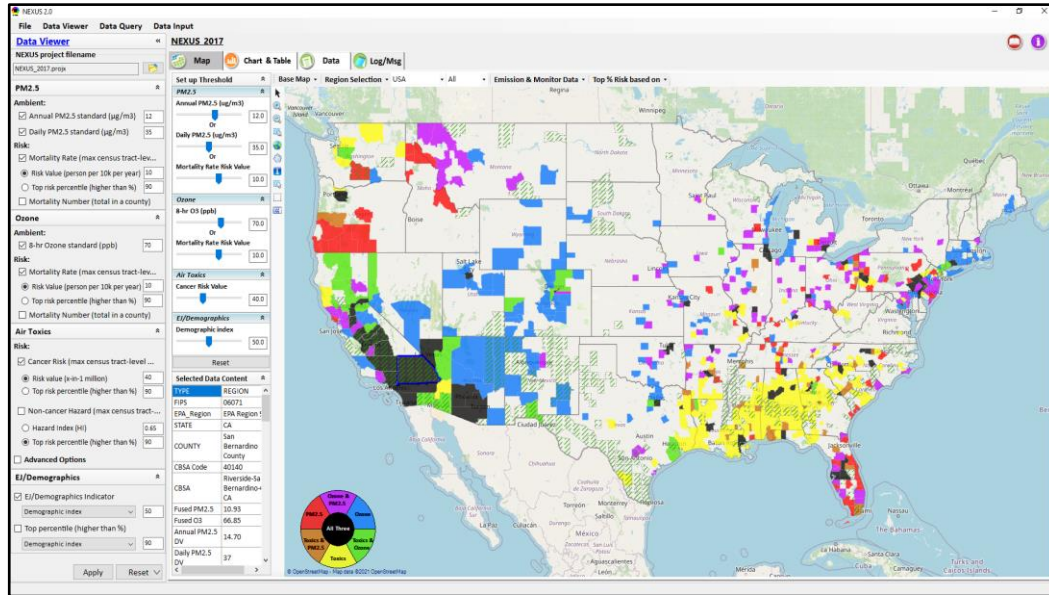


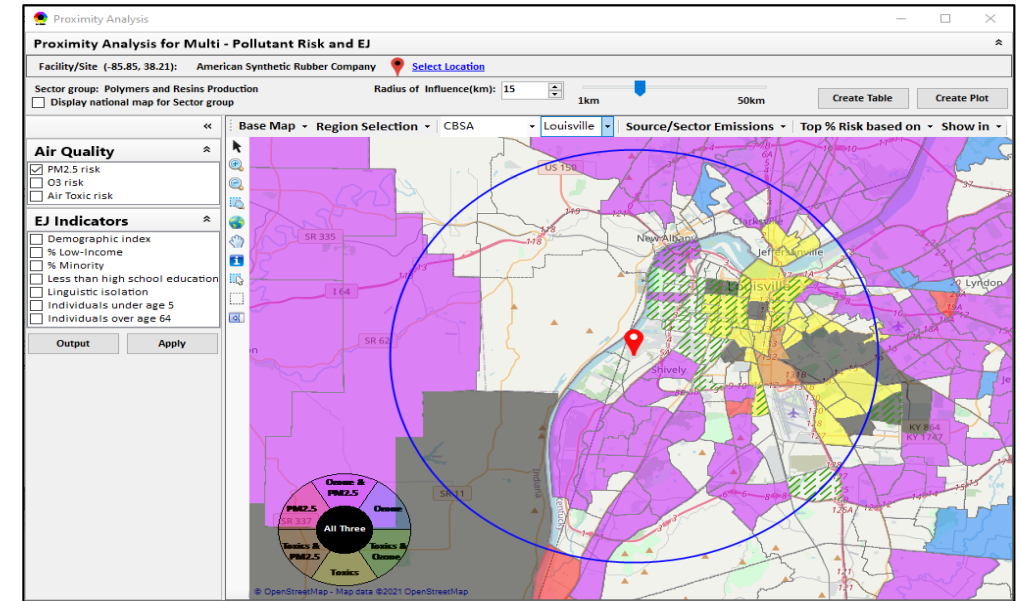
“NEXUS” Multi-Pollutant Advanced Screening Tool

CAAAC Briefing

Data Viewer: National/Regional Level



Proximity Analysis: Community Level



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Overview

- **Multi-Pollutant Background**
- **NEXUS Background**
- **Data Inputs and Major Functions**
- **NEXUS & EJSCREEN**
- **Important Caveats**
- **Live Demo**

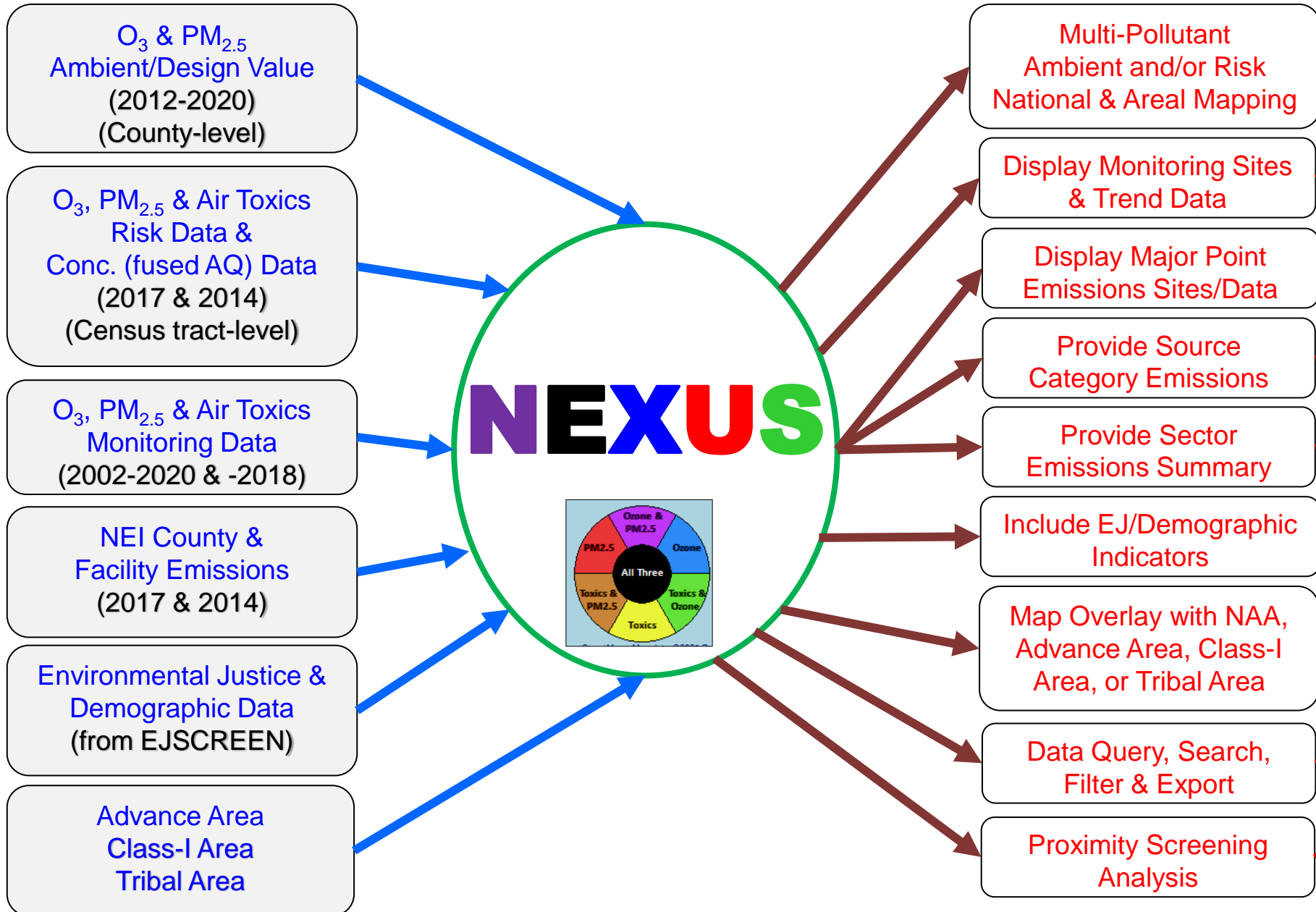
Multi-Pollutant Background

- Support a comprehensive, MP treatment of air quality problems to effectively improve air quality and make the most efficient use of available resources
 - Primary Goal - identify & evaluate local control strategies targeting emissions of O₃ & PM_{2.5} and their precursors while at the same time reducing Air Toxics of concern for communities to maximize both health benefits and air quality improvements
- MP planning has the potential to reduce the costs and increase benefits associated with air quality management (AQM)
- Supports S/L/T air agencies in developing MP, risk-based AQM plans and implementing strategies that reduce air pollution emissions & improve public health
- Success has been demonstrated in Detroit and SC; another project is currently underway in Louisville, KY
- Tools needed to analyze MP data are either available currently or being developed in OAQPS (e.g., **NEXUS**)

NEXUS: Background

- “NEXUS” is an advanced screening tool for multi-pollutant (MP) risks and EJ/Demographic analysis developed by OAQPS’s MP team
- “NEXUS” integrates a suite of MP data, including emissions, monitoring, modeling, fused AQ data and health risk data for PM_{2.5}, O₃ & air toxics as well as EJ/demographic data, into one single platform to allow national and areal overlay mapping & analysis of MP ambient & risk data
- “NEXUS” provides MP analysis across from national level “Phase 1” to regional (EPA region/State/CBSA) level “Phase 2”, and now down to community level “Phase 3” (Proximity analysis” in census tract-level)
- We expect to use this tool in conjunction with Regions and identify areas that would potentially benefit most from MP approaches to reduce emissions (including current NA areas)
- We also expect that it can have additional value-added uses across the Office for Air Toxics, Environmental Justice and other programs
- The NEXUS tool will essentially provide a ‘conceptual model’ of an area’s MP issues to facilitate engagement with state/local/tribal agencies & community stakeholder groups

NEXUS: Data Inputs and Major Functions



Ozone and PM_{2.5}

- Emissions and source data
- Monitoring data
- Fused concentration data
- Mortality & morbidity risk data

Air Toxics

- Emissions and source data
- Monitoring data
- Modeled concentration data
- Cancer & noncancer risk data

GHG emissions

- NEI's GHG (CO₂e) emissions
- Facilities and county level
- Source categories (pt, on-road, non-road, etc.)

EJ Layers

- Tribal Areas
- Nonattainment Areas

Environmental Indicators*

- **NATA Respiratory HI**
- **NATA Cancer Risk**
- **NATA Diesel PM**
- **Ozone Model Concentrations**
- **PM_{2.5} Model Concentrations**

Demographic Indicators

- People of Color Population
- Less Than HS Educated
- Low Income Population
- Linguistically Isolated
- Demographic Index
- Under Age 5
- Over Age 64

EJ Layers

- Hazardous waste
- EJ Grants
- Water features
- Places
- Schools & Parks
- Transportation
- Boundaries
- Prisons
- Public Housing
- Subsidized Housing
- Climate
- Sites reporting to the EPA
- Superfund (NPL)
- RSEI

Environmental Indicators

- Wastewater Discharge Indicator
- Hazardous Waste Proximity
- Superfund Proximity
- Lead Paint Indicator
- Traffic Proximity
- RMP Proximity

NEXUS: Important Caveats

NEXUS is currently an advanced screening tool for internal EPA use. A beta version is available for EPA staff to use and provide feedback on for improvement. Additional updates/improvements are necessary before the NEXUS tool is ready to be released to the public.

NEXUS Caveat

The NEXUS screening tool uses data from a variety of sources. This data is publicly available, except for the BenMAP data at the tract level. EPA is currently still in an internal review process and is not using this tool to support regulatory analyses.

BenMAP Caveat

The estimated number of PM and ozone-attributable deaths and illnesses reported at each tract are subject to important uncertainties and should be interpreted with caution. When using the BenMAP-CE tool to calculate these tract-level results, EPA lacked information regarding the baseline health status of individuals living at each tract; these data are a key input to the calculation of benefits. EPA instead used data available at the county- or state-level, which does not account for differences in baseline health between tracts. Estimating benefits in this way is not consistent with the peer-reviewed methods EPA follows when estimating air quality benefits in a Regulatory Impact Analysis. EPA will continue to refine its methods with the goal of reporting tract-level health benefits with confidence.

“NEXUS 3.0” Live Demo