LADCO Emissions QA

August 3, 2010

Advanced CAMx Training

LADCO

Emissions QA

- Emissions files arrive in ascii format and there are multiple processing steps between CONCEPT files and CAMx inputs
- Errors can happen and it might be a good idea to catch them before the model run is started
- Therefore… QA!

Emissions QA

- During and after my processing, I print out multiple reports and plots to make sure the emissions are correct
- Emissions totals are then compared with reports from Mark to make sure nothing has been lost in the process

Total Domain-wide Emissions

motv.050715.4rpos.36.baseM3_2012+adjIL.tot.txt

/u9/emissions/anth/baseM/4rpos/motv.050715.4rpos.36.baseM3_2012+adjIL.ld.bin

Species	gram-moles/day	kg/day	tons/day
ALD2	916464.	29327.	32.
ALDX	494891.	15837.	17.
CO	2330252544.	65247076.	71921.
ETH	9218587.	294995.	325.
ETHA	1038807.	33242.	37.
ETOH	5854312.	187338.	207.
FORM	4801669.	76827.	85.
ISOP	64792.	4406.	5.
MEOH	373544.	5977.	7.
NH3	49110648.	834881.	920.
NO	182298704.	5468962.	6028.
NO2	20255734.	931764.	1027.
NR	0.	0.	0.
CCRS	0.	0.	0.
FCRS	103412176.	103412.	114.
OLE	4372025.	139905.	154.
IOLE	1232759.	39448.	43.
PAR	247303184.	3956851.	4362.
PEC	61614208.	61614.	68.
FPRM	0.	0.	0.
CPRM	141542624.	141543.	156.
PNO3	0.	0.	0.
POA	31207736.	31208.	34.
PSO4	8748696.	8749.	10.
SO2	1368047.	87555.	97.
SULF	0.	0.	0.
TOL	7091553.	794254.	876.
XYL	5572684.	713304.	786.
UNR	16656281.	266501.	294.
CH4	33510466.	536168.	591.
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NOX	0.	9317505.	10271.
RHC	0.	6292487.	6936.
PMCSUM	0.	141543.	156.
PMFSUM	0.	204983.	226.

Total Regional Emissions

regiontotal.motv.050715.050114.upmw.12.baseM3_2012+...

State Total Emissions Report (tons/day)

motv upmw 12 baseM3_2012+ 050715

Region	NOX	SOX	RHC	PM25	PMC	NH3
Illinois	407.7	3.9	220.0	8.6	6.3	38.9
Indiana	332.6	2.8	202.0	6.1	4.5	28.1
Michigan	401.3	3.8	225.1	8.1	6.1	37.9
Ohio	544.8	4.4	348.6	10.0	6.8	40.1
Wisconsin	262.0	2.2	99.2	5.1	3.5	21.1
Minnesota	249.7	2.2	173.3	4.6	3.6	22.5
Iowa	190.6	1.5	171.2	3.4	2.3	13.5
Missouri	319.5	2.9	201.8	6.7	4.5	25.9
Kentucky	252.1	2.4	154.2	5.7	3.8	21.3
WestVirgin	82.8	0.8	54.5	1.9	1.2	6.8
Pennsylvan	136.4	1.2	89.0	3.1	2.1	12.2
NewYork	55.0	0.5	33.9	1.4	0.9	5.6
NorthDakot	13.1	0.1	8.1	0.3	0.2	1.0

State Total Emissions Report (tons/day)

motv upmw 12 baseM3_2012+ 050114

Region	NOX	SOX	RHC	PM25	PMC	NH3
Illinois	364.7	3.7	291.5	9.6	7.2	46.0
Indiana	291.3	3.2	259.4	7.1	5.4	34.6
Michigan	359.1	4.6	266.2	9.5	7.4	47.6
Ohio	490.0	5.0	611.0	11.5	7.8	46.5
Wisconsin	253.5	2.7	124.7	6.3	4.4	25.8
Minnesota	227.2	3.0	231.4	6.2	4.6	27.8
Iowa	199.2	2.1	256.8	4.8	3.3	19.4
Missouri	324.7	3.6	281.2	8.2	5.6	32.4
Kentucky	233.3	2.7	199.6	6.4	4.2	24.1
WestVirgin	82.9	1.0	76.7	2.3	1.5	8.6
Pennsylvan	133.2	1.5	114.4	3.9	2.6	15.4
NewYork	50.6	0.7	40.4	1.7	1.2	7.1
NorthDakot	13.7	0.2	9.6	0.4	0.3	1.5

Daily Domain-wide Emissions

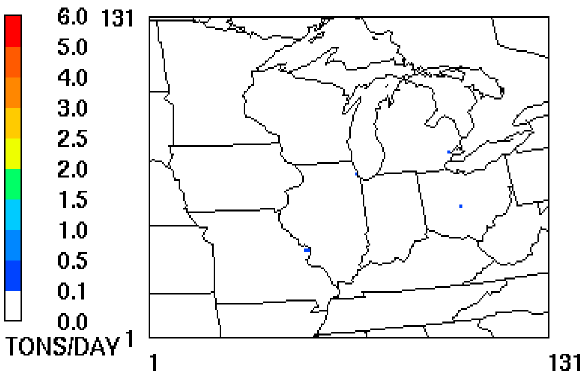
outtable.upmw.12.motv.baseM3_2012+.txt

Emissions Quality Assurance Tables - LADCO/MRPO
Units: Tons per Day
EMS2005: upmw grid at 12km motv baseM3_2012+

Sect	Case	Year	RHC	NOX	SO2	CO	NH3	PMF	PMC
motv	baseM3_2012+	050114	3990.	4298.	48.	19625.	459.	110.	77.
motv	baseM3_2012+	050115	6458.	7076.	76.	33107.	654.	192.	117.
motv	baseM3_2012+	050116	7935.	9059.	97.	40824.	811.	255.	147.
motv	baseM3_2012+	050211	3663.	4329.	46.	20903.	441.	107.	74.
motv	baseM3_2012+	050212	6026.	7112.	73.	34917.	626.	184.	112.
motv	baseM3_2012+	050213	7313.	9041.	92.	42759.	765.	241.	139.
motv	baseM3_2012+	050311	3484.	4408.	45.	22563.	431.	104.	73.
motv	baseM3_2012+	050312	5766.	7225.	71.	37270.	608.	179.	109.
motv	baseM3_2012+	050313	6938.	9129.	89.	45320.	735.	233.	134.
motv	baseM3_2012+	050415	3282.	4404.	43.	24070.	413.	100.	70.
motv	baseM3_2012+	050416	5443.	7203.	68.	39225.	579.	171.	104.
motv	baseM3_2012+	050417	6505.	9048.	85.	47330.	694.	221.	127.
motv	baseM3_2012+	050513	3180.	4495.	43.	26434.	404.	99.	68.
motv	baseM3_2012+	050514	5273.	7333.	67.	42375.	565.	167.	102.
motv	baseM3_2012+	050515	6267.	9163.	82.	50700.	672.	215.	123.
motv	baseM3_2012+	050617	3040.	4501.	41.	28730.	389.	95.	66.
motv	baseM3_2012+	050618	5034.	7325.	64.	45137.	541.	161.	97.
motv	baseM3_2012+	050619	5955.	9108.	79.	53507.	639.	206.	117.
motv	baseM3_2012+	050715	2948.	4562.	41.	32198.	378.	93.	64.
motv	baseM3_2012+	050716	4867.	7402.	62.	49216.	524.	156.	94.
motv	baseM3_2012+	050717	5733.	9162.	76.	57696.	615.	199.	113.
motv	baseM3_2012+	050812	3040.	4501.	41.	28730.	389.	95.	66.
motv	baseM3_2012+	050813	5034.	7325.	64.	45137.	541.	161.	97.
motv	baseM3_2012+	050814	5955.	9108.	79.	53507.	639.	206.	117.
motv	baseM3_2012+	050916	3180.	4495.	43.	26434.	404.	99.	68.
motv	baseM3_2012+	050917	5273.	7333.	67.	42375.	565.	167.	102.
motv	baseM3_2012+	050918	6267.	9163.	82.	50700.	672.	215.	123.
motv	baseM3_2012+	051014	3282.	4404.	43.	24070.	413.	100.	70.
motv	baseM3_2012+	051015	5443.	7203.	68.	39225.	579.	171.	104.
motv	baseM3_2012+	051016	6505.	9048.	85.	47330.	694.	221.	127.
motv	baseM3_2012+	051111	3484.	4408.	45.	22563.	431.	104.	73.
motv	baseM3_2012+	051112	5766.	7225.	71.	37270.	608.	179.	109.

onroad SOXSUM : baseM3_2012+

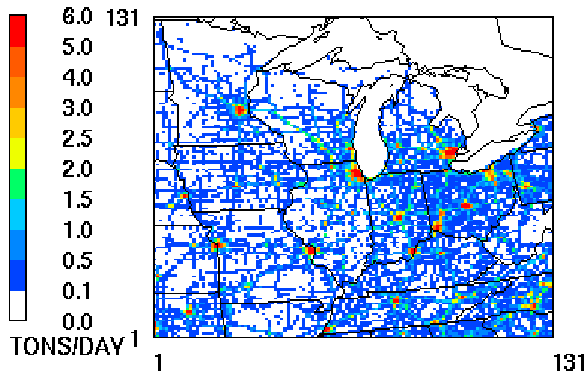
upmw 12km 050715
LADCO/MIDWEST RPO



July 13,2005 0:00:00
Min= 0.0 at (71,66), Max= 0.1 at (53,36)

onroad NOXSUM : baseM3_2012+

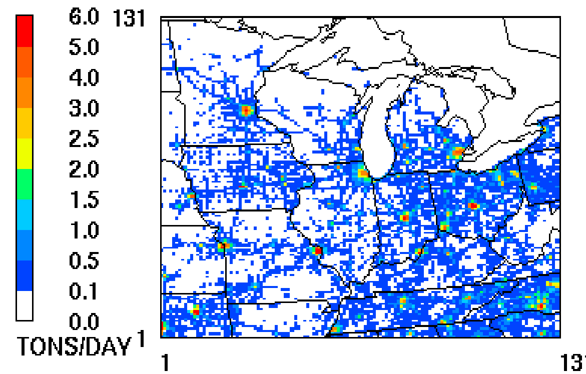
upmw 12km 050715
LADCO/MIDWEST RPO



July 13,2005 0:00:00
Min= 0.0 at (71,66), Max= 13.6 at (103,54)

onroad RHCSUM : baseM3_2012+

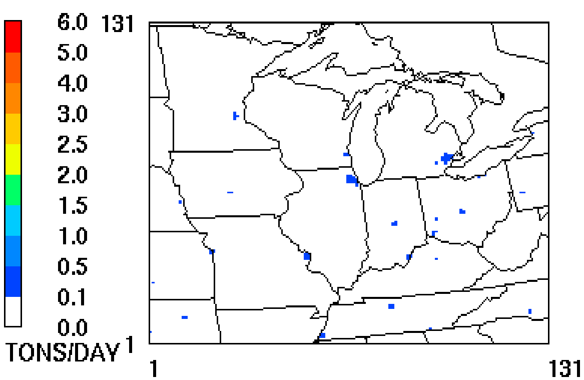
upmw 12km 050715
LADCO/MIDWEST RPO



July 13,2005 0:00:00
Min= 0.0 at (71,66), Max= 9.3 at (103,54)

onroad PMFSUM : baseM3_2012+

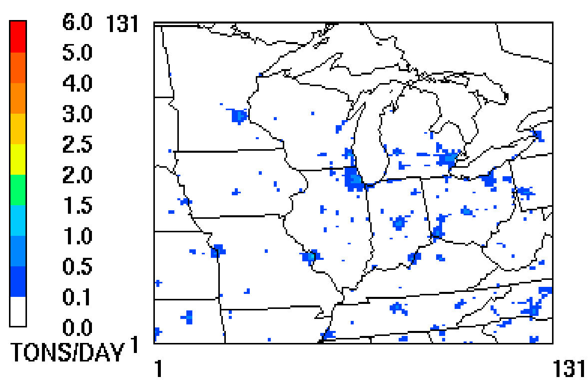
upmw 12km 050715
LADCO/MIDWEST RPO



July 13,2005 0:00:00
Min= 0.0 at (71,66), Max= 0.3 at (53,36)

onroad NH3SUM : baseM3_2012+

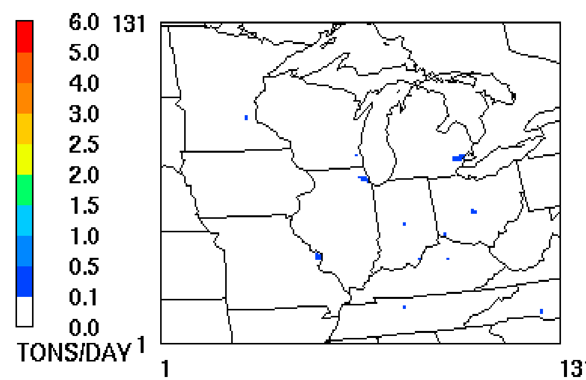
upmw 12km 050715
LADCO/MIDWEST RPO



July 13,2005 0:00:00
Min= 0.0 at (71,66), Max= 1.3 at (53,36)

onroad PMCSUM : baseM3_2012+

upmw 12km 050715
LADCO/MIDWEST RPO



July 13,2005 0:00:00
Min= 0.0 at (71,66), Max= 0.2 at (53,36)

Conclusions

- Examination of the spatial distribution and emissions totals improve confidence in the emissions files before they are put into CAMx
- Also helps photochemical modelers become more familiar with the emissions so we know what we are putting into the model