

Mid-Atlantic/Northeast Visibility Union

MANE-VU



BART Modeling: Regional Haze Planning for MANE-VU

Gary Kleiman

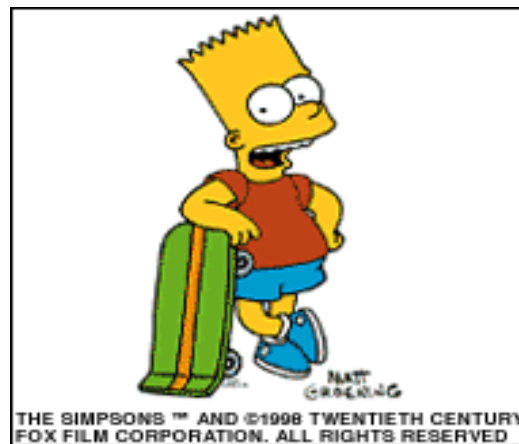
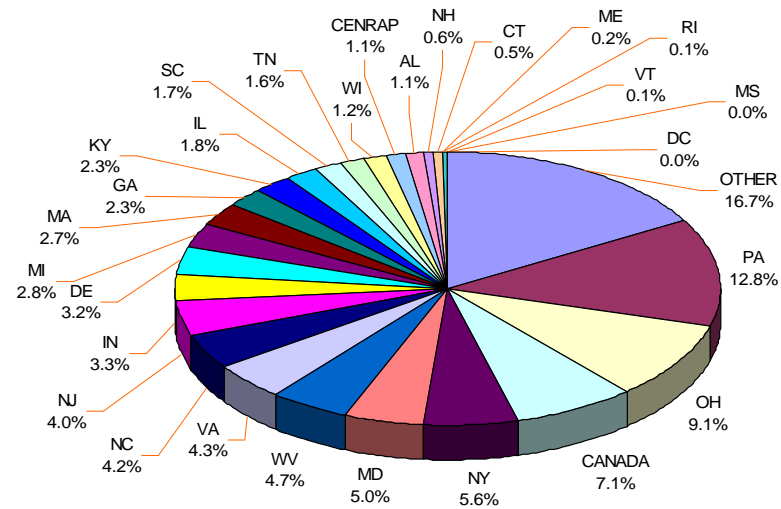
NESCAUM/MANE-VU

Permit Modeling Committee

Sturbridge, MA · May 31, 2006

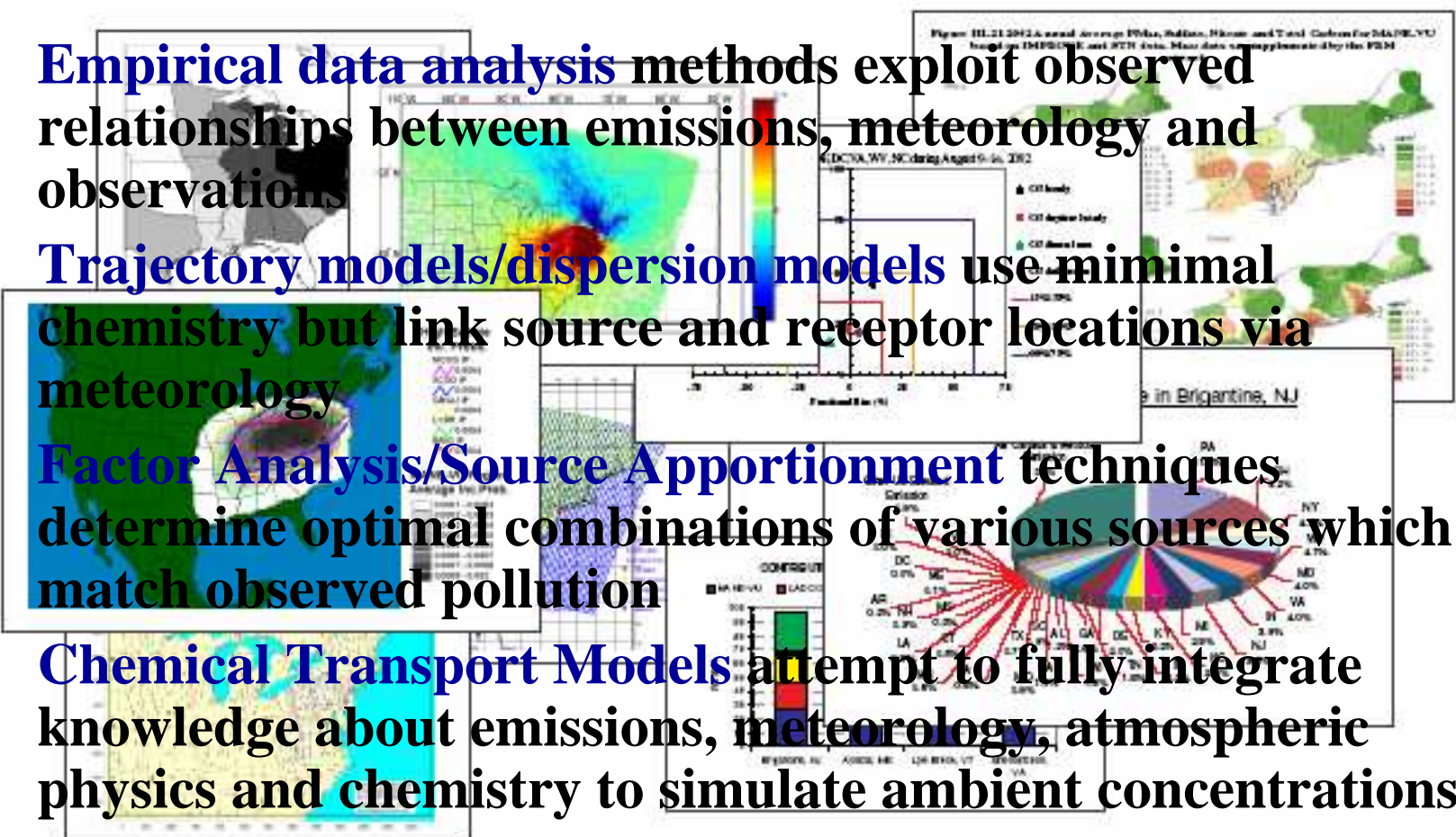
Technical & Regulatory Needs

- **Contribution Assessment/Pollution Apportionment**
- **BART Resource Book**
- **State-by-State BART Determination support**



M-V Contribution Assessment

- **Empirical data analysis** methods exploit observed relationships between emissions, meteorology and observations
- **Trajectory models/dispersion models** use minimal chemistry but link source and receptor locations via meteorology
- **Factor Analysis/Source Apportionment** techniques determine optimal combinations of various sources which match observed pollution
- **Chemical Transport Models** attempt to fully integrate knowledge about emissions, meteorology, atmospheric physics and chemistry to simulate ambient concentrations





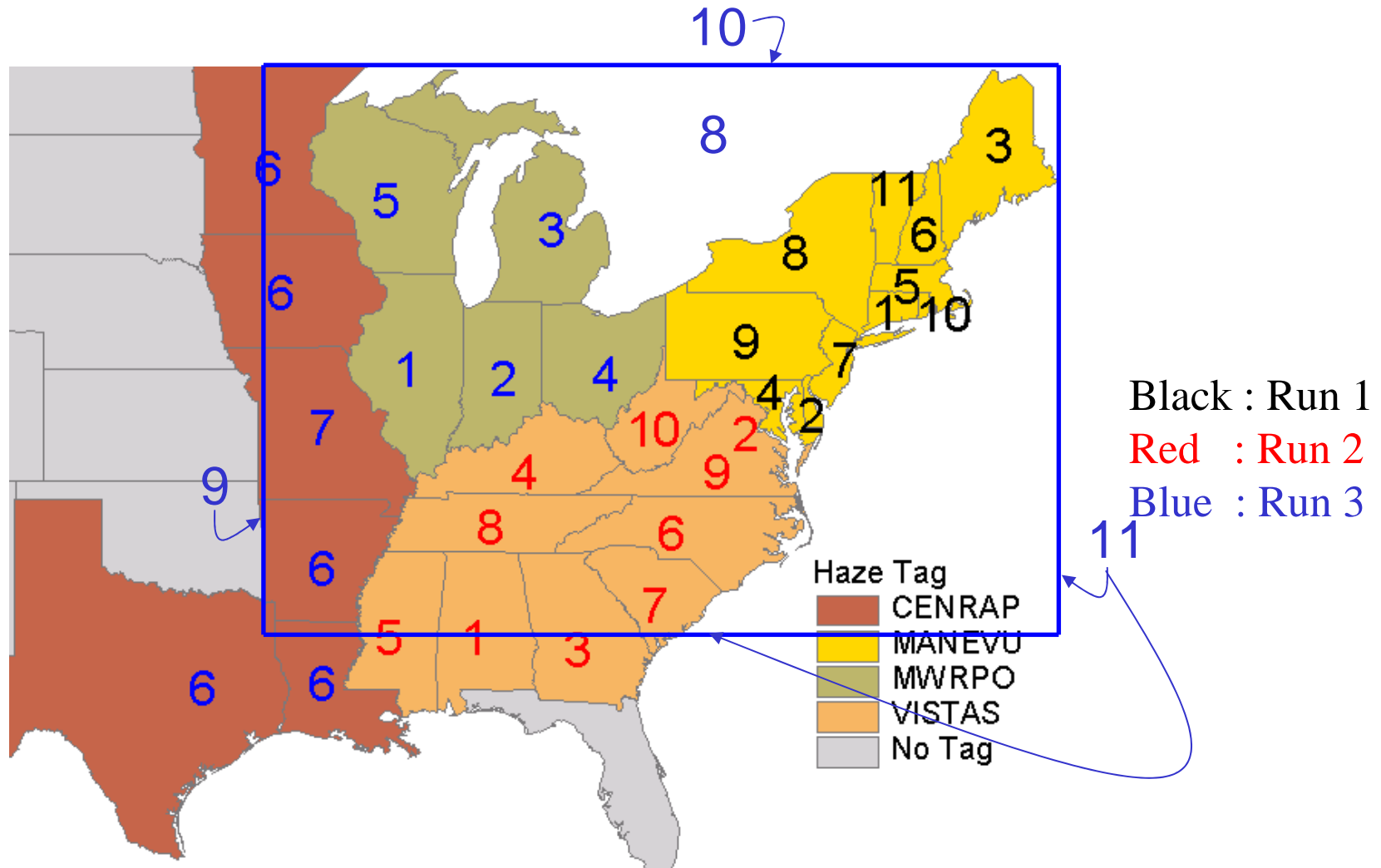
Contributions to Regional Haze in the Northeast and Mid-Atlantic United States

- Available in draft form – taking comments for next month
 - REMSAD with SO₂ tagging
 - CALPUFF with 2 types of Meteorology
 - Trajectory methods (Incremental Probability and Cluster Weighted Probability)

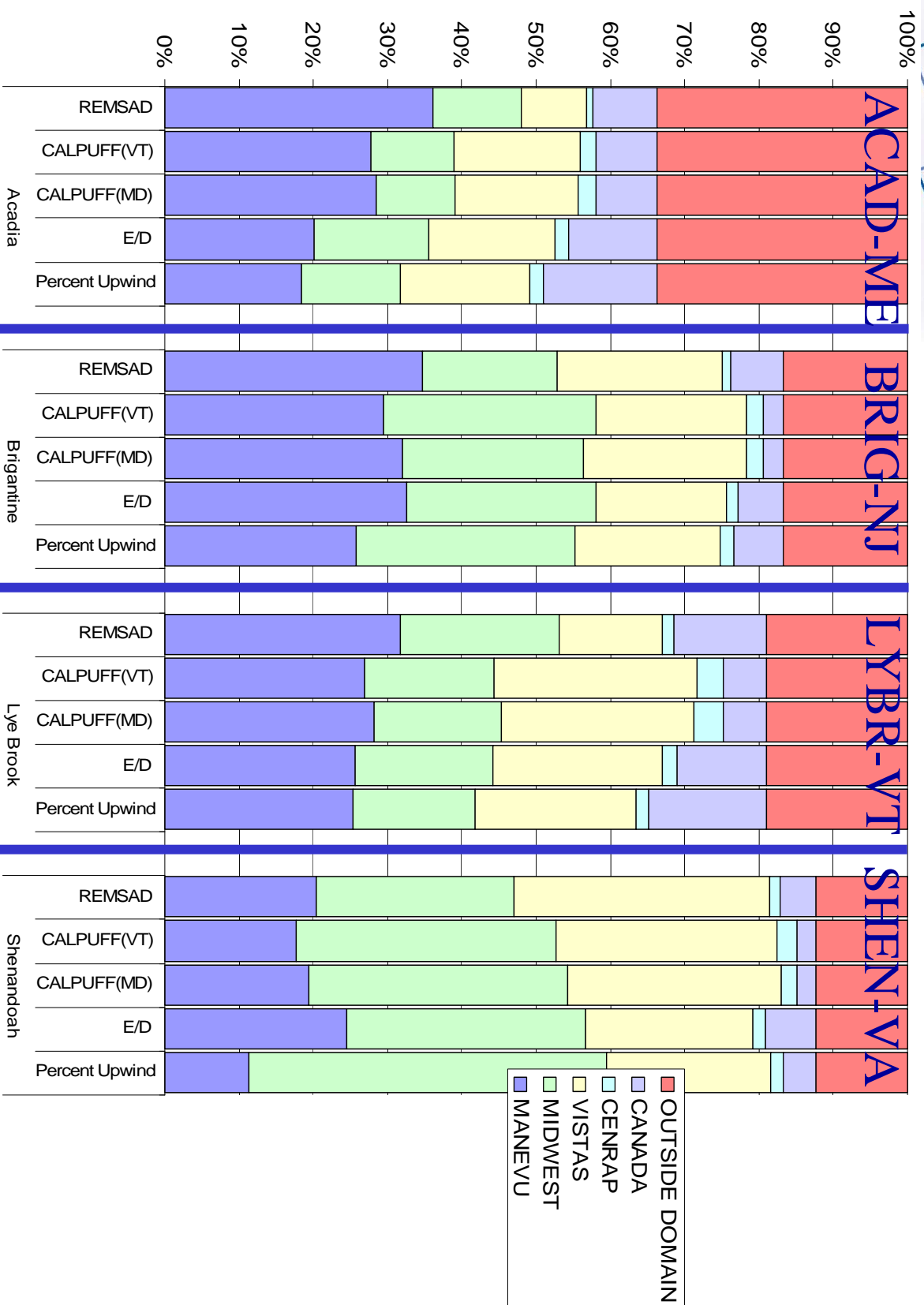
Residence time probability x emissions

Plus conceptual model, monitoring strategy,
baseline conditions, emission inventory, and more...

Contribution Assessment Analysis Domain



Sulfate Contribution by RPO

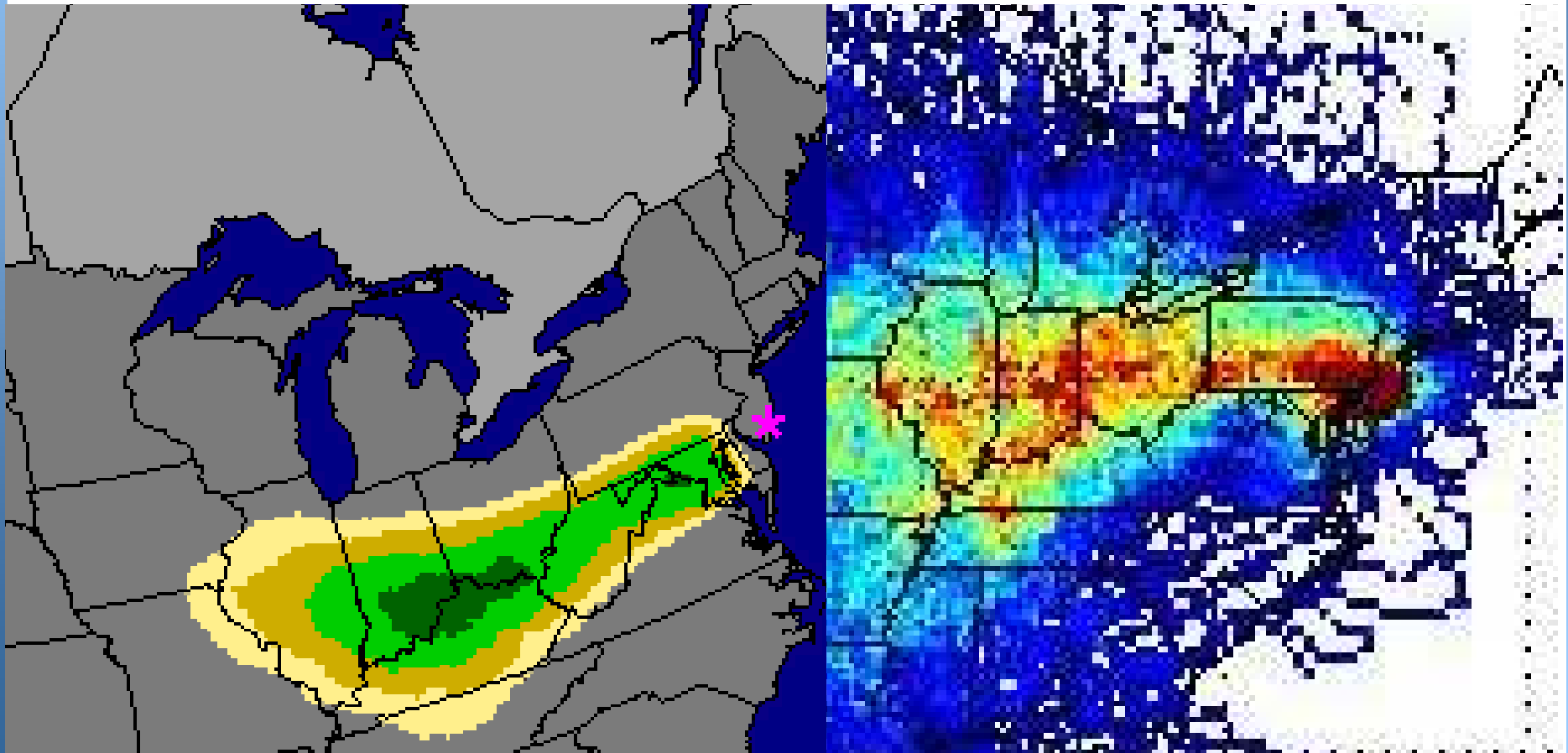


Mid-Atlantic/Northeast Visibility Union

MANE-VU



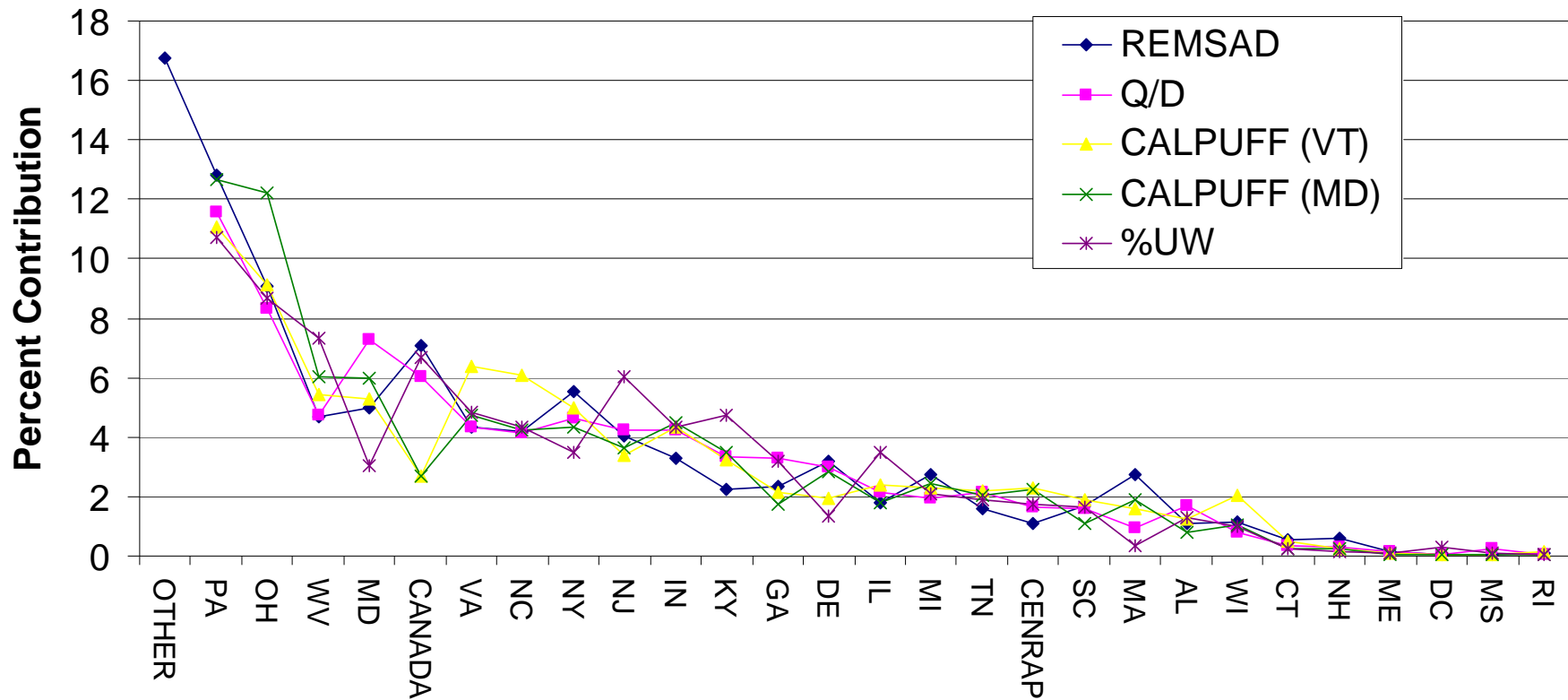
Source Models and Receptor Models Agree!





2002 Average SO4 Contributions (by state)

Brigantine





BART Resource Book

- Review of Regulations
- BART Eligible Source List (to the extent possible)
- MANE-VU BART Process and BART Workgroup Recommendations
 - All eligible sources are subject to BART
 - Presumptive levels of control
- BART Technology Assessment and Other Resources
 - M-V Assessment (EGU/ICI/Cement/P&P)
 - Industry Assessments
- BART Determinations (including visibility determinations!)

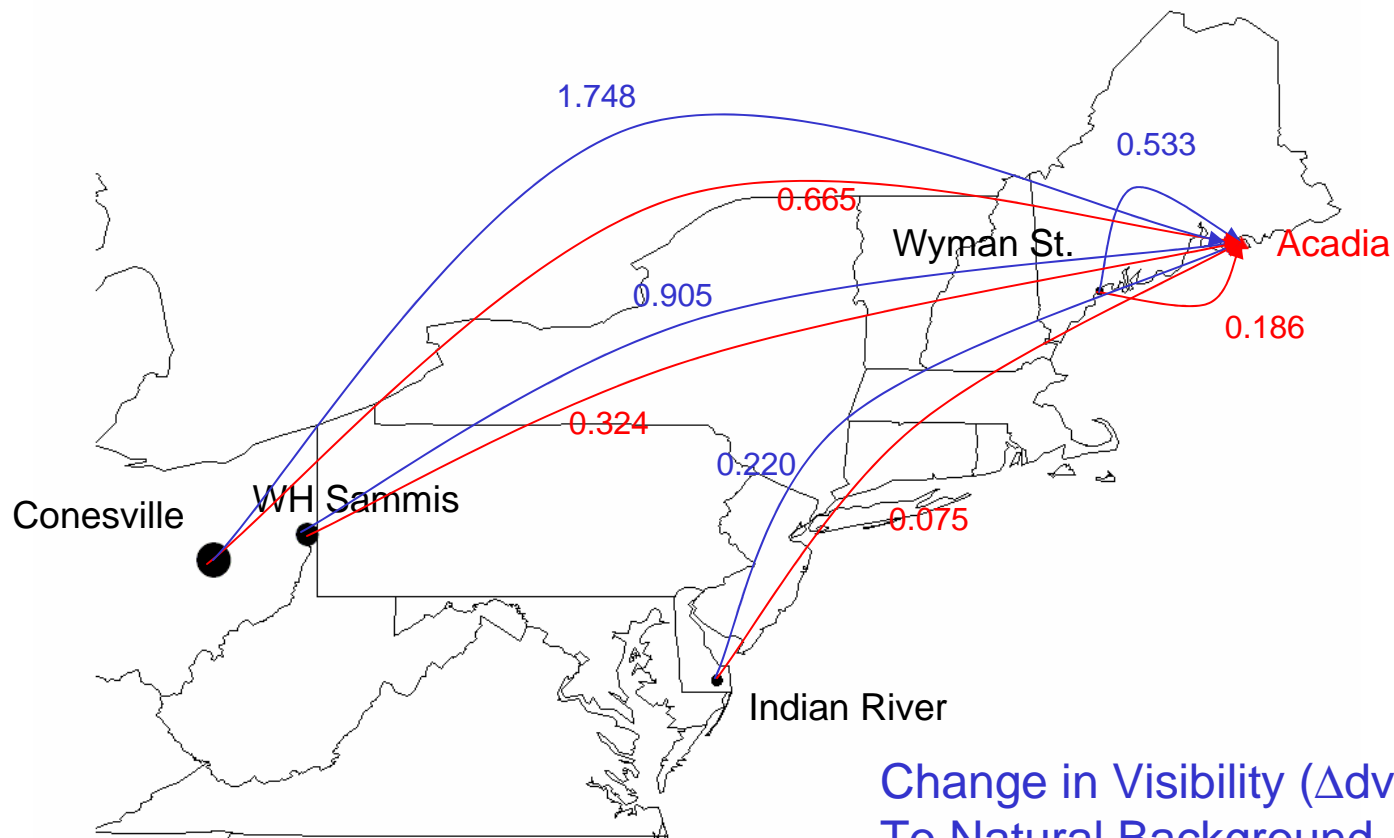


Visibility Determinations

- CALPUFF (MM5 driven meteorology)
- CALPUFF (NWS Observation driven met.)
- 2002 contribution and post-BART, if applicable
- Workgroup still investigating metrics, but 24-hour maximum impact at each Class I areas against natural conditions seems likely
- Sulfate, PM, and Nitrate will be calculated

Acadia 24-Hour Max Day Impact

(relative to 20% worst natural and baseline conditions)



Change in Visibility (Δdv) relative To Natural Background - Blue

Change in Visibility (Δdv) relative To Baseline - Red

Mid-Atlantic/Northeast Visibility Union

MANE-VU



The Clean Air Association of the Northeast States



www.nescaum.org