Improved Methods and Science Associated with the National Emissions Inventory (NEI)

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International Emissions Inventory Conference

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Teams in EIAG

- NEI (National Emissions Inventory) Team
  - Create triennial NEI and annual point source inventories
  - Develop new NEI emissions calculation methods & tools
  - Sector expertise
  - Documentation
  - Emission trends and int'l reporting

- Emissions Modeling Team
  - Create emissions modeling platforms
  - Future year emissions projections
  - Develop emissions modeling software
  - SPECIATE
  - Biogenics and model-based emissions
  - Documentation

- Methods Team
  - Climate Pollution Reduction Grant (CPRG) support
  - Website & data publishing
  - NEI Report
  - International reports and custom summaries
  - Establishing new methods and improvements to current methods for all sectors and emission trends for NEI and modeling

- CAER (Combined Air Emissions Reporting) Team
  - Develop new CAER system and associated pieces (feed EIS/TRI)
  - Build connections with CEDRI, WebFIRE, and GHG reporting program needed for project
  - Implement any AERR revisions that needs CAERS (e.g., direct facility reporting)

Overview of National Emissions Inventory (NEI) and Related Programs
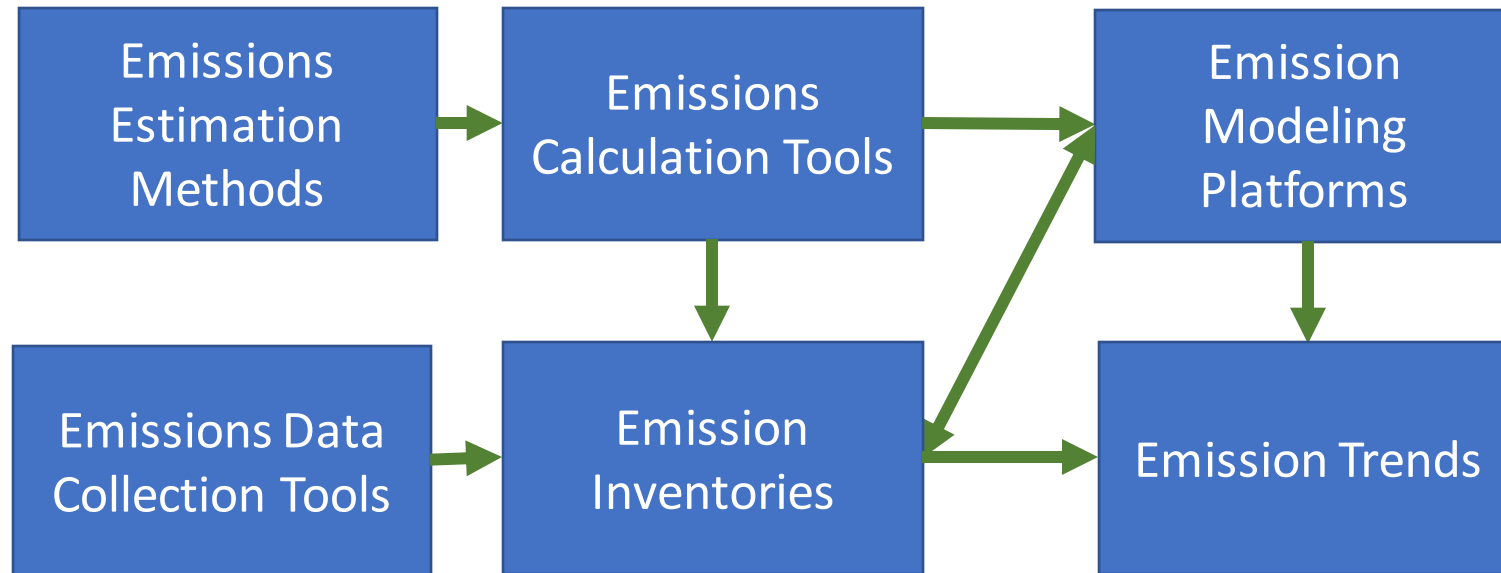
Methods Team – Emission Inventory and Analysis Group

- The [Methods Team*](#) within EIAG prioritizes areas of the NEI for methodological improvements.
  - ○ Improvements can be scientific updates to existing emission sources or the addition of a new source type to the inventory.
  - ○ Prioritization accounts for estimated contributions to NAAQS (National Ambient Air Quality Standards) violations, key Hazardous Air Pollutant (HAP) sources, input from stakeholders, and new scientific work suggesting updates necessary for existing methods.
- The Methods Team then leads, collaborates on, or incorporates outside work that improves the prioritized items within the inventory development process. This may include emission quantification, future projections, speciation, or temporal and spatial allocation.
  - Any work that gets published adds additional credibility to the NEI and downstream uses of NEI

* weblink: https://www.epa.gov/air-emissions-inventories/emissions-science-improvements-emission-sectors

2020 NEI
New Emissions Methods

- Nonpoint solvent utilization
  - Complete update, including new emission methods and speciation
  - POC: Karl Seltzer

- Nonpoint agricultural silage
  - New VOC & HAP emissions source
  - Talk in NP/P session

- Nonpoint hot-mix and warm-mix asphalt paving
  - New VOC & HAP emissions source
  - POC: Karl Seltzer

- VOC and $PM_{2.5}$ speciation updates
  - Released SPECIATE5.2
    - 100 or so updated/improved VOC and PM profiles
    - Profile type updates and species property updates
    - POCs: Karl Seltzer, George Pouliot, Art Diem

- Use of Bluesky Pipeline for wildland fire emissions
  - POCs: Jeff Vukovich, James Beidler

- Inclusion of lead (Pb) as a pollutant from wildland fires
  - POCs: Amara Holder, Tesh Rao

- Improvement to residential wood combustion emission factors & speciation
  - Come to RWC session on Thursday
  - POC: Madeleine Strum

- Biogenic model updates
  - Updated emissions factors
  - Use of gridded biomass data from USFS
  - Improved transition of seasons
  - POCs: Jesse Bash, Jeff Vukovich

Current Methods Priorities List

- Roofing asphalt emissions (volatile organic pollutants (VOC), HAP)
- Improving cooking emission methods and/or adding residential cooking (criteria air pollutants and precursors (CAP), HAP)
- Solvent usage in oil and gas operations (VOC, HAP)
- Abandoned oil and gas wells (VOC HAP)
- Wildland-urban interface and structural/motor vehicle fires (CAP, HAP)
- Including dioxins/furans (HAP)
- Continued improvements to residential wood combustion methods (activity, emission factors, speciation)—(CAP, HAP)
- Spatial allocation improvements, temporal allocation improvements, speciation updates
- Establishing HAP emission trends

The Future

- **We highly value collaborative improvements to the NEI and modeling platforms**

    o We collaborate on many things: Emission quantification, projections, speciation, or temporal and spatial allocation (i.e., translating annual, county-level emissions to the gridded products we use in air quality models).

    o We would also like to pursue new avenues of research to build and evaluate inventories: using top-down methods to constrain, allocate or develop estimates of emissions, PMF/NMF analysis of measurements to understand source attribution, generation of "emission ratios" from field work to evaluate the inventory, etc.

- **Please contact us with ideas, data, and for collaborative opportunities**
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