

# Improved Emission Inventories Through Advances in Methods and Models

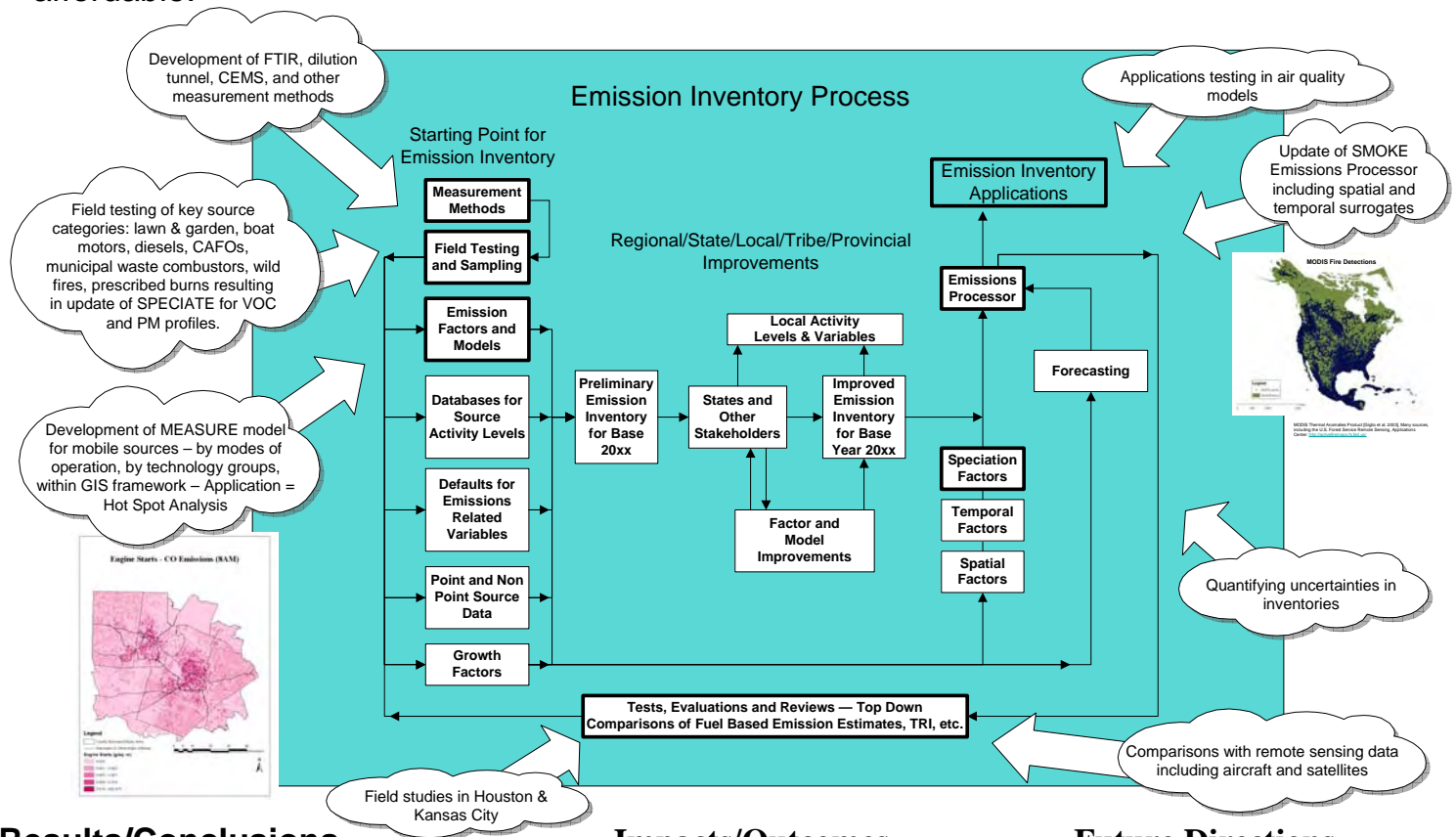
J. David Mobley<sup>1</sup>, Sue Kimbrough<sup>2</sup>, William B. Kuykendal<sup>3</sup>,  
 U.S. Environmental Protection Agency, Office of Research and Development, NERL<sup>1</sup>, NRMRL<sup>2</sup>  
 Office of Air and Radiation, Office of Air Quality Planning and Standards<sup>3</sup>

## Vision:

- Produce an emission inventory that includes all significant emissions, from all sources, for all time periods, in all areas, with quantified uncertainties, and is accessible in a timely manner.

## Research Goal:

- Produce an emission inventory that is complete, accurate, timely, transparent, and affordable.



## Results/Conclusions

- Biogenics Quantification – Control strategy shift from VOC to NOX
- Mobile – Improved mobile emission estimation techniques including modal modeling and spatial and temporal improvements (MEASURE model)
- NH3 Characterization – Improved air quality modeling of PM secondary organic aerosols.
- SPECIATE VOC and PM Emission Profiles - Improved source receptor and air quality modeling capabilities.
- Fires – Improved spatial and temporal characterization of open burning activities for modeling PM and regional haze.
- Toxics Measurement and Characterization – Improved national and local assessment risks.
- Dyno/On-Road Engine Testing – Improved mobile source emission characterization of heavy-duty, light-duty, and small, non-road engines.

## Impacts/Outcomes

- Emission inventories are the foundation of cost-effective air quality management strategies.
- Improvements in emission inventories have enabled assessment and policy regulatory development for ozone, PM, air toxics, regional haze, and global climate programs.
- Influence improvements to MOBILE and design of MOVES.
- SIP response being changed due to better understanding of emission inventories, meteorology and atmospheric chemistry.

## Future Directions

- Address NRC, CAAAC, and NARSTO recommendations on emission inventories:
  1. Address priority source categories
  2. Improve speciation estimates
  3. Improve existing and develop new emission inventory tools
  4. Quantify and report uncertainty
  5. Increase inventory compatibility and comparability
  6. Improve user accessibility
  7. Improve timeliness
  8. Assess and improve emission projections

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