

Emissions Reporting System for AIRPACT-4

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State of Oregon
Department of
Environmental
Quality

Overview

Goal:

- Create monthly AIRPACT emissions reports by grid cell by SCC that can be used for QA/QC and SIP development

Methods:

- Use the built-in “SMKREPORT” program that exists in SMOKE
- Generate separate daily reports for *point, non-road, area, and mobile sources*
- Sum daily emissions to monthly totals
- Provide monthly emissions reports on AIRPACT website

Current Status

Completed:

- SMKREPORT coding has been completed to generate the necessary reports for *point*, *non-road*, and *area* sources.

Uncompleted:

- Mobile source reports do not get generated correctly in SMOKE v3.0

Processing Time:

- Implementing SMKREPORT only adds a few minutes to SMOKE processing
 - “by hour” reports would add ~45 min



Sample Report

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# Processed as Point sources
# Base inventory year      2005
# Gridding matrix applied for gridAIRPACT_04km
# Mass speciation matrix applied
# Temporal factors applied for episode from
#   Wednesday Sept. 26, 2012 at 080000 to
#   Thursday Sept. 27, 2012 at 080000
# Annual total data basis in report
#
#      ;      ;      ;      ;      ; [tons/day]; [tons/day]; [tons/day]; [tons/day]; [tons/day]; [tons/day]; [tons/day]; [tons/day]
#Date  ; X cell; Y cell; Region; SCC      ; CO      ; NOX      ; NH3      ; SO2      ; VOC      ; PM10     ; PM2_5    ; DSPM2_5
09/27/2012; 17; 72; 041000;2275000000; 0.622E-02; 0.274E-04; 0.000E+00; 0.000E+00; 0.192E-03; 0.110E-03; 0.822E-04; 0.000E+00
09/27/2012; 18; 60; 041000;2275000000; 0.612E-01; 0.466E-03; 0.000E+00; 0.000E+00; 0.203E-02; 0.192E-02; 0.156E-02; 0.000E+00
09/27/2012; 18; 74; 041000;2805010000; 0.000E+00; 0.000E+00; 0.112E-01; 0.000E+00; 0.205E-02; 0.404E-03; 0.404E-03; 0.000E+00
09/27/2012; 19; 78; 041000;2275000000; 0.105E+00; 0.630E-03; 0.000E+00; 0.000E+00; 0.340E-02; 0.238E-02; 0.173E-02; 0.000E+00
09/27/2012; 20; 15; 006000;10100601 ; 0.253E+00; 0.000E+00; 0.000E+00; 0.000E+00; 0.294E-01; 0.000E+00; 0.000E+00; 0.000E+00
09/27/2012; 20; 15; 006000;20100101 ; 0.775E-02; 0.000E+00; 0.000E+00; 0.000E+00; 0.000E+00; 0.000E+00; 0.000E+00; 0.000E+00
09/27/2012; 20; 51; 041000;2265008000; 0.000E+00; 0.285E-05; 0.000E+00; 0.000E+00; 0.000E+00; 0.000E+00; 0.000E+00; 0.000E+00
09/27/2012; 20; 51; 041000;2275000000; 0.147E+00; 0.849E-03; 0.000E+00; 0.000E+00; 0.488E-02; 0.318E-02; 0.227E-02; 0.000E+00
09/27/2012; 21; 15; 006000;10100401 ; 0.000E+00; 0.340E-02; 0.000E+00; 0.299E-02; 0.000E+00; 0.000E+00; 0.000E+00; 0.000E+00
09/27/2012; 21; 15; 006000;10100601 ; 0.000E+00; 0.238E+01; 0.522E-01; 0.575E-02; 0.000E+00; 0.000E+00; 0.000E+00; 0.000E+00
09/27/2012; 21; 16; 006000;40400108 ; 0.000E+00; 0.000E+00; 0.000E+00; 0.000E+00; 0.164E-01; 0.000E+00; 0.000E+00; 0.000E+00
09/27/2012; 21; 16; 006000;40400151 ; 0.000E+00; 0.000E+00; 0.000E+00; 0.000E+00; 0.106E-01; 0.000E+00; 0.000E+00; 0.000E+00
09/27/2012; 21; 16; 006000;40400152 ; 0.000E+00; 0.000E+00; 0.000E+00; 0.000E+00; 0.578E-02; 0.000E+00; 0.000E+00; 0.000E+00
09/27/2012; 21; 17; 006000;10100602 ; 0.619E-02; 0.248E-01; 0.000E+00; 0.000E+00; 0.000E+00; 0.000E+00; 0.000E+00; 0.000E+00
09/27/2012; 21; 17; 006000;10100902 ; 0.745E+01; 0.799E+00; 0.000E+00; 0.000E+00; 0.298E+00; 0.000E+00; 0.000E+00; 0.000E+00
09/27/2012; 21; 17; 006000;10200903 ; 0.230E-01; 0.460E-02; 0.000E+00; 0.000E+00; 0.000E+00; 0.000E+00; 0.000E+00; 0.000E+00
09/27/2012; 21; 17; 006000;30700104 ; 0.139E+00; 0.498E+00; 0.000E+00; 0.107E+00; 0.000E+00; 0.000E+00; 0.000E+00; 0.000E+00
09/27/2012; 21; 17; 006000;30700106 ; 0.437E-01; 0.180E+00; 0.000E+00; 0.384E-02; 0.000E+00; 0.000E+00; 0.000E+00; 0.000E+00
09/27/2012; 21; 17; 006000;30700122 ; 0.000E+00; 0.000E+00; 0.000E+00; 0.000E+00; 0.183E-01; 0.000E+00; 0.000E+00; 0.000E+00
09/27/2012; 21; 17; 006000;30700199 ; 0.693E-02; 0.283E+00; 0.000E+00; 0.000E+00; 0.266E+00; 0.000E+00; 0.000E+00; 0.000E+00
09/27/2012; 21; 17; 006000;99999999 ; 0.000E+00; 0.000E+00; 0.122E+00; 0.000E+00; 0.000E+00; 0.000E+00; 0.000E+00; 0.000E+00
09/27/2012; 21; 51; 041000;10200902 ; 0.648E+00; 0.147E+00; 0.000E+00; 0.648E-02; 0.561E-01; 0.155E+00; 0.155E+00; 0.000E+00
09/27/2012; 21; 51; 041000;30700799 ; 0.000E+00; 0.000E+00; 0.000E+00; 0.000E+00; 0.107E+00; 0.235E+00; 0.235E+00; 0.000E+00
09/27/2012; 21; 51; 041000;30788802 ; 0.000E+00; 0.000E+00; 0.000E+00; 0.000E+00; 0.000E+00; 0.524E-02; 0.524E-02; 0.000E+00
09/27/2012; 21; 79; 041000;2805002000; 0.000E+00; 0.000E+00; 0.722E-03; 0.000E+00; 0.116E-03; 0.289E-04; 0.289E-04; 0.000E+00
09/27/2012; 21; 79; 041000;2805010000; 0.000E+00; 0.000E+00; 0.161E-01; 0.000E+00; 0.295E-02; 0.578E-03; 0.578E-03; 0.000E+00
09/27/2012; 22; 8; 006000;10200902 ; 0.321E+01; 0.673E+00; 0.000E+00; 0.000E+00; 0.242E+00; 0.000E+00; 0.000E+00; 0.000E+00

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Problems

Mobile Sources:

- SMOKE v3.0 does not allow reports by cell from MOVES
- Need SMOKE v3.5.1 to generate MOVES reports by cell and get proper date definition

Biogenic Sources:

- There is no possibility of using SMKREPORT for biogenic sources

Possible Solutions

Mobile Sources:

- Live with by county by SCC reports
 - requires faking a time zone shift to get all hours of the day included
- Install SMOKEv3.5.1 for MOVES processing
 - requires updates from IDEQ
- Replace movesmrg and met4moves with v3.5.1 executables
 - may require code update from IDEQ

Biogenic Sources:

- Do not include biogenic emissions in this project

Future Work

Mobile Sources:

- Solve MOVES reports problem

Reports Format:

- Determine how AIRPACT users would like reports to be delivered

Graphics Products:

- Determine any automated maps or graphics that AIRPACT users would like
 - by SCC gives a lot of possibilities!

Implement by 2015 and get a full year (SIPs)