PUBLIC HYBRID MEETING FOR
Coachella Valley Dust Summit

WELCOME
BIENVENIDOS

South Coast AQMD

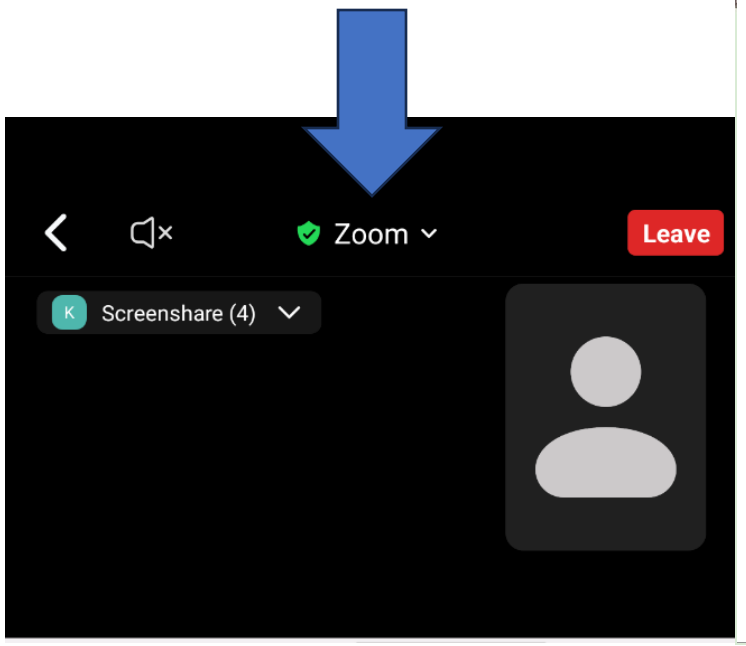
Número de llamada en español (Spanish Call-in Phone Number)

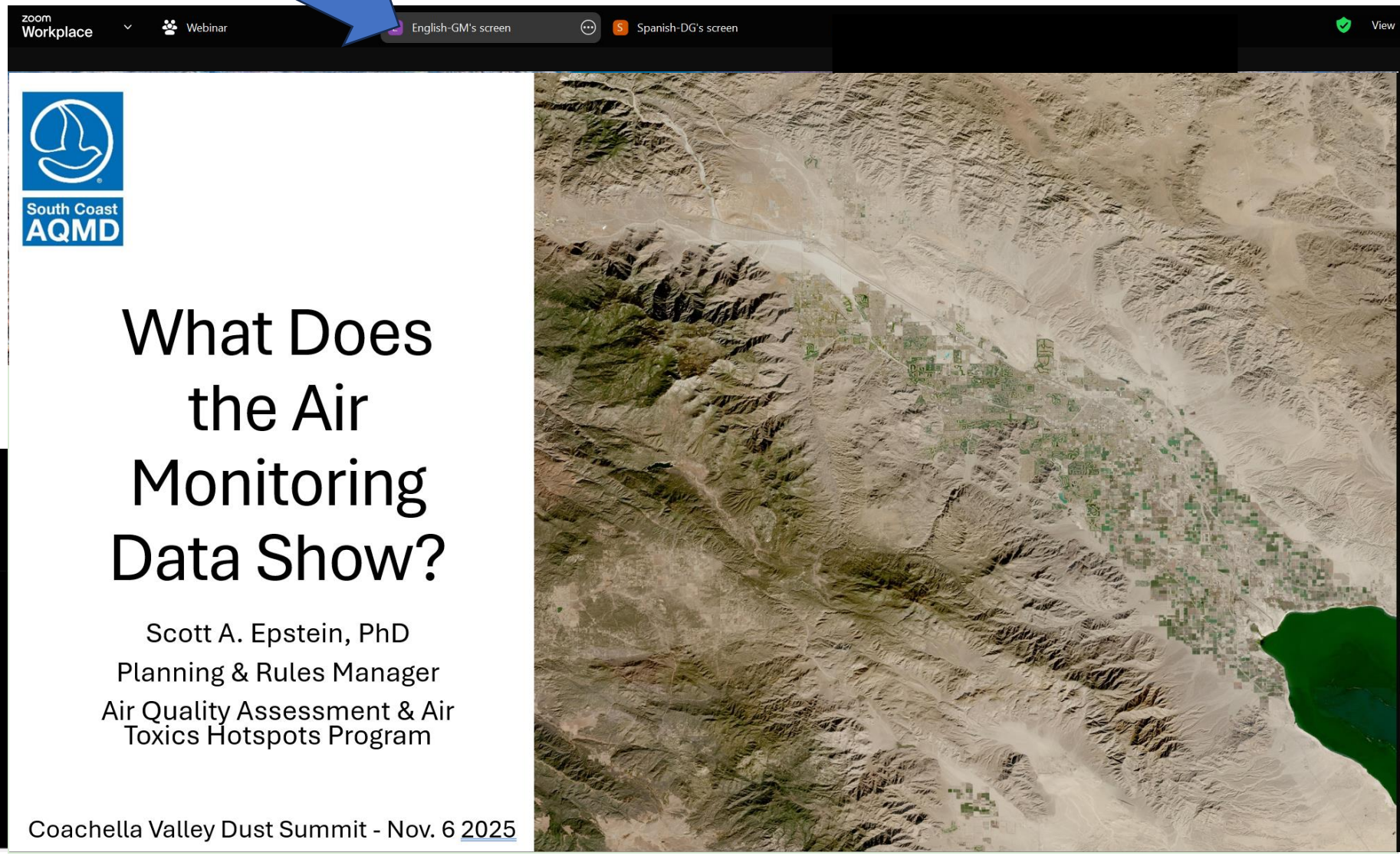
To listen by telephone in Spanish call 1 669 254 5252 and enter the meeting ID number 161 516 0458#.

Para escuchar en español, llame al 1-669-254-5252 e ingrese el número de identificación de la reunión 161 516 0458#.

En Zoom, selecciona el idioma de presentación.
In Zoom, Select the presentation language.

En tu teléfono celular, selecciona desde el menú Desplegable.
On your cell, select from the Drop-down menu.





General Meeting Announcements
Asuntos generales de la reunión

Two meeting formats – ZOOM or teleconference

For Technical or General Assistance, please call: 909-396-2311.

Please silence your cell or desk phone to avoid feedback or interference.

Everyone except the presenter will be muted until public comment.

Public comment will be held after the presentations.

Dos formatos de reunión: ZOOM o teleconferencia

Para asistencia técnica o general, por favor llame al: 909-396-2311

Por favor, silencie su teléfono celular o de escritorio para evitar comentarios o interferencias.

Todos excepto el presentador serán silenciados hasta el comentario público.

Comentario público se llevará a cabo después de las presentaciónes.

Meeting Conduct Guidelines / Pautas de conducta de la reunión

During public comment, please make your comments with courtesy and civility.

Profanity or discriminatory comments are prohibited.

Any violation of the above rules can result in your mic being muted or you being dropped from the ZOOM or teleconference meeting lines.

Durante el comentario público, por favor haga sus comentarios con cortesía.

Se prohíbe la profanidad o los comentarios discriminatorios.

Cualquier violación de las reglas puede resultar en que su micrófono sea silenciado o que seas expulsado de las líneas de reunión de ZOOM o teleconferencia.

Public Comment or Ask a Question / *Hacer un comentario público o hacer una pregunta*

In Person: Sign up to speak using a Blue Card.

ZOOM: Click on the “raise your hand” button at the bottom of your screen.

Teleconference: Dial *9 to “raise your hand.” Your name will be called when it is your turn to comment and the host will unmute your line automatically.

For Technical or General Assistance: Please call: 909-396-2311.

En persona: *Regístrese para hablar utilizando una tarjeta azul.*

ZOOM*: Haga clic en el botón "levantar la mano" en la parte inferior de la pantalla.*

Teleconferencia*: Marque *9 para "levantar la mano.“ Su nombre será llamado cuando sea su turno de comentar y el anfitrión activará automáticamente su línea.*

Para asistencia técnica o general: *Por favor llame al: 909-396-2311.*

How to Get More Information

General inquiries about dust and air quality:

Contact meteorology@aqmd.gov

To file a complaint:

Call 1-800-CUT-SMOG or visit www.aqmd.gov/complaints

For real-time and forecasted air quality information including air quality advisories:

Visit www.aqmd.gov or download the South Coast AQMD App at www.aqmd.gov/mobileapp

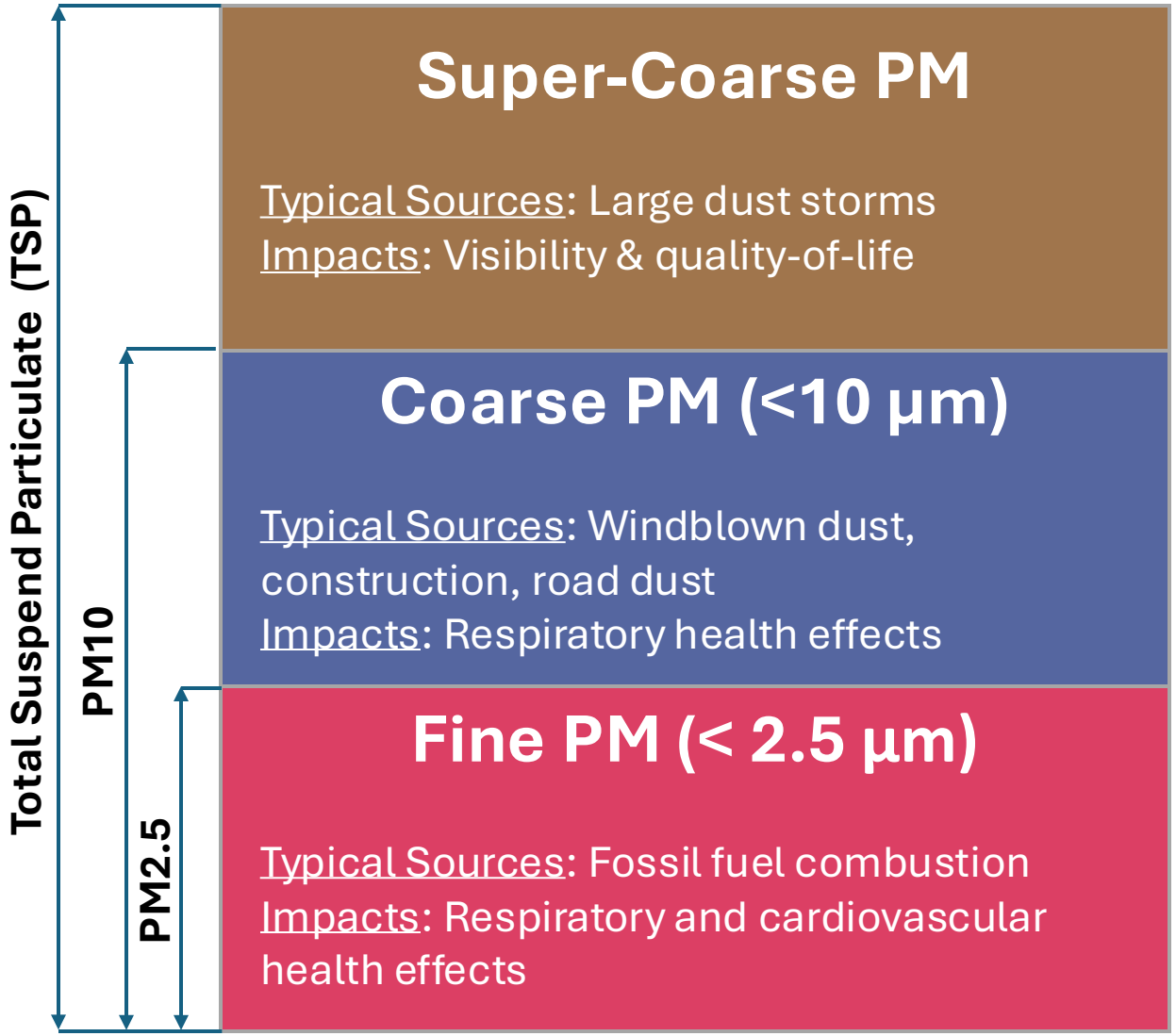
South Coast AQMD

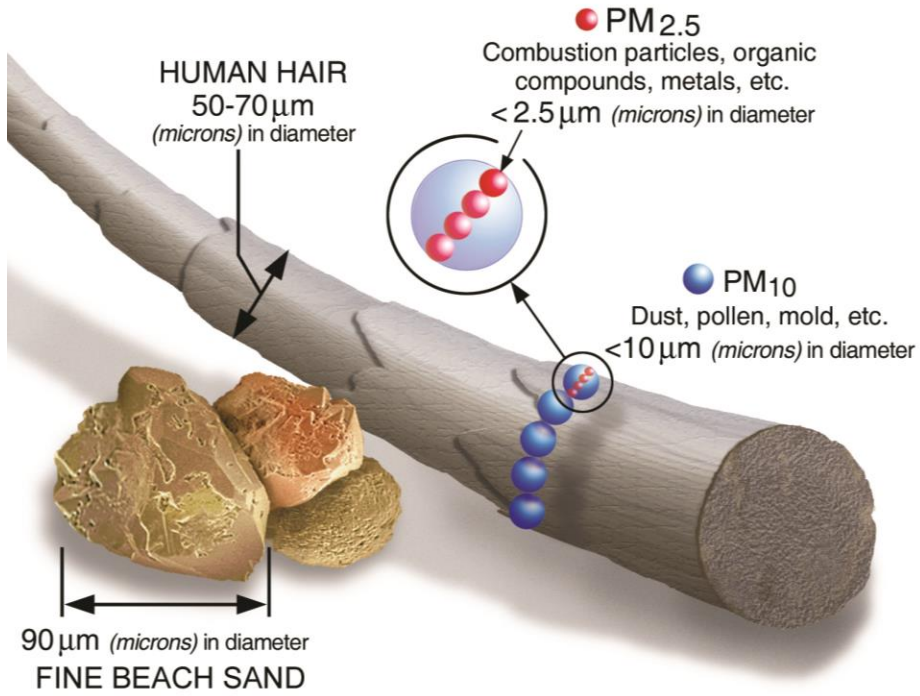
What Does the Air Monitoring Data Show?

Scott A. Epstein, PhD
Planning & Rules Manager
Air Quality Assessment & Air Toxics Hotspots Program

Coachella Valley Dust Summit - Nov. 6 2025

Particle Pollution Definitions





- No health-based standard for TSP as health effects are associated with PM2.5 and PM10

South Coast AQMD Coachella Valley Monitoring Network

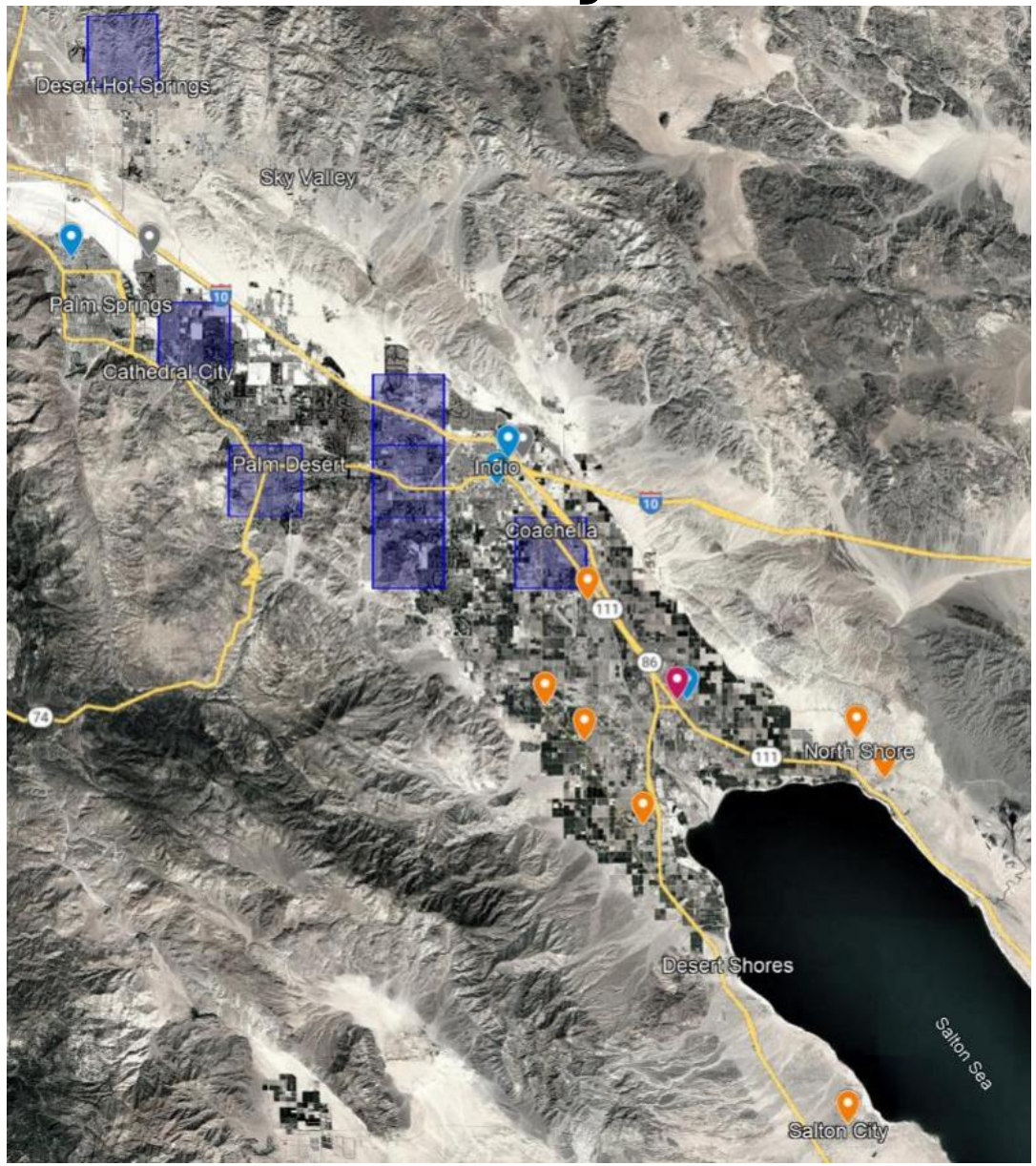
South Coast AQMD Stations: Multiple pollutants including PM10 and PM2.5 (3 sites)

South Coast AQMD Temporary Monitors: PM10 and TSP (2 sites)

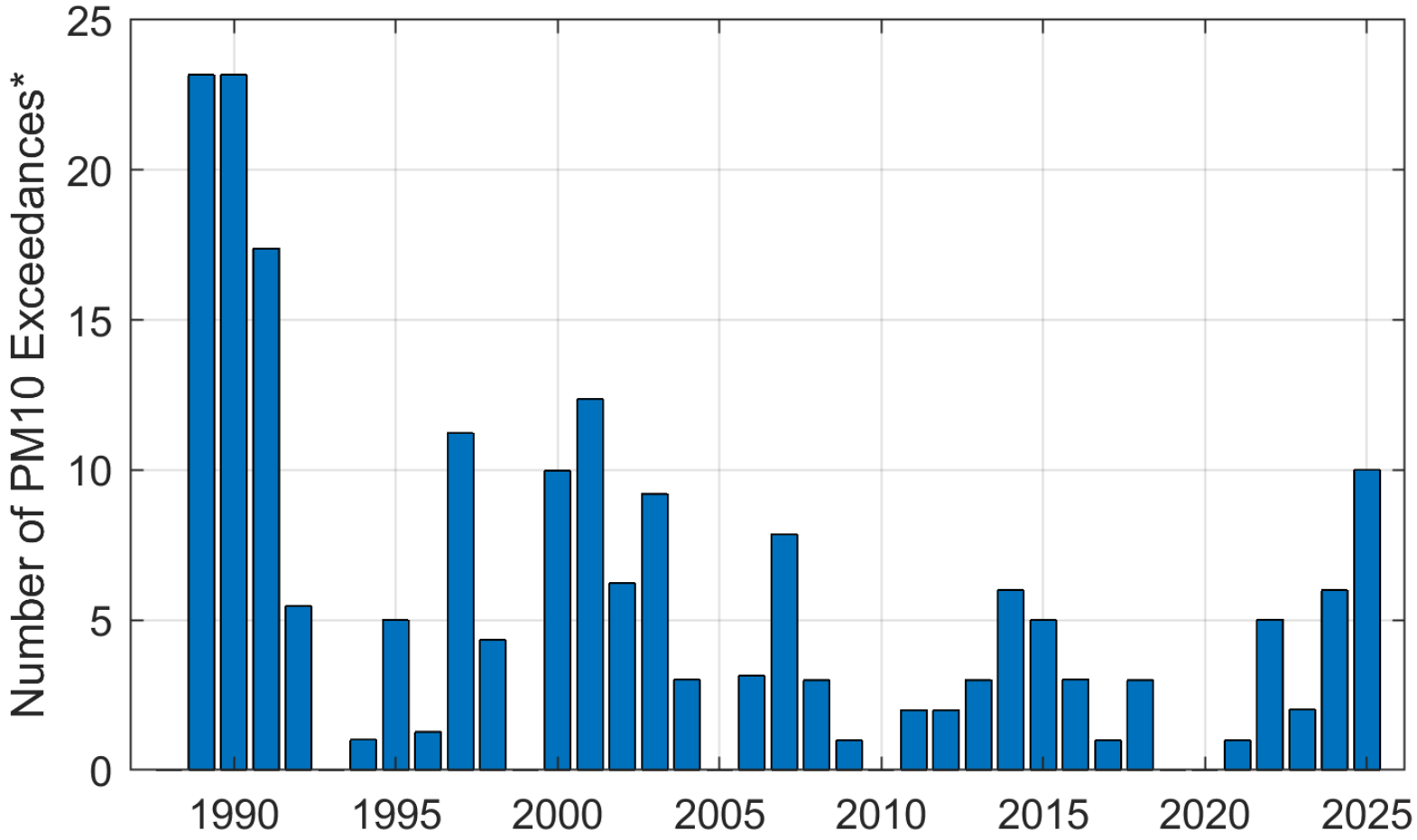
South Coast AQMD Sensor Network: PM2.5 (7 sensors)

South Coast AQMD Particle Speciation Network: TSP and PM10 speciation (1 sites)

South Coast AQMD Proposed QuantAQ Sensor Network: PM10 and PM2.5 (7 sites)

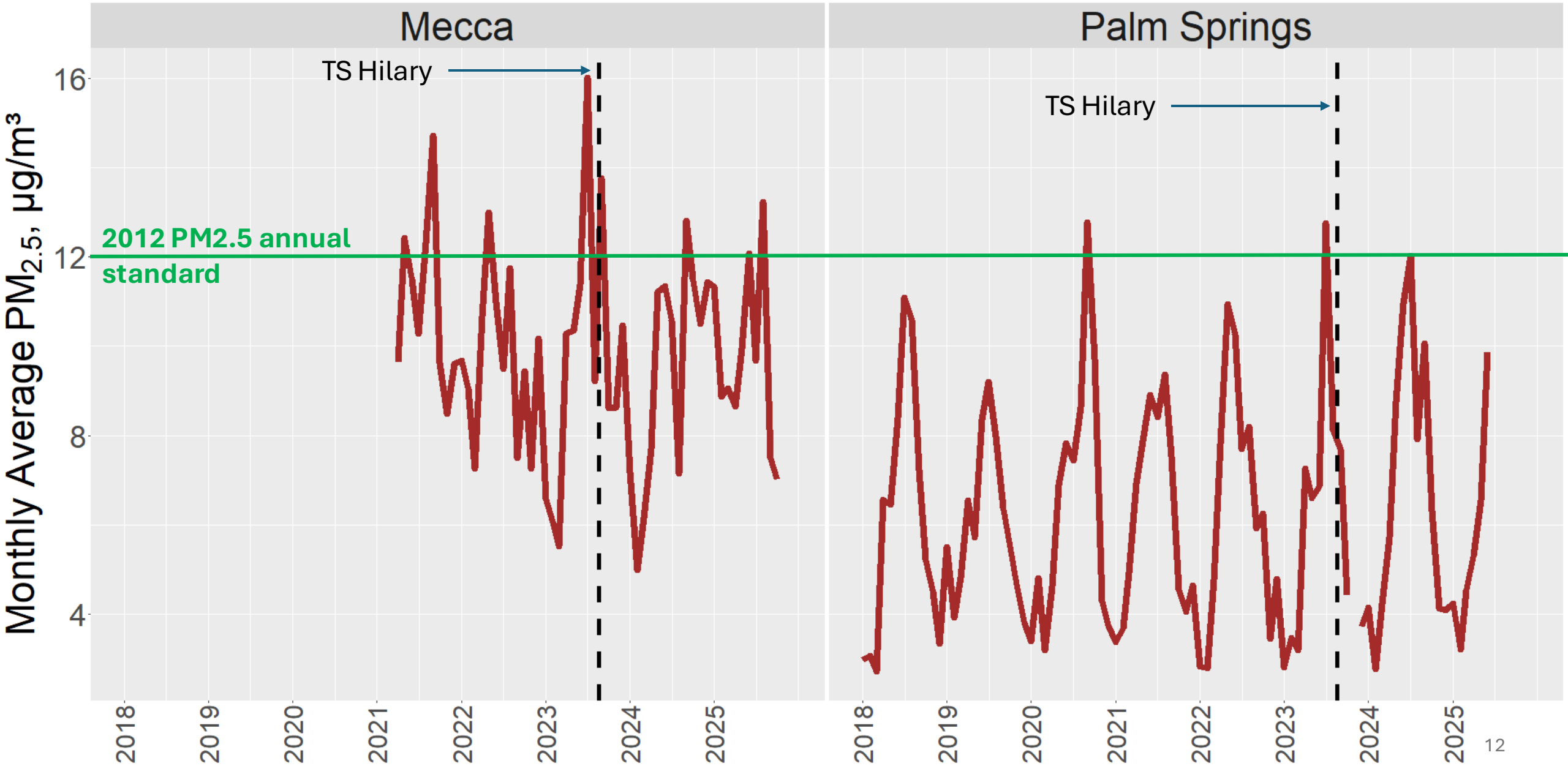


Coachella Valley Historically Experiences Windblown Dust Impacts

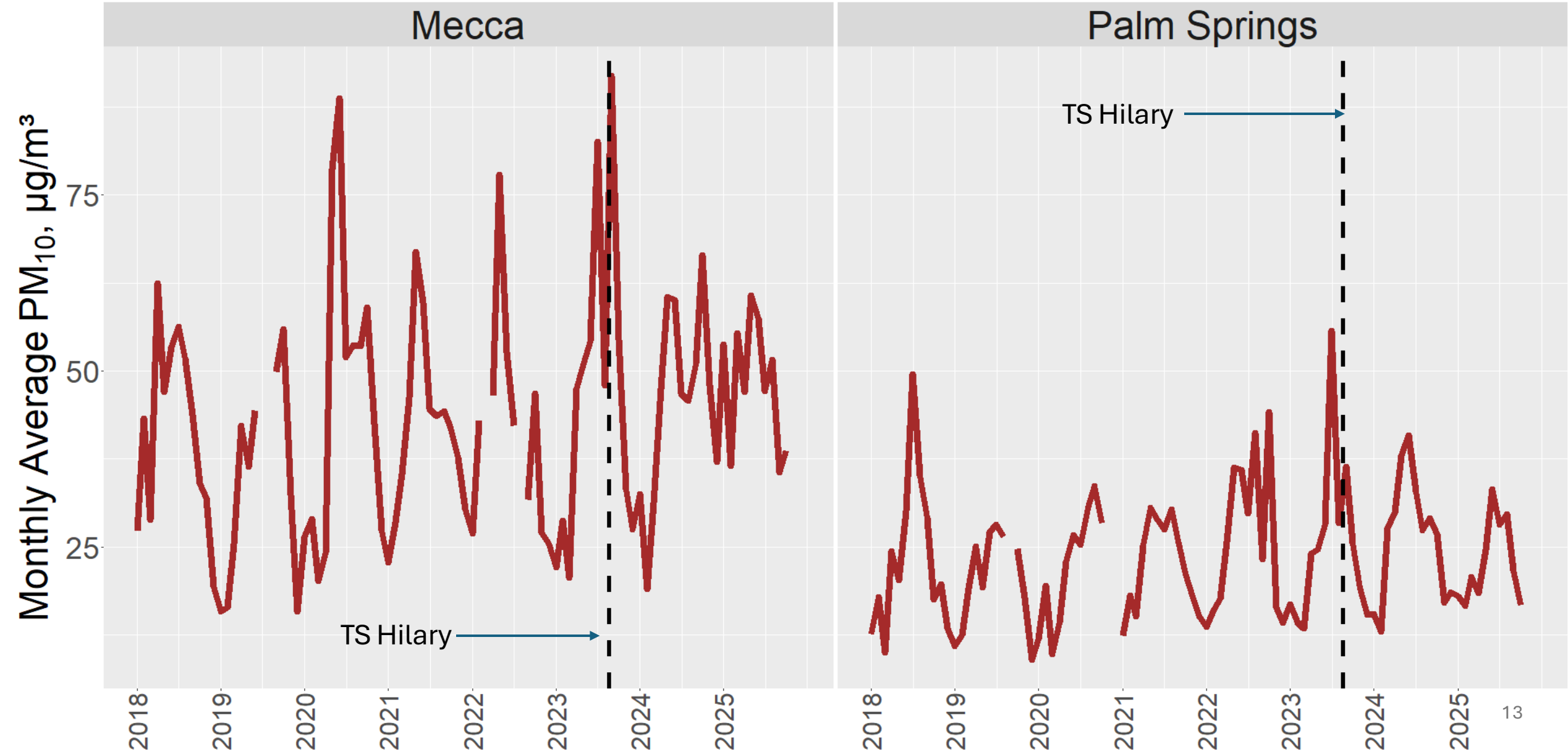


* PM10 exceedance days using monitors in Indio and Palm Springs. Daily measurements were not conducted pre-2008, therefore, exceedance counts were scaled by the number of days in the year over the number of measurement days. Data current as of October 20th 2025.

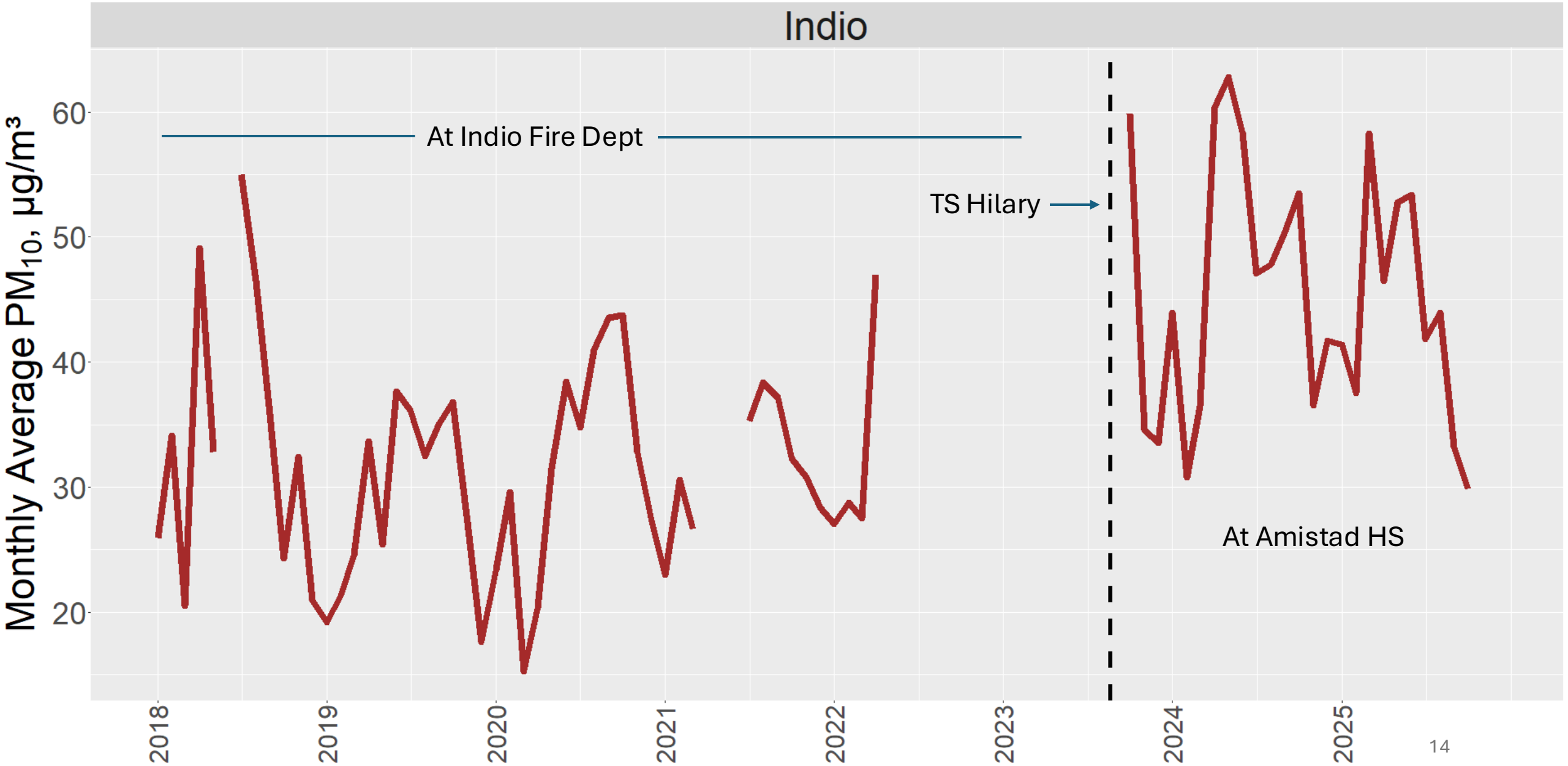
PM2.5 Levels Remain Low in the Coachella Valley



PM10 Levels Depend on Season but Do Not Show A Clear Trend Since 2018 or After TS Hilary

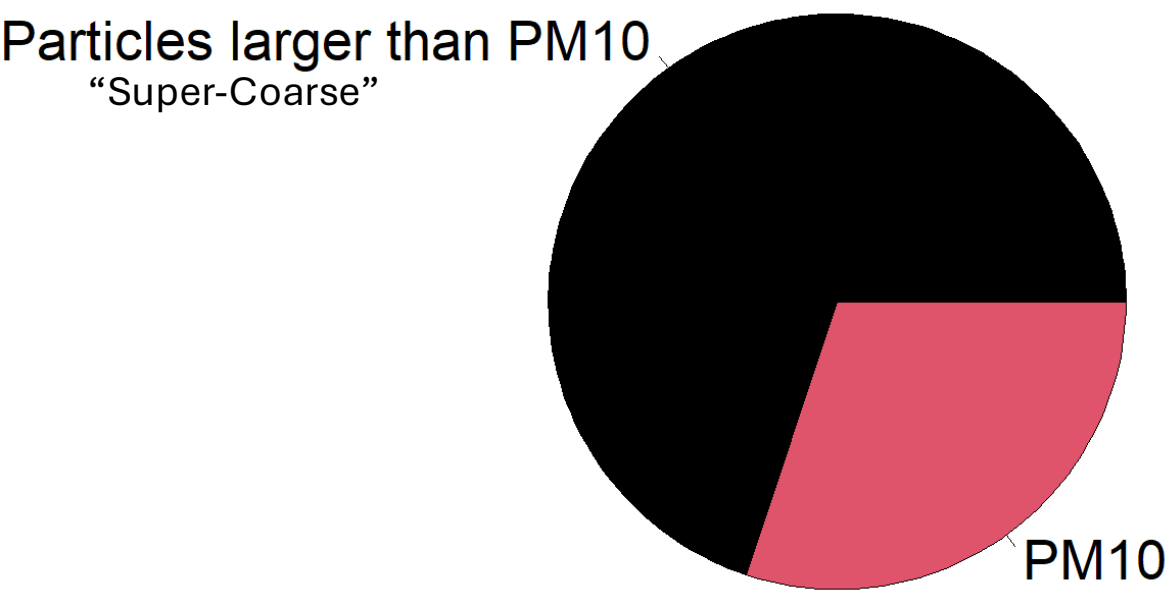


PM10 Levels at New Indio Monitor are Slightly Higher

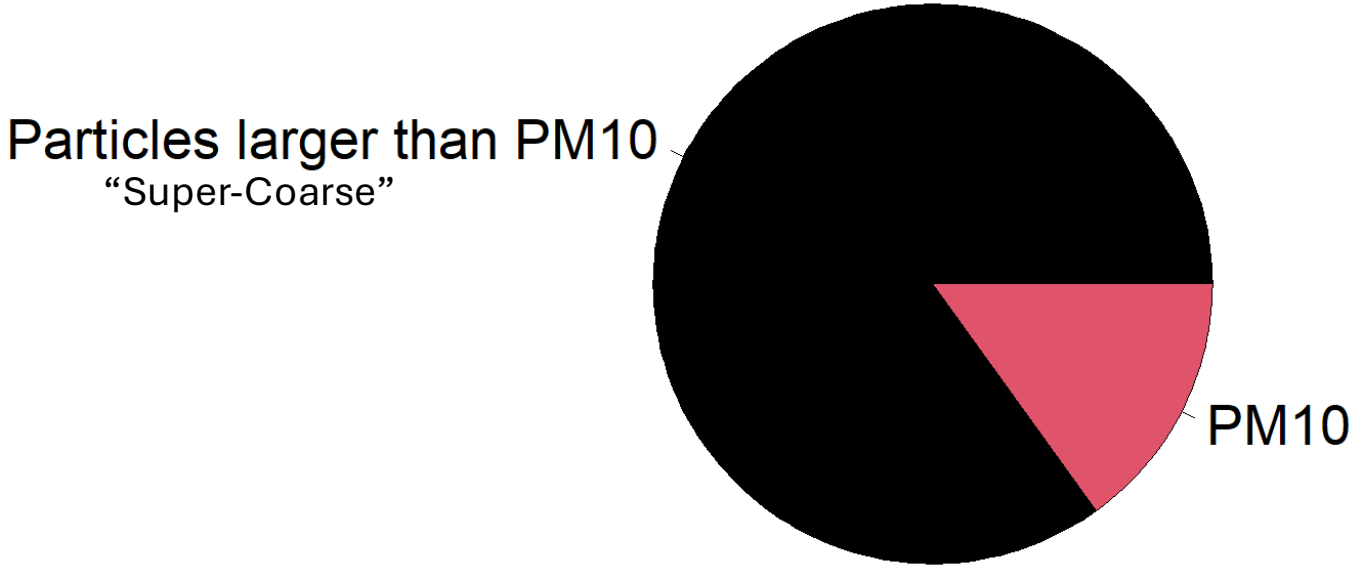


Most Dust During Wind Events is Larger than PM10

Average of All Data Collected



Average During <u>High PM10</u> Events*



Measurements conducted at Indio from 6/13/24 to 10/16/25

* All hours where PM10 > 155 µg/m^3

Conclusions

- At Palm Springs and Mecca monitors, increased dust levels reported in Coachella Valley since Hilary are likely driven by particles larger than PM10, which are not generally associated with health effects
- As in past years, elevated PM10 levels are common in the Coachella Valley, especially during the spring and summer months.
- Ongoing efforts to understand and mitigate PM10 sources in the Coachella Valley are needed through a multi-agency approach

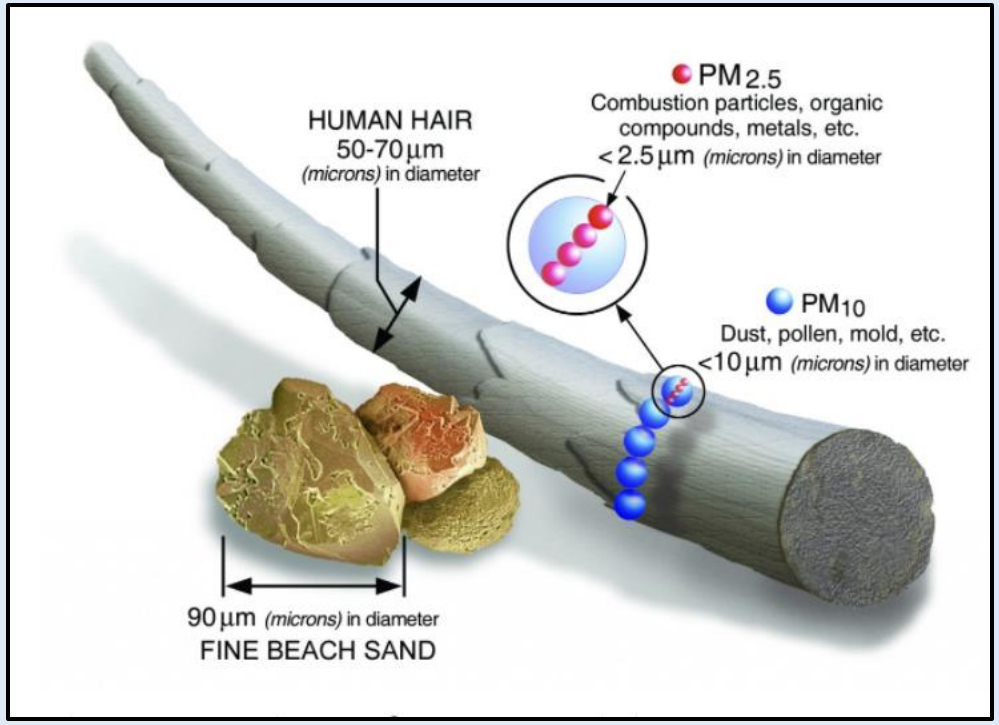
South Coast AQMD

Health Impacts of PM10 and TSP Exposures

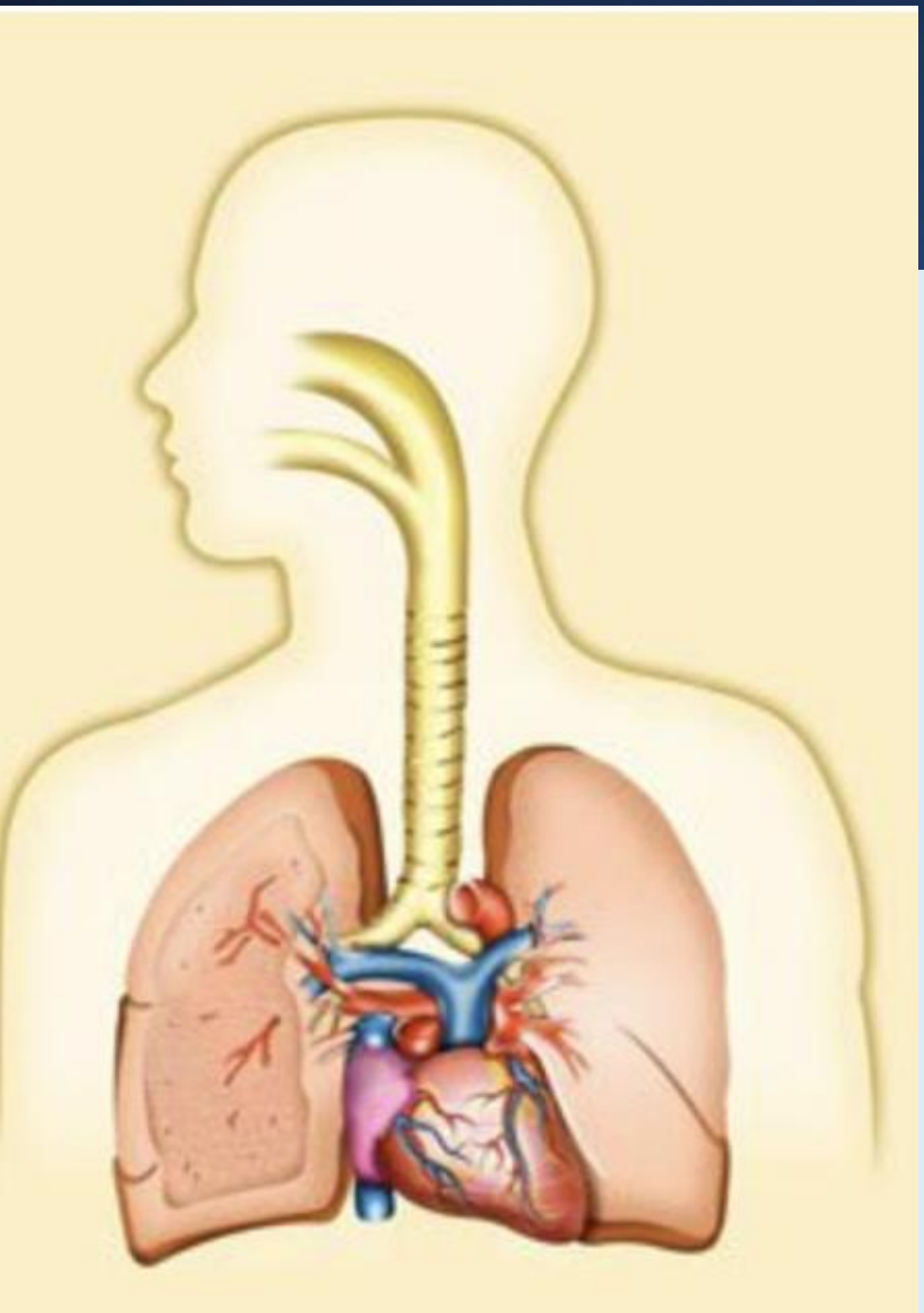
Nichole Quick, M.D., MPH
Health Effects Consultant

Health Effects of PM 10

- Increased respiratory symptoms, such as irritation of the airways, coughing or difficulty breathing
- Worsening of respiratory diseases, asthma, chronic obstructive pulmonary disease (COPD)
- May be linked to premature death, increased hospital admissions, emergency department visits for heart and lung disease



https://www.epa.gov/pm-pollution/particulate-matter-pm-basics



TSP and Large Particles

- Larger particles deposit in the nose, mouth, throat but are not inhaled into the respiratory system
- Not associated with systemic health effects; there are no health standards for TSP
- Can cause nasal and throat irritation

https://www.epa.gov/pmcourse/particle-pollution-exposure#symptoms

Other Potential Health Impacts

- Allergens
  - Irritation to eyes and airways
  - Can trigger allergic reactions including hay fever, allergic rhinitis
  - Can trigger asthma

- Odors:
  - Exposure to odors can cause physical symptoms
  - Hydrogen Sulfide can contribute to odors

https://chat.openai.com/

Other Potential Health Impacts

- Valley fever: coccidioidomycosis
- Fungus grows in soil and dirt
- People and animals can get sick when they breathe in dust that contains the Valley fever fungus

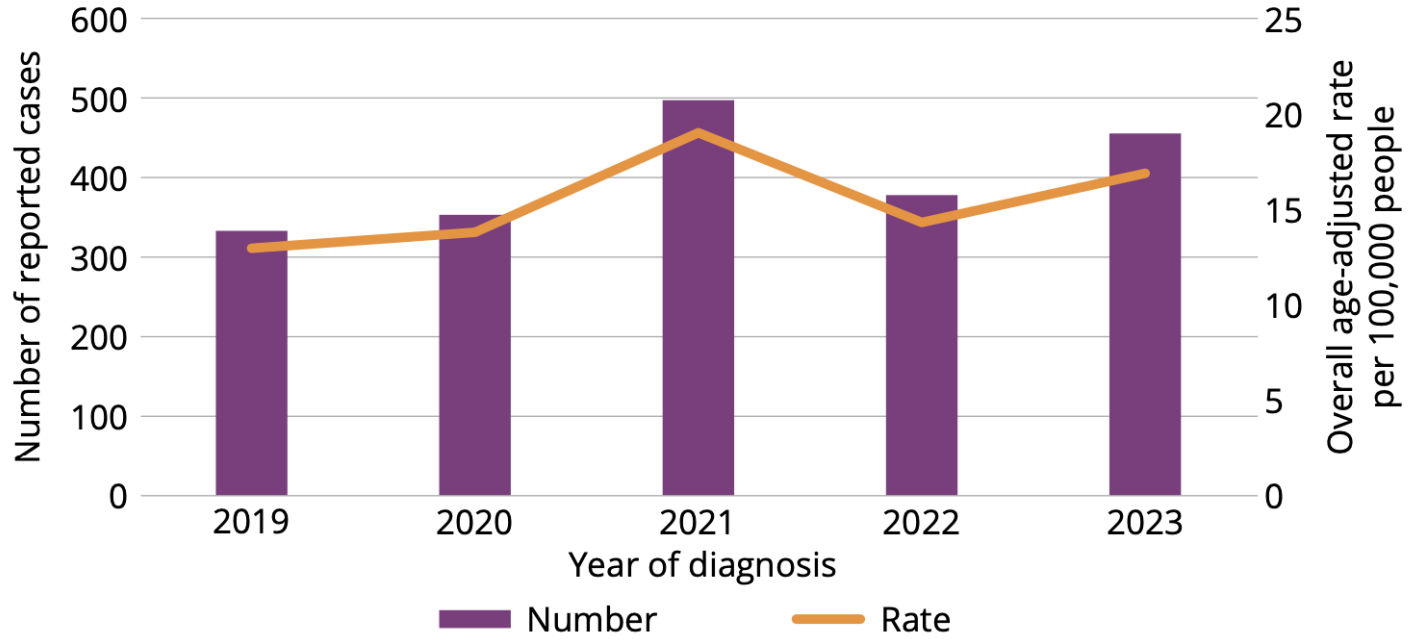


Figure 1. Number of reported Valley fever cases and overall rate per 100,000 people by year of diagnosis in Riverside County, 2019-2023

https://www.ruhealth.org/sites/default/files/PH/epidemiology/reports/

Air Quality Related Respiratory Illness Trends in the Coachella Valley

Coachella Valley Dust Summit

UC Riverside Palm Desert Center
November 6, 2025

Public Health Data

Air Quality Related Respiratory Illness Syndromic Surveillance

- Purpose: To track emergency department and clinic visits for respiratory illnesses associated with poor air quality.
- Includes: acute bronchitis, emphysema, chronic obstructive airway disease, chronic obstructive lung disease, chronic obstructive pulmonary disease, asthma, bronchial asthma, reactive airway disease, acute respiratory distress syndrome, difficulty breathing, chest tightness, dyspnea, shortness of breath and wheezing.
- Excludes: Fever

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- Excludes: Fever

Emergency Department Visits

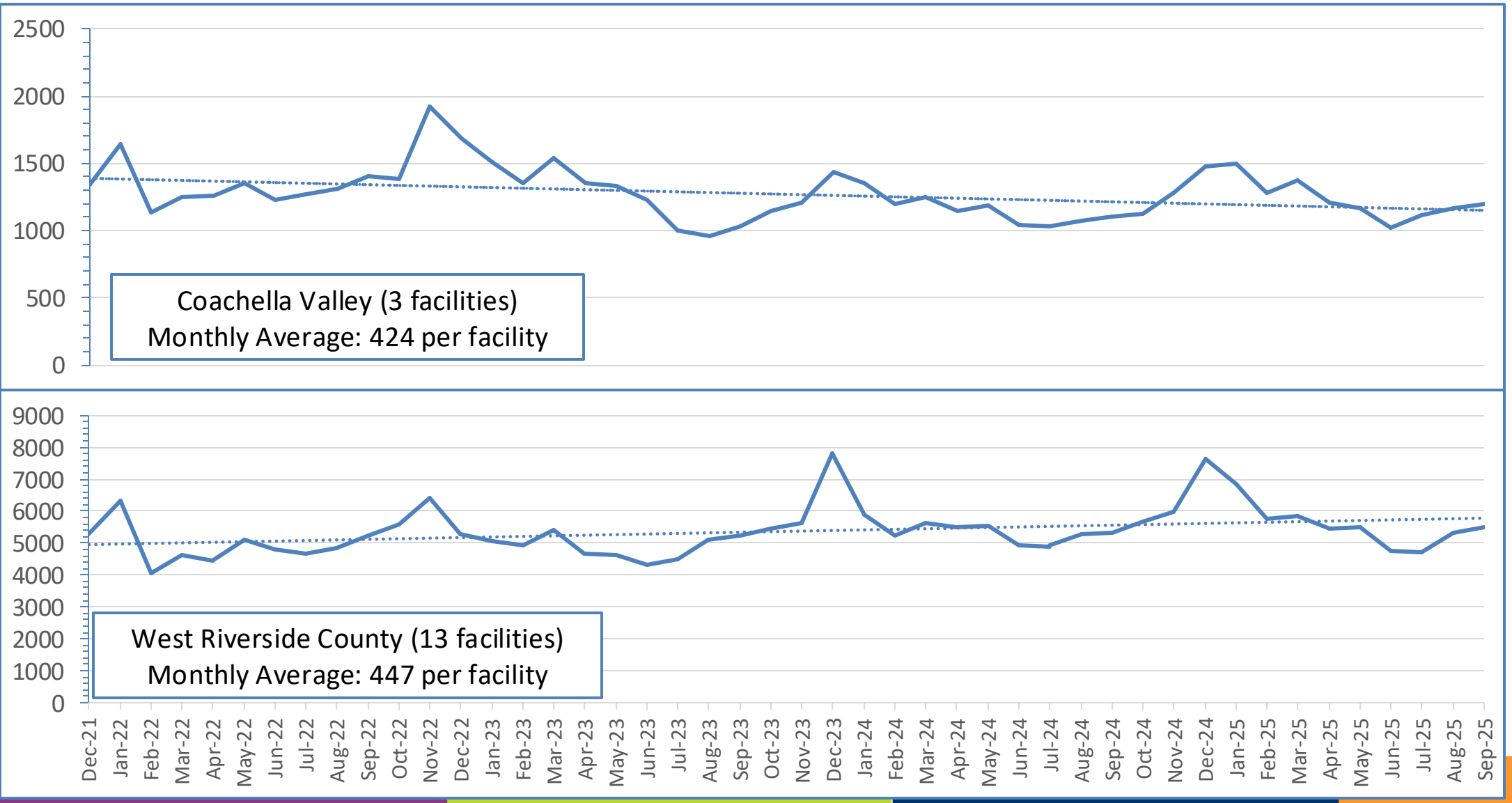
- RUHS-PH receives ED visit data from 16 out of 17 hospitals across the county - three in Coachella Valley.

Non-Emergency Public Health Clinic Visits

- RUHS-PH has 13 clinic sites across the county - two in Coachella Valley.

Air quality-related emergency visits
Coachella Valley vs. West Riverside County

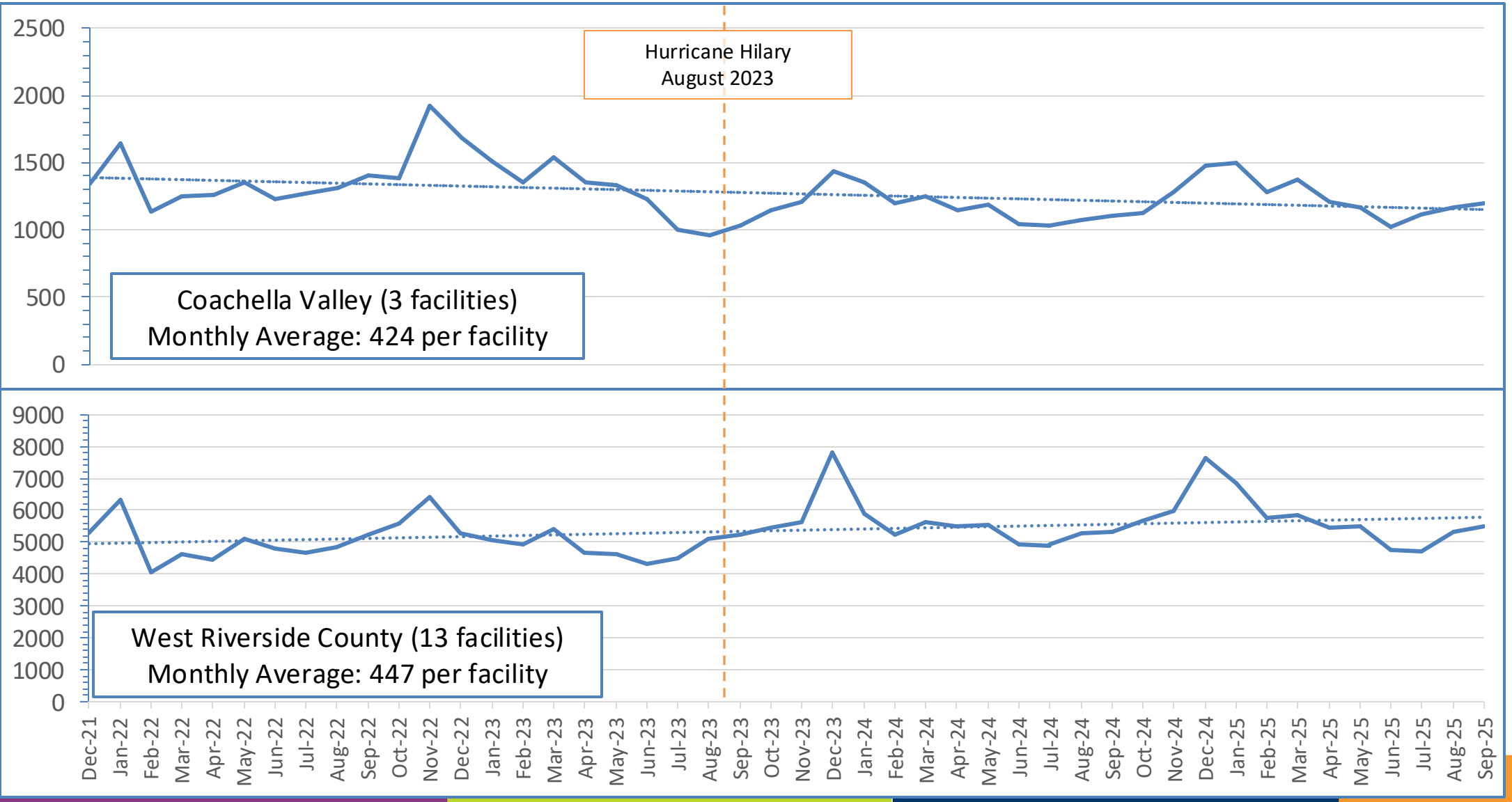
Riverside University HEALTH SYSTEM Public Health



- ED Records with air-quality related respiratory symptoms
- Data from NSSP-ESSENCE
- Data is recent but provisional

Air quality-related emergency visits
Coachella Valley vs. West Riverside County

Riverside University HEALTH SYSTEM Public Health



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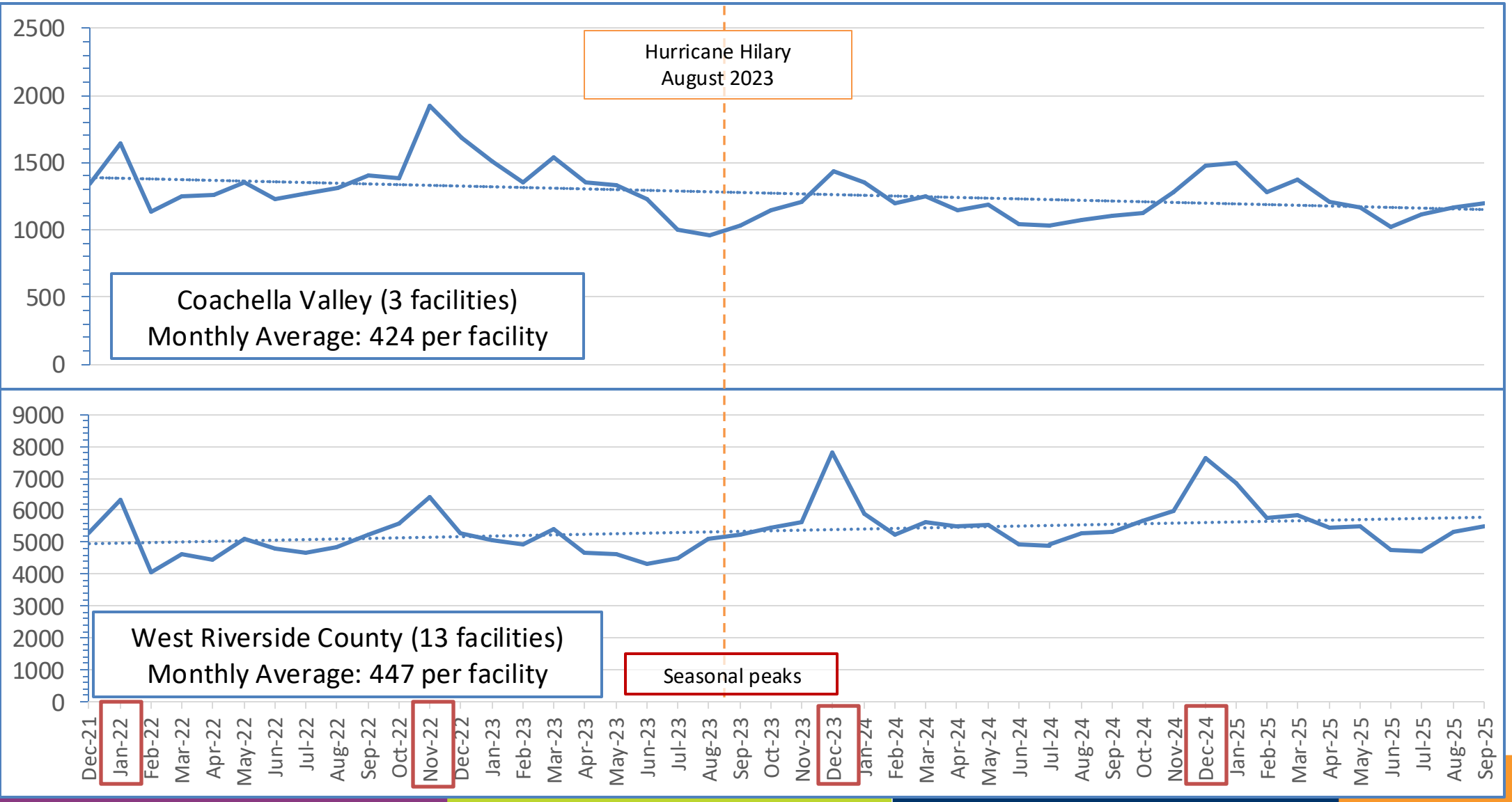

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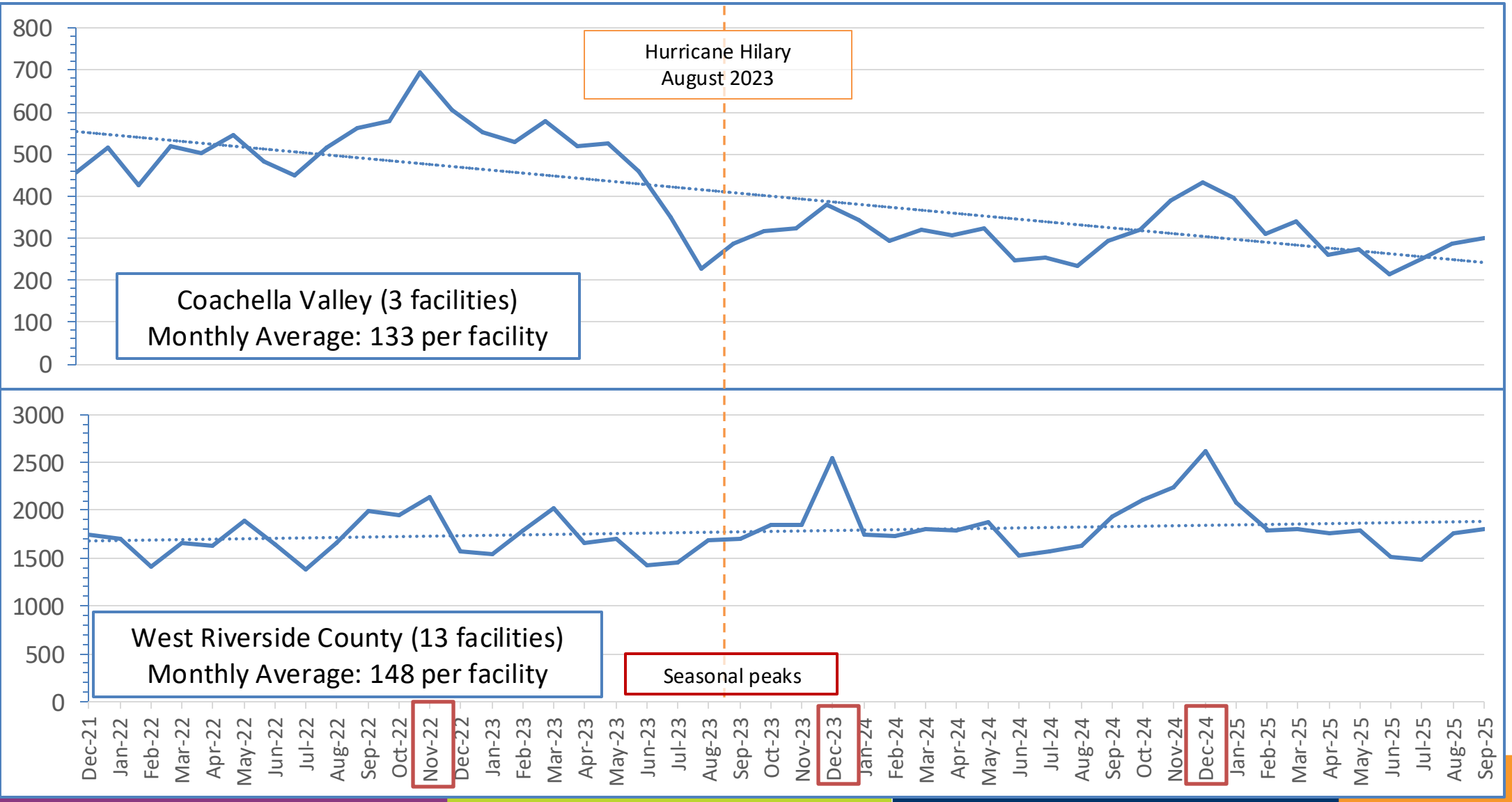
- Data from NSSP-ESSENCE
- Data is recent but provisional

Asthma-related emergency visits
Coachella Valley vs. West Riverside County

Riverside University HEALTH SYSTEM Public Health

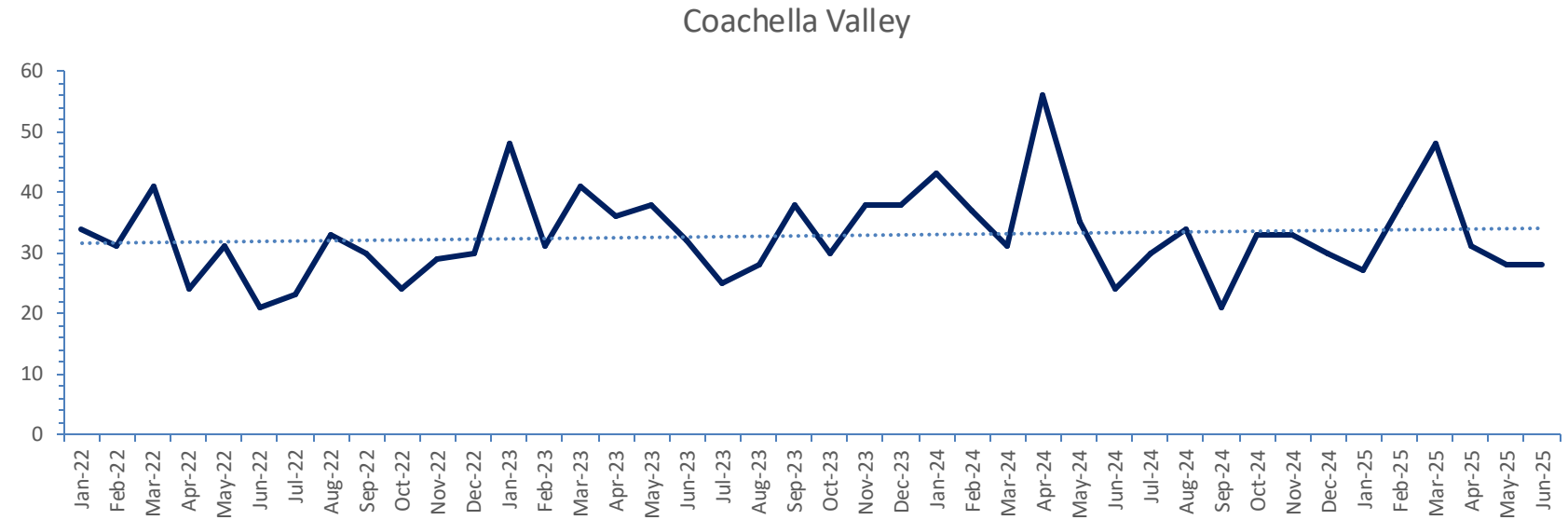


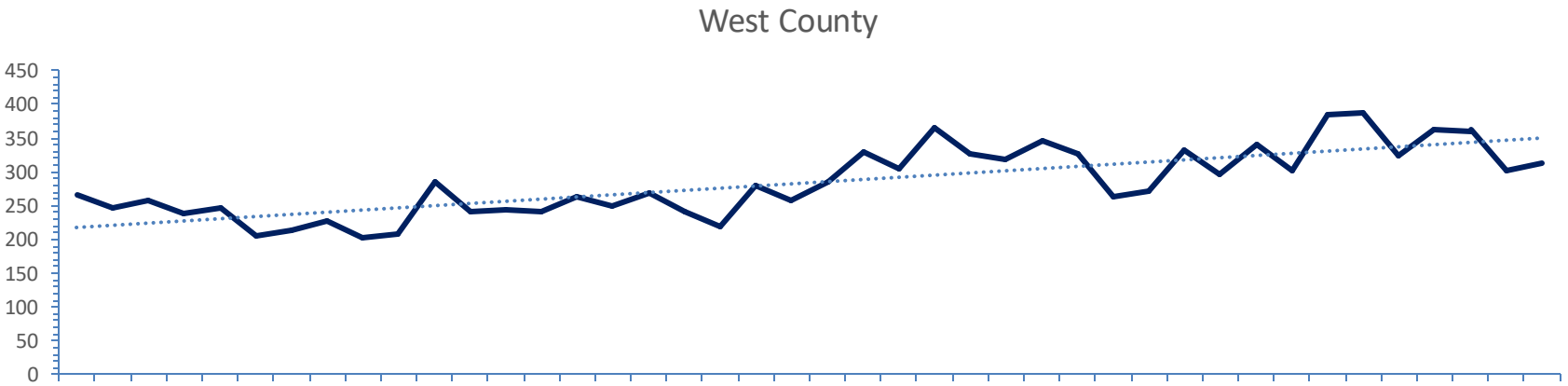
- ED Records with asthma-related respiratory symptoms
- Data from NSSP-ESSENCE
- Data is recent but provisional

Clinic Visits

Air Quality Related Respiratory Illness: 2022-June 2025

Riverside University HEALTH SYSTEM Public Health





- Coachella Valley trend is flatter
- Average 33 visits/month

- West County trend line slightly increasing
- Average 284 visits/month

Key Findings

- Current data does not show a sustained increase in ED or Clinic visits over time in Coachella Valley.

- Increases in ED Visits in Nov-Jan are likely influenced by seasonal viruses (Flu/COVID).

Future Directions

- **Refine methods**
- Explore trackable conditions (allergies, etc.), patient age, zip code

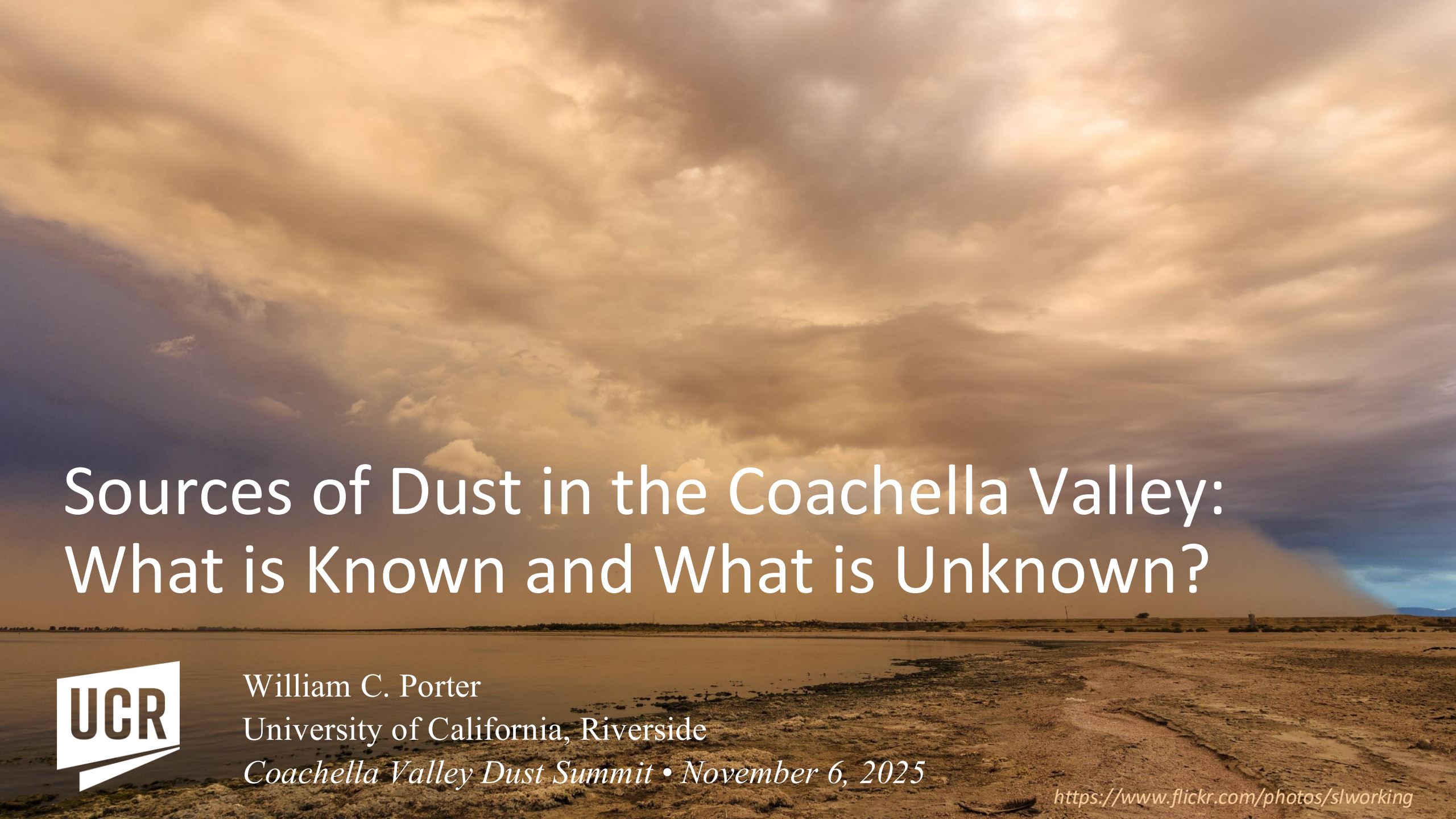
- **Identify new data sources**
- Pharmacy, surveys, internet searches, etc.

- **Develop new partnerships**
- Schools, mobile clinics, private providers

- **Connect health and environment data**
- Link wind events and air quality levels to visits

Thank You!

Aviva Goldmann, PhD
a.goldmann@ruhealth.org



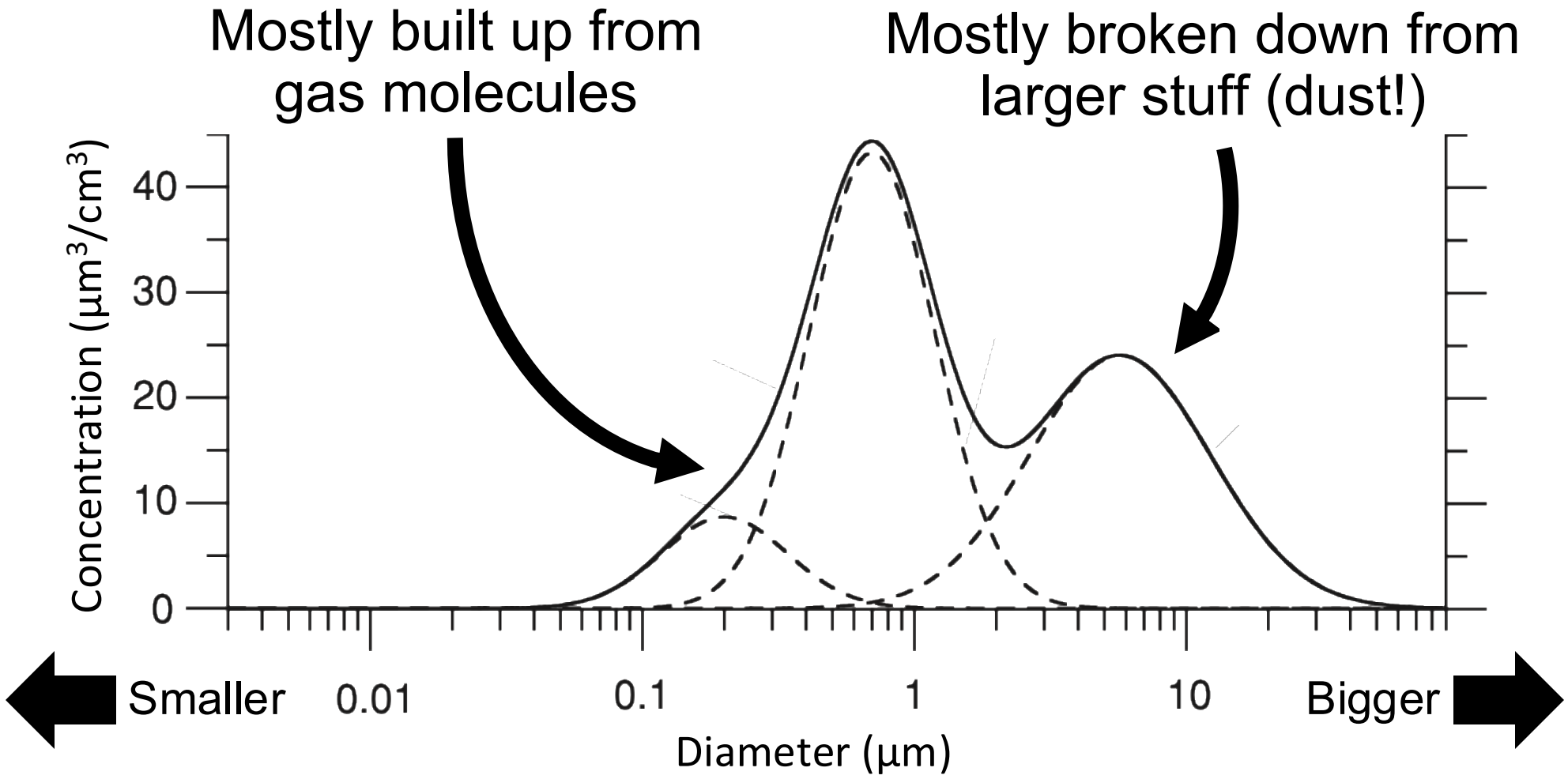
Sources of Dust in the Coachella Valley: What is Known and What is Unknown?

William C. Porter
University of California, Riverside

Coachella Valley Dust Summit • November 6, 2025

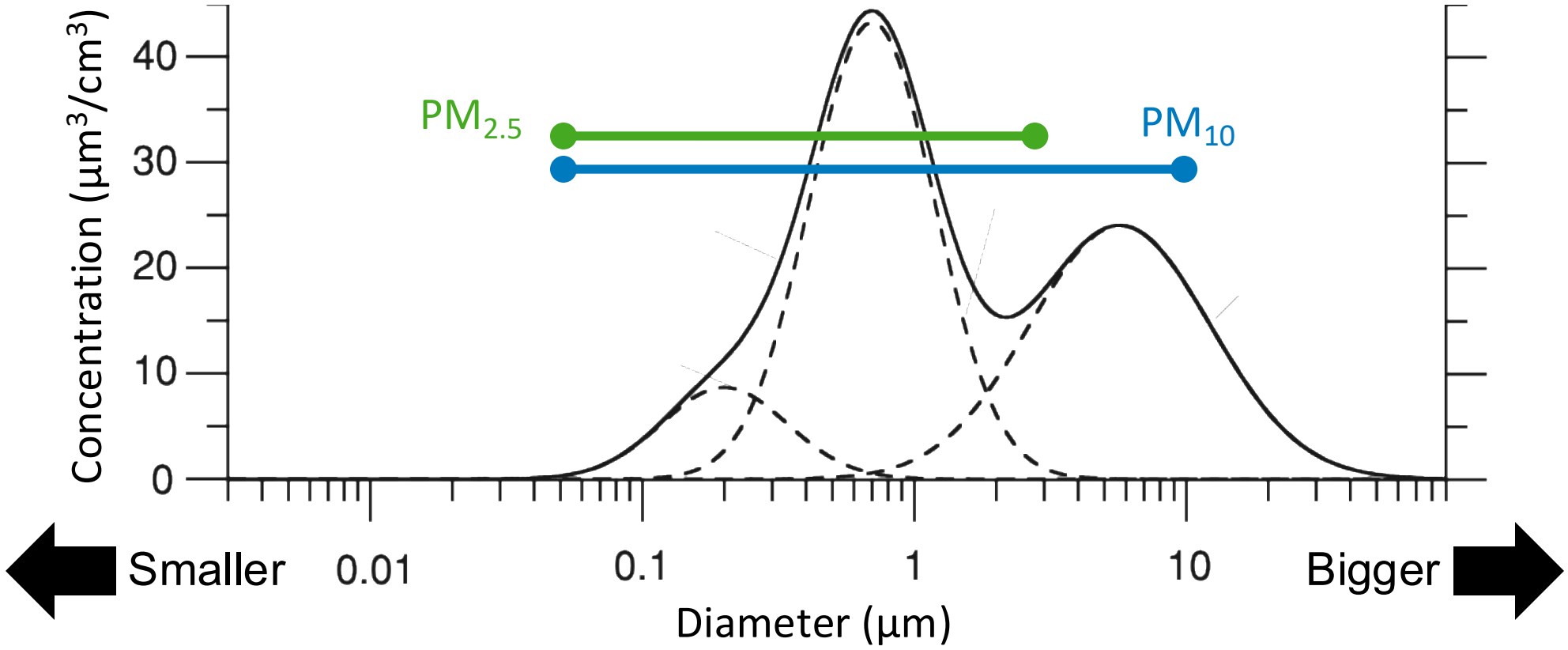
https://www.flickr.com/photos/slworking

Particles in the atmosphere tend to show up in **size groups** based on where they come from



NARSTO 2004

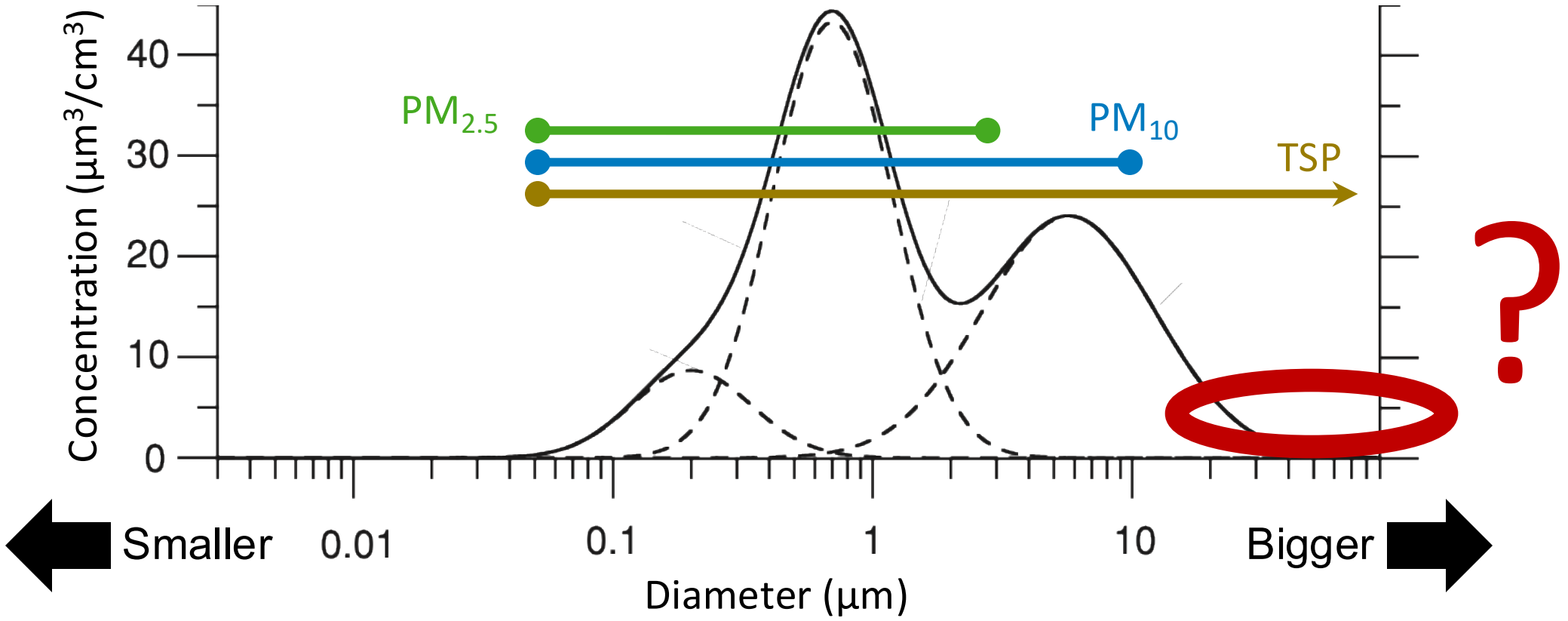
Size categories like $PM_{2.5}$ and PM_{10} help us to distinguish between these sizes and sources



NARSTO 2004

Total Suspended Particulates (TSP) includes *all* measurable sizes, but this is not usually a very useful distinction

- PM_{10} and TSP *both* tend to increase during dust storms.
- PM_{10} is a more closely connected to health impacts.



NARSTO 2004

Once in the air, particles will tend to **settle back to the ground** based mostly on their size

Particle Size	1 μm	10 μm	100 μm
Time to Settle	days	hours	minutes

Rain or snow can make this much faster, quickly clearing out particles below

Windblown dust emissions depend primarily on **wind speed and surface conditions**

Factors that can **increase** dust emissions:

- **High wind speeds:** Strong winds are necessary to free particles from their surfaces, and to keep them moving.
- **Long stretches of bare, unvegetated surfaces:** Flat, uninterrupted terrain allows wind speeds to stay fast close to the ground where particles rest.
- **Disturbed soils:** Broken up, crumbly surfaces can be more emissive than crusts. Activity on dusty surfaces can also launch dust into the air without needing strong winds at all.
- **Dry conditions:** Wet or damp soils do not tend to emit dust.

Because of the dependence on surfaces, events that *change* those surfaces can also **increase or decrease dust**

Flooding

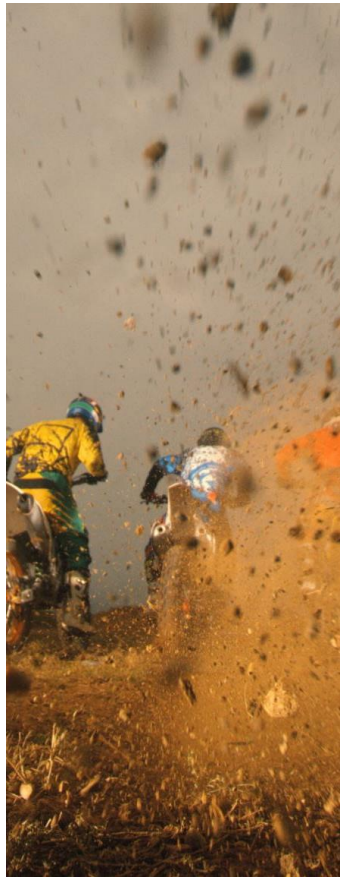
Drought

Development

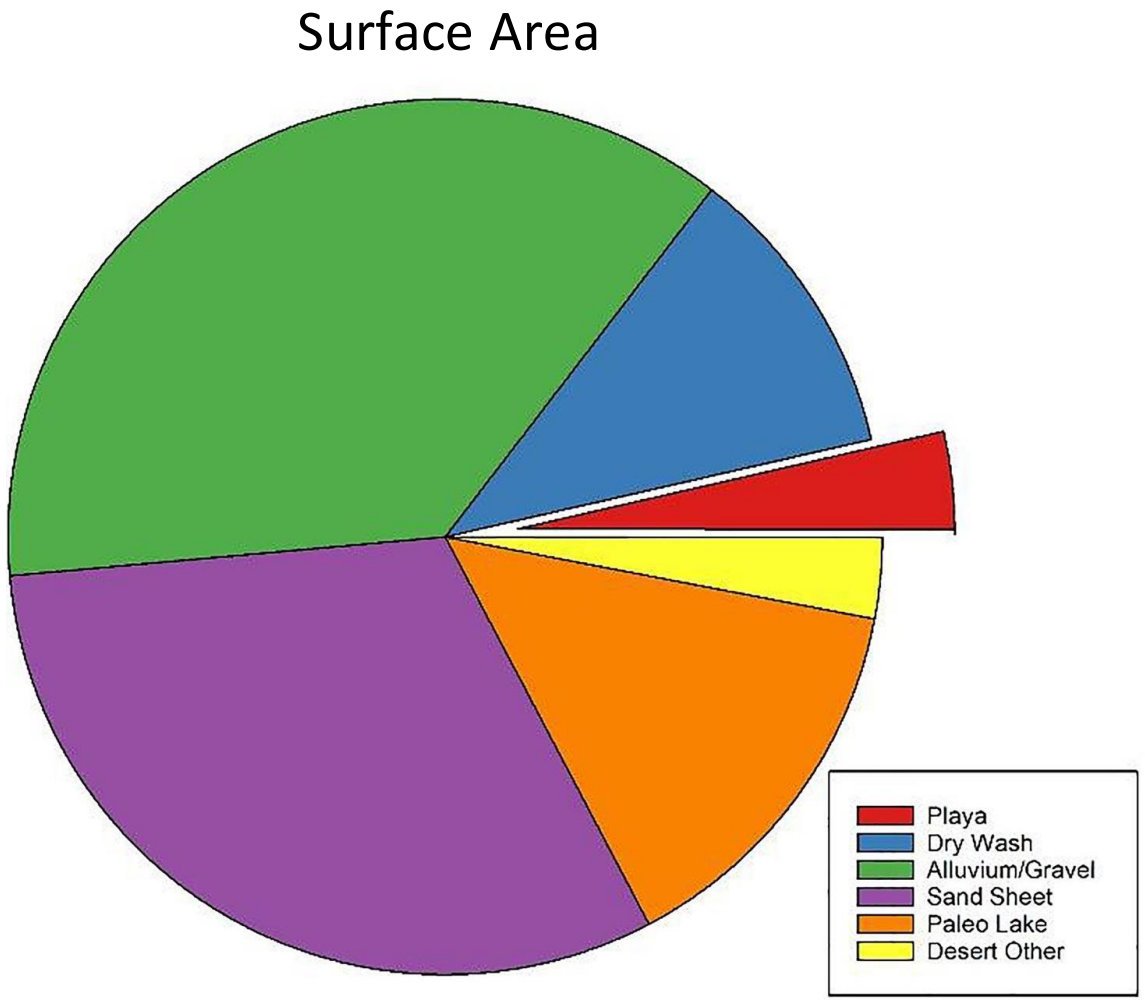
Fire

Fallowing

Recreation



Recent work indicates that most windblown dust around the Salton Sea originates from **surrounding desert surfaces**



Dickey et al., 2023

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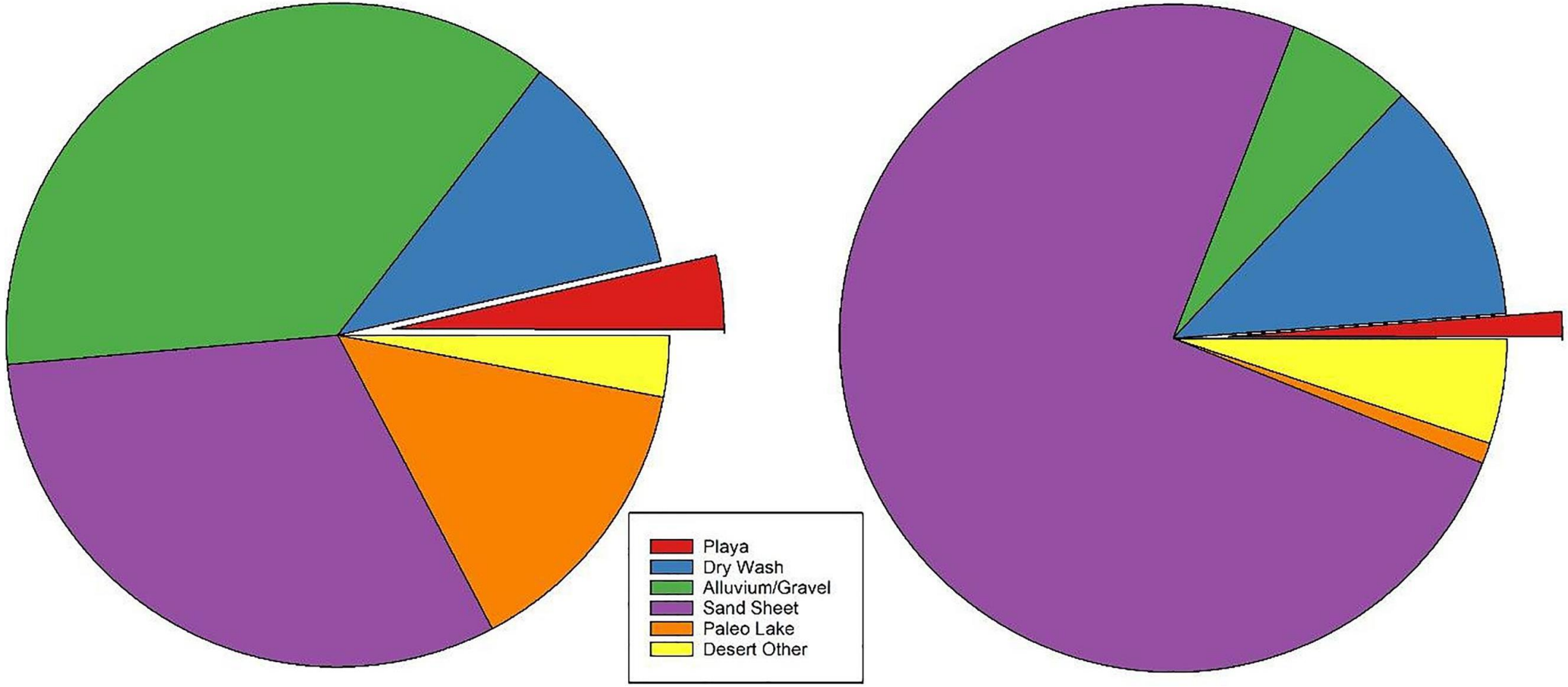
Surface Area

Emissions



Dickey et al., 2023

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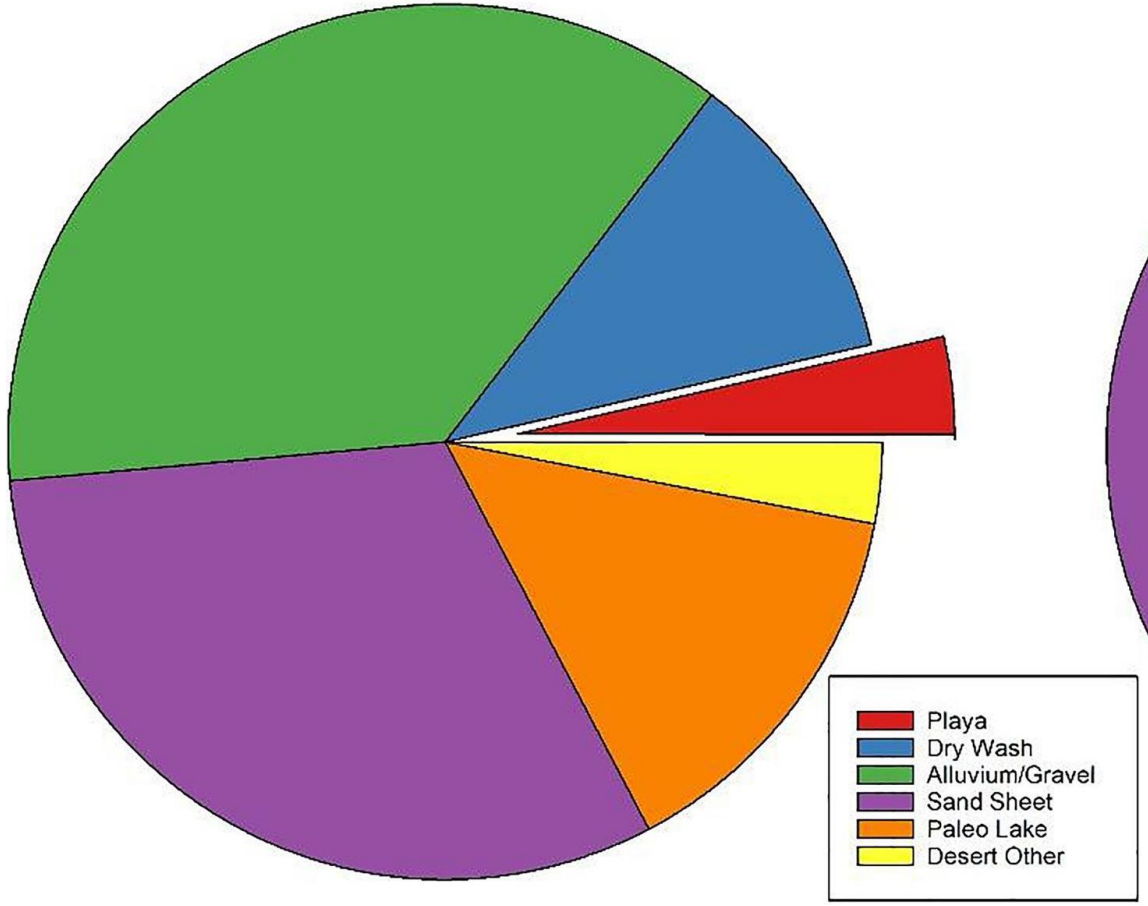
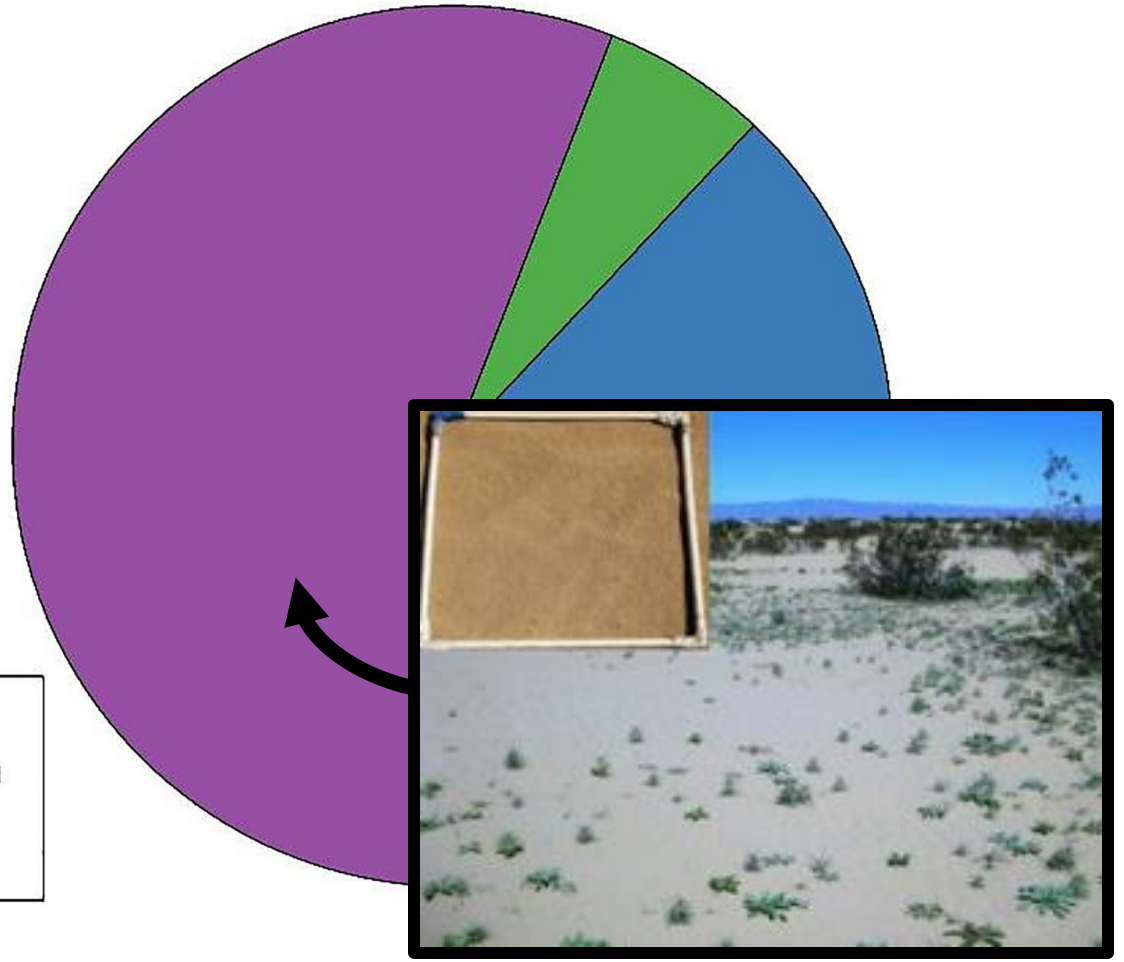


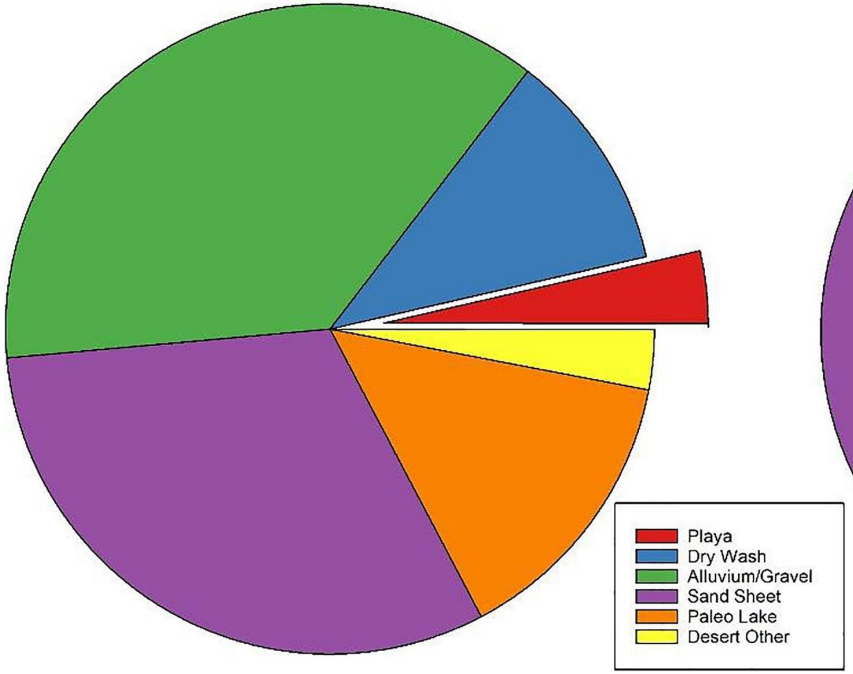
Emissions



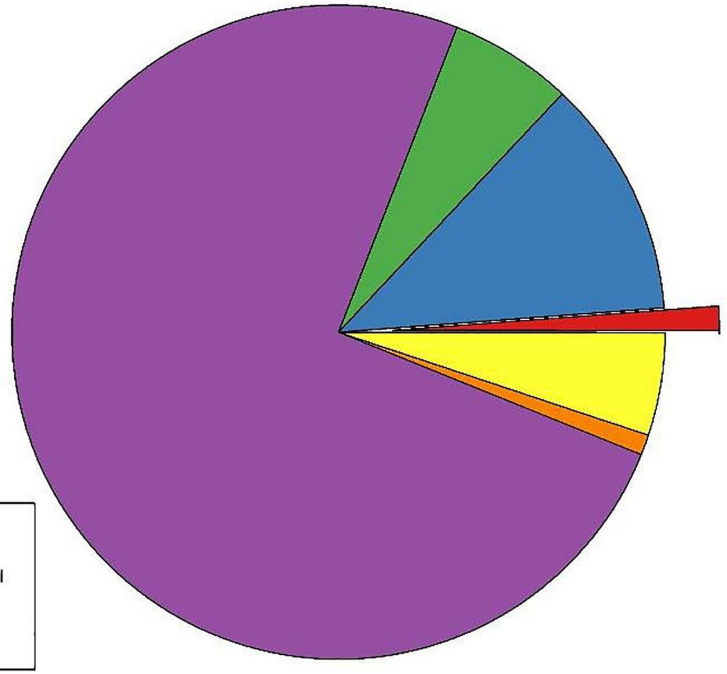
Dickey et al., 2023

Many questions remain related to **how and where** to most efficiently control dust emissions, and how different sources affect **human health**

Surface Area



Emissions



Controllable Surfaces and Health Impacts

New project exploring not only **what is in the dust** around the Salton Sea, but also how it may be **affecting health**

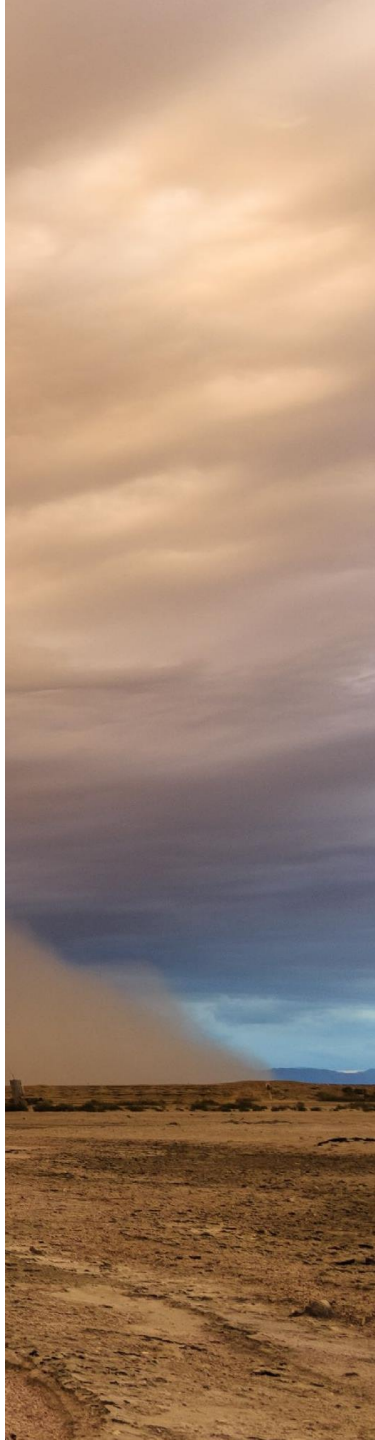
Primary Goals:

- Determine what chemicals are in the dust blowing off the playa
- Identify where people are exposed to the most dust
- Evaluate the potential health effects from breathing in this dust
- Predict how dust and the health impacts may change in the future

Collaboration between UC Dust researchers led by Dr. Amato Evan (UCSD), Los Amigos de la Comunidad, and CARB

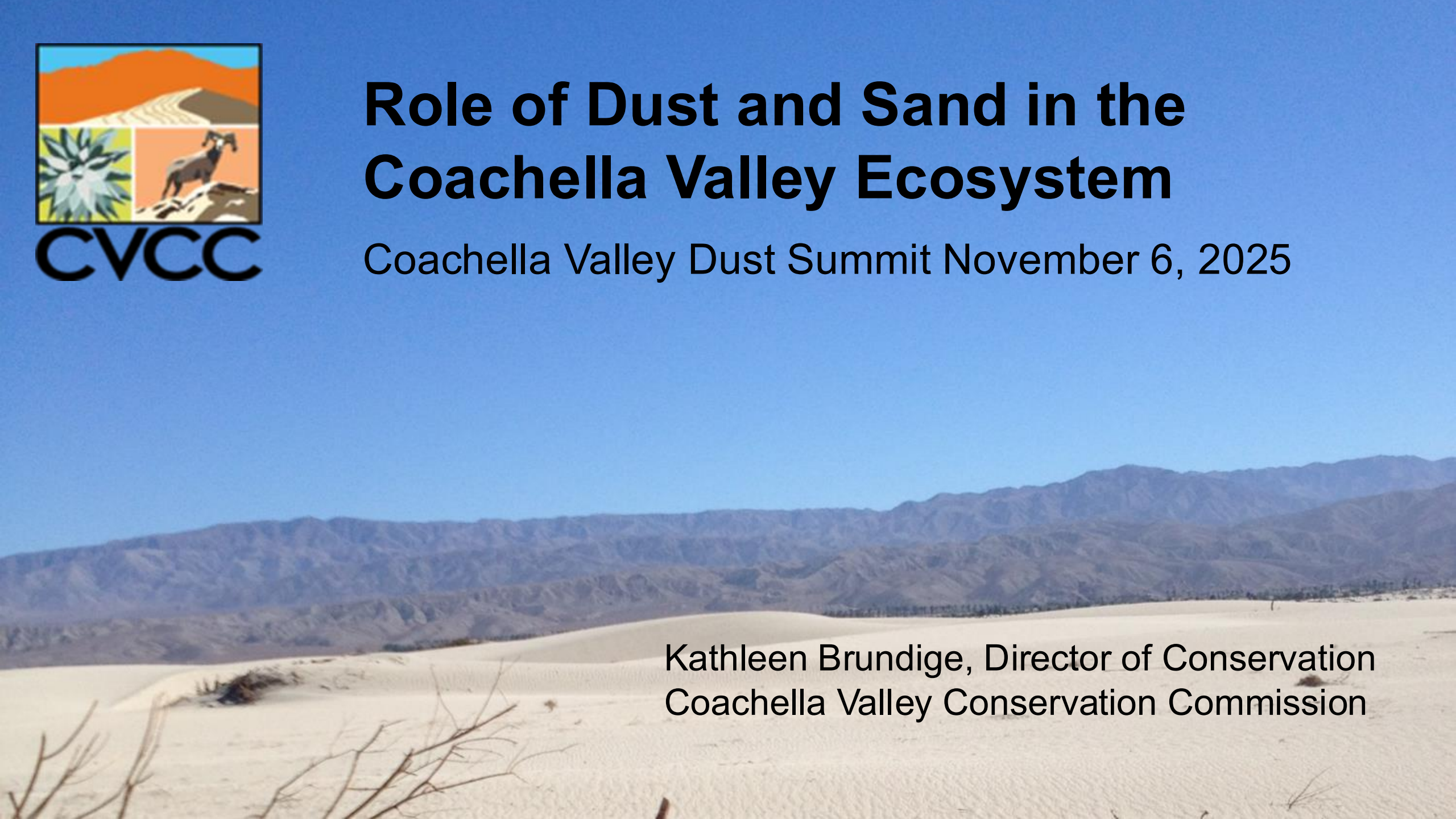
Key Points

- **Wind-blown dust is an important source of PM_{10},** a size range that includes many of the larger particles that are emitted during dust events, while still being small enough to stay suspended in the air
- **Any event that changes land surface conditions** (whether natural or human-caused) can change the amount of dust emitted on windy days
- **Most dust emitted around the Coachella Valley** likely comes from large, flat, mostly unvegetated desert surfaces
- Big questions remain related to **where and how to best control dust,** as well as on **source-specific dust properties and health impacts**

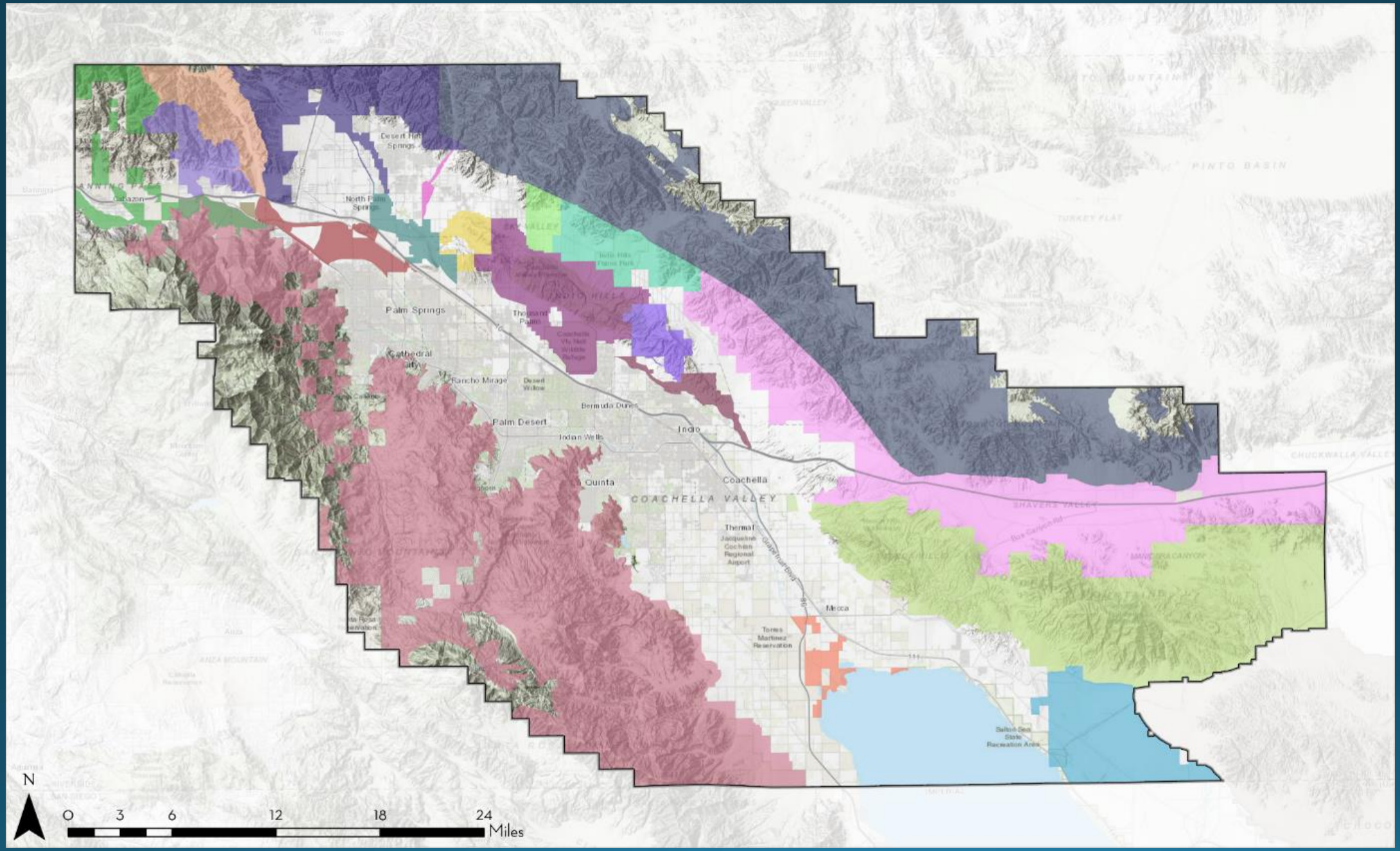


Role of Dust and Sand in the Coachella Valley Ecosystem

Coachella Valley Dust Summit November 6, 2025



Kathleen Brundige, Director of Conservation
Coachella Valley Conservation Commission


Palm Springs
Cathedral City
Rancho Mirage
Palm Desert
Indian Wells
La Quinta
Indio
Coachella
COACHELLA VALLEY
Thermal
Mecca
Bermuda Dunes
Desert Hot Springs
North Palm Springs
Cabazon
Thousand Palms
Tortes Martinez Reservation
Salton Sea State Recreation Area
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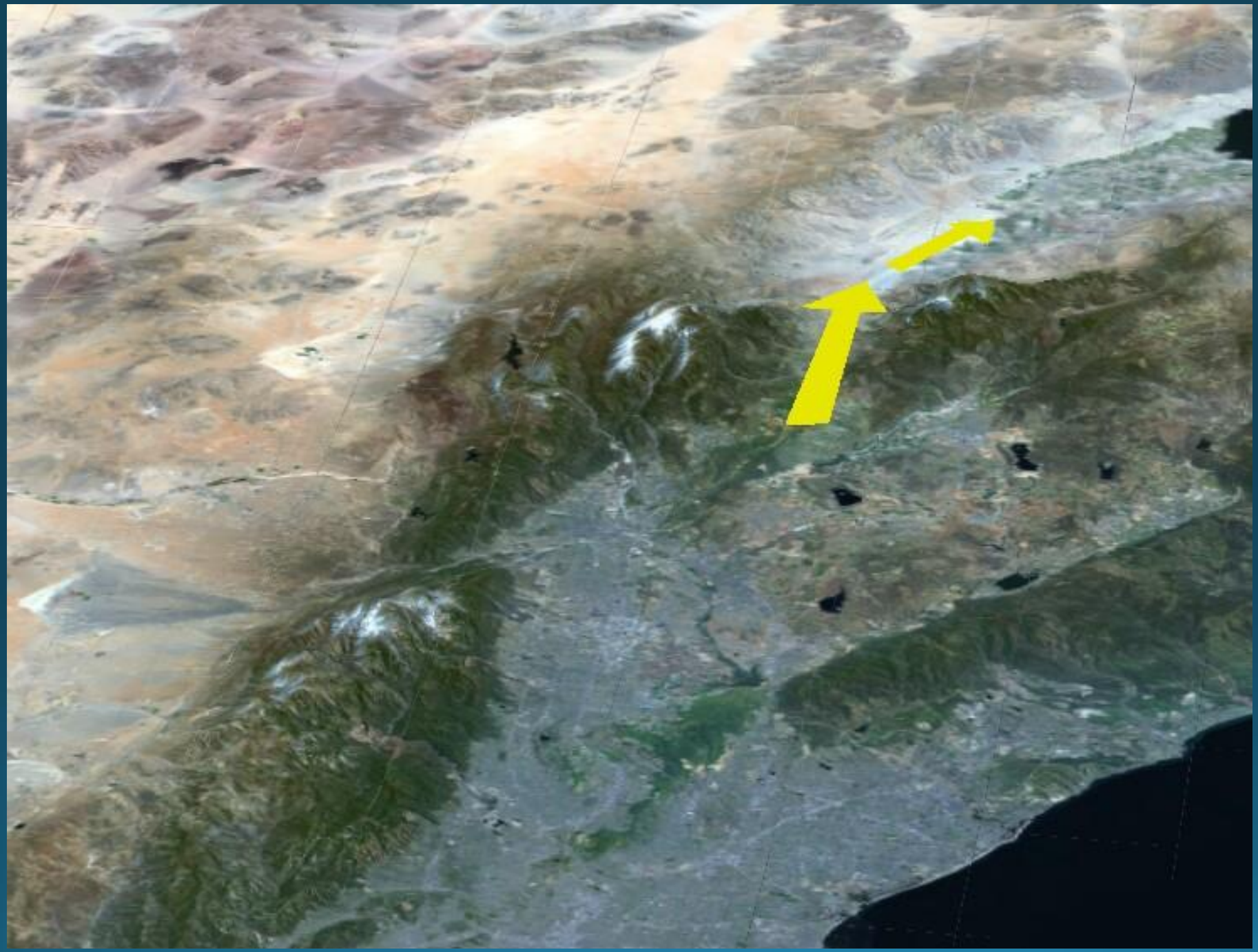
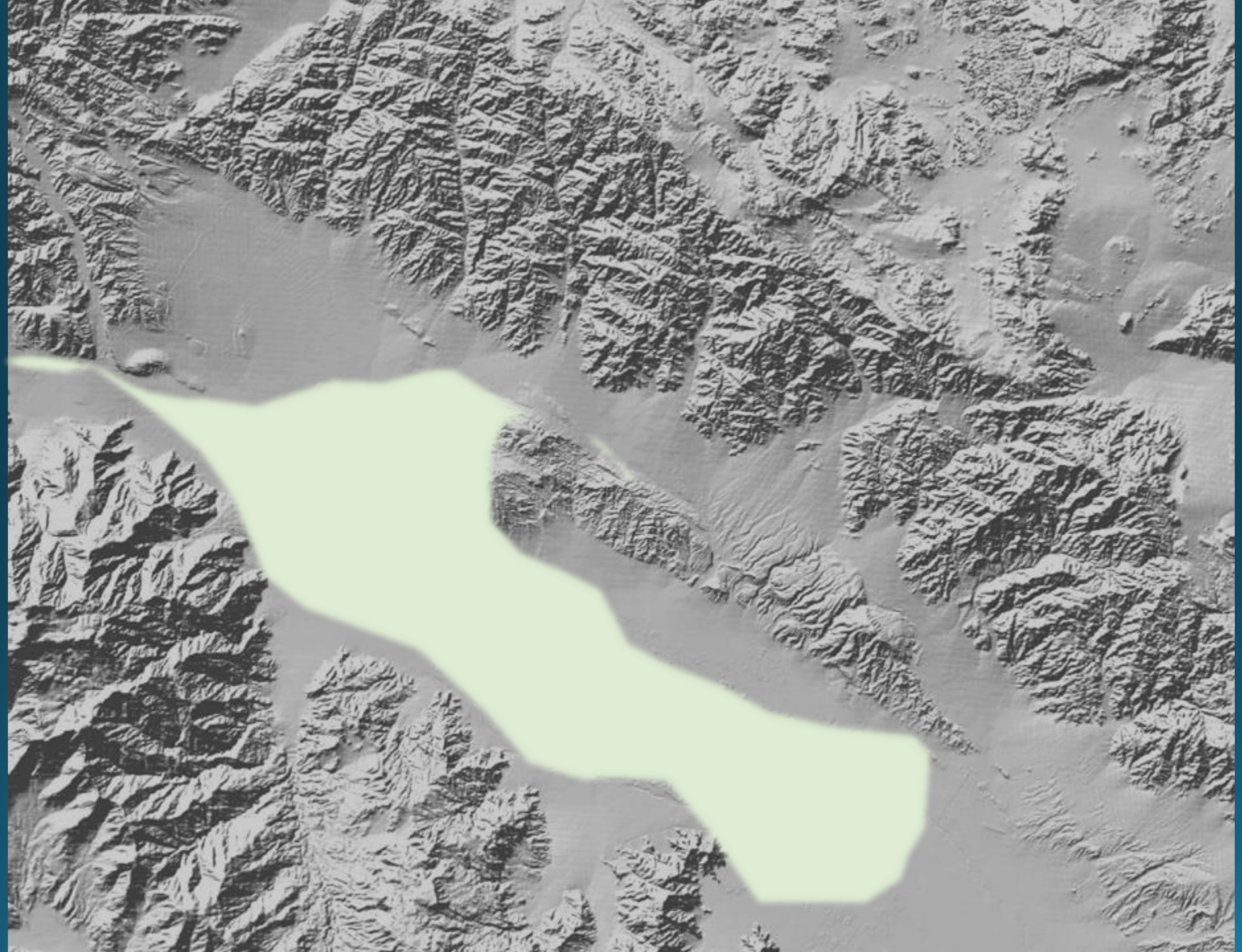
0 3 6 12 18 24
Miles

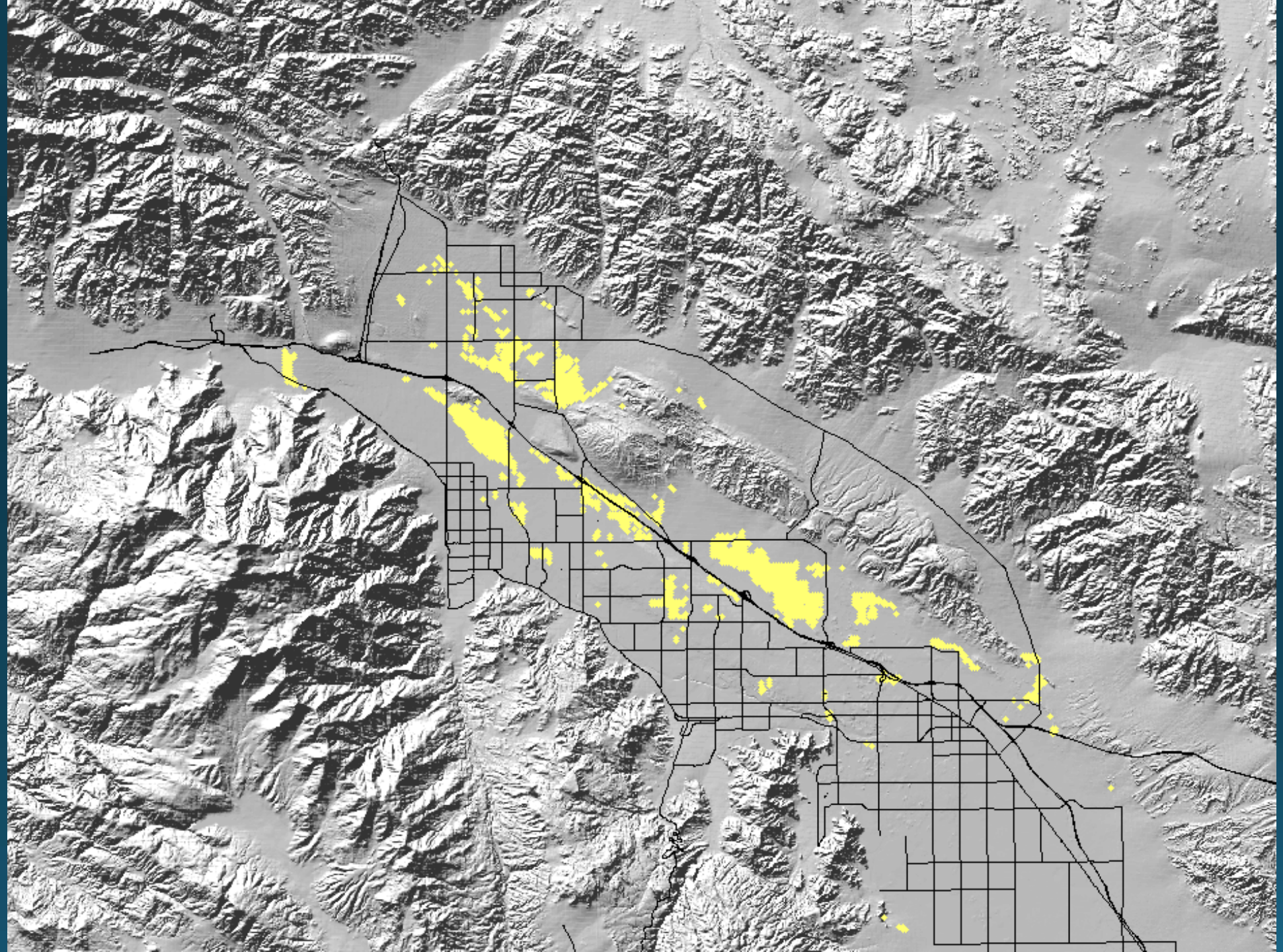

Upper Mission Creek/
Big Morongo Canyon
Willow Hole
Thousand Palms
10




Upper Mission Creek/
Big Morongo Canyon
Thousand Palms
10


Upper Mission Creek/
Big Morongo Canyon
Thousand Palms
10





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CALIFORNIA
AIR RESOURCES BOARD

How Dust is Mitigated in Dusty Areas

Coachella Valley Dust Summit
November 6, 2025

Leah Mathews, Air Pollution Specialist

Scale Matters in Dust Mitigation

- Mitigation plans scale with project size and potential dust impact.
- Large-scale projects require engineered, long-term solutions.
- Small to mid-sized projects rely on portable or temporary controls.
- Monitoring needs and public oversight increase with project footprint and proximity to sensitive receptors.

CARB

Vegetative Cover and Soil Stabilization

- Native vegetation restored on fallowed or disturbed lands.
- Cover crops reduce wind erosion between growing seasons.
- Windbreaks made of vegetation reduce wind velocity and trap dust.

CARB

Water-Based Controls

- Shallow flooding to suppress dust from dry lakebeds.
- Creation of wildlife habitat.
- Irrigation to establish vegetation or dampen soil.
- Water trucks for temporary dust suppression.

CARB

Surface and Road Treatments

- Gravel or crushed rock surfacing reduces dust.
- Chemical stabilizers bind soil and reduce emissions.
- Surface roughening reduces wind speed at the soil surface.
- Track out pads prevents dust from being carried onto other surfaces.
- Street sweeping removes dust from paved surfaces.
- Speed limits reduce dust from vehicle movement.

CARB

Agricultural Best Practices

- Reduced tilling and using off-ground harvesting to reduce dust emissions.
- Cover crops planted to provide seasonal ground cover and reduce wind erosion.
- Field operations scheduled to avoid disturbing soil during high wind conditions.

Thank you!

Leah Mathews
Air Pollution Specialist
California Air Resources Board

Contact Information:
leah.mathews@arb.ca.gov

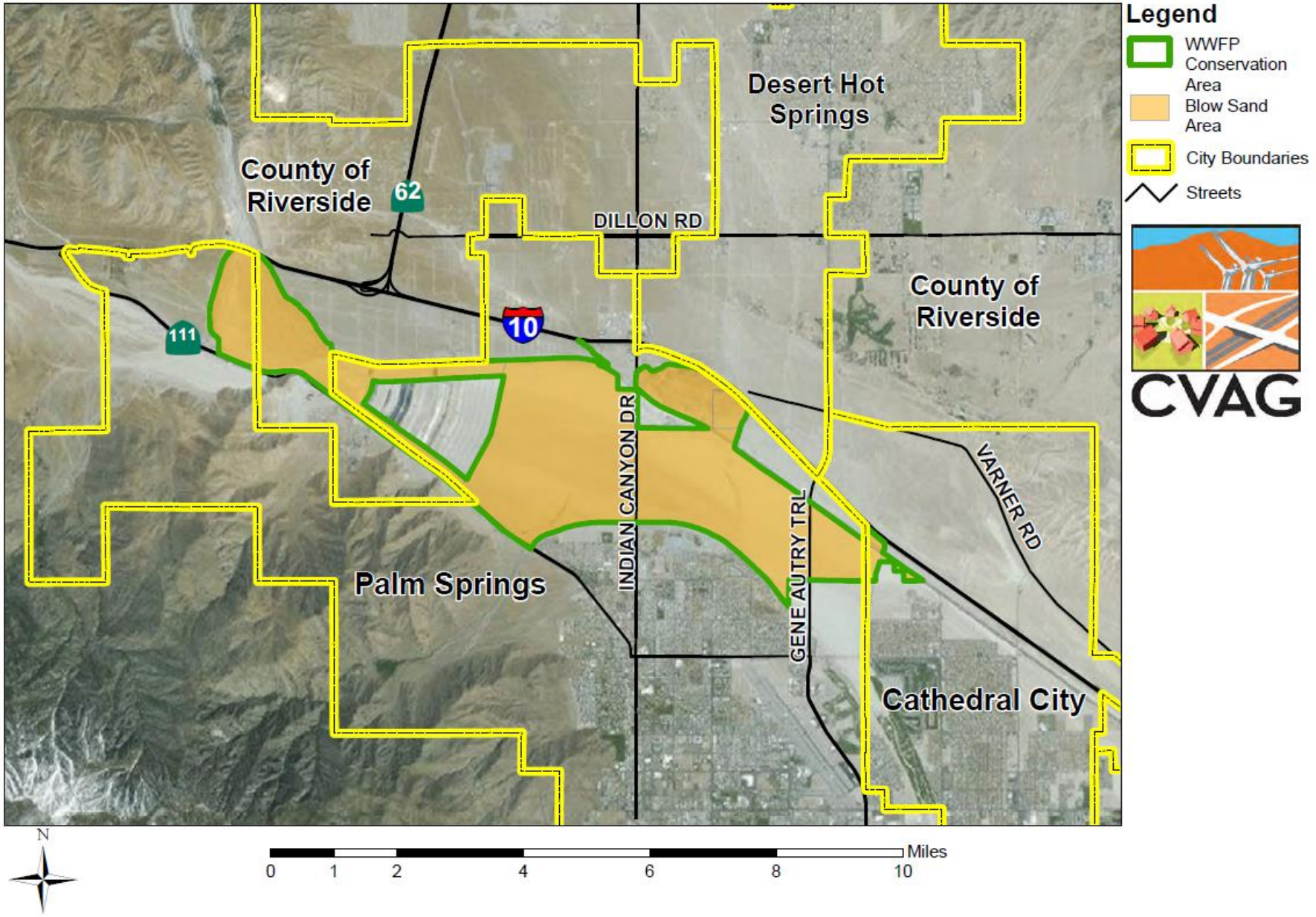
CARB

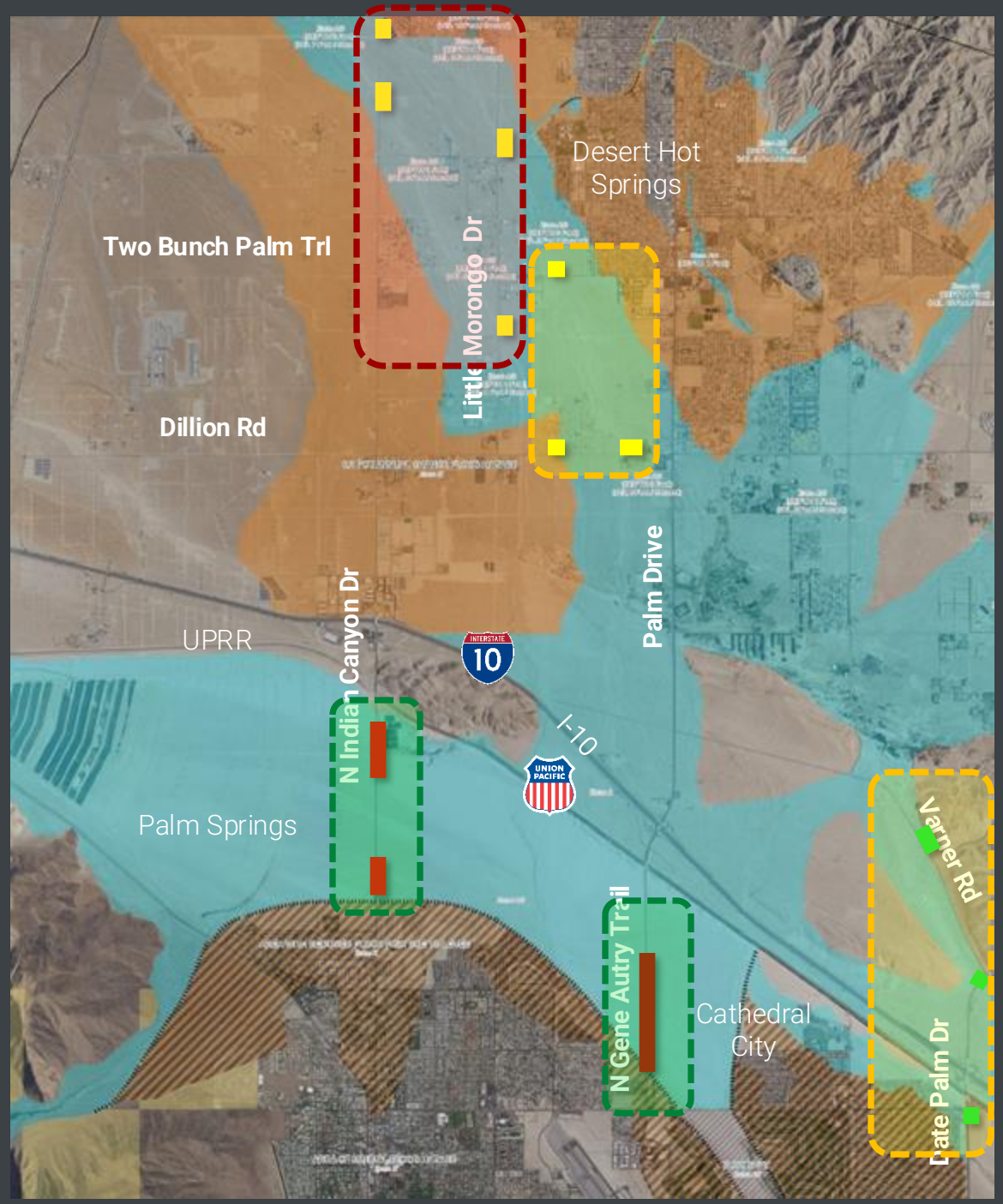
Ongoing Infrastructure Projects Related to Dust Mitigation

Emmanuel Martinez
Assistant Director – Energy and External Affairs

CVAG

Blow Sand Areas



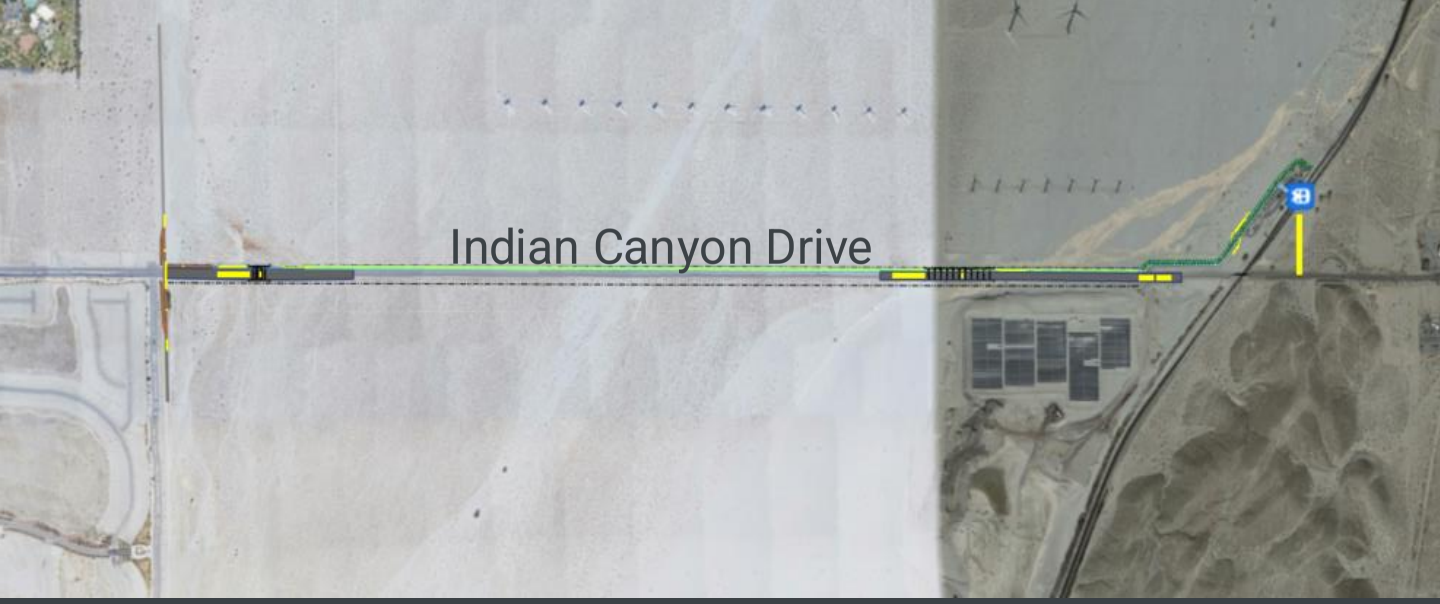


Flooding & Blowsand Priority Projects

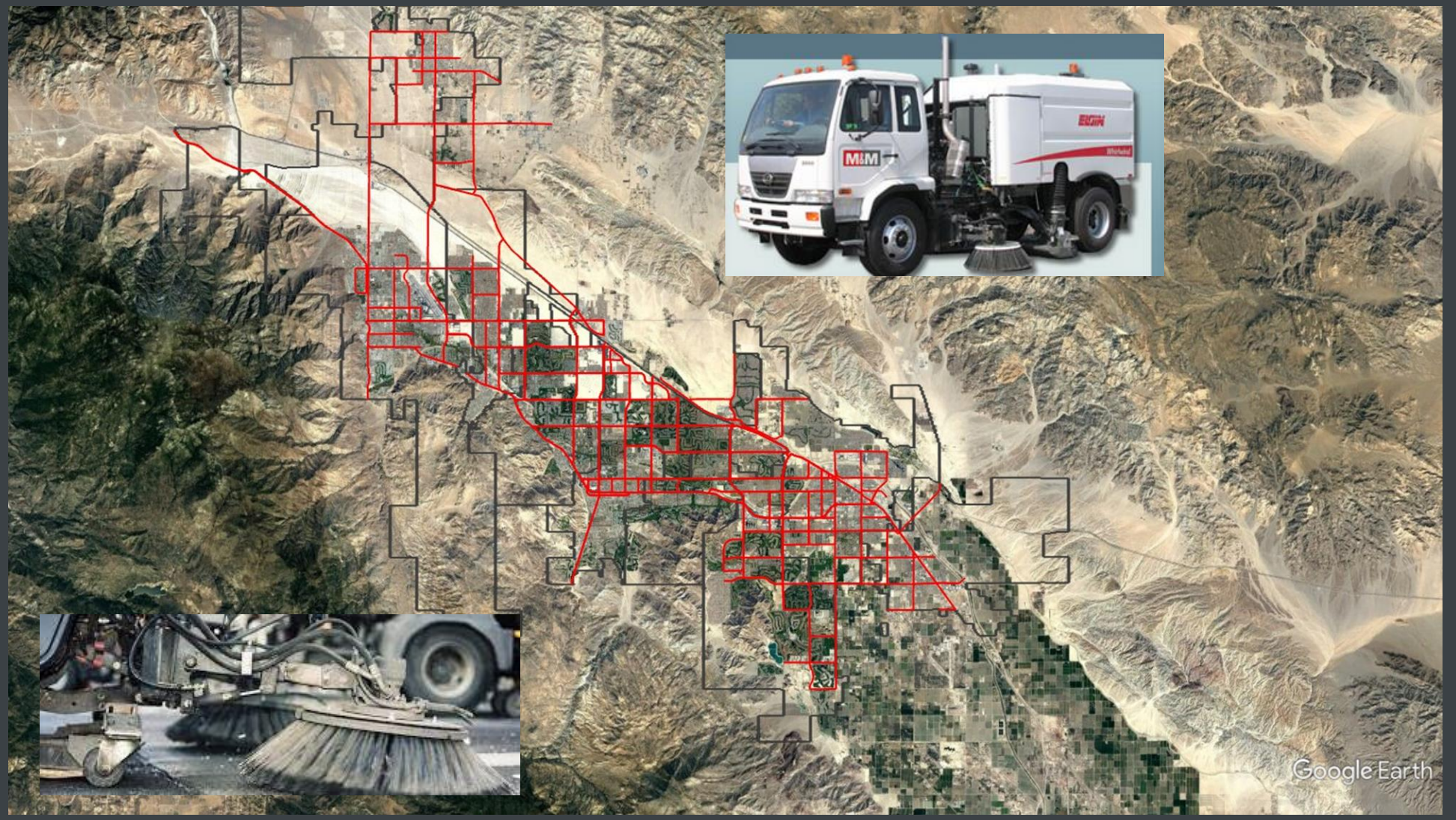
Lowest

Medium

Highest


Indian Canyon Drive

Regional PM10 Street Sweeping Program



South Coast AQMD

CVAG

Local Dust Control Ordinances

Ordinance Number or Code Citation	State Effective Date	EPA Approval Date
City of Cathedral City Ordinance No. 583	February 14, 2004	November 14, 2005, 70 FR 69081
City of Coachella Ordinance No. 896	November 8, 2003	November 14, 2005, 70 FR 69081
City of Desert Hot Springs Ordinance No. 2003-16	November 7, 2003	November 14, 2005, 70 FR 69081
City of Indian Wells Ordinance No. 545	December 6, 2003	November 14, 2005, 70 FR 69081
City of Indio Ordinance No. 1357	April 1, 2004	November 14, 2005, 70 FR 69081
City of La Quinta Ordinance No. 391	January 2, 2004	November 14, 2005, 70 FR 69081
City of Palm Desert Ordinance No. 1056	December 13, 2003	November 14, 2005, 70 FR 69081
City of Palm Springs Ordinance No. 1639	December 5, 2003	November 14, 2005, 70 FR 69081
City of Rancho Mirage Ordinance No. 855	January 19, 2004	November 14, 2005, 70 FR 69081
City of Rancho Mirage Ordinance No. 863	May 30, 2004	November 14, 2005, 70 FR 69081
County of Riverside Ordinance No. 742.1	February 11, 2004	November 14, 2005, 70 FR 69081

Landscaping Certification CVAG and CVWD

COLLEGE of the DESERT

WATER DISTRICT

CVAG

Actions Since August 2023

Cathedral City

- Soil stabilizer on 15.2 acres of vacant lots

Palm Desert

Soil stabilizer and palm mulch

Palm Springs

Invested in heavy duty machinery

Rancho Mirage

Mulch used on city owned properties, rights of way, and city easements

Eastern CV

$4.57 million of AB 617 funds for paving projects to reduce PM10 emissions from unpaved roads

Thank you

CVAG

How to Get More Information

General inquiries about dust and air quality:

Contact meteorology@aqmd.gov

To file a complaint:

Call 1-800-CUT-SMOG or visit www.aqmd.gov/complaints

For real-time and forecasted air quality information including air quality advisories:

Visit www.aqmd.gov or download the South Coast AQMD App at www.aqmd.gov/mobileapp