**Public Release Notes**

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| **Model** | Community Multi-scale Air Quality (CMAQ) |
| **Version** | V4.7.0 |
| **Implementation date/time** | September 15, 2015, 12Z |
| **Purpose** | 1. To update emissions to portion of NEI base year 2011 2. To increase CMAQ vertical levels from 22 to 30 3. To provide dust boundary conditions from Global model NGAC. 4. To implement a bias correction for PM2.5 prediction 5. To implement grib2 format for PM2.5 forecast products |
| **Changes being made for this release** | 1. Codes: aqm\_subset.fd, aqm\_subc.fd, aqm\_combine.fd, aqm\_interpolate\_update.fd, aqm\_bias\_correct.fd, aqm\_post\_bias\_cor.fd, aqm\_post\_maxi\_bias\_cor.fd 2. Scripts: JAQM\_POST\_BICOR\_CS 3. Ush: aqm\_bicor\_prep\_cs.sh, aqm\_bicor\_interp\_cs.sh, aqm\_bicor\_pm25\_cs.sh, aqm\_bicor\_post\_cs.sh, aqm\_bicor\_post\_maxi\_cs.sh 4. Fix: aqm\_conus\_12km\_geos\_2006${mm}\_static\_35L.ncf 5. Parm: aqm\_sites.valid.20140617.12z.list |
| **Developed by** | CMAQ model was originally developed and updated by U.S. Environmental Protection Agency (USEPA) and modified by NOAA/OAR/Air Resource Laboratory and NCEP/EMC; Analog Ensemble bias correction was developed by NOAA ESRL and transited to operation by NCEP/EMC. |
| **Runs on** | The National Weather Service (NWS) Weather and Climate Operational Supercomputing System (WCOSS) |
| **Community software** | 1. Environmental Modeling System (NEMS) Non-hydrostatic Multi-scale Model on the Arakawa staggered B-grid (NMM-B): Meteorology part 2. CMAQ: Chemistry part 3. Analog Bias Correction code |
| **Input** | 1. Environmental Modeling System (NEMS) Non-hydrostatic Multi-scale Model on the Arakawa staggered B-grid (NMM-B) provides met inputs at horizontal resolution of 12-km. 2. Area and mobile emission inputs |
| **Output and where to find it** | The upgraded system provides operational forecast products of surface ozone and experimental forecast products of PM2.5 for CONUS, AK and HI domains at horizontal resolution of 12-km.  EMC ftp site: ftp://ftp.emc.ncep.noaa.gov/mmb/aq/for\_NDGD\_5x\_expr/  NCEP ftp site:?  Plots: http://airquality.weather.gov/ |
| **Primary users** | NCEP Service Centers, USEPA, state EPA, NOAA labs, Environment Canada, and other private agencies |
| **In the future** | We will implement CMAQ v5.0, which contains many new features and improvements over the previous release of model. It will use new aerosol module, AER06, upgraded SOA yield parameterization, updated ACM module for vertical diffusion, and new vertical advection calculation method; to upgrade the bias correction approach with the combination of Kalman-Filter (KF) and Analog Ensemble (KFAN). Detail of the changes is given on the CMAQ Wiki (<http://www.cmascenter.org/cmaqwiki>). |

For more information on this model, please contact [ncep.pmb.dataflow@noaa.gov](mailto:ncep.pmb.dataflow@noaa.gov) .

Notes:

1. /nwprod2/util/exec/overdate.dgexgrib in

~/cmaq.v4.7.0/ush/aqm\_prephyb\_nmmb\_ak\_split.sh,

aqm\_prephyb\_nmmb\_conus\_split.sh,

aqm\_prephyb\_nmmb\_hi\_split.sh

1. Conflict issue between HDF4 and HDF5/1.8.9/serial

~/cmaq.v4.7.0/sorc/aqm\_bias\_correct.fd/makefile

~/camq.v4.7.0/sorc/aqm\_interpolate\_update.fd/makefile

~/cmaq.v4.7.0/sorc/aqm\_post\_bias\_cor.fd/makefile

~/cmaq.v4.7.0/sorc/aqm\_post\_maxi\_bias\_cor.fd/makefile

1. date2jday.sh is pointed to $NWROOTp1/util/ush/

Please see ~/cmaq.v4.7.0/scripts/exaqm\_cmaqv47\_ak.sh.ecf, exaqm\_cmaqv47\_cs.sh.ecf, and exaqm\_cmaqv47\_hi.sh.ecf.