1km resolution)

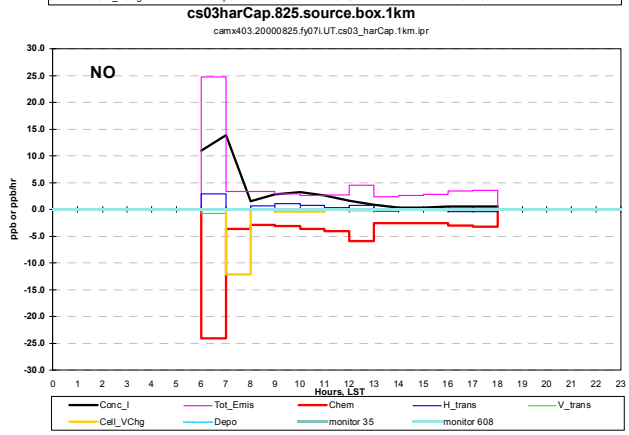
8/25 Deer Park (fy07i.cs03_harCap.1km.goes1)
8/28 Baytown (fy07i.cs03_harCap.1km.goes1)
8/30 Deer Park (fy07i.cs03_harCap.1km.goes1)

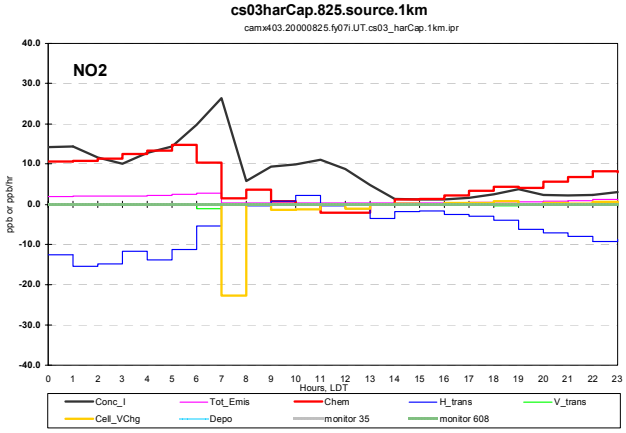
August 25 - Future Year 2007 (fyo7i.cs03_harCap.1km goes1)

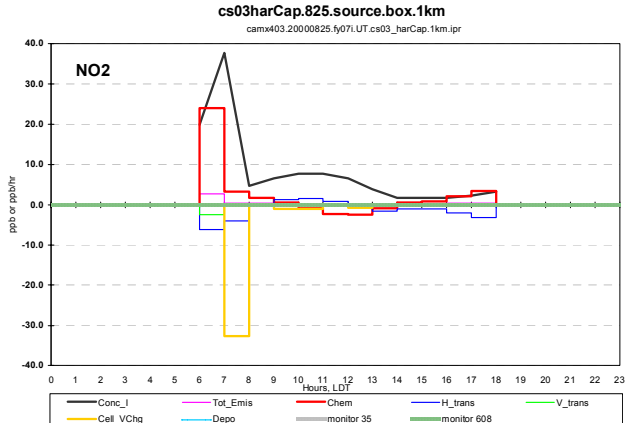


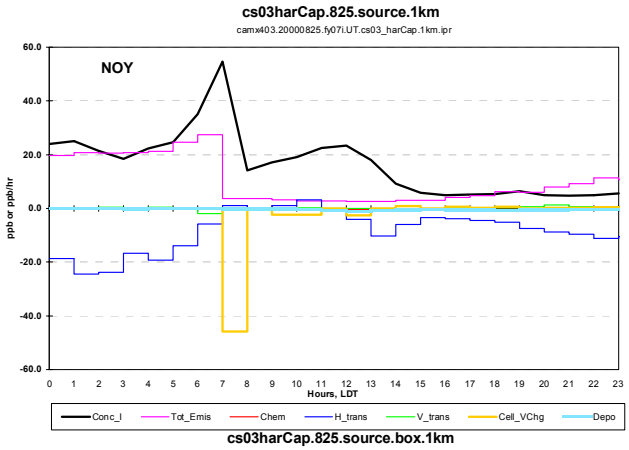
8_25_00 Process Analysis Box outlined in black. Black Dots represent lower left hand corner of 1 km grid cells

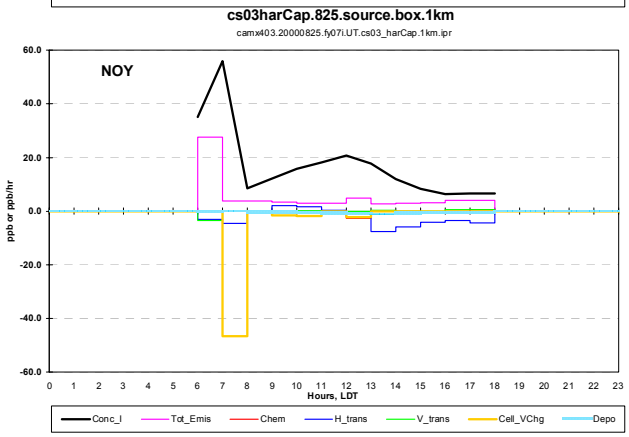

cs03harCap.825.source.1km
camx403.20000825.fy07i.UT.cs03_harCap.1km.ipr
NO
ppb or ppb/hr
Hours, LST
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608

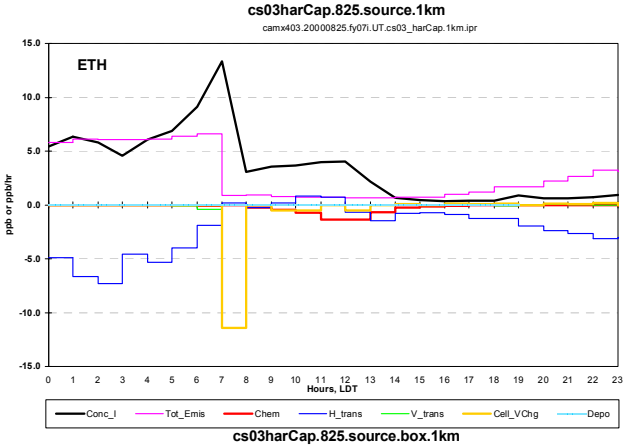

cs03harCap.825.source.box.1km
camx403.20000825.fy07i.UT.cs03_harCap.1km.ipr
NO
ppb or ppb/hr
Hours, LST
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608

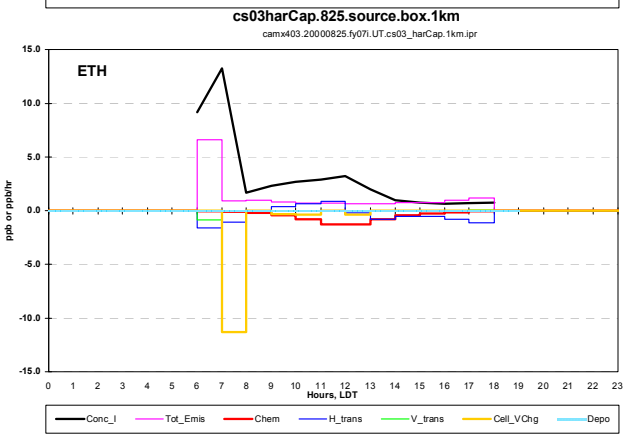

cs03harCap.825.source.1km
camx403.20000825.fy07i.UT.cs03_harCap.1km.ipr
NO2
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608


cs03harCap.825.source.box.1km
camx403.20000825.fy07i.UT.cs03_harCap.1km.ipr
NO2
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608


cs03harCap.825.source.1km
camx403.20000825.fy07i.UT.cs03_harCap.1km.ipr
NOY
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo


cs03harCap.825.source.box.1km
camx403.20000825.fy07i.UT.cs03_harCap.1km.ipr
NOY
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo


cs03harCap.825.source.1km
camx403.20000825.fy07i.UT.cs03_harCap.1km.ipr
ETH
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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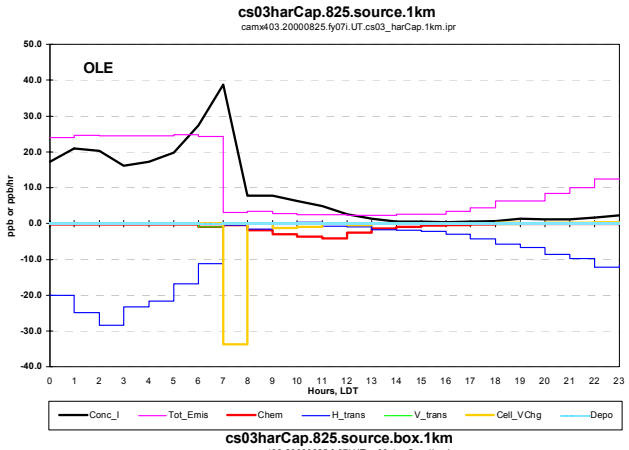
ETH
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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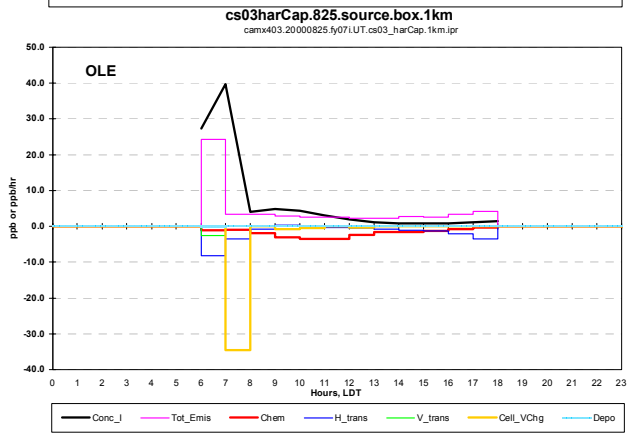
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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OLE
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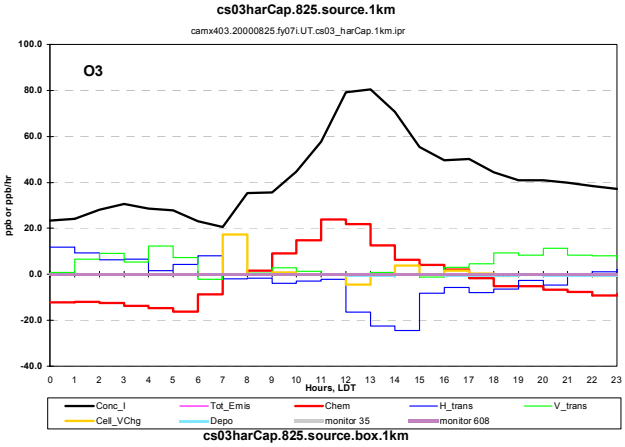
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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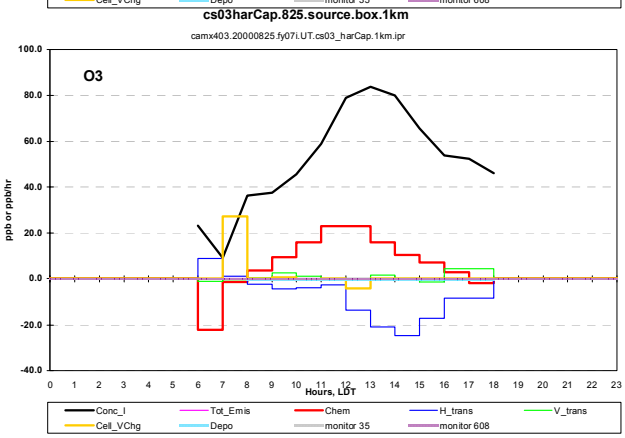
O3
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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O3
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608

camx403.20000825.fy07i.UT.cs03_harCap.1km.ipr
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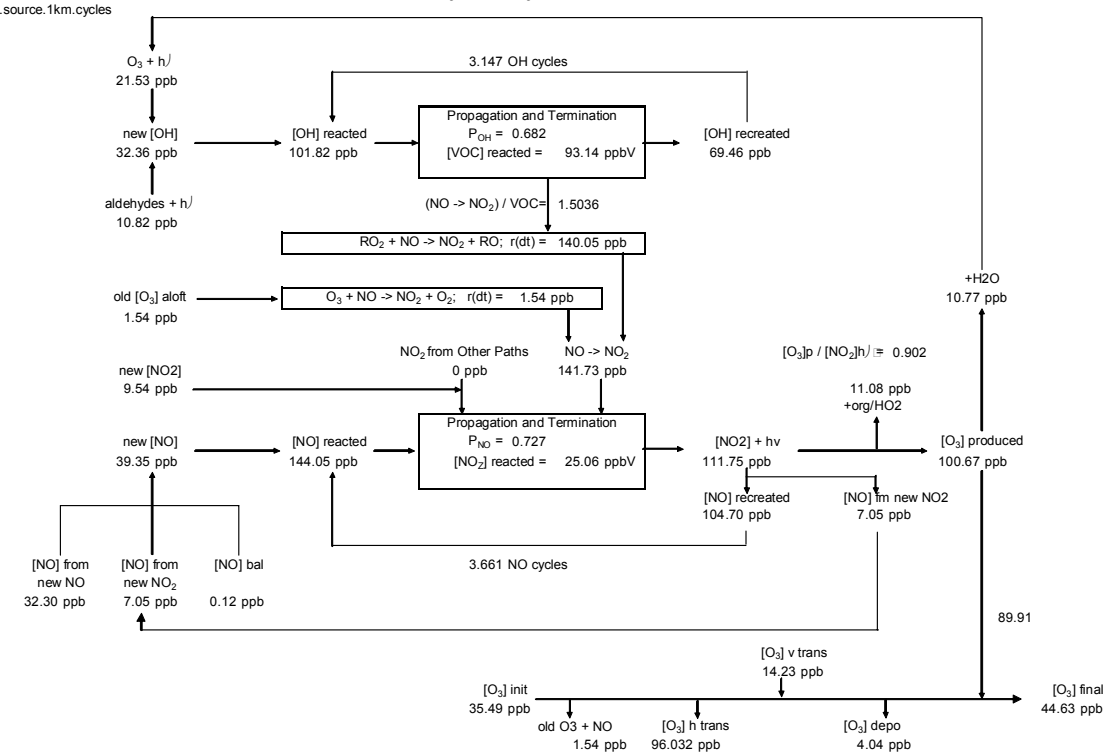
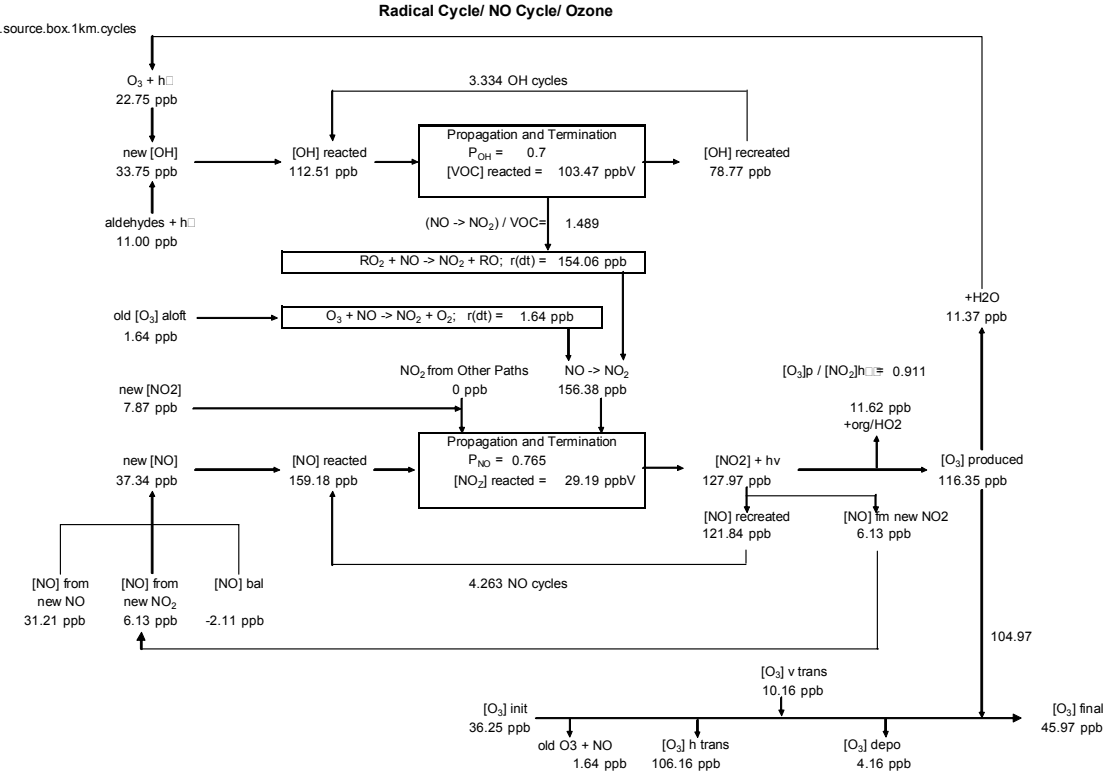
825.source.1km.cycles

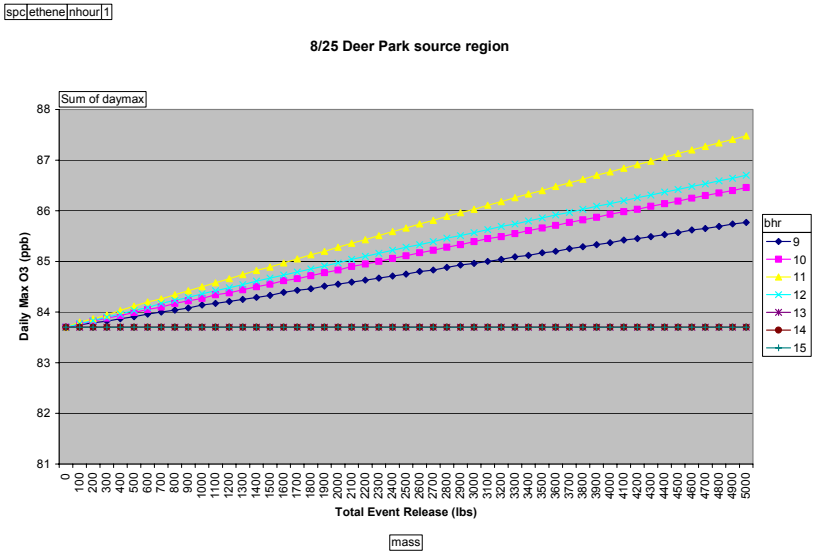
Radical Cycle/ NO Cycle/ Ozone

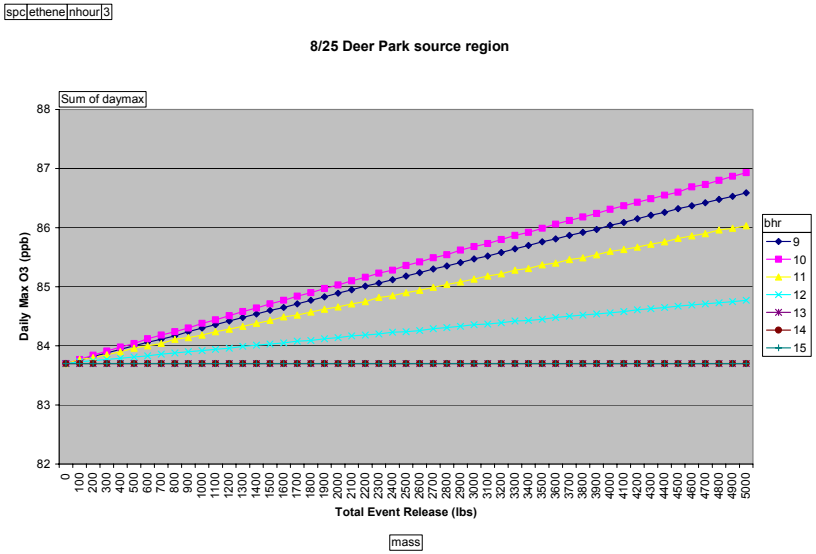


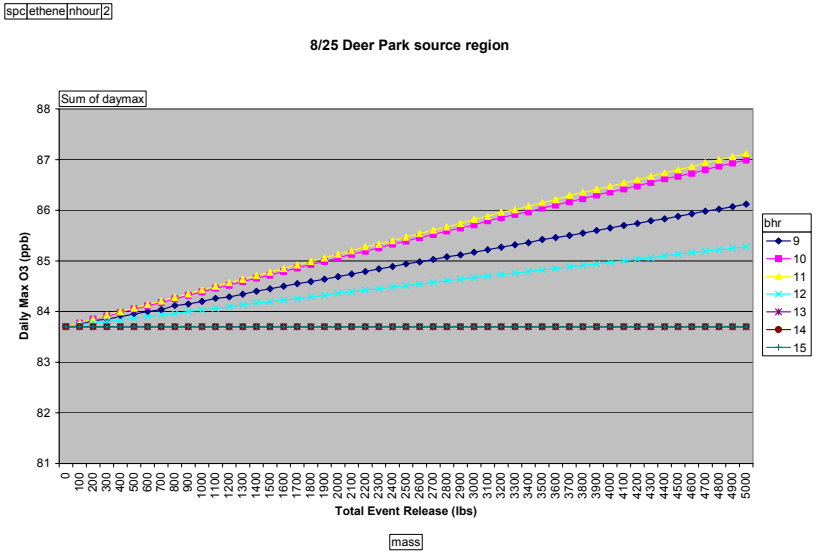
825.source.box.1km.cycles

Radical Cycle/ NO Cycle/ Ozone

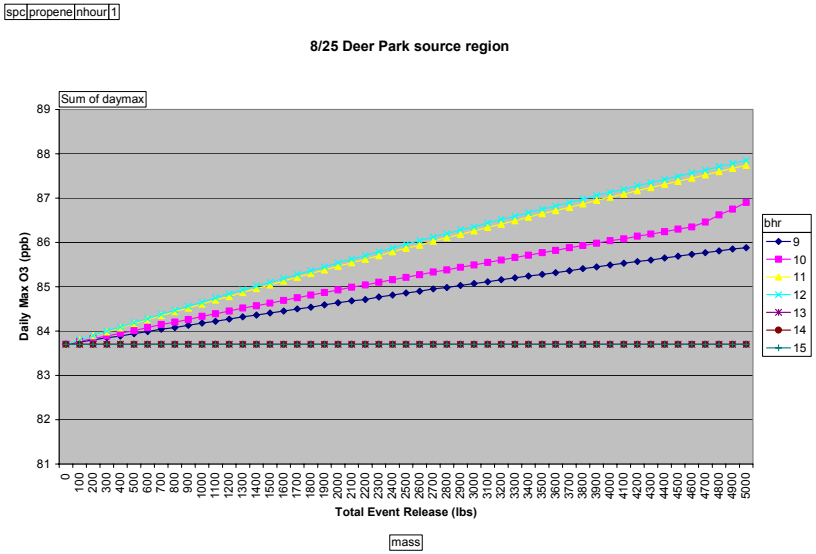


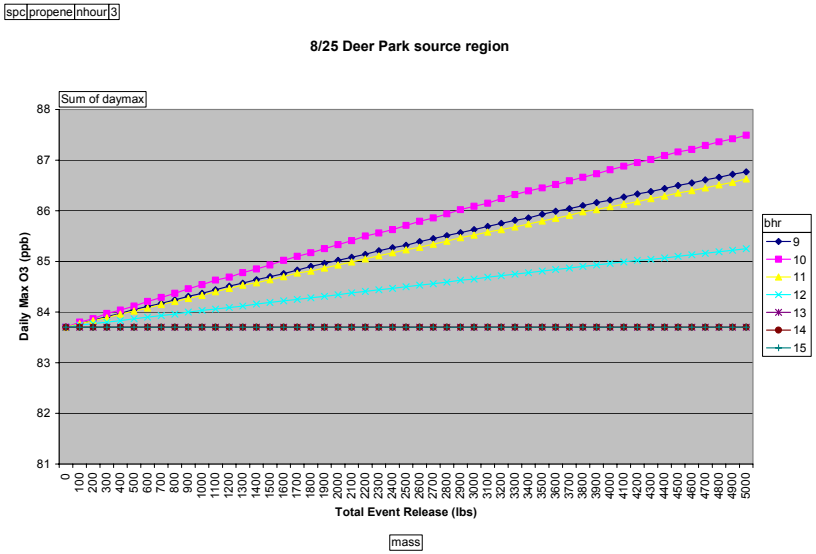


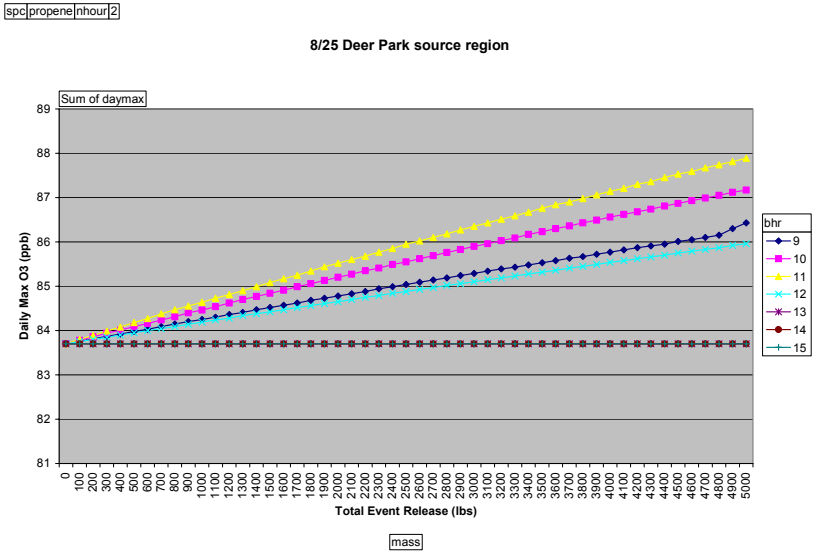




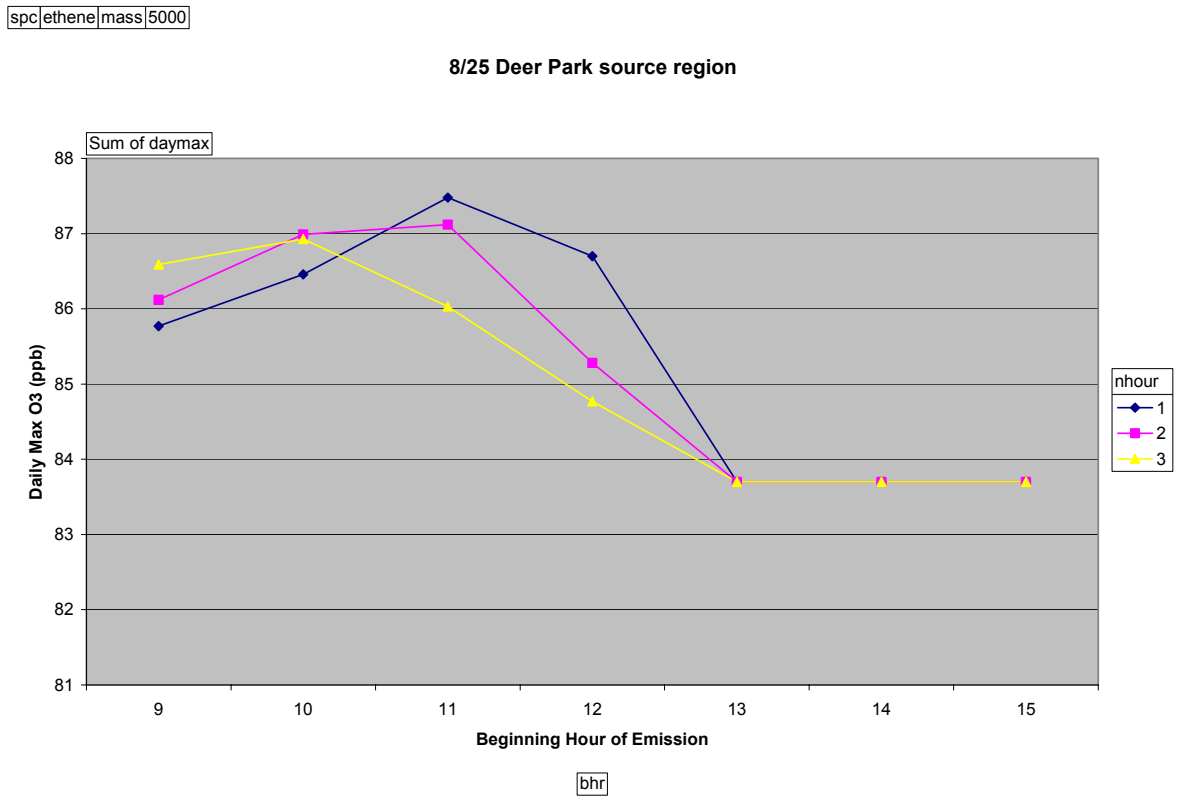
Sensitivity of Daily Max Ozone to the Ethene emission magnitude in "Source region" of Deer Park, Aug. 25, 1km resolution (GOES1 Met): Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)



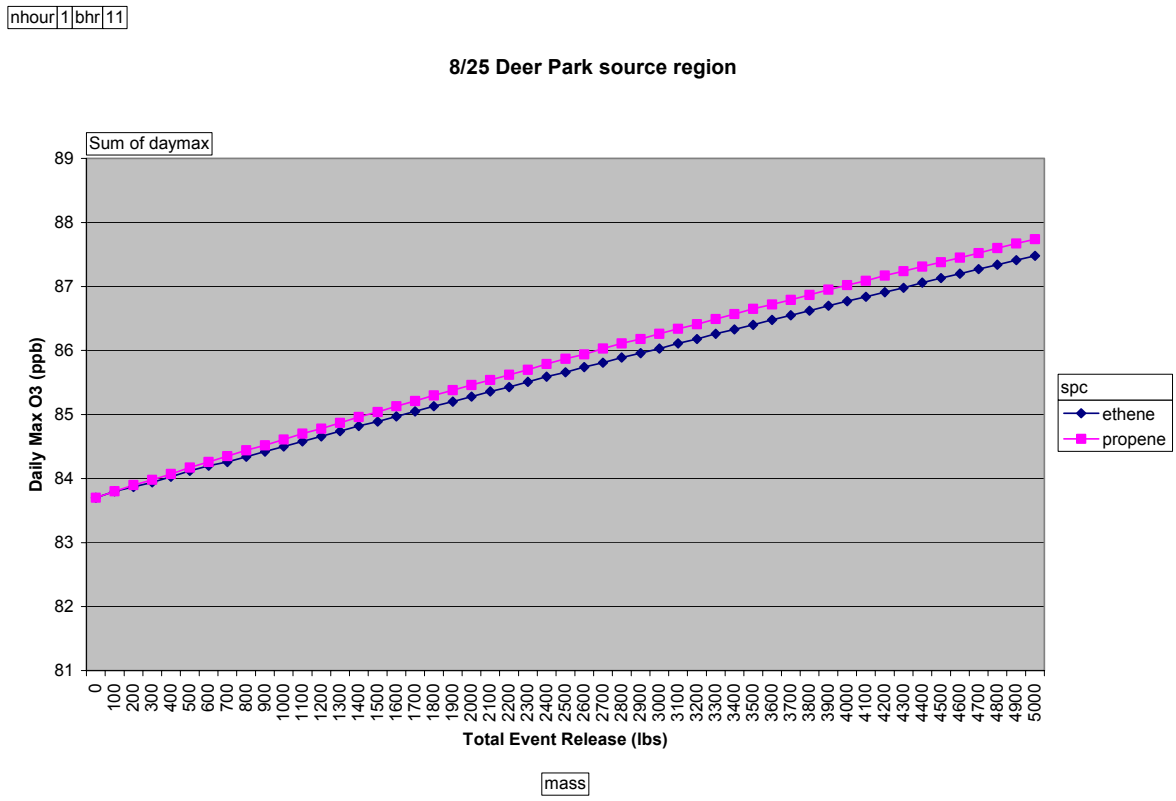




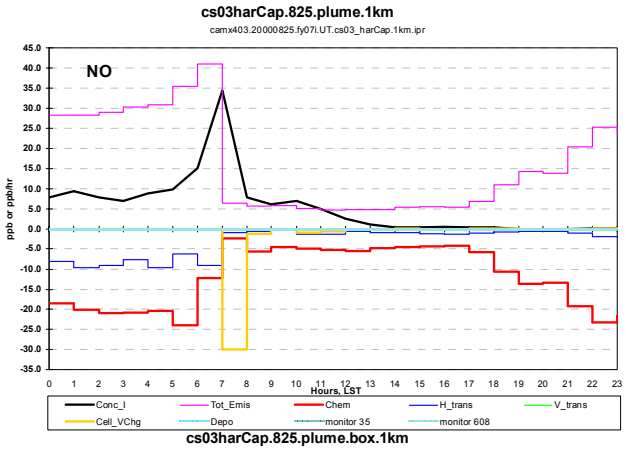
Sensitivity of Daily Max Ozone to the Propene emission magnitude in "Source region" of Deer Park, Aug. 25, 1km resolution (GOES1 Met): Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)



Sensitivity of Daily Max Ozone to the Ethene emission timing (beginning of emission) in "Source region" of Deer Park, Aug. 25, 1km resolution (GOES1 Met): All emissions are 5000 lbs. Legend shows the number of hours of emission event



Sensitivity of Daily Max Ozone to the emission species (Ethene and Propene) in "Source region" of Deer Park, Aug. 25, 1km resolution (GOES1 Met): All emissions are between 11:00 to 12:00. Legend shows the number of hours of emission event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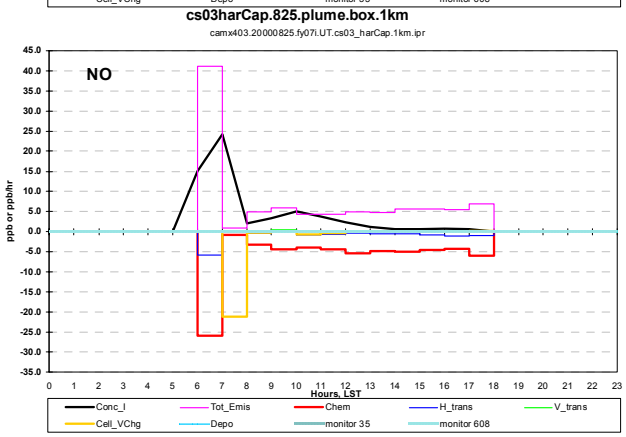
NO
ppb or ppb/hr
Hours, LST
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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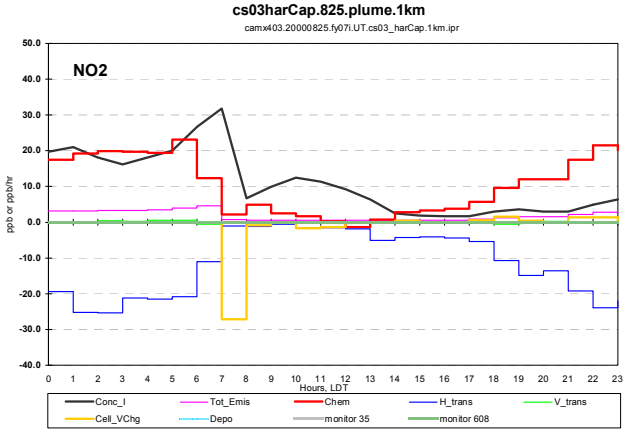
NO
ppb or ppb/hr
Hours, LST
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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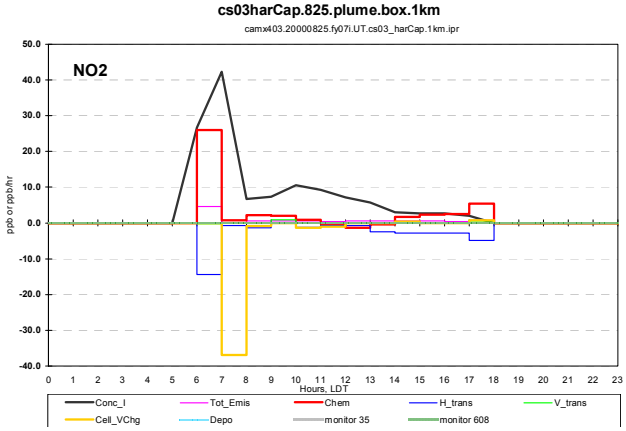
NO2
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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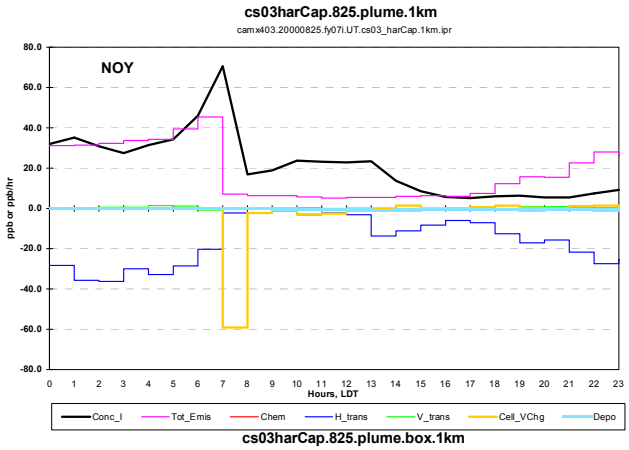
NO2
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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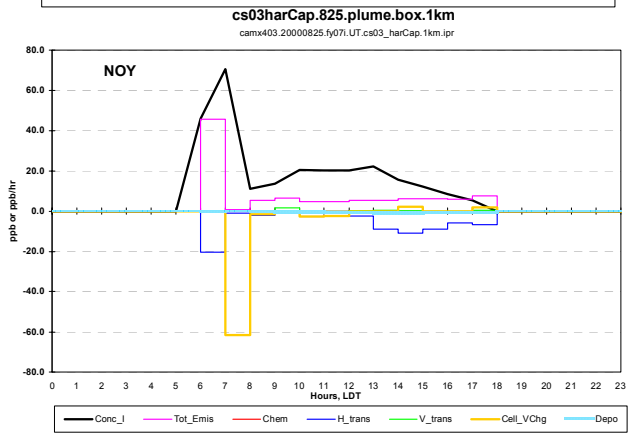
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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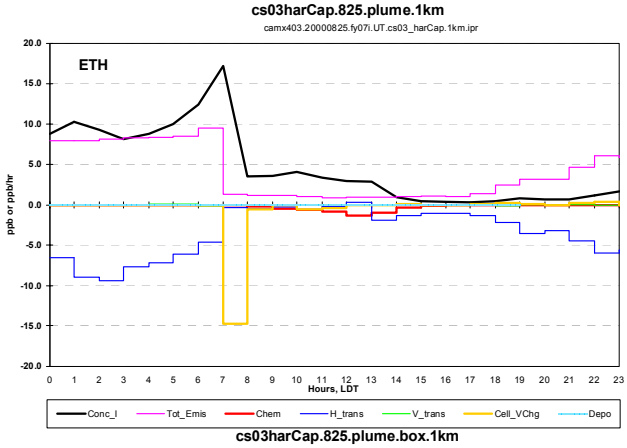
NOY
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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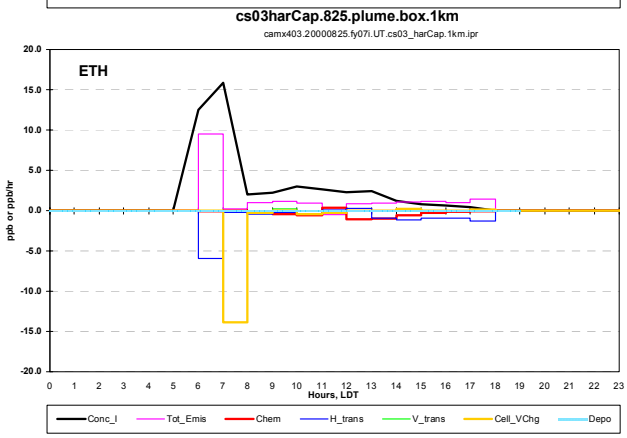
ETH
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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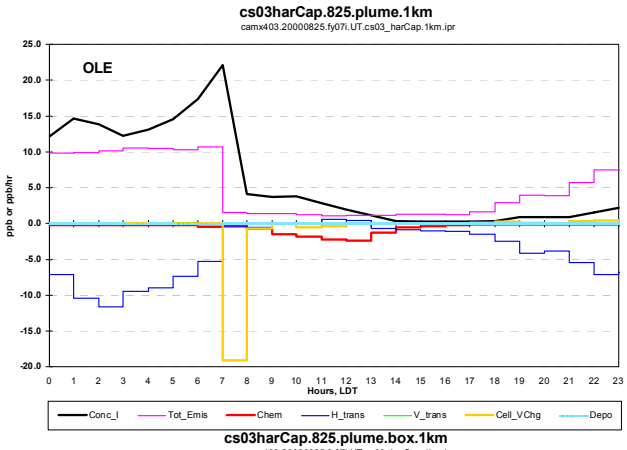
ETH
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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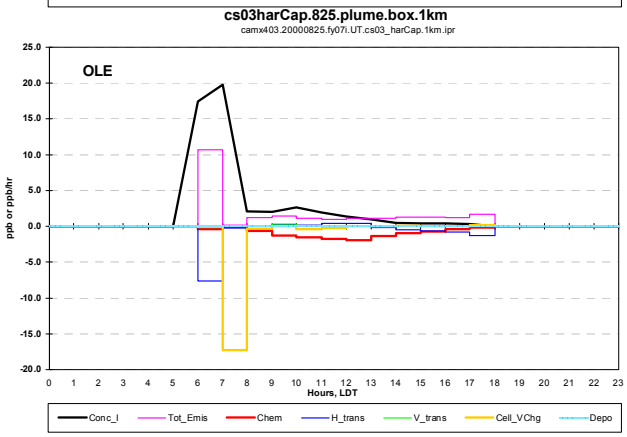
OLE
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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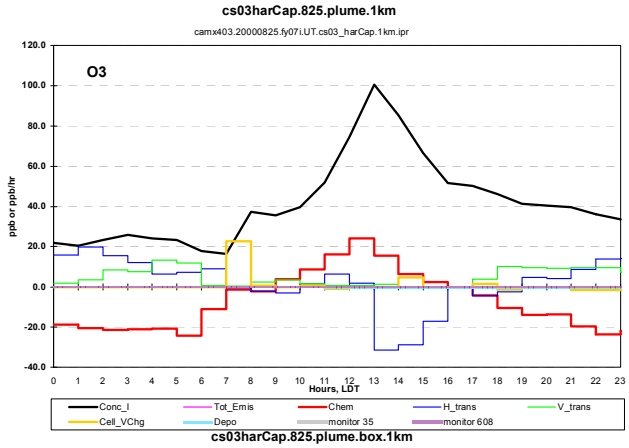
OLE
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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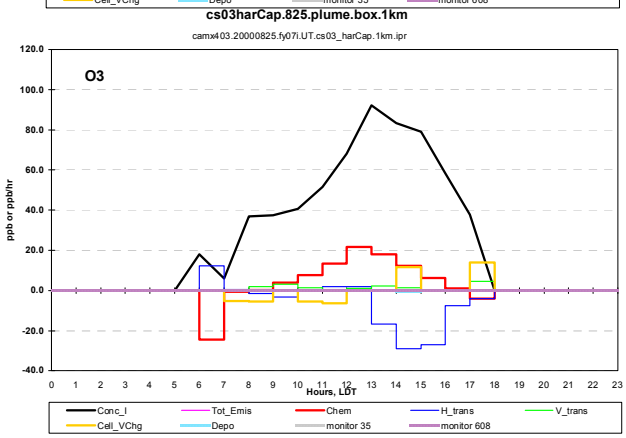
O3
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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O3
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608

camx403.20000825.fy07i.UT.cs03_harCap.1km.ipr
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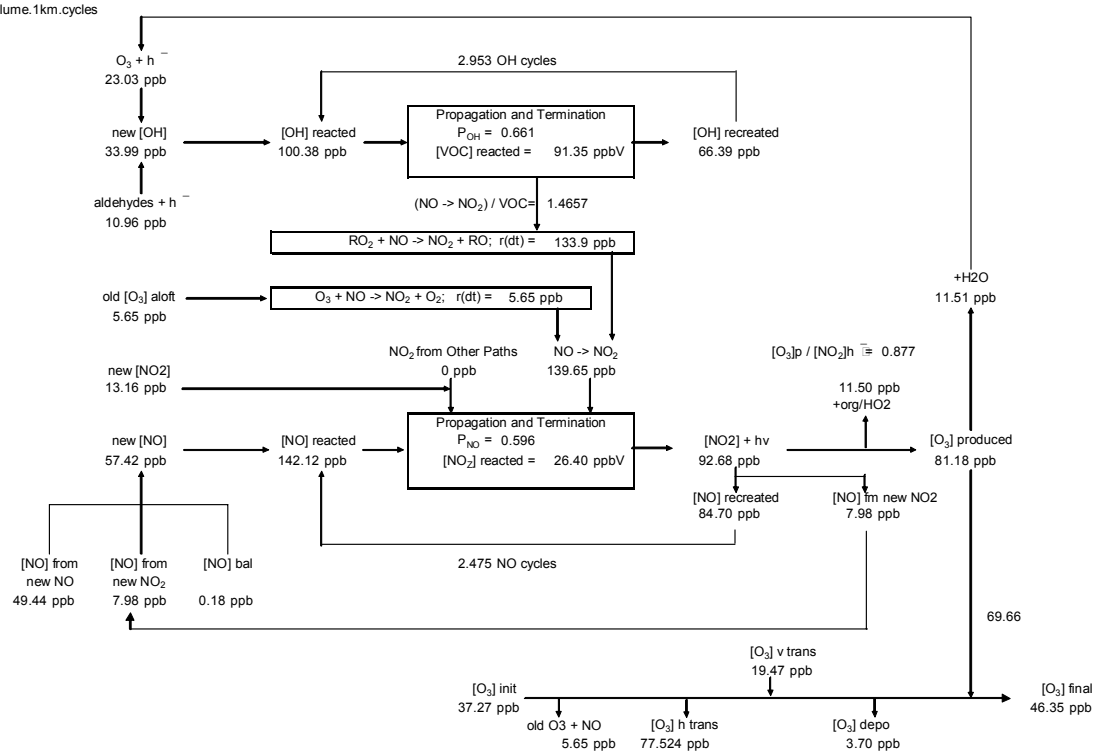
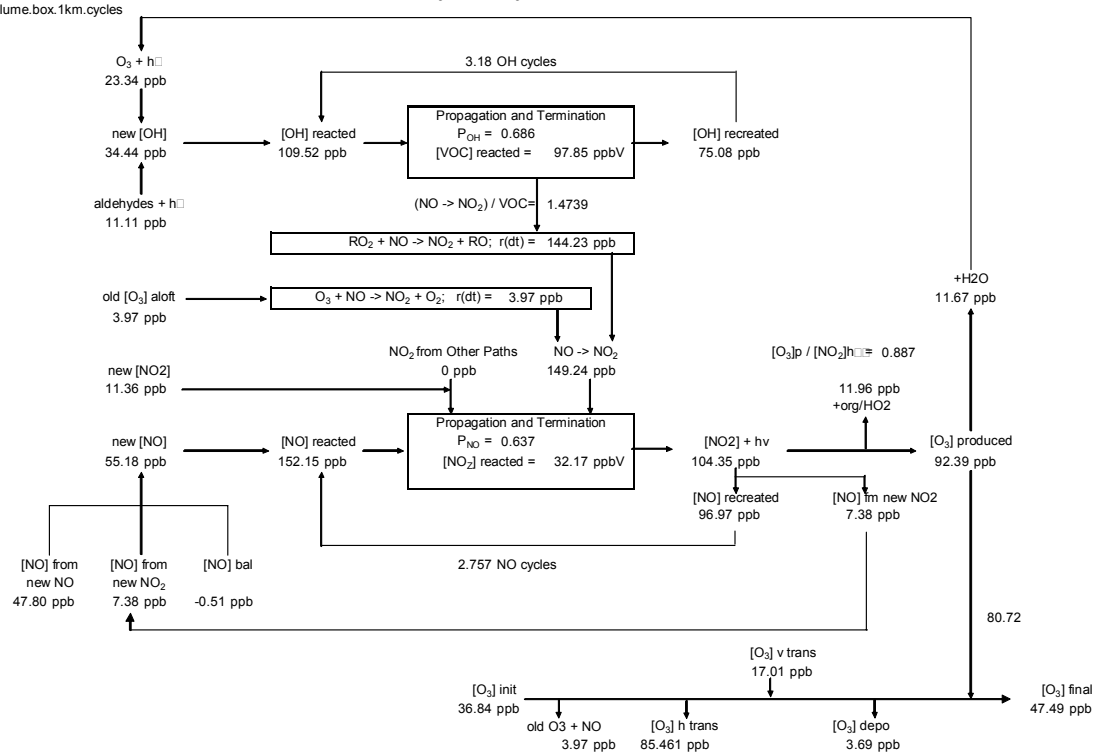
825.plume.1km.cycles

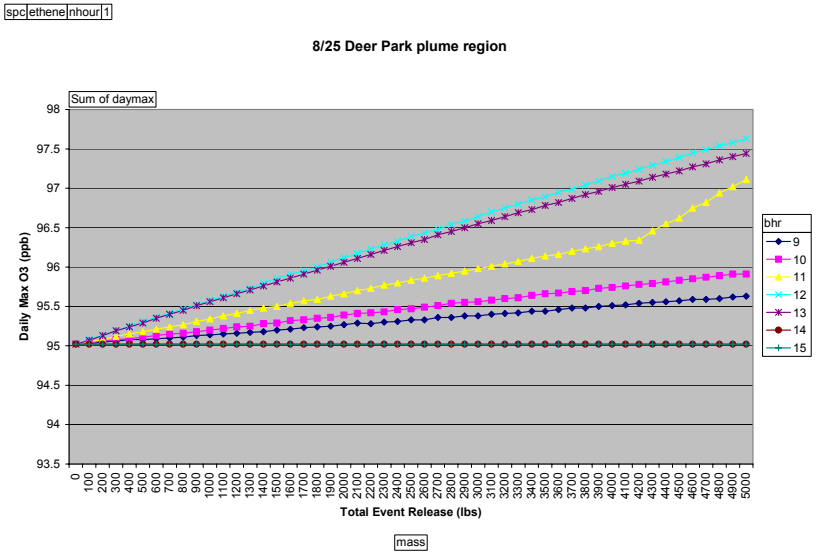
Radical Cycle/ NO Cycle/ Ozone

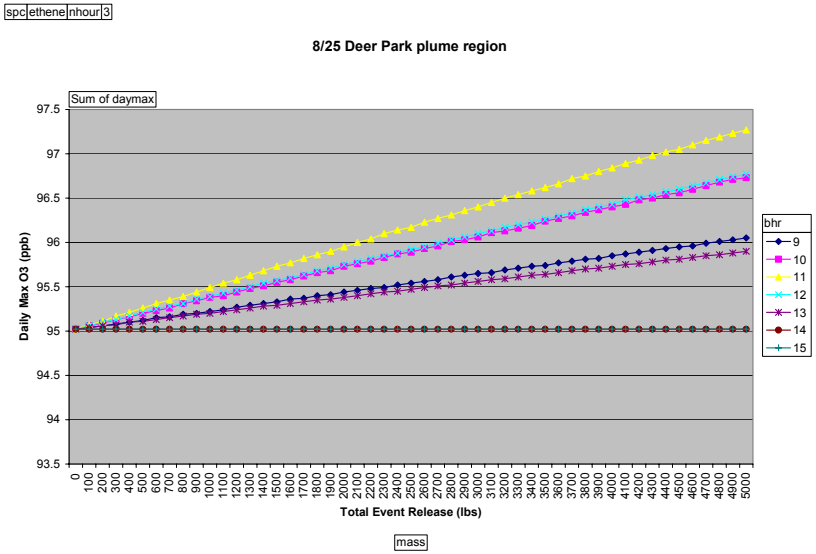


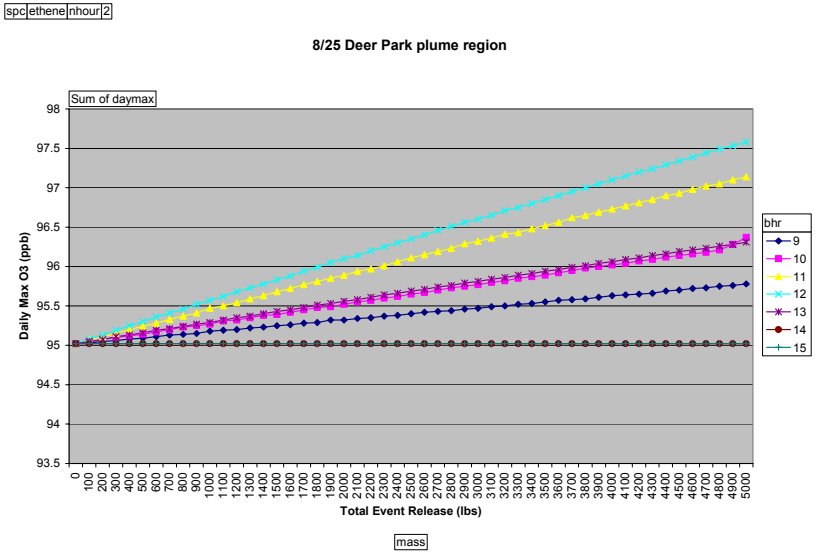
825.plume.box.1km.cycles

Radical Cycle/ NO Cycle/ Ozone

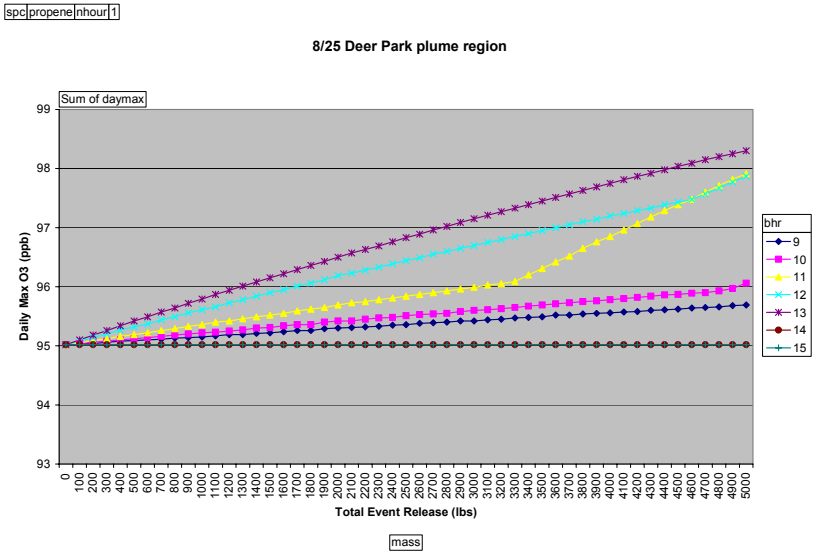


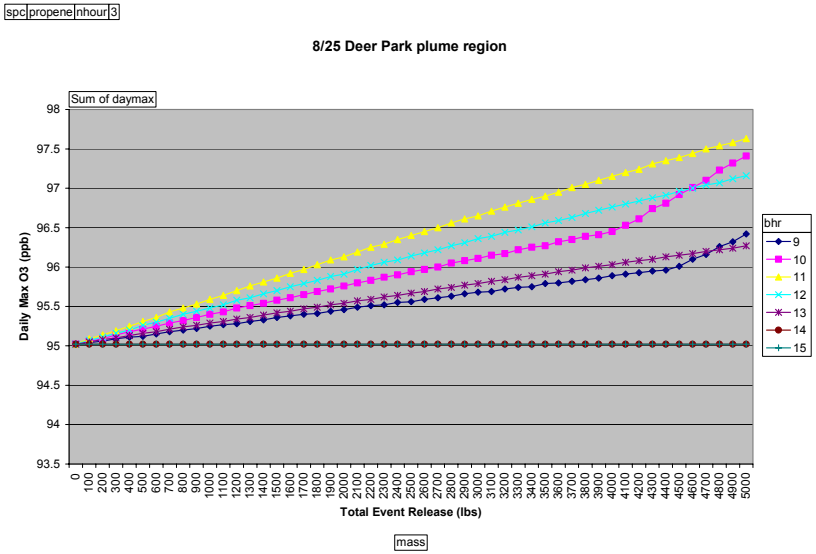


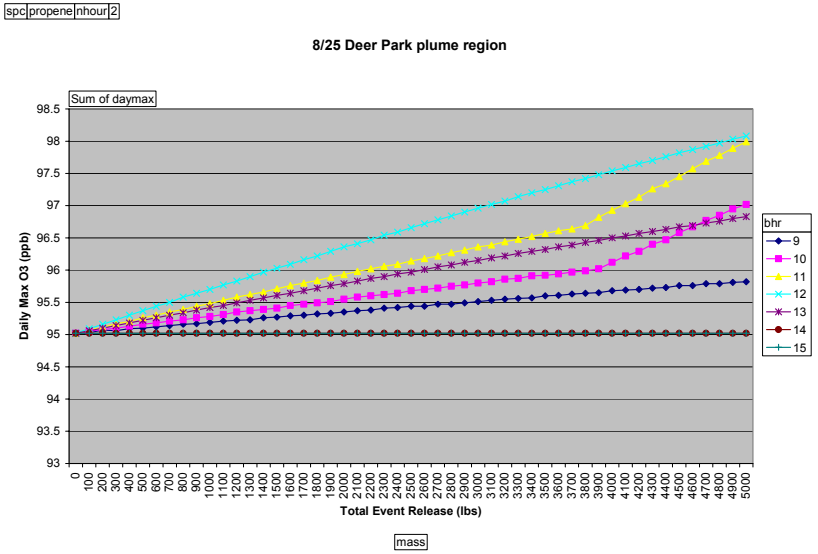




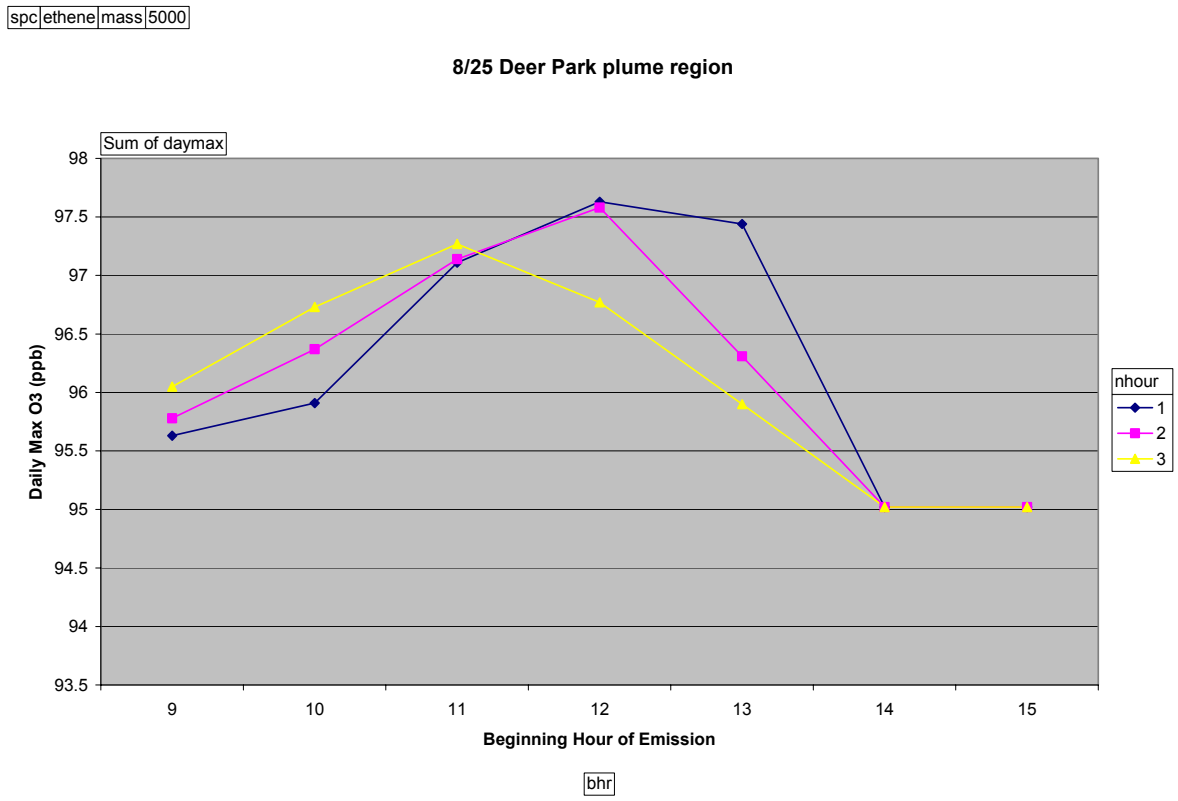
Sensitivity of Daily Max Ozone to the Ethene emission magnitude in “Plume region” of Deer Park, Aug. 25, 1km resolution (GOES1 Met): Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)



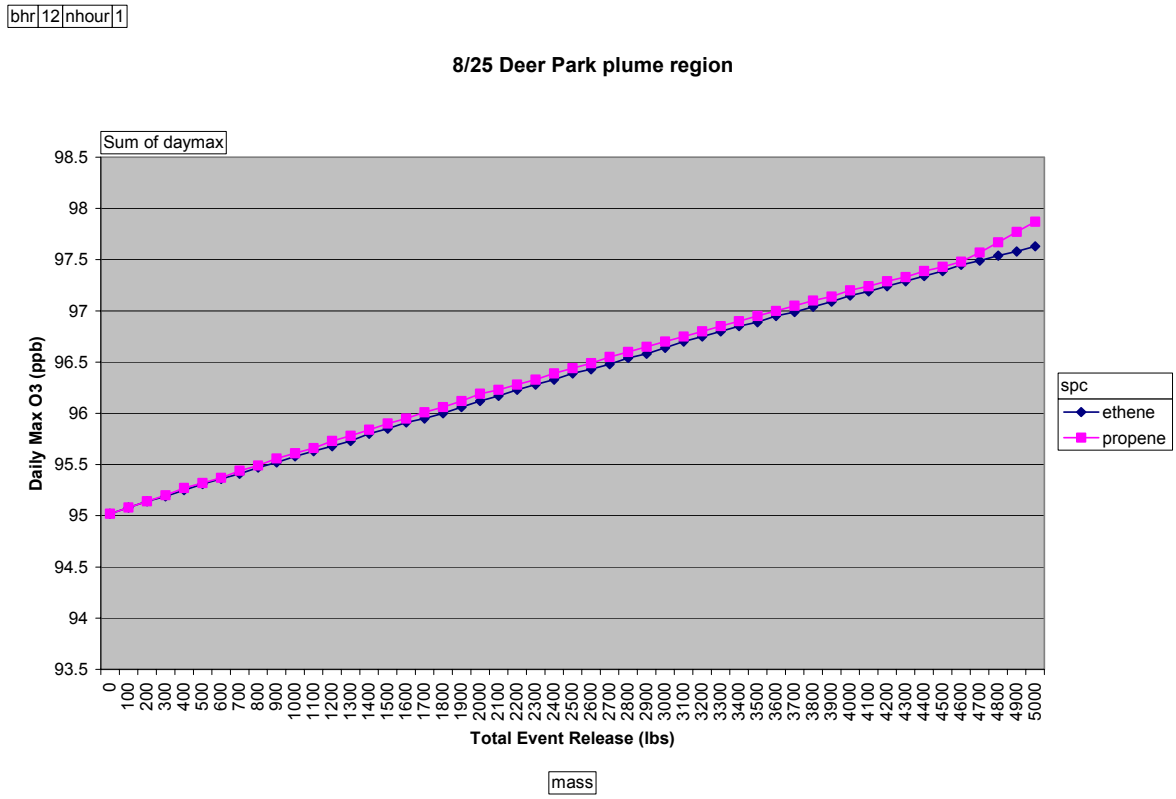




Sensitivity of Daily Max Ozone to the Propene emission magnitude in "Plume region" of Deer Park, Aug. 25, 1km resolution (GOES1 Met): Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)

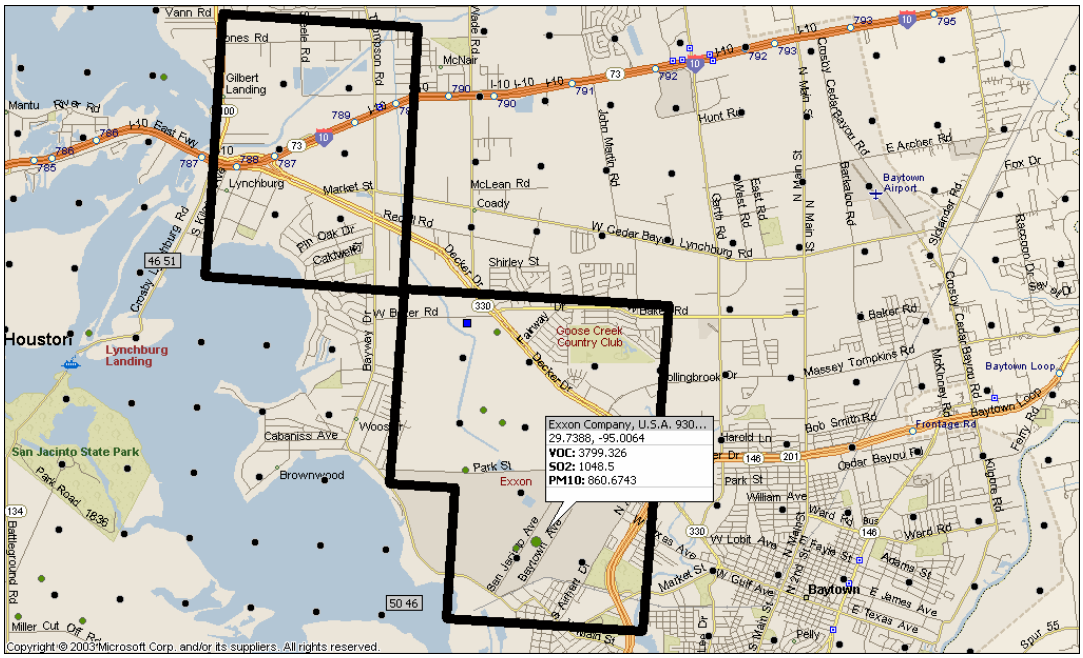


Sensitivity of Daily Max Ozone to the Ethene emission timing (beginning of emission) in "Plume region" of Deer Park, Aug. 25, 1km resolution (GOES1 Met): All emissions are 5000 lbs. Legend shows the number of hours of emission event

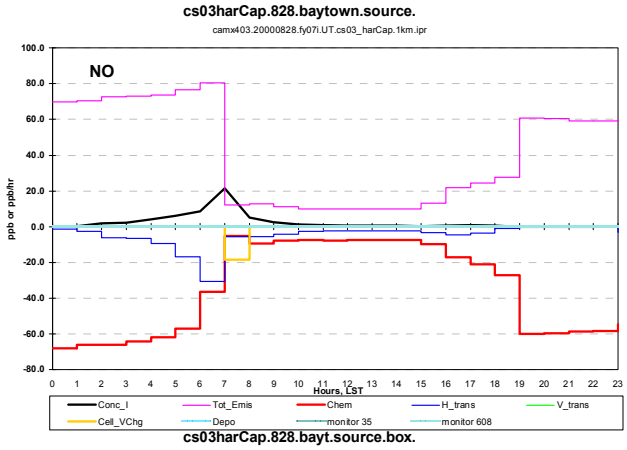


Sensitivity of Daily Max Ozone to the emission species (Ethene and Propene) in "Plume region" of Deer Park, Aug. 25, 1km resolution (GOES1 Met): All emissions are between 12:00 to 13:00. Legend shows the number of hours of emission event

August 28 - Future Year 2007 (fyo7i.cs03_harCap.1km goes 1)



8_28_00 Process Analysis Box outlined in black. Black Dots represent lower left hand corner of 1 km grid cells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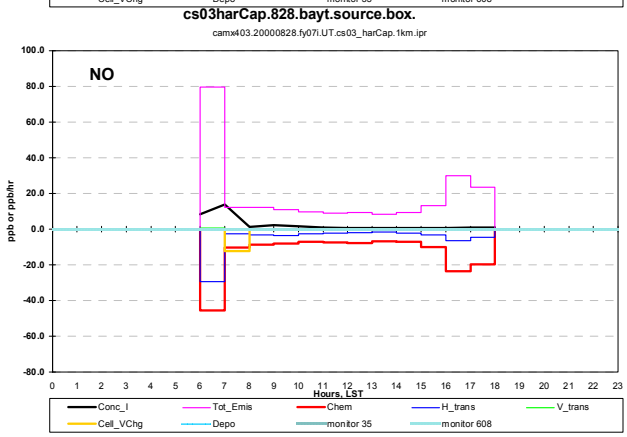
camx403.20000828.fy07i.UT.cs03_harCap.1km.ipr
NO
ppb or ppb/hr
Hours, LST
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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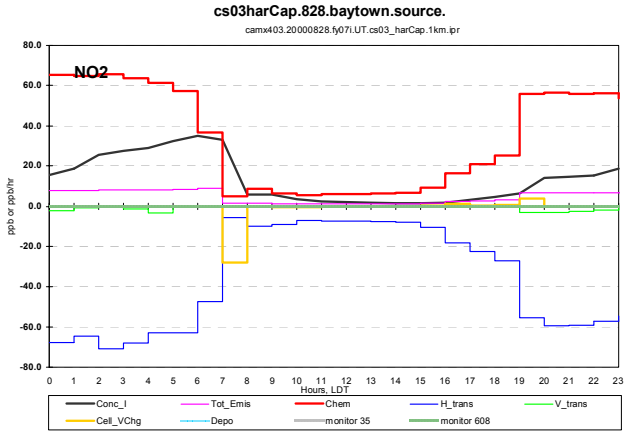
Hours, LST
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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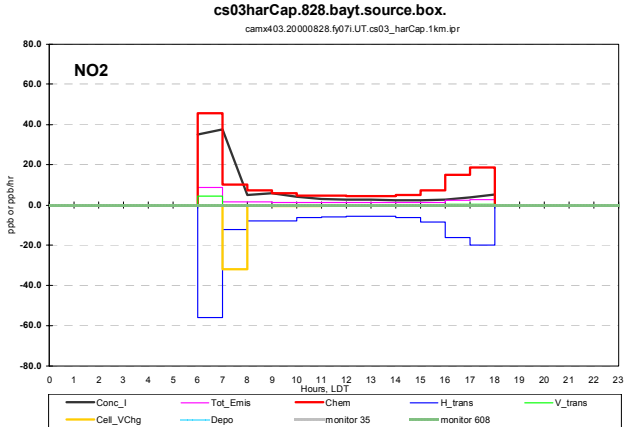
NO2
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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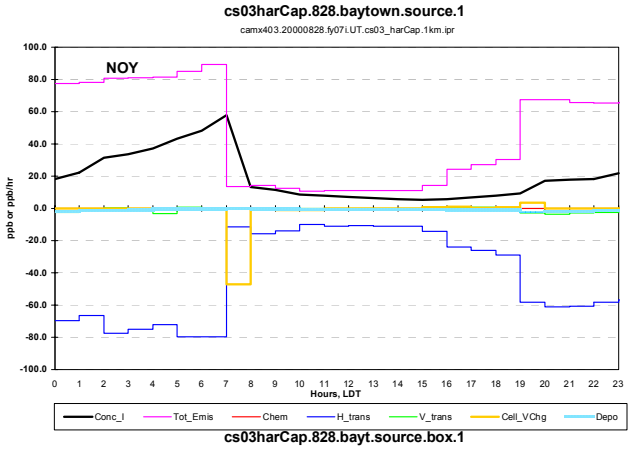
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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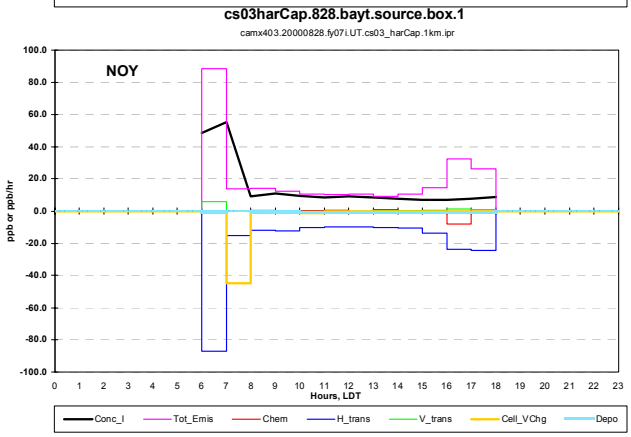
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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Conc_I
Tot_Emis
Chem
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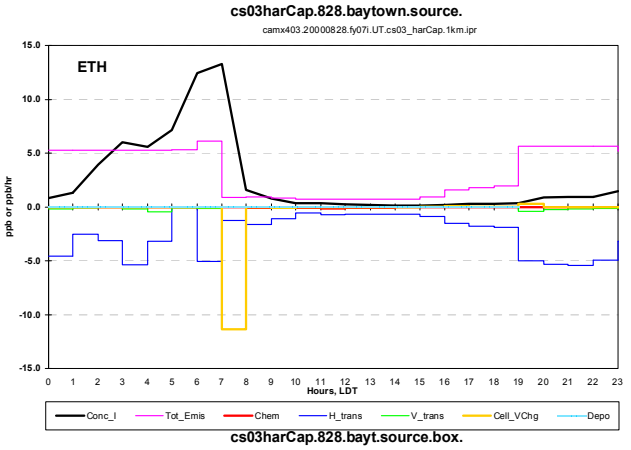
V_trans
Cell_VChg
Depo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Hours, LDT
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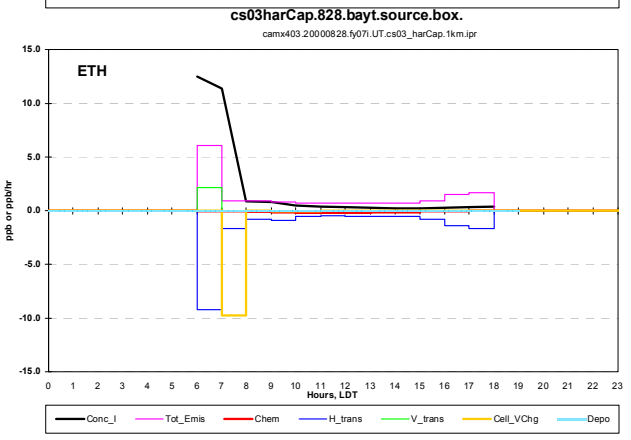
Chem
H_trans
V_trans
Cell_VChg
Depo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ETH
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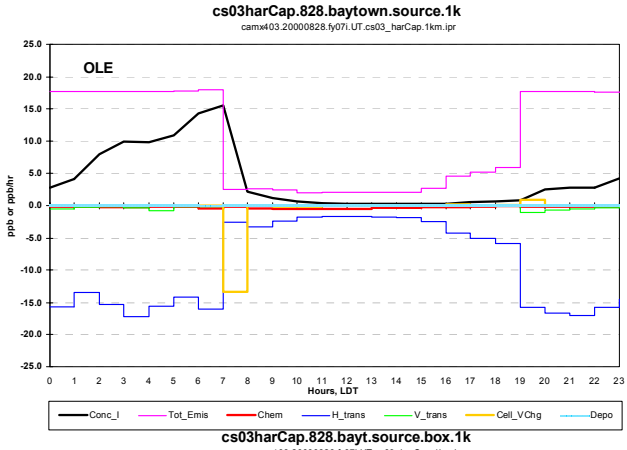
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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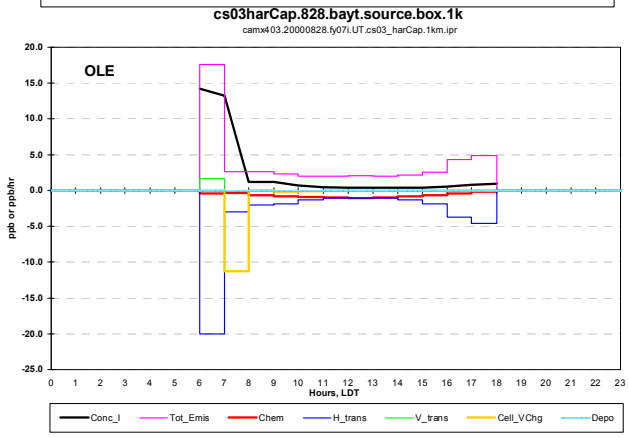
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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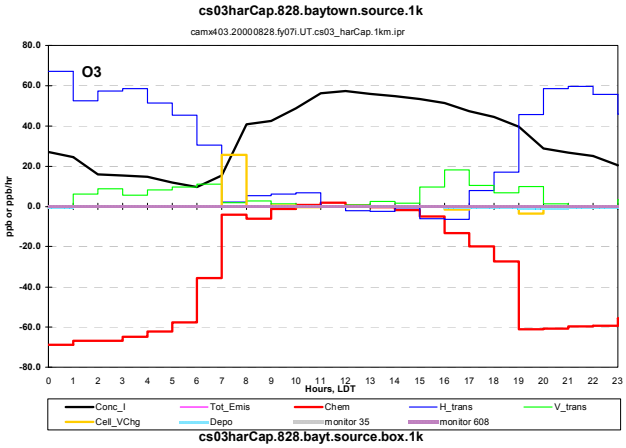
V_trans
Cell_VChg
Depo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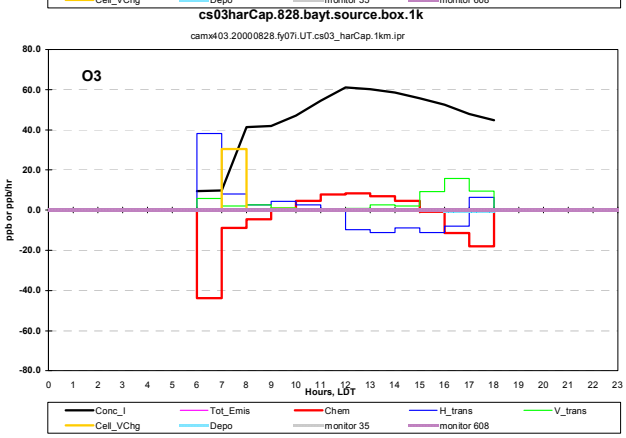
O3
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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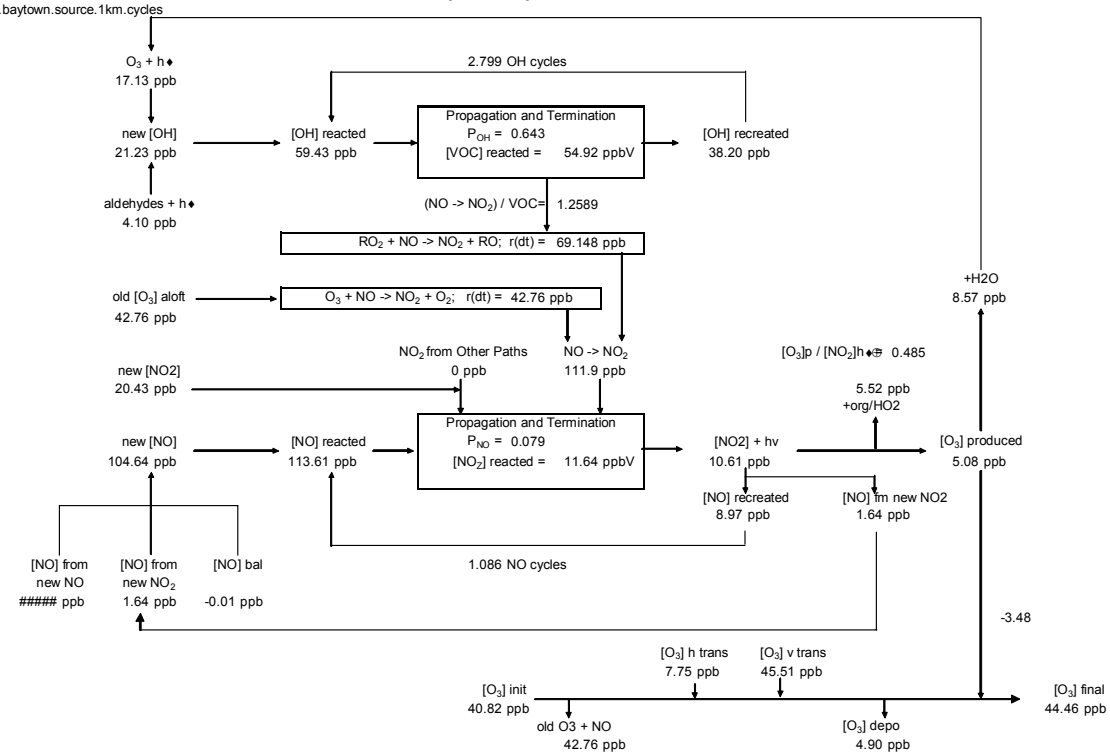
O3
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608

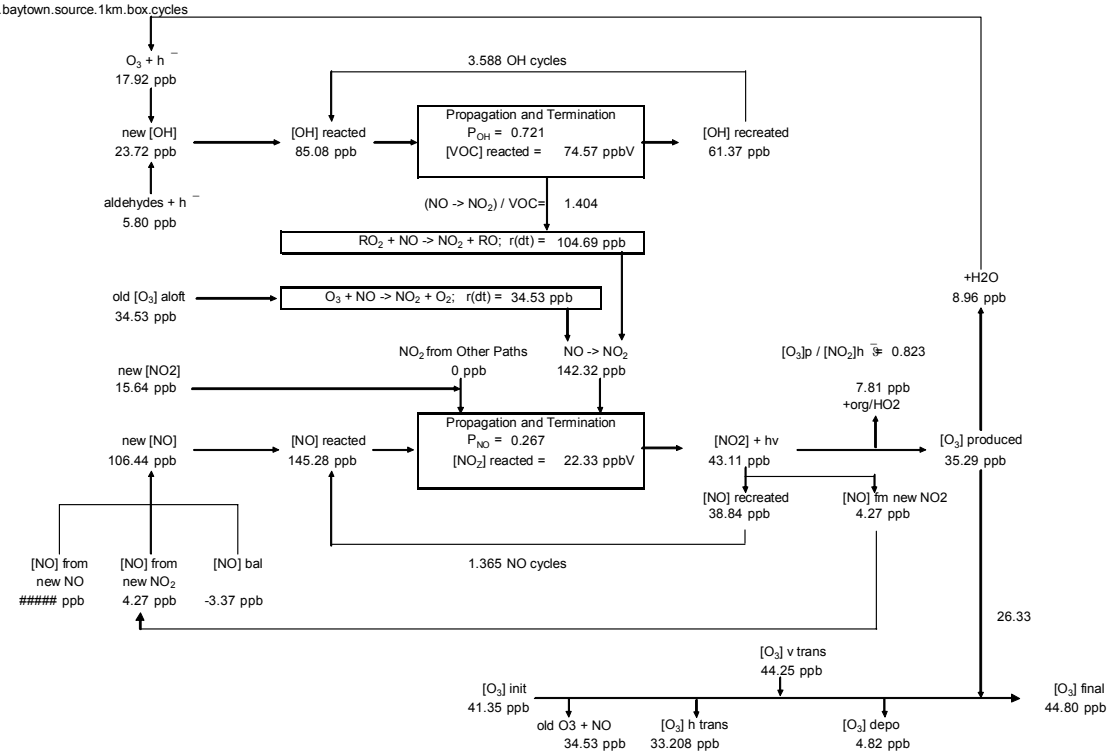
camx403.20000828.fy07i.UT.cs03_harCap.1km.ipr
camx403.20000828.fy07i.UT.cs03_harCap.1km.irr
828.baytown.source.1km.cycles

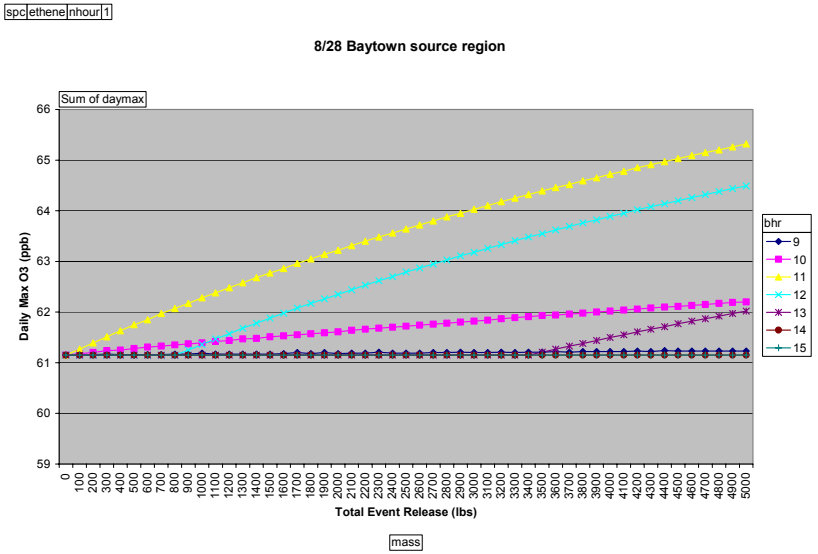
Radical Cycle/ NO Cycle/ Ozone

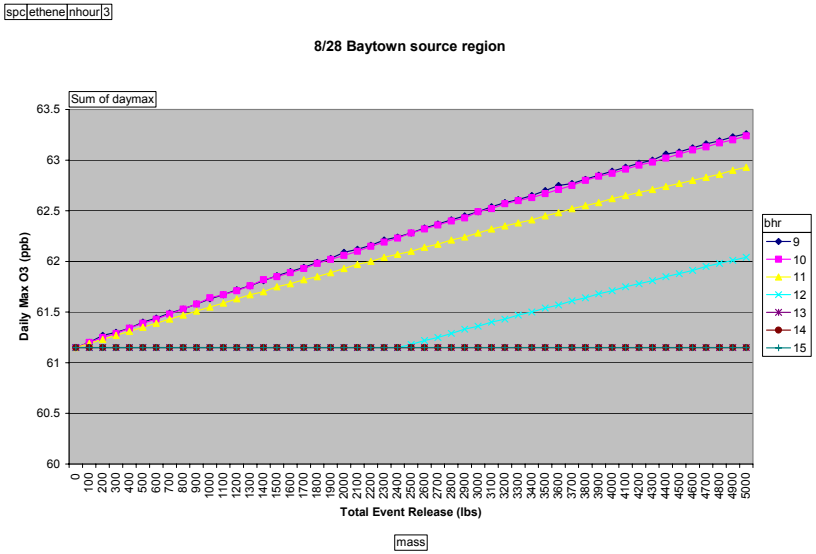


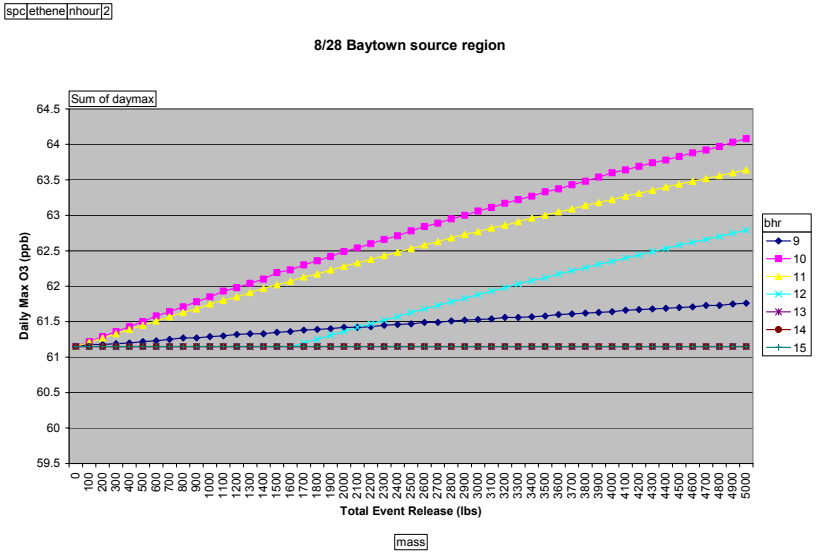
Radical Cycle/ NO Cycle/ Ozone

828.baytown.source.1km.box.cycles

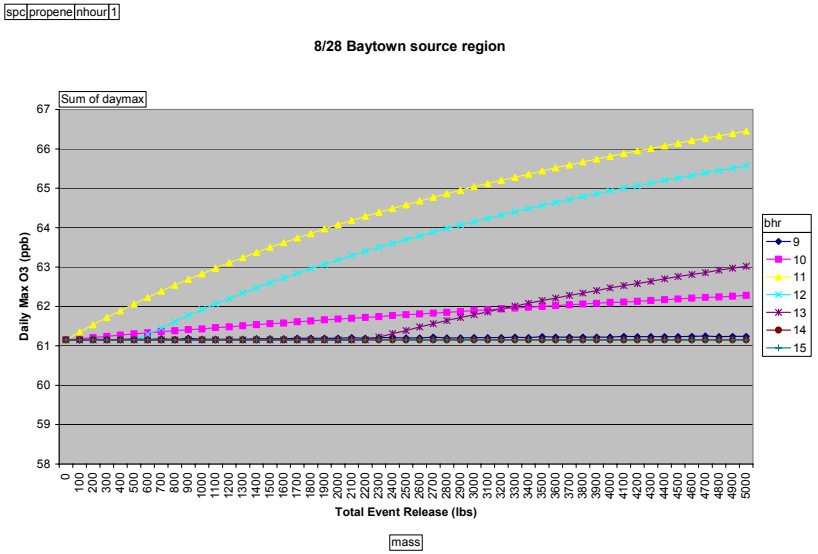


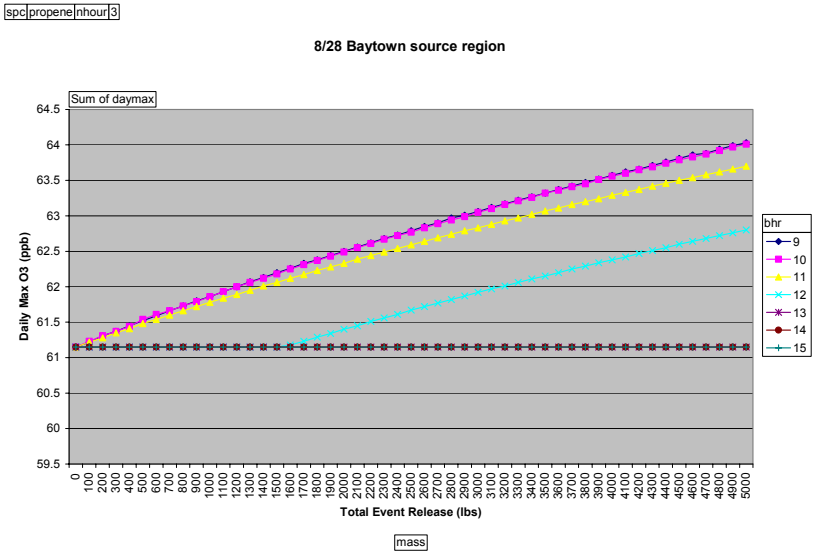


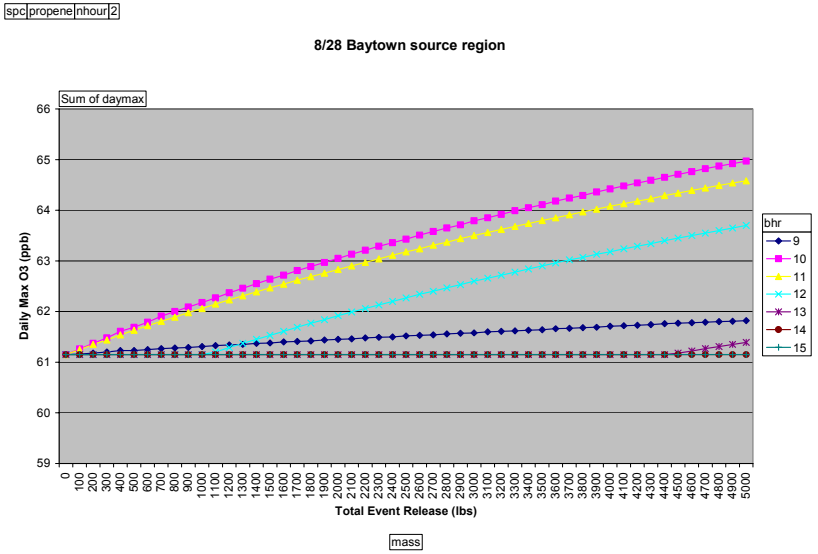




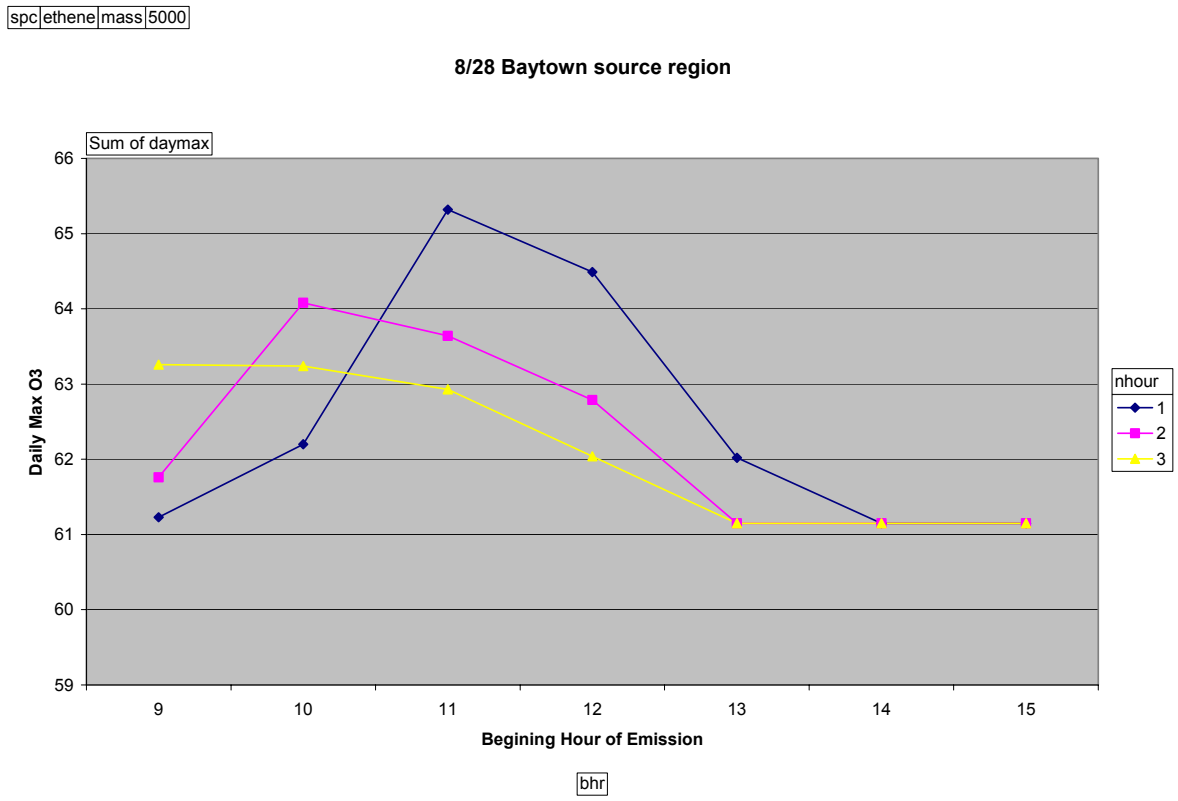
Sensitivity of Daily Max Ozone to the Ethene emission magnitude in "Source region" of Baytown, Aug. 28, 1km resolution (GOES1 Met): Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)



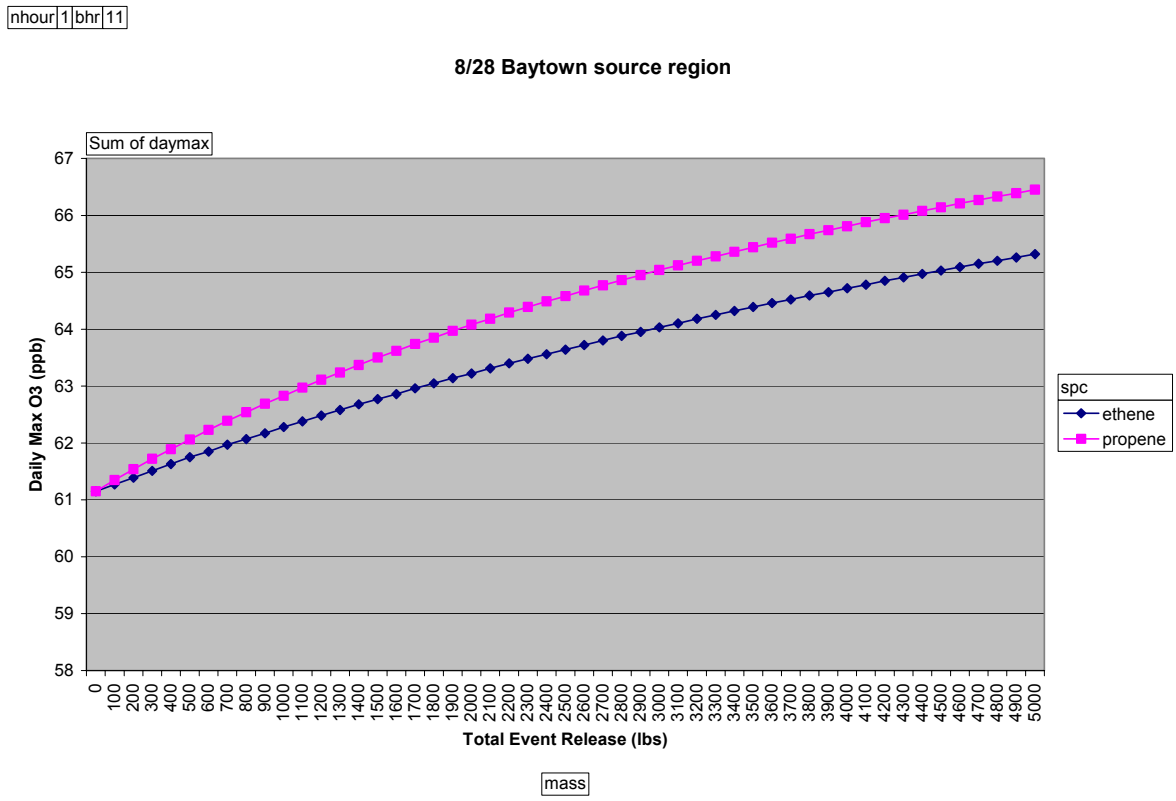




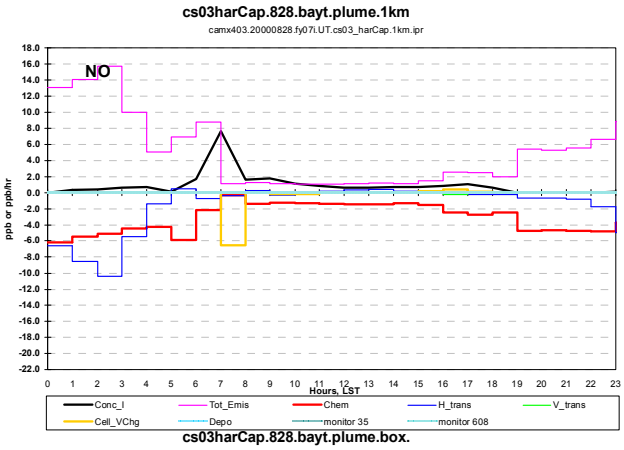
Sensitivity of Daily Max Ozone to the Propene emission magnitude in "Source region" of Baytown, Aug. 28, 1km resolution (GOES1 Met): Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)



Sensitivity of Daily Max Ozone to the Ethene emission timing (beginning of emission) in "Source region" of Baytown, Aug. 28, 1km resolution (GOES1 Met): All emissions are 5000 lbs. Legend shows the number of hours of emission event



Sensitivity of Daily Max Ozone to the emission species (Ethene and Propene) in "Source region" of Baytown, Aug. 28, 1km resolution (GOES1 Met): All emissions are between 11:00 to 12:00. Legend shows the number of hours of emission event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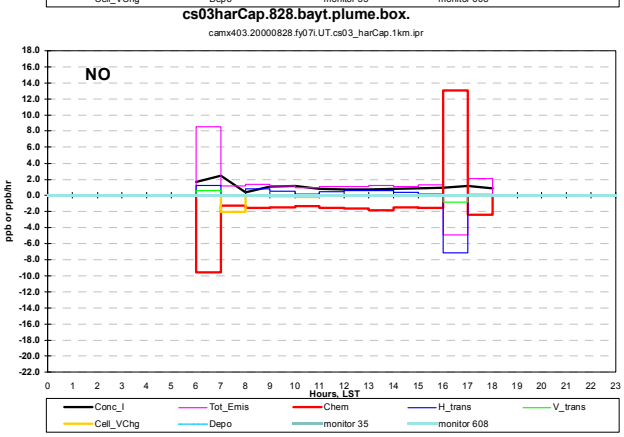
NO
ppb or ppb/hr
Hours, LST
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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Hours, LST
Conc_I
Tot_Emis
Chem
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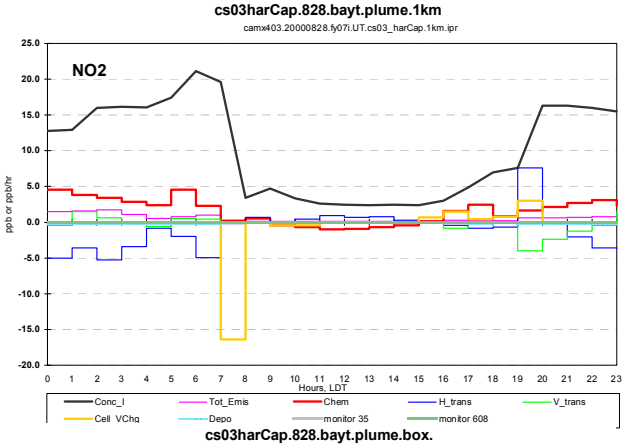
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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NO2
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Hours, LDT
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Tot_Emis
Chem
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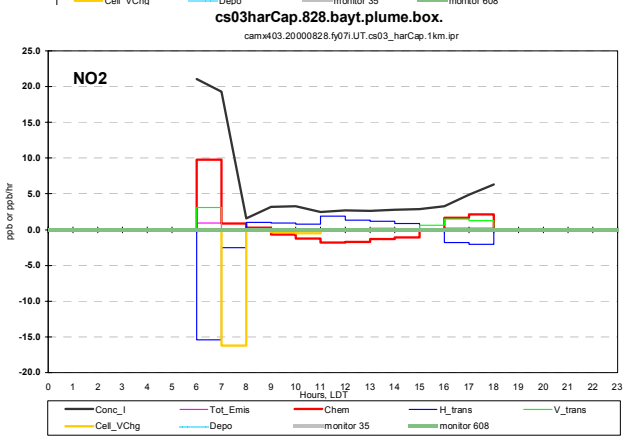
Cell_VChg
Depo
monitor 35
monitor 608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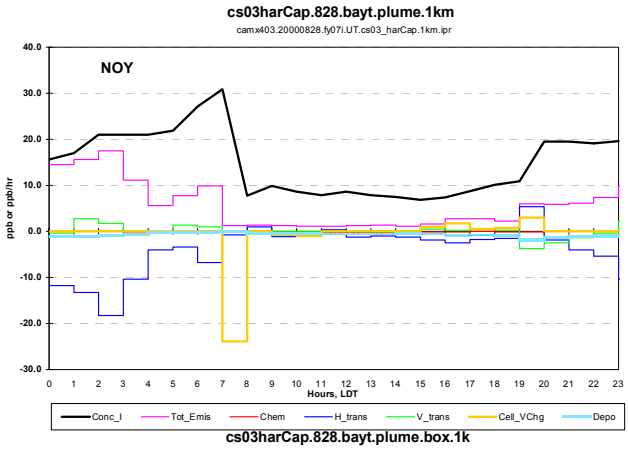
NO2
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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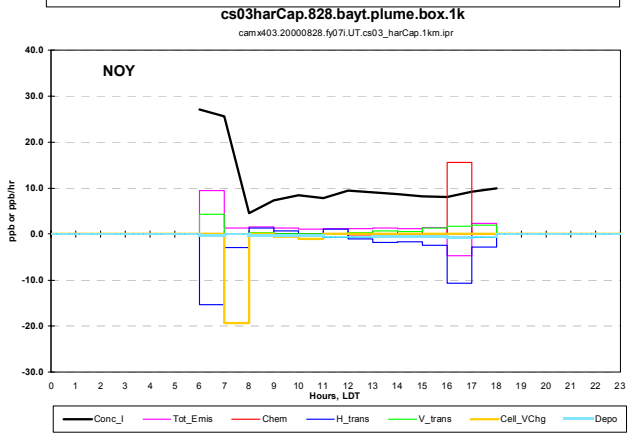
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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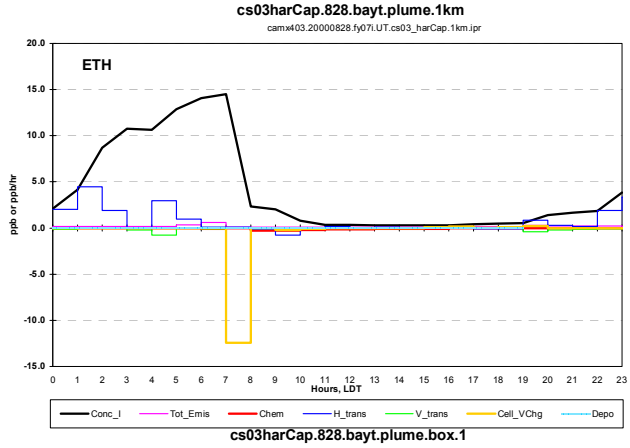
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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ETH
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Hours, LDT
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Tot_Emis
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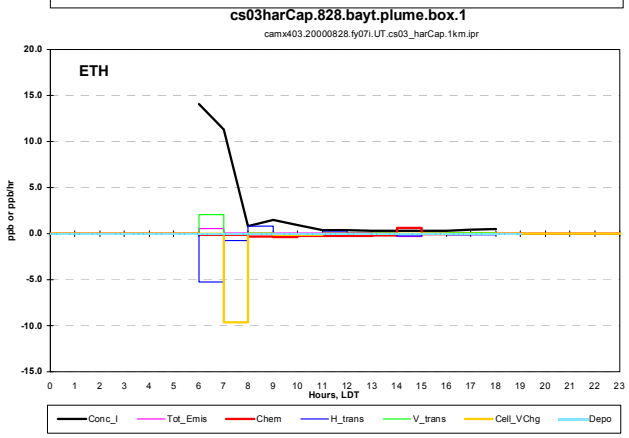
H_trans
V_trans
Cell_VChg
Depo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ETH
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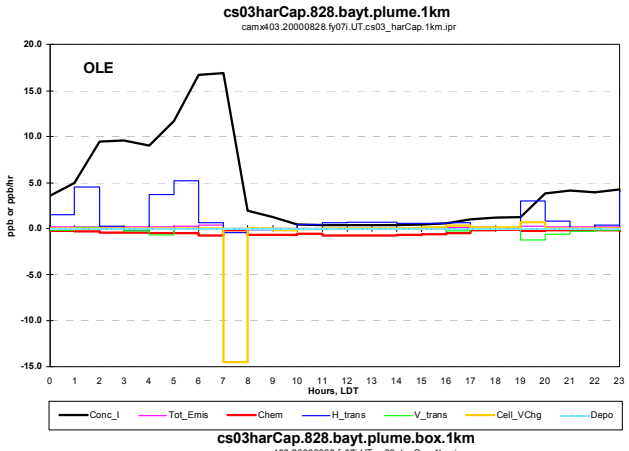
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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Hours, LDT
Conc_I
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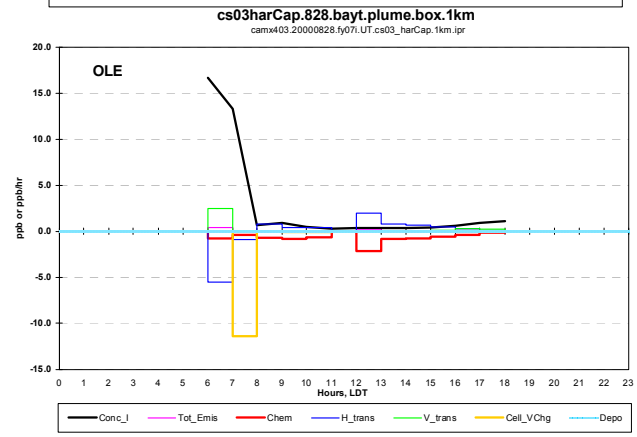
Cell_VChg
Depo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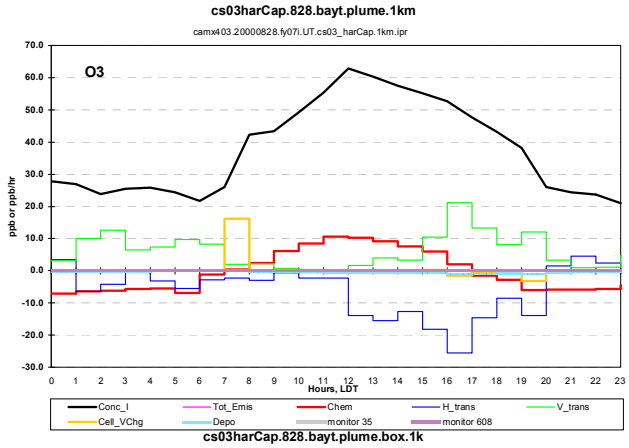
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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O3
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Hours, LDT
Conc_I
Tot_Emis
Chem
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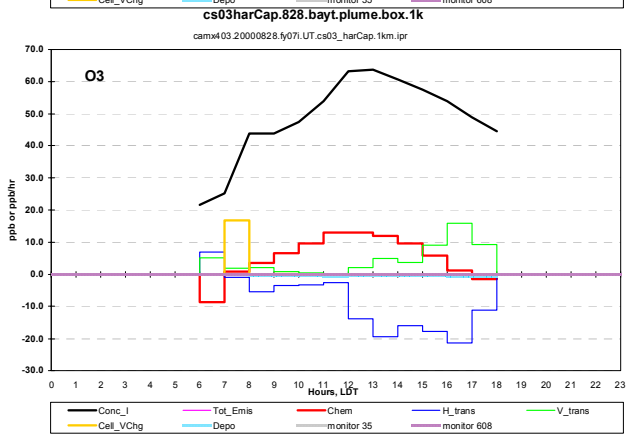
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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O3
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608

camx403.20000828.fy07d.UT.cs04.ipr
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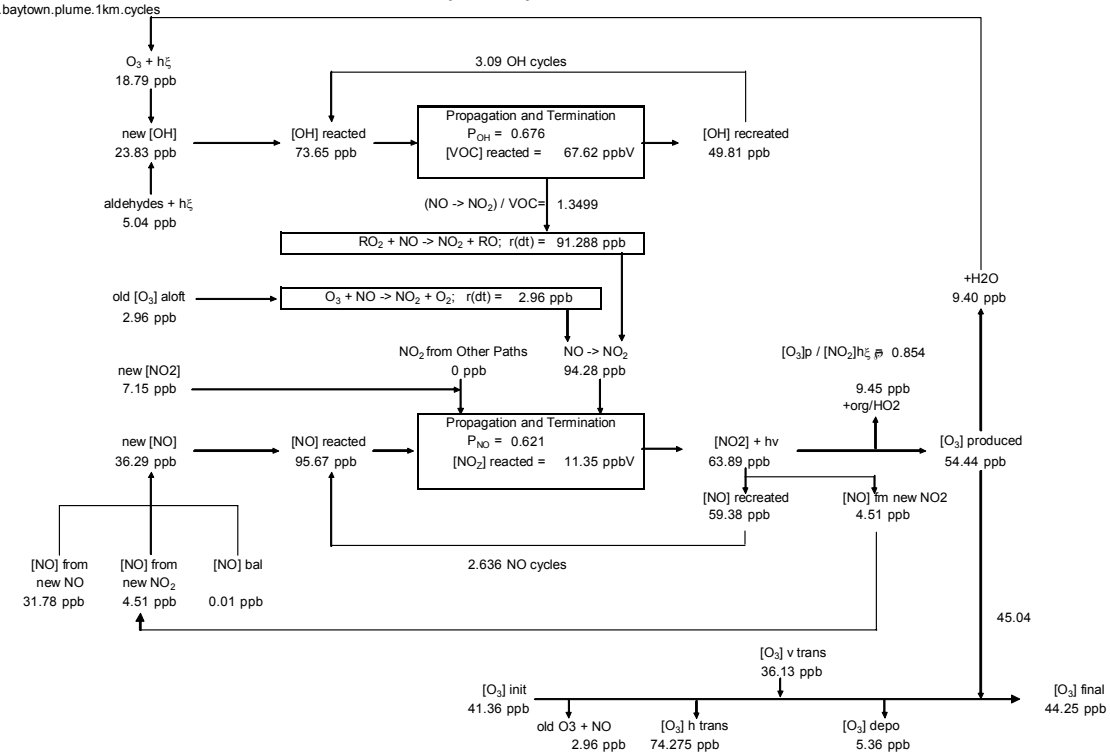
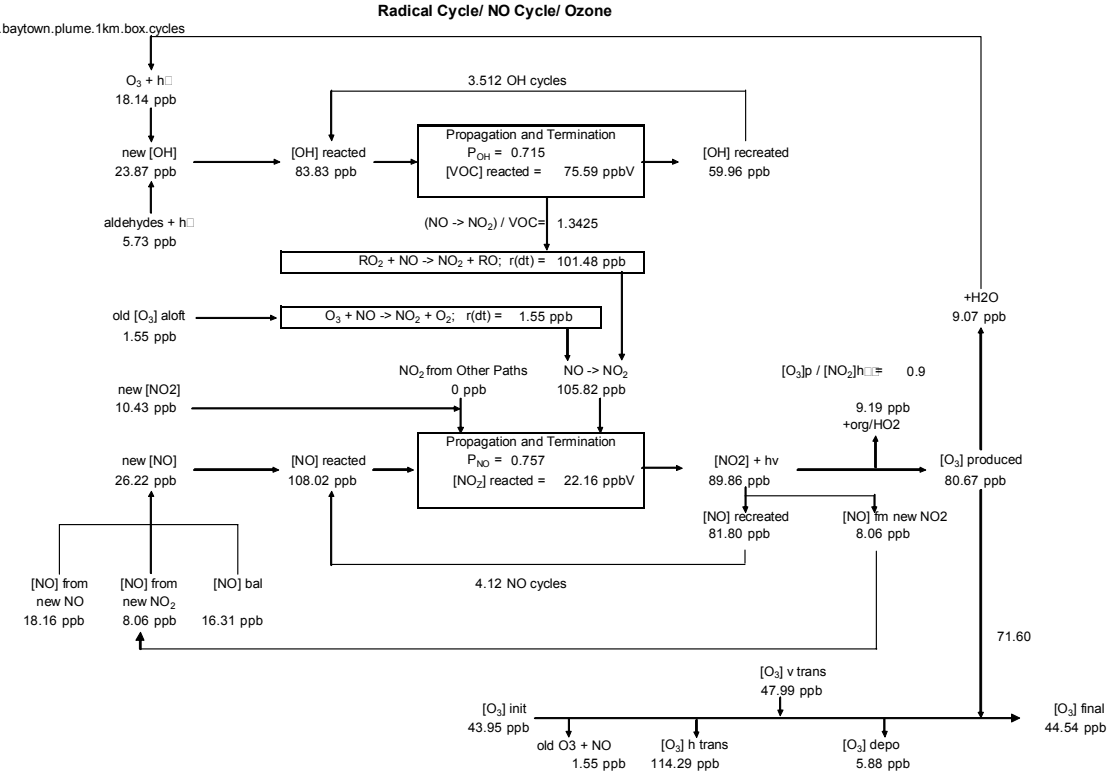
828.baytown.plume.1km.cycles

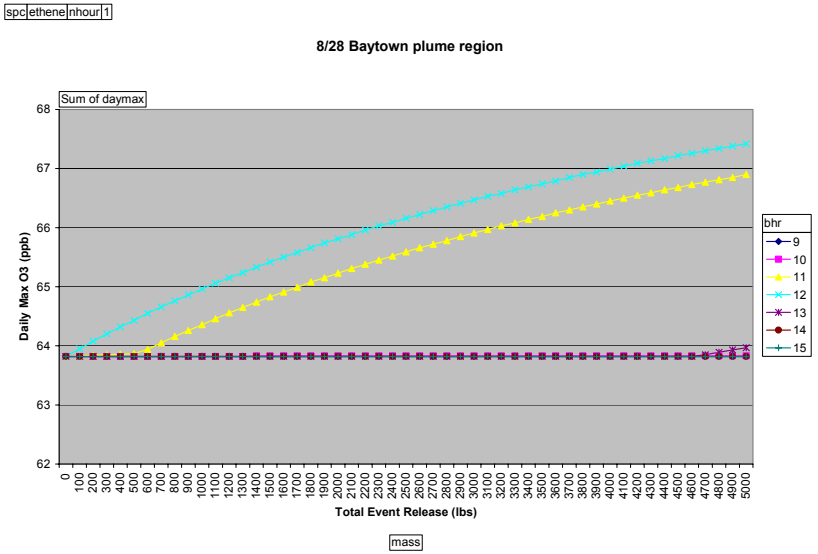
Radical Cycle/ NO Cycle/ Ozone

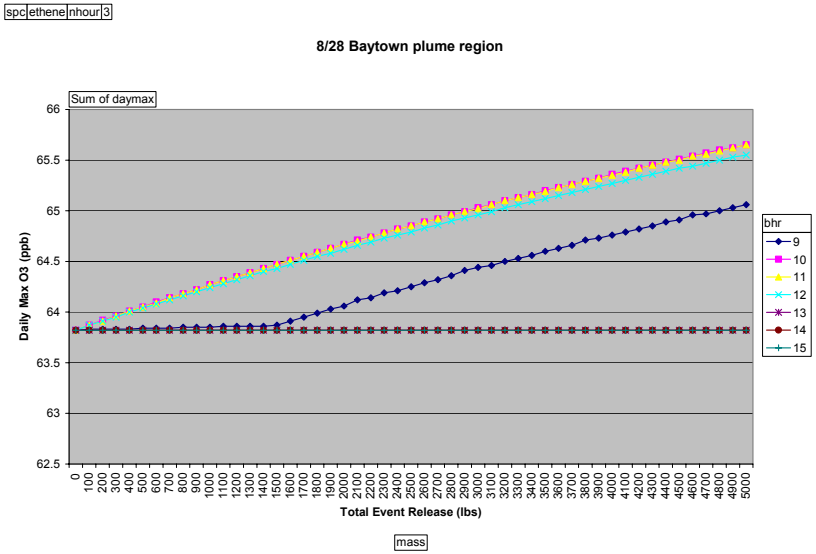


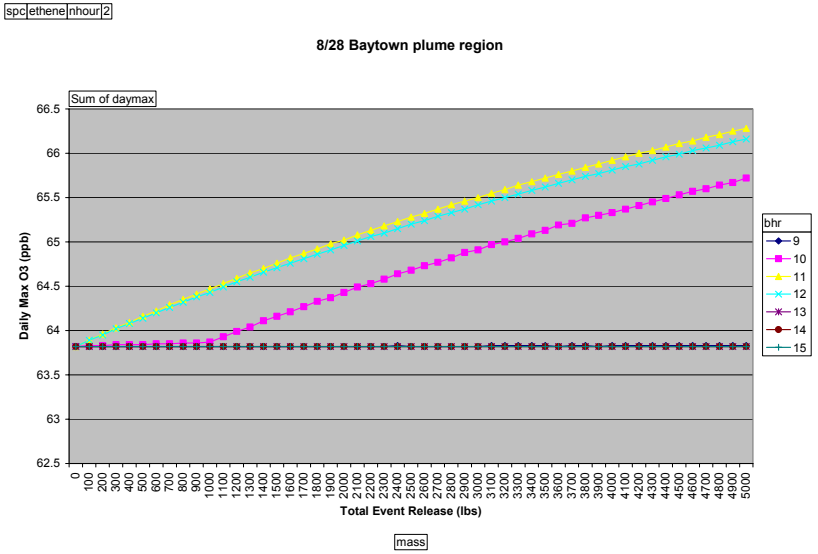
Radical Cycle/ NO Cycle/ Ozone

828.baytown.plume.1km.box.cycles

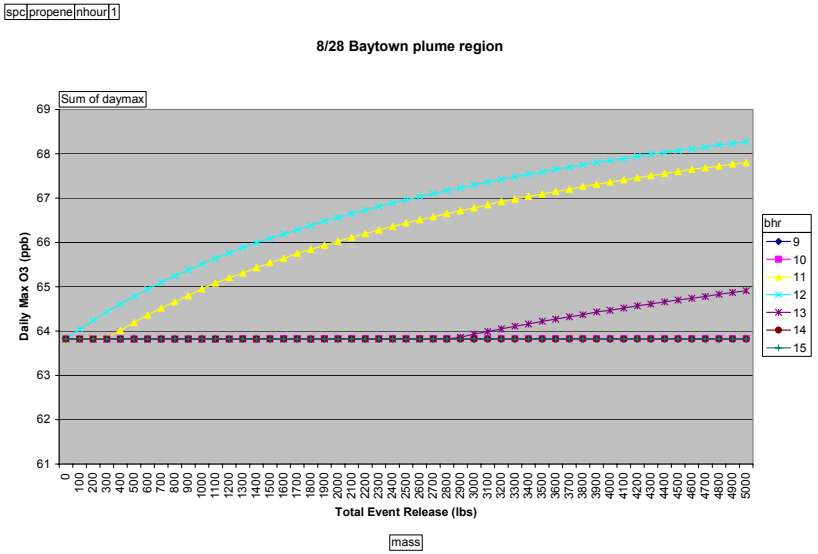


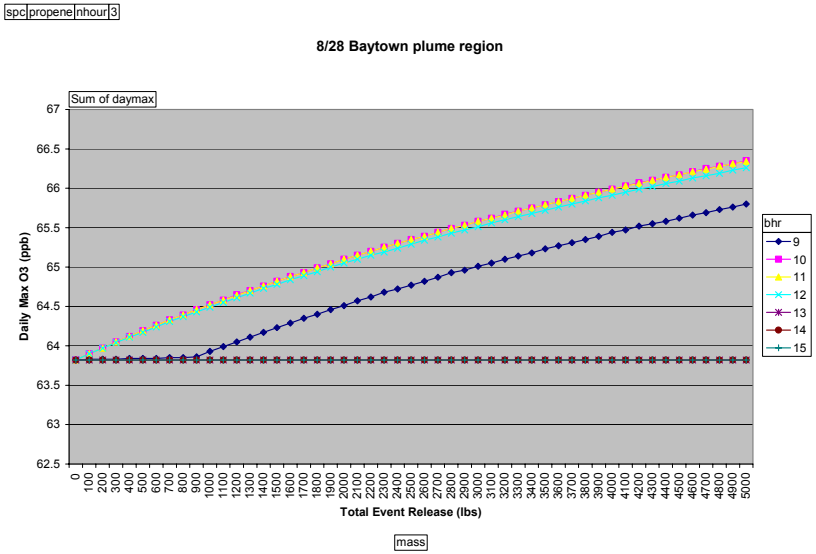


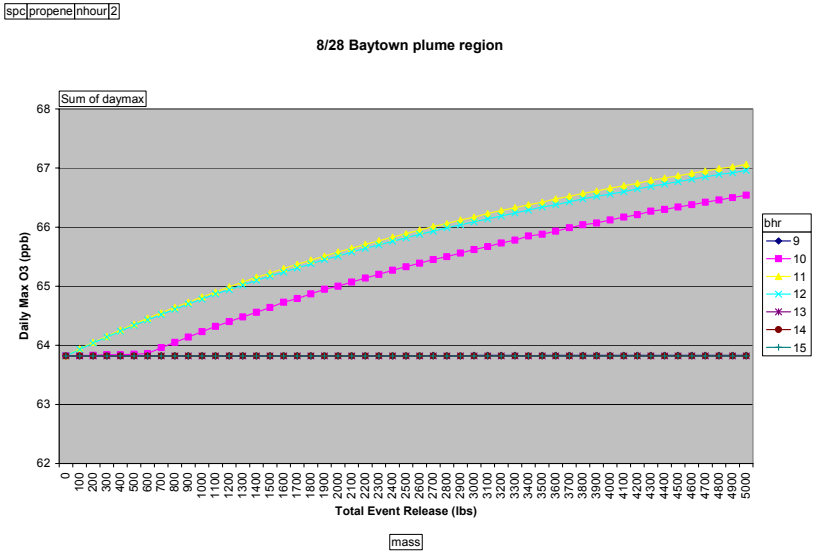




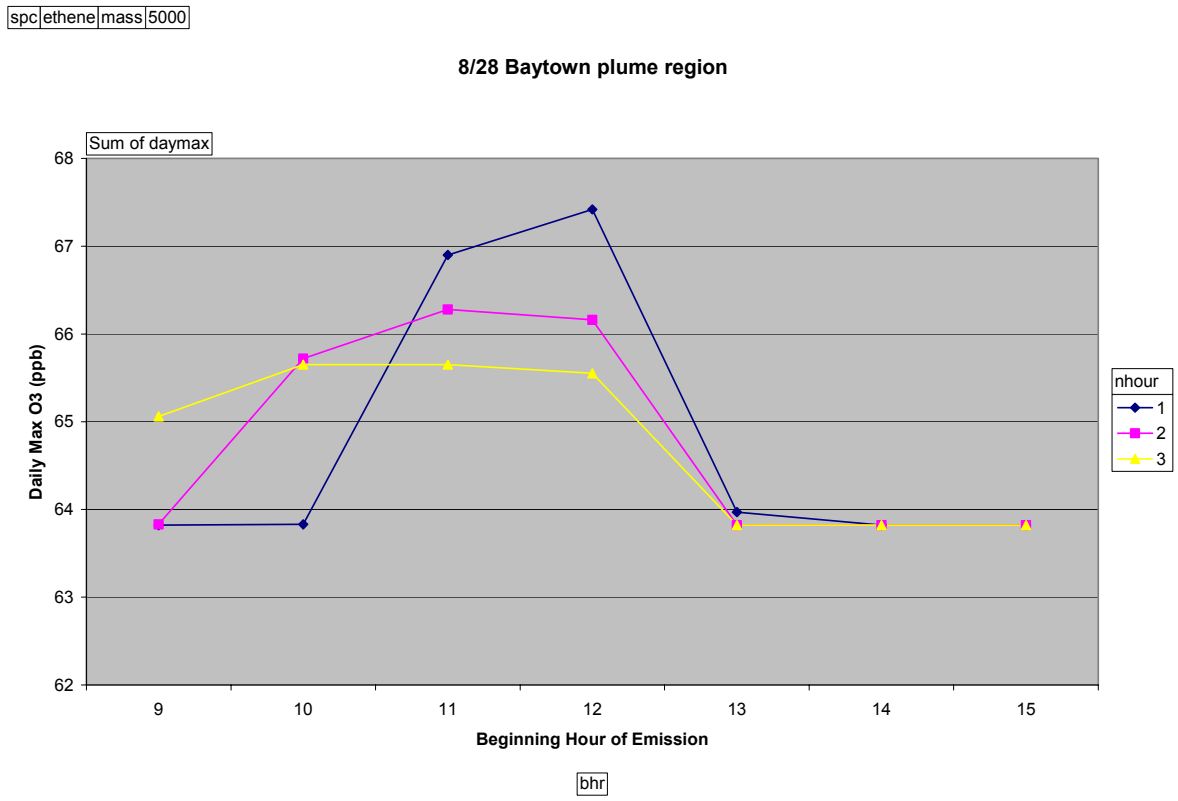
Sensitivity of Daily Max Ozone to the Ethene emission magnitude in "Plume region" of Baytown, Aug. 28, 1km resolution (GOES1 Met): Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)



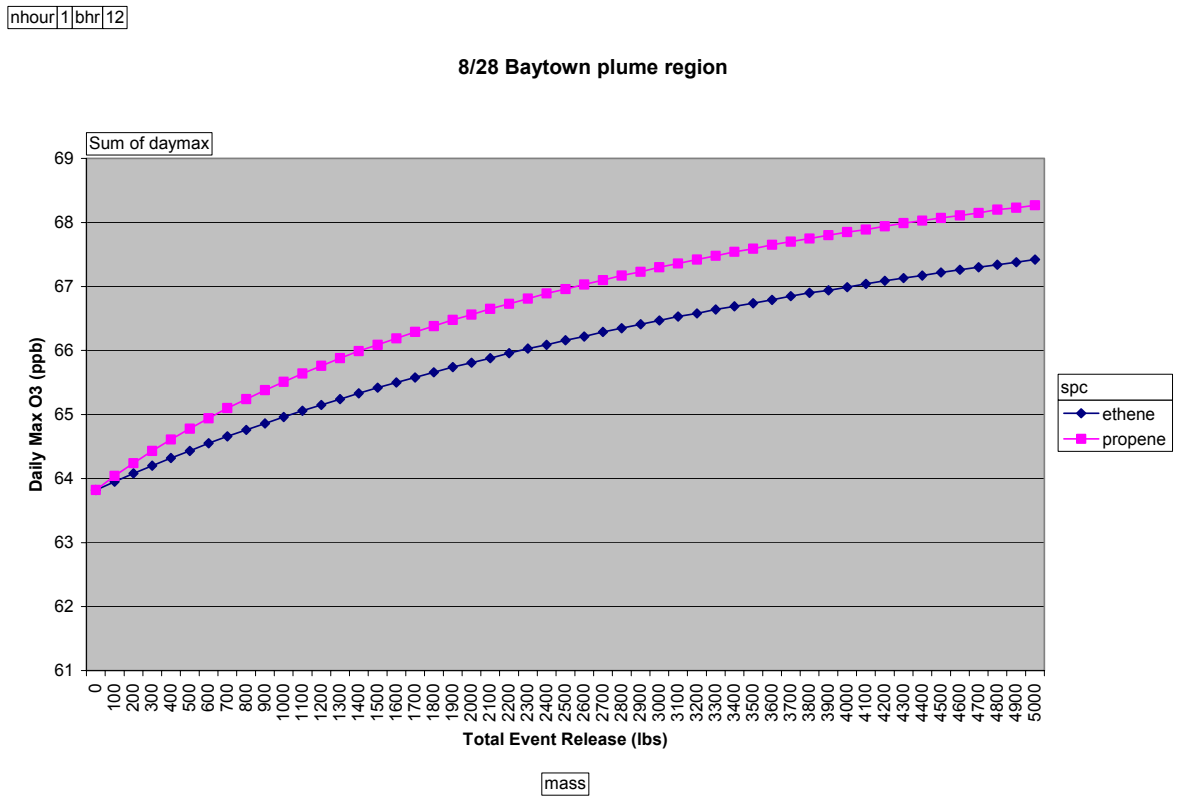




Sensitivity of Daily Max Ozone to the Propene emission magnitude in "Plume region" of Baytown, Aug. 28, 1km resolution (GOES1 Met): Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)

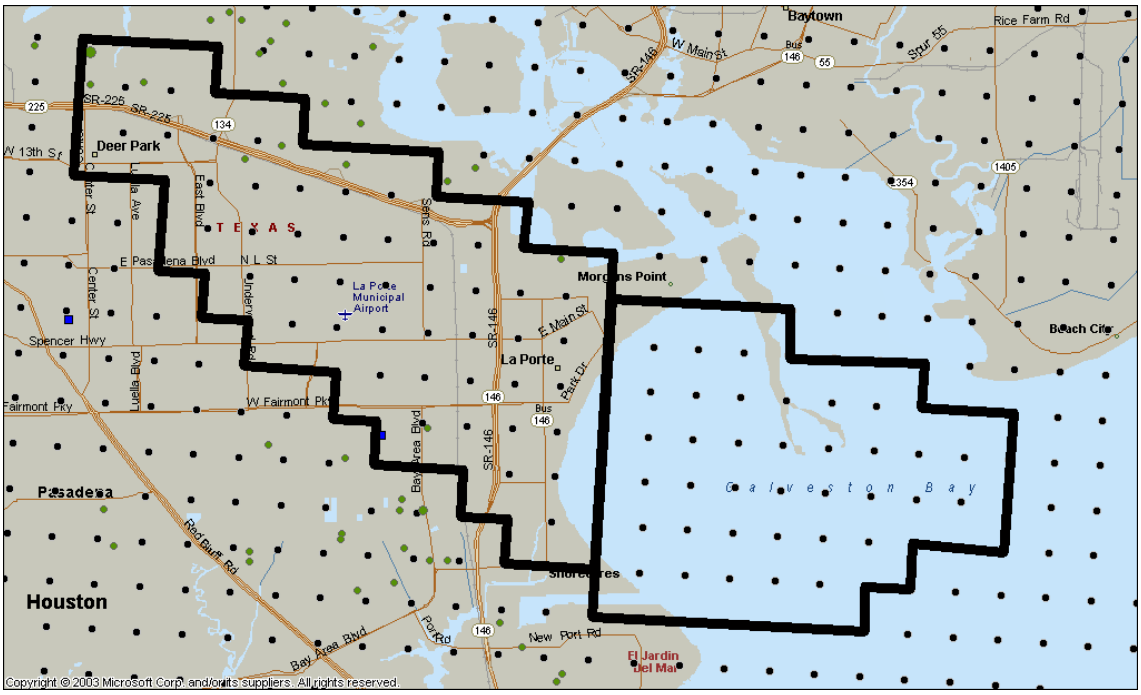


Sensitivity of Daily Max Ozone to the Ethene emission timing (beginning of emission) in "Plume region" of Baytown, Aug. 28, 1km resolution (GOES1 Met): All emissions are 5000 lbs. Legend shows the number of hours of emission event

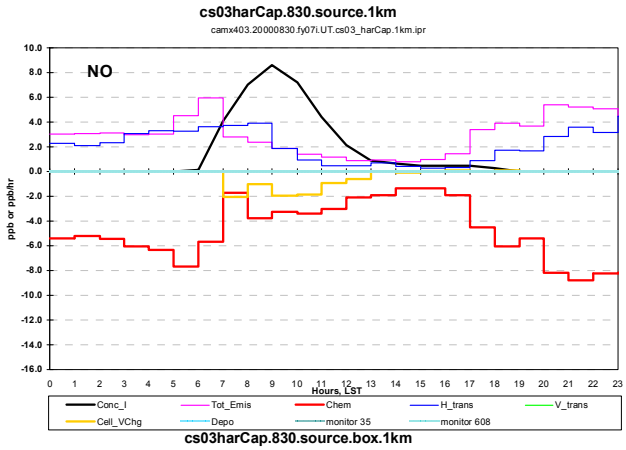


Sensitivity of Daily Max Ozone to the emission species (Ethene and Propene) in "Plume region" of Baytown, Aug. 28, 1km resolution (GOES1 Met): All emissions are between 12:00 to 13:00. Legend shows the number of hours of emission event

August 30 - Future Year 2007 (fyo7i.cs03_harCap.1km goes1)



8_30_00 Process Analysis Box outlined in black. Black Dots represent lower left hand corner of 1 km grid cells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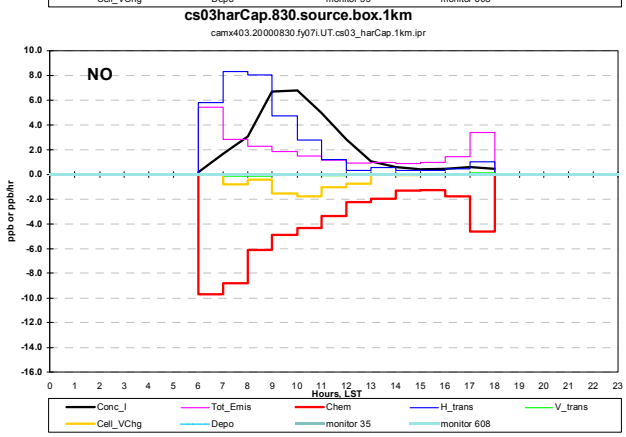
NO
ppb or ppb/hr
Hours, LST
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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Hours, LST
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Tot_Emis
Chem
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V_trans
Cell_VChg
Depo
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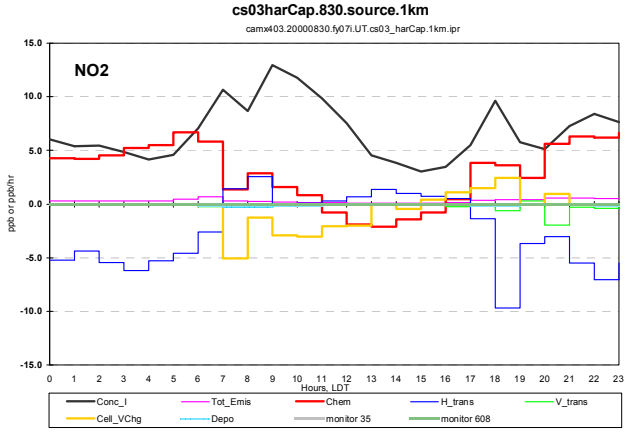
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Hours, LDT
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Chem
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V_trans
Cell_VChg
Depo
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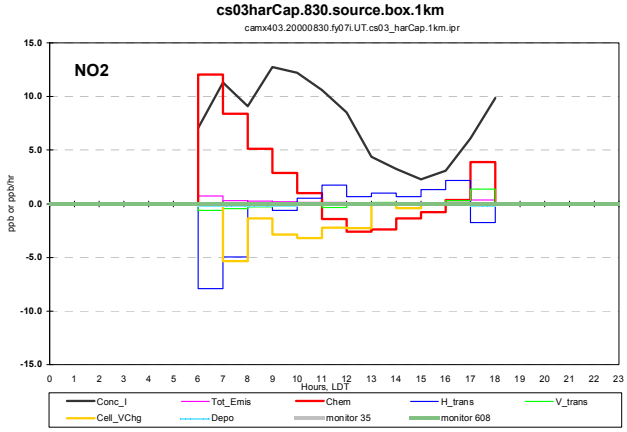
monitor 608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V_trans
Cell_VChg
Depo
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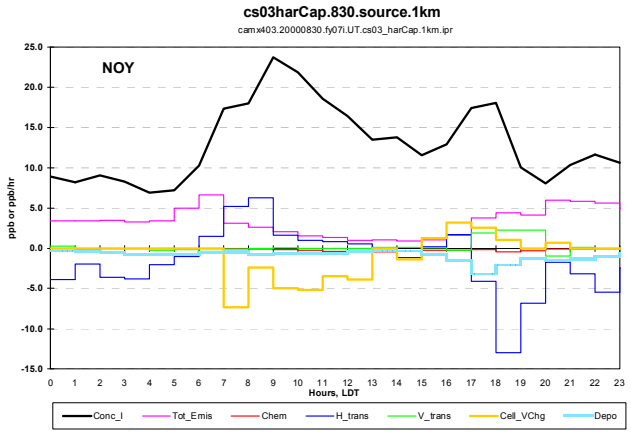
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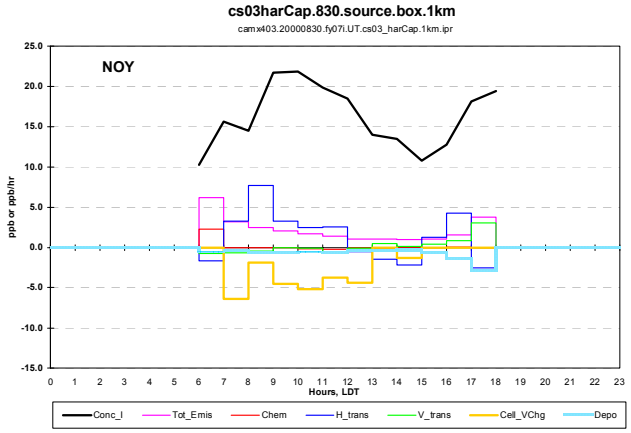
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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Hours, LDT
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Tot_Emis
Chem
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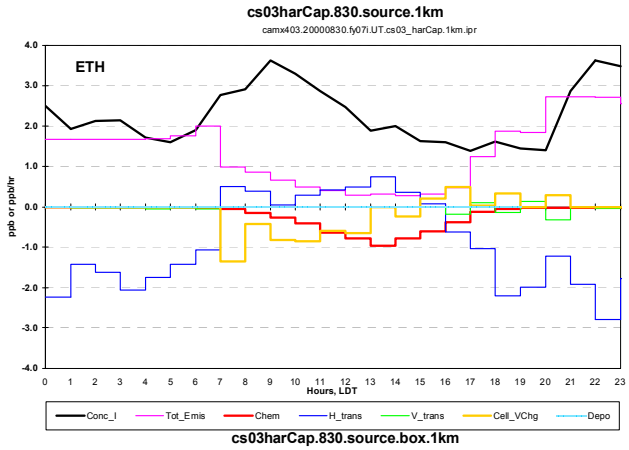
V_trans
Cell_VChg
Depo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Hours, LDT
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Tot_Emis
Chem
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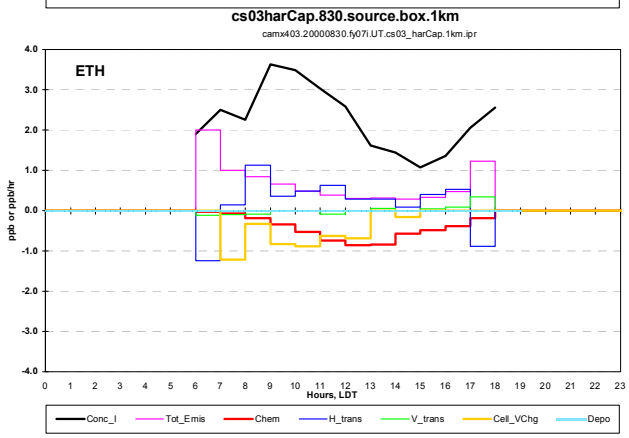
V_trans
Cell_VChg
Depo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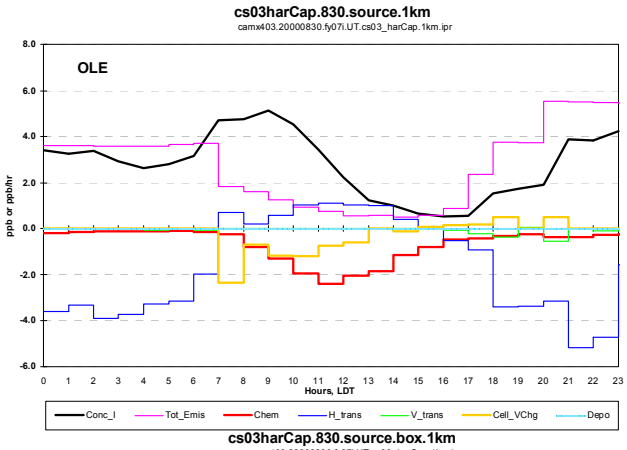
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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Hours, LDT
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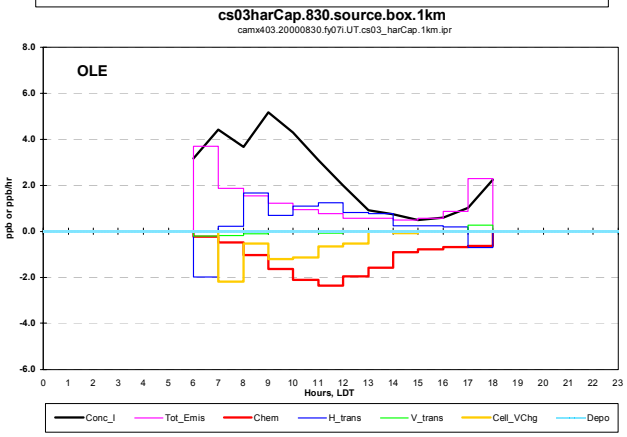
V_trans
Cell_VChg
Depo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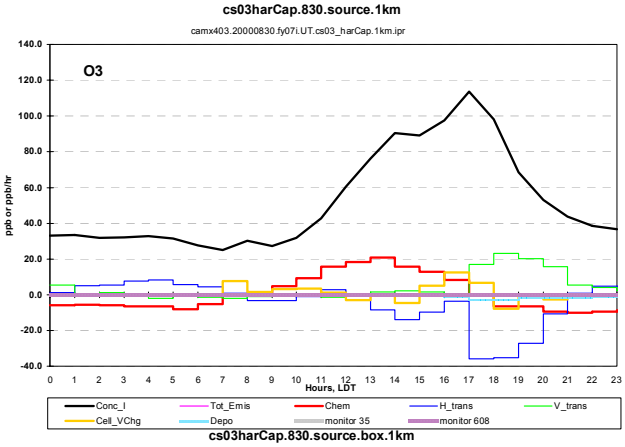
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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Hours, LDT
Conc_I
Tot_Emis
Chem
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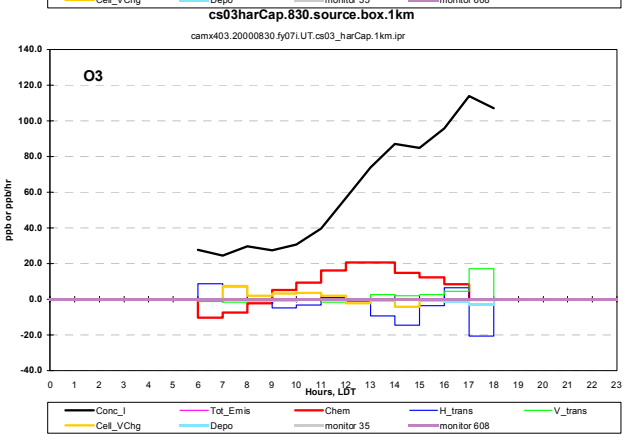
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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O3
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608

camx403.20000830.fy07i.UT.cs03_harCap.1km.ipr
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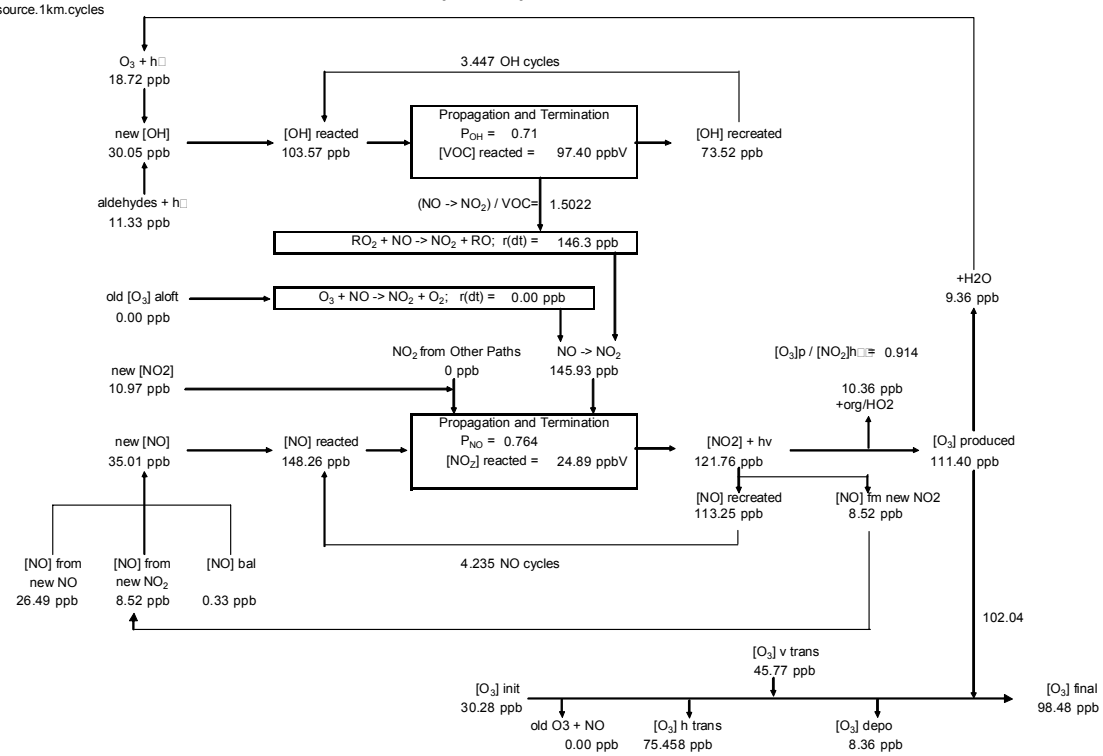
830.source.1km.cycles

Radical Cycle/ NO Cycle/ Ozone



Radical Cycle/ NO Cycle/ Ozone

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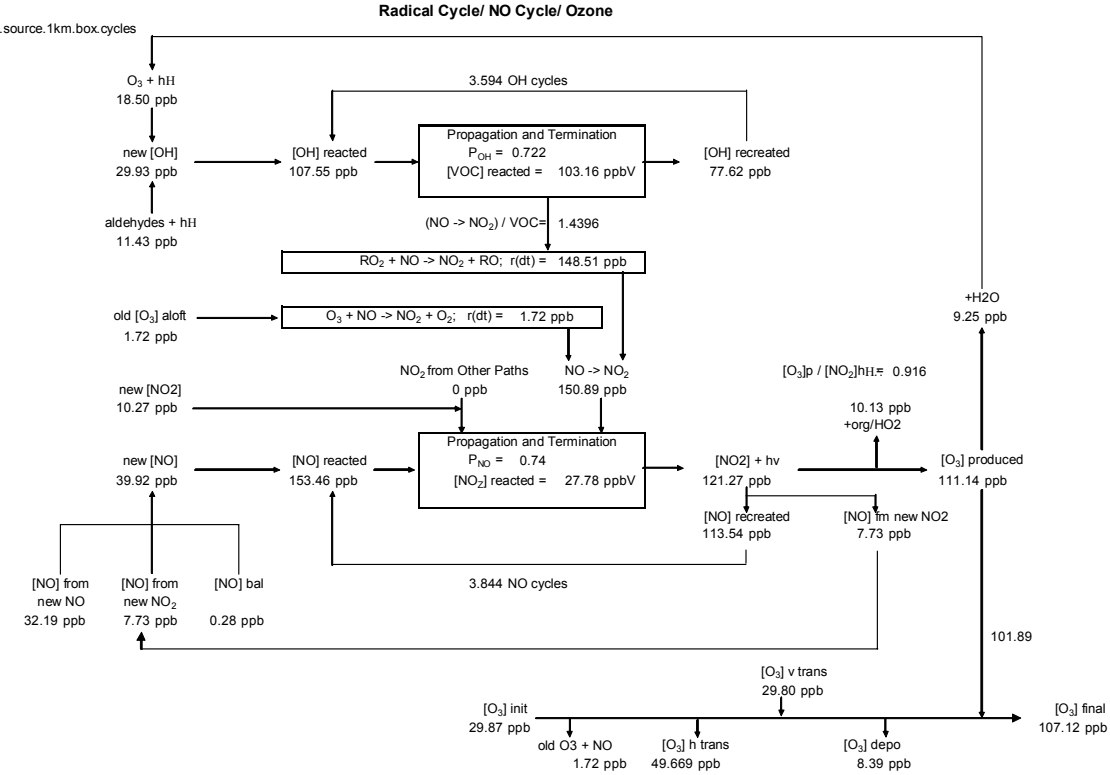
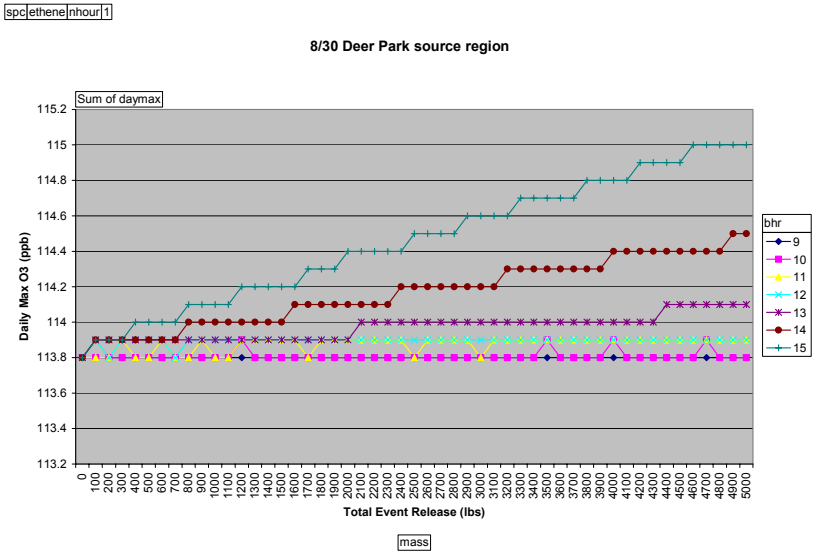
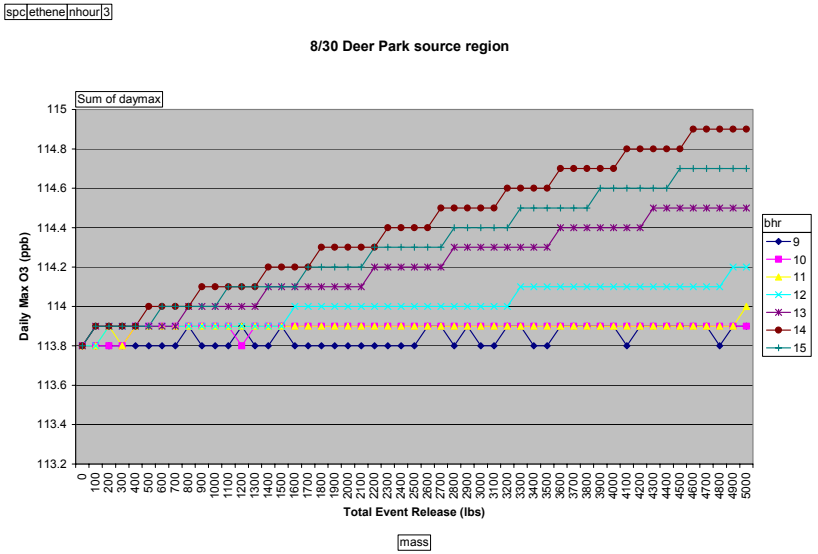
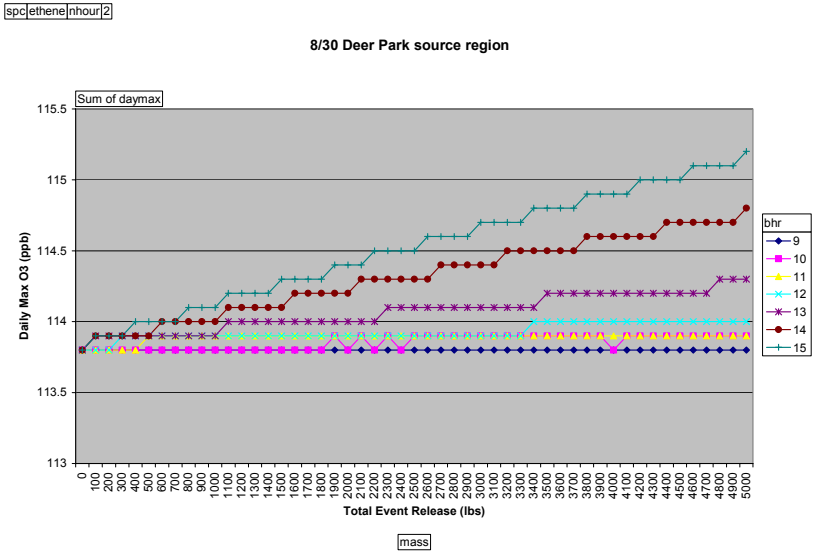
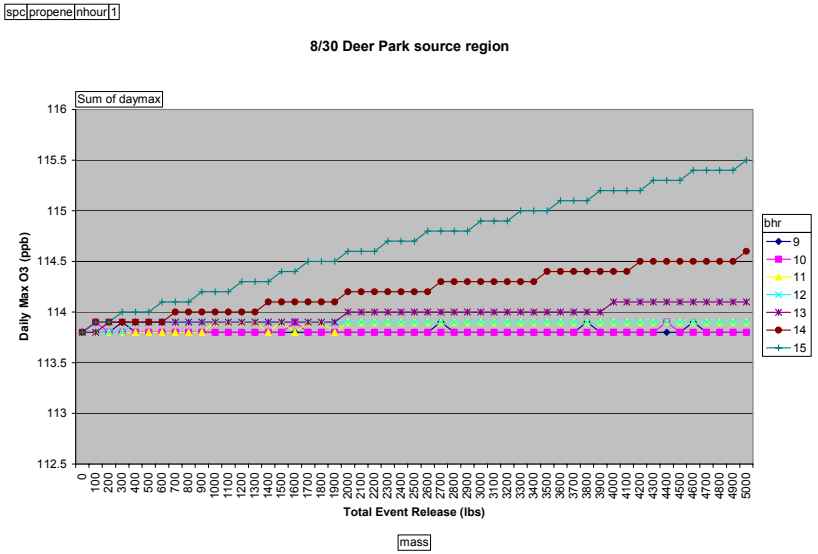


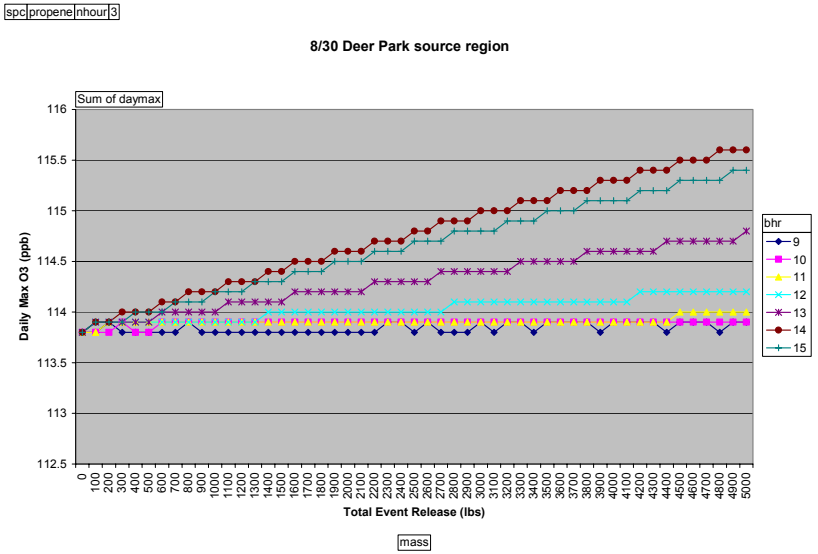


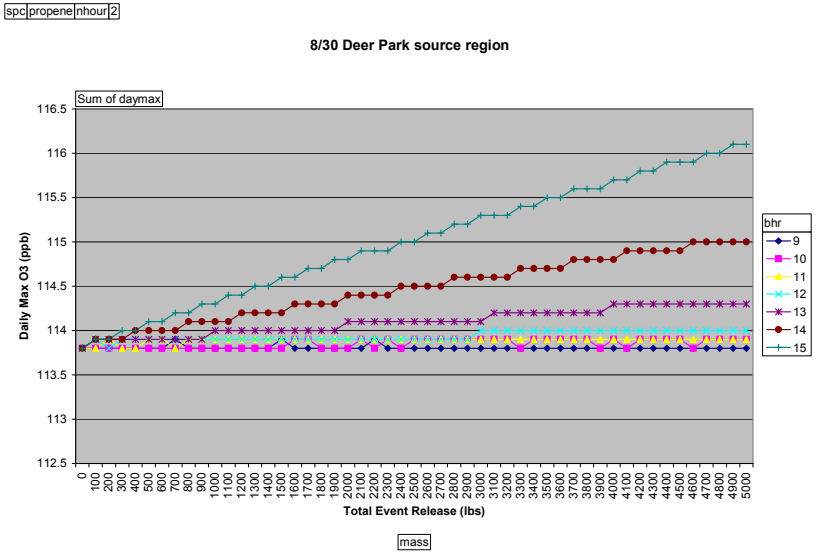




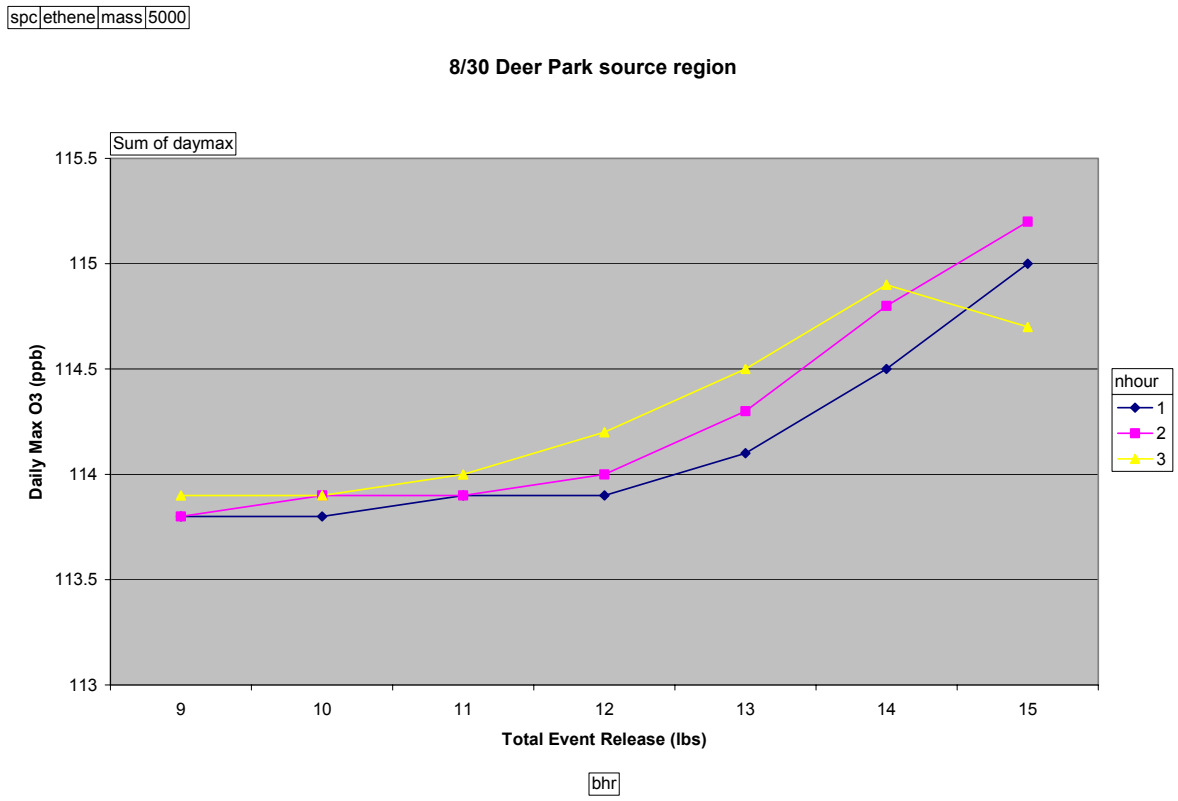
Sensitivity of Daily Max Ozone to the Ethene emission magnitude in “Source region” of Deer Park, Aug. 30, 1km resolution (GOES1 Met): Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)



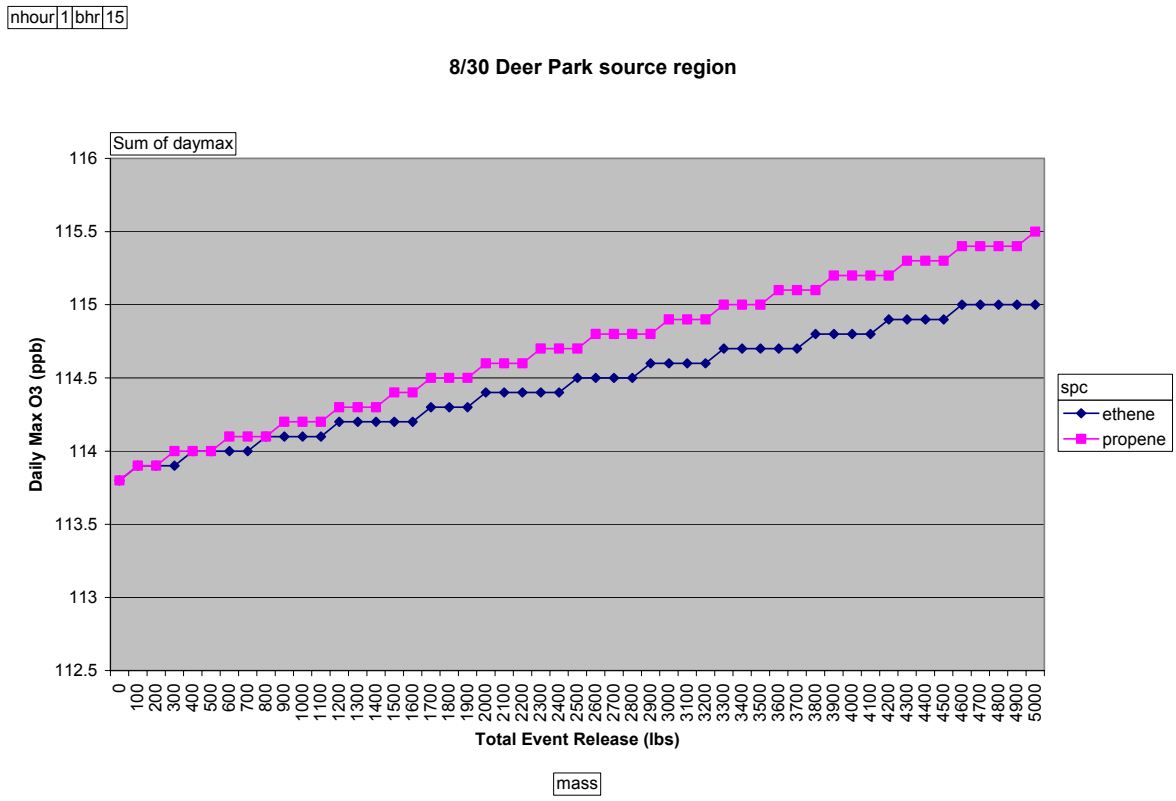




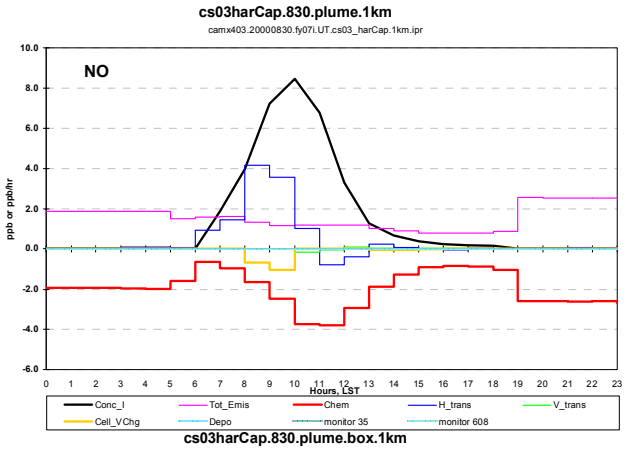
Sensitivity of Daily Max Ozone to the Propene emission magnitude in “Source region” of Deer Park, Aug. 30, 1km resolution (GOES1 Met): Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)



Sensitivity of Daily Max Ozone to the Ethene emission timing (beginning of emission) in "Source region" of Deer Park, Aug. 30, 1km resolution (GOES1 Met): All emissions are 5000 lbs. Legend shows the number of hours of emission event



Sensitivity of Daily Max Ozone to the emission species (Ethene and Propene) in "Source region" of Deer Park, Aug. 30, 1km resolution (GOES1 Met): All emissions are between 15:00 to 16:00. Legend shows the number of hours of emission event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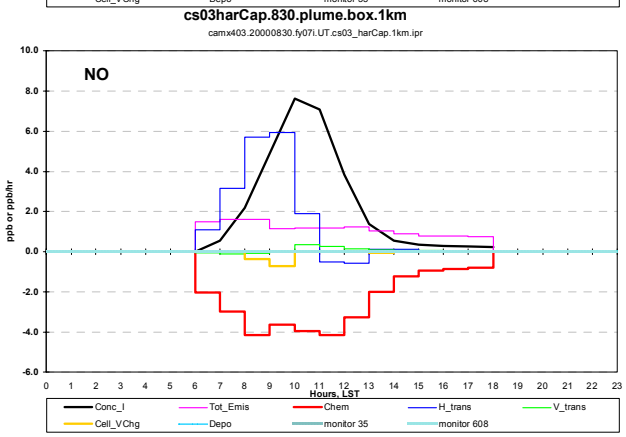
NO
ppb or ppb/hr
Hours, LST
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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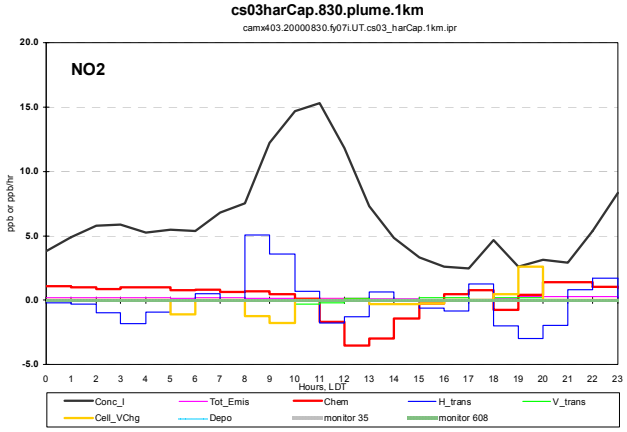
Hours, LST
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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Cell_VChg
Depo
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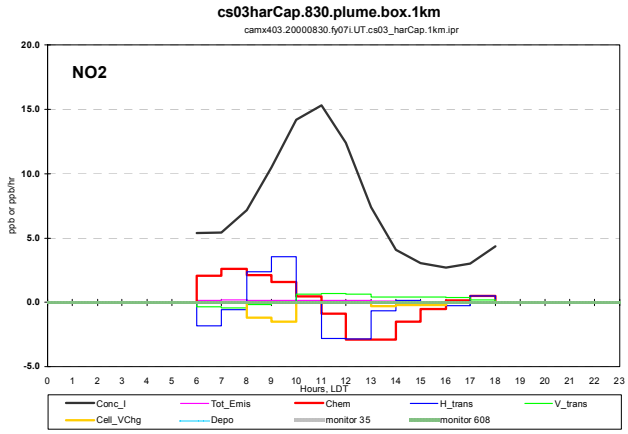
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Cell_VChg
Depo
monitor 35
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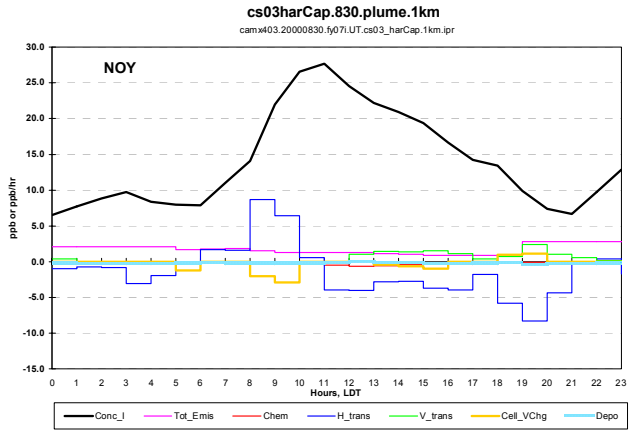
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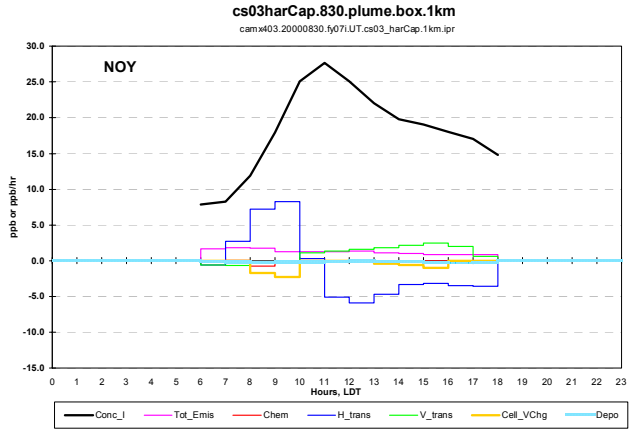
Depo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Chem
H_trans
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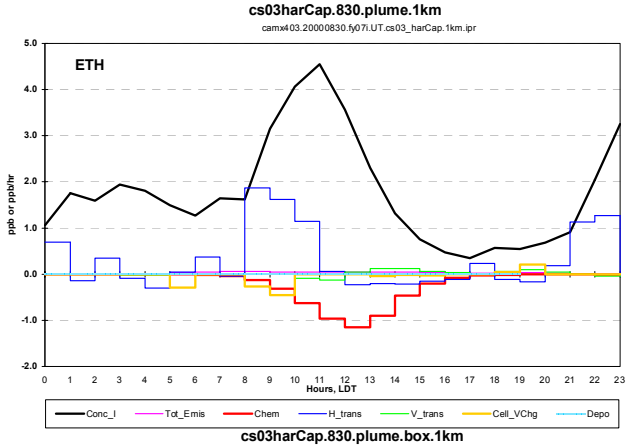
Cell_VChg
Depo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Hours, LDT
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Chem
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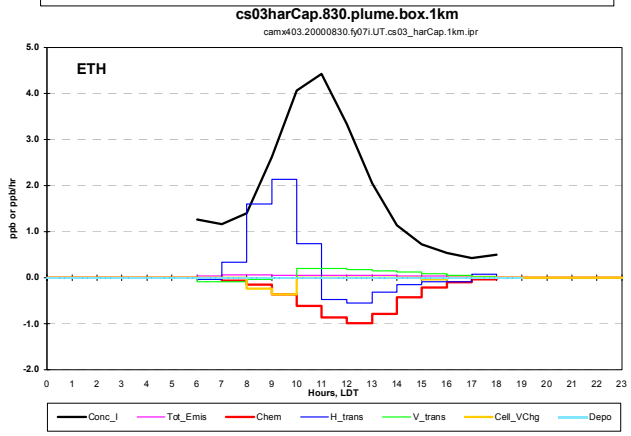
Cell_VChg
Depo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Chem
H_trans
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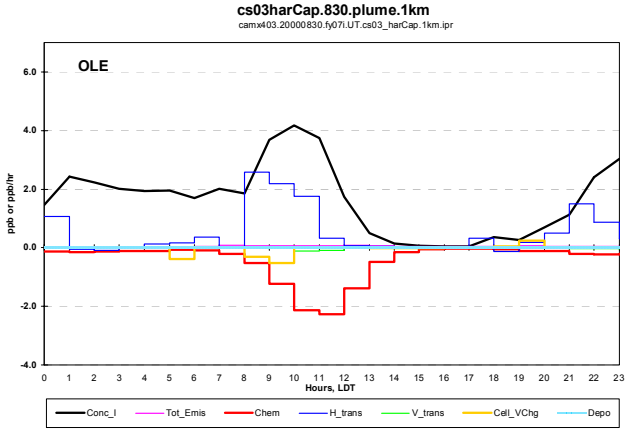
Cell_VChg
Depo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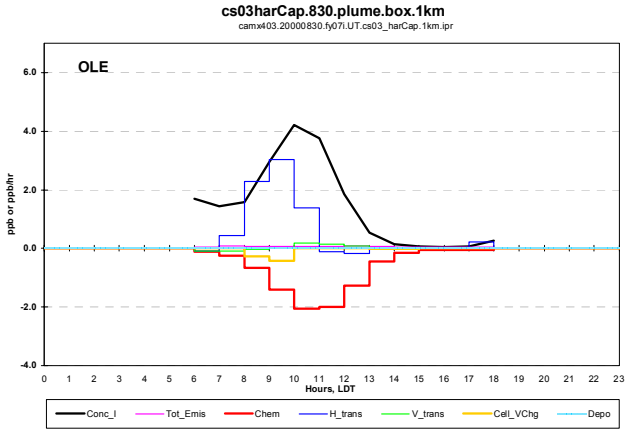
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Hours, LDT
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Chem
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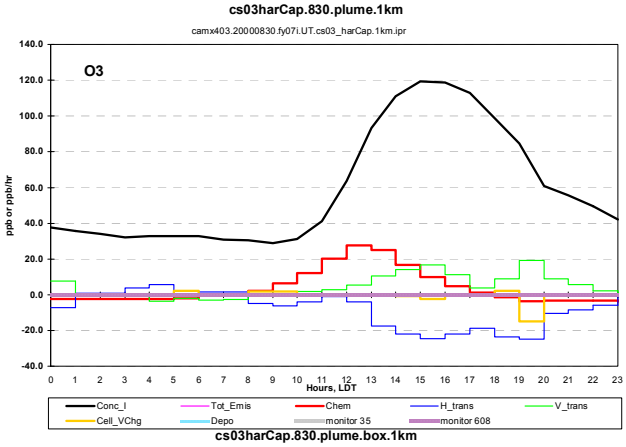
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O3
ppb or ppb/hr
Hours, LDT
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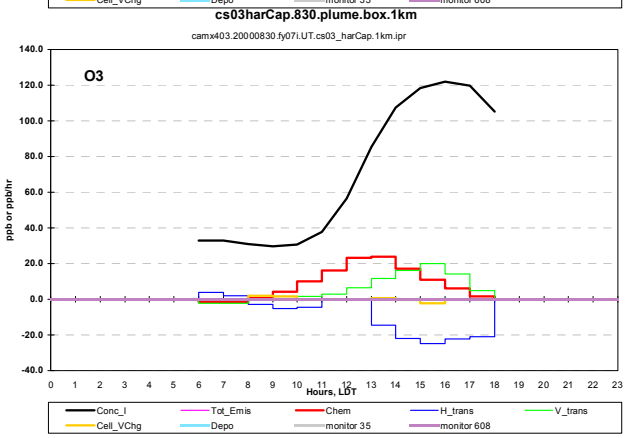
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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O3
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608

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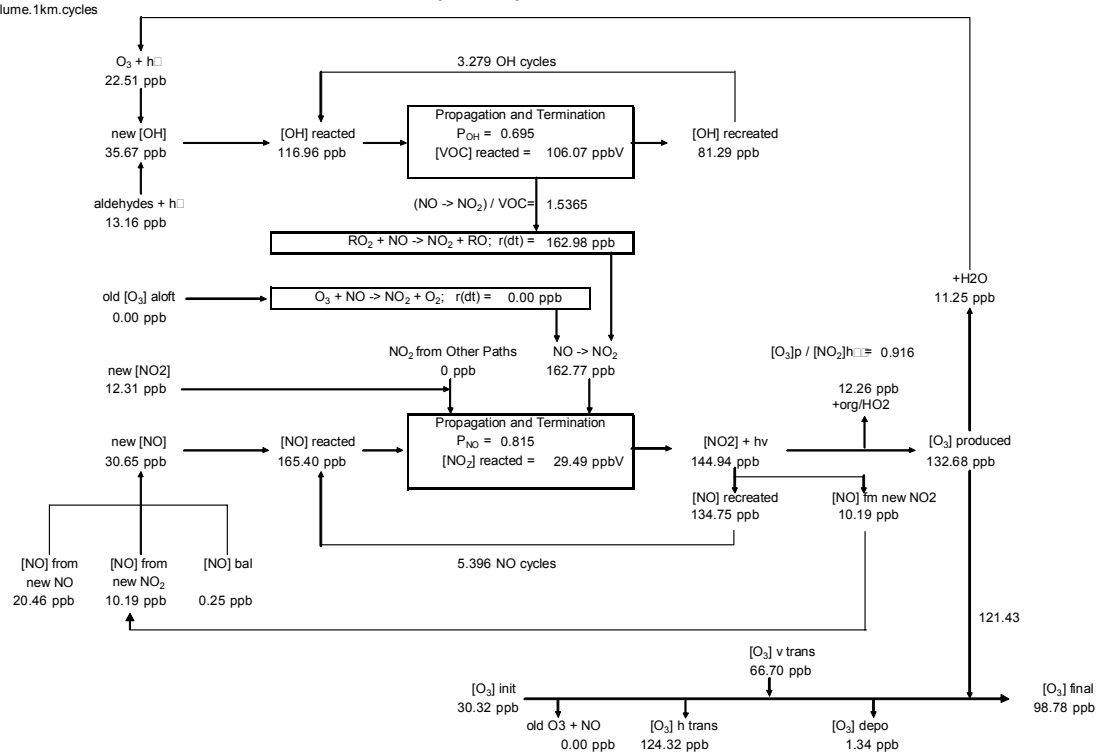
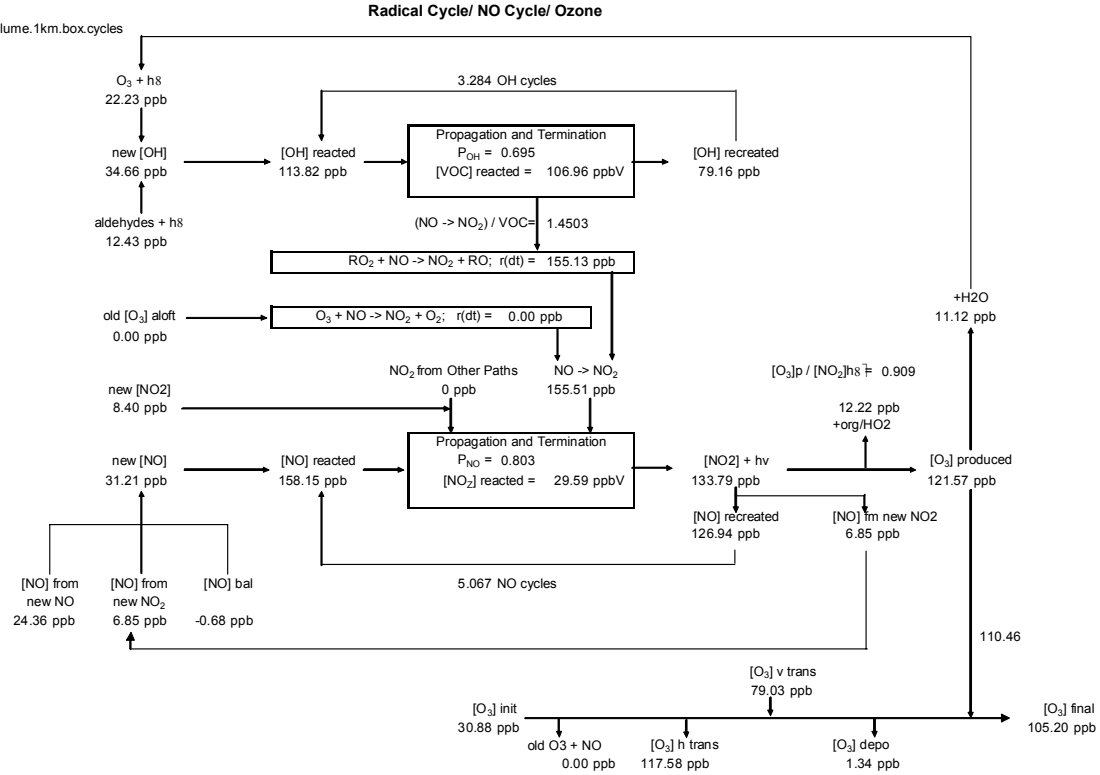
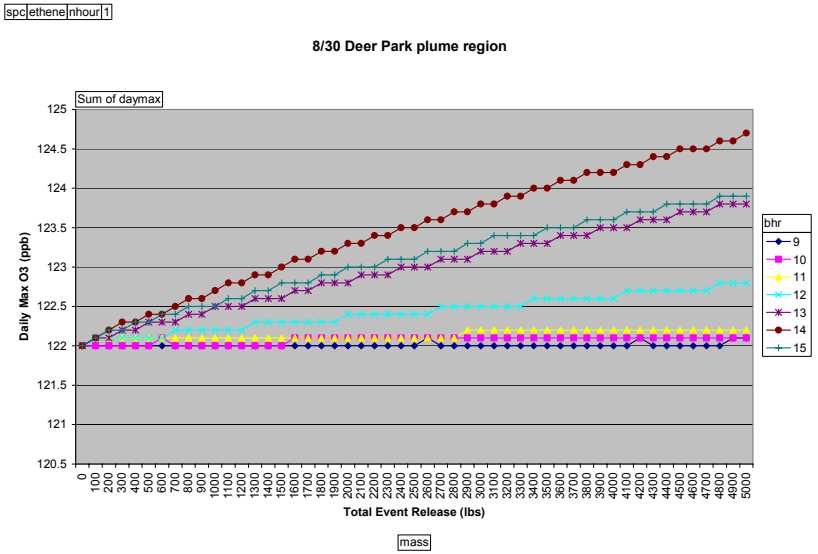
Radical Cycle/ NO Cycle/ Ozone

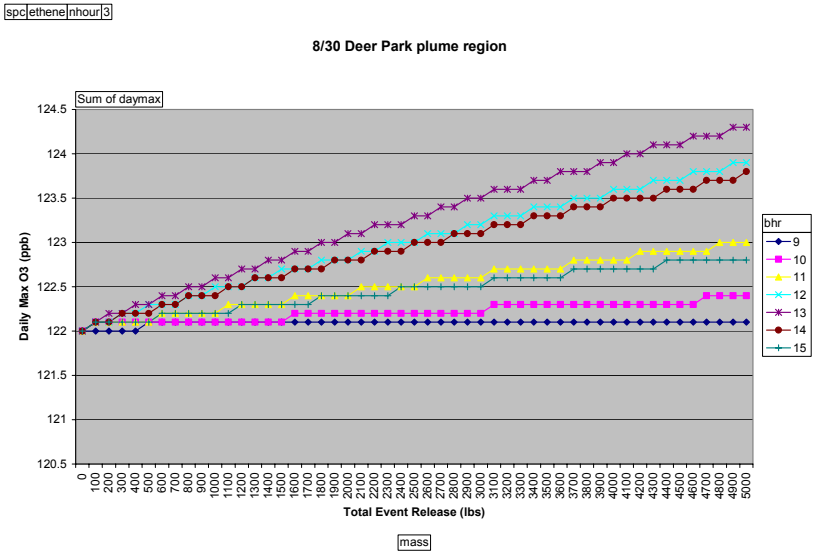


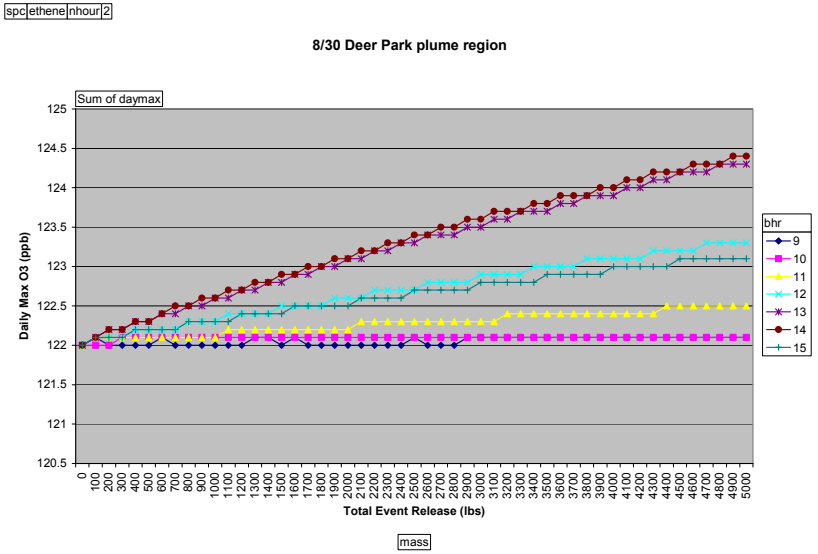
Radical Cycle/ NO Cycle/ Ozone

830.plume.1km.box.cycles

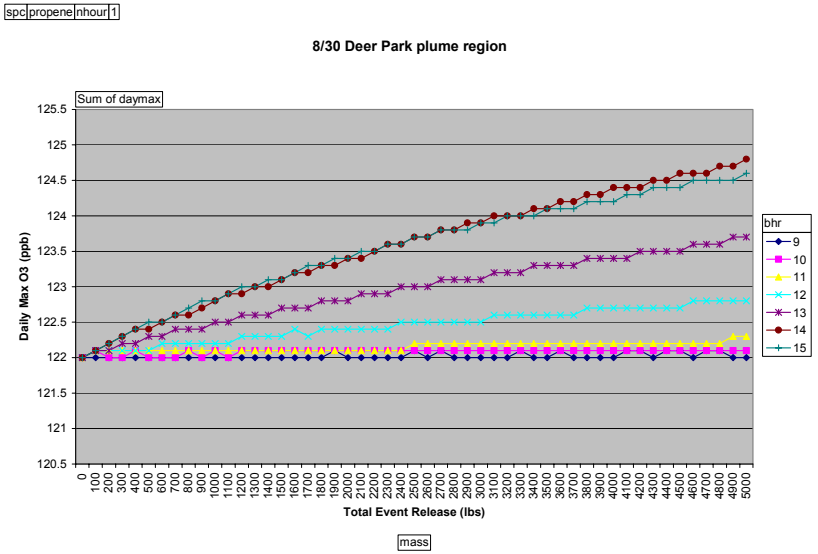


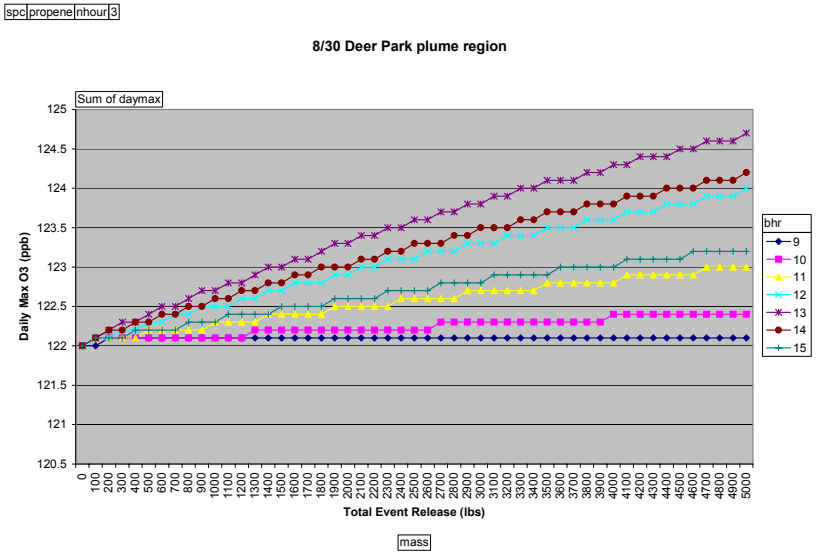


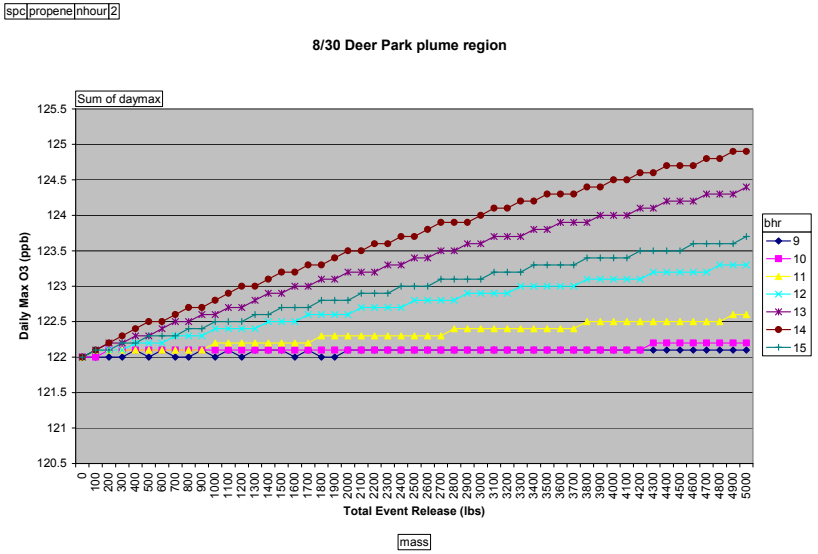




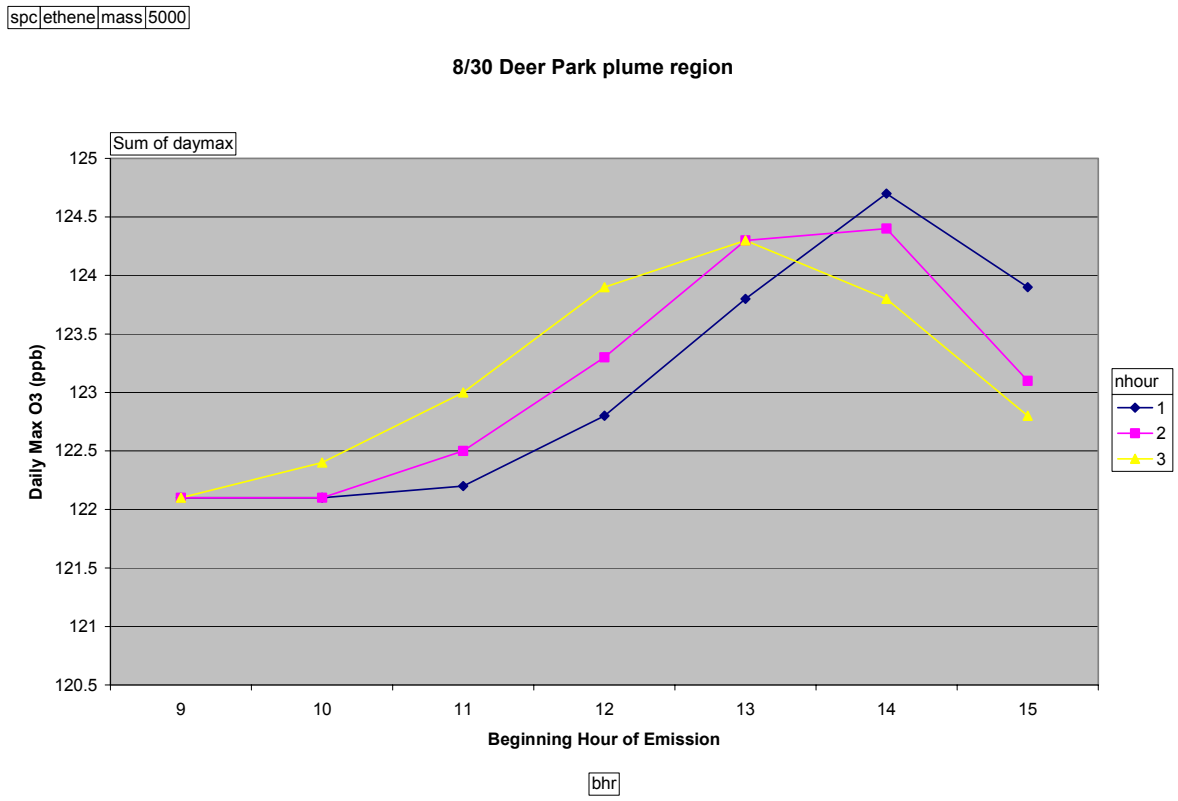
Sensitivity of Daily Max Ozone to the Ethene emission magnitude in "Plume region" of Deer Park, Aug. 30, 1km resolution (GOES1 Met): Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)



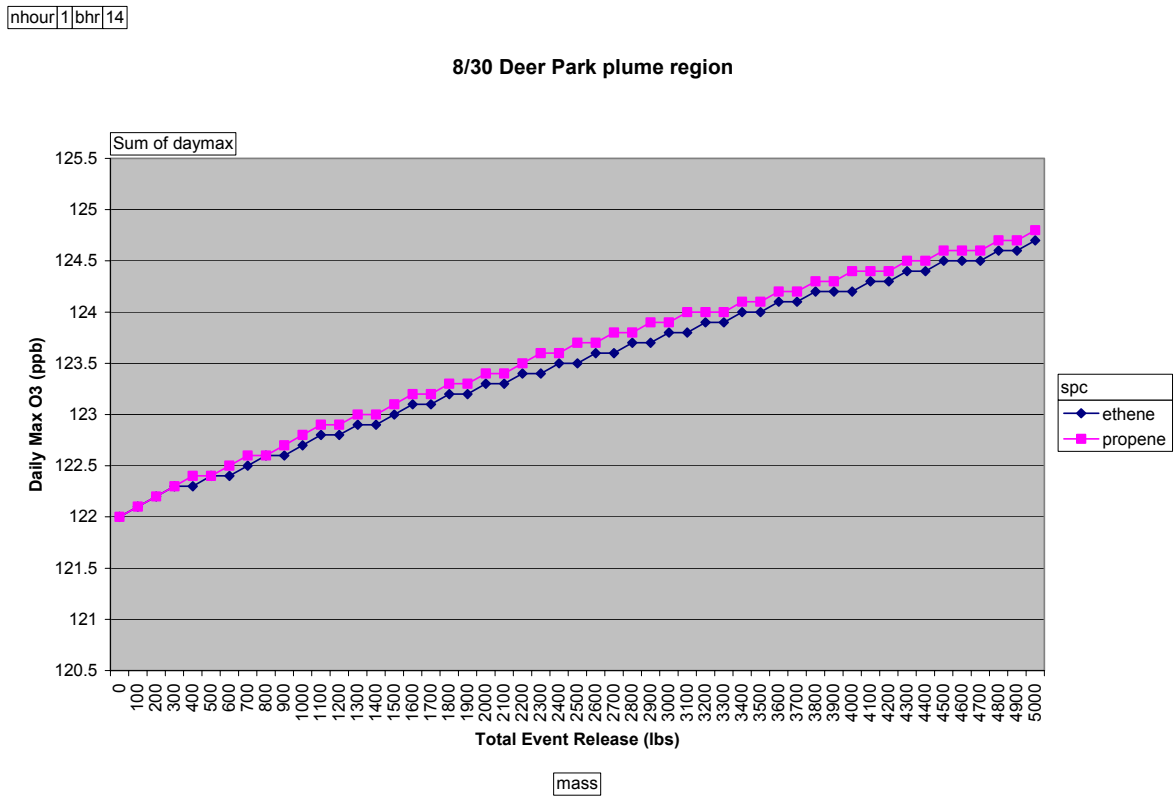




Sensitivity of Daily Max Ozone to the Propene emission magnitude in "Plume region" of Deer Park, Aug. 30, 1km resolution (GOES1 Met): Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)



Sensitivity of Daily Max Ozone to the Ethene emission timing (beginning of emission) in "Plume region" of Deer Park, Aug. 30, 1km resolution (GOES1 Met): All emissions are 5000 lbs. Legend shows the number of hours of emission event



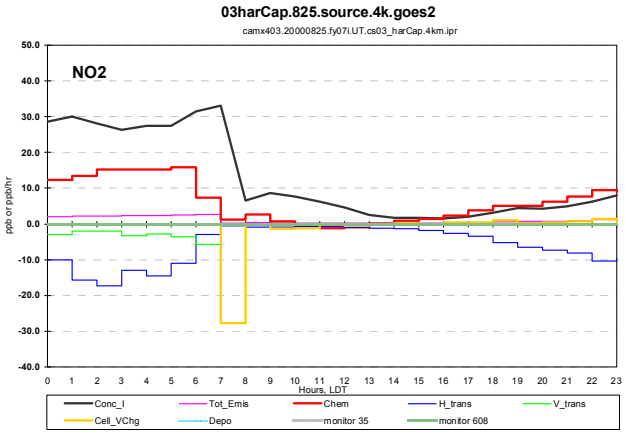
Sensitivity of Daily Max Ozone to the emission species (Ethene and Propene) in "Plume region" of Deer Park, Aug. 30, 1km resolution (GOES1 Met): All emissions are between 14:00 to 15:00. Legend shows the number of hours of emission event

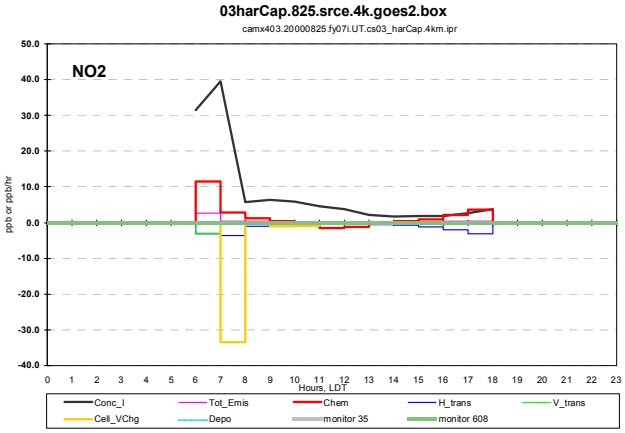
Results for fy07i.cs03_harCap.goes2 (4km resolution)

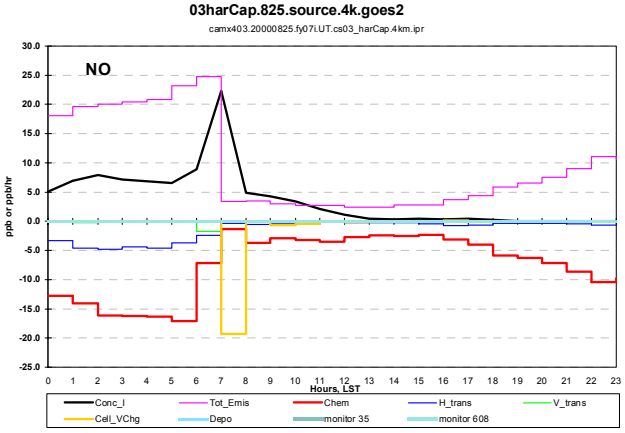
8/25 Deer Park (fy07i.cs03_harCap.4km.goes2)
8/30 Deer Park (fy07i.cs03_harCap.4km.goes2)

August 25 - Future Year 2007 (fyo7i.cs03_harCap.4km.goes2)

8_25_00 Process Analysis Box outlined in black. Black Dots represent lower left hand corner of 4 km grid cells


03harCap.825.source.4k.goes2
camx403.20000825.fy07i.UT.cs03_harCap.4km.ipr
NO2
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608


03harCap.825.srce.4k.goes2.box
camx403.20000825.fy07i.UT.cs03_harCap.4km.ipr
NO2
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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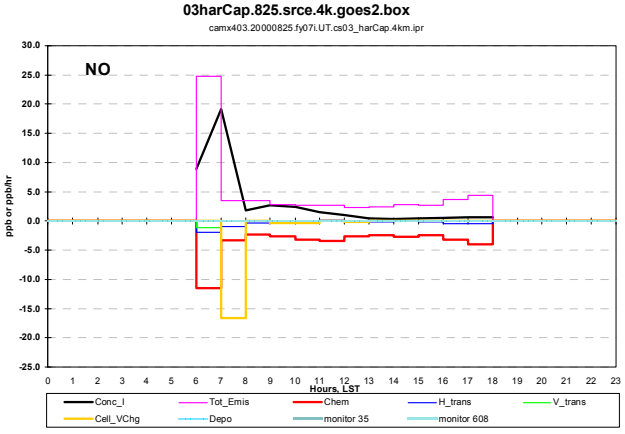
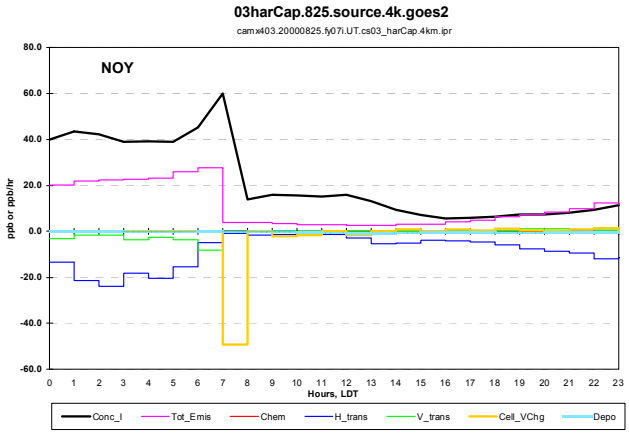
camx403.20000825.fy07i.UT.cs03_harCap.4km.ipr
NO
ppb or ppb/hr
Hours, LST
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608


03harCap.825.srce.4k.goes2.box
camx403.20000825.fy07i.UT.cs03_harCap.4km.ipr
NO
ppb or ppb/hr
Hours, LST
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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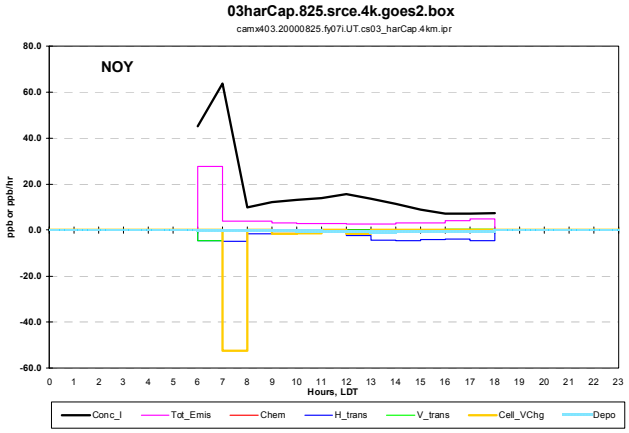
NOY
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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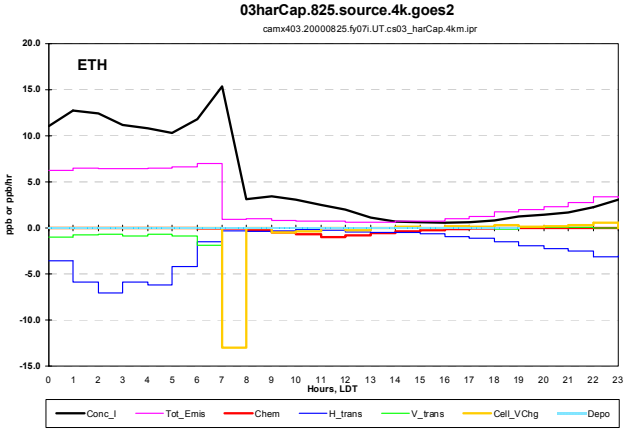
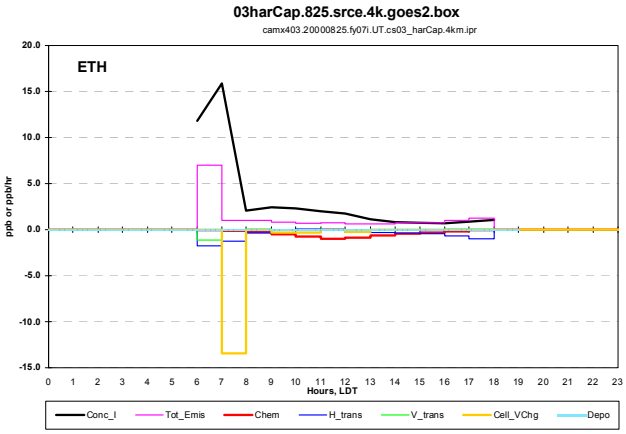
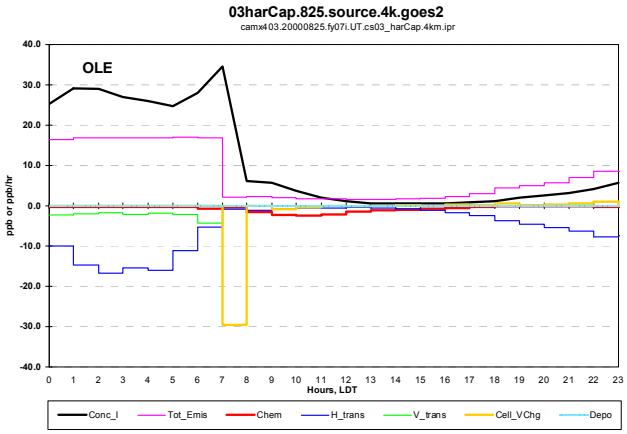
NOY
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo


03harCap.825.source.4k.goes2
camx403.20000825.fy07i.UT.cs03_harCap.4km.ipr
ETH
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo


03harCap.825.srce.4k.goes2.box
camx403.20000825.fy07i.UT.cs03_harCap.4km.ipr
ETH
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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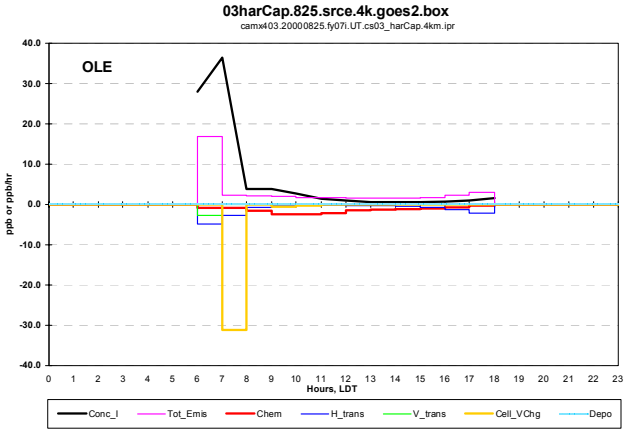
camx403.20000825.fy07i.UT.cs03_harCap.4km.ipr
OLE
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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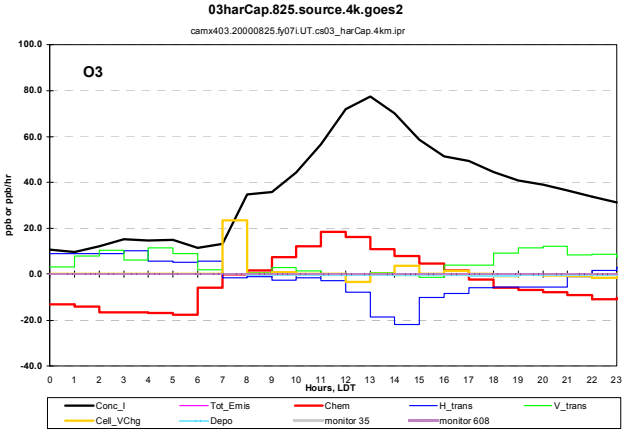
camx403.20000825.fy07i.UT.cs03_harCap.4km.ipr
OLE
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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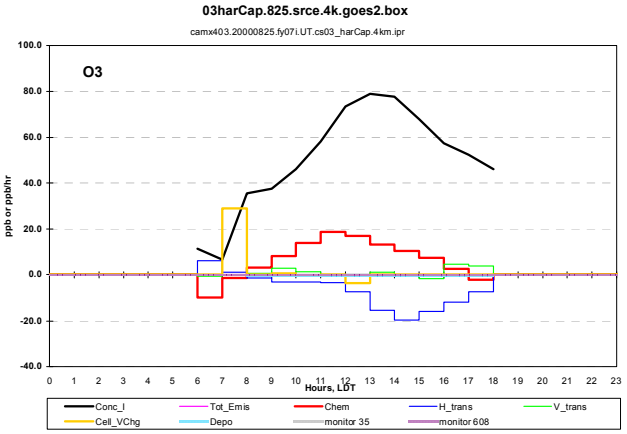
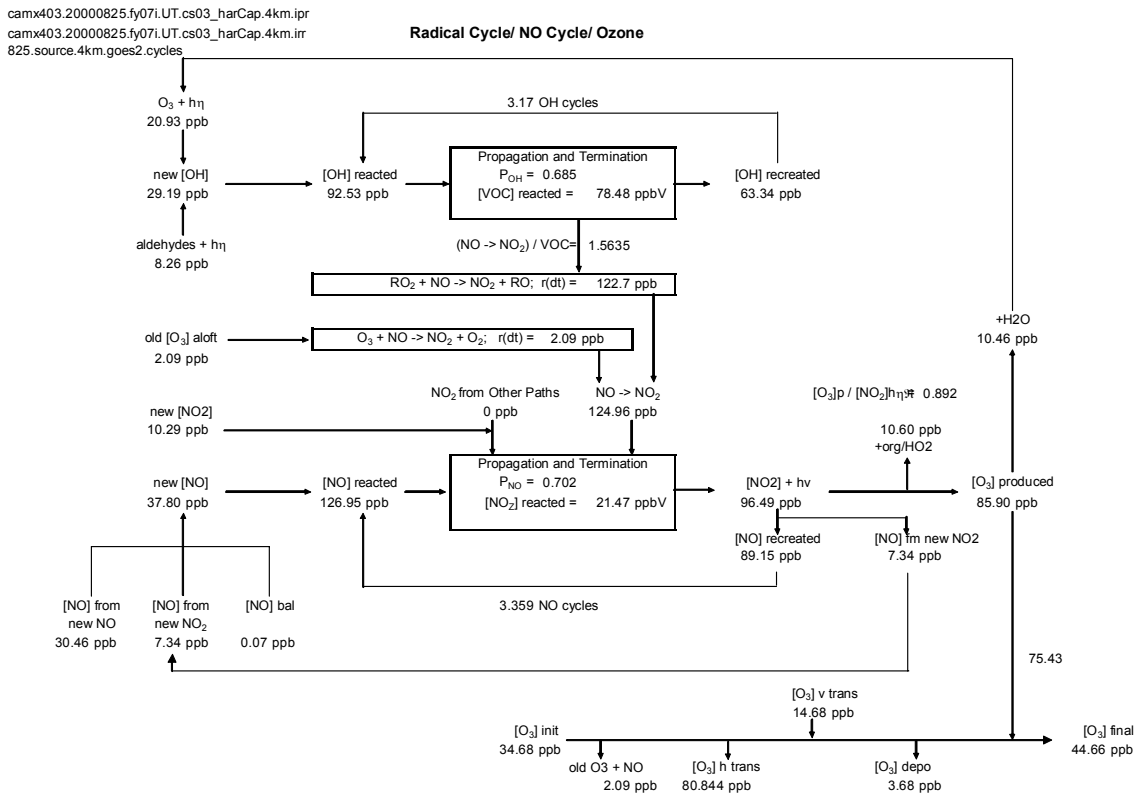
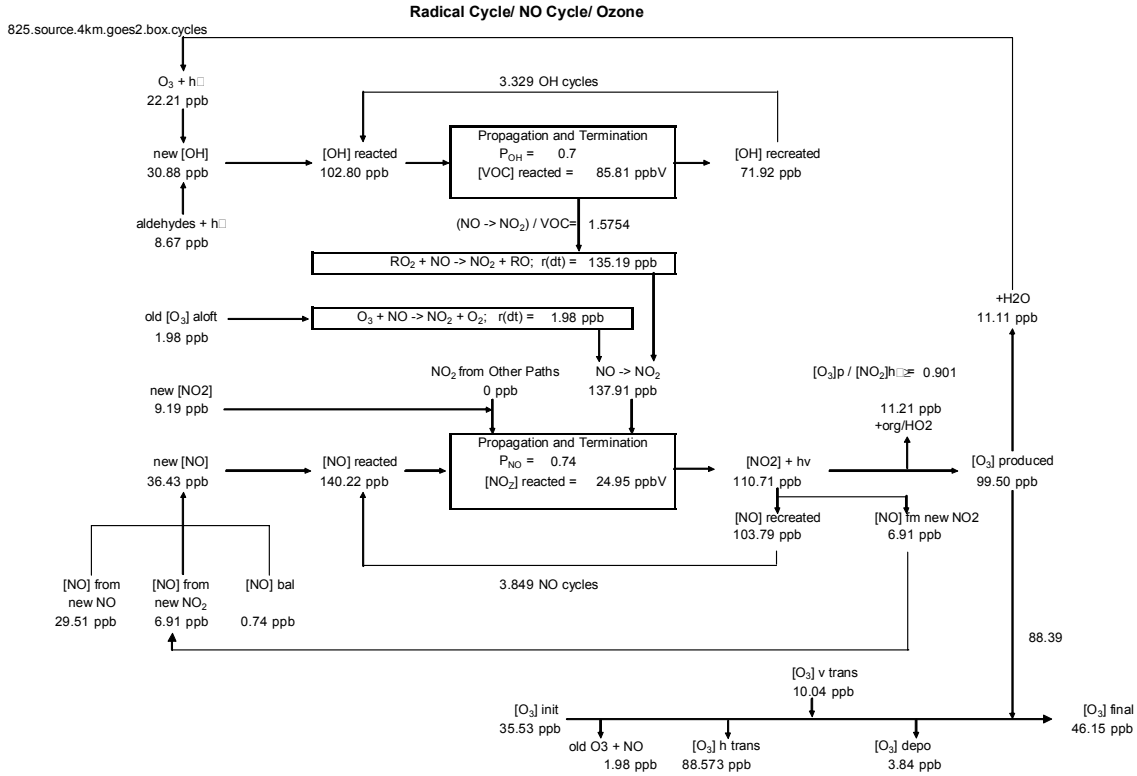
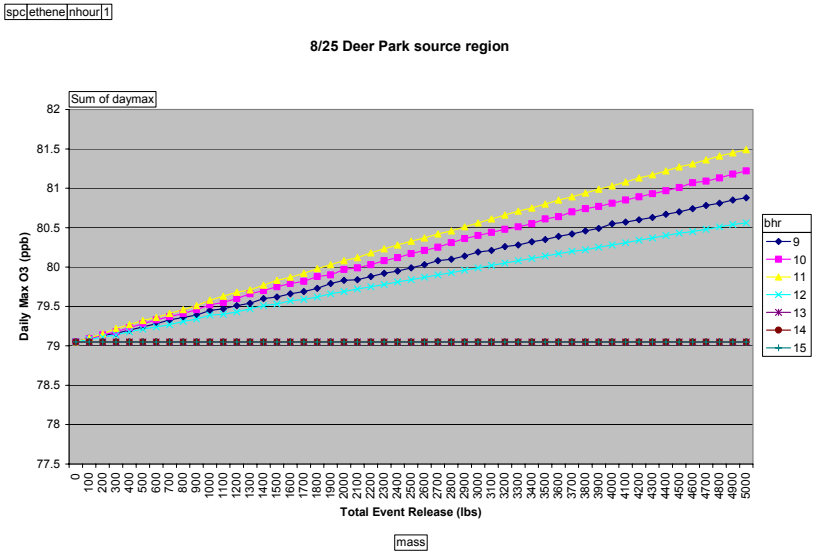
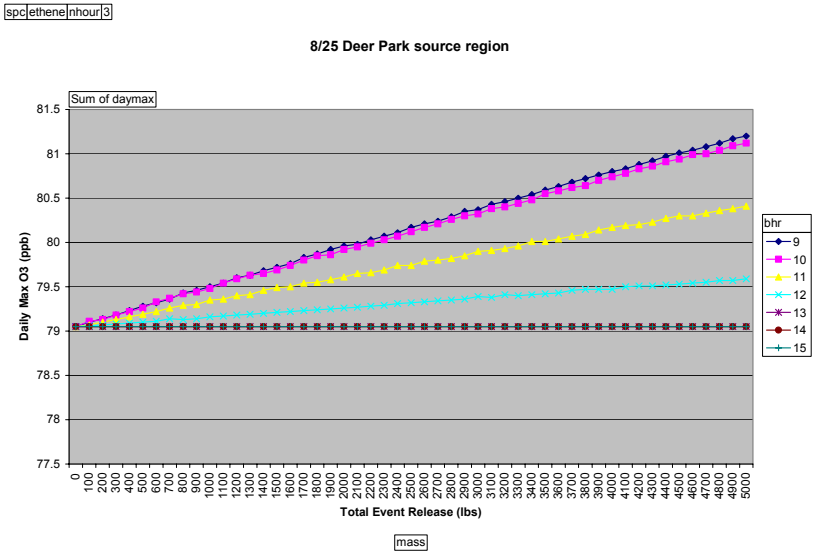
camx403.20000825.fy07i.UT.cs03_harCap.4km.ipr
O3
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608

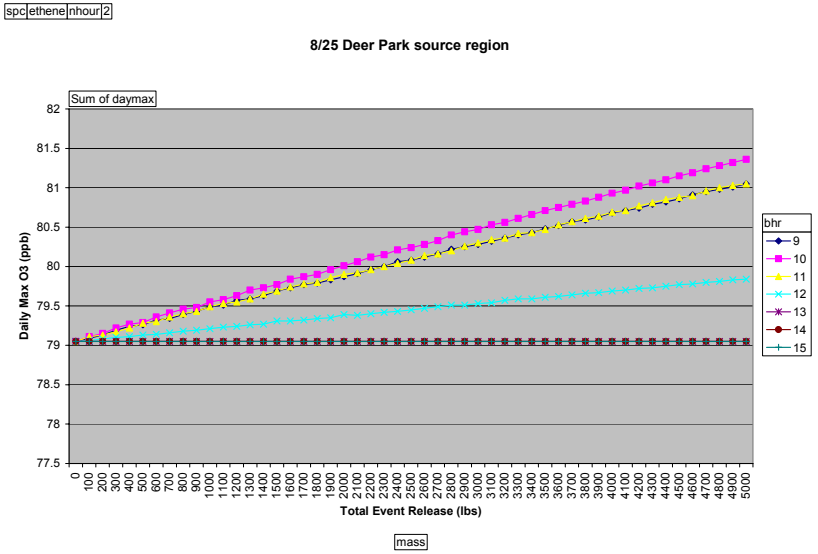

03harCap.825.srce.4k.goes2.box
camx403.20000825.fy07i.UT.cs03_harCap.4km.ipr
O3
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608


camx403.20000825.fy07i.UT.cs03_harCap.4km.ipr
camx403.20000825.fy07i.UT.cs03_harCap.4km.irr
825.source.4km.goes2.cycles
Radical Cycle/ NO Cycle/ Ozone
O3 + hη
20.93 ppb
3.17 OH cycles
new [OH]
29.19 ppb
[OH] reacted
92.53 ppb
Propagation and Termination
POH = 0.685
[VOC] reacted = 78.48 ppbV
[OH] recreated
63.34 ppb
aldehydes + hη
8.26 ppb
(NO -> NO2) / VOC= 1.5635
RO2 + NO -> NO2 + RO; r(dt) = 122.7 ppb
+H2O
10.46 ppb
old [O3] aloft
2.09 ppb
O3 + NO -> NO2 + O2; r(dt) = 2.09 ppb
NO2 from Other Paths
0 ppb
NO -> NO2
124.96 ppb
[O3]p / [NO2]hη= 0.892
new [NO2]
10.29 ppb
10.60 ppb
+org/HO2
new [NO]
37.80 ppb
[NO] reacted
126.95 ppb
Propagation and Termination
PNO = 0.702
[NOZ] reacted = 21.47 ppbV
[NO2] + hv
96.49 ppb
[O3] produced
85.90 ppb
[NO] recreated
89.15 ppb
[NO] fm new NO2
7.34 ppb
[NO] from
new NO
30.46 ppb
[NO] from
new NO2
7.34 ppb
[NO] bal
0.07 ppb
3.359 NO cycles
75.43
[O3] v trans
14.68 ppb
[O3] init
34.68 ppb
[O3] final
44.66 ppb
old O3 + NO
2.09 ppb
[O3] h trans
80.844 ppb
[O3] depo
3.68 ppb

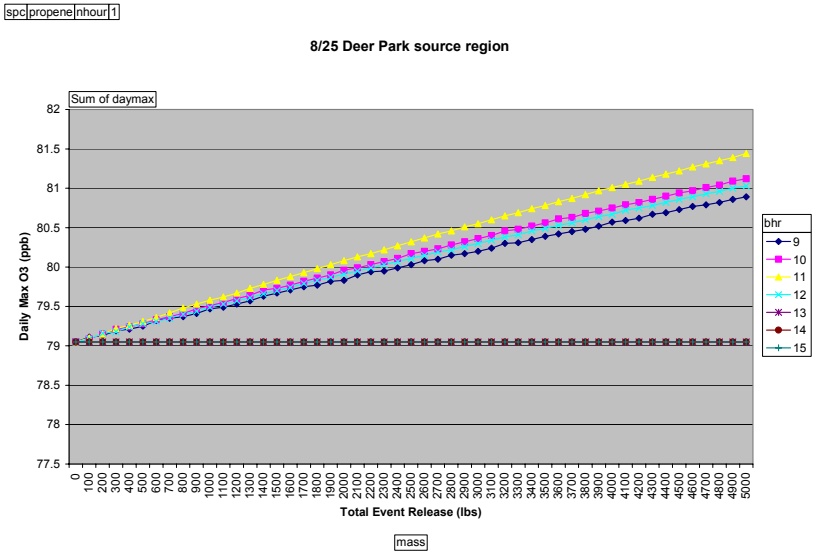

Radical Cycle/ NO Cycle/ Ozone
825.source.4km.goes2.box.cycles
O3 + h
22.21 ppb
3.329 OH cycles
new [OH]
30.88 ppb
[OH] reacted
102.80 ppb
Propagation and Termination
POH = 0.7
[VOC] reacted = 85.81 ppbV
[OH] recreated
71.92 ppb
aldehydes + h
8.67 ppb
(NO -> NO2) / VOC= 1.5754
RO2 + NO -> NO2 + RO; r(dt) = 135.19 ppb
+H2O
11.11 ppb
old [O3] aloft
1.98 ppb
O3 + NO -> NO2 + O2; r(dt) = 1.98 ppb
NO2 from Other Paths
0 ppb
NO -> NO2
137.91 ppb
[O3]p / [NO2]h= 0.901
new [NO2]
9.19 ppb
11.21 ppb
+org/HO2
new [NO]
36.43 ppb
[NO] reacted
140.22 ppb
Propagation and Termination
PNO = 0.74
[NOZ] reacted = 24.95 ppbV
[NO2] + hv
110.71 ppb
[O3] produced
99.50 ppb
[NO] recreated
103.79 ppb
[NO] fm new NO2
6.91 ppb
[NO] from
new NO
29.51 ppb
[NO] from
new NO2
6.91 ppb
[NO] bal
0.74 ppb
3.849 NO cycles
88.39
[O3] v trans
10.04 ppb
[O3] init
35.53 ppb
[O3] final
46.15 ppb
old O3 + NO
1.98 ppb
[O3] h trans
88.573 ppb
[O3] depo
3.84 ppb

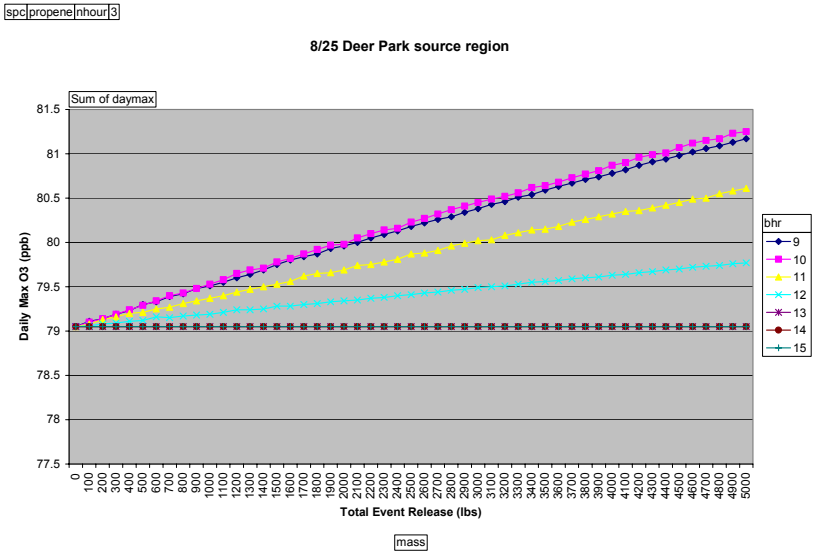


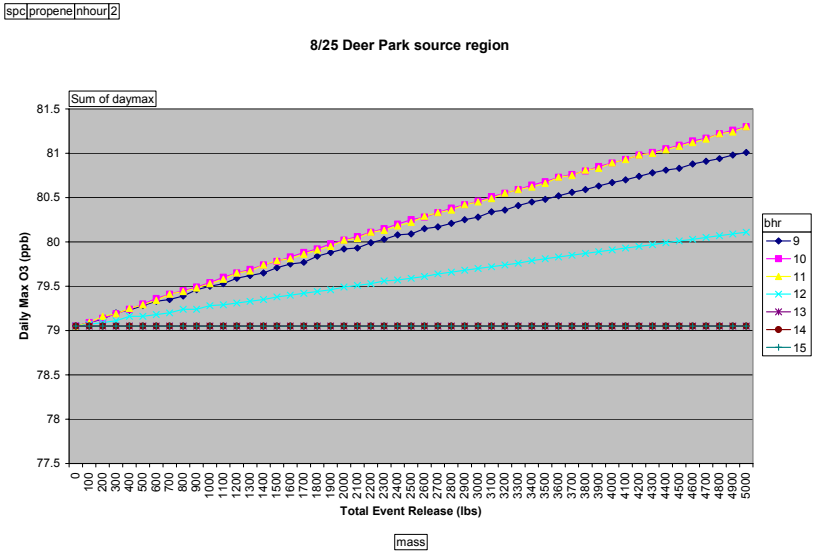




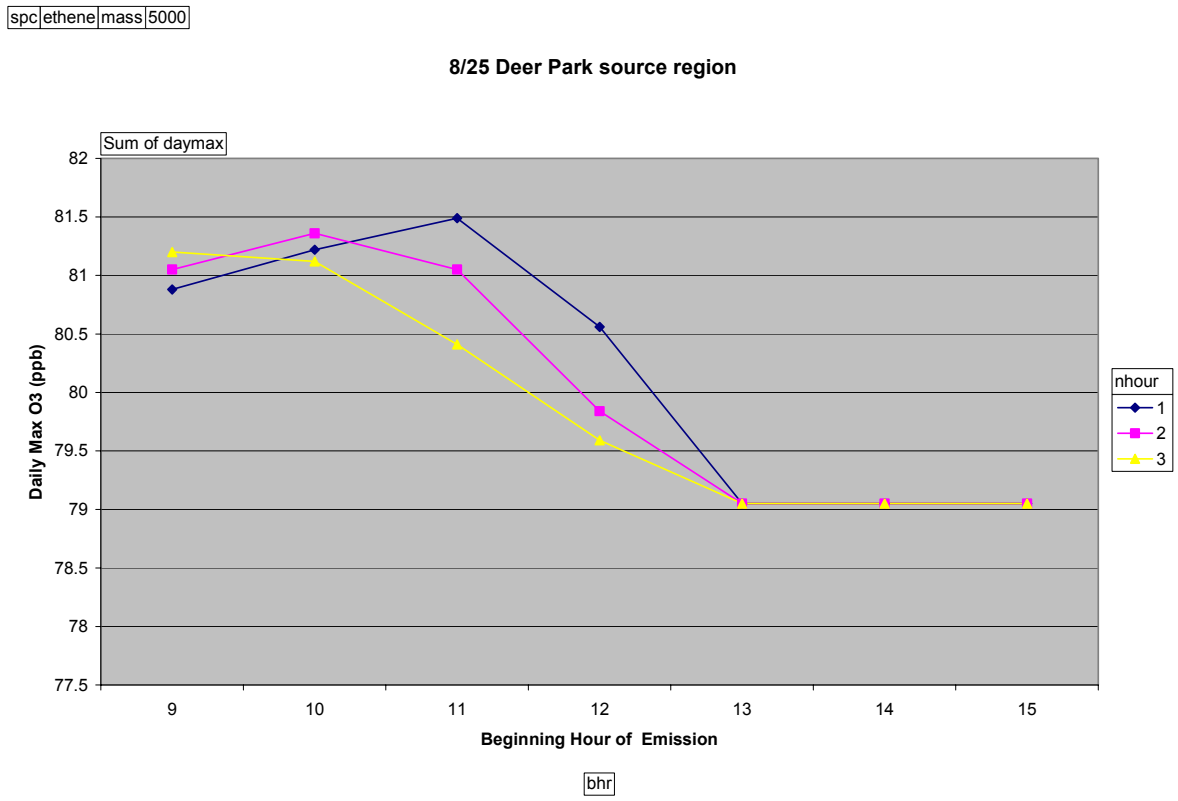
Sensitivity of Daily Max Ozone to the Ethene emission magnitude in "Source region" of Deer Park, Aug. 25, 4km resolution (GOES2 Met): Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)



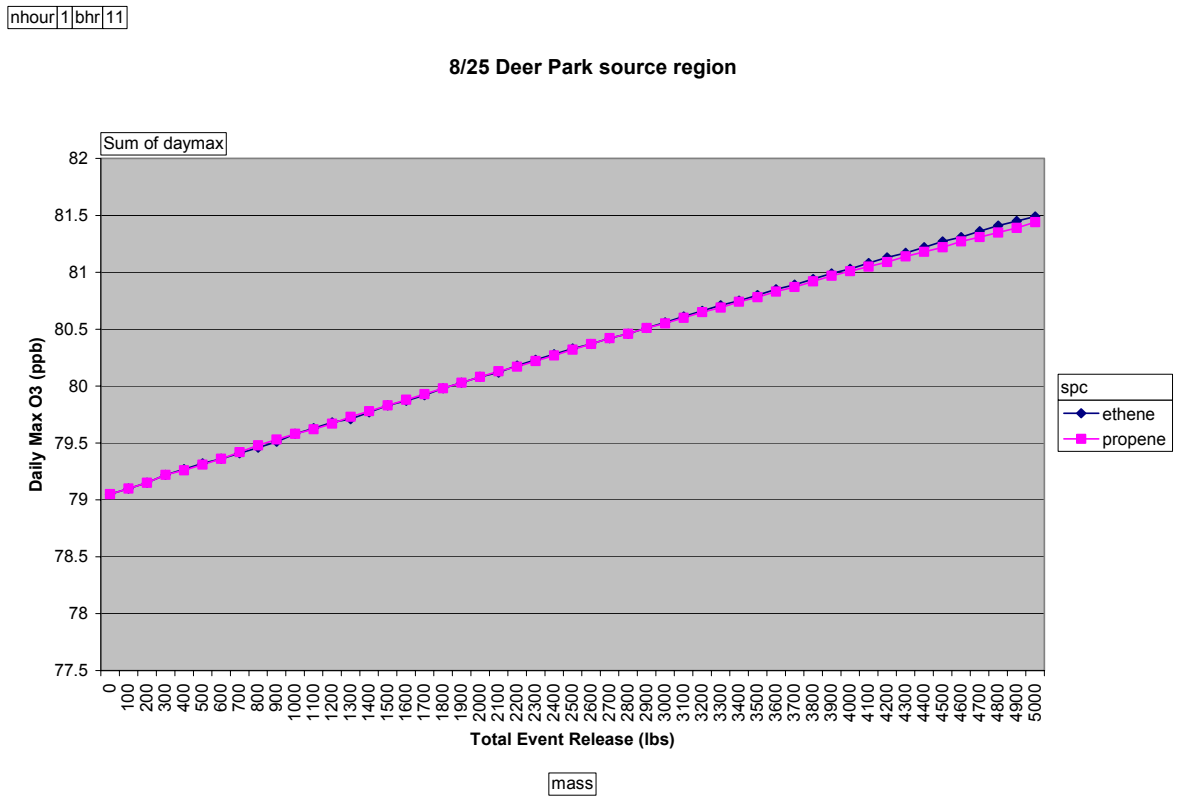




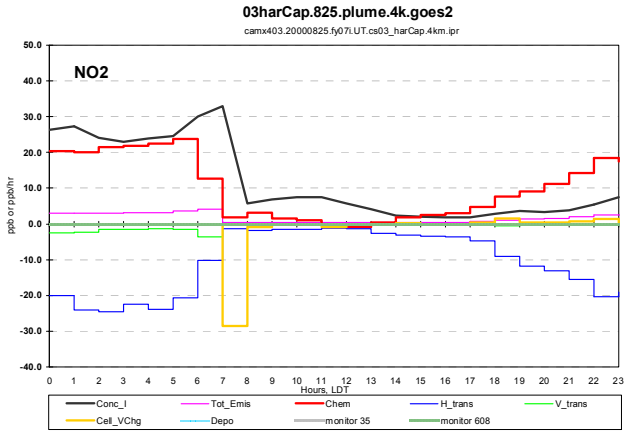
Sensitivity of Daily Max Ozone to the Propene emission magnitude in "Source region" of Deer Park, Aug. 25, 4km resolution (GOES2 Met): Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)

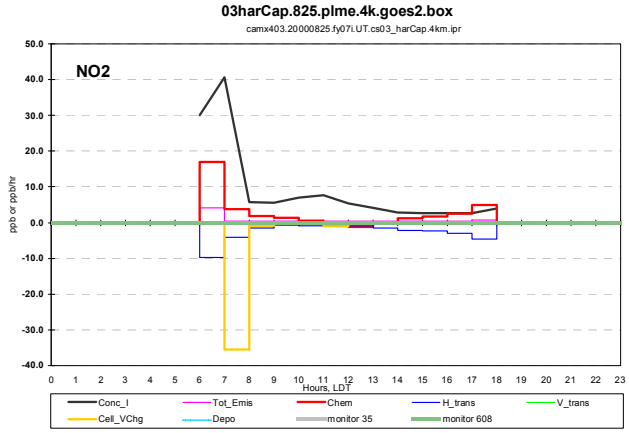


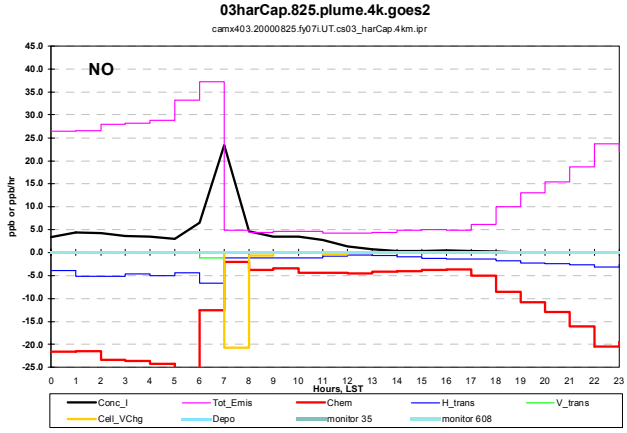
Sensitivity of Daily Max Ozone to the Ethene emission timing (beginning of emission) in "Source region" of Deer Park, Aug. 25, 4km resolution (GOES2 Met): All emissions are 5000 lbs. Legend shows the number of hours of emission event

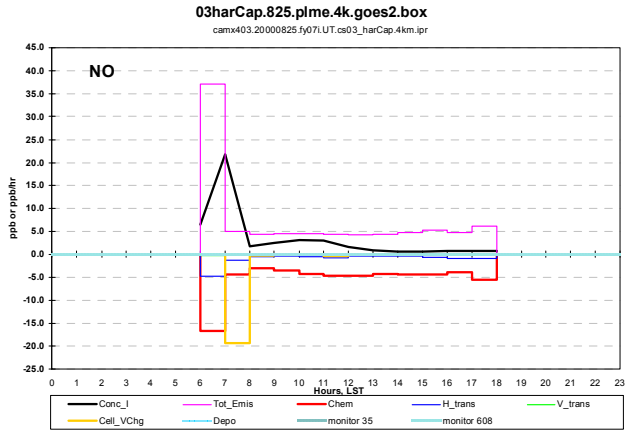


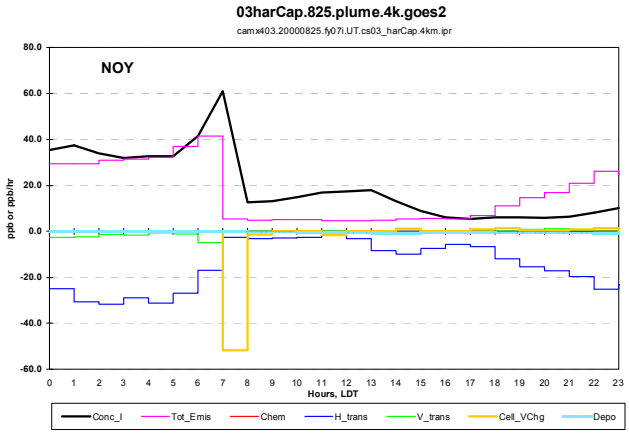
Sensitivity of Daily Max Ozone to the emission species (Ethene and Propene) in "Source region" of Deer Park, Aug. 25, 4km resolution (GOES2 Met): All emissions are between 11:00 to 12:00. Legend shows the number of hours of emission event


03harCap.825.plume.4k.goes2
camx403.20000825.fy07i.UT.cs03_harCap.4km.ipr
NO2
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608


03harCap.825.plme.4k.goes2.box
camx403.20000825.fy07i.UT.cs03_harCap.4km.ipr
NO2
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608


03harCap.825.plume.4k.goes2
camx403.20000825.fy07i.UT.cs03_harCap.4km.ipr
NO
ppb or ppb/hr
Hours, LST
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608


03harCap.825.plme.4k.goes2.box
camx403.20000825.fy07i.UT.cs03_harCap.4km.ipr
NO
ppb or ppb/hr
Hours, LST
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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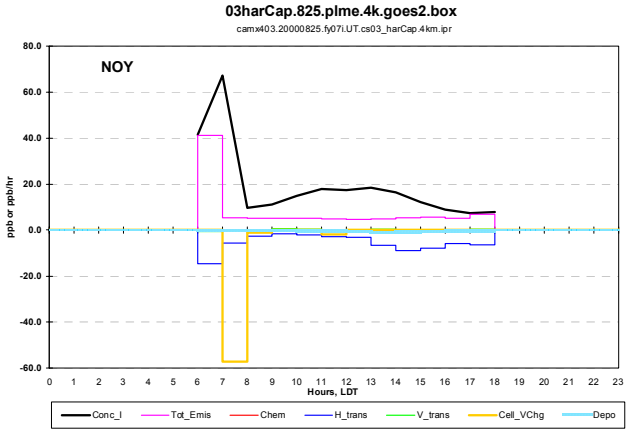
NOY
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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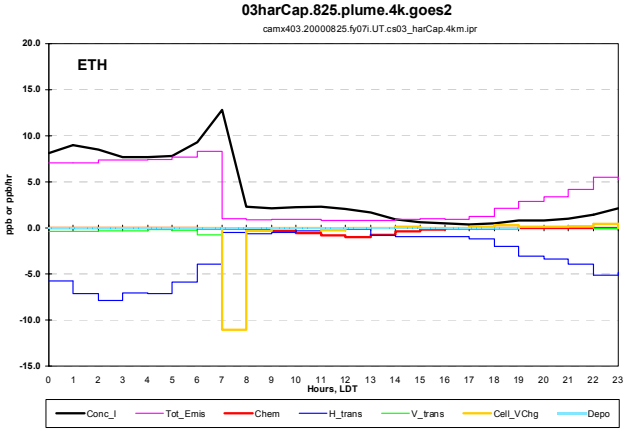
NOY
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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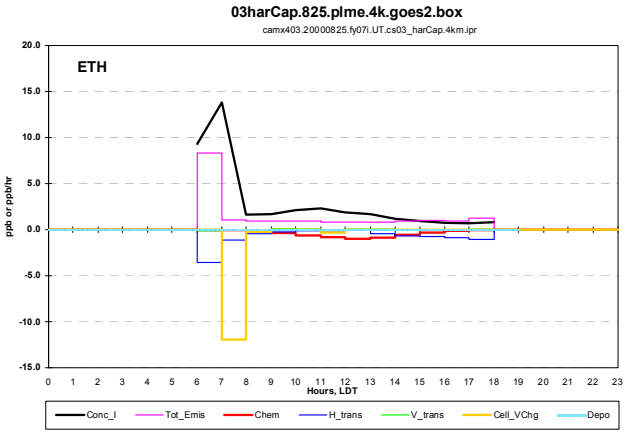
ETH
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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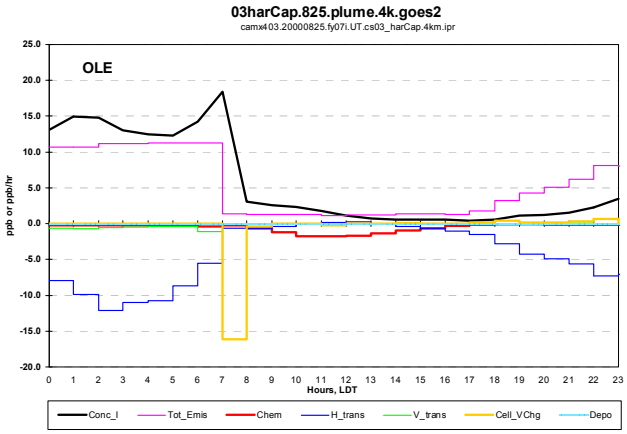
ETH
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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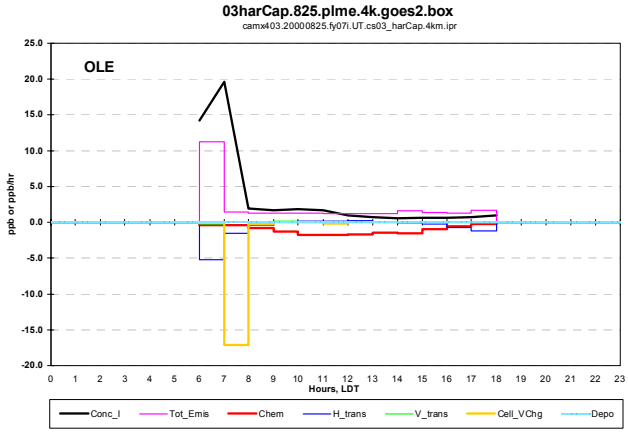
OLE
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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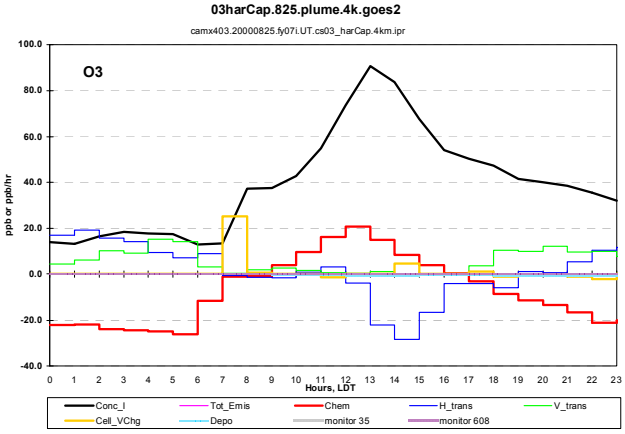
OLE
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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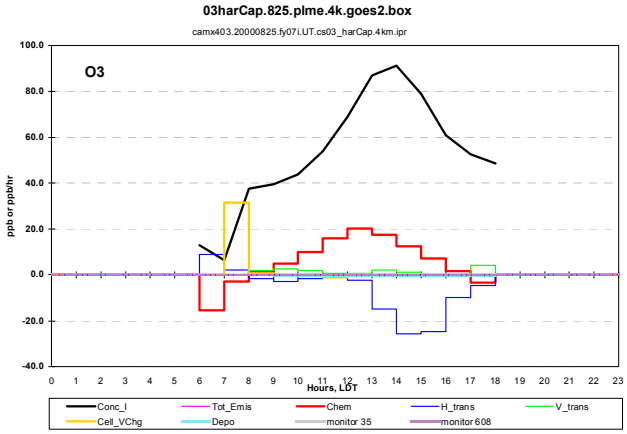
camx403.20000825.fy07i.UT.cs03_harCap.4km.ipr
O3
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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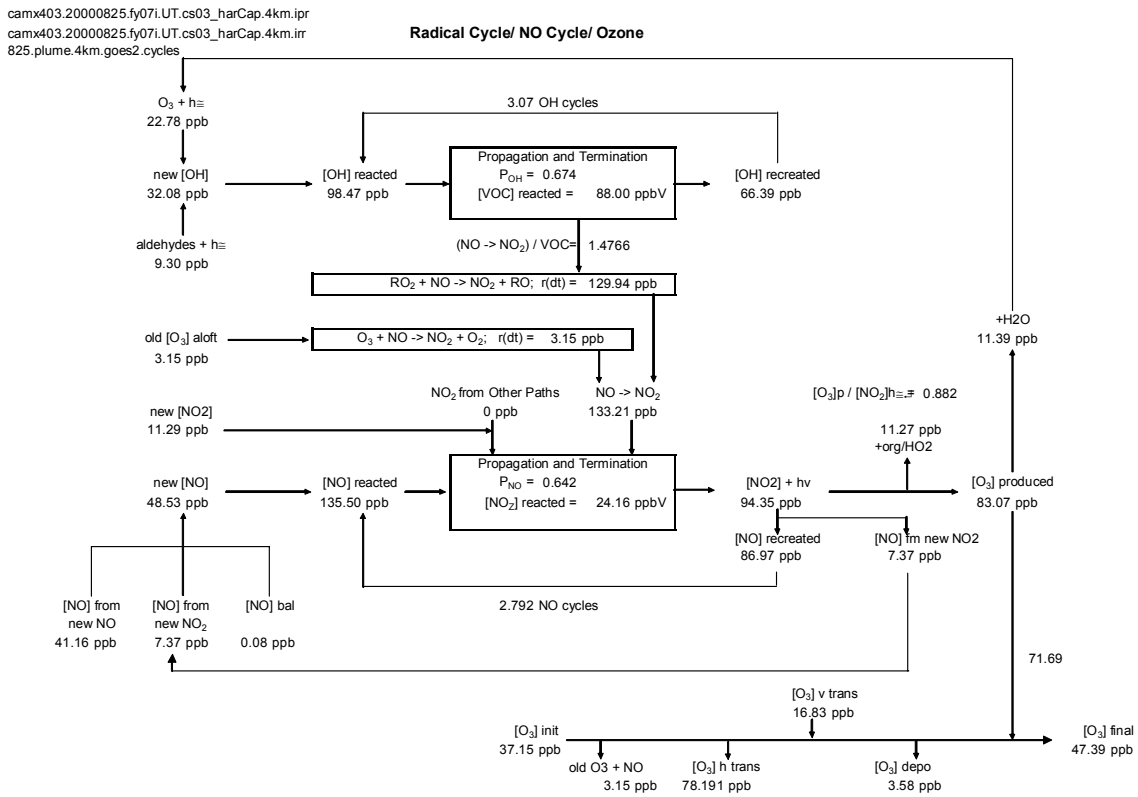
camx403.20000825.fy07i.UT.cs03_harCap.4km.ipr
O3
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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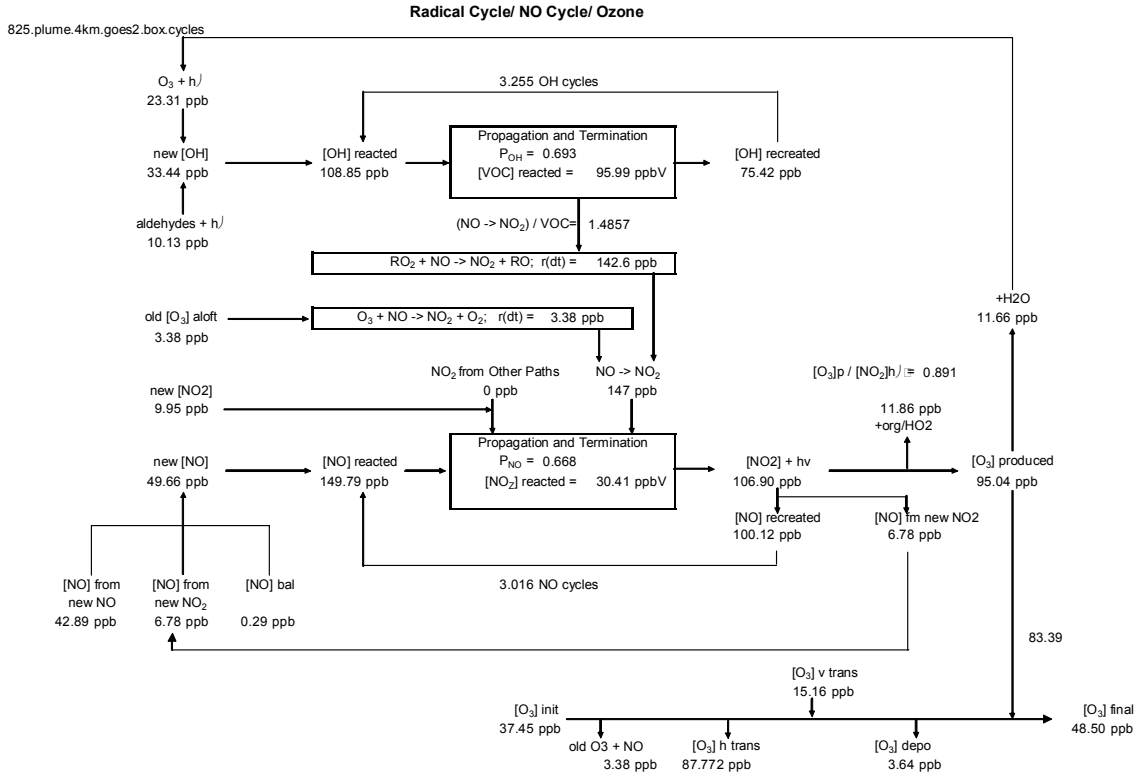
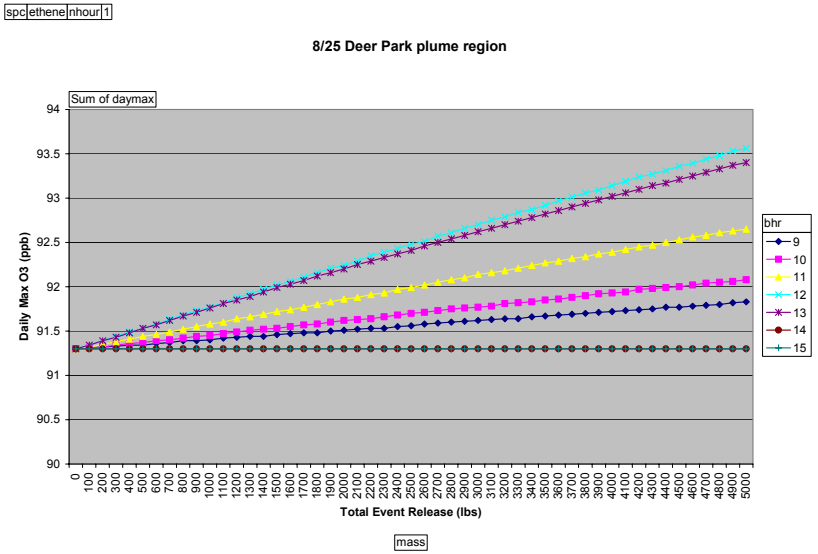
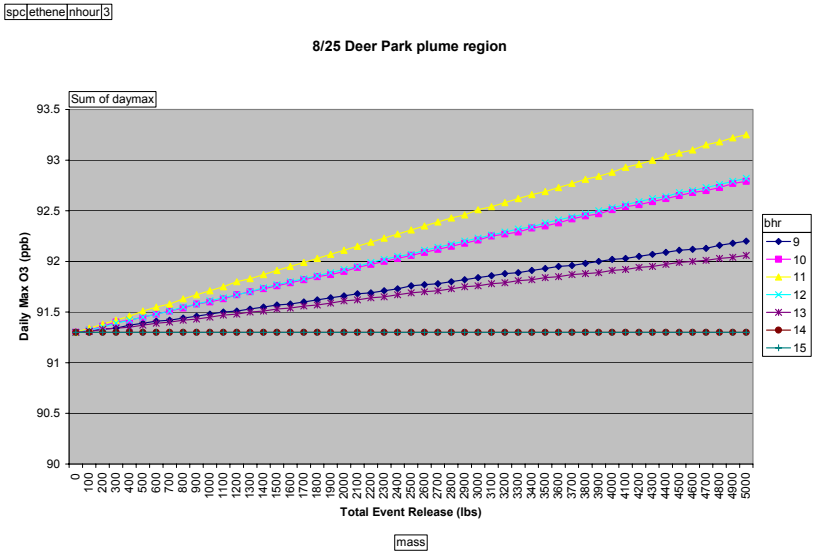
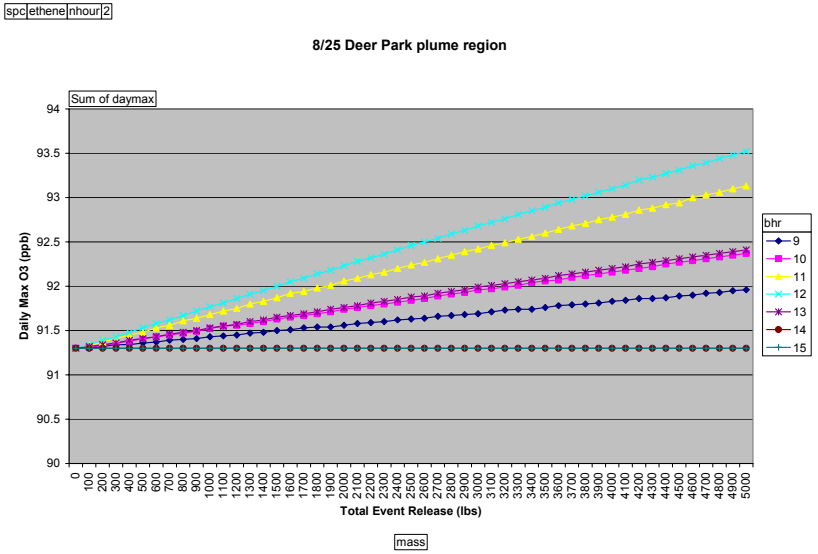
camx403.20000825.fy07i.UT.cs03_harCap.4km.irr
825.plume.4km.goes2.cycles
Radical Cycle/ NO Cycle/ Ozone
O3 + h≡
22.78 ppb
3.07 OH cycles
new [OH]
32.08 ppb
[OH] reacted
98.47 ppb
Propagation and Termination
POH = 0.674
[VOC] reacted = 88.00 ppbV
[OH] recreated
66.39 ppb
aldehydes + h≡
9.30 ppb
(NO -> NO2) / VOC= 1.4766
RO2 + NO -> NO2 + RO; r(dt) = 129.94 ppb
old [O3] aloft
3.15 ppb
O3 + NO -> NO2 + O2; r(dt) = 3.15 ppb
+H2O
11.39 ppb
NO2 from Other Paths
0 ppb
NO -> NO2
133.21 ppb
[O3]p / [NO2]h≡ = 0.882
new [NO2]
11.29 ppb
11.27 ppb
+org/HO2
new [NO]
48.53 ppb
[NO] reacted
135.50 ppb
Propagation and Termination
PNO = 0.642
[NOZ] reacted = 24.16 ppbV
[NO2] + hv
94.35 ppb
[O3] produced
83.07 ppb
[NO] recreated
86.97 ppb
[NO] fm new NO2
7.37 ppb
[NO] from
new NO
41.16 ppb
[NO] from
new NO2
7.37 ppb
[NO] bal
0.08 ppb
2.792 NO cycles
71.69
[O3] v trans
16.83 ppb
[O3] init
37.15 ppb
[O3] final
47.39 ppb
old O3 + NO
3.15 ppb
[O3] h trans
78.191 ppb
[O3] depo
3.58 ppb

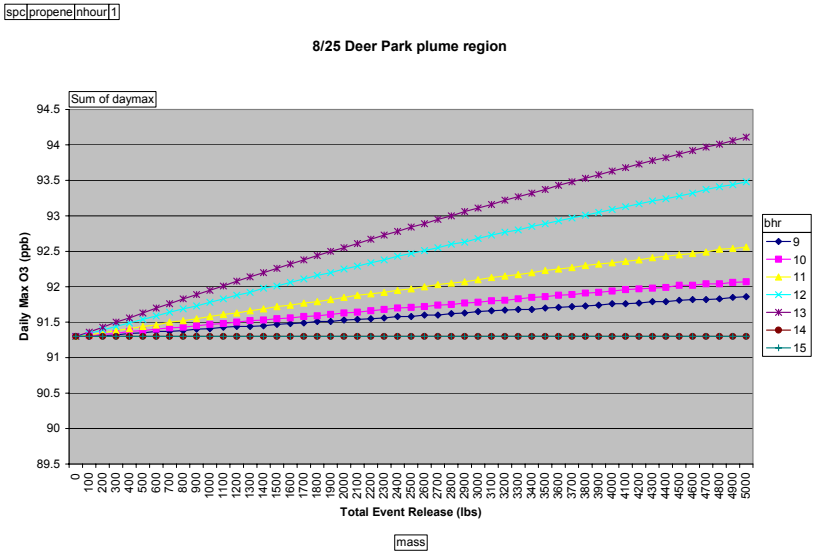

Radical Cycle/ NO Cycle/ Ozone
825.plume.4km.goes2.box.cycles
O3 + h
23.31 ppb
3.255 OH cycles
new [OH]
33.44 ppb
[OH] reacted
108.85 ppb
Propagation and Termination
POH = 0.693
[VOC] reacted = 95.99 ppbV
[OH] recreated
75.42 ppb
aldehydes + h
10.13 ppb
(NO -> NO2) / VOC= 1.4857
RO2 + NO -> NO2 + RO; r(dt) = 142.6 ppb
old [O3] aloft
3.38 ppb
O3 + NO -> NO2 + O2; r(dt) = 3.38 ppb
+H2O
11.66 ppb
NO2 from Other Paths
0 ppb
NO -> NO2
147 ppb
[O3]p / [NO2]h = 0.891
new [NO2]
9.95 ppb
11.86 ppb
+org/HO2
new [NO]
49.66 ppb
[NO] reacted
149.79 ppb
Propagation and Termination
PNO = 0.668
[NOZ] reacted = 30.41 ppbV
[NO2] + hv
106.90 ppb
[O3] produced
95.04 ppb
[NO] recreated
100.12 ppb
[NO] fm new NO2
6.78 ppb
[NO] from
new NO
42.89 ppb
[NO] from
new NO2
6.78 ppb
[NO] bal
0.29 ppb
3.016 NO cycles
83.39
[O3] v trans
15.16 ppb
[O3] init
37.45 ppb
[O3] final
48.50 ppb
old O3 + NO
3.38 ppb
[O3] h trans
87.772 ppb
[O3] depo
3.64 ppb

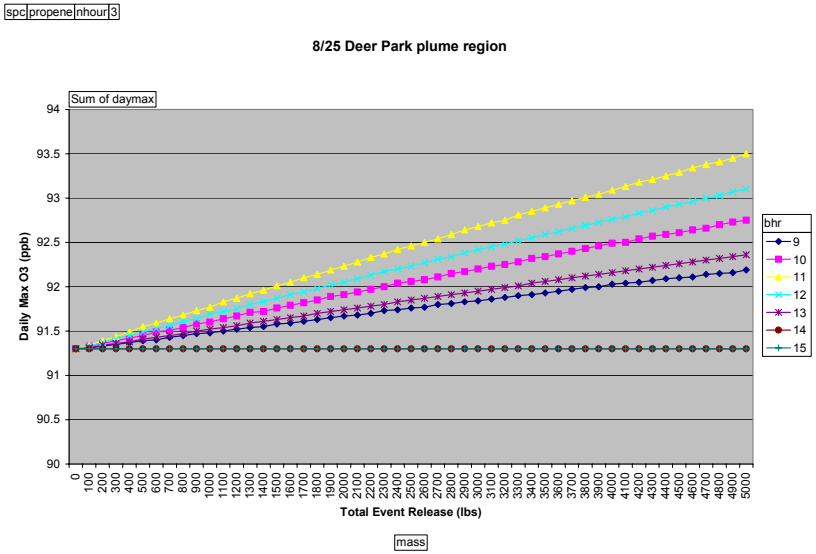


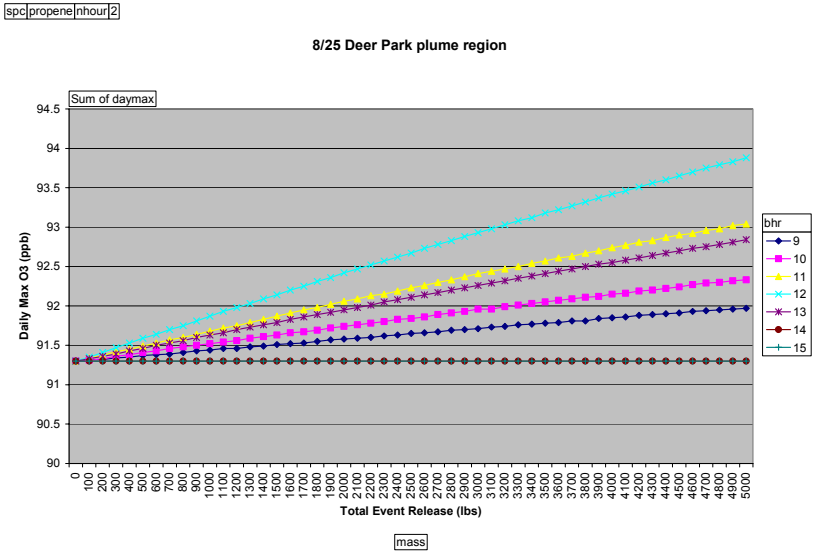




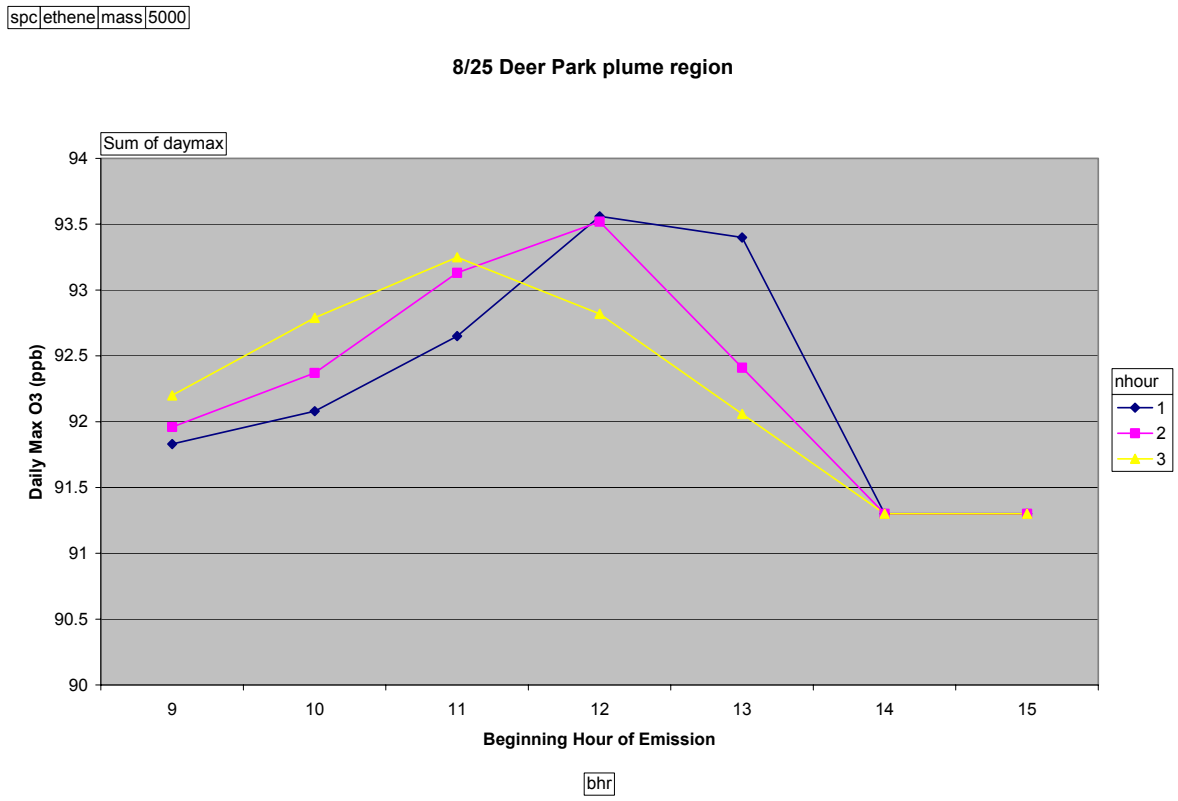
Sensitivity of Daily Max Ozone to the Ethene emission magnitude in "Plume region" of Deer Park, Aug. 25, 4km resolution (GOES2 Met): Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)



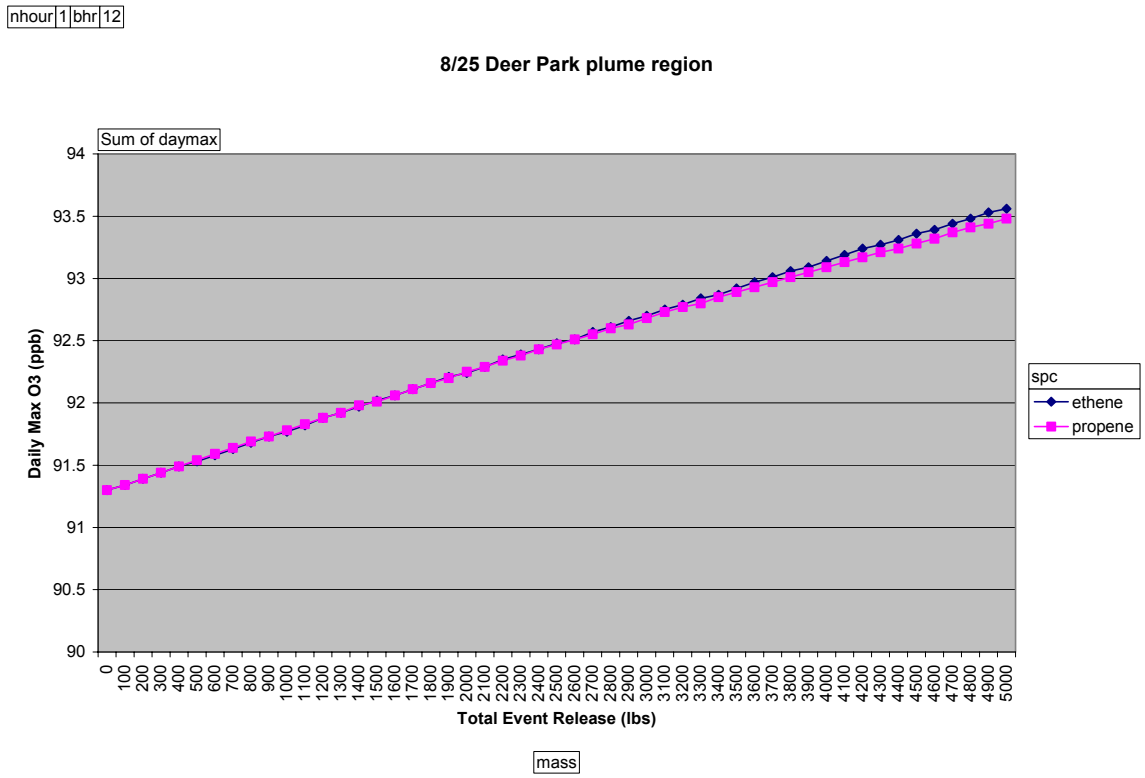




Sensitivity of Daily Max Ozone to the Propene emission magnitude in "Plume region" of Deer Park, Aug. 25, 4km resolution (GOES2 Met): Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)

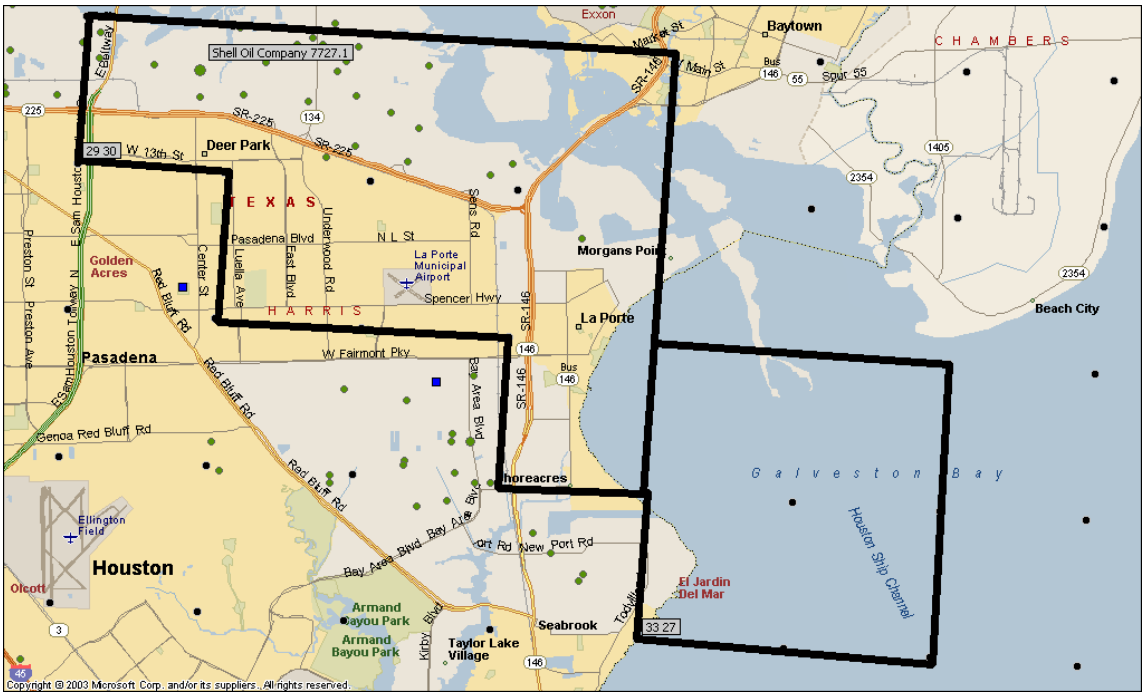


Sensitivity of Daily Max Ozone to the Ethene emission timing (beginning of emission) in "Plume region" of Deer Park, Aug. 25, 4km resolution (GOES2 Met): All emissions are 5000 lbs. Legend shows the number of hours of emission event

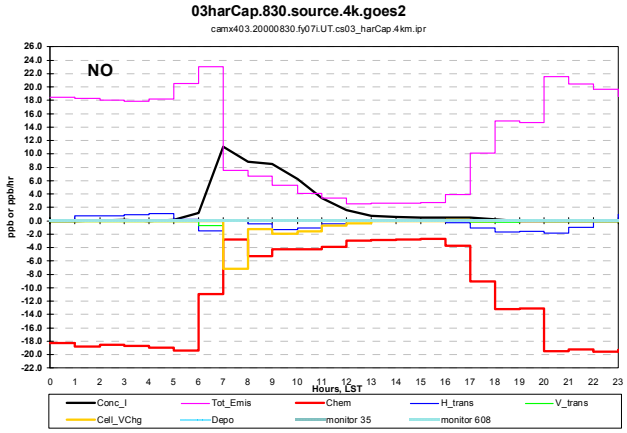


Sensitivity of Daily Max Ozone to the emission species (Ethene and Propene) in "Plume region" of Deer Park, Aug. 25, 4km resolution (GOES2 Met): All emissions are between 12:00 to 13:00. Legend shows the number of hours of emission event

August 30 - Future Year 2007 (fyo7i.cs03_harCap.4km.goes2)



8_30_00 Process Analysis Box outlined in black. Black Dots represent lower left hand corner of 4 km grid cells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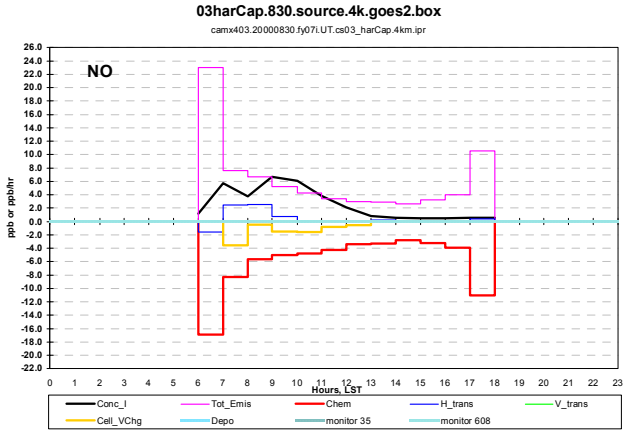
camx403.20000830.fy07i.UT.cs03_harCap.4km.ipr
NO
ppb or ppb/hr
Hours, LST
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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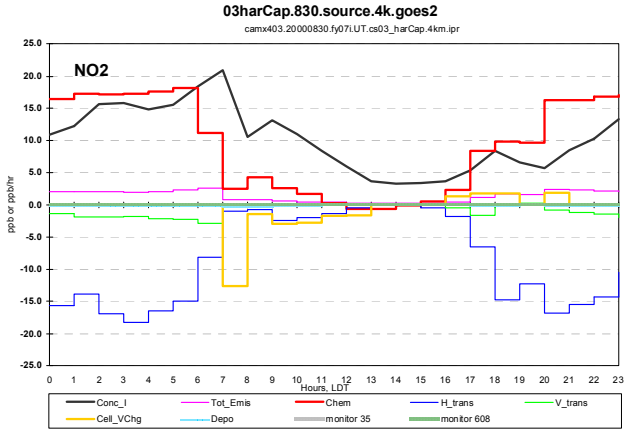
NO
ppb or ppb/hr
Hours, LST
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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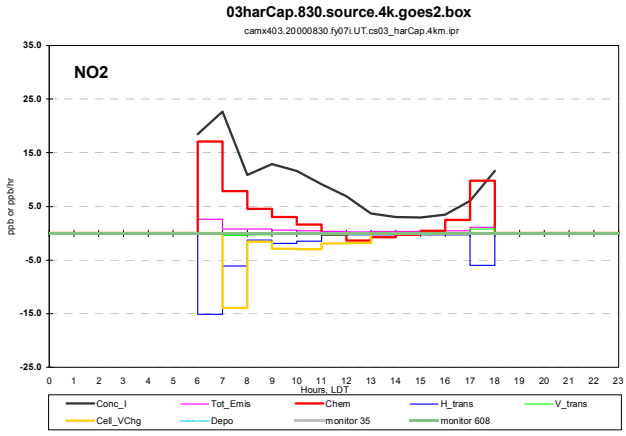
NO2
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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NO2
ppb or ppb/hr
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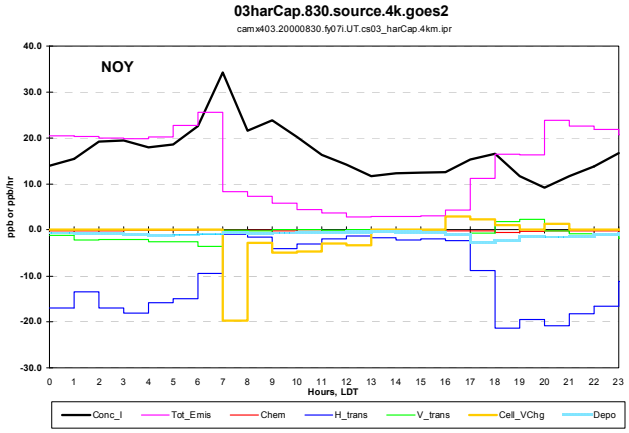
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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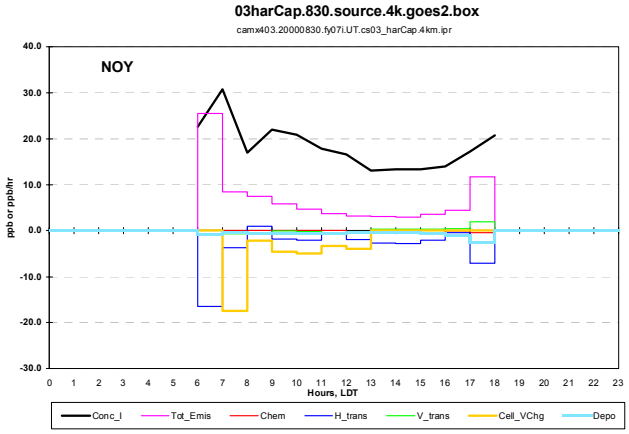
NOY
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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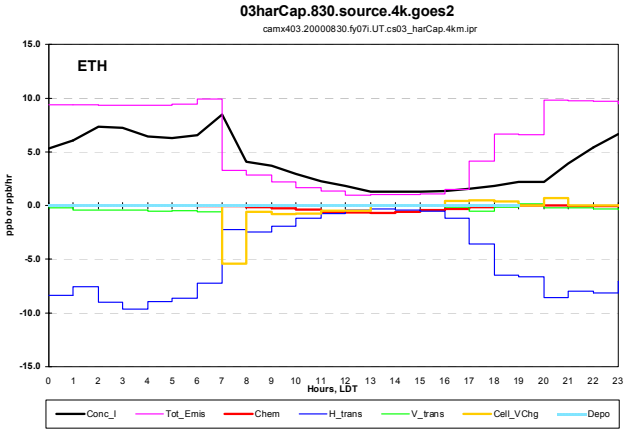
NOY
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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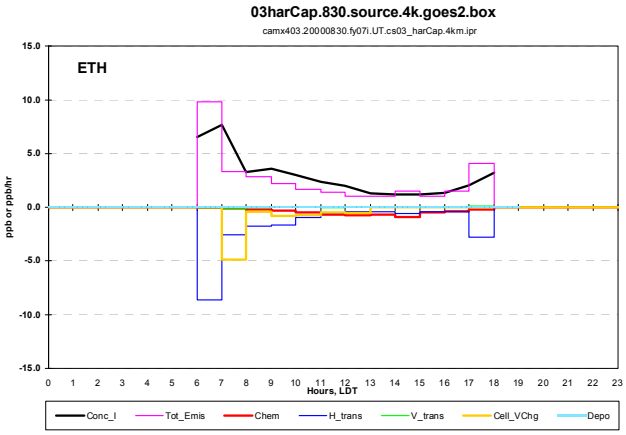
ETH
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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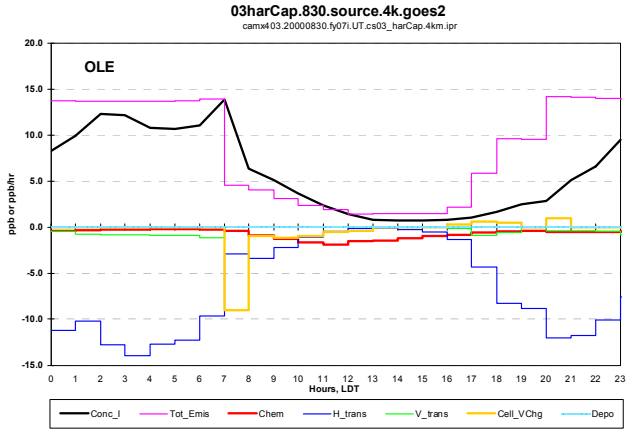
ETH
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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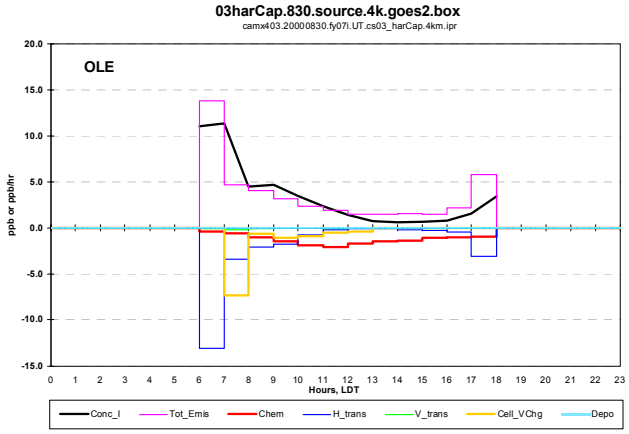
OLE
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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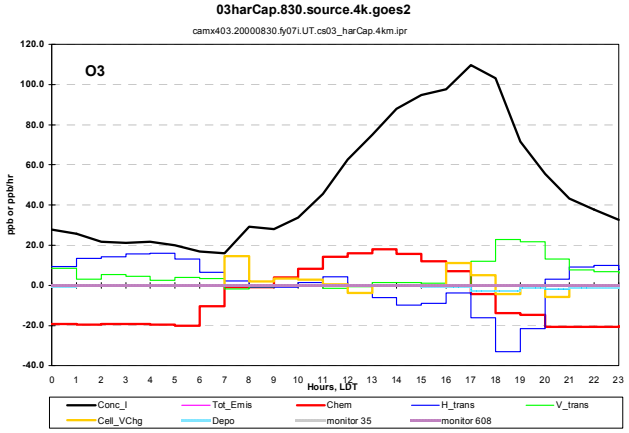
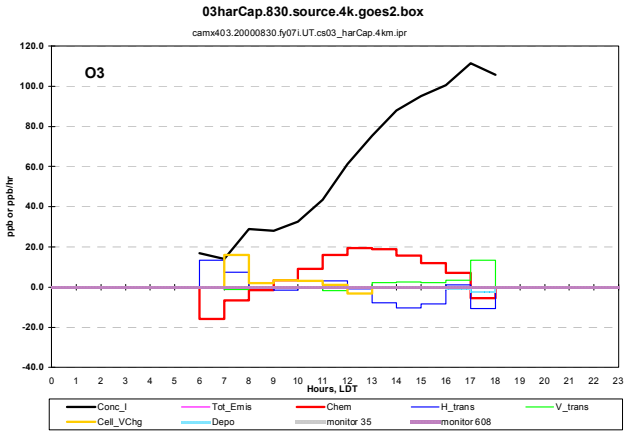
camx403.20000830.fy07i.UT.cs03_harCap.4km.ipr
OLE
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo


03harCap.830.source.4k.goes2
camx403.20000830.fy07i.UT.cs03_harCap.4km.ipr
O3
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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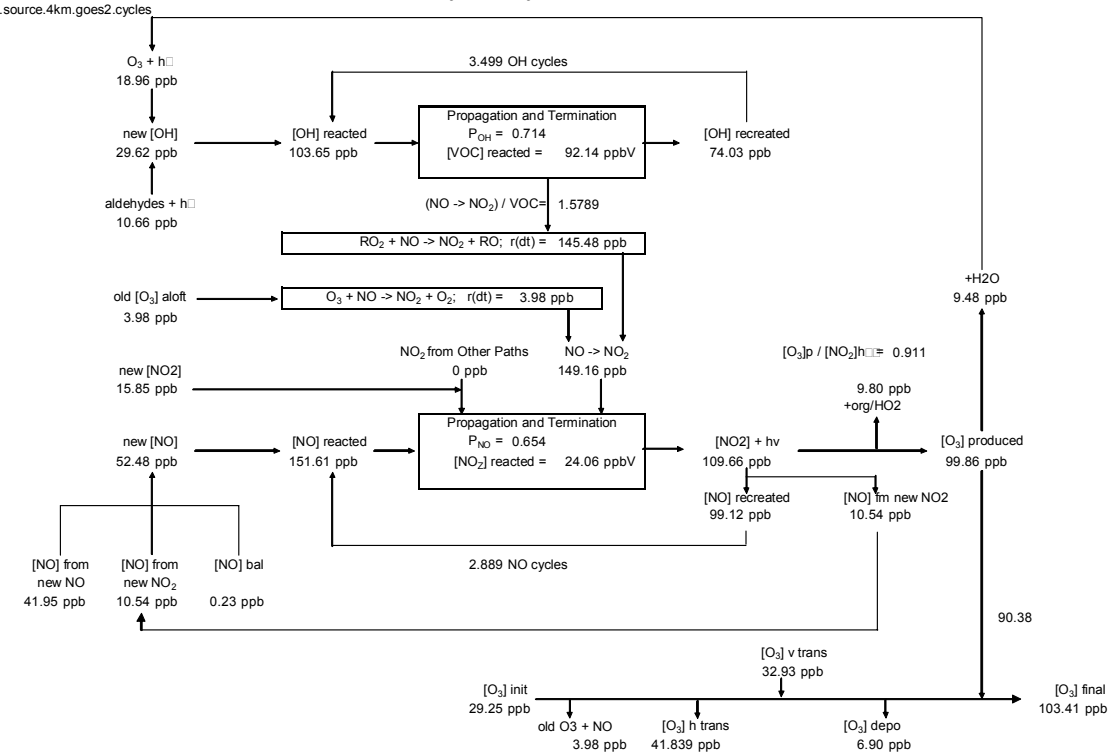
O3
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608

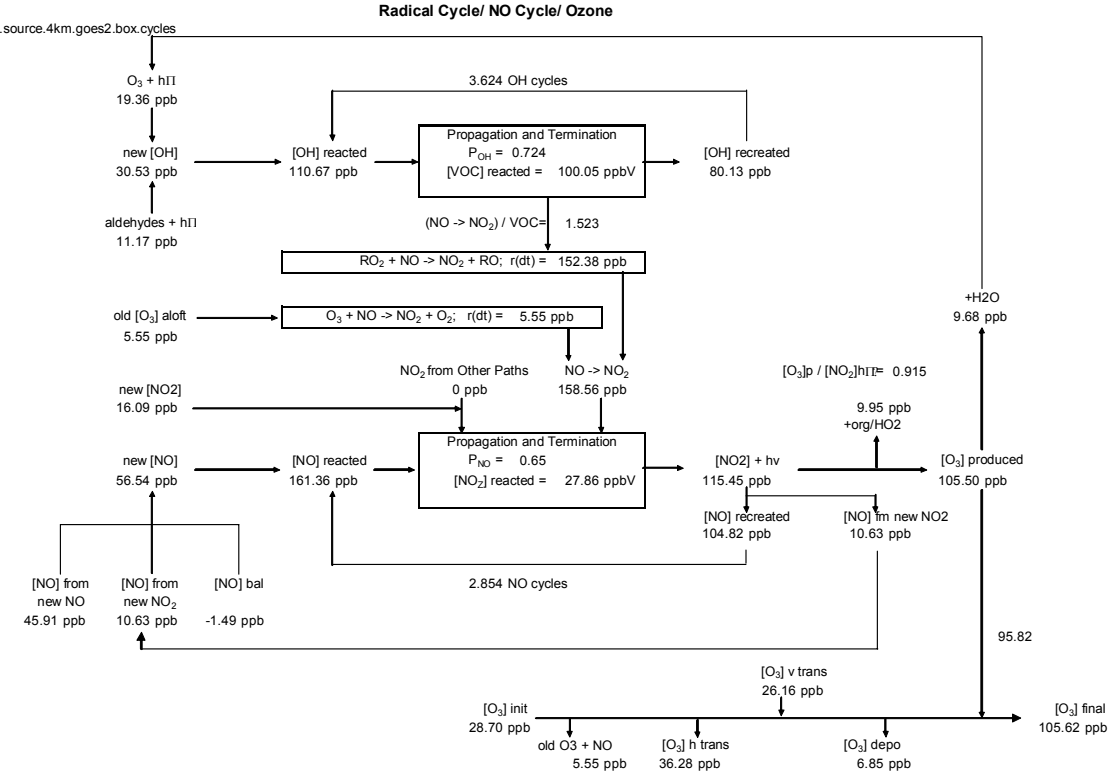
camx403.20000830.fy07i.UT.cs03_harCap.4km.ipr
camx403.20000830.fy07i.UT.cs03_harCap.4km.irr
830.source.4km.goes2.cycles

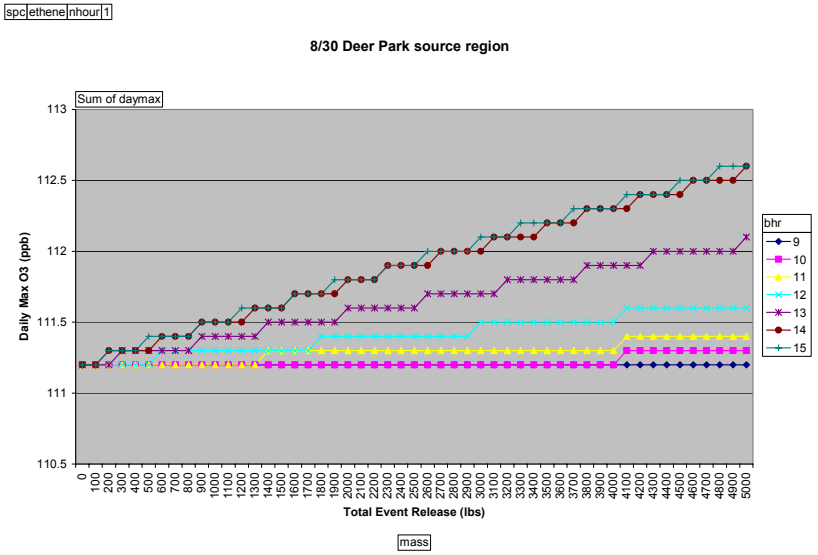
Radical Cycle/ NO Cycle/ Ozone

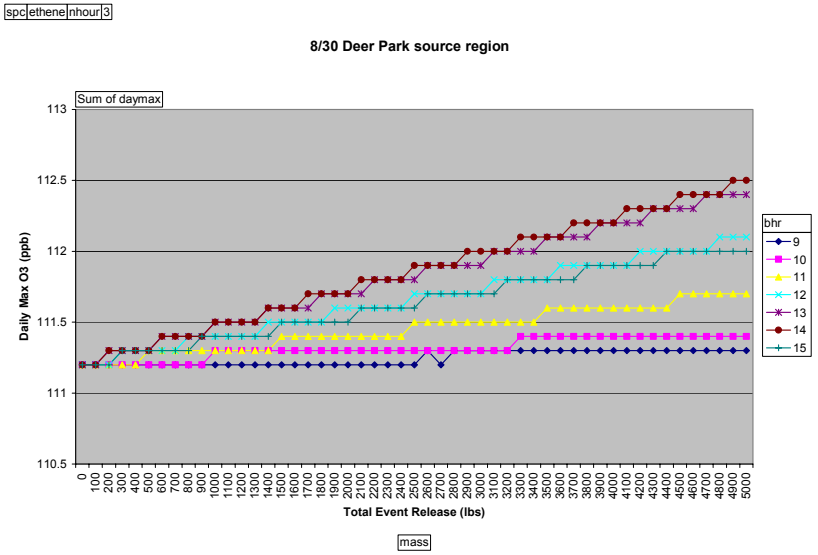


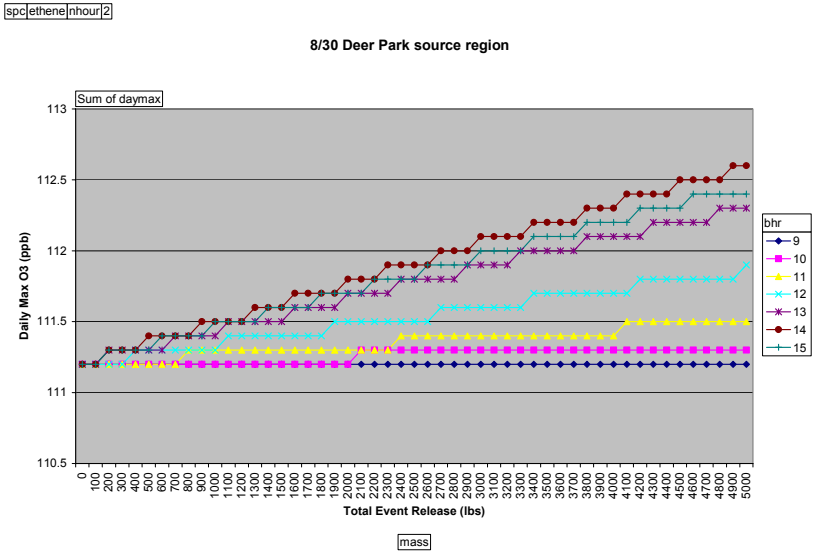
Radical Cycle/ NO Cycle/ Ozone

830.source.4km.goes2.box.cycles

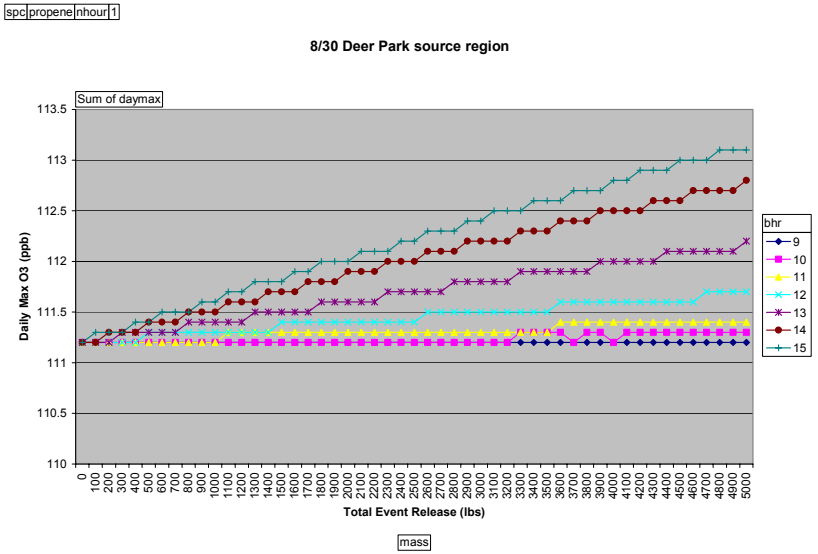


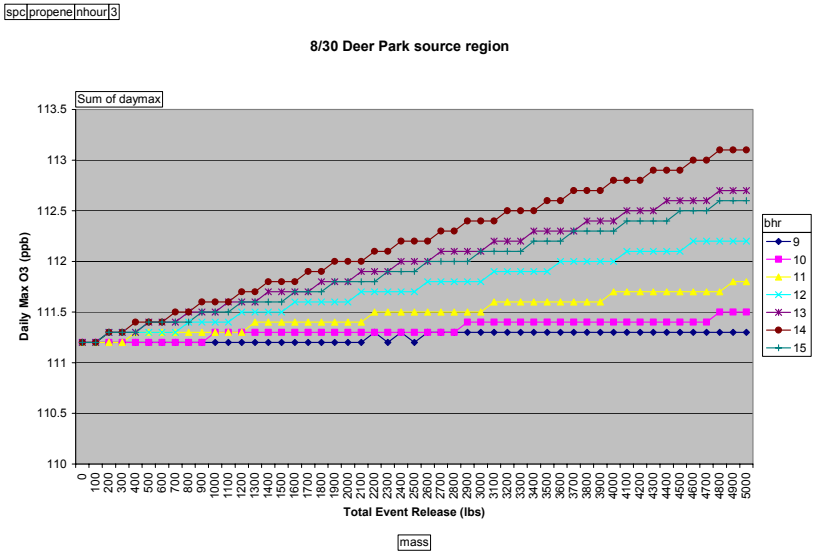


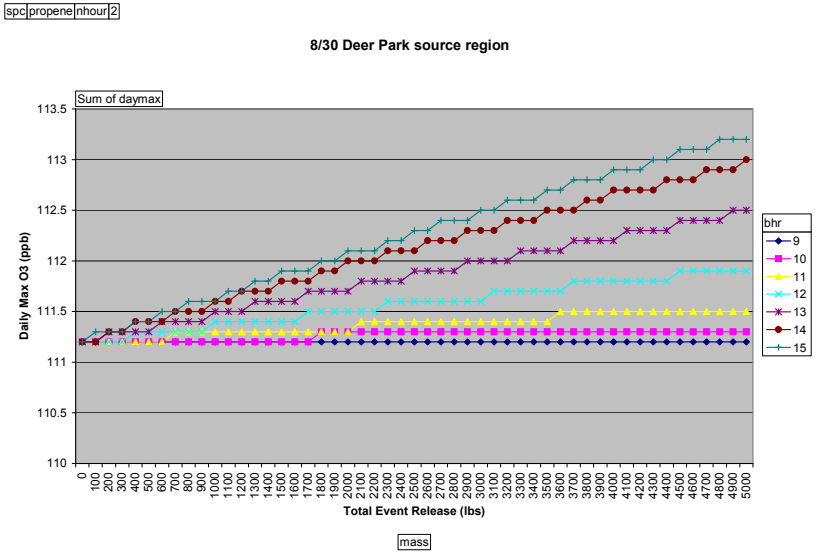




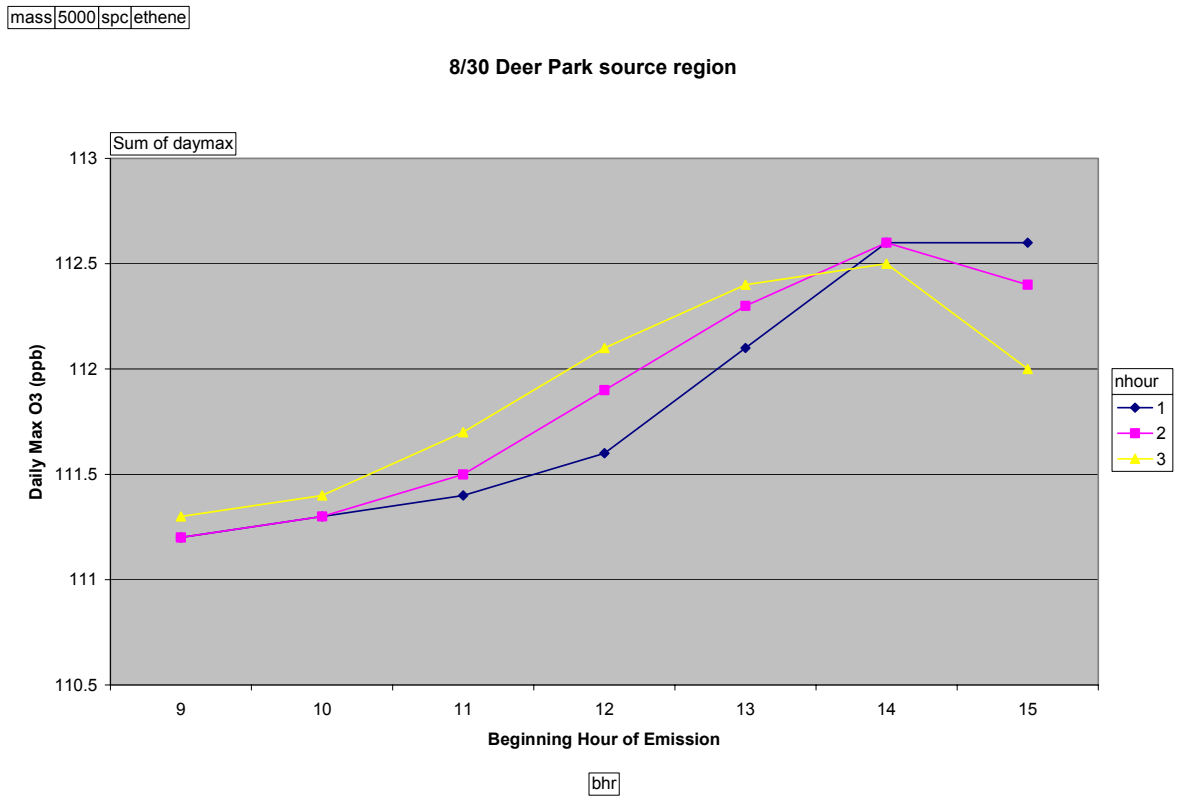
Sensitivity of Daily Max Ozone to the Ethene emission magnitude in "Source region" of Deer Park, Aug. 30, 4km resolution (GOES2 Met): Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)



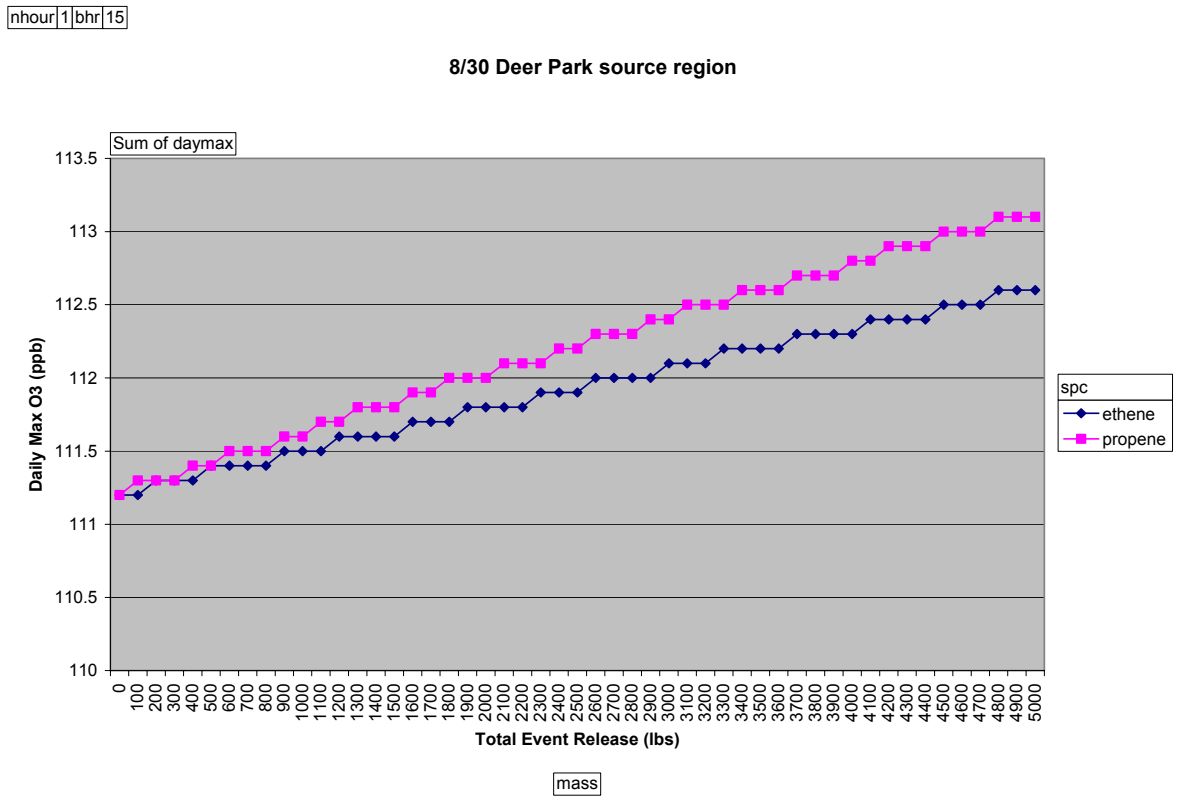




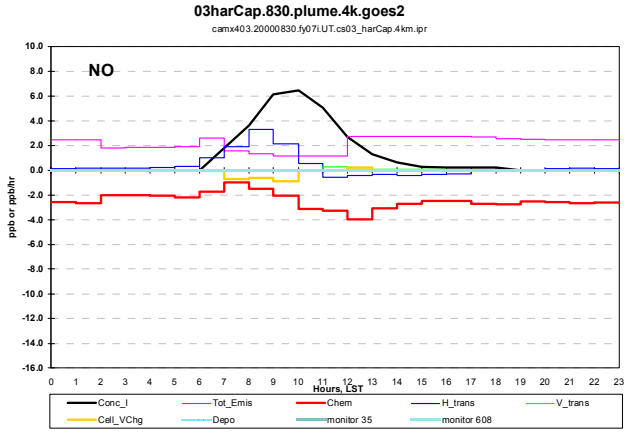
Sensitivity of Daily Max Ozone to the Propene emission magnitude in "Source region" of Deer Park, Aug. 30, 4km resolution (GOES2 Met): Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)

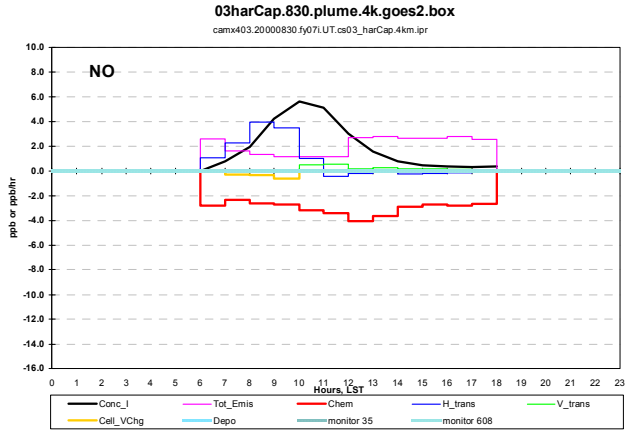


Sensitivity of Daily Max Ozone to the Ethene emission timing (beginning of emission) in "Source region" of Deer Park, Aug. 30, 4km resolution (GOES2 Met): All emissions are 5000 lbs. Legend shows the number of hours of emission event



Sensitivity of Daily Max Ozone to the emission species (Ethene and Propene) in "Source region" of Deer Park, Aug. 30, 4km resolution (GOES2 Met): All emissions are between 15:00 to 16:00. Legend shows the number of hours of emission event


03harCap.830.plume.4k.goes2
camx403.20000830.fy07i.UT.cs03_harCap.4km.ipr
NO
ppb or ppb/hr
Hours, LST
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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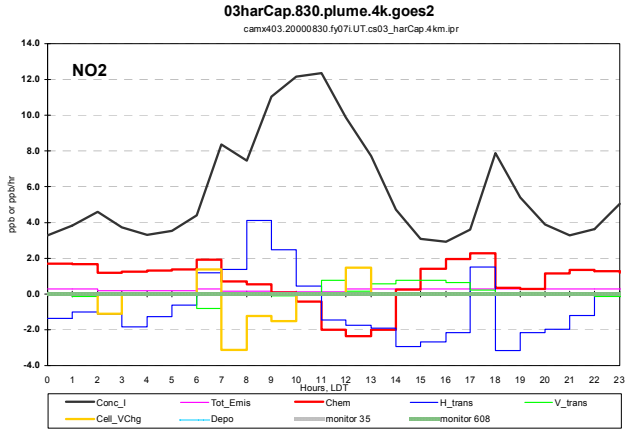
NO
ppb or ppb/hr
Hours, LST
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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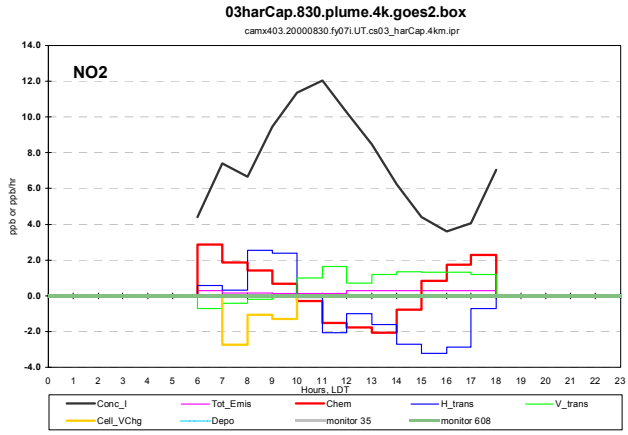
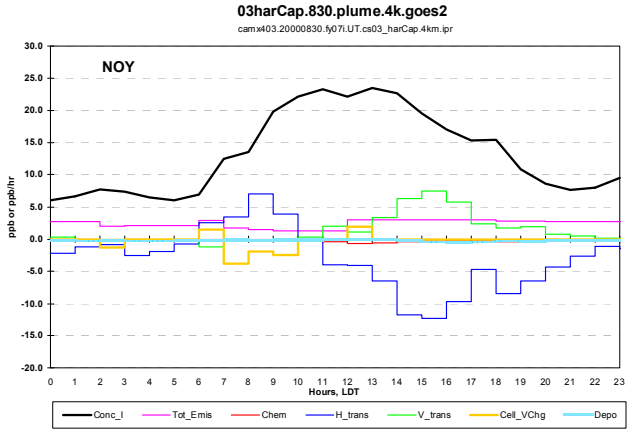
NO2
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608


03harCap.830.plume.4k.goes2.box
camx403.20000830.fy07i.UT.cs03_harCap.4km.ipr
NO2
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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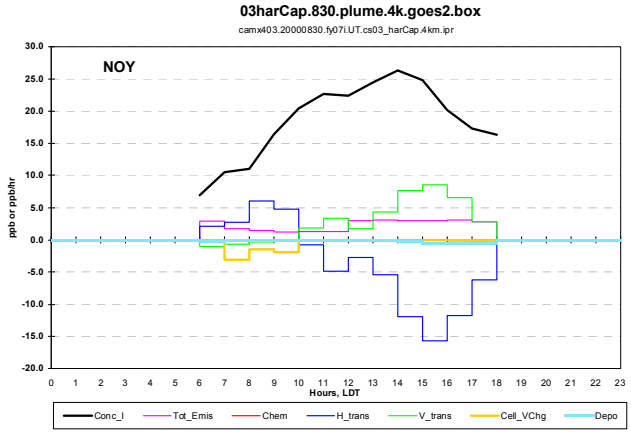
camx403.20000830.fy07i.UT.cs03_harCap.4km.ipr
NOY
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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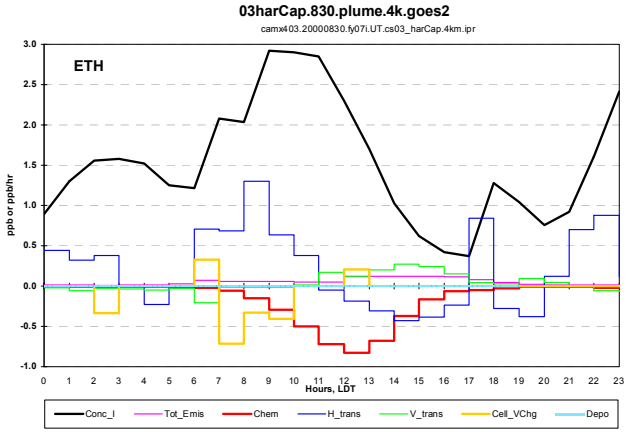
camx403.20000830.fy07i.UT.cs03_harCap.4km.ipr
NOY
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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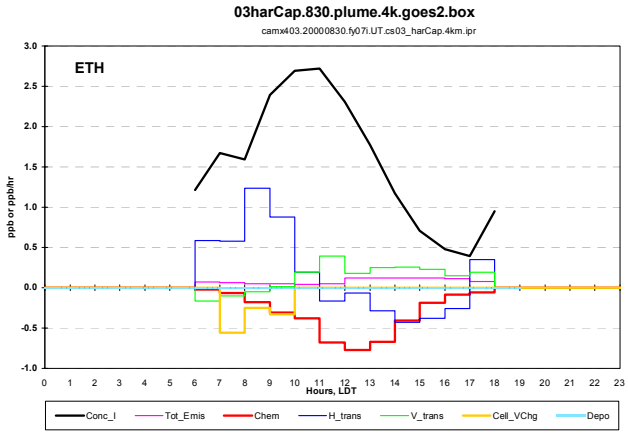
ETH
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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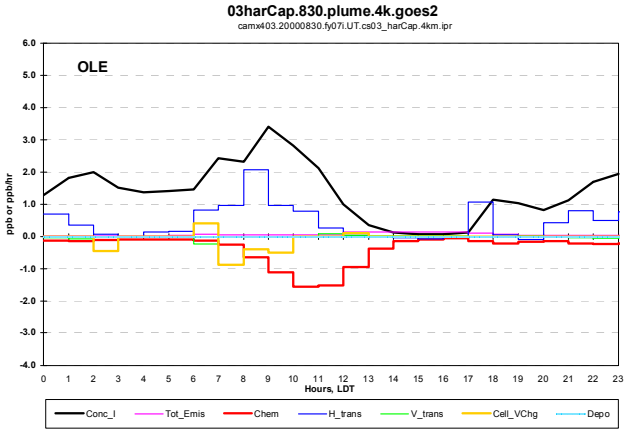
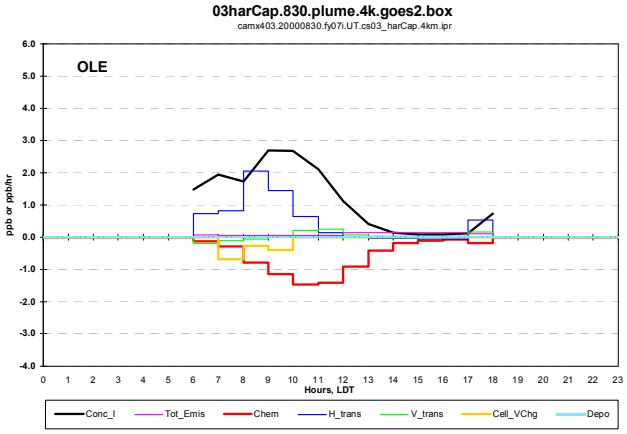
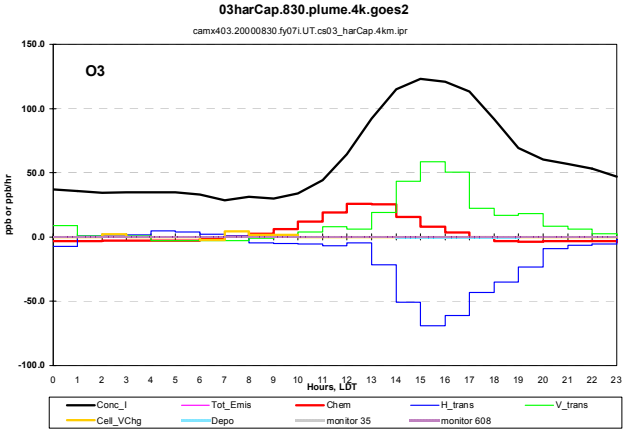
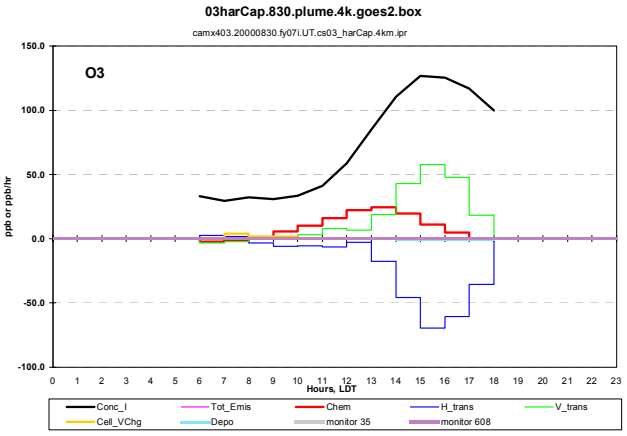
camx403.20000830.fy07i.UT.cs03_harCap.4km.ipr
ETH
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo


03harCap.830.plume.4k.goes2
camx403.20000830.fy07i.UT.cs03_harCap.4km.ipr
OLE
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo


03harCap.830.plume.4k.goes2.box
camx403.20000830.fy07i.UT.cs03_harCap.4km.ipr
OLE
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo


03harCap.830.plume.4k.goes2
camx403.20000830.fy07i.UT.cs03_harCap.4km.ipr
O3
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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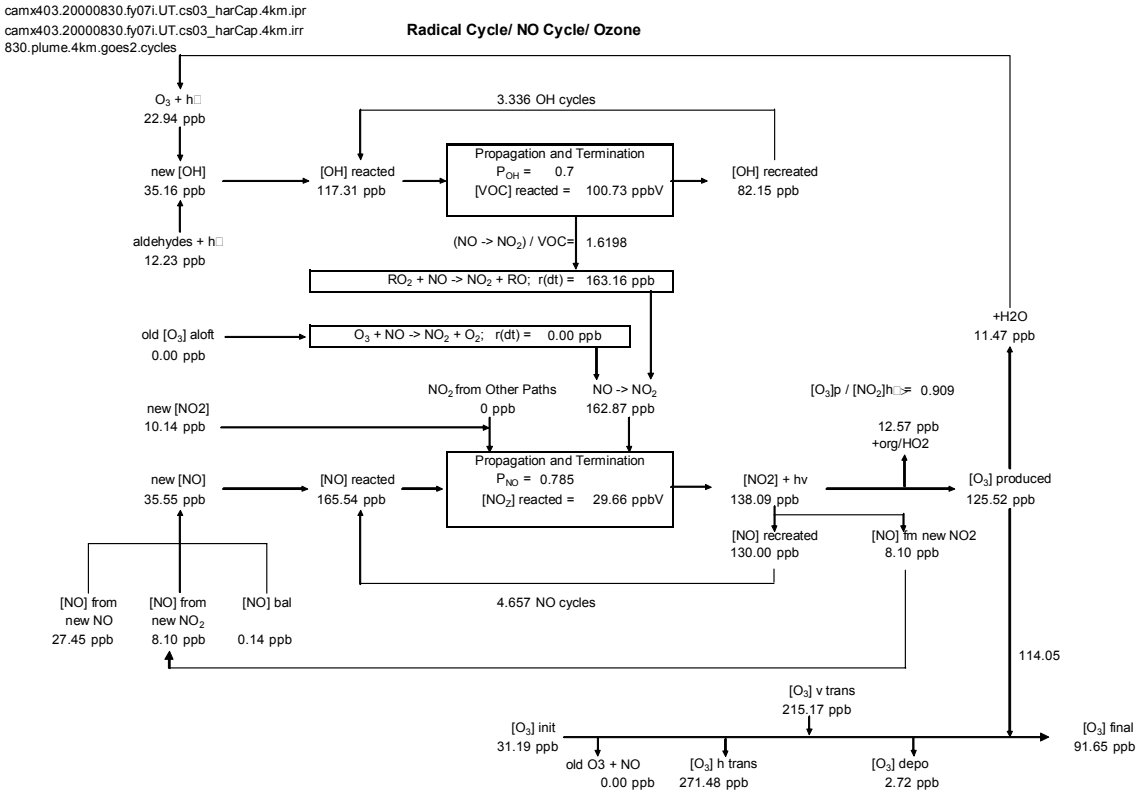
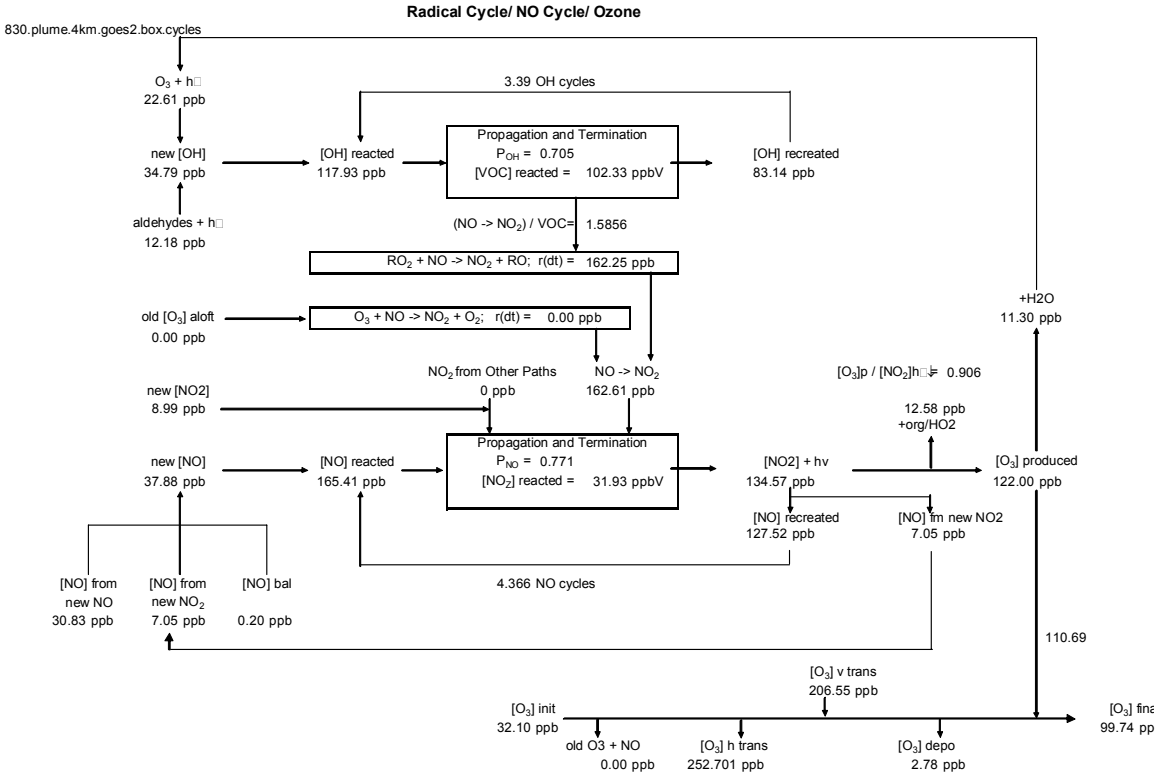
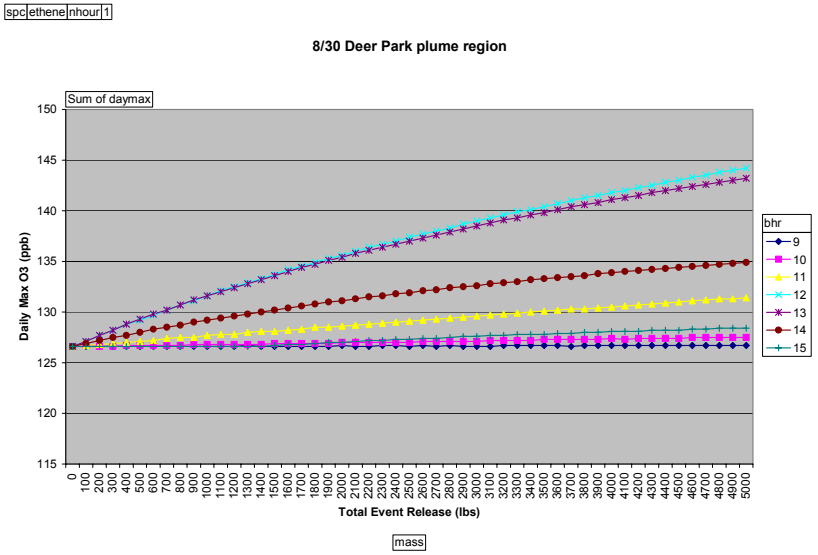
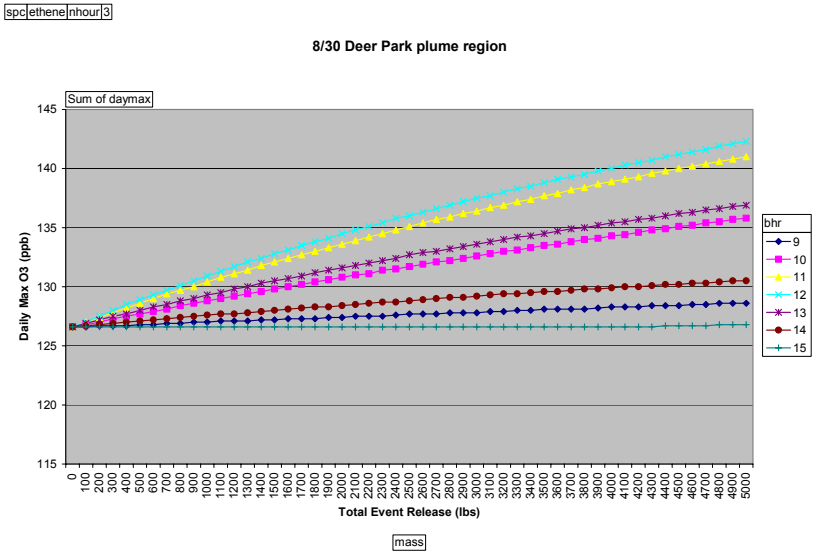
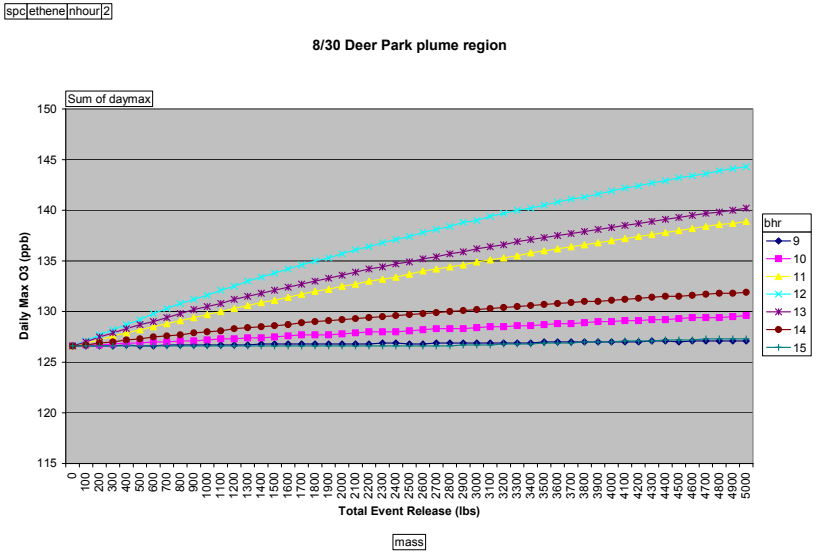
camx403.20000830.fy07i.UT.cs03_harCap.4km.ipr
O3
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608


camx403.20000830.fy07i.UT.cs03_harCap.4km.ipr
camx403.20000830.fy07i.UT.cs03_harCap.4km.irr
830.plume.4km.goes2.cycles
Radical Cycle/ NO Cycle/ Ozone
O3 + h
22.94 ppb
3.336 OH cycles
new [OH]
35.16 ppb
[OH] reacted
117.31 ppb
Propagation and Termination
POH = 0.7
[VOC] reacted = 100.73 ppbV
[OH] recreated
82.15 ppb
aldehydes + h
12.23 ppb
(NO -> NO2) / VOC= 1.6198
RO2 + NO -> NO2 + RO; r(dt) = 163.16 ppb
+H2O
11.47 ppb
old [O3] aloft
0.00 ppb
O3 + NO -> NO2 + O2; r(dt) = 0.00 ppb
NO2 from Other Paths
0 ppb
NO -> NO2
162.87 ppb
[O3]p / [NO2]h = 0.909
new [NO2]
10.14 ppb
12.57 ppb
+org/HO2
new [NO]
35.55 ppb
[NO] reacted
165.54 ppb
Propagation and Termination
PNO = 0.785
[NO2] reacted = 29.66 ppbV
[NO2] + hv
138.09 ppb
[O3] produced
125.52 ppb
[NO] recreated
130.00 ppb
[NO] fm new NO2
8.10 ppb
[NO] from
new NO
27.45 ppb
[NO] from
new NO2
8.10 ppb
[NO] bal
0.14 ppb
4.657 NO cycles
114.05
[O3] v trans
215.17 ppb
[O3] init
31.19 ppb
[O3] final
91.65 ppb
old O3 + NO
0.00 ppb
[O3] h trans
271.48 ppb
[O3] depo
2.72 ppb

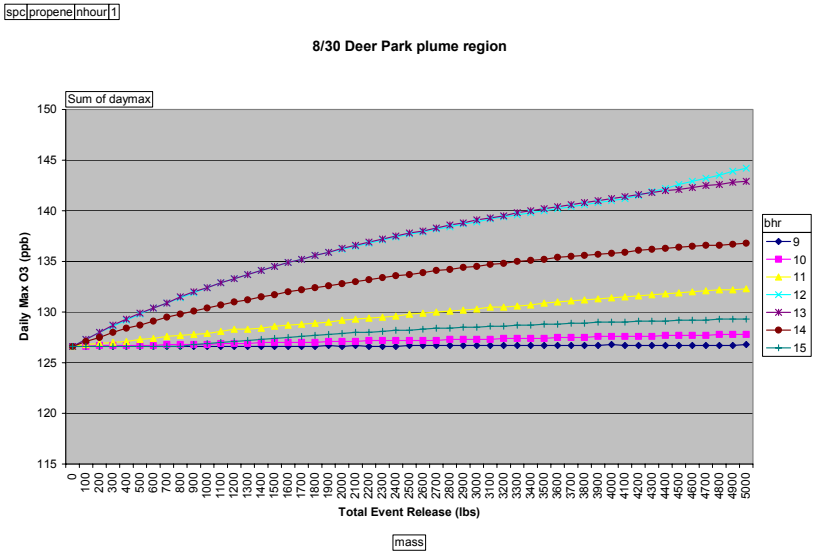

Radical Cycle/ NO Cycle/ Ozone
830.plume.4km.goes2.box.cycles
O3 + h
22.61 ppb
3.39 OH cycles
new [OH]
34.79 ppb
[OH] reacted
117.93 ppb
Propagation and Termination
POH = 0.705
[VOC] reacted = 102.33 ppbV
[OH] recreated
83.14 ppb
aldehydes + h
12.18 ppb
(NO -> NO2) / VOC= 1.5856
RO2 + NO -> NO2 + RO; r(dt) = 162.25 ppb
+H2O
11.30 ppb
old [O3] aloft
0.00 ppb
O3 + NO -> NO2 + O2; r(dt) = 0.00 ppb
NO2 from Other Paths
0 ppb
NO -> NO2
162.61 ppb
[O3]p / [NO2]h = 0.906
new [NO2]
8.99 ppb
12.58 ppb
+org/HO2
new [NO]
37.88 ppb
[NO] reacted
165.41 ppb
Propagation and Termination
PNO = 0.771
[NO2] reacted = 31.93 ppbV
[NO2] + hv
134.57 ppb
[O3] produced
122.00 ppb
[NO] recreated
127.52 ppb
[NO] fm new NO2
7.05 ppb
[NO] from
new NO
30.83 ppb
[NO] from
new NO2
7.05 ppb
[NO] bal
0.20 ppb
4.366 NO cycles
110.69
[O3] v trans
206.55 ppb
[O3] init
32.10 ppb
[O3] fina
99.74 pp
old O3 + NO
0.00 ppb
[O3] h trans
252.701 ppb
[O3] depo
2.78 ppb

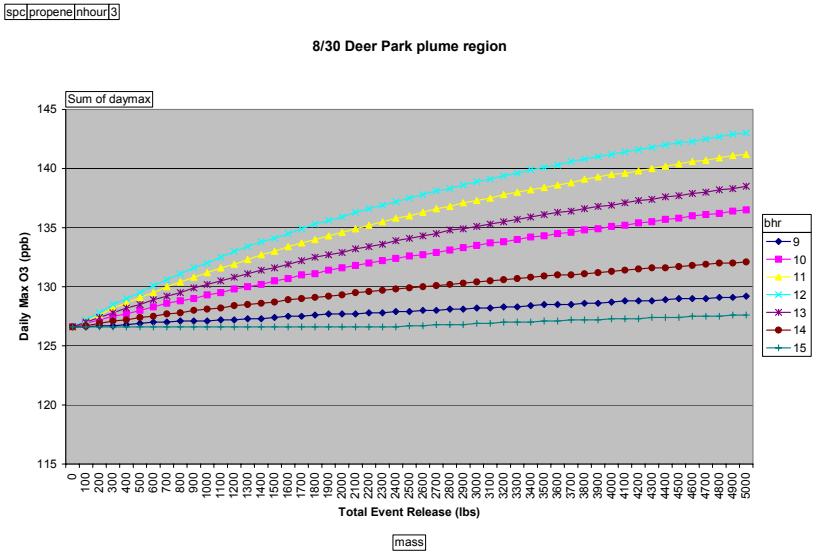


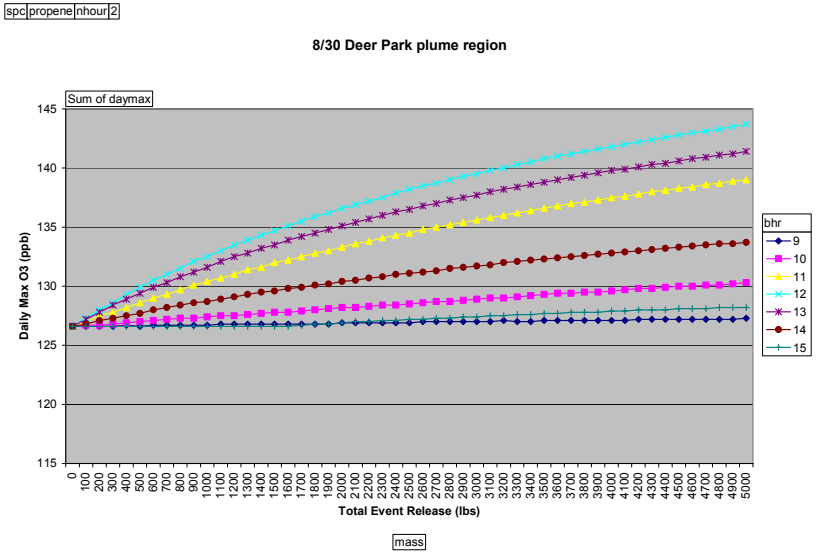




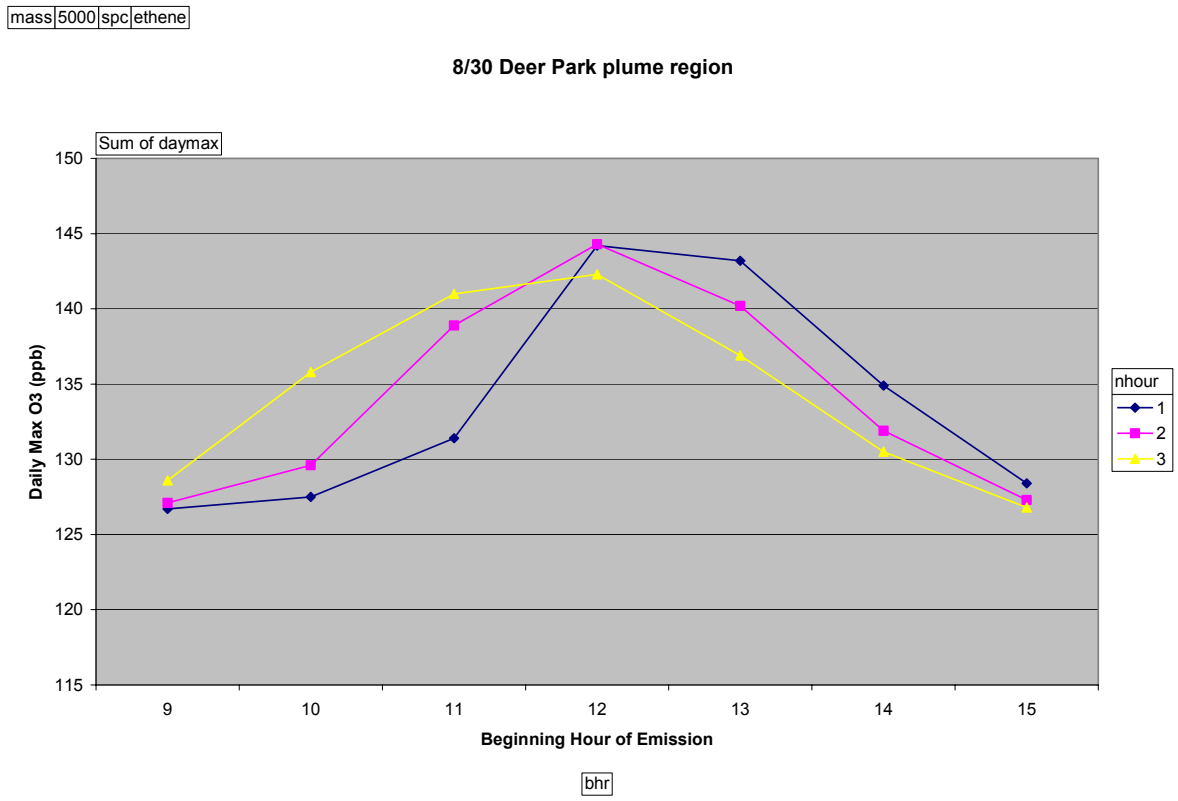
Sensitivity of Daily Max Ozone to the Ethene emission magnitude in "Plume region" of Deer Park, Aug. 30, 4km resolution (GOES2 Met): Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)



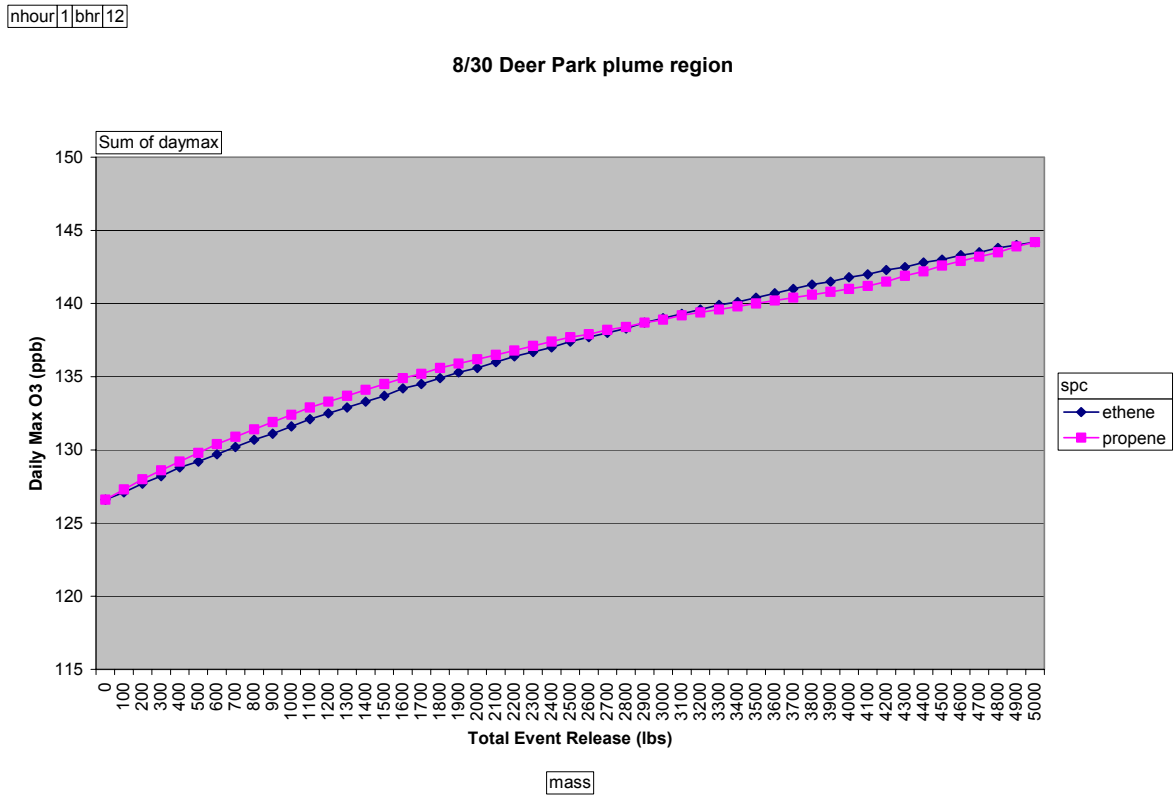




Sensitivity of Daily Max Ozone to the Propene emission magnitude in "Plume region" of Deer Park, Aug. 30, 4km resolution (GOES2 Met): Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)



Sensitivity of Daily Max Ozone to the Ethene emission timing (beginning of emission) in "Plume region" of Deer Park, Aug. 30, 4km resolution (GOES2 Met): All emissions are 5000 lbs. Legend shows the number of hours of emission event

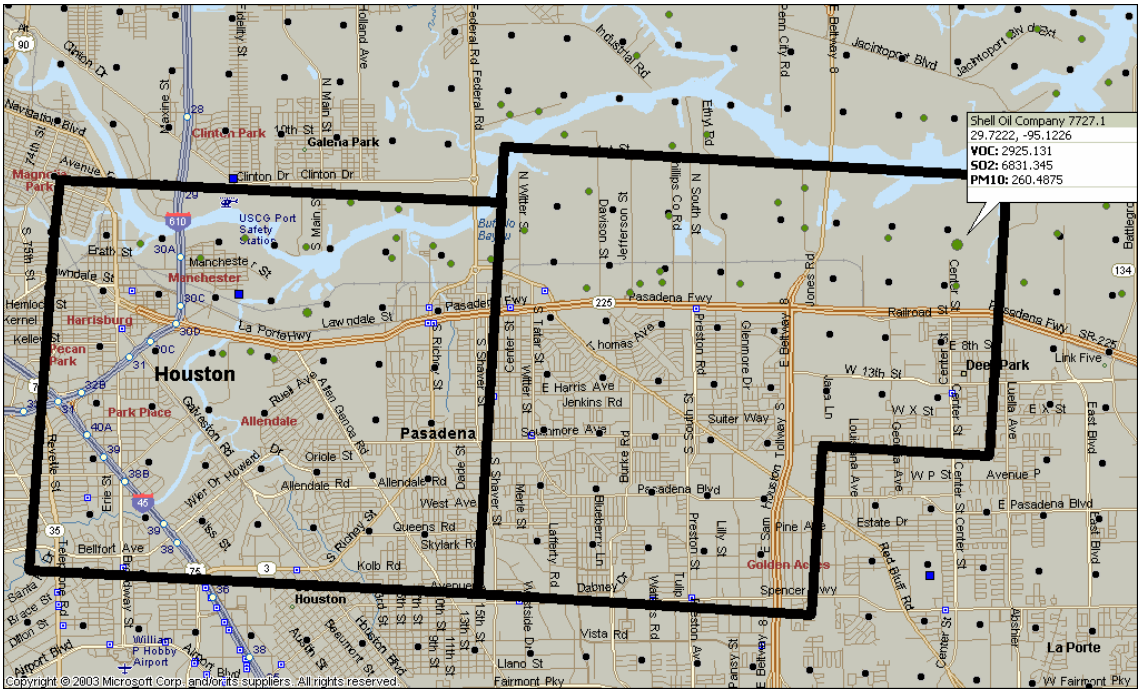


Sensitivity of Daily Max Ozone to the emission species (Ethene and Propene) in "Plume region" of Deer Park, Aug. 30, 4km resolution (GOES2 Met): All emissions are between 12:00 to 13:00. Legend shows the number of hours of emission event

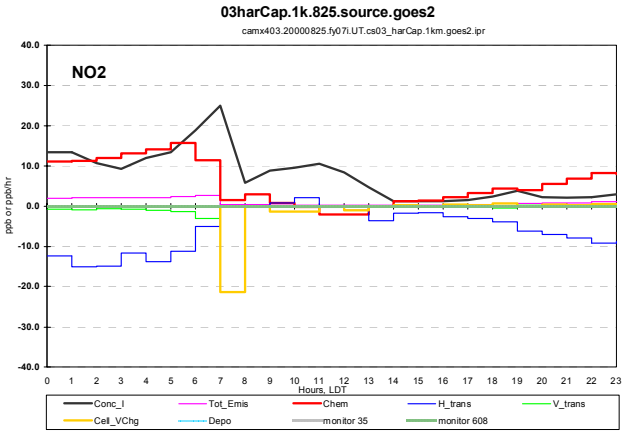
Results for fy07i.cs03_harCap.goes2 (1km resolution)

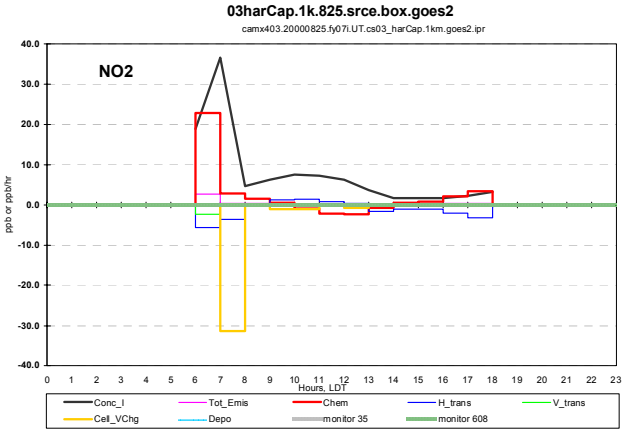
8/25 Deer Park (fy07i.cs03_harCap.1km.goes2)
8/30 Deer Park (fy07i.cs03_harCap.1km.goes2)

August 25 - Future Year 2007 (fyo7i.cs03_harCap.1km goes2)



8_25_00 Process Analysis Box outlined in black. Black Dots represent lower left hand corner of 1 km grid cells


03harCap.1k.825.source.goes2
camx403.20000825.fy07i.UT.cs03_harCap.1km.goes2.ipr
NO2
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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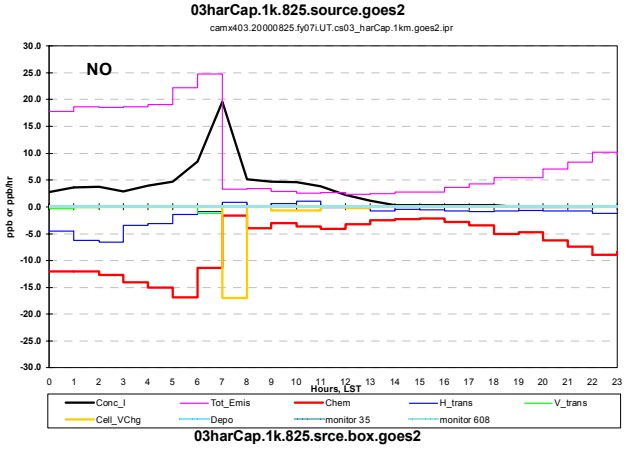
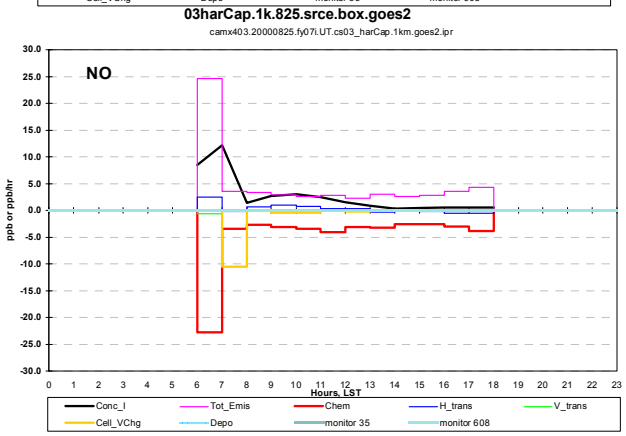
camx403.20000825.fy07i.UT.cs03_harCap.1km.goes2.ipr
NO2
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608


03harCap.1k.825.source.goes2
camx403.20000825.fy07i.UT.cs03_harCap.1km.goes2.ipr
NO
ppb or ppb/hr
Hours, LST
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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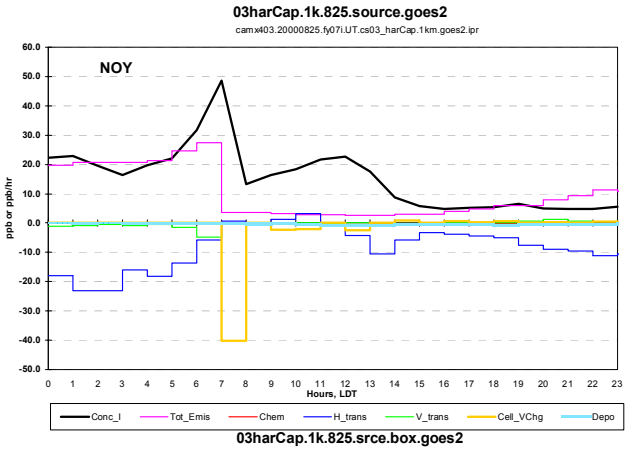
camx403.20000825.fy07i.UT.cs03_harCap.1km.goes2.ipr
NO
ppb or ppb/hr
Hours, LST
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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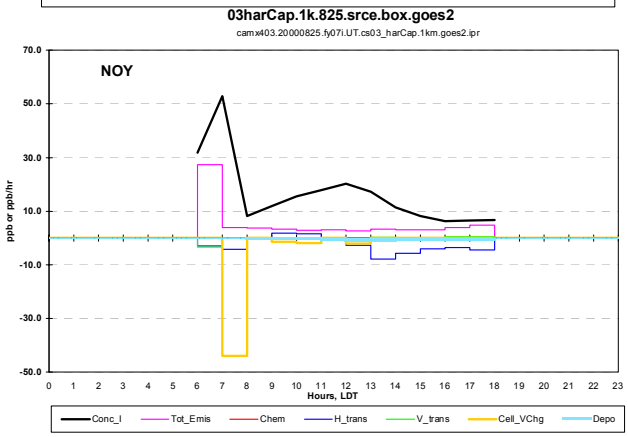
NOY
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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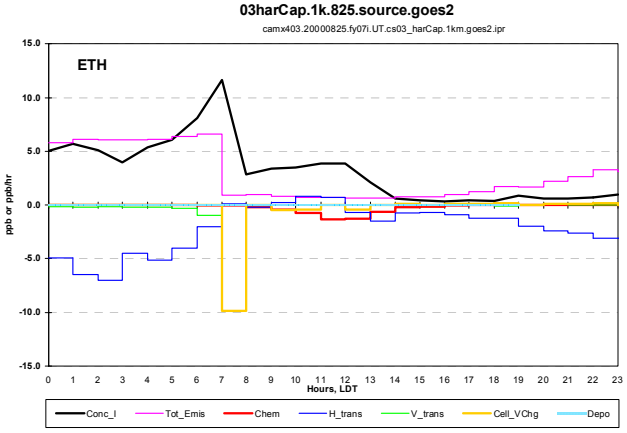
NOY
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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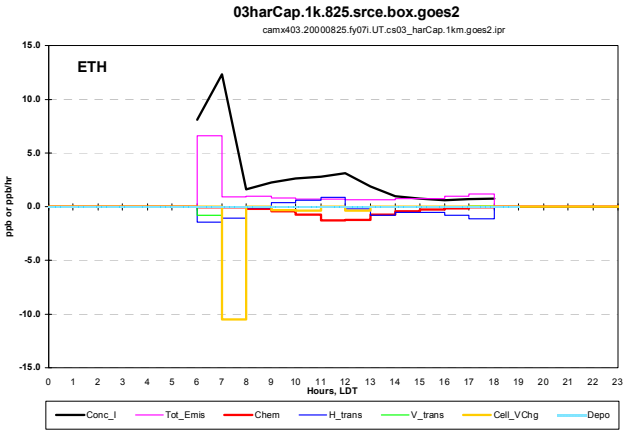
ETH
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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ETH
ppb or ppb/hr
Hours, LDT
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Tot_Emis
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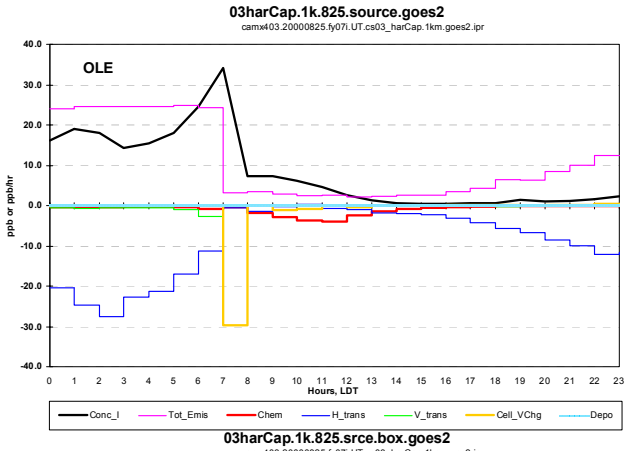
H_trans
V_trans
Cell_VChg
Depo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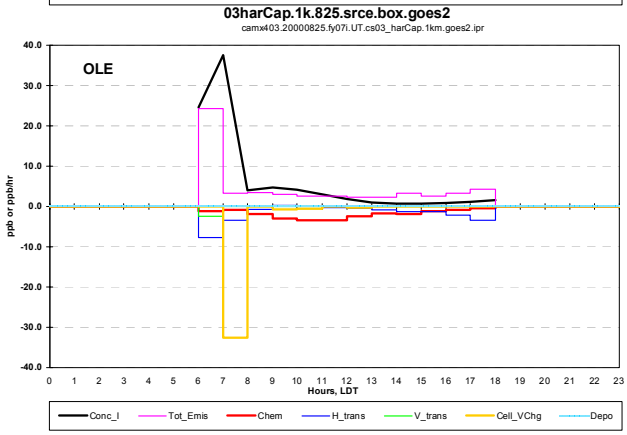
OLE
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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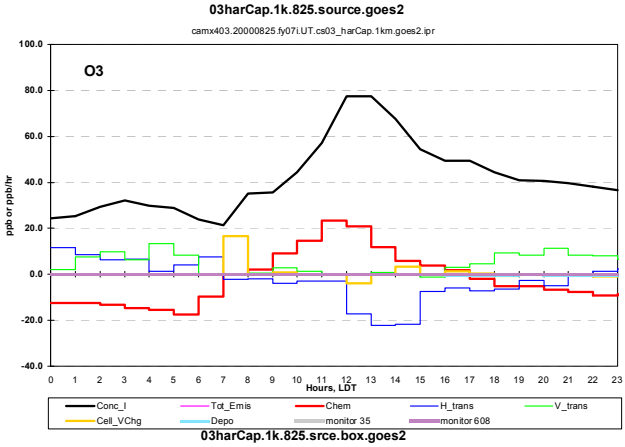
camx403.20000825.fy07i.UT.cs03_harCap.1km.goes2.ipr
OLE
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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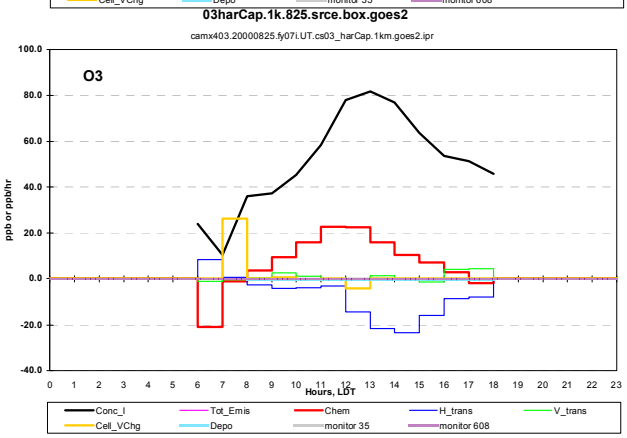
camx403.20000825.fy07i.UT.cs03_harCap.1km.goes2.ipr
O3
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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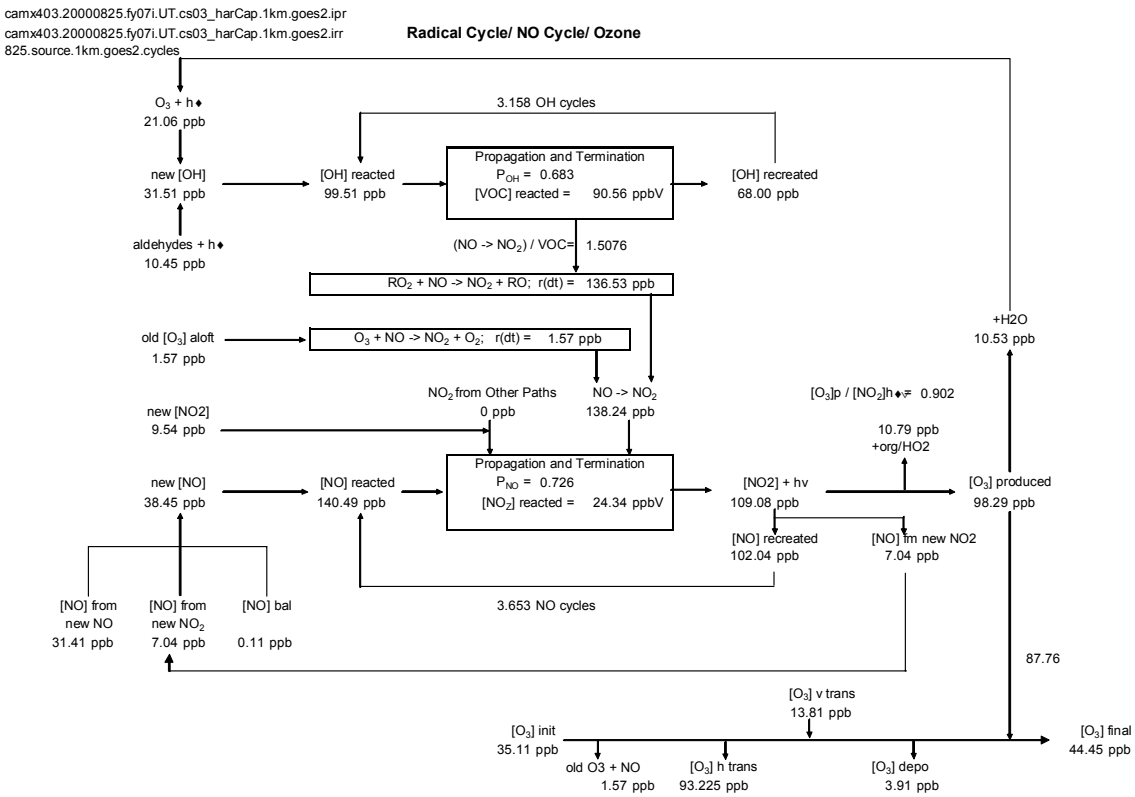
camx403.20000825.fy07i.UT.cs03_harCap.1km.goes2.ipr
O3
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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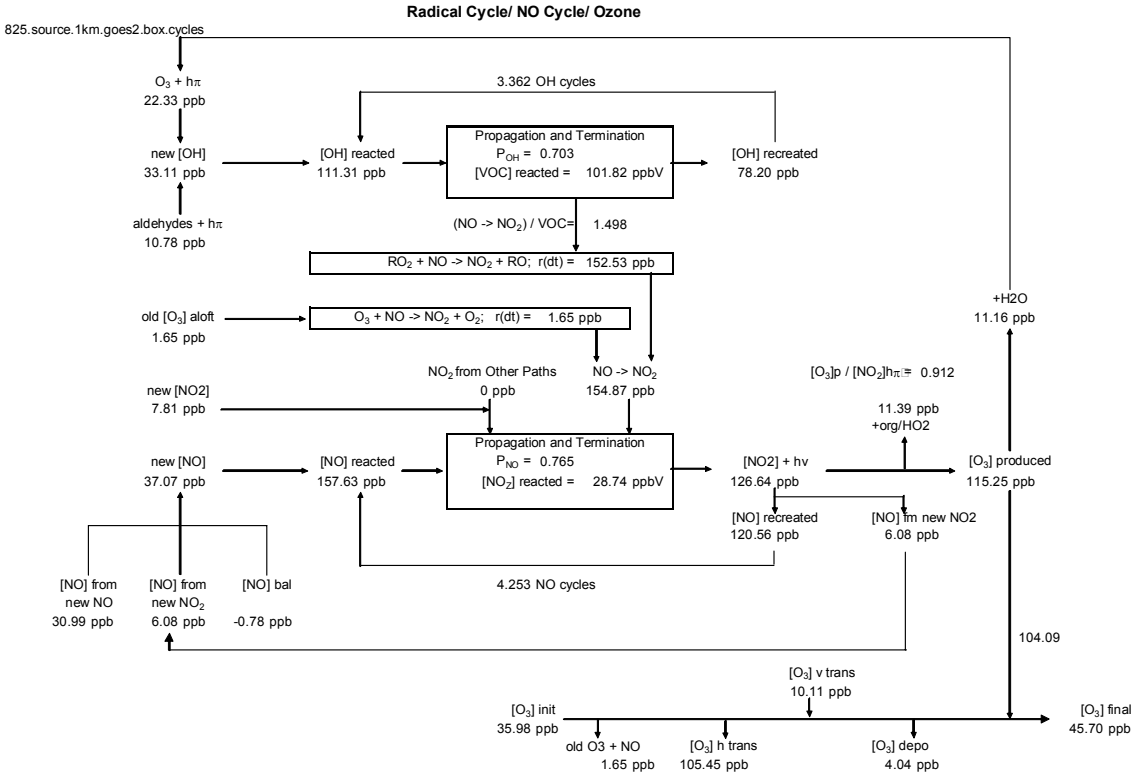
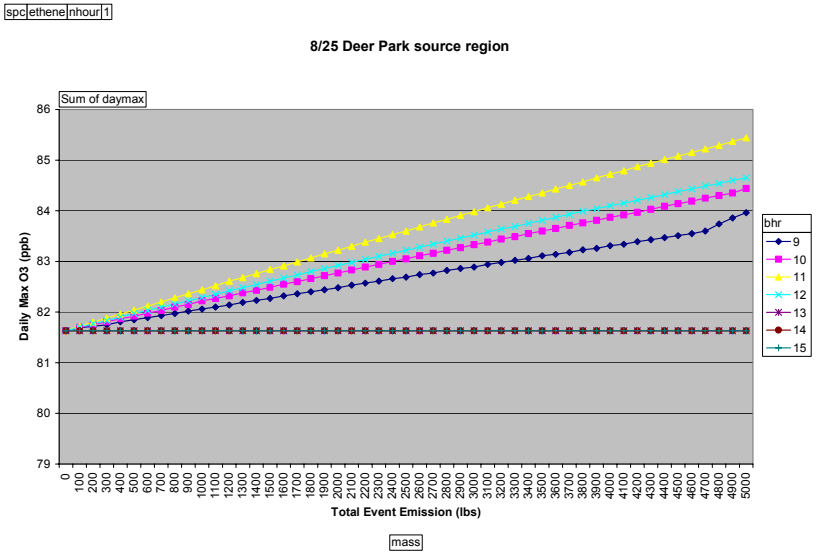
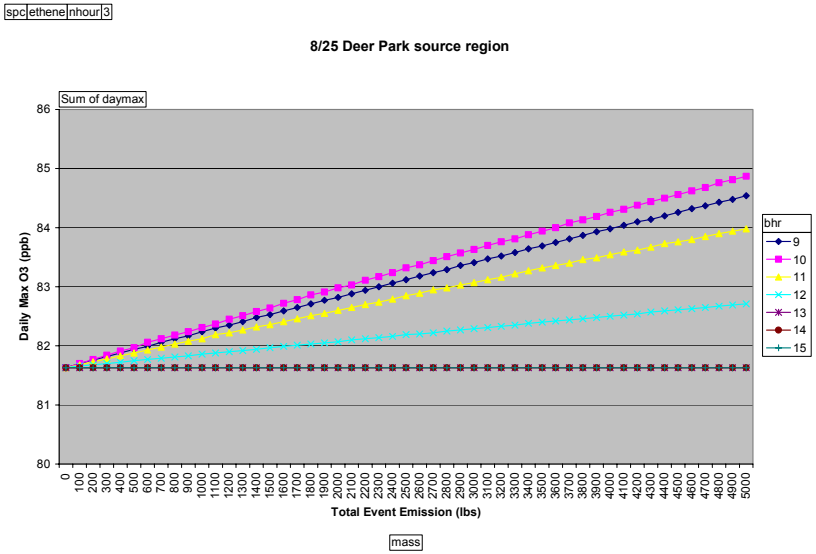
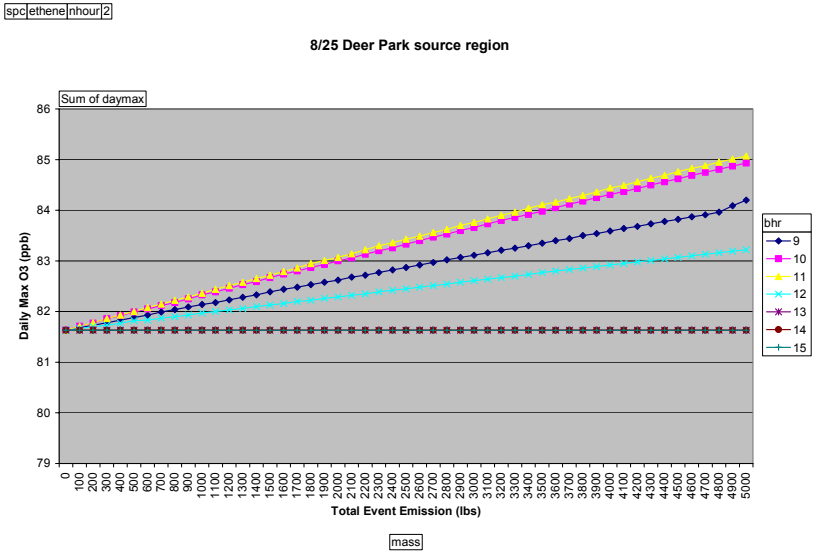
camx403.20000825.fy07i.UT.cs03_harCap.1km.goes2.irr
825.source.1km.goes2.cycles
Radical Cycle/ NO Cycle/ Ozone
O3 + h♦
21.06 ppb
3.158 OH cycles
new [OH]
31.51 ppb
[OH] reacted
99.51 ppb
Propagation and Termination
POH = 0.683
[VOC] reacted = 90.56 ppbV
[OH] recreated
68.00 ppb
aldehydes + h♦
10.45 ppb
(NO -> NO2) / VOC= 1.5076
RO2 + NO -> NO2 + RO; r(dt) = 136.53 ppb
old [O3] aloft
1.57 ppb
O3 + NO -> NO2 + O2; r(dt) = 1.57 ppb
+H2O
10.53 ppb
NO2 from Other Paths
0 ppb
NO -> NO2
138.24 ppb
[O3]p / [NO2]h♦ = 0.902
new [NO2]
9.54 ppb
10.79 ppb
+org/HO2
new [NO]
38.45 ppb
[NO] reacted
140.49 ppb
Propagation and Termination
PNO = 0.726
[NO2] reacted = 24.34 ppbV
[NO2] + hv
109.08 ppb
[O3] produced
98.29 ppb
[NO] recreated
102.04 ppb
[NO] fm new NO2
7.04 ppb
[NO] from
new NO
31.41 ppb
[NO] from
new NO2
7.04 ppb
[NO] bal
0.11 ppb
3.653 NO cycles
87.76
[O3] v trans
13.81 ppb
[O3] init
35.11 ppb
[O3] final
44.45 ppb
old O3 + NO
1.57 ppb
[O3] h trans
93.225 ppb
[O3] depo
3.91 ppb

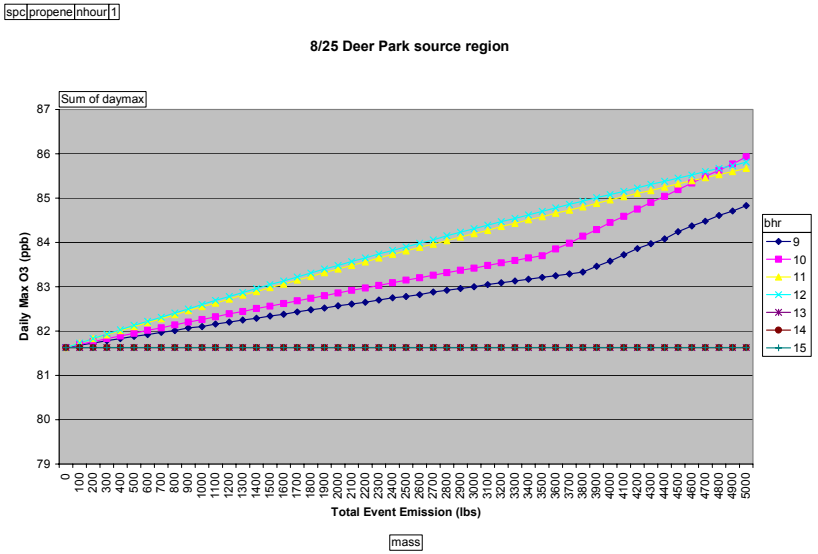

Radical Cycle/ NO Cycle/ Ozone
825.source.1km.goes2.box.cycles
O3 + hπ
22.33 ppb
3.362 OH cycles
new [OH]
33.11 ppb
[OH] reacted
111.31 ppb
Propagation and Termination
POH = 0.703
[VOC] reacted = 101.82 ppbV
[OH] recreated
78.20 ppb
aldehydes + hπ
10.78 ppb
(NO -> NO2) / VOC= 1.498
RO2 + NO -> NO2 + RO; r(dt) = 152.53 ppb
old [O3] aloft
1.65 ppb
O3 + NO -> NO2 + O2; r(dt) = 1.65 ppb
+H2O
11.16 ppb
NO2 from Other Paths
0 ppb
NO -> NO2
154.87 ppb
[O3]p / [NO2]hπ = 0.912
new [NO2]
7.81 ppb
11.39 ppb
+org/HO2
new [NO]
37.07 ppb
[NO] reacted
157.63 ppb
Propagation and Termination
PNO = 0.765
[NO2] reacted = 28.74 ppbV
[NO2] + hv
126.64 ppb
[O3] produced
115.25 ppb
[NO] recreated
120.56 ppb
[NO] fm new NO2
6.08 ppb
[NO] from
new NO
30.99 ppb
[NO] from
new NO2
6.08 ppb
[NO] bal
-0.78 ppb
4.253 NO cycles
104.09
[O3] v trans
10.11 ppb
[O3] init
35.98 ppb
[O3] final
45.70 ppb
old O3 + NO
1.65 ppb
[O3] h trans
105.45 ppb
[O3] depo
4.04 ppb

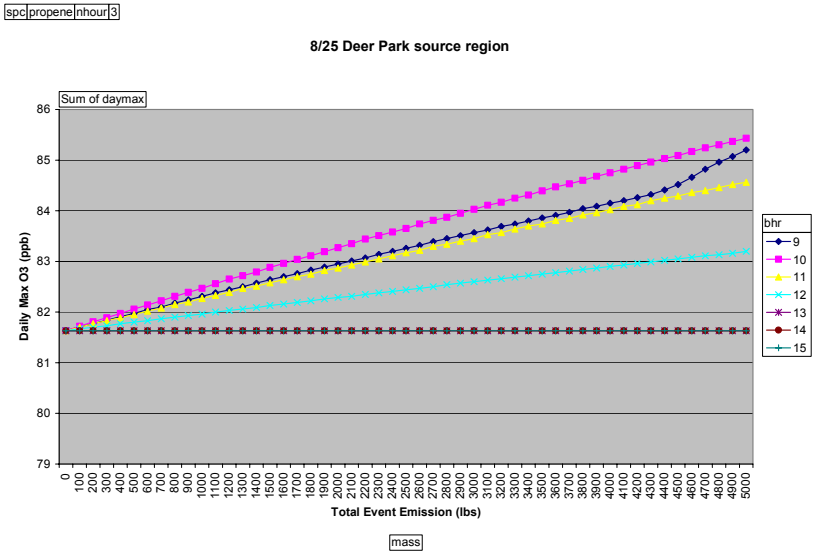


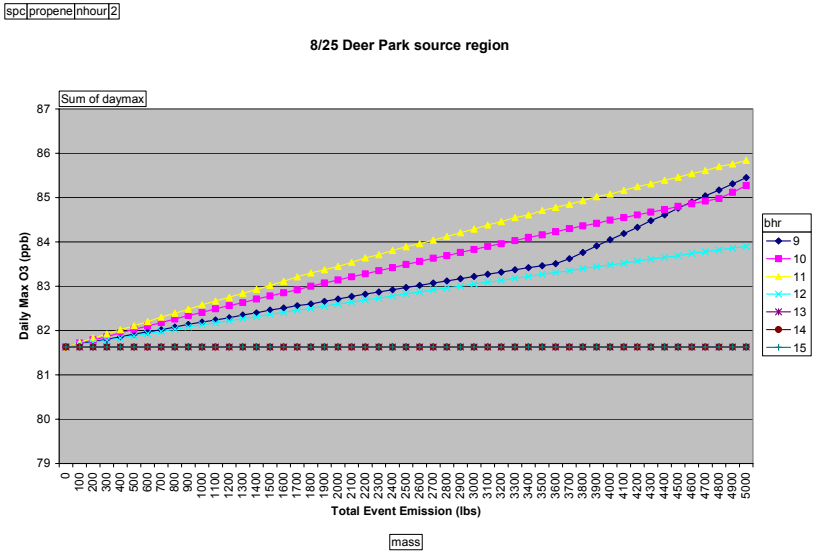




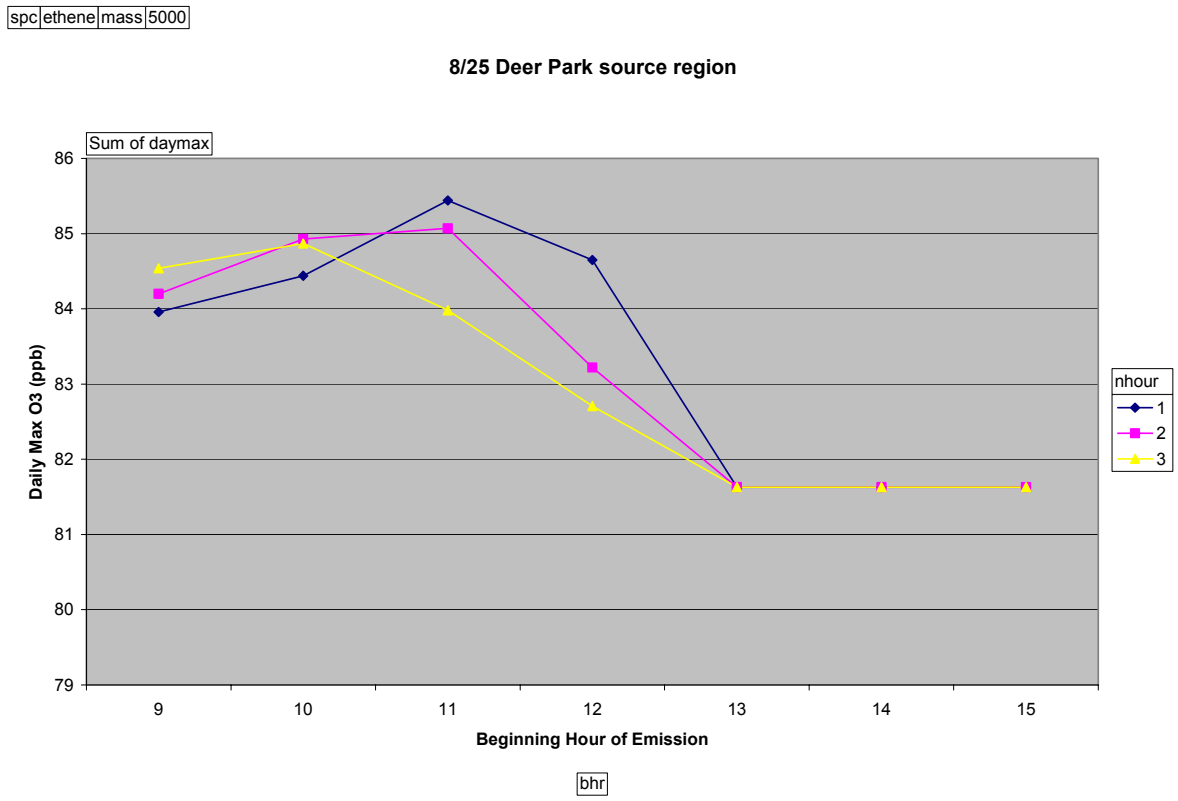
Sensitivity of Daily Max Ozone to the Ethene emission magnitude in “Source region” of Deer Park, Aug. 25, 1km resolution (GOES2 Met): Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)



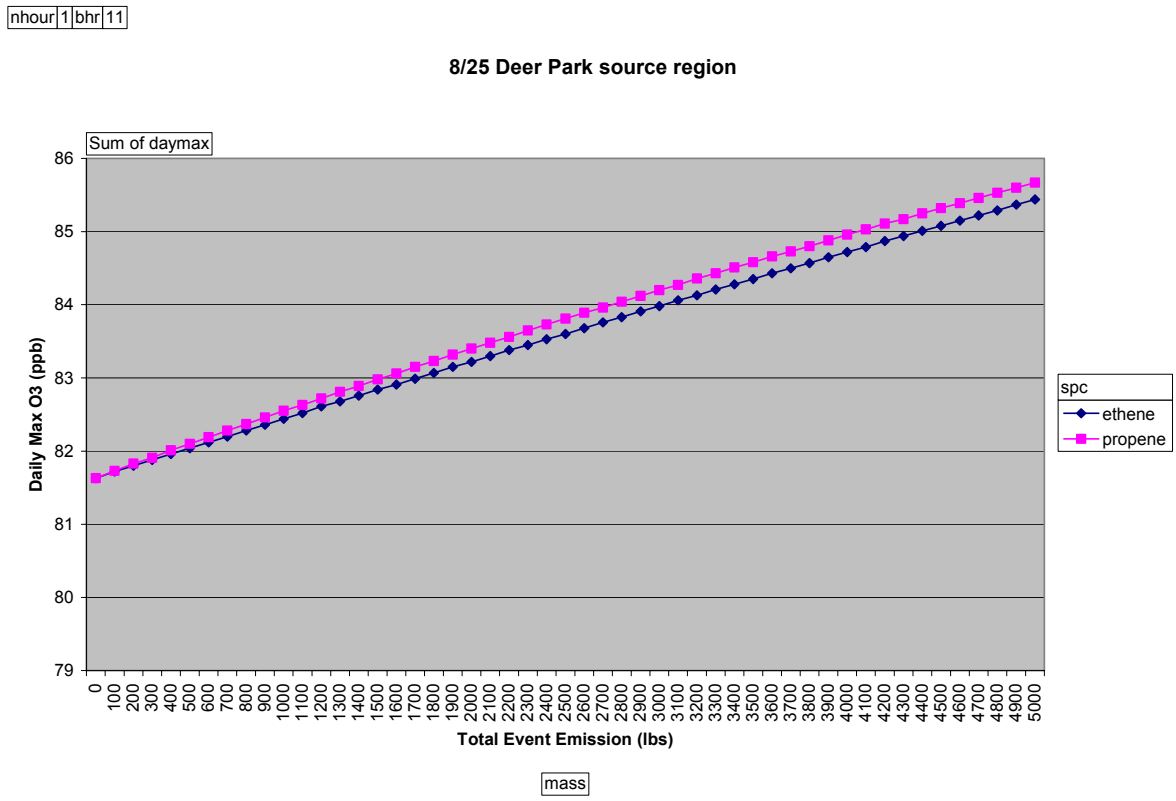




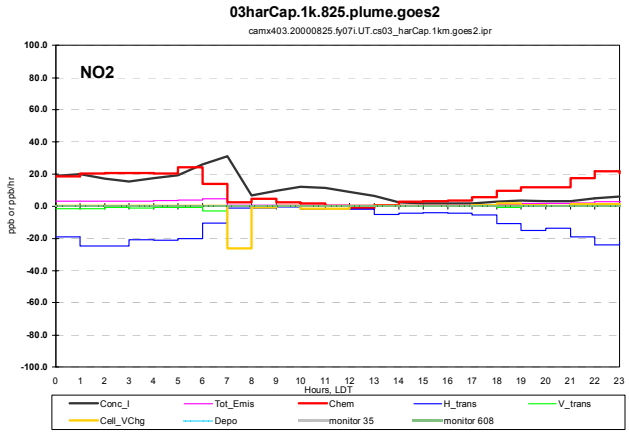
Sensitivity of Daily Max Ozone to the Propene emission magnitude in "Source region" of Deer Park, Aug. 25, 1km resolution (GOES2 Met): Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)

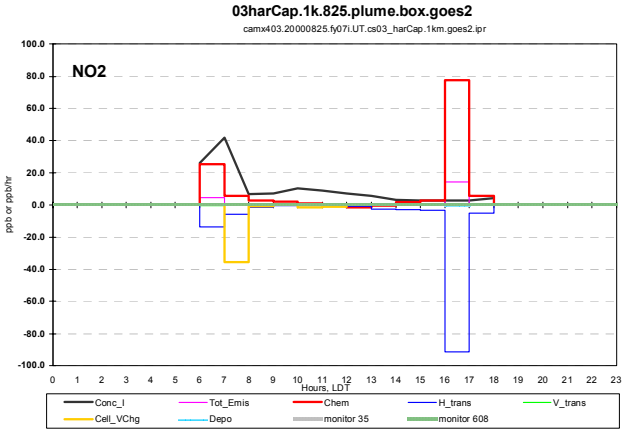


Sensitivity of Daily Max Ozone to the Ethene emission timing (beginning of emission) in "Source region" of Deer Park, Aug. 25, 1km resolution (GOES2 Met): All emissions are 5000 lbs. Legend shows the number of hours of emission event



Sensitivity of Daily Max Ozone to the emission species (Ethene and Propene) in "Source region" of Deer Park, Aug. 25, 1km resolution (GOES2 Met): All emissions are between 11:00 to 12:00. Legend shows the number of hours of emission event


03harCap.1k.825.plume.goes2
camx403.20000825.fy07i.UT.cs03_harCap.1km.goes2.ipr
NO2
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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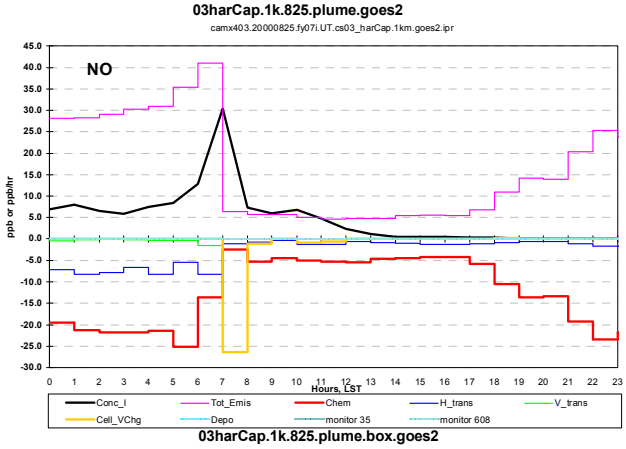
camx403.20000825.fy07i.UT.cs03_harCap.1km.goes2.ipr
NO2
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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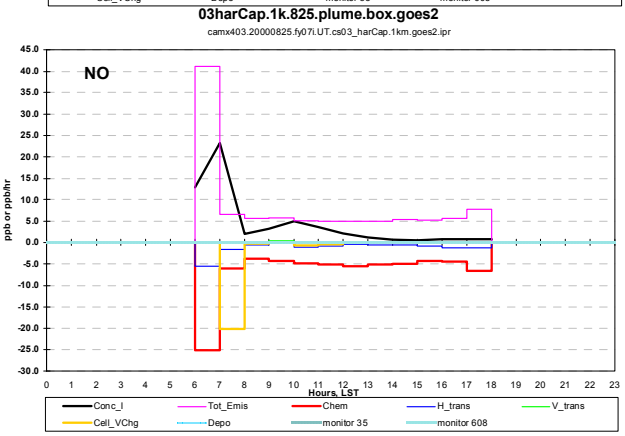
NO
ppb or ppb/hr
Hours, LST
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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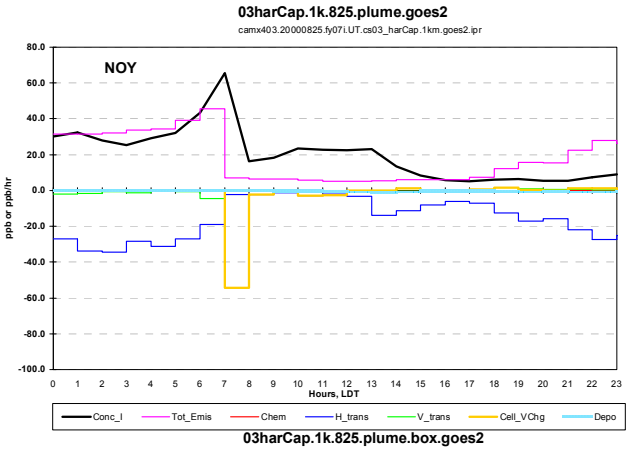
camx403.20000825.fy07i.UT.cs03_harCap.1km.goes2.ipr
NO
ppb or ppb/hr
Hours, LST
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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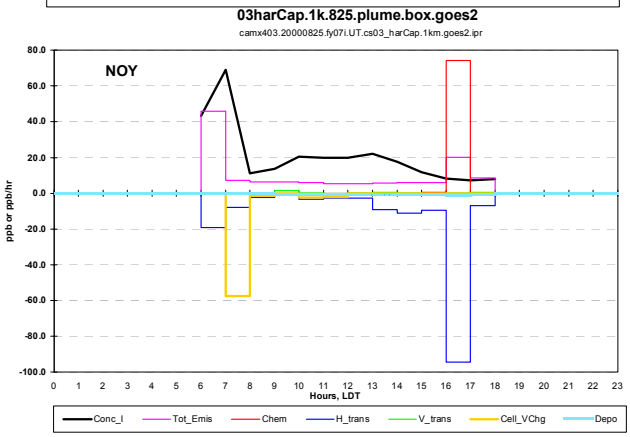
NOY
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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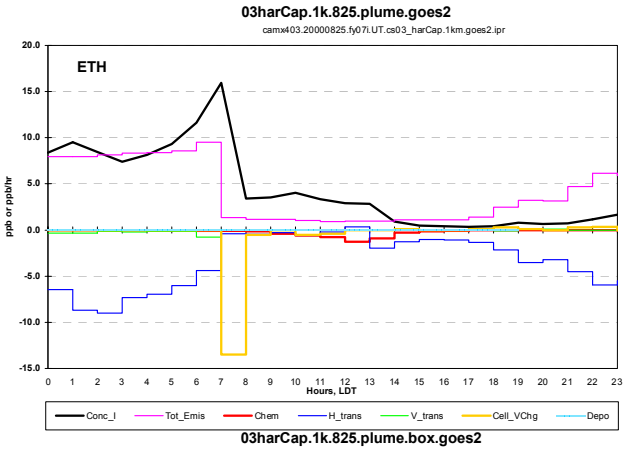
camx403.20000825.fy07i.UT.cs03_harCap.1km.goes2.ipr
NOY
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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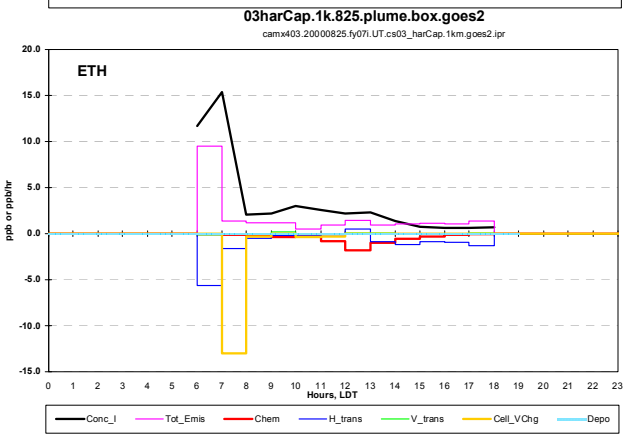
ETH
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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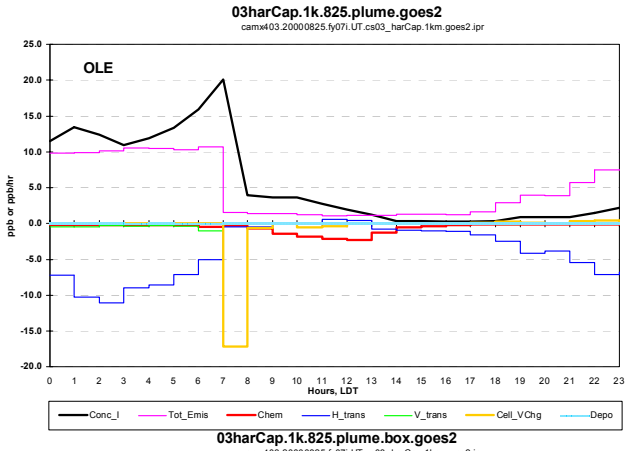
ETH
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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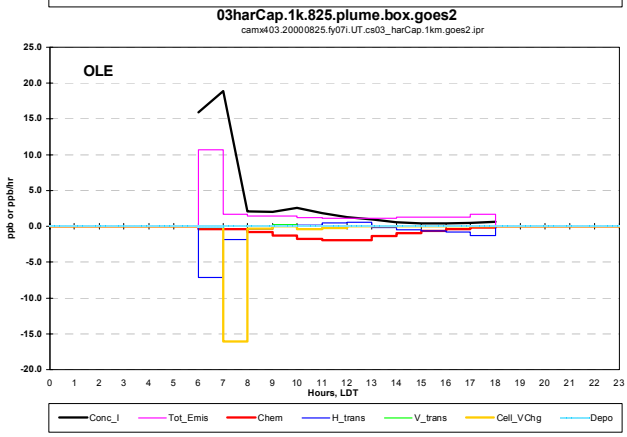
camx403.20000825.fy07i.UT.cs03_harCap.1km.goes2.ipr
OLE
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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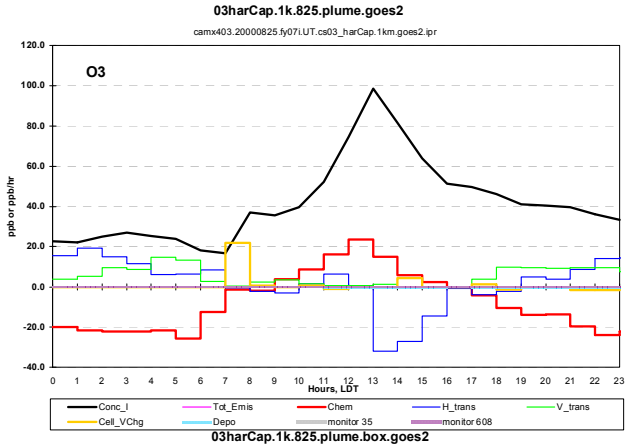
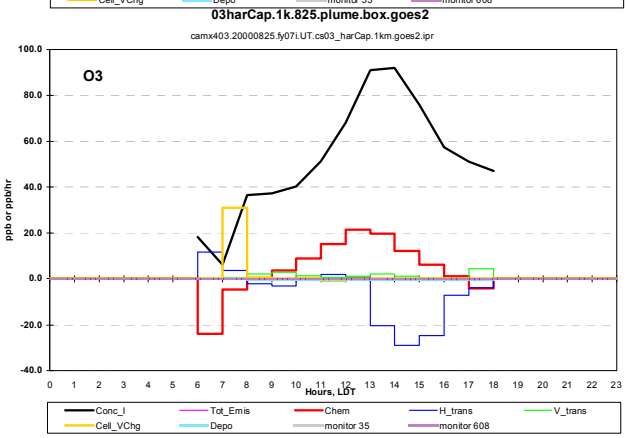
camx403.20000825.fy07i.UT.cs03_harCap.1km.goes2.ipr
OLE
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo


03harCap.1k.825.plume.goes2
camx403.20000825.fy07i.UT.cs03_harCap.1km.goes2.ipr
O3
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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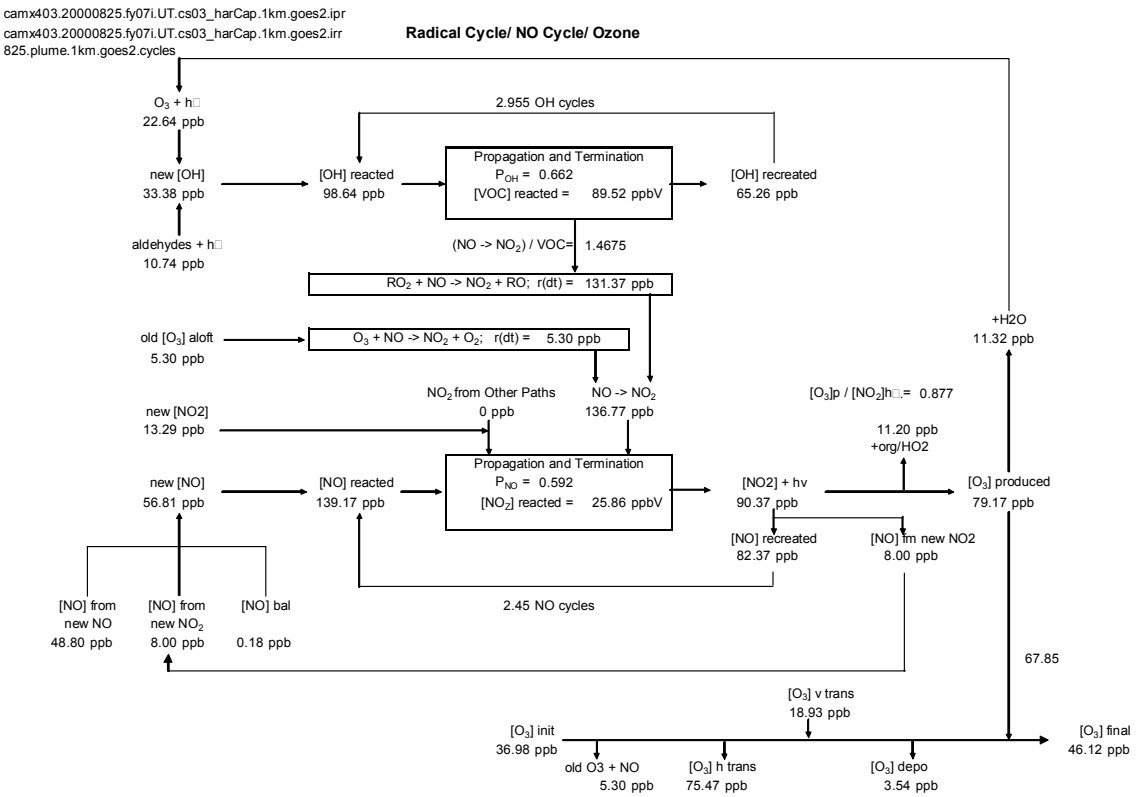
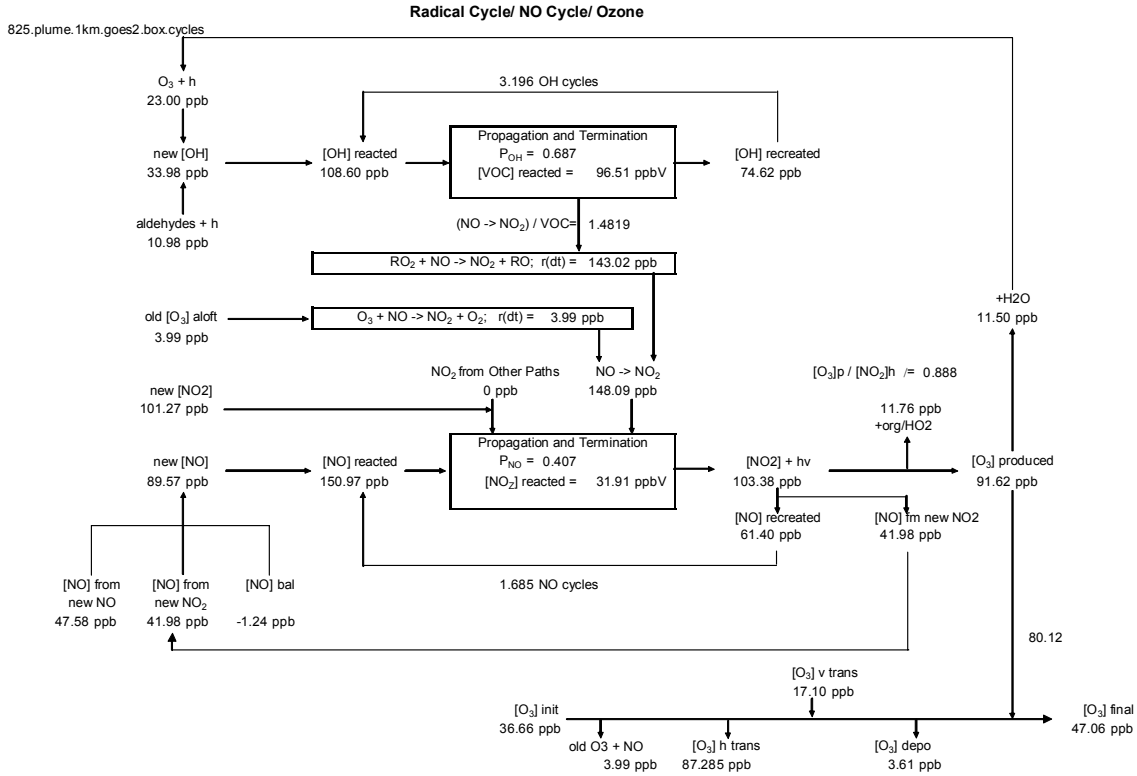
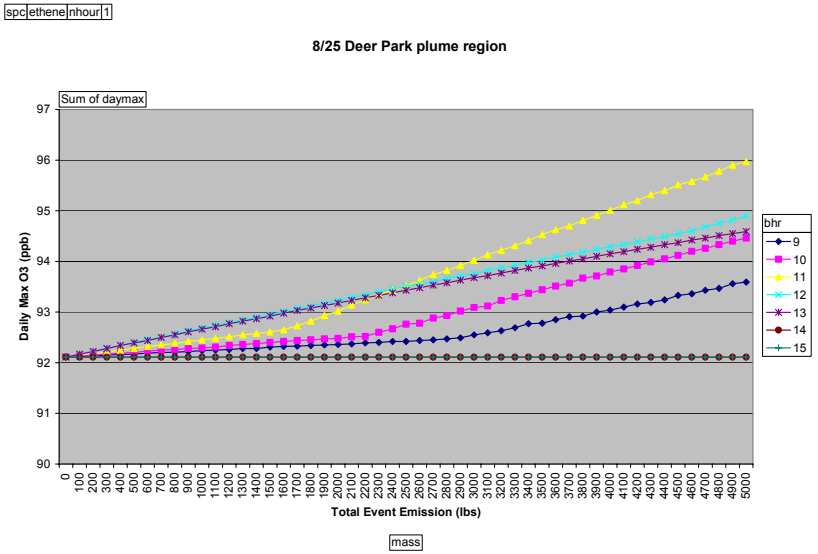
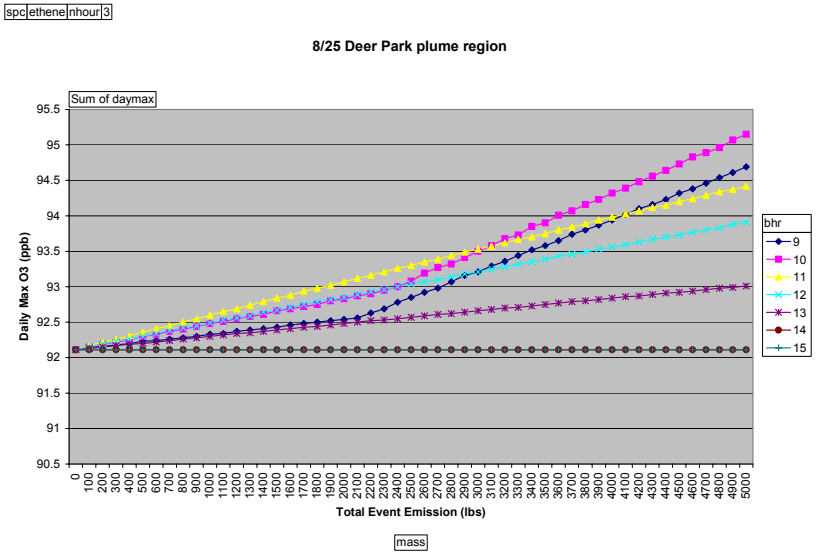
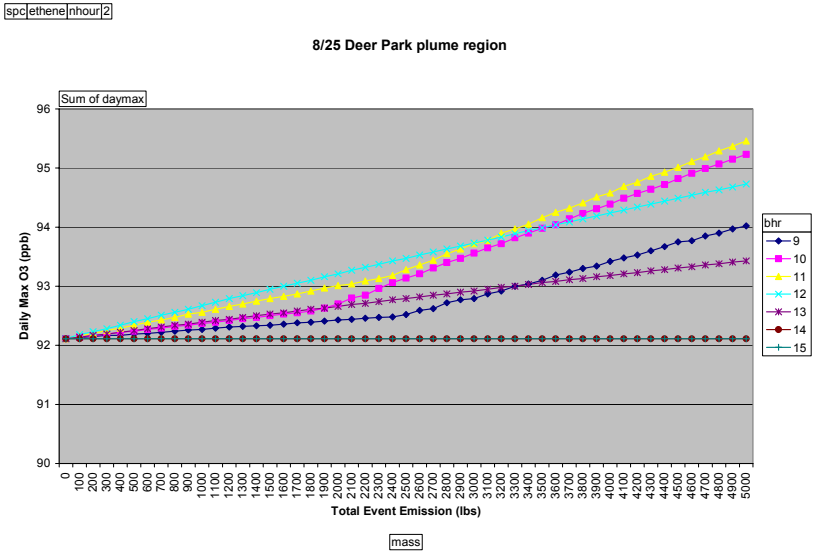
camx403.20000825.fy07i.UT.cs03_harCap.1km.goes2.ipr
O3
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608


camx403.20000825.fy07i.UT.cs03_harCap.1km.goes2.ipr
camx403.20000825.fy07i.UT.cs03_harCap.1km.goes2.irr
825.plume.1km.goes2.cycles
Radical Cycle/ NO Cycle/ Ozone
O3 + h
22.64 ppb
2.955 OH cycles
new [OH]
33.38 ppb
[OH] reacted
98.64 ppb
Propagation and Termination
POH = 0.662
[VOC] reacted = 89.52 ppbV
[OH] recreated
65.26 ppb
aldehydes + h
10.74 ppb
(NO -> NO2) / VOC= 1.4675
RO2 + NO -> NO2 + RO; r(dt) = 131.37 ppb
+H2O
11.32 ppb
old [O3] aloft
5.30 ppb
O3 + NO -> NO2 + O2; r(dt) = 5.30 ppb
NO2 from Other Paths
0 ppb
NO -> NO2
136.77 ppb
[O3]p / [NO2]h = 0.877
new [NO2]
13.29 ppb
11.20 ppb
+org/HO2
new [NO]
56.81 ppb
[NO] reacted
139.17 ppb
Propagation and Termination
PNO = 0.592
[NO2] reacted = 25.86 ppbV
[NO2] + hv
90.37 ppb
[O3] produced
79.17 ppb
[NO] recreated
82.37 ppb
[NO] fm new NO2
8.00 ppb
[NO] from
new NO
48.80 ppb
[NO] from
new NO2
8.00 ppb
[NO] bal
0.18 ppb
2.45 NO cycles
67.85
[O3] v trans
18.93 ppb
[O3] init
36.98 ppb
[O3] final
46.12 ppb
old O3 + NO
5.30 ppb
[O3] h trans
75.47 ppb
[O3] depo
3.54 ppb

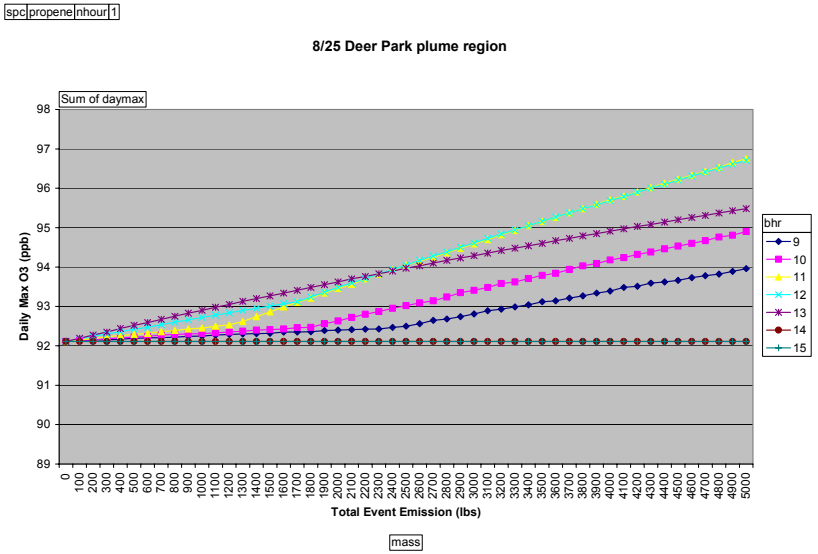

Radical Cycle/ NO Cycle/ Ozone
825.plume.1km.goes2.box.cycles
O3 + h
23.00 ppb
3.196 OH cycles
new [OH]
33.98 ppb
[OH] reacted
108.60 ppb
Propagation and Termination
POH = 0.687
[VOC] reacted = 96.51 ppbV
[OH] recreated
74.62 ppb
aldehydes + h
10.98 ppb
(NO -> NO2) / VOC= 1.4819
RO2 + NO -> NO2 + RO; r(dt) = 143.02 ppb
+H2O
11.50 ppb
old [O3] aloft
3.99 ppb
O3 + NO -> NO2 + O2; r(dt) = 3.99 ppb
NO2 from Other Paths
0 ppb
NO -> NO2
148.09 ppb
[O3]p / [NO2]h = 0.888
new [NO2]
101.27 ppb
11.76 ppb
+org/HO2
new [NO]
89.57 ppb
[NO] reacted
150.97 ppb
Propagation and Termination
PNO = 0.407
[NO2] reacted = 31.91 ppbV
[NO2] + hv
103.38 ppb
[O3] produced
91.62 ppb
[NO] recreated
61.40 ppb
[NO] fm new NO2
41.98 ppb
[NO] from
new NO
47.58 ppb
[NO] from
new NO2
41.98 ppb
[NO] bal
-1.24 ppb
1.685 NO cycles
80.12
[O3] v trans
17.10 ppb
[O3] init
36.66 ppb
[O3] final
47.06 ppb
old O3 + NO
3.99 ppb
[O3] h trans
87.285 ppb
[O3] depo
3.61 ppb

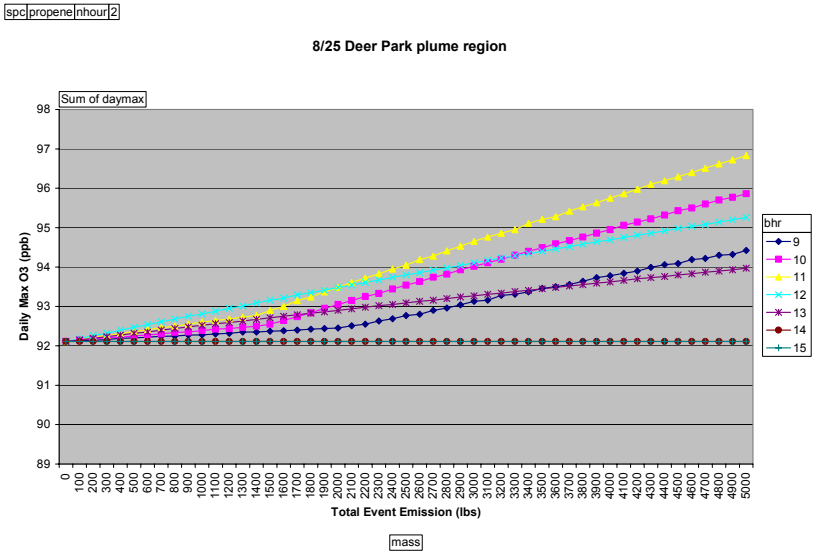


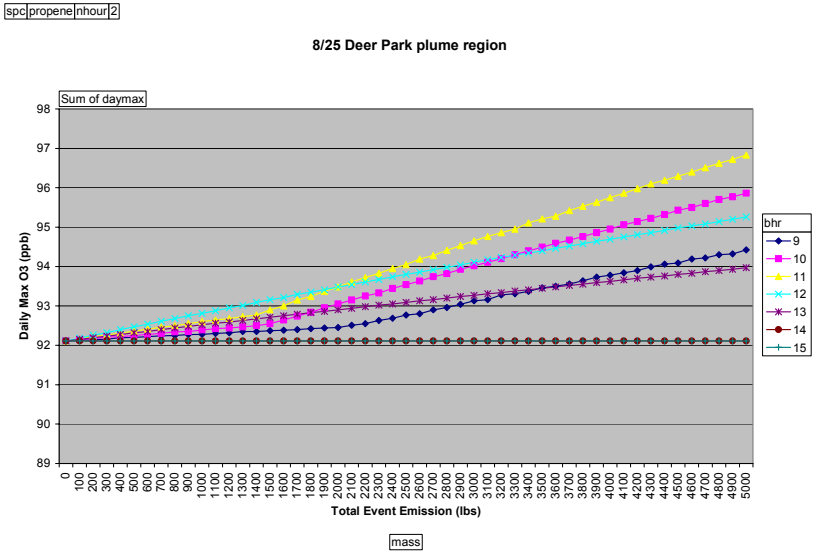




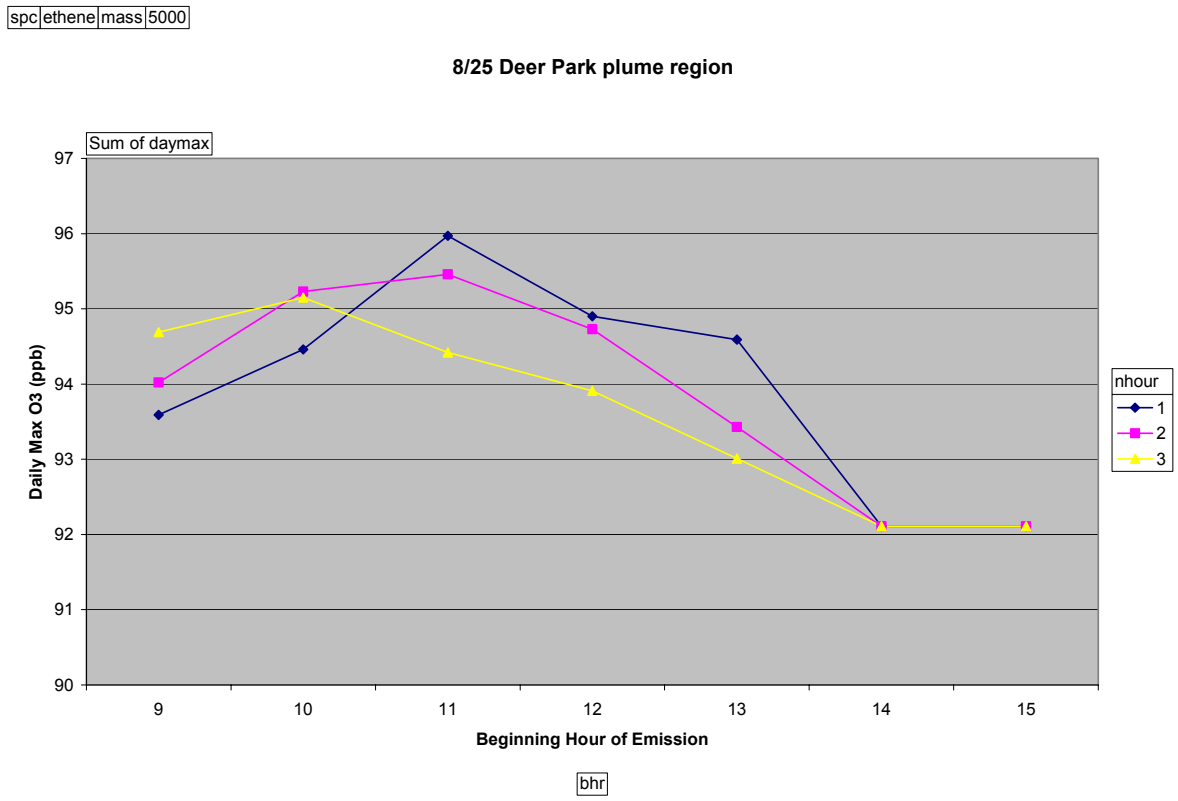
Sensitivity of Daily Max Ozone to the Ethene emission magnitude in “Plume region” of Deer Park, Aug. 25, 1km resolution (GOES2 Met): Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)



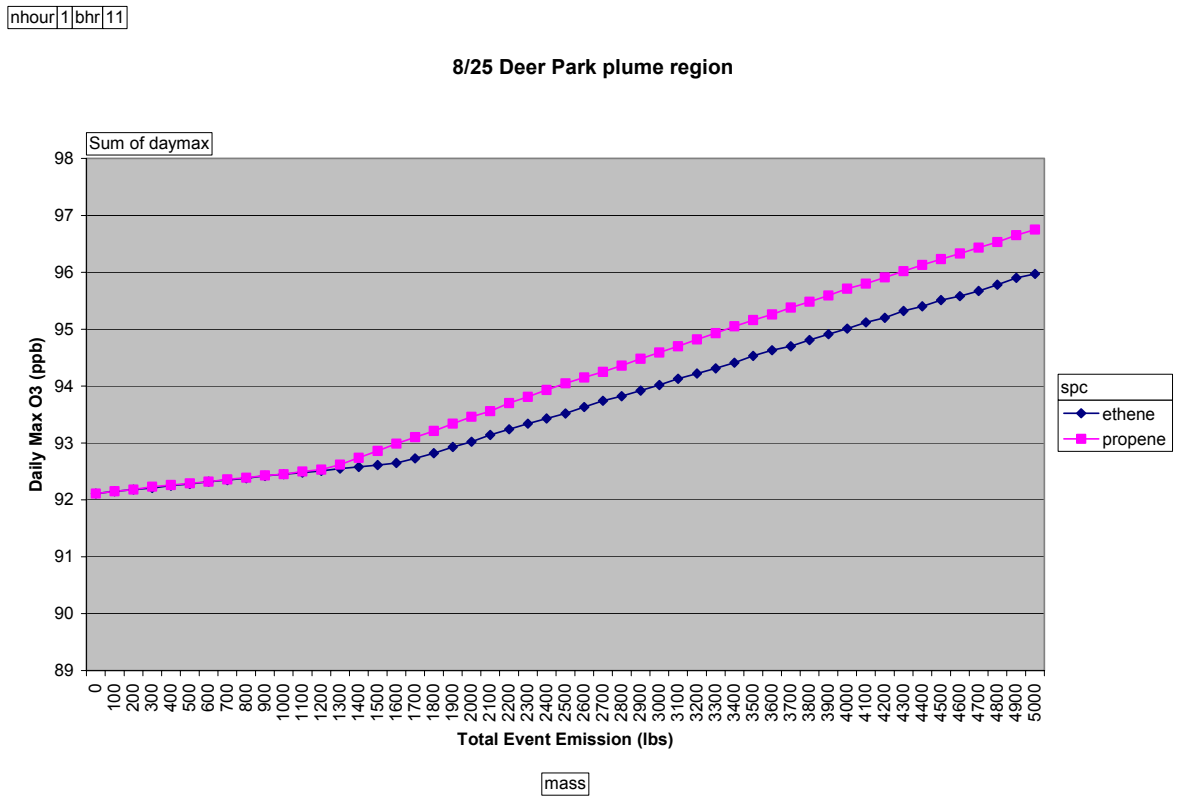




Sensitivity of Daily Max Ozone to the Propene emission magnitude in "Plume region" of Deer Park, Aug. 25, 1km resolution (GOES2 Met): Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)

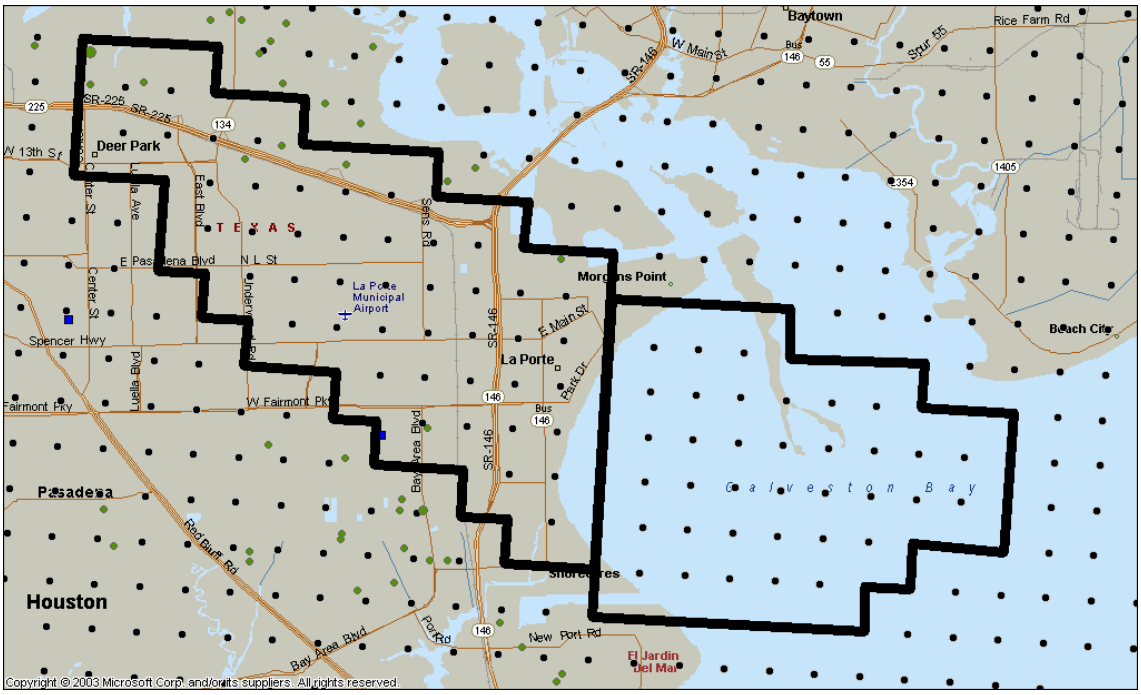


Sensitivity of Daily Max Ozone to the Ethene emission timing (beginning of emission) in "Plume region" of Deer Park, Aug. 25, 1km resolution (GOES2 Met): All emissions are 5000 lbs. Legend shows the number of hours of emission event

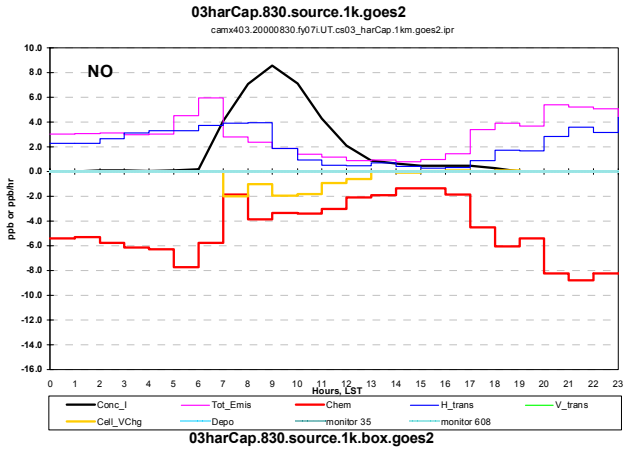


Sensitivity of Daily Max Ozone to the emission species (Ethene and Propene) in "Plume region" of Deer Park, Aug. 25, 1km resolution (GOES2 Met): All emissions are between 11:00 to 12:00. Legend shows the number of hours of emission event

August 30 - Future Year 2007 (fyo7i.cs03_harCap.1km goes2)



8_30_00 Process Analysis Box outlined in black. Black Dots represent lower left hand corner of 1 km grid cells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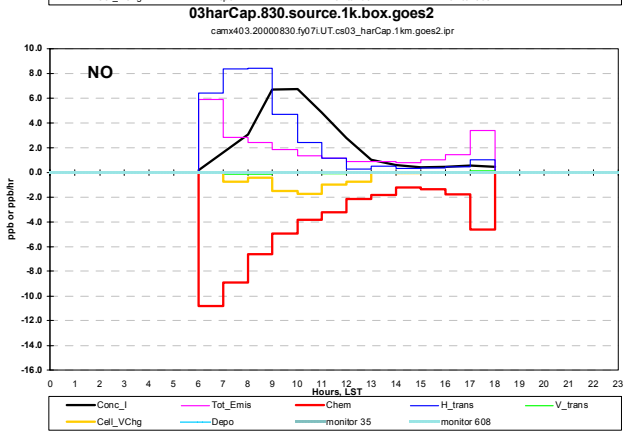
NO
ppb or ppb/hr
Hours, LST
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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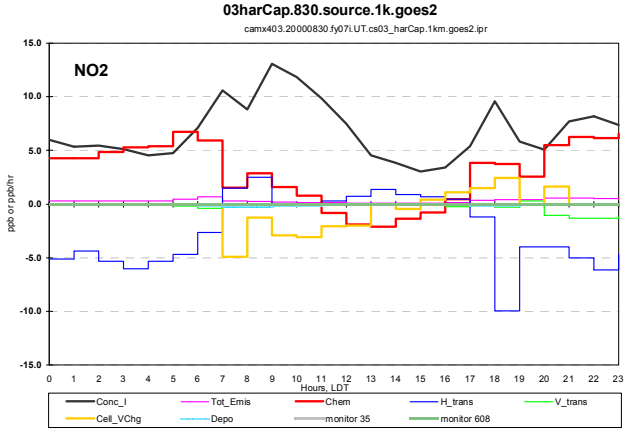
Hours, LST
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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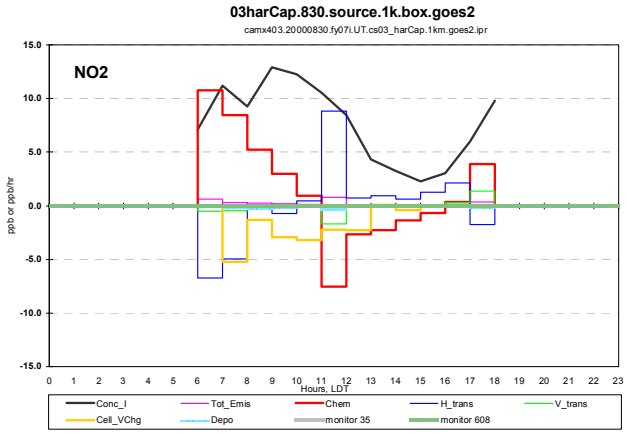
Cell_VChg
Depo
monitor 35
monitor 608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Chem
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V_trans
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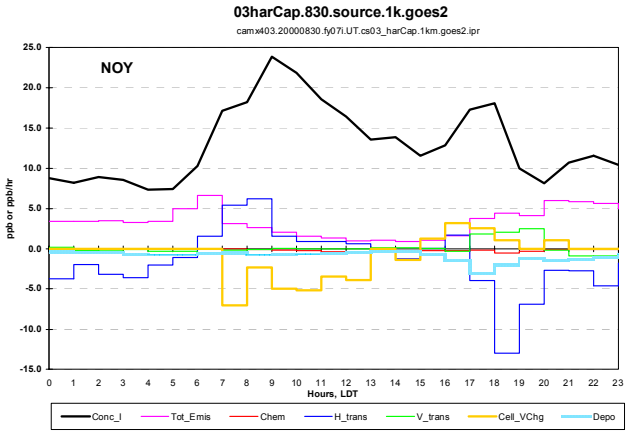
monitor 35
monitor 608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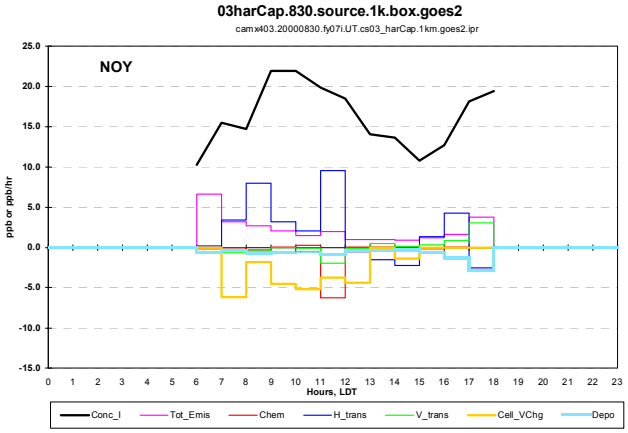
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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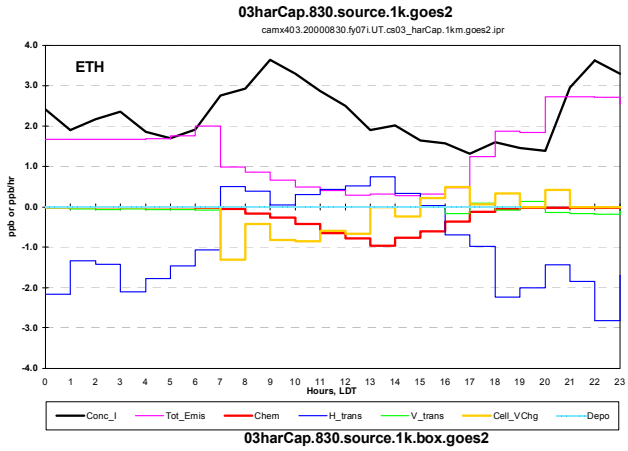
Chem
H_trans
V_trans
Cell_VChg
Depo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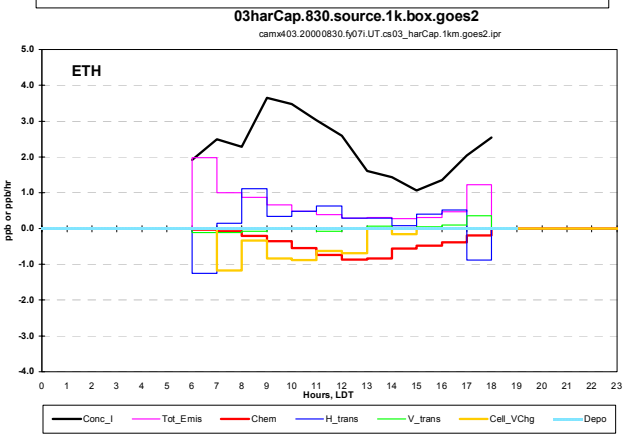
Cell_VChg
Depo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Hours, LDT
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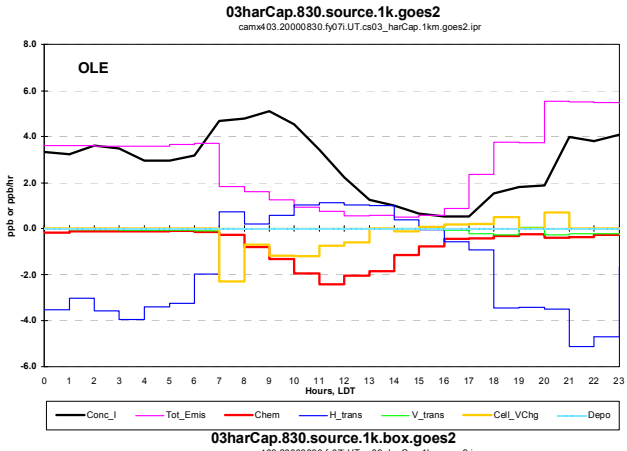
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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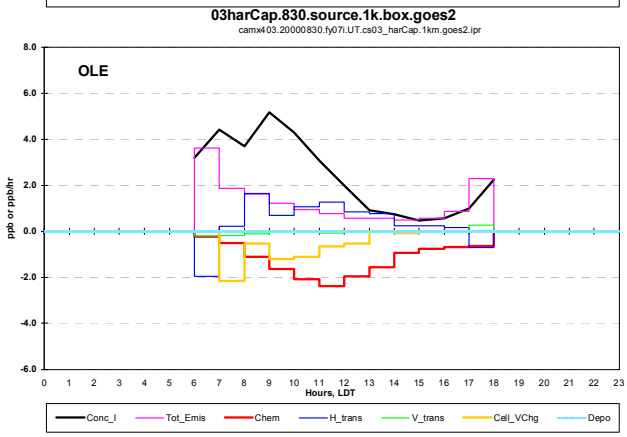
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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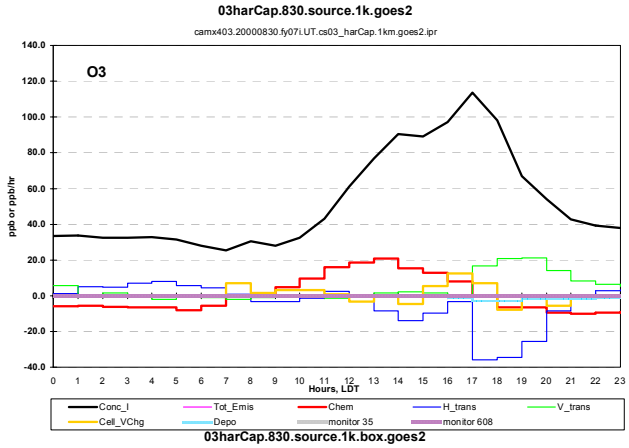
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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O3
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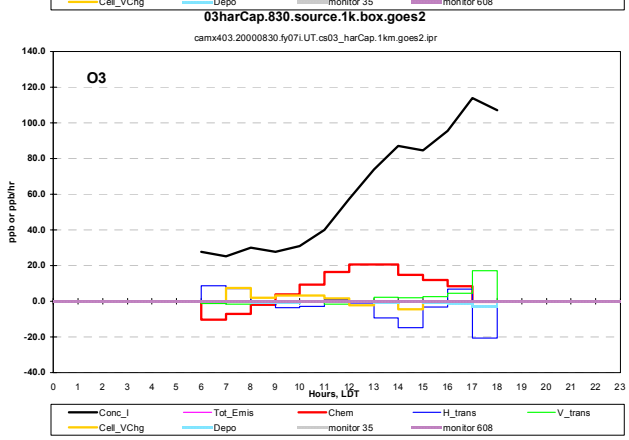
Cell_VChg
Depo
monitor 35
monitor 608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O3
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608

camx403.20000830.fy07i.UT.cs03_harCap.1km.goes2.ipr
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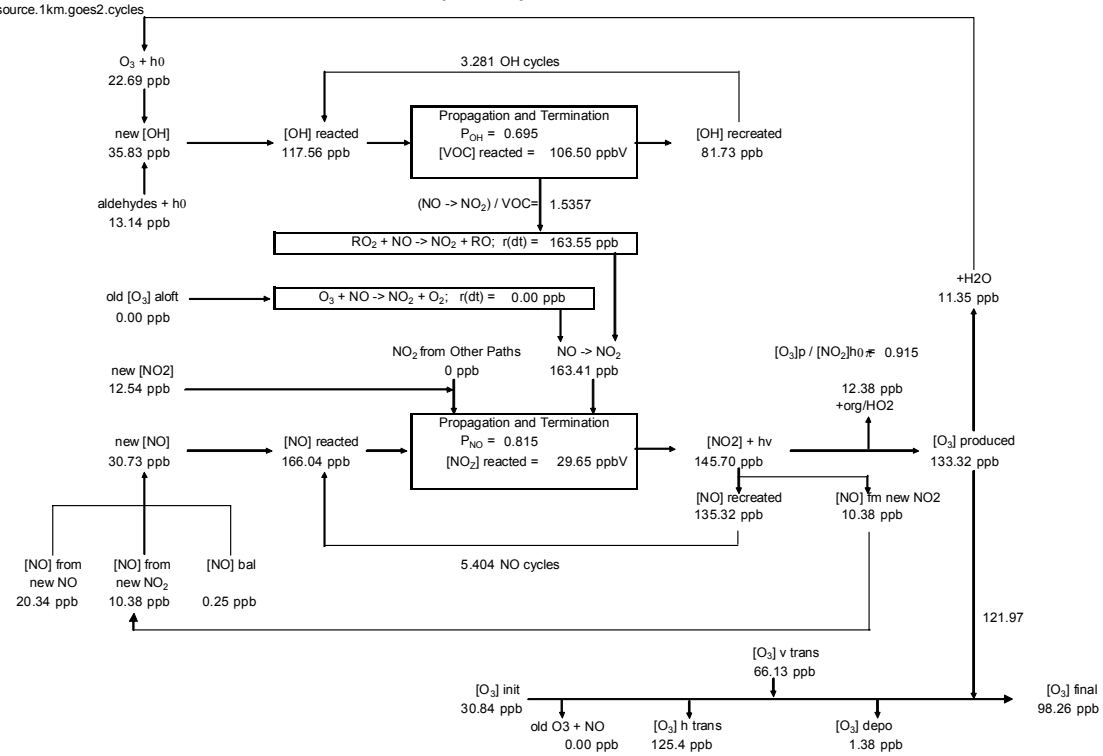
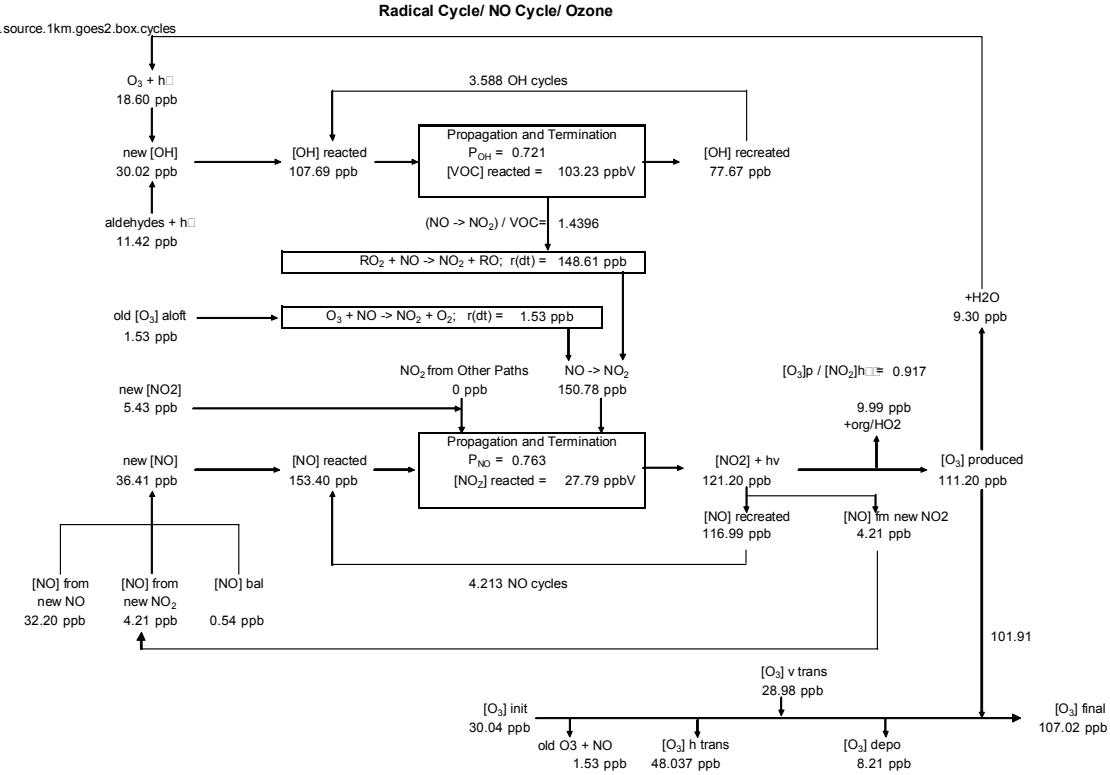
830.source.1km.goes2.cycles

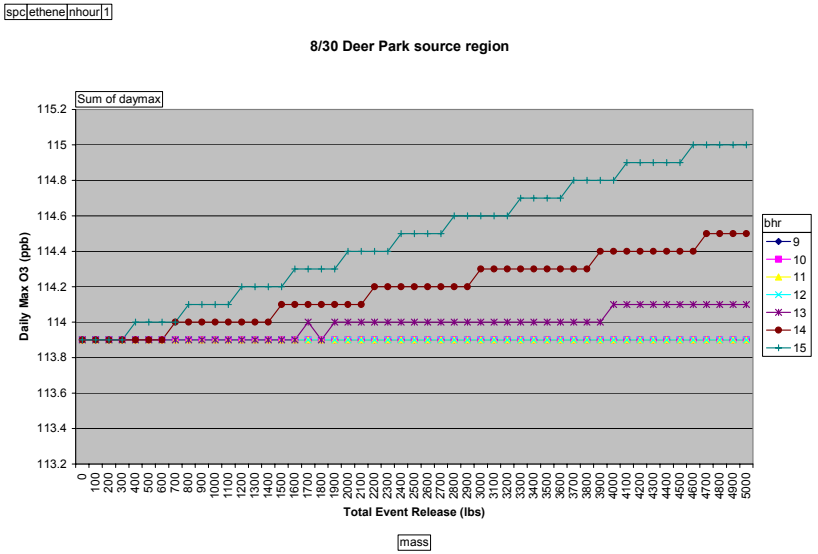
Radical Cycle/ NO Cycle/ Ozone

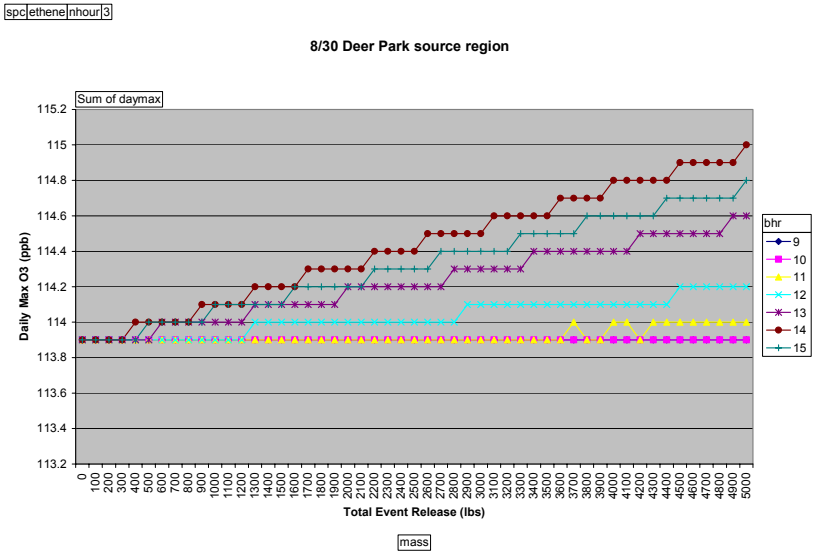


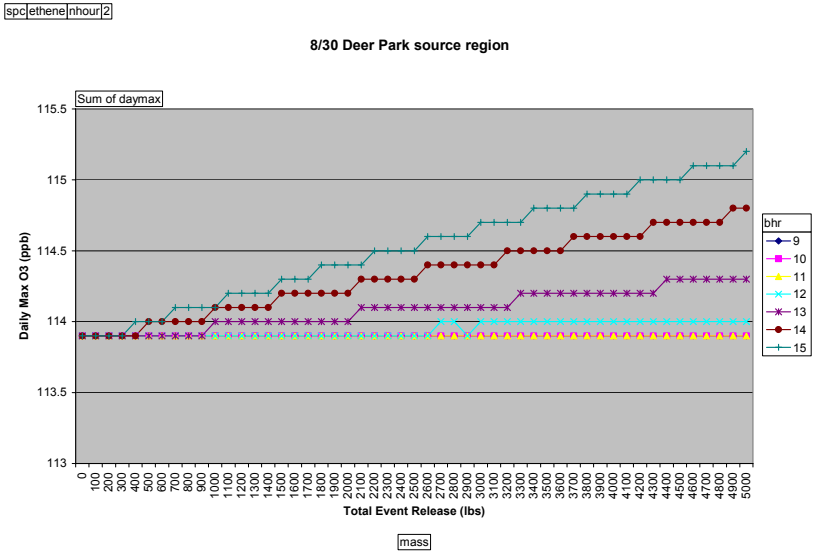
Radical Cycle/ NO Cycle/ Ozone

830.source.1km.goes2.box.cycles

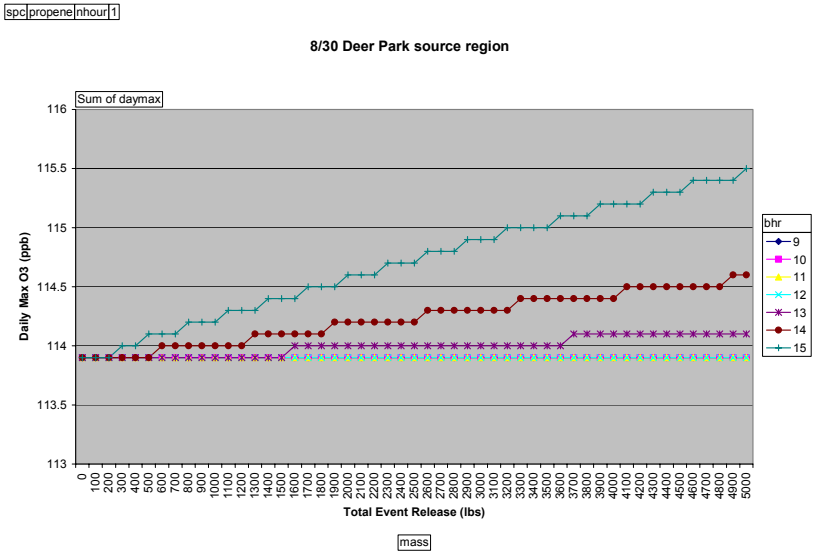


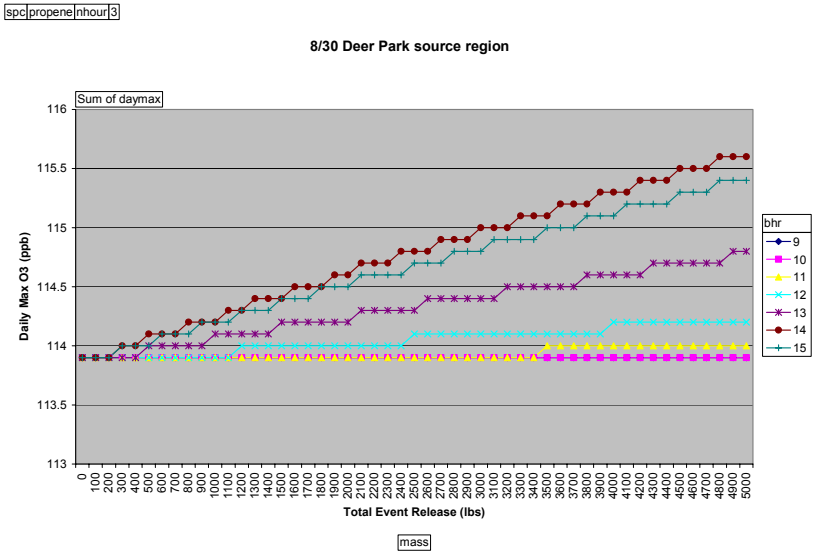


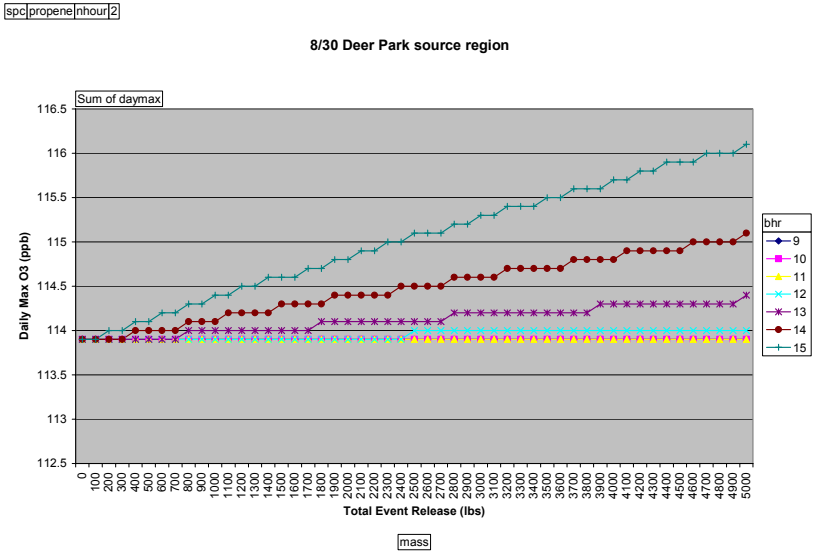




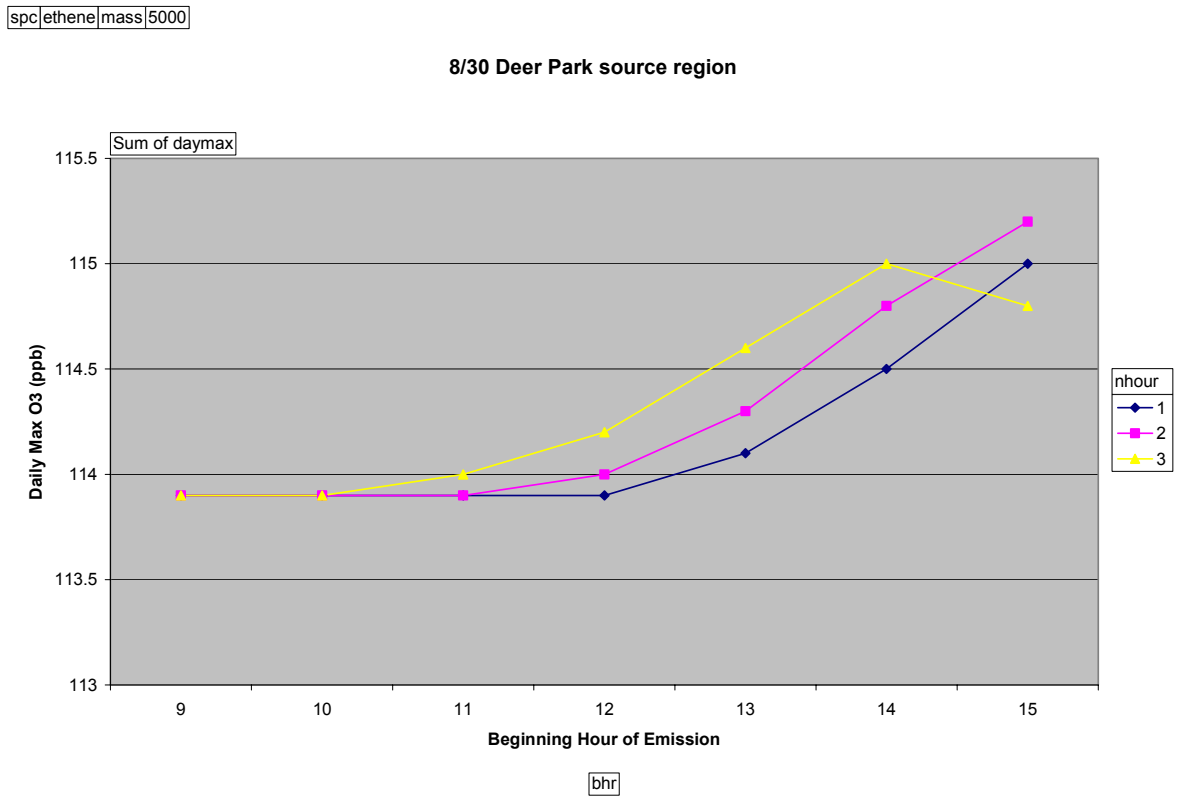
Sensitivity of Daily Max Ozone to the Ethene emission magnitude in “Source region” of Deer Park, Aug. 30, 1km resolution (GOES2 Met): Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)



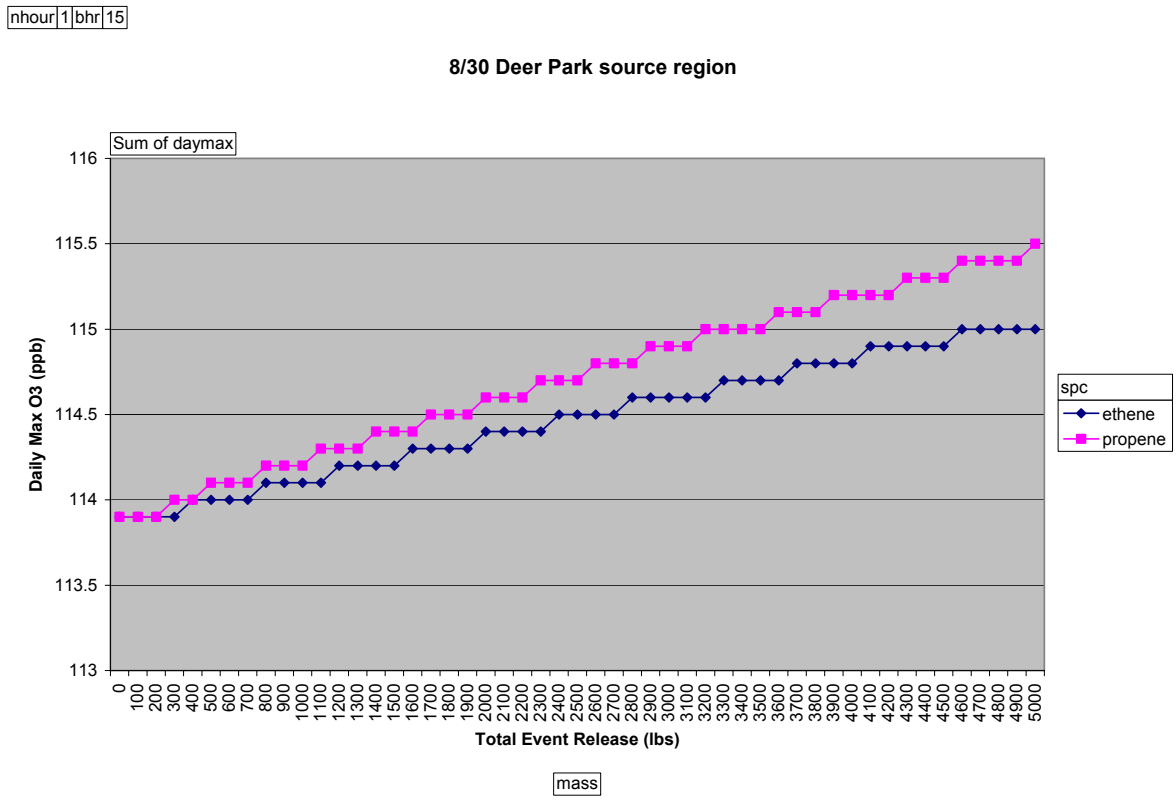




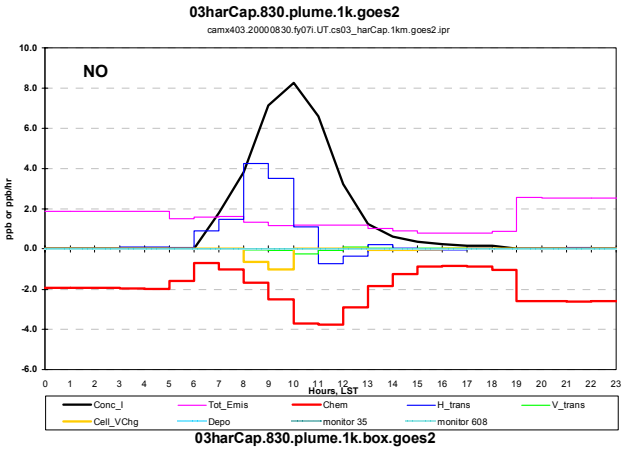
Sensitivity of Daily Max Ozone to the Propene emission magnitude in "Source region" of Deer Park, Aug. 30, 1km resolution (GOES2 Met): Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)

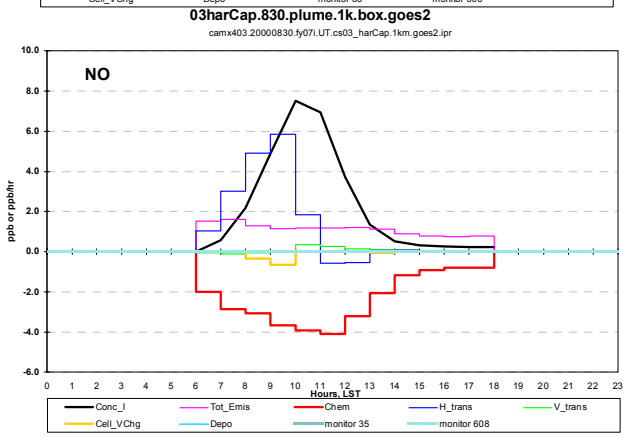


Sensitivity of Daily Max Ozone to the Ethene emission timing (beginning of emission) in "Source region" of Deer Park, Aug. 30, 1km resolution (GOES2 Met): All emissions are 5000 lbs. Legend shows the number of hours of emission event



Sensitivity of Daily Max Ozone to the emission species (Ethene and Propene) in "Source region" of Deer Park, Aug. 30, 1km resolution (GOES2 Met): All emissions are between 15:00 to 16:00. Legend shows the number of hours of emission event


03harCap.830.plume.1k.goes2
camx403.20000830.fy07i.UT.cs03_harCap.1km.goes2.ipr
NO
ppb or ppb/hr
Hours, LST
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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Hours, LST
Conc_I
Tot_Emis
Chem
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V_trans
Cell_VChg
Depo
monitor 35
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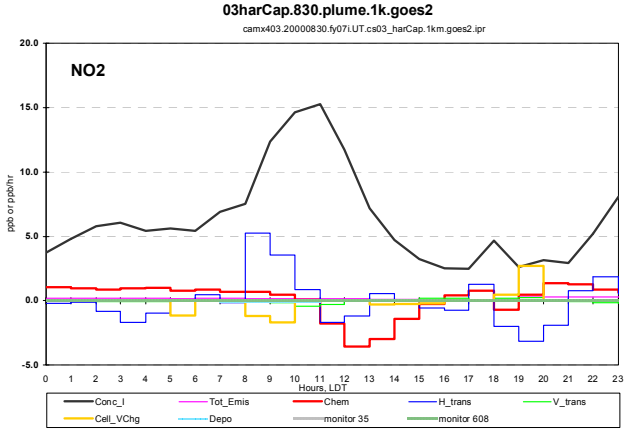
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NO2
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Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
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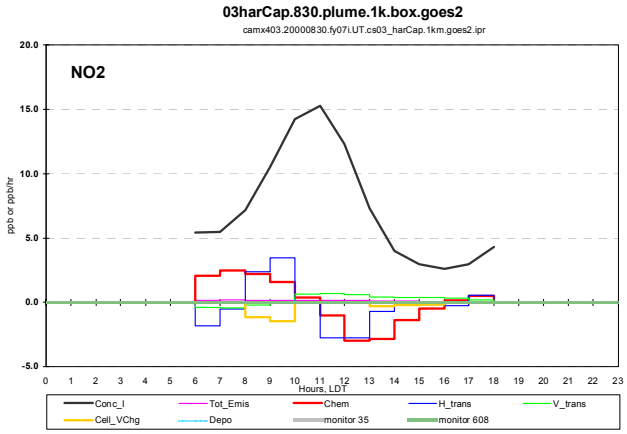
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NO2
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
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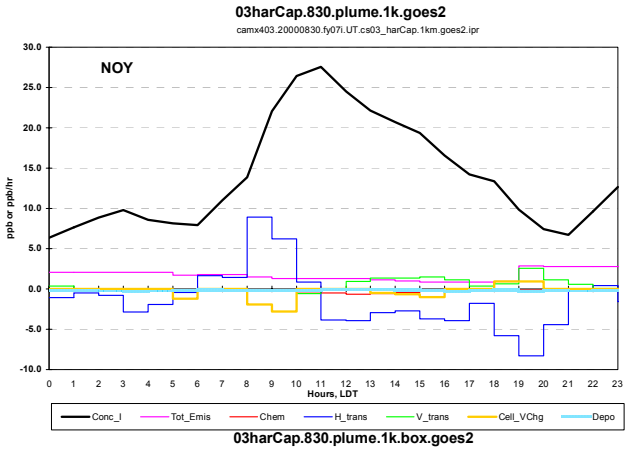
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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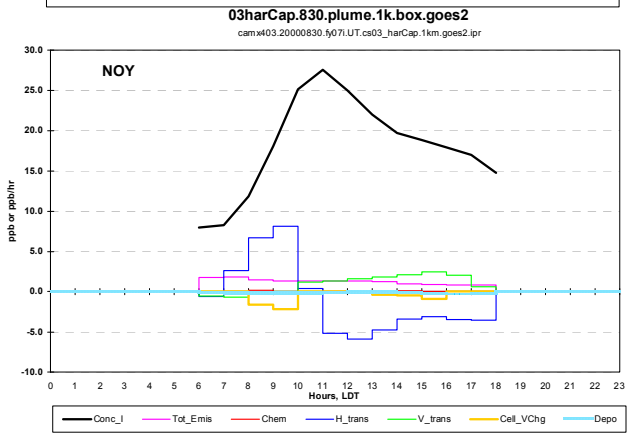
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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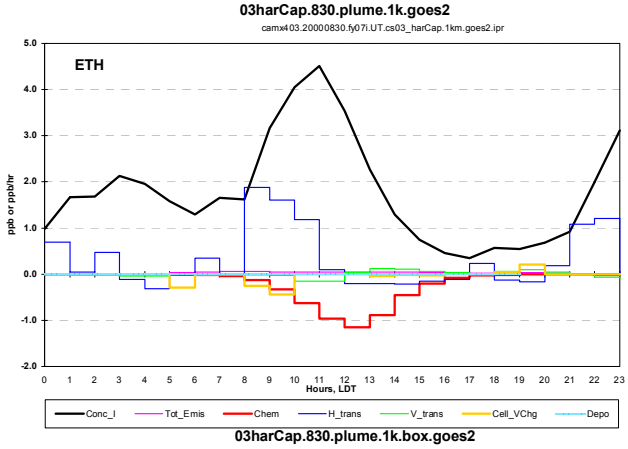
NOY
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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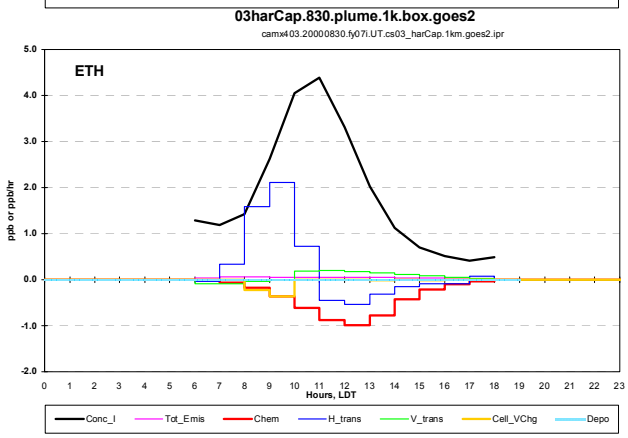
ETH
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo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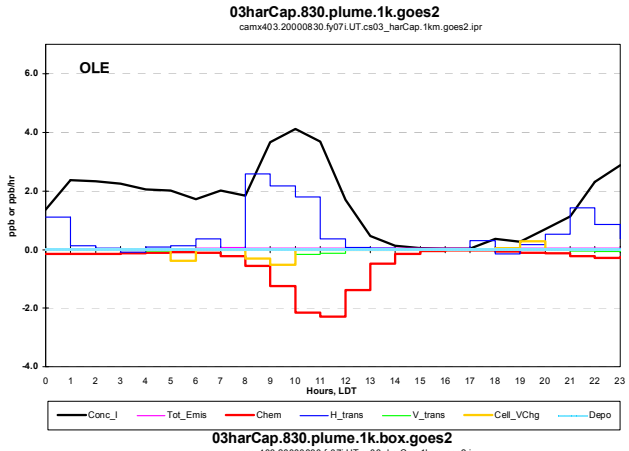
Cell_VChg
Depo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OLE
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Hours, LDT
Conc_I
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Chem
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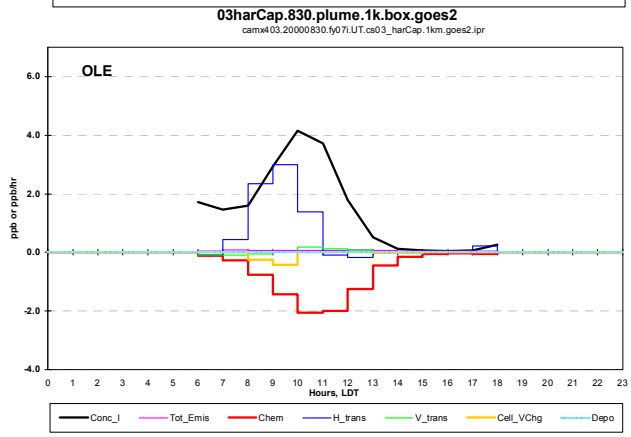
V_trans
Cell_VChg
Depo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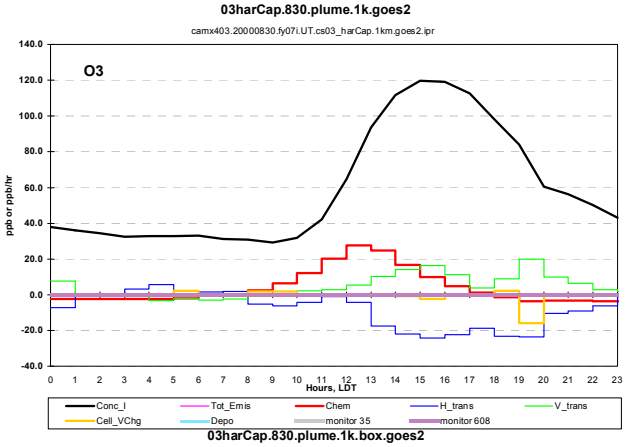
Depo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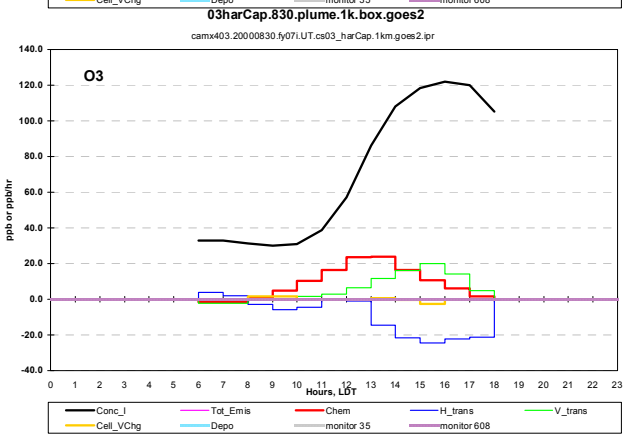
O3
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608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O3
ppb or ppb/hr
Hours, LDT
Conc_I
Tot_Emis
Chem
H_trans
V_trans
Cell_VChg
Depo
monitor 35
monitor 608

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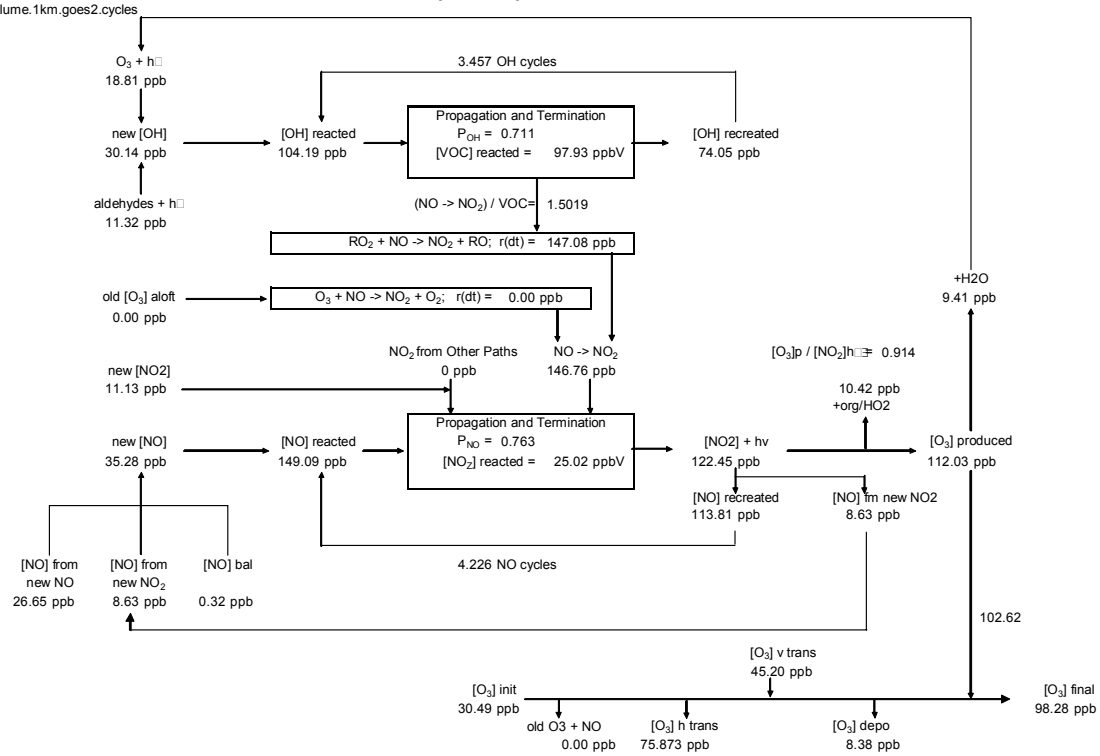
Radical Cycle/ NO Cycle/ Ozone



Radical Cycle/ NO Cycle/ Ozone

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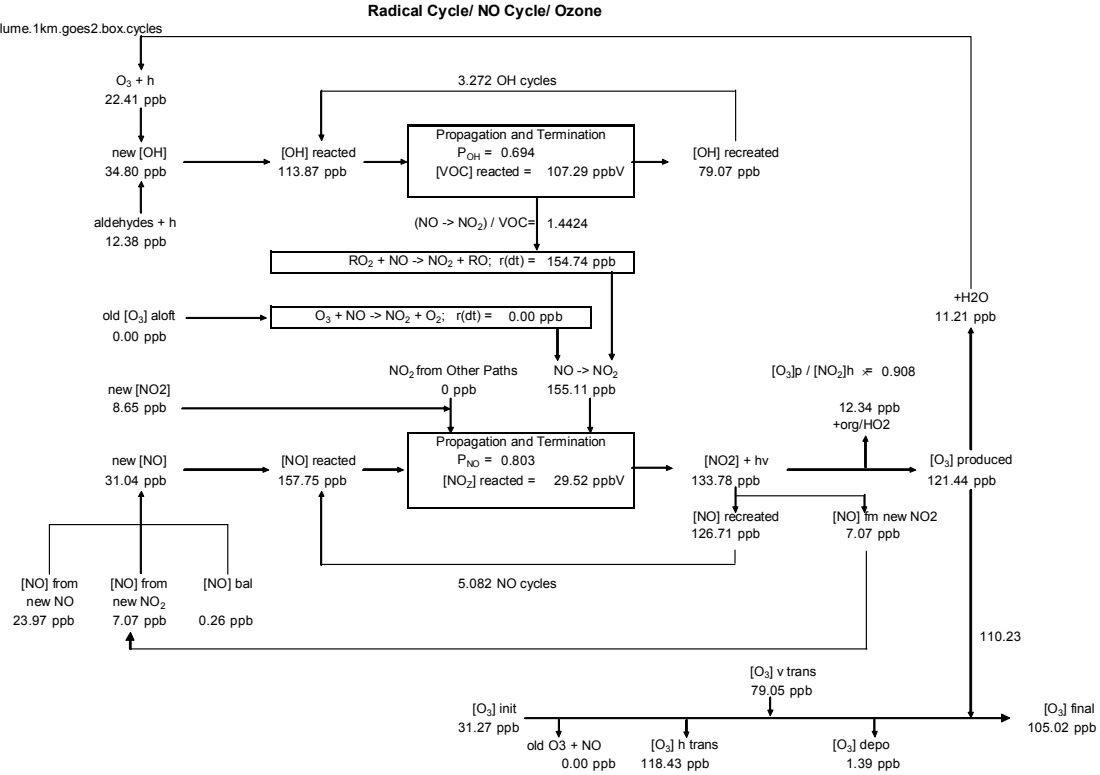
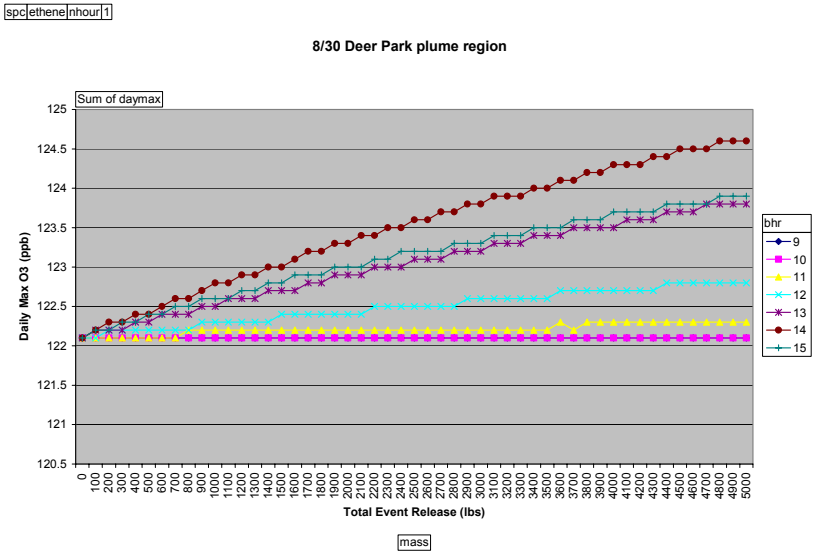
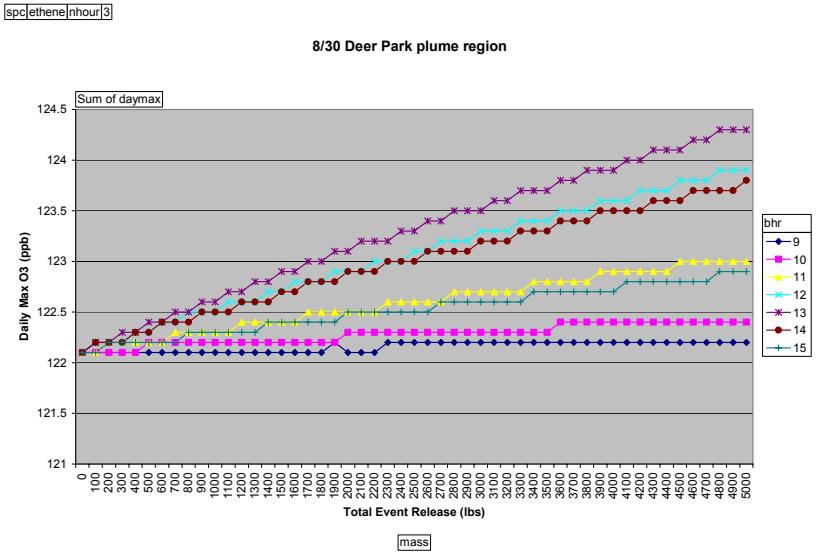
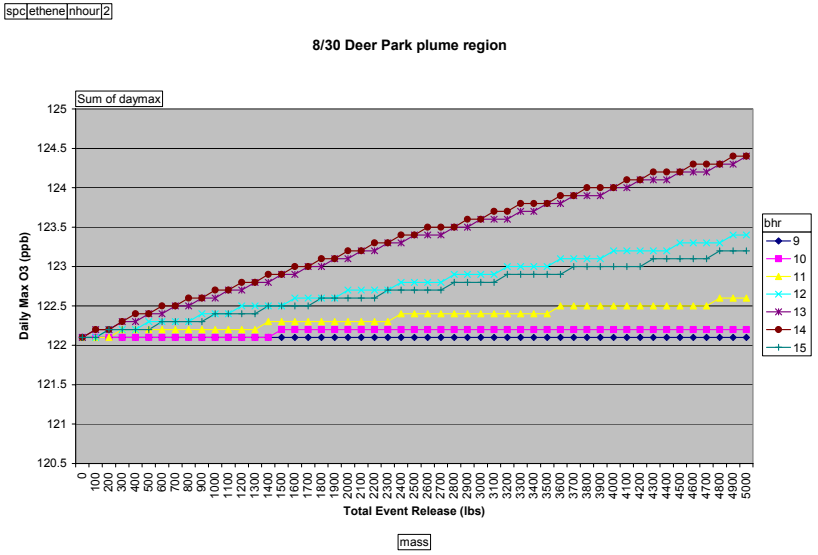
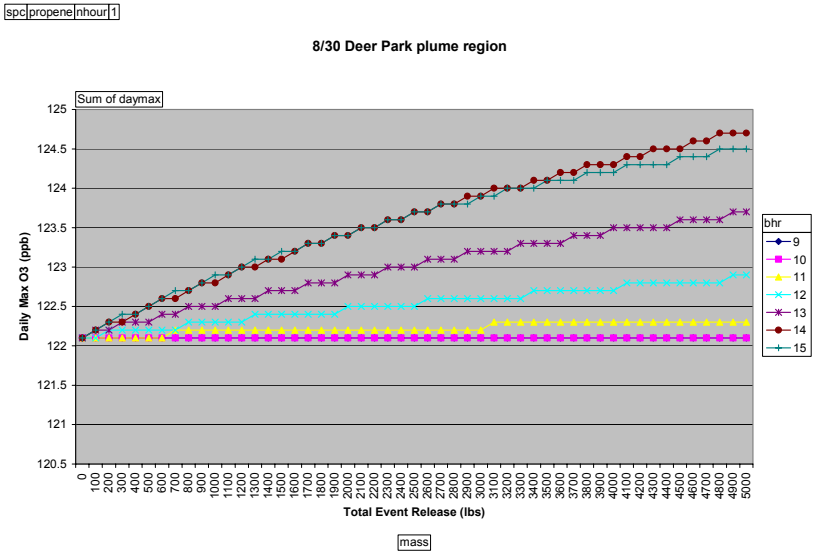


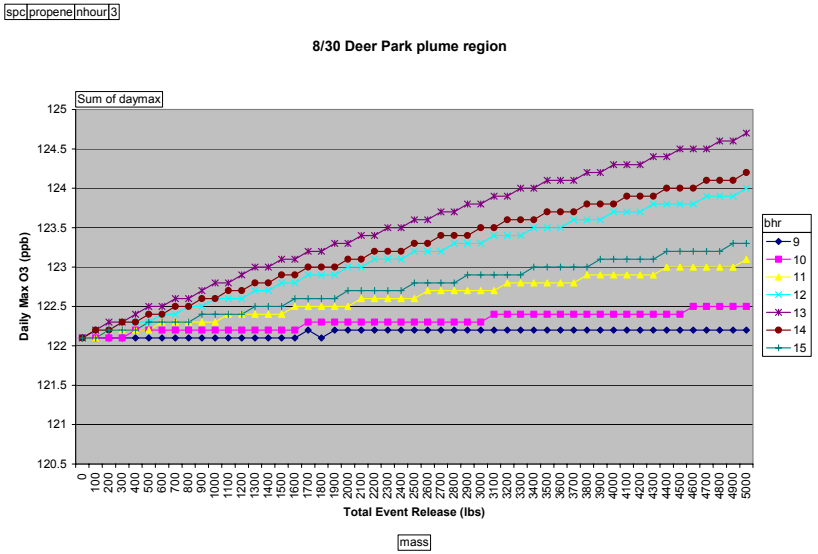


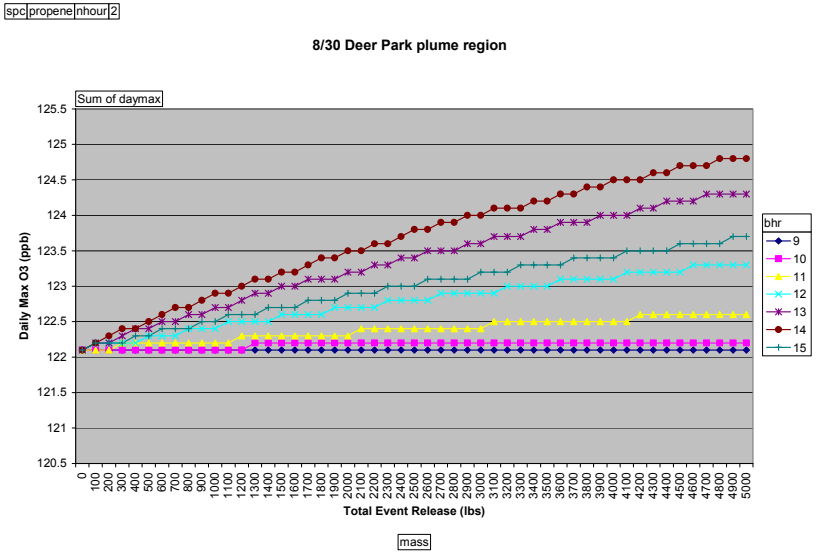




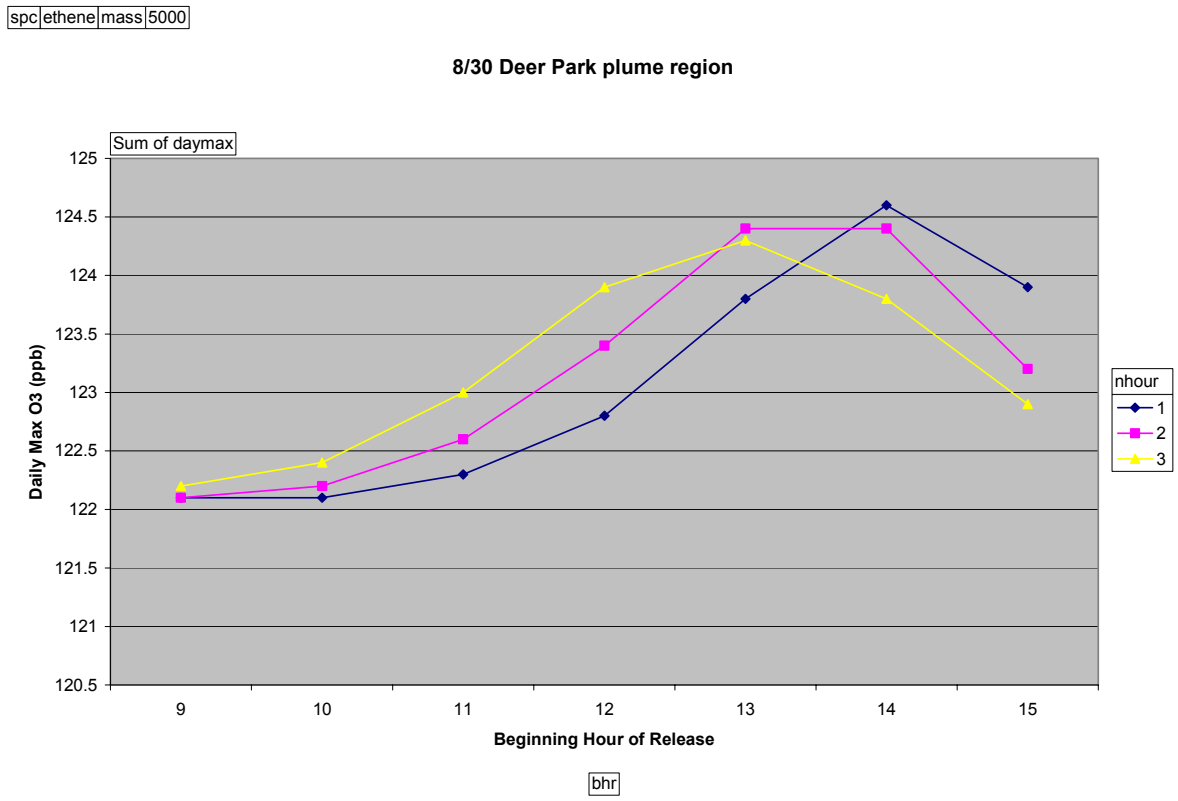
Sensitivity of Daily Max Ozone to the Ethene emission magnitude in "Plume region" of Deer Park, Aug. 30, 1km resolution (GOES2 Met): Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)



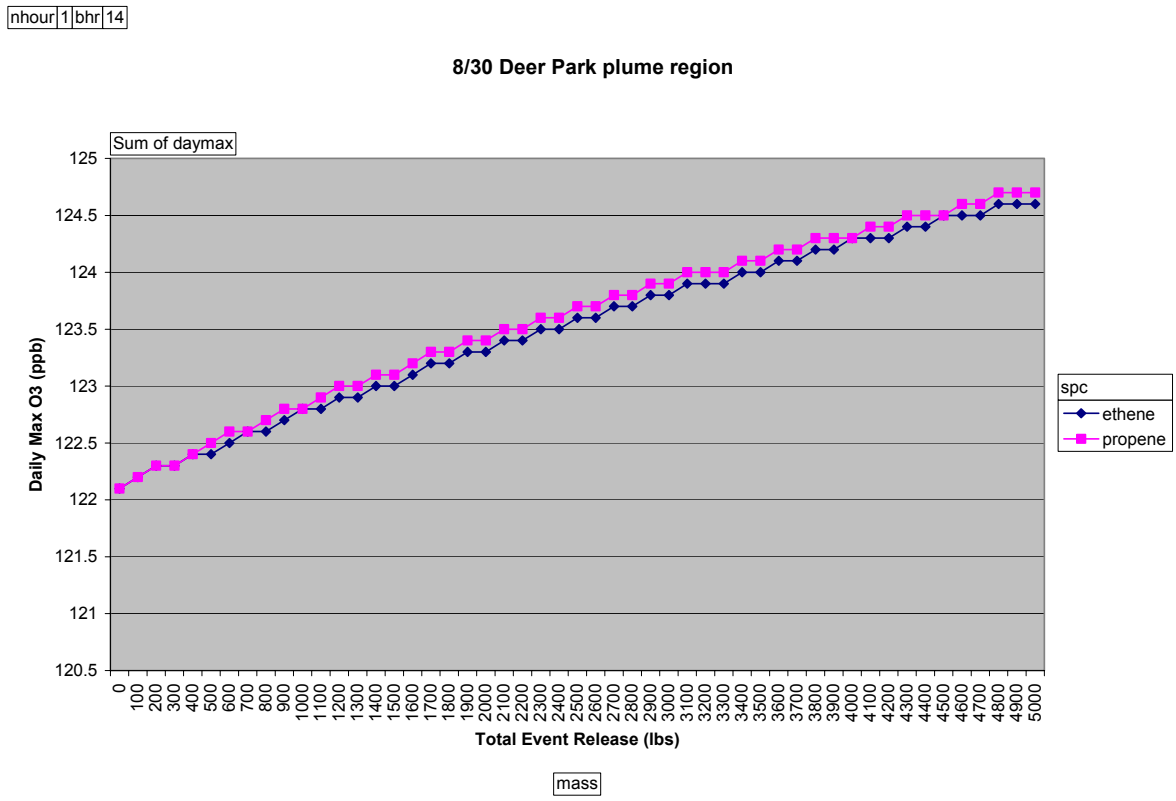




Sensitivity of Daily Max Ozone to the Propene emission magnitude in "Plume region" of Deer Park, Aug. 30, 1km resolution (GOES2 Met): Legend shows the beginning hour of emission event (top-left, duration of event =1hr, bottom-left, duration=2hr, top-right duration=3hr)



Sensitivity of Daily Max Ozone to the Ethene emission timing (beginning of emission) in "Plume region" of Deer Park, Aug. 30, 1km resolution (GOES2 Met): All emissions are 5000 lbs. Legend shows the number of hours of emission event



Sensitivity of Daily Max Ozone to the emission species (Ethene and Propene) in "Plume region" of Deer Park, Aug. 30, 1km resolution (GOES2 Met): All emissions are between 14:00 to 15:00. Legend shows the number of hours of emission event