

EPA Tools and Data Update

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Overview

- Inventory data
- Speciation
- Spatial allocation
- Temporal allocation
- Growth and control
- SMOKE updates
- EmisView – QA tool
- Emissions Modeling Framework
- Upcoming/ongoing EPA modeling projects

Inventory data

- 2002 NEI – criteria and toxics – release end of 2005.
- CAAAC recommendations – initial multi-pollutant sector reviews
 - Pulp, paper, and paperboard
 - Cement
 - Refineries
- 2002 NEI / RPO comparison project
- Recent – new lower condensible PM_{2.5} emission factors for natural gas combustion

Speciation

- SPECIATE4 – mid-late summer
- EPA / RPO intercomparison project – EPA will take results to combine data for 2002 platform
- Speciation Tool
 - Stand-alone and part of Emissions Modeling Framework (EMF)
 - Create new modeling profiles from raw data
 - Will support entering new chemical mechanisms
 - Will support integrated criteria/toxics profiles
 - Will combine all profiles to SMOKE inputs
 - Initial version October 2005

SPECIATE 4.0

- Database that is approximately two years in the making
- Approximately 400 NEW organic profiles and 1200 NEW PM profiles
- Also includes SPECIATE3.2 profiles
- Expected to be released this summer
- Project website: <http://projects.pechan.com/speciate>
- Future: Would like to develop dynamic community approach to maintain database, incorporate future updates, but funding is lacking. Any help (funding and technical) you can provide to achieve this goal would be appreciated – contact David Mobley or Lee Beck, EPA
- beck.lee@epa.gov

Spatial allocation

- MIMS Spatial Allocator
 - New version released last week
 - Next version expected in July
- EPA / RPO intercomparison project – EPA will take results to combine data for 2002 platform
- Surrogate Tool
 - Stand-alone and part of EMF
 - Will generate spatial surrogates from GIS shape files and other surrogates
 - Will reproduce EPA surrogates and others
 - Initial version October 2005

Temporal allocation

- SMOKE updates for improved use of CEM data in both base and future
 - Generate non-CEM emissions based on heat input and inventory emissions
- Review/changing monthly profiles for residential wood burning
- Short term: updating modeling with revised Gilliland profiles for NH₃

Growth and control

- Growth - EGAS5
 - Last release ~2-3 weeks ago
 - Another release by August or September 2005
- CAAAC review of same sectors
- Review of residential wood burning
 - Possible new growth information
 - Question on large PM2.5 reductions in latest modeling platform – will likely remove
- Generating momentum for multi-pollutant national control programs database

EGAS5 (1)

- Users can add datasets and combine with existing datasets to create case-specific “configurations”
- Most recent version major changes
 - Removed regression equations
 - Added audit trail (details about data sources used)
 - VMT/SCC output
 - DOE data at national and sub-national level
- Next version major changes
 - Export option for audit trail
 - VMT method adjustment

EGAS5 (2)

- Future
 - Regressions revisited
 - REMI-NAICS dataset and cross-reference
 - Added datasets and configurations to replicate “CAIR” and 1999 NATA projections
- User meetings Weds 1-2 ET
- Epa.gov/ttn/ecas/gfmodels.html
- rios.arturo@epa.gov

SMOKE Updates

- Recent unofficial release for Blue Skies (wildfires) integration to SMOKE – new plume rise algorithm
- CEM updates
- Tweaks to MOBILE6 integration for vehicle types
- Revised controls (e.g., include start and end years for controls)
- Improved memory handling for nonpoint gridding
- Additional toxics modeling QA support
- Support ASPEN and AERMOD (toxics models)
- Next SMOKE Release September 2005
- Next year:
 - Read NIF and/or NOF3 or 4 (early in year)
 - EMF integration for data graphical user interface

EmisView

- Provides tabular and graphical analysis for inventory and emissions modeling QA for SMOKE & CONCEPT
- Beta release, initial version this month
- Inputs NIF3 and IDA formats
- Can be run in interactive or batch (scripted mode); can reuse analysis configurations
- All open-source, Java and database
- Next version by September:
 - Integrated more with emissions modeling steps
 - NIF Extended QC tool integration
 - GIS mapping

Emissions Modeling Framework (1)

- Data and case management for emissions modeling with SMOKE
- Data management – release December 2005
 - Stores all emissions modeling inputs (except meteorology data) in database
 - Versioned database with access to old versions
 - Extensive Metadata capabilities
 - QA Protocol for inputting, checking, and associating new or revised data
 - Integrated with Speciation Tool & Surrogates Tool
 - Notification of data changes by subscription

Emissions Modeling Framework (2)

- Case management – release June 2006
 - SMOKE GUI
 - Linked to Data management to associate versions of data with SMOKE cases
 - QA protocol for setup of emissions modeling cases
 - Manages SMOKE runs on computing resources
- *Not* a web-based tool for sharing data – within an organization only
- Web-based training planned
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Upcoming/ongoing modeling projects

- 12-km CMAQ evaluation – U.S. East 2/3
 - Starting with 2001 platform, move to 2002 in 2006
 - Quantify impact on model performance for:
 - Hourly CEM and flow rates
 - SMOKE/MOBILE6 at multiple temperature resolutions
- 2002 modeling platform – future basis of rules
- 2002 National Air Toxics Assessment (NATA)
- One-atmosphere modeling
 - Test impact of using toxic VOCs for part of VOC for ozone modeling