



NARSTO EMISSION INVENTORY ASSESSMENT

2004 EPA Science Forum

Healthy Communities and Ecosystems

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- Emission inventories are the foundation to cost-effective control strategies. (*Socrates?*)
- Emission inventories are the Achilles Heel of air quality management decisions. (*Aristotle?*)
- Will a NARSTO assessment help emission inventories deliver the quality product needed in a timely and affordable manner? (*Wise people think so!*)

NARSTO PARTICULATE MATTER ASSESSMENT

To put the NARSTO Emission Inventory activities in perspective, let's review the NARSTO PM Assessment

- Recommendations cover six themes, including:

"Improve emission inventories and emission models"

- Half the specific recommendations address emissions inventory issues

Emission Inventory Recommendations

- Develop improved and standardized approaches for developing national emission inventories for Canada, Mexico, and the United States that provide compatible data.
- Improve and expand size distribution and speciation data.
- Reconcile emission inventories and ambient measurements.
- Improve and expand data on forest fires, dust and other unmanageable sources.
- Improve emission models for dust.
- Develop emission models for ammonia.
- Develop emission models for condensation or nucleation of semi-volatile compounds.
- Continue to improve the timeliness of emission inventories.
- Develop approaches for adequate resolution in space, time and composition for atmospheric modeling and exposure assessment.
- Prepare national emission inventories over time for trends and benefit analyses.

NARSTO Emission Inventory Workshop

- NARSTO Workshop on Innovative Methods for Emission Inventory Development and Evaluation
- October 14-17, 2003
- Cosponsored by Commission for Environmental Cooperation
- Hosted by University of Texas—Austin
- Workshop attended by ~220 participants
 - 25% US States & Locals (26 States)
 - 20% Academia (20 Universities)
 - 15% US Govt (EPA, NOAA, NASA, USDA, DOE National Labs)
 - 15% Contractors/Research Institutions
 - 10% Industry
 - 10% Mexico
 - 5% Canada
- Good cross section of Emission Inventory Community
- Workshop organized into 6 sessions
 - Measurement Methods
 - Source and Flux Measurements
 - Mobile and Tunnel Studies
 - Ground/Aircraft/Satellite Observations
 - Analytical Methods
 - Receptor and Air Quality Modeling
 - Emission Modeling
 - Evaluation and Data Management
- 94 Presentations/26 Posters/Discussion Periods
- Focused on 3 policy and 3 science questions

NARSTO Emission Inventory Assessment

Steering Committee/CoChairs

David Mobley, US EPA • Marc Deslauriers, Environment Canada • Leonora Rojas-Bracho, Mexico INE • Susan Wierman, MARAMA • Howard Feldman, API • Chris Frey, NC State University

Objectives:

- To promote efficient and effective use of current inventories;
- To set the stage for improving future emission inventories; and
- To establish a roadmap for the future

Proposed Schedule:

- Kickoff – 10/03 @ Workshop
- Project Planning – 5 months – 03/04
- Review Draft – 6 months – 09/04
- Peer Review – 3 months – 12/04
- Revisions – 3 months – 03/05
- Final Report – 03/05

Report Outline:

- Introduction — Vision for emission inventory program
- North American emission inventories and emission models
- Strengths and weaknesses of current inventories and models: Sensitivities, uncertainties, and practical implications for application
- Emission-measurement techniques and technology
- Roadmap for future emission inventory application and development

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Policy Questions:

- What policy decisions will be made over the next several years based on current emission inventories?
Many applications for emission inventories across US, Canada & Mexico
- What is the vulnerability of current approaches affecting these decisions?
Significant vulnerabilities (quality, timeliness, cost) exist along with significant capabilities
- What new and innovative techniques can make a difference to these decision processes?
Science and technology advances are contributing new tools and techniques which should be employed

Science Questions:

- Do newer and more innovative techniques exist on the "technical horizon?"
New techniques are available for the near term as well as long term enhancements; bad news is that miraculous, revolutionary changes are not evident
- What are they, what is their nature, and what are their limitations?
Measurement and analytical techniques are available; many require more research and development, additional resources, and increased attention to detail
- How can these methods best be combined with conventional methods, as well as with other, more modern techniques?
Good news is that evolution of Emission Inventory programs is integrating many improvements on an ongoing basis

Summary

- NARSTO Particulate Matter Assessment provides significant recommendations for emission inventory enhancement
- NARSTO Emission Inventory Workshop provides encouragement for specific research and development activities
- NARSTO Emission Inventory Assessment will provide basis to impact emission inventory activities in the future for enhanced quality, timeliness, and cost
- Support from stakeholders is needed to make this happen!
- For more information, reference: <http://www.cgenv.com/narsto>

Disclaimer

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