

A large, faint watermark of the EPA logo is centered in the background. It features a stylized flower with three leaves and a scalloped top, surrounded by the text "ENVIRONMENTAL PROTECTION AGENCY" and "UNITED STATES" in a circular arrangement.

EPA, State, Tribal & Local Technical Coordination

WESTAR and WRAP Spring Meeting

Seattle, WA

April 23, 2019

Richard A. Wayland

US EPA OAR/OAQPS/AQAD



179B Guidance (*in progress*): What to expect?

- Characterize the demonstration process
 - When does 179B apply?
 - What regulatory relief can it provide?
 - When to engage with EPA? With the public?
 - What are the different types of demonstrations?
- Highlight tools previously used in 179B demonstrations
 - Consistent with 1994 preamble: conceptual model, emissions, transport, etc
 - Applied previously by border areas
- Characterize other scientific tools and analysis available for 179B demonstrations
- An analytical tiering structure to help right-size demonstrations.



Examples from previous demonstrations

- Nogales PM10
- Imperial Valley PM2.5

Figure 2. 2001 and 2012 24-hour Design Values for Brawley, El Centro and Calexico

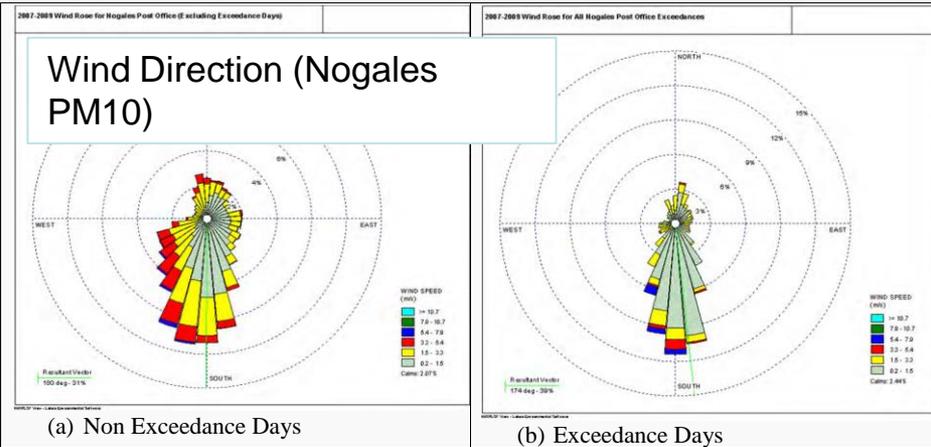
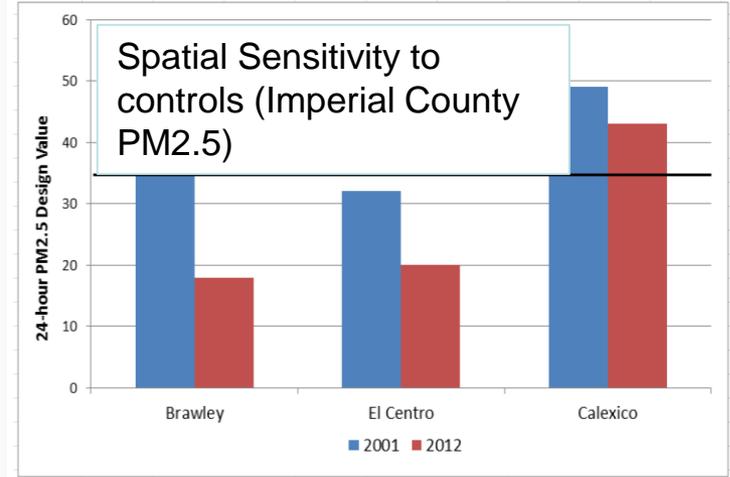
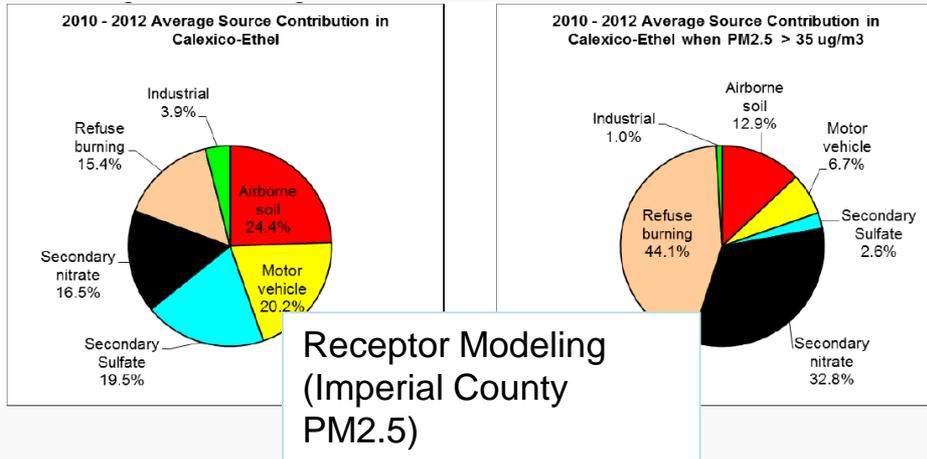


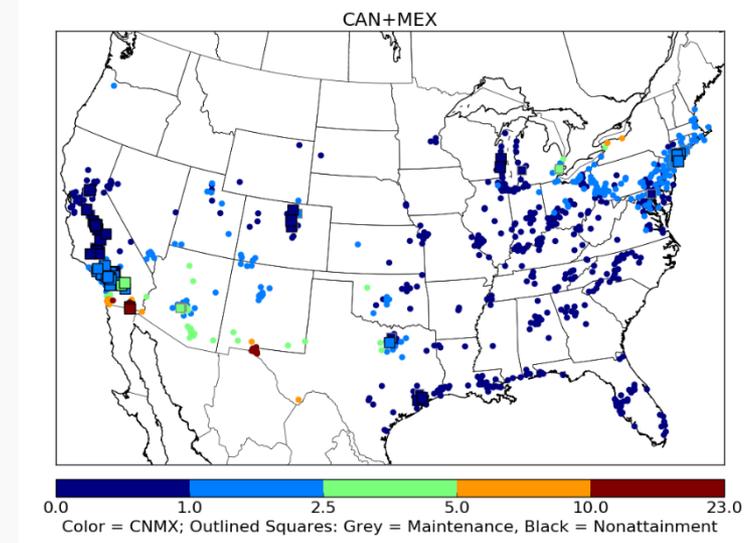
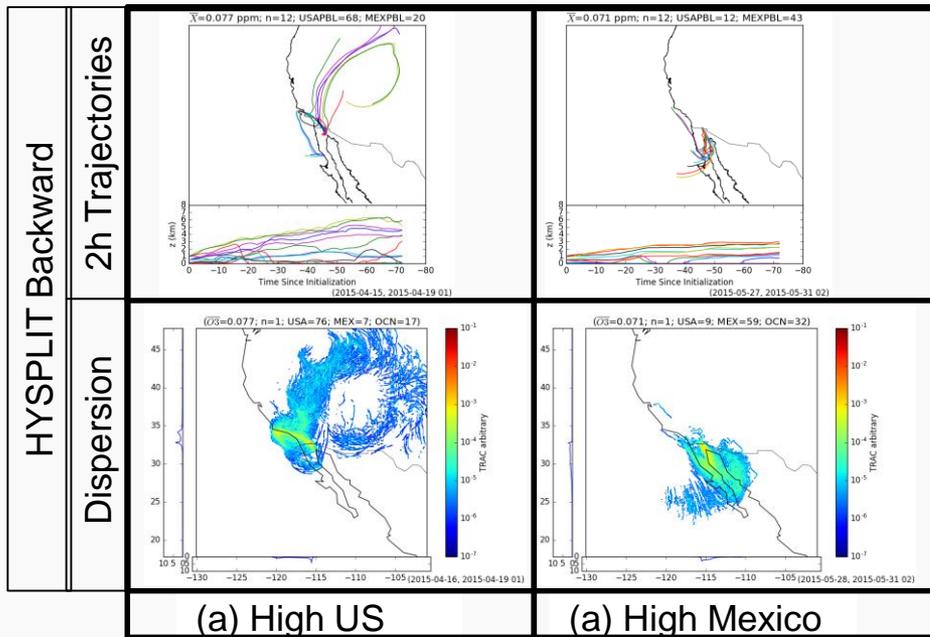
Figure 1 Nogales, AZ PM10 nonattainment area: wind roses for non-exceedance and exceedance days (ADEQ, 2012, pp. Appendix A, Figure 9)





Examples of additional scientific tools/analyses

- Source-receptor backward dispersion modeling coupled to emission and PBL analysis.
- Photochemical modeling sensitivity, tagging (below), and hybrid sensitivity-tagging analyses.



*Note: Analyses are illustrative and specifics may change.



2016 Beta Platform Release

- Collaborative workgroups have developed 2016 and future-year emissions inventories and associated documentation
- States have provided and reviewed 2016-specific data for many emissions sectors, and some data for future years
- EPA ran MOVES for onroad and nonroad, ran the oil and gas tool for 2016 and projected 2014 NEI emissions to 2016 and to future years
- **The 2016beta release for 2016 data only is now available**
 - <http://views.cira.colostate.edu/wiki/wiki/9169>
 - The Intermountain West Data Warehouse (IWDW) is hosting the wiki and providing the 2016 data to requestors
- Platform options: MEGAN and BEIS for biogenics; for EGUs both ERTAC EGU and IPM will be available for future years
- The future-year data and scripts are not yet available as emissions for some sectors were just completed in March



Inventory Collaborative Next Steps

- The Collaborative is now working on:
 - Preparing to release the 2016beta future year data to co-regulators (i.e., MJOs, states, locals)
 - Inventory updates for Version 1.0 (summer, 2019)
- The next quarterly outreach call is June 26th at noon Eastern
 - <http://views.cira.colostate.edu/wiki/wiki/9169#National-Report-Out-Calls>
 - More information on the beta and plans for v1 will be available on this call



EPA's Air Quality Modeling of the 2016 Emissions Platform

- CMAQ and CAMx annual model runs for 2016 have been completed using the beta emissions inventory
- Inputs and outputs from these model runs are being shared with the MJOs and states via the Intermountain Data Warehouse
- EPA is initiating a 2016 platform evaluation forum in an effort to foster collaboration between EPA and the MJOs and states on the evaluation of the 2016 model predictions using ambient measurements



Planned State-EPA 2016 Model Evaluation Forum

- EPA OAQPS and Regional staff are reaching out to states and MJOs to collaborate on model evaluation for the 2016 platform
- EPA presented this idea to MJOs on March 15
- The forum will
 - Promote collaboration with state partners on characterizing and understanding model performance and identifying performance issues for possible further research by EPA and/or the modeling community.
 - Serve as a venue for forming working teams which will independently meet and investigate model performance issues of mutual interest
 - Provide an opportunity for sharing data and evaluation results
 - Serve as a resource for modelers who intend to use the 2016 modeling platform



Regional Haze: Technical Guidance on Tracking Visibility Progress

- “Technical Guidance on Tracking Visibility Progress for the Second Implementation Period of the Regional Haze Rule”
 - The guidance was released on December 20, 2018 and fulfills a commitment in EPA’s Regional Haze Reform Roadmap
- EPA held a public webinar on February 20, 2019 to explain the guidance contents and answer questions.
- The guidance document and the webinar presentation can be found here:
 - <https://www.epa.gov/visibility/technical-guidance-tracking-visibility-progress-second-implementation-period-regional>



Visibility Tracking Metric

- The 2017 Regional Haze Rule revisions require a revised approach to tracking visibility improvements over time.
 - The guidance finalizes a recommended methodology to develop baseline and current visibility conditions, and natural conditions on the 20% *most impaired* and clearest days at Class I areas.
 - The recommended visibility tracking metric focuses on anthropogenic visibility impairment
- Compared to the metric used in the first implementation period:
 - In the eastern U.S.: little difference between metrics
 - In the western U.S.: many sites that were above the URP in 2012-2016 are now at or below the URP with the recommended metric
 - Days selected as the 20% most impaired tend to have:
 - Lower extinction
 - Wider distribution across seasons
 - Higher fractions of sulfate and nitrate, much lower organic carbon
- States can easily download data using the recommended EPA methodology by going to the following website:
<http://views.cira.colostate.edu/fed/QueryWizard/Default.aspx> and choosing the “IMPROVE aerosol, RHR III” dataset



Glidepath International Adjustment

- The 2017 Regional Haze Rule also includes a provision that allows states to propose an adjustment to the uniform rate of progress (URP) glidepath to account for anthropogenic international sources (and prescribed fires).
- The guidance describes recommended tools and methods to develop optional URP adjustments
 - Year selection for quantifying international visibility impacts
 - Base year or 2028
 - Modeling to estimate anthropogenic international visibility impacts
 - Recommended types of models
 - Regional and global/hemispheric photochemical grid models
 - Modeling techniques
 - Zero-out and/or source apportionment of international anthropogenic emissions



Modeling for Boundary Conditions

- EPA has applied both GEOS-Chem and Hemispheric CMAQ to model international transport and to develop boundary conditions for national modeling of the US.
 - GEOS-Chem v11-01
 - out-of-box emissions (EDGAR v4.2, NEI daily)
 - Plus 2016 FINN fires + 2016 lightning
 - Using these boundary conditions produced ozone predictions in the US were high-biased
 - Hemispheric CMAQ with updated inventories
 - Easy to use latest EPA derived domestic inventories for consistency
 - Global inventories based on international partnerships
 - EDGAR-HTAP Emissions
 - Updated China inventory from Tsinghua University
 - Continued to improve GEOS-Chem simulations; using CMAQ in 2015 and 2016 platform simulations



Updated EPA Regional Haze Modeling Summer 2019

- New 2016 based modeling platform with emissions projections to 2028, including sector-based PM source apportionment
 - 2028 projected deciviews and glidepath estimates at Class I areas
 - Estimate of international anthropogenic contributions
 - Model Improvements
 - New 2016 and 2028 emissions from the State/EPA platform collaborative
 - Regional model improvements
 - Updates to CAMx
 - Larger regional domain (including 36km outer domain)
 - Updated boundary conditions
 - Hemispheric CMAQ
 - Modeling will be completed by the end of the summer 2019

