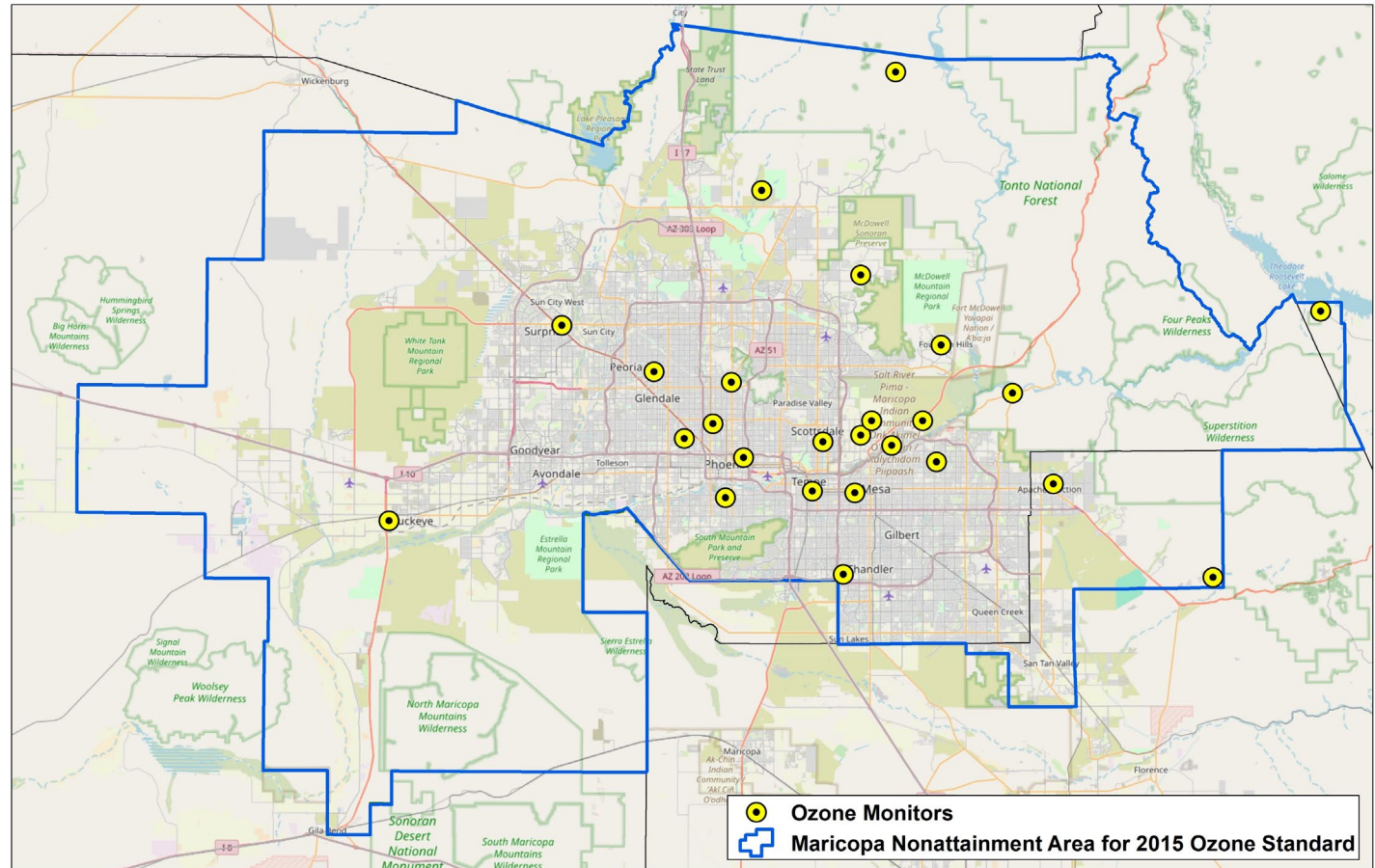


# Ozone Nonattainment in the West

Westar and WRAP Fall Meeting  
November 6, 2025

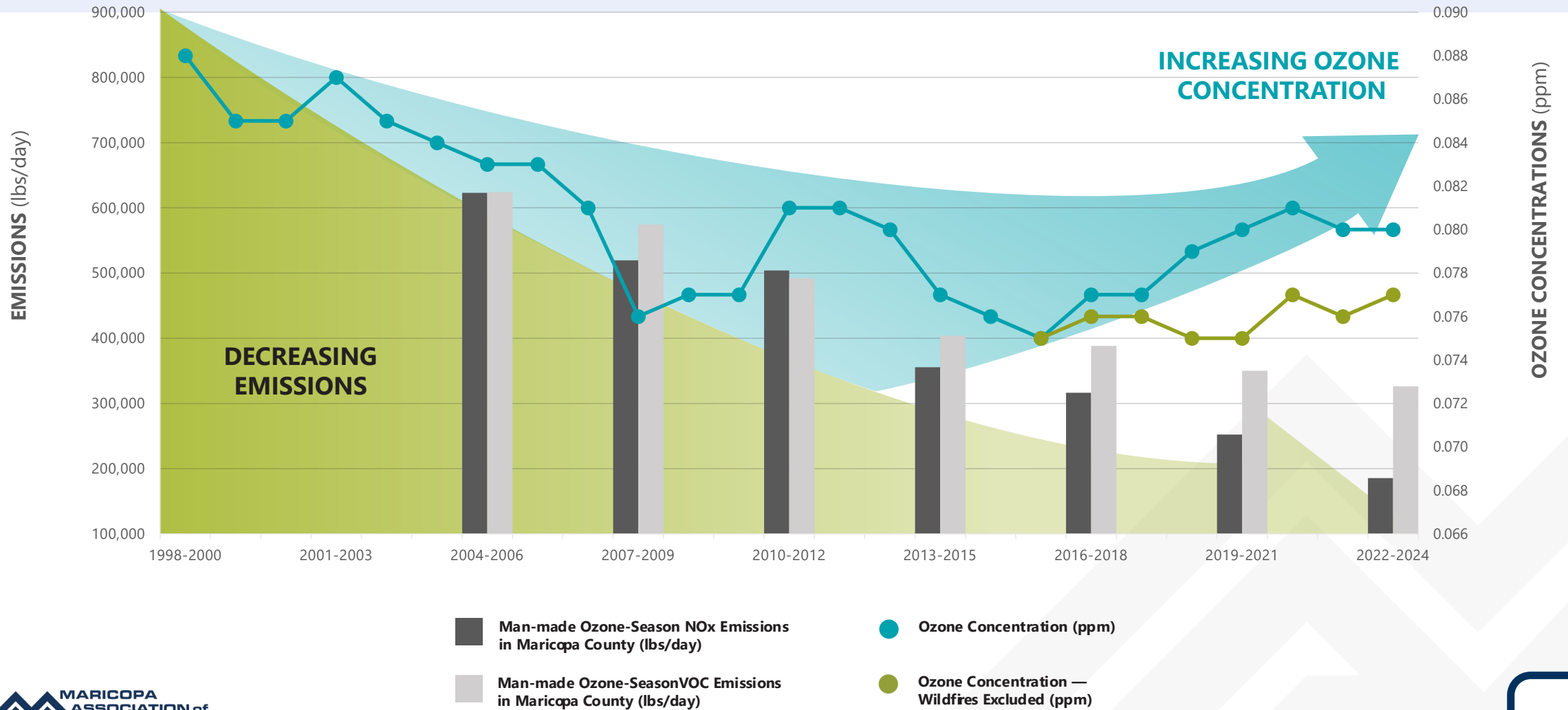
# Maricopa Ozone Nonattainment Area Overview

- 25 urban, suburban and rural locations monitor ozone.
- Area has a Moderate attainment date of August 3, 2024.
- The current ozone design value for the nonattainment area is **80 ppb** – 10 ppb over the EPA standard.



# Ozone Challenge #1

## Decreasing Emissions, Increasing Concentrations



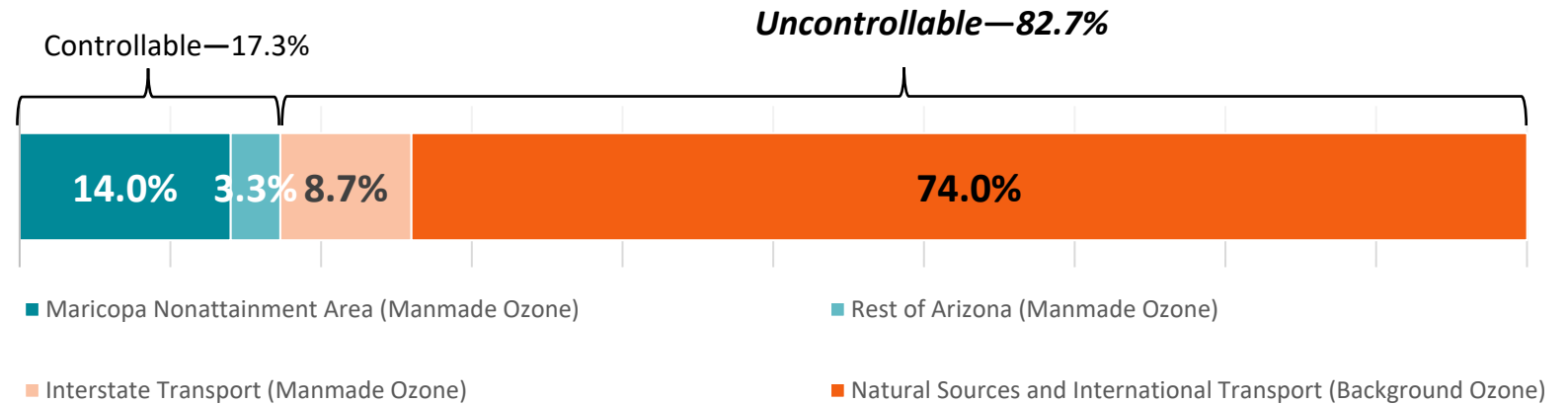
# Ozone Challenge #2

## Most of the Ozone in our Region is Outside of our Control

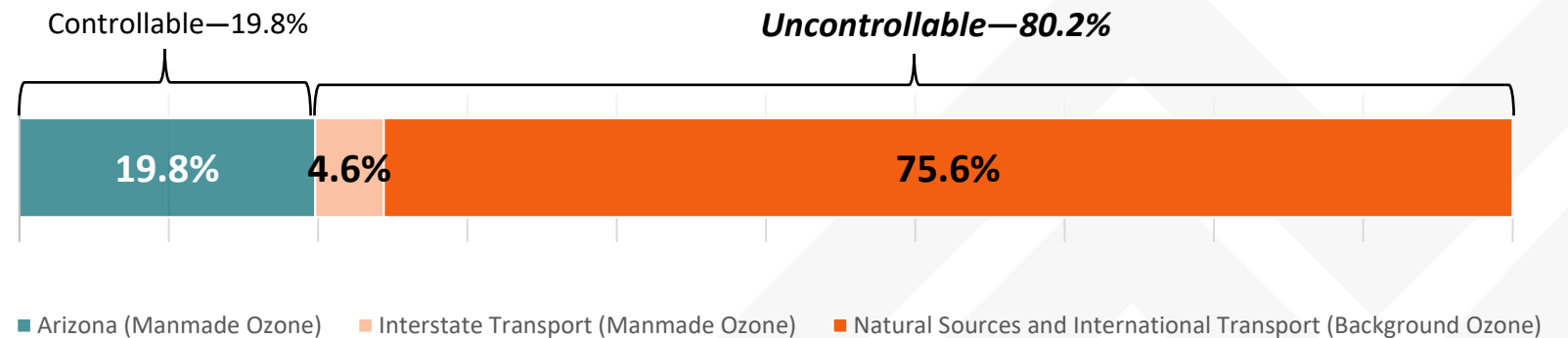
**80%+**

of ozone assigned to Arizona is **NOT** produced or controlled by Arizona residents, according to *both EPA and MAG models*.

### MAG OZONE MODELING



### EPA GOOD NEIGHBOR OZONE MODELING



# EPA Policy Shift Allowed the Region to Address the Impact from One Uncontrollable Source of Ozone:

## International Emissions



# CAA Section 179B(b) Demonstration: Impact of International Emissions on Regional Ozone Levels

- The purpose of the CAA Section 179B(b) demonstration is to provide technical, modeling documentation that the Maricopa nonattainment area would have attained the EPA 2015 ozone standard but for the impact of international emissions by the **Moderate** area attainment date of August 3, 2024.
- Clean Air Act Section 179B(b) exempts the Maricopa nonattainment area from being reclassified to a **Serious** area if a demonstration can be made that the area would have attained by August 3, 2024, *"but for emissions emanating from outside of the United States"*.

# Status of 179B(b) Demonstration

- The *MAG 2025 Clean Air Act Section 179B(b) Retrospective Demonstration of the Impact of International Emissions on Ozone Concentrations in the Maricopa Nonattainment Area* has been accepted by the MAG Regional Council and submitted to the EPA Administrator on September 24, 2025.
- The demonstration is available on MAG's website: <https://azmag.gov/Programs/Environmental/Regional-Air-Quality-Planning>

# 179B(b) Demonstration Primary Analysis – Source Apportionment

Source apportionment traces and quantifies the contribution of ozone from specific sources to each nonattainment area monitor location.

For this analysis, the focus is on tracing and quantifying the contribution from **manmade international emissions.**

# 179B(b) Demonstration - Source Apportionment Results

Source Apportionment Modeling Results	2023 Ozone Design Value Including International Emissions	2023 Ozone Design Value Excluding International Emissions	2023 Ozone Impact of International Emissions
<b>Average</b> of All Nonattainment Area Monitors	75 ppb	60 ppb	15 ppb
<b>Average</b> of All Nonattainment Area Monitors - Wildfire Days Excluded	73 ppb	57 ppb	16 ppb
<b>Maximum</b> Ozone Concentration Monitor	80 ppb	66 ppb	14 ppb
<b>Maximum</b> Ozone Concentration Monitor - Wildfire Days Excluded	77 ppb	62 ppb	15 ppb

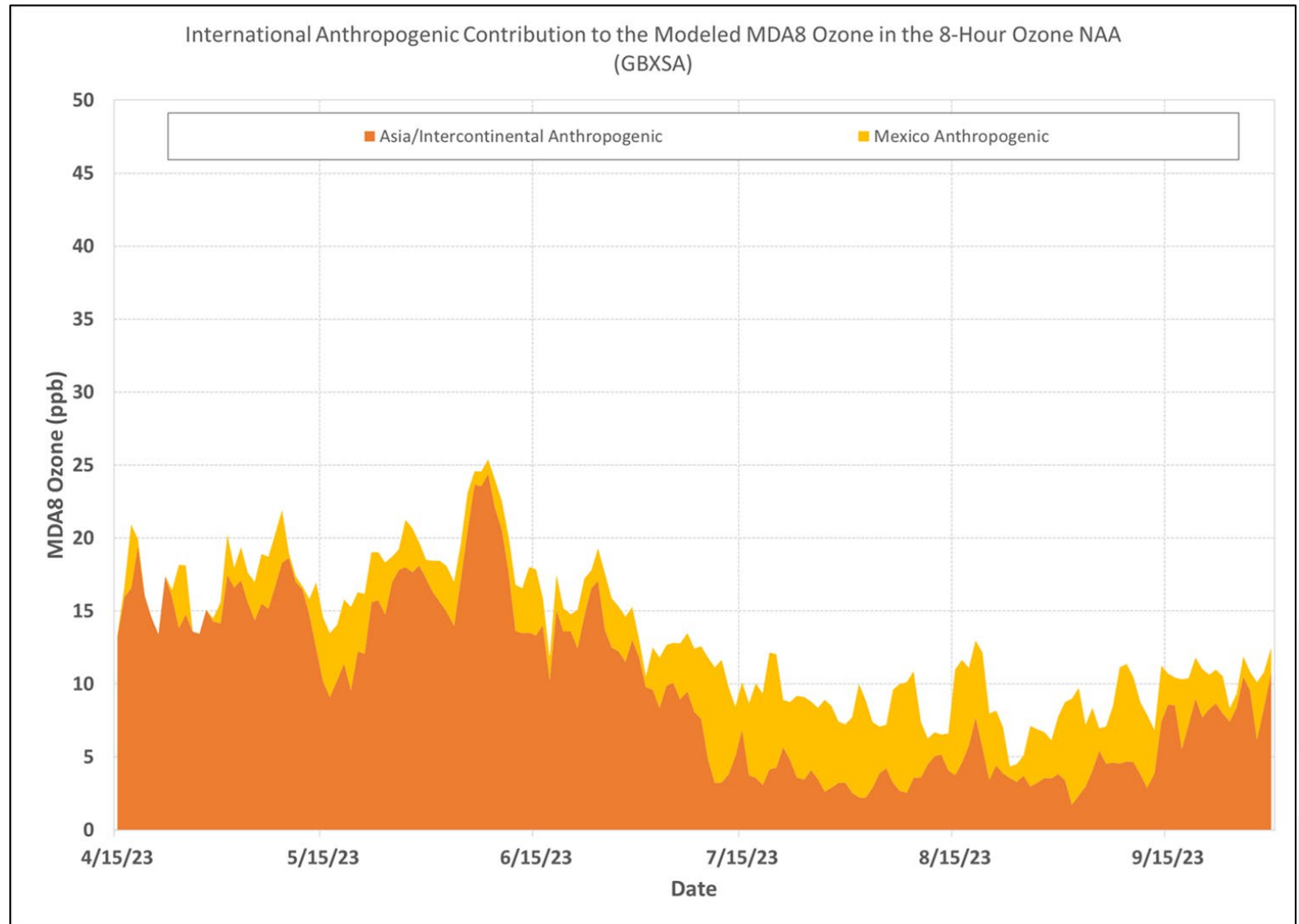
Note: The 2015 EPA ozone standard is 70 ppb (parts per billion).

**Attainment of the standard in 2023 is demonstrated when international emissions are removed.**

# 179B(b) Demonstration - Source Apportionment Results

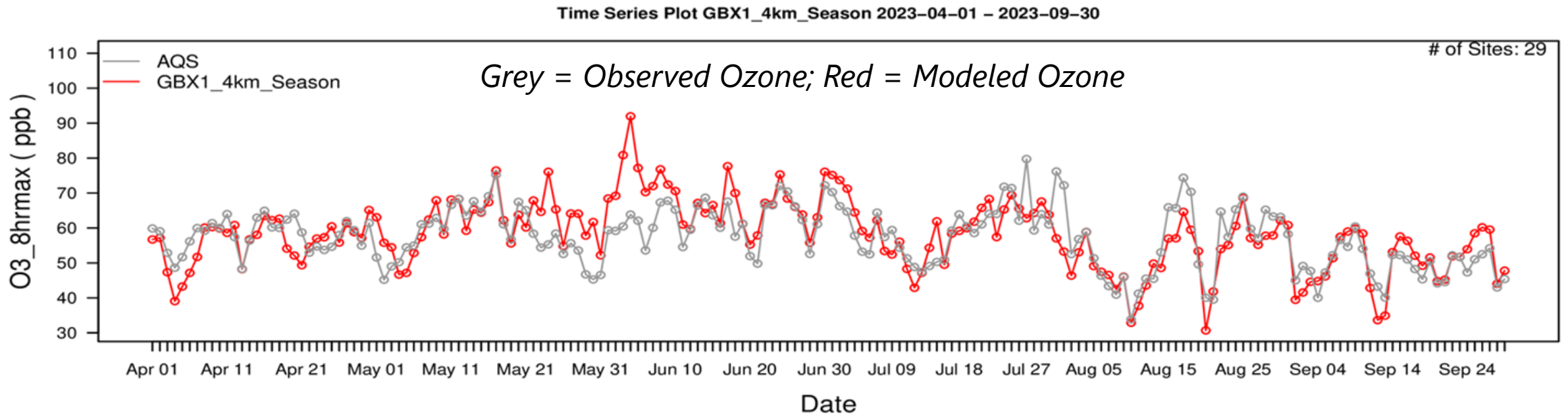
**Dark Orange:**  
Asia/Intercontinental  
Contribution

**Light Orange:**  
Mexico Contribution



# 179B(b) Demonstration - Source Apportionment Results

## Can the source apportionment modeling results be trusted?



**Yes - Modeling performance is representative of observed ozone concentrations.**

## 179B(b) Demonstration – Secondary Analyses – EPA Modeling

- EPA estimated the minimum impact of manmade international emissions to the Maricopa nonattainment area as **8.5 ppb** for year 2020 (could be as high as 13.6 ppb).
- The 2020 ozone level (including wildfires) in the nonattainment area was 79 ppb.
- Removing the EPA-estimated minimum contribution of manmade international emissions in 2020 resulted in attainment of the standard in 2020.

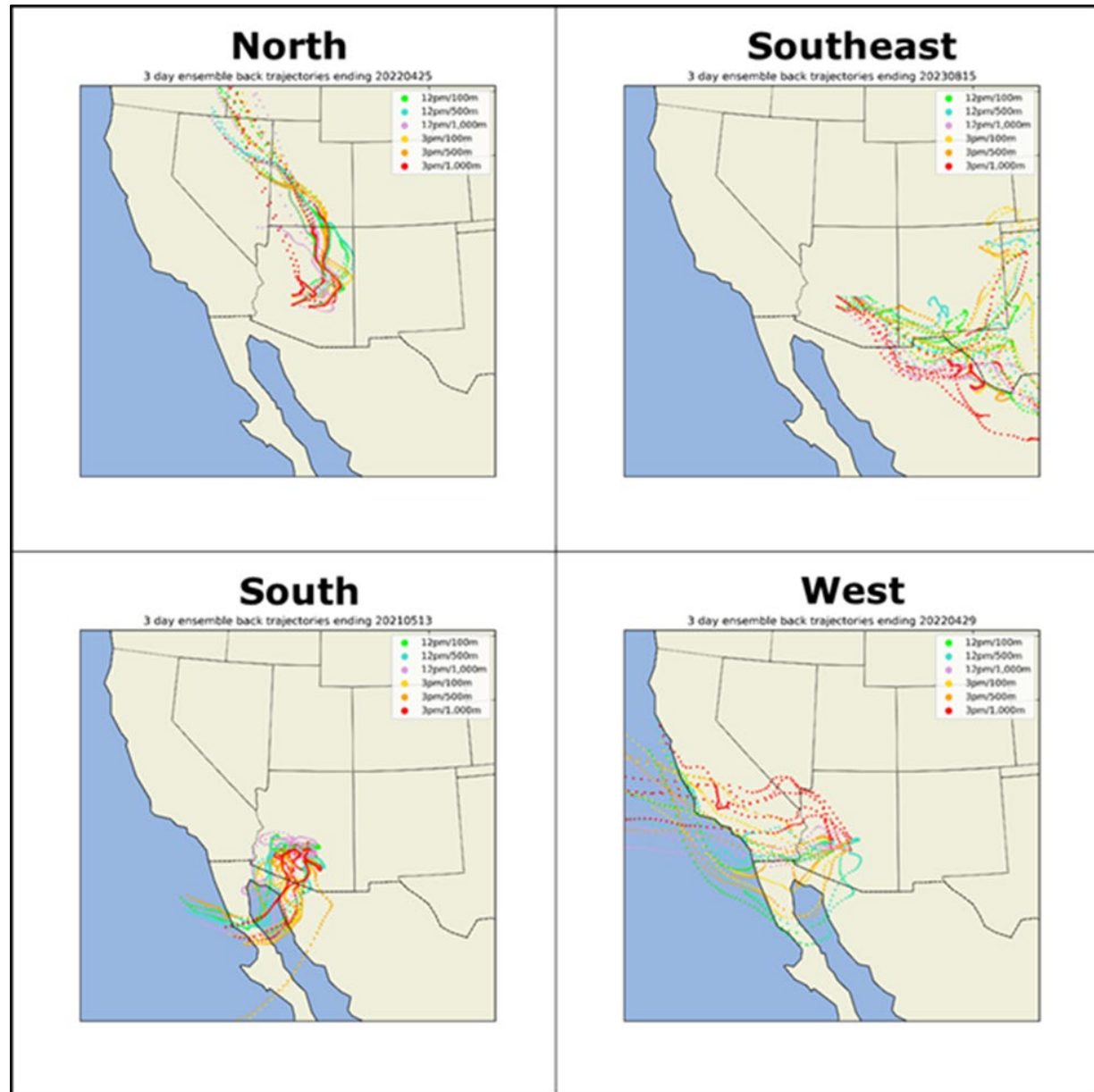
***79 ppb – 8.5 ppb = 70 ppb after EPA required truncation.***

## 179B(b) Demonstration – Secondary Analyses – Air Parcel Pathways on Exceedance Days in 2021-2023

**3 of 4 pathways** indicate potential transport from Mexico (West, Southeast and South).

**2 of 4 pathways** indicate potential transport from Asia/Intercontinental regions (North and West).

80%+ of exceedance days pass over some part of Mexico. Removing exceedance days impacted by wildfires and where transport from Mexico can occur results in **attainment** of the standard at all but one monitor.



## 179B(b) Demonstration – Secondary Analyses – Comparison of Nonattainment Area and Mexico Emissions

Maricopa nonattainment area manmade emissions **decreased** from 2017 to 2023, while emissions from the three northernmost states of Mexico **increased**.

Mexican manmade emissions also **5x to 11x higher** than nonattainment area emissions, despite being only double the population.

### NOx Emissions

- Maricopa **decreased 38%**
- Northern Mexico **increased 6%**
- Mexico emissions > Maricopa by **6X (in 2017) to 11X (in 2023)**

### VOC Emissions

- Maricopa **decreased 4%**
- Northern Mexico **increased 2%**
- Mexico emissions > Maricopa by **5X (in 2017) to 6X (in 2023)**

# 179B(b) Demonstration – Technical Conclusion

Source apportionment modeling and supporting analyses provide overwhelming technical evidence that the **Maricopa nonattainment area would have attained the EPA ozone standard of 70 ppb** by August 3, 2024, **but for the impact of international manmade emissions.**

Where is MAG headed next with ozone?

Dive into the data collected through the **GLOR** study to see what additional insights about ozone formation can be learned – to help guide future planning work.



# Where is MAG headed next with ozone?

In particular analyses  
focused on:

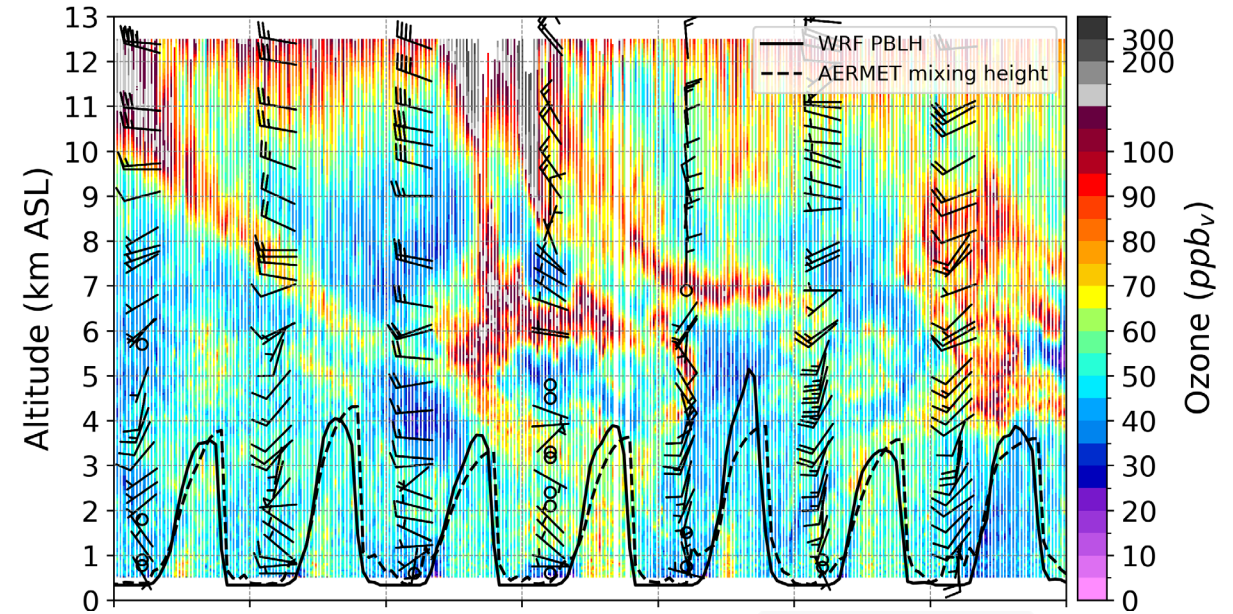
VOC/NO<sub>x</sub> Sensitivity

Spatial/Temporal Distribution

Transport

Unique Events

PHOENIX, DURANGO, AZ (NASA JPL SMOL-5 / Centrally Processed (GLASS))  
2025-06-15 - 2025-06-22



**For More  
Information**

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