EPA Activities
Wildland Fire Emission Inventories
Fugitive Dust Emissions Model
Ammonia From Soils

Presented to RPO Technical Meeting
St Louis MO
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Wildland Fires ~ EPA Activities

- Revision to Fuel Consumption defaults (by Region) for use in NEI
  - Extension of WRAP update on NFDRS defaults
  - Incorporation of Comments by FS in S. Eastern US
- Update of NEI using ’99 & ’02 Wild & Prescribed Fire Data
- Development of region-specific temporal profiles for fires (Hourly & Daily)
- Working w/ RPO’s on 2002 Wildfire RFP
- Planning process for Fires EI Workshop (Spring ’04)
- Fire Emissions Module for CMAQ / Smoke / OpEM
- EIIP Funding Request (~$180k - $250k)
Planning Process for Fires EI Workshop (Spring ’04)

- 3/03 ~ began small group discussion calls
  - EPA, WRAP, NPS, USFS, DOI (western US focus)

- Expanding participation

- Workshop (When - April, Where - ?)
  - Purpose: Emission tools, data systems for the future
  - Estimation tools ~ fuels, consumption, emissions
  - Data Systems
  - Modeling

- Website ~ Updates to be on WRAP FEJF page until other RPO’s participate
Wildland Fire Emissions Estimation Workshop
Planning Process

Introduction and Background

Wildfires and prescribed burning of forest and range land are important contributors to regional haze and visibility impairment across much of the United States. EPA has been working with the Western Regional Air Partnership (WRAP) to develop strategies for minimizing adverse environmental impacts of prescribed burning. However, effective planning of these burns will require additional efforts to improve the emissions data bases and models that are used to analyze the impacts of burning. Most importantly, we are broadening participation to ensure appropriate input from VISTAS, CENRAP, the Midwest RPO and MANE-VU.

Consensus is needed among managers and modelers on strategic and technical aspects of estimating wildland fire emissions. The goal of this process is an agreed upon set of consistent fire emission estimation methodologies and a nationally accessible data system that’s able to provide the necessary data so users could make the emission estimates they need. This includes:
- a nested set of methodologies, internally consistent but as detailed as the data will allow and the application requires,
- avoiding unneeded or unreasonable data requirements,
- a systematic way to ensure that the data are QA’d and consistent (or at least that differences are documented).
<table>
<thead>
<tr>
<th>Table Title</th>
<th>Description</th>
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<tbody>
<tr>
<td>Overall agenda and summary of preliminary deliberations</td>
<td>This document contains a list of topics addressed in the conference calls. The redline text represents the discussion and deliberation results. Potential call participants and participants to date are also listed under each topic.</td>
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<td>Framework for Discussing Data Quality Objectives</td>
<td>These matrices summarize modeling parameters and factors affecting data quality objectives. The matrices address parameters involved in fuel and fuel consumption, emission estimation, and time and location for both highly resolved and regional modeling.</td>
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Wildland Fire Emissions Module
(under development)

- Modular input to Emission Models (e.g., SMOKE, OpEM) to interface with the CMAQ modeling system.

- **User Inputs:** Fire locations, duration, size

- **Model Components**
  - Fuel loading default: NFDRS / FCC map
  - Fuel Moisture: Calculates using MM5 met data
  - Fuel Consumption: CONSUME2.1 / FOFEM
  - Emissions, Heat Release & Plume Rise: EPM & Briggs (modified)

- **Outputs:** Gridded hourly emissions, plume characteristics

- **Integrate, Test & Release Module (late 2004 earliest – w/ EIIP funding)**
Fugitive Dust Emissions Module
(under development)

- EIIP Funded ~ $130k

- Modular input to Emission Models (e.g., SMOKE, OpEM) to interface with the CMAQ modeling system. It will
  - establish consistent database of resource info (soil map, land use, vegetation cover, moisture, precipitation, wind speed) for making emission estimates for use with grid models ~ incl. 8-9 GIS coverages.
  - Implement process-based emission models for: Dust transport fraction, Unpaved roads, Construction, Tilling, Wind erosion, possibly Paved roads.

- Evaluate the capability of the Fugitive Dust Emissions Module
  - Sensitivity testing & identify key areas for improvement.
  - Unpaved Roads~Jan/Feb; Tilling & Construction~May/June; Windblown~April/May (note outcome is uncertain);

- Integrate, Test & Release Module (mid 2004 earliest)
Ammonia from Soils

- **Fertilized Soil**
  - EC/R ~ 30% Complete
  - Comprehensive literature review shows:
    - CMU approach OK for monthly apportionment
    - Promising: To resolve for effects of Temperature, Soil moisture, Wind Speed on Ammonia Release fr Soil
    - Will add algorithm as stand-alone module & to SMOKE

- **Natural Soil**
  - Small flux may be justified ~ NOT high flux
  - Likely to be a small “background” value, NOT an algorithm