

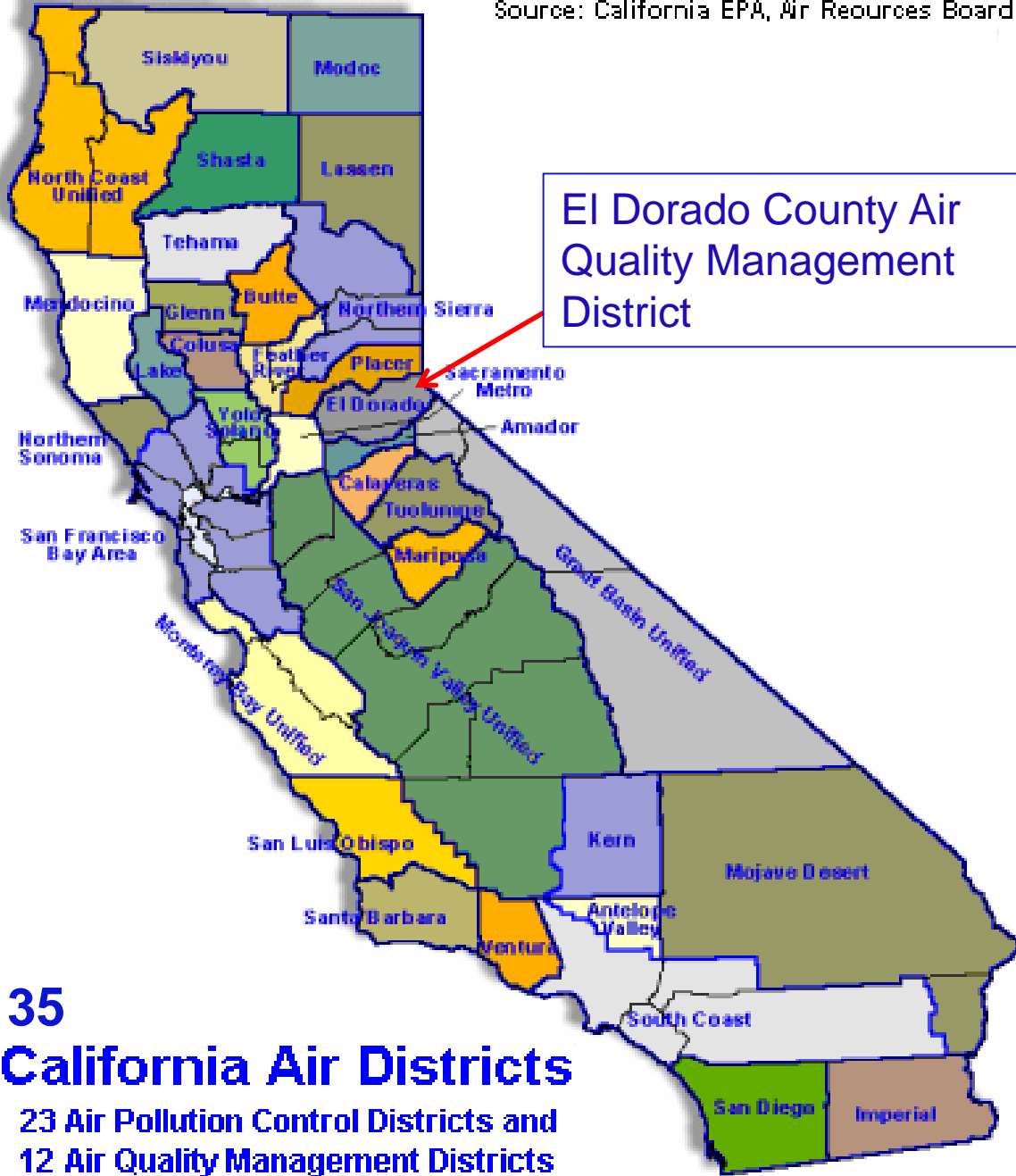
A photograph of a forest fire. In the center, a large fire is burning, with bright orange and yellow flames rising from a pile of brush or logs. Thick, dark grey smoke billows upwards from the fire, filling the lower half of the frame. The background consists of tall, thin trees with green foliage, some of which are partially obscured by the smoke. The overall scene is a controlled burn in a forest setting.

# **Air Quality and Smoke Management Regulations for Prescribed Burning, Blodgett Rx Workshop May 17, 2019**

**Rania Serieh  
Air Quality Engineer  
El Dorado County Air Quality  
Management District**

# Federal and State Legal Mandates

- **Federal Clean Air Act 1970, with series of amendments made in 1990.**
- **California Clean Air Act (CCAA)  
1988: California Air Resources Board**
- **California's 35 local air districts**



**35**  
**California Air Districts**  
23 Air Pollution Control Districts and  
12 Air Quality Management Districts

# Air Districts Programs

- Rule Development for stationary sources, air monitoring, and emission inventories
- Permitting Stationary sources
- Inspections and responding to air quality complaints
- CEQA and Land Use Mitigation
- State Implementation Plans, Incentive programs, and Public Outreach
- Agriculture burning, backyard burning & prescribed fire (Smoke Management Program)

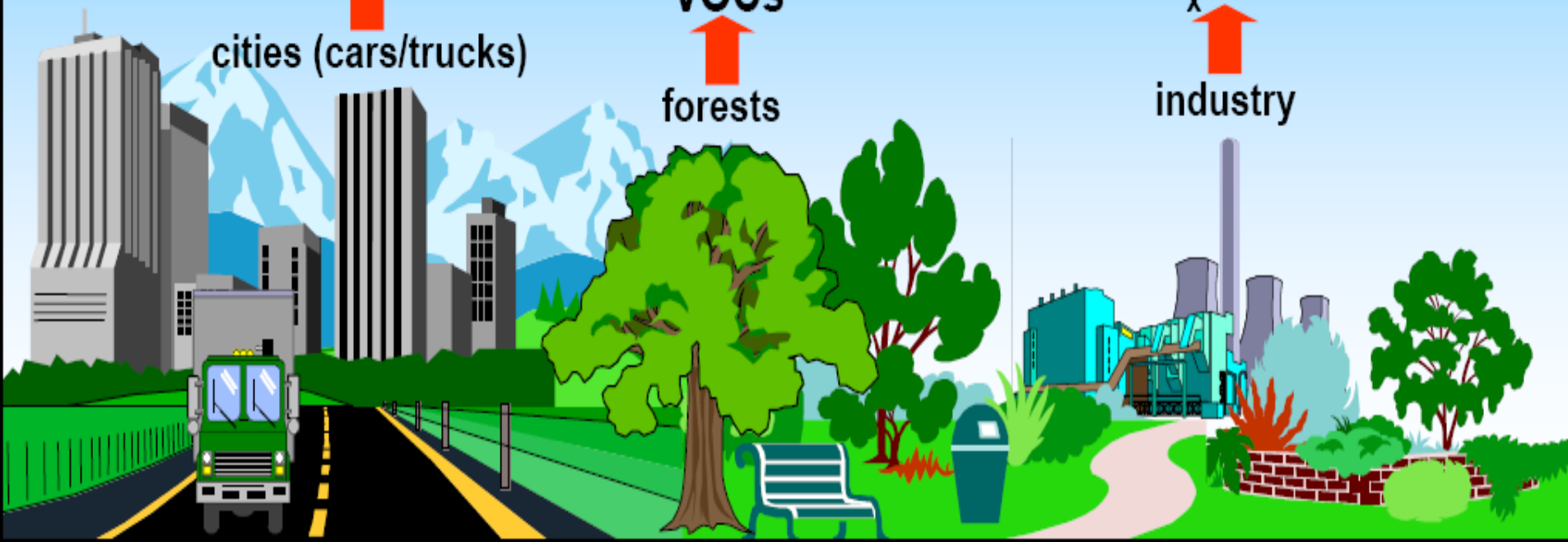
# Major Ozone Precursors Sources



$\text{NO}_x$  & VOCs  
↑  
cities (cars/trucks)

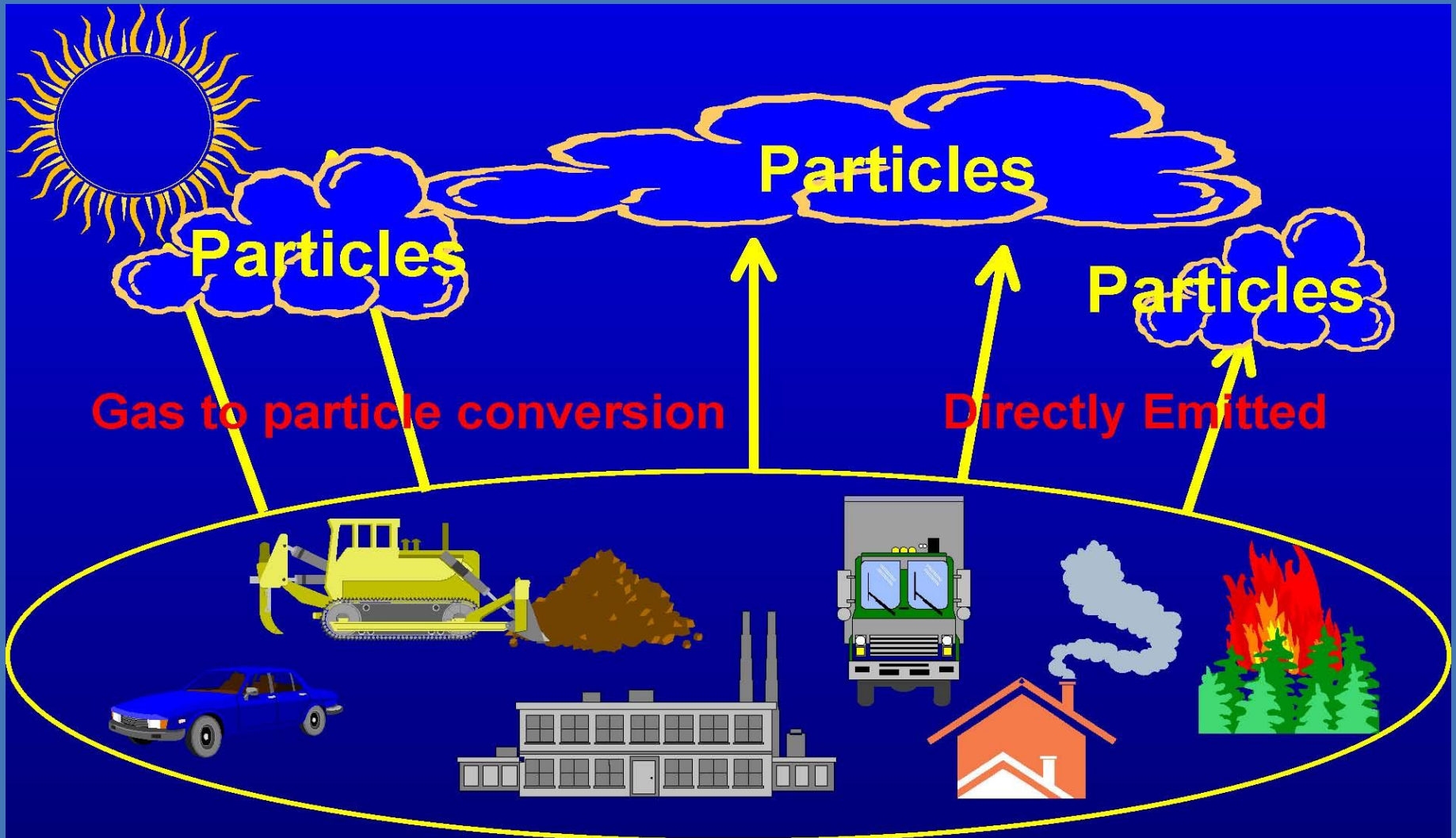
VOCs  
↑  
forests

$\text{NO}_x$  & VOCs  
↑  
industry

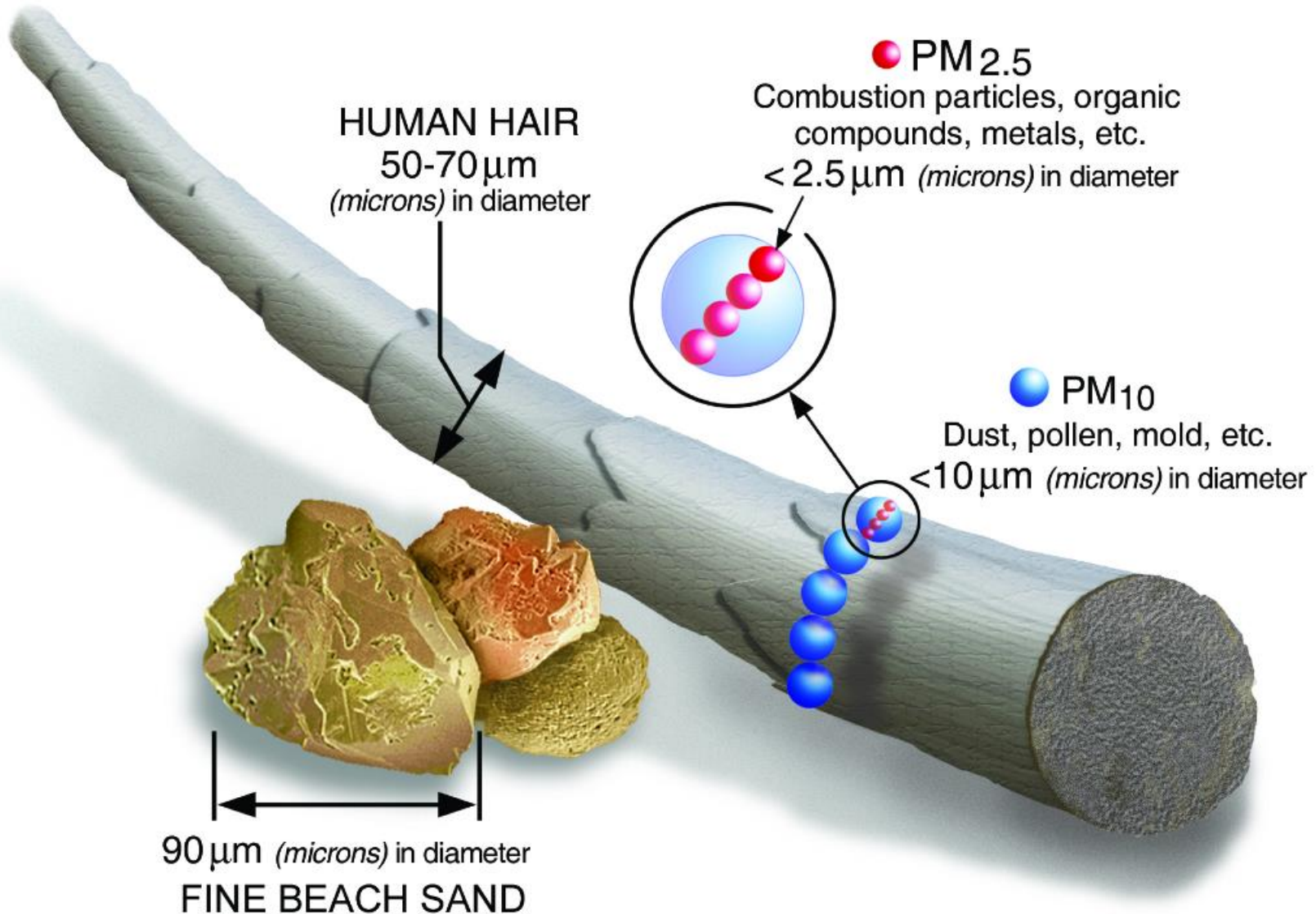




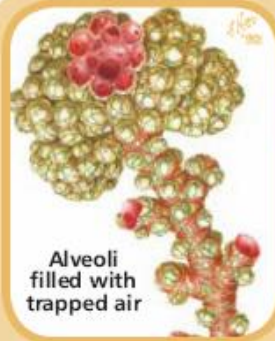
# PM sources



# Coarse and Fine Particulate Matter



# HOW POLLUTANTS AFFECT OUR HEALTH



Alveoli filled with trapped air

## How Pollutants Cause Symptoms

### Effects on Lung Function

- Narrowing of airways (bronchoconstriction)
- Decreased air flow

### Airway Inflammation

- Influx of white blood cells
- Abnormal mucus production
- Fluid accumulation and swelling (edema)
- Death and shedding of cells that line airways

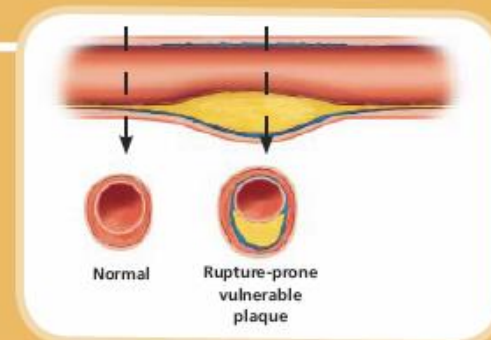


### Increased Susceptibility to Respiratory Infection

## How Pollutants May Cause Symptoms

### Vascular Inflammation

- Increased risk of blood clot formation
- Narrowing of vessels (vasoconstriction)
- Increased risk of atherosclerotic plaque rupture







# Agricultural Burning Regulations

California Health & Safety Code Article  
3 – Section 41850 Agricultural Burning  
administered through the Title 17  
California Code of Regulations-  
Subchapter 2 Smoke Management  
Guidelines for Agricultural and  
Prescribed Burning

# Title 17 CCR Smoke Management Guidelines (2001)

- Established framework for **Smoke Management** from prescribed burning operations through **Planning** and **Communication**.

- Required each air district to adopt, implement, and enforce a smoke management program consistent with the guidelines.

- Allows for the continuation of agricultural and prescribed burning as a resource management tool while minimizing smoke impacts to the public.

- Helps in the prevention of catastrophic wildfires by reducing vegetation through burning.



- **Agricultural Burning:** is any open outdoor fire used in agricultural operations in the growing of crops or raising animals, or open outdoor fires used in Forest Management.
  
- **Prescribed Burning:** is a planned fire applied in a skillful manner to wildland fuels, in a prearranged place, under certain atmospheric conditions to achieve any specific land managements objective.



# Burn Permit or Smoke Management Plan (SMP)

- Most Air Districts issue burn permits for all agricultural and prescribed burning projects.
- CARB Guidelines require a SMP for Burn projects over **10 acres** in size or estimated to produce more than **1 ton** of particulate matter.
- Air District may require a SMP for any size burns that may have potential impact on smoke sensitive areas.
- Contact your air district to help decide what is needed.

## Information you will Need to fill out SMP

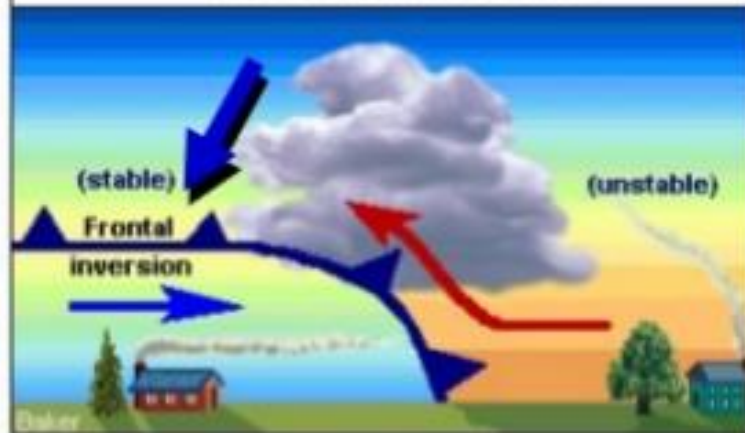
- ✓ Name and address of the applicant.
- ✓ *Acreage or tonnage, type (Broadcast or piles (machines/hand piles), locations, and arrangement of vegetation to be burned.*
- ✓ Directions and distance to nearby sensitive receptor areas.
- ✓ Fuel condition, combustion, and meteorological prescription elements.
- ✓ Projected schedule and duration of project ignition.
- ✓ Specifications for monitoring.
- ✓ Public Notification Methods

# Four Types of Inversions

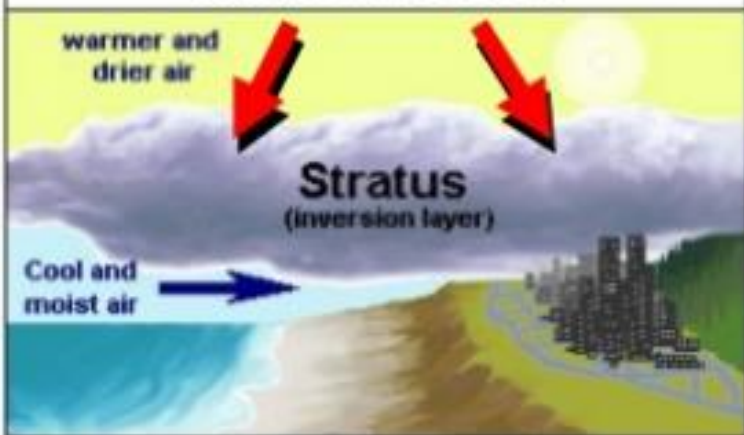
## Nighttime or Radiation Inversion



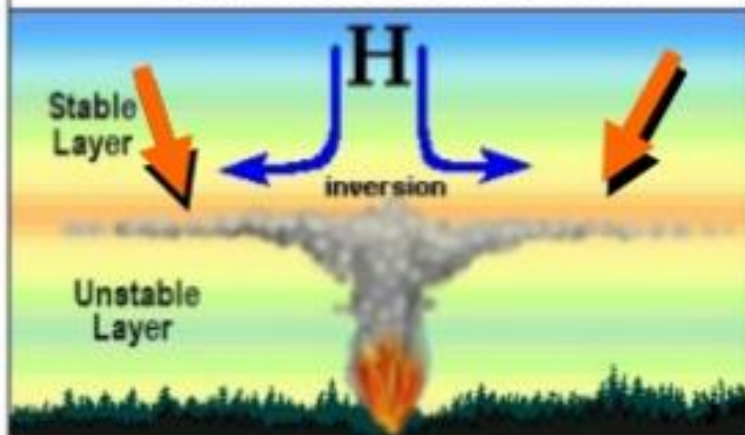
## Frontal Inversion



## Marine Inversion



## Subsidence Inversion





## Smoke can become a public nuisance

- Assess situation
- Stop lighting
- Consider mopping up
- Work with Air District Staff,



# Smoke Management Plan (SMP) Burn Authorization system

- Applicants submit a SMP to the Air District
- Air District staff reviews and approves SMP
- Air District issues Air District burn permit
- At least one day before the burning, applicants submit ignition requests to the Air District\*
- Based on the burn day status, the Air District authorizes burning
- At end of each ignition, burners submit a report to the Air District of completed burns
- \* for each ignition

# PFIRS

## Prescribed Fire Information Reporting System (PFIRS)

- Communication tool
- Interactive mapping
- Not a regulatory tool



**PRESCRIBED  
FIRE  
INFORMATION  
REPORTING  
SYSTEM**

**USER MANUAL**

UPDATED OCTOBER 2013

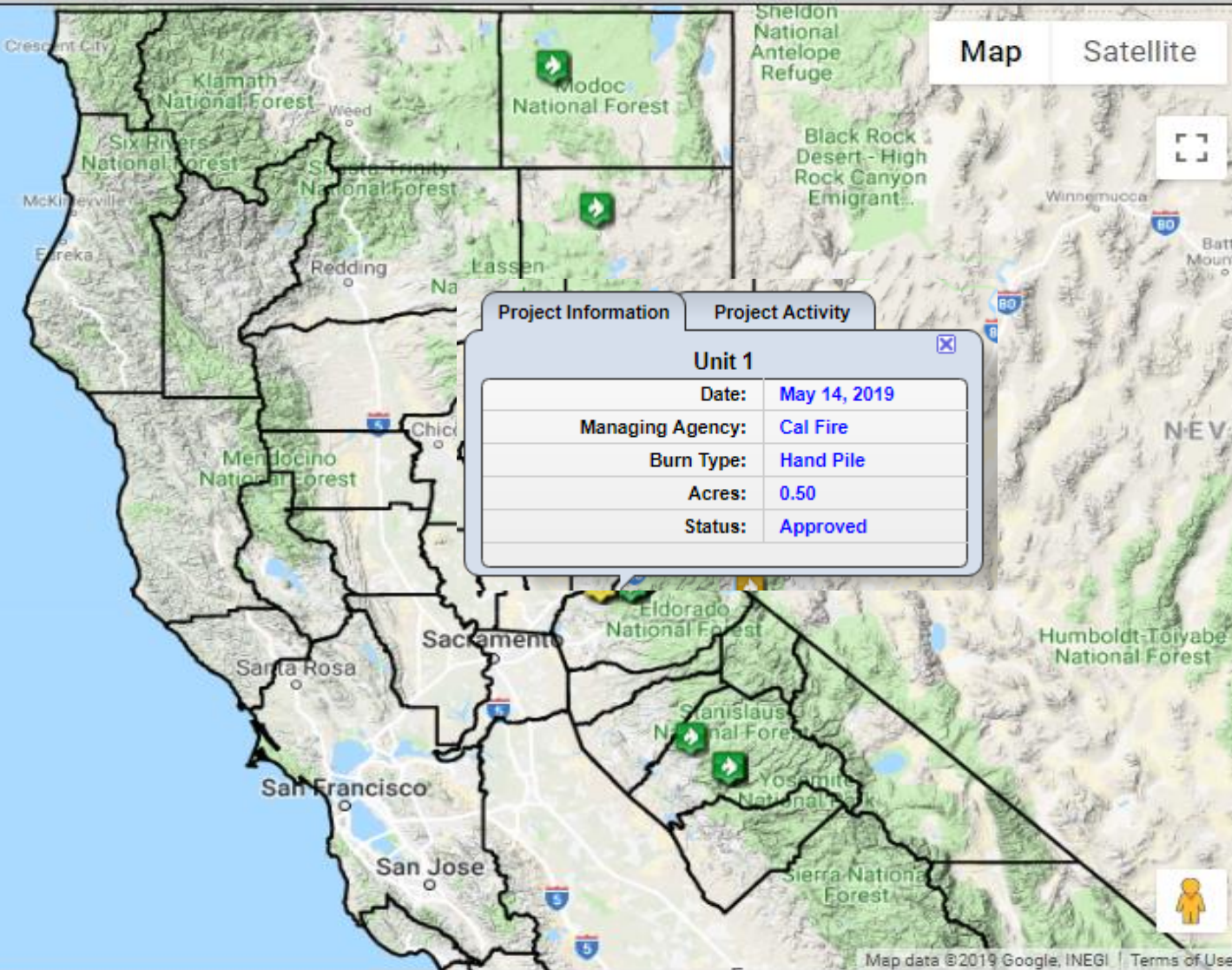
# PFIRS

- ◆ Land Manager Use
- ◆ Request An Account
- ◆ Fill in SMP application
- ◆ Review SMP
- ◆ Approve SMP
- ◆ Approve Ignitions

# Current Ignitions in PFIRS

View Ignitions By:  Agency  Burn Status Select Start Date:  Select End Date:

NPS  USFS  BLM  USFWS  CalFire  CA Parks  Tahoe Conservancy  Local Fire  Local Non-Fire  Private



Project Information		Project Activity	
<b>Unit 1</b>			
Date:	May 14, 2019		
Managing Agency:	Cal Fire		
Burn Type:	Hand Pile		
Acres:	0.50		
Status:	Approved		

41.46811863020404, -120.30581408838339



# Request an Account

PFIRS

Prescribed Fire Information Reporting System

Front Page

ARB Products

Local Agencies

Support

## Request a PFIRS Account

Password:

Log In

Forgot Password?

• About PFIRS

• Request Account

• Forgot Password?

• Contact Administrator

Thank you for your interest in PFIRS. To request a new account, you

- Your Name
- Address (Street, city, state, zip code)
- Phone Number
- Email Address
- Organization

All account requests will be forwarded to the PFIRS staff and your local air district for approval. If you experience any problems, please contact Jason Branz at [jbranz@arb.ca.gov](mailto:jbranz@arb.ca.gov).

If you already have a PFIRS account and cannot login, please use either the [Forgot Password](#) form or the [PFIRS Contact](#) form to retrieve your account information.

Are you a Land Manager, or an Air District representative?

Land Manager

I am requesting a Land Manager account.

Air District

I am requesting an Air District staff account.

# PFIRS: ARB Products

**PFIRS** Prescribed Fire Information Reporting System

Front Page **ARB Products** Local Agencies

Current Ignitions

- > Controlled Burn Notices
- > Sac Valley Allocation
- > Fire Information Map

View Ignitions By: NPS USFWS CalFire CA Parks Tahoe Conservancy Private

Username: \_\_\_\_\_ Password: \_\_\_\_\_ **Log In** Forgot Password?

Select Start Date: 08/12/2014 Select End Date: 08/12/2014 **View**

Map Satellite

42.61779143282346, -125.04638671875

Show Air Districts Show Webcams

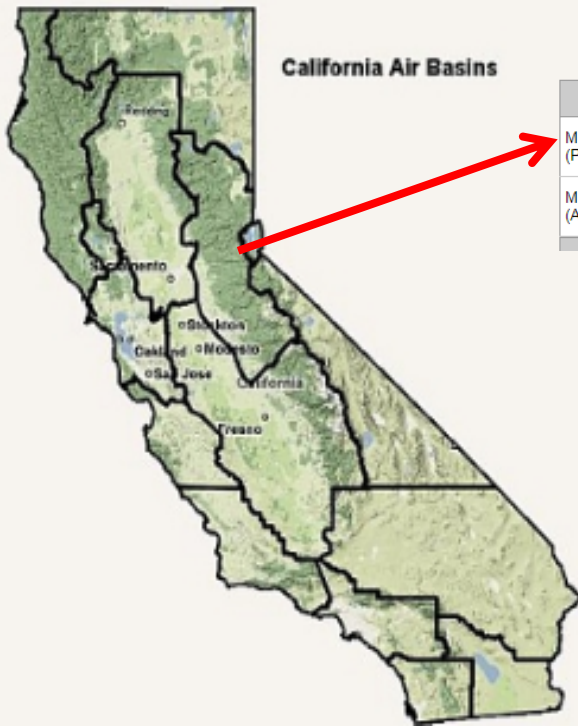
Map data ©2014 Google, INEGI Terms of Use

Page is updated by 3 p.m. each day

[Entire State](#)[North Coast](#)[NE Plateau](#)[Sac Valley](#)[Mtn Counties](#)[San Joaquin](#)[Lake Tahoe](#)[Lake County](#)[Bay Area](#)[NC Coast](#)[SC Coast](#)[Great Basin](#)[Mojave Desert](#)[Salton Sea](#)[South Coast](#)[San Diego](#)

The notices on this page do not necessarily reflect the burn status of your local area. You must contact your local fire permit official (local air district or fire agency) for final authorization to burn.

Fire Weather Links: [California](#) | [Oregon](#) | [Nevada](#) | [Arizona](#)



California Air Basins

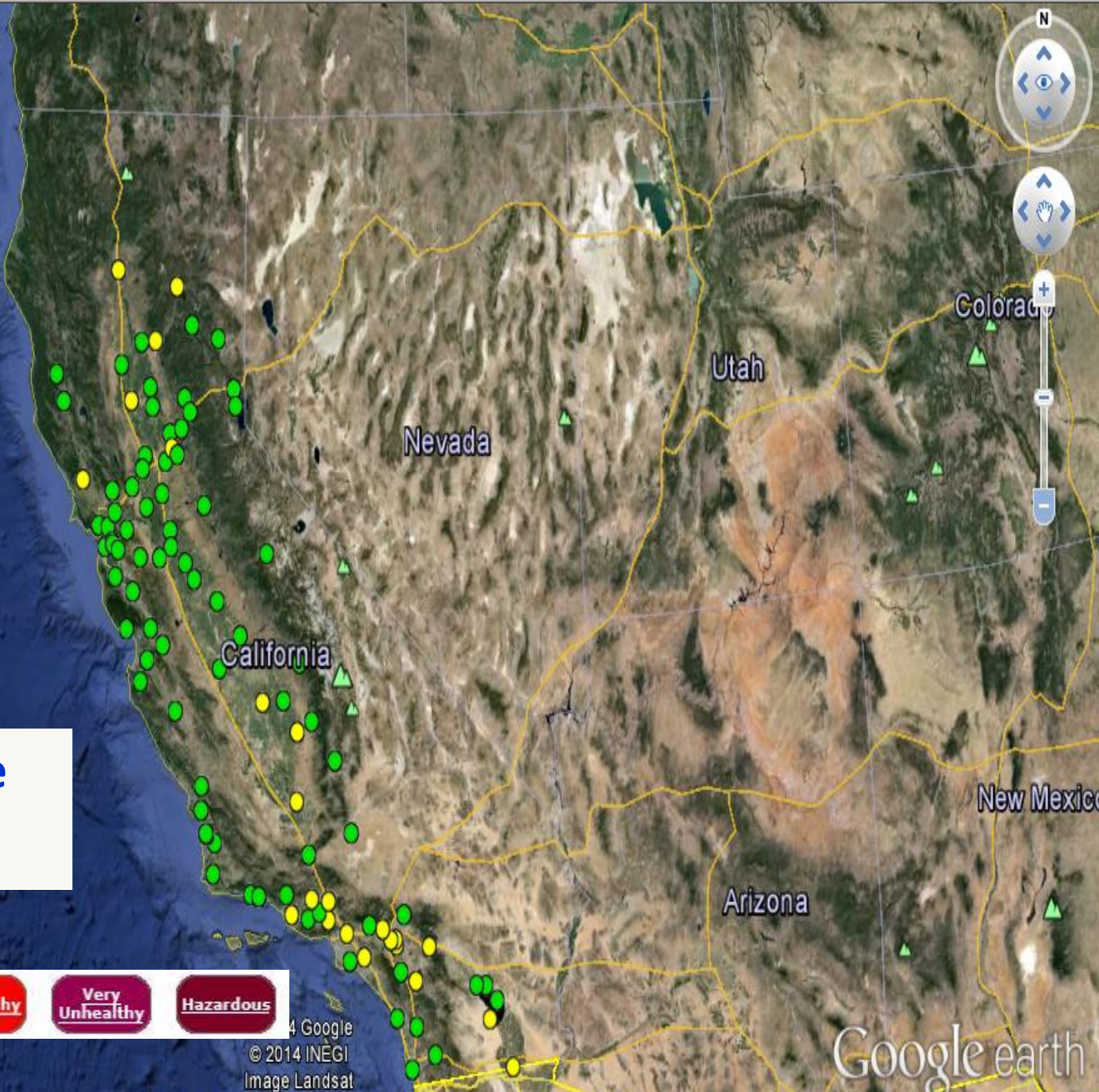
### Mountain Counties

Basin	24-hr Decision Tue Oct 2	48-hr Forecast Wed Oct 3	72-hr Outlook Thu Oct 4	96-hr Trend Fri Oct 5
Mountain Counties North (Plumas, Sierra, Nevada, Placer, El Dorado)	Burn (Good)	Favorable (High Confidence)	Favorable	Favorable
Mountain Counties South (Amador, Calaveras, Tuolumne, Mariposa)	Burn (Good)	Favorable (High Confidence)	Favorable	Favorable
<a href="#">Air Basin Map</a>	<a href="#">Notes and Instructions</a>		<a href="#">District Contact Information</a>	



# PFIRS: Fire Information Map

- Drag Menu
- Using This Map
- Webcams
- Geographical Boundaries
- Fire Locations
- Smoke and Air Quality
- Smoke Products
- Air Quality
  - AirNow AQI
  - Latest Ozone
  - Latest PM 2.5
- Current Weather
- Fire Weather
- Weather Forecasts



**Provides real-time information**

<b>Good</b>	<b>Moderate</b>	<b>USG</b>	<b>Unhealthy</b>	<b>Very Unhealthy</b>	<b>Hazardous</b>
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*Thank you for working with us to improve air quality!*



One of the El Dorado County Air District's goals is to achieve and maintain all state and federal ambient air quality standards while providing increased opportunities for agricultural and prescribed burning.

- Prescribed Fire Information Reporting System:

<https://ssl.arb.ca.gov/pfirs/index.php>

- California Local Air District Directory

<http://www.capcoa.org/districts/>

- National Weather Service

<https://www.weather.gov/>

- **Air Districts Smoke Management Program**

<https://www.arb.ca.gov/smp/district/adstat.htm>