

Emissions Modeling Framework

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Marc Houyoux

US EPA OAQPS

houyoux.marc@epa.gov

Co-authors:

EPA: Madeleine Strum

NOAA: Rich Mason*

UNC/CEP: Alison Eyth

* Atmospheric Sciences Modeling Division, Air Resources Laboratory, NOAA, Research Triangle Park, NC In partnership with the U.S. Environmental Protection Agency, National Exposure Research Laboratory

Overview

- Emissions Modeling Team
- EMF Goals
- EMF Components
- Accessing data
- Creating versions
- Editing data
- Metadata
- How EPA is using Data Manager

Emissions modeling team

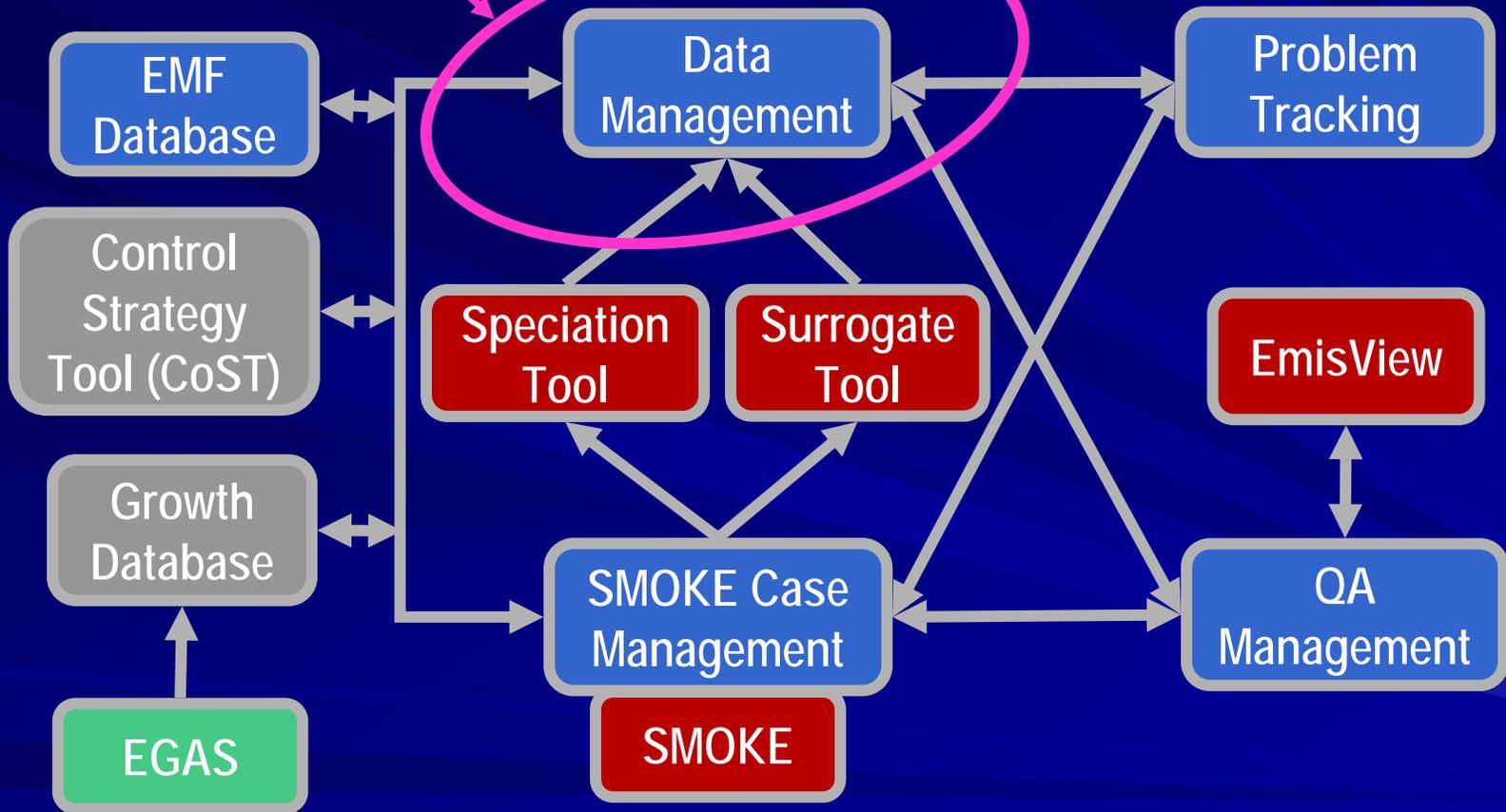
- Three EPA staff members working with emissions modeling data
- Three to five contractor staff at off-site location
- Larger group of EPA staff wanting access to data and summaries
- Working together to create our 2002-based modeling platform
- Will use the EMF to help manage data and SMOKE runs with the platform

EMF Goals

- Create and implement emissions modeling protocol
- Improve timeliness and quality of data used in air quality models
- Provide transparency & tracking
 - Data with versions, metadata, QA status
 - Emissions modeling applications and associated data
- Support multipollutant modeling: criteria & toxics
- Create tools that can be used by EPA and others (e.g., RPOs, states)

EMF Components

Today's presentation



Import and centrally store data

- Emissions modelers can access the same copy of the data
- Always know where the “official” copy is
- Supports all SMOKE input formats, including inventory “ORL” SMOKE format
- Supports National Inventory Format, v3
- Supports some “generic” formats, like comma-separated-variable (CSV)
- Can add your own dataset types, based on generic formats

Dataset Manager

Datasets Manager Refresh









#	Select	Name	Last Modified Date	Type
1	<input type="checkbox"/>	36km surrogate description	05/04/2006 12:16	Surrogate Descriptions (SRGDESC)
2	<input type="checkbox"/>	area-to-point 2001	05/04/2006 12:04	Area-to-point Conversions (Line-based)
3	<input type="checkbox"/>	country state county 2002	04/28/2006 16:04	Country, state, and county names and data (COS...)
4	<input type="checkbox"/>	grid descriptions	05/04/2006 12:04	Grid Descriptions (Line-based)
5	<input type="checkbox"/>	gridding xref 2002	05/02/2006 15:50	Gridding Cross Reference (AMGREF)
6	<input type="checkbox"/>	holidays	05/04/2006 12:10	Holiday Identifications (Line-based)
7	<input type="checkbox"/>	inventory CAP 2002 afdust	05/04/2006 13:31	ORL Nonpoint Inventory (ARINV)
8	<input checked="" type="checkbox"/>	inventory CAP 2002 ag	05/01/2006 10:59	ORL Nonpoint Inventory (ARINV)
9	<input type="checkbox"/>	inventory CAP 2002 nonpt	05/01/2006 10:59	ORL Nonpoint Inventory (ARINV)
10	<input type="checkbox"/>	inventory table criteria only	05/04/2006 12:05	Inventory Table Data (INVTABLE)
11	<input type="checkbox"/>	PM transportable fractions	05/04/2006 12:11	Growth and Controls Configurations (Line-based)
12	<input type="checkbox"/>	scc description 2001 ai	05/04/2006 12:17	SCC Descriptions (Line-based)
13	<input type="checkbox"/>	sic description 2001 ai	05/04/2006 12:18	SCC Descriptions (Line-based)
14	<input type="checkbox"/>	temporal profiles 2001 ai	05/04/2006 12:04	Temporal Profile (AM/PTPRO)
15	<input type="checkbox"/>	temporal xref 2001	05/11/2006 08:43	Temporal Cross Reference (AM/PTREF)

15 rows : 10 columns

Create, store, access, and edit multiple versions

- Create new versions of dataset without having to copy it
- User sets which version each new version is based – enables a version “tree”
- User sets which versions are “final”
 - Can have multiple “final” versions; “final” = “ready to use”
 - Only final versions of datasets can be exported
 - Once final cannot be changed, but can add another version
- EMF sets automatic version numbers, but user defines version name
- User first defines a new version, then edits it and documents the changes
- All versions of datasets are available

Version Editor

The screenshot displays the 'Dataset Versions Editor' window for the dataset 'inventory CAP 2002 ag'. The main window contains a table of versions and a dialog box for creating a new version.

Dataset Versions Editor: inventory CAP 2002 ag

Table: **DS_00__NEI_Area_Agricultural_NH3__ag_CEP_09mar_006_ORL** [View] [Edit]

Select	Name	Version	Base	Is Final?	Date
<input type="checkbox"/>	Initial Version	0	0	<input checked="" type="checkbox"/>	04/28/2006
<input checked="" type="checkbox"/>	Initial with VA change 1	1	0	<input type="checkbox"/>	05/09/2006

Create a new Version of inventory CAP 2002 ag

Name: Initial with CA change

Base Version: Initial Version

[Ok] [Cancel]

Data Editor

- Change values of data
- Add and delete rows
- As revisions are made, documentation of changes can be entered as well
- Notes can also be added from the data editor
- Sort and filter data
- Uses a page system (retrieves and displays part of the dataset at a time) for efficient interaction with large datasets
- Data lock prevents two or more users from editing data at the same time

Emissions Modeling Framework

Data Editor: inventory CAP 2002 ag, Version: Initial with VA change, Table: DS_00_NEI_Area_Agricultural_NH3_ag_CEP_09mar_...   

Applied Sort 'No sort' and Filter 'FIPS=27023'

Lock expires at 17:29 05/09/2006

Sort Order

Apply

Current: 1 - 9 Filtered: 9 of 87163

Row Filter










SELECT	FIPS String(6)	SCC String(10)	SIC String(4)	MACT String(6)	SRCTYPE String(2)	NAICS String(6)	POLL String(16)	ANN_EMIS Double
<input type="checkbox"/>	27023	2801700001			02		NH3	173.2159
<input type="checkbox"/>	27023	2801700003			02		NH3	11.14905
<input type="checkbox"/>	27023	2801700004			02		NH3	871.75
<input type="checkbox"/>	27023	2801700006			02		NH3	0.026697
<input type="checkbox"/>	27023	2801700007			02		NH3	0.0222992
<input type="checkbox"/>	27023	2801700010			02		NH3	0.1669118
<input type="checkbox"/>	27023	2801700013			02		NH3	156.453
<input type="checkbox"/>	27023	2801700014			02		NH3	3.420736
<input type="checkbox"/>	27023	2801700015			02		NH3	1.059641

Revision Information

What was changed

Added SIC code to county 20075, SCC 2801700001

Why it was changed

Needed correct SIC code for use in modeling

References

Add Note

Discard

Save

Close

Metadata – Summary info

- Basic information about a dataset
- Not version-specific
- Includes:
 - Description
 - User-defined project name
 - User who created the dataset
 - Dataset Type
 - Time period & temporal resolution
 - User defined sector, region, & country
 - Status
 - Last modified date
 - Last accessed date
 - Creation date
 - Intended use
 - Which version is the “default” version

Other Metadata

- Keywords (user defined and some special ones)
- Notes – anything user wants to record about the dataset
- Revisions history – information entered by user as revisions were made
- Logs – how data has been used, currently tells you when/where/who exported the data
- Tables – definitions of the tables included in the dataset (e.g. 1 dataset = 8 NIF3 point tables)
- QA – the user-defined QA steps and their status

Metadata - "Dataset Properties" tabs

The screenshot shows two overlapping windows from an emissions modeling software. The background window is the "Dataset Properties Editor: inventory CAP 2002 ag *". It has two tabs: "Summary" and "Data". The "Data" tab is active, showing a table with columns "#", "Select", and "Ver". The table contains two rows:

#	Select	Ver
1	<input type="checkbox"/>	
2	<input type="checkbox"/>	

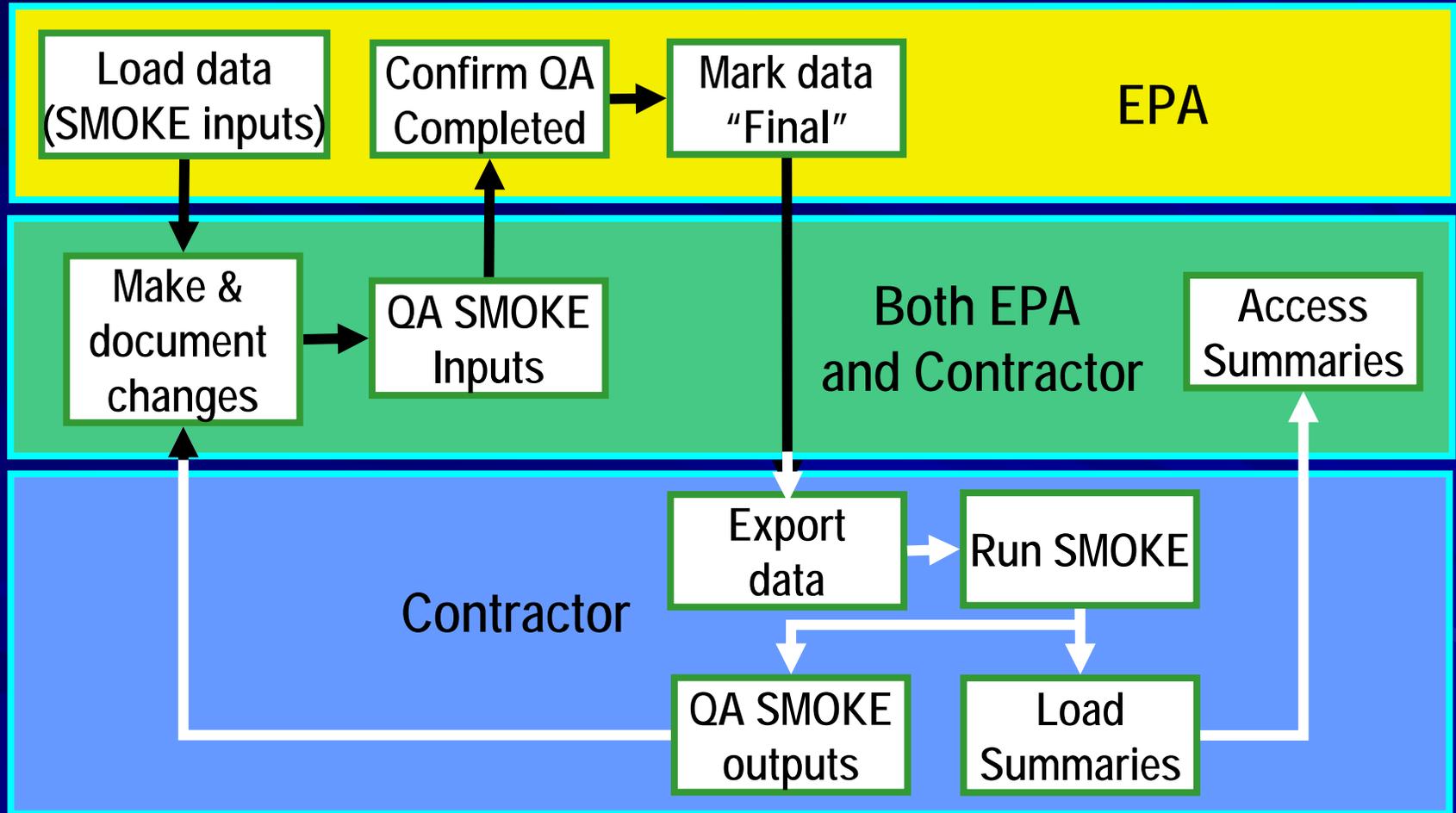
Below the table, it says "2 rows : 12 columns" and there is an "Add from Template" button. The foreground window is the "Add Custom QA Step: inventory CAP 2002 ag" dialog box. It contains the following fields:

- Name: [Text Input]
- Program: [Dropdown Menu]
- Arguments: [Text Input]
- Order: [Text Input, value: 0]
- Required?:
- Description: [Text Input]
- Version: [Dropdown Menu, value: 0 (Initial Version)]

Buttons for "OK" and "Cancel" are at the bottom of the dialog box. In the background window, "Save" and "Close" buttons are visible at the bottom right.

How EPA plans to use Data Management

Support our 2002 criteria & HAPs modeling platform



More to come...

■ Ongoing

- Case Manager - organize SMOKE inputs, settings into a “Case” for export
- Control Strategy Tool
- EmisView read and analyze data directly from EMF Database
- Using in our 2002 platform development

■ 2007, resources permitting

- Post for non-EPA usage
- Finish Case Manager
- Integrate Surrogate Tool, Speciation Tool, and EmisView to run from EMF
- Additional Data Manager and QA enhancements
- Continue Control Strategy Tool development
- EMF Class at next EI conference

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Disclaimer

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