AIRQUEST Emissions Inventory Workgroup

Report on AIRPACT4 Activities

WSU- Pullman, WA

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Workgroup Members

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- Carole Cenci – PSCAA
- Chris Ramsdell – IDEQ
- Chris Swab – ODEQ
- Erik Saganic – PSCAA
- Janice Peterson – USFS
- Joe Vaughan - WSU
- Robert Nissen – EC
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- Sally Otterson – WAECY
- Sarah Clouse – WAECY
- Sim Larkin – USFS
- Warren McCormick – BC
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AIRPACT 4 Inventory

- Domain, Grid Resolution
- Base Year
- Pollutant List
- Emissions
- Canadian Data
- Spatial Allocation
- Temporal Allocation
- Chemical Speciation
- Formats
- Documentation and Data Availability
- Quality Control/Assurance

Domain – 4-km Grid Resolution

Base Year ~ 2014

- Idaho, Oregon, Washington
  - Point Sources = 2011
  - Nonroad Model Sources = 2014
  - Onroad = 2014 if possible
  - Nonpoint, Marine, Locomotives, Aircraft = 2011
    - We may consider projecting 2011 to 2014 for some sources
- Canada
- Bordering States
  - Point, Nonpoint, Marine, Locomotives, Aircraft = 2008 or 2011
  - Nonroad Model Sources = 2014
  - Onroad = 2014 if possible
- Domain
  - Fires, Biogenic = Near real time

Pollutant List

No changes from current list, except add fire tracer

Criteria Pollutants

- CO
- NH3
- NOx
- PM10
- PM2.5
- SO2
- VOC

Tracers

- Diesel PM2.5
- Gasoline PM2.5
- Woodsmoke PM2.5
- Fire PM2.5

Toxics

- Acetaldehyde
- Acrolein
- Arsenic
- Benzene
- 1,3-Butadiene
- Chromium
- Dichloromethane
- Ethylbenzene
- Formaldehyde
- Lead
- Manganese
- Mercury
- Naphthalene
- PAH
- Toluene
- Xylenes

Emissions

- Emissions and model inputs will be provided by
  - jurisdiction agency (point, nonpoint, nonroad, onroad)
  - WSU (fires, biogenics)
- Common methods/tools for:
  - onroad (SMOKE-MOVES Tool)
  - nonroad (EPA NONROAD model)
  - fire, biogenics
- Workgroup will consider common methods/tools for significant sources having large discrepancies among agencies:
  - res wood combustion - paved and unpaved roads
  - dairy and other livestock - fertilizer
  - surface coating - pesticides
- Special workgroups formed to address:
  - onroad (led by Jen Cole, IDEQ)
  - residential wood combustion (led by Erik Saganic, PSCAA)

Canadian Data

- Emission Inventories now updated once a year
- 2009 EI officially released, subject to minor modifications proposed by users
- 2010 EI release scheduled for autumn 2012
- National Pollutant Release Inventory (NPRI) national clearing house for EIs
- Point sources
  - annual totals reported to NPRI by industry
  - major source if stack height > 50 m
  - 500 speciation profiles
- Mobile sources
  - processing transitioning from MOBILE to MOVES
  - offroad includes ships, rail, aircraft
- Biogenic sources – modelled based on land use categories and meteorology; forest fires not in EI explicitly
- Area sources – effectively “none of the above” category

Spatial Allocation

- Current Airpact3
  - Population, primary wood heat pop = 2000 Census
  - Land use = 1992 Multi-Resolution Land Cover
  - Railroad track = pre-2001
  - Vehicle miles traveled = 2000 to 2010
  - Env. Canada surrogates = year unknown
  - Offshore shipping = SECA 2010 projection
- Review and update current surrogates
- Develop new surrogates

Temporal Allocation

- Review and update current allocations
- Standard SMOKE processing adjusts for month, day of week, and hour of day
- Forecast meteorology adjustments for
  - onroad
  - residential wood combustion
  - road dust (?)
  - dairy (?)

Chemical Speciation

- Review and Update

Data Formats

- USA Point, Nonpoint, Nonroad
  - EPA EIS Staging Tables
  - Developing scripts to convert EIS to SMOKE format
- Canada
- Domain Onroad
  - MOVES inputs formatted for SMOKE-MOVES Tool
- Domain Fires
- Domain Biogenics

Documentation and Data Availability

- Documentation
  - Inventory Preparation and QA Plan
  - Emissions Estimation Methods
  - Quality Assurance
  - SMOKE Files and Processing
- Data Availability
  - SMOKE files
  - Explore SMOKE Reports for exporting data
  - other formats (?)

Quality Assurance

- To be determined