

**List of differences between v7-04-02 and v7-04-12 benchmarks (bmy, 5/4/07)**

#	Item	v7-04-02-Megan	v7-04-12 Run1	v7-04-12 Run2	v7-04-12 Run3
<b>Simulation</b>					
1	Number of tracers	43	43	43	43
2	Met field year	2001	2005	2005	2005
<b>Chemistry</b>					
3	HO2 uptake on aerosols?	YES	NO	NO	NO
4	Uses secondary organic aerosols	NO	NO	NO	NO
5	Uses variable tropopause	NO	YES	YES	YES
6	Gets SOA from ISOP+OH rxn?	n/a	n/a	n/a	n/a
7	Saves SOA to restart file?	n/a	n/a	n/a	n/a
8	Bug fix in reading SMVGEAR rxn lines?	NO	YES	YES	YES
<b>Convection</b>					
9	Bug fix in GEOS-4 convection, where negative detrainment is treated like entrainment?	NO	YES	YES	YES
10	Use separate unit conversion factors for H2O2 and NH3 in updraft scavenging?	NO	YES	YES	YES
<b>Emissions</b>					
11	Fossil Fuel Scale Factor Year	1998	1998	1998	1998
12a	Uses EMEP European emissions?	NO	NO	NO	NO
12b	EMEP mask shape	simple box	shape of Europe	shape of Europe	shape of Europe
13	Uses BRAVO Mexican emissions?	NO	NO	NO	NO
14	Uses EDGAR anthro emissions?	NO	NO	NO	NO
15	Uses David Streets' SE Asian emissions?	NO	NO	NO	NO
16	Uses EPA-NEI99 anthro emissions?	YES	YES	YES	YES
17	Uses GFED2 biomass emissions?	NO	NO	NO	YES
18	Uses climatological biomass emissions?	YES	YES	YES	NO
19	Use MEGAN biogenic emissions?	YES	YES	YES	YES
20	Uses GOCART src fn for dust emissions?	NO	YES	YES	YES
<b>Lightning</b>					
21	Accounts for near-land lightning flashes?	NO	NO	YES	YES
22	Uses OTD-LIS v2 regional redistribution?	NO	NO	YES	YES
23	Midlat flashes fixed at 500 mol/flash?	NO	NO	YES	YES
24	Total Emissions	4.7 Tg N	4.7 Tg N	6.9 Tg N	6.9 Tg N