BAY AREA AIR QUALITY MANAGEMENT DISTRICT

San Francisco Bay Area Wildfire Response

2020 MARAMA Air Quality Monitoring Training Committee Virtual Workshop
December 10, 2020

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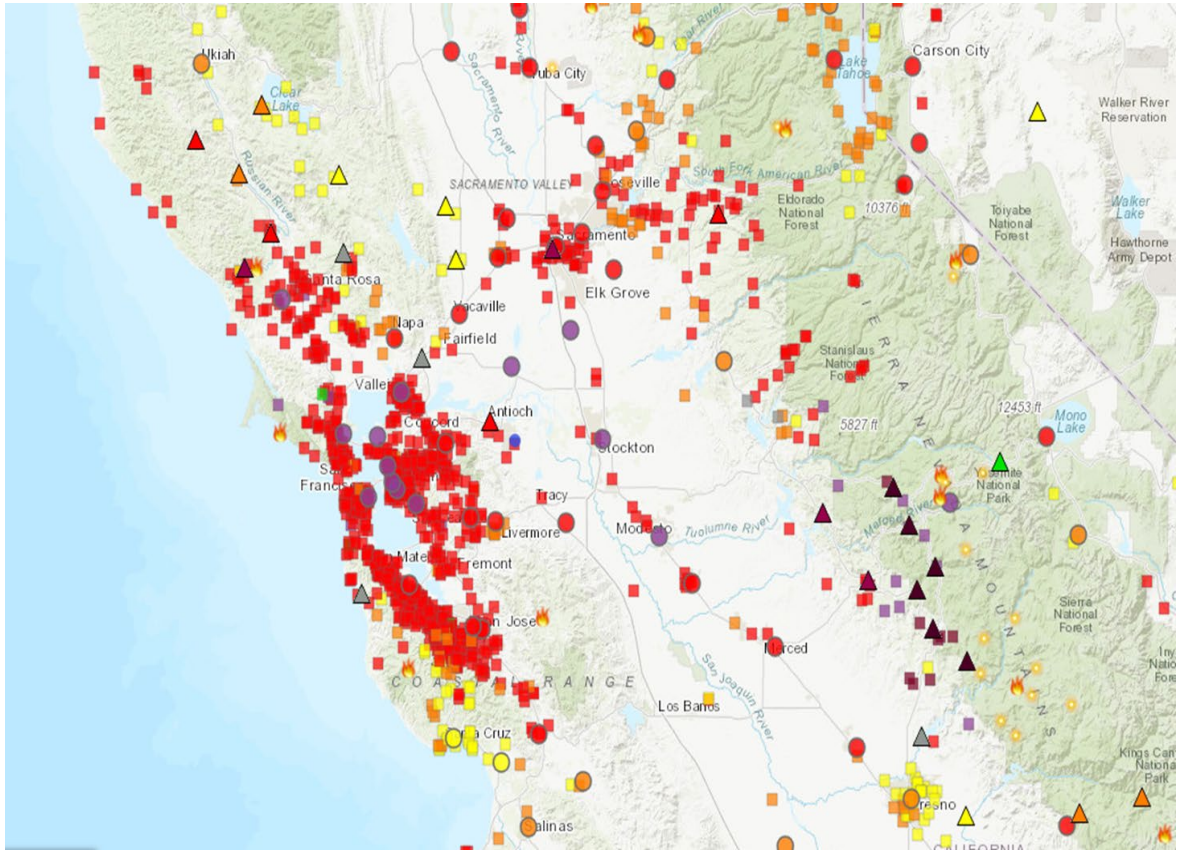
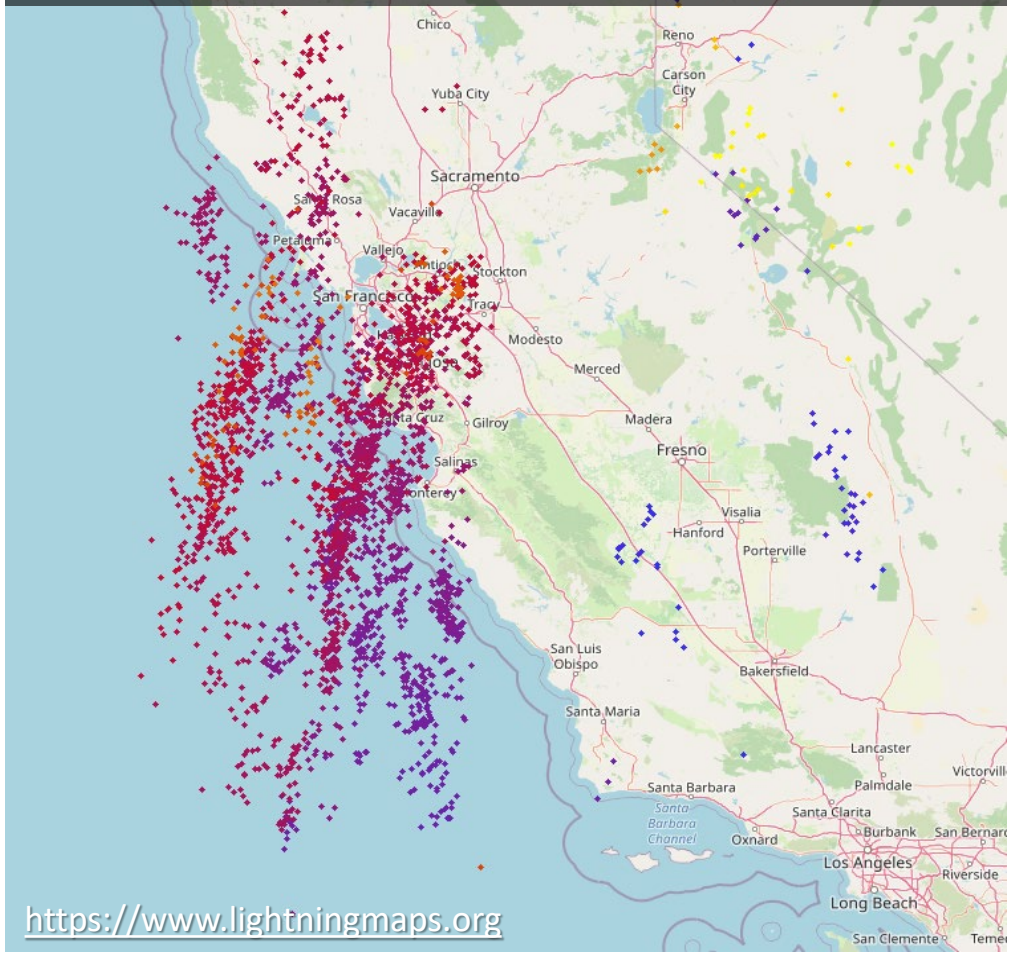
Presentation Outline

- Discussion on Wildfire Events
- Air Quality Impacts
- Air District's Operations' Response
- AQ Forecasting (wildfires vs traditional controllable sources)
- Action / Next Steps

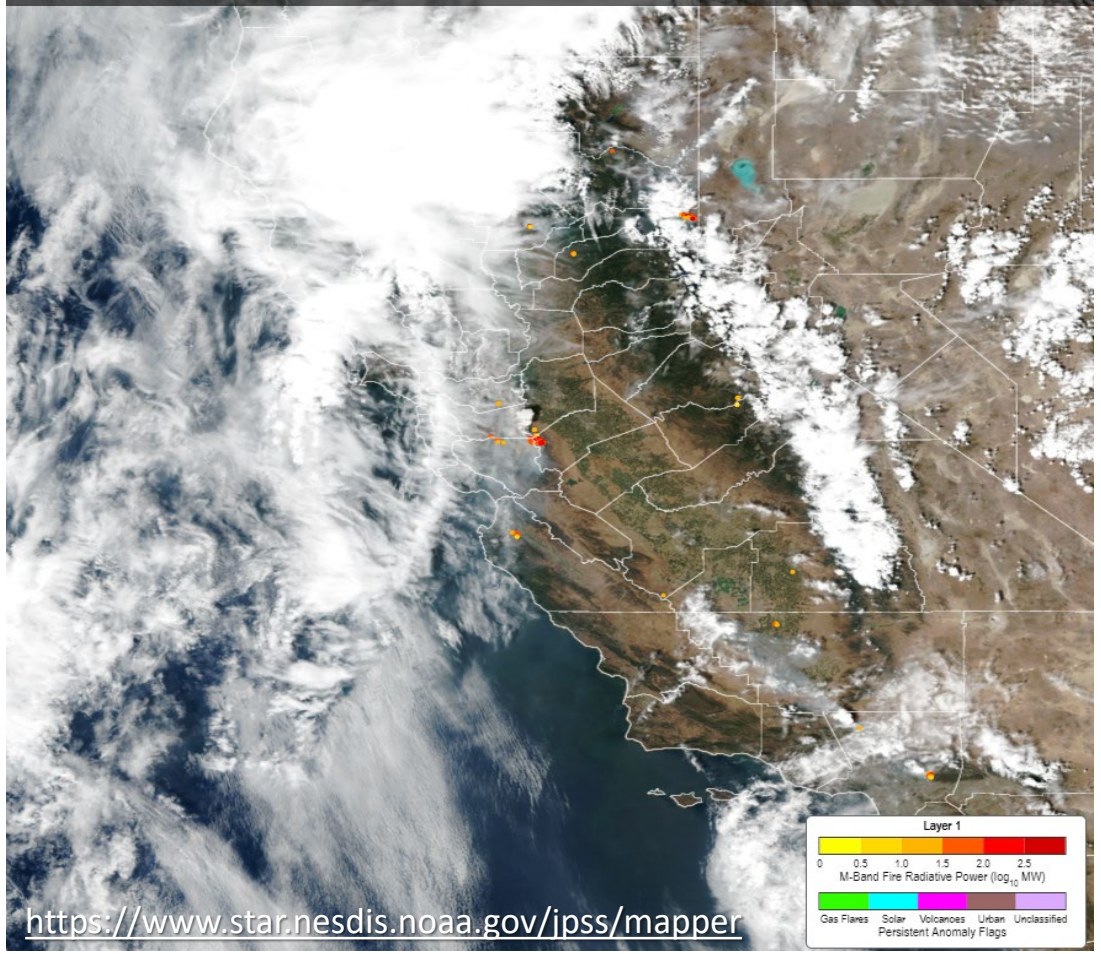


When it all began …

Lightning strikes for Aug 16-17, 2020

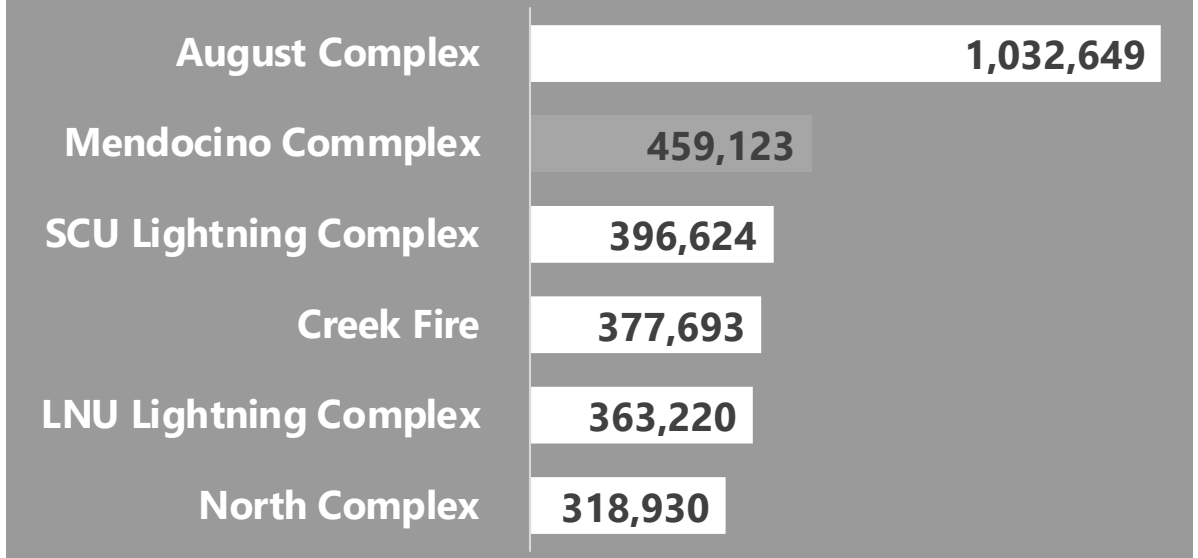


Satellite for afternoon of August 17, 2020



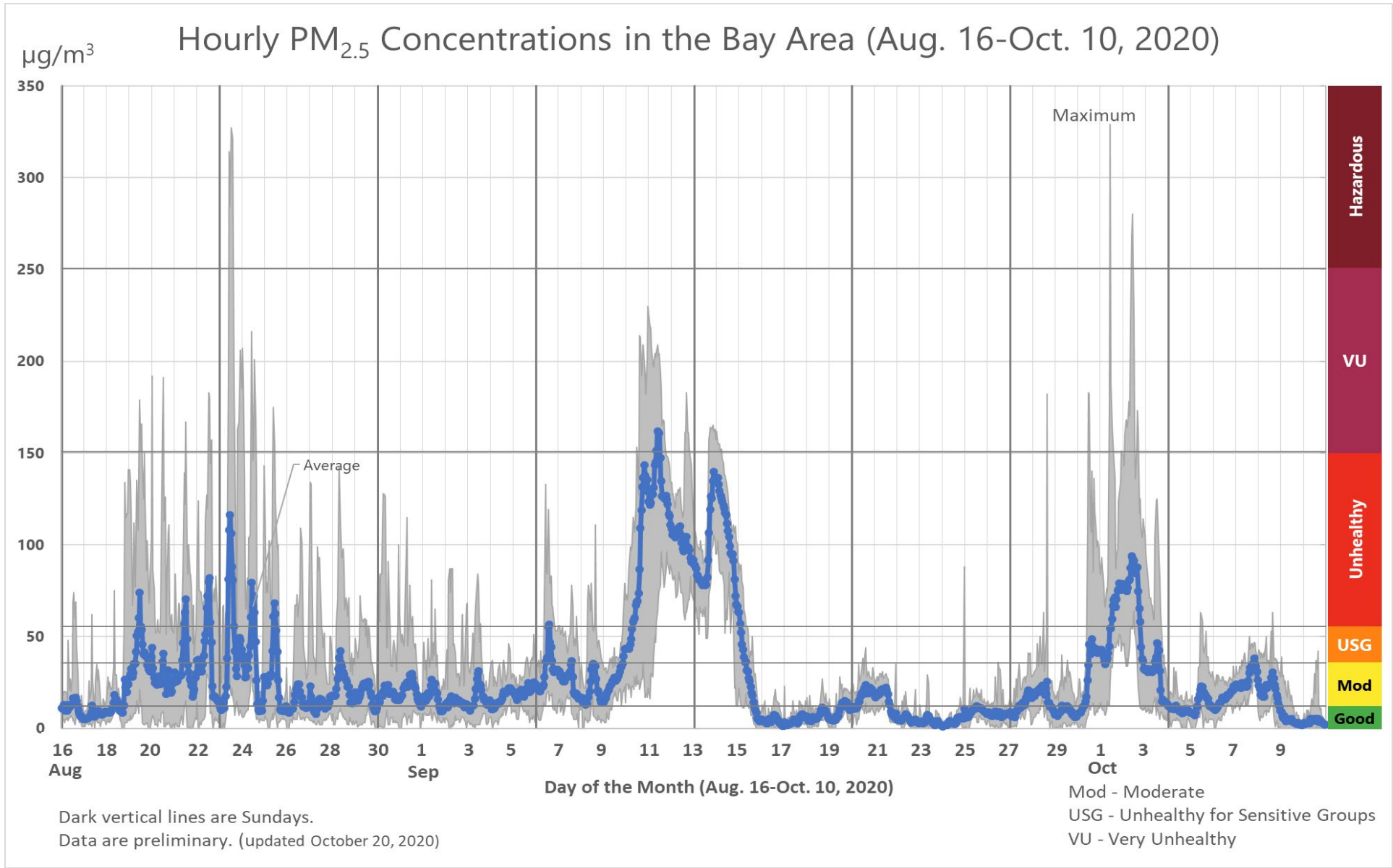
2020 Wildfires

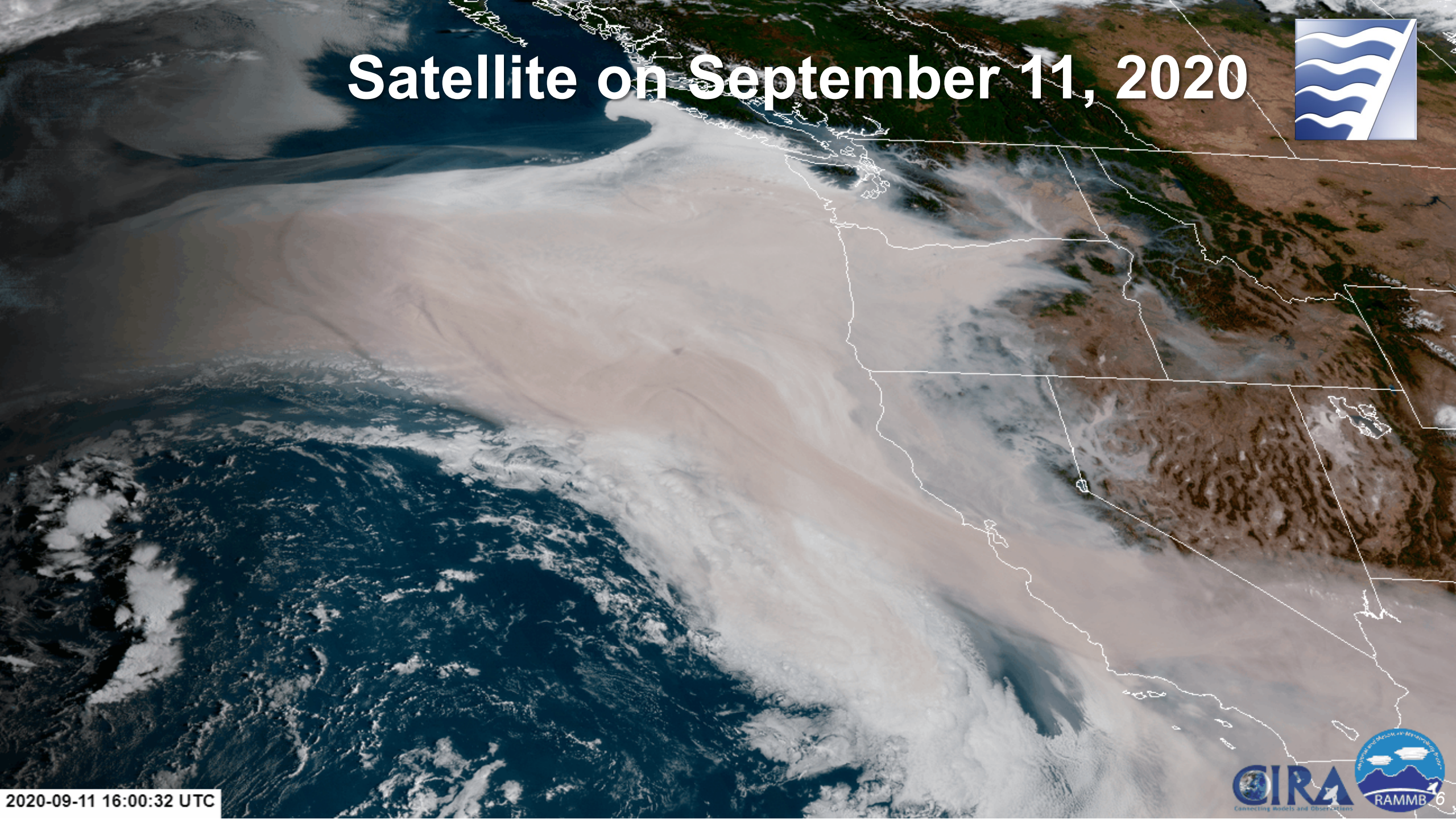
- 9,177 incidents across the State with 4.2 million acres burned.
- 5 of top 6 wildfires occurred this year.



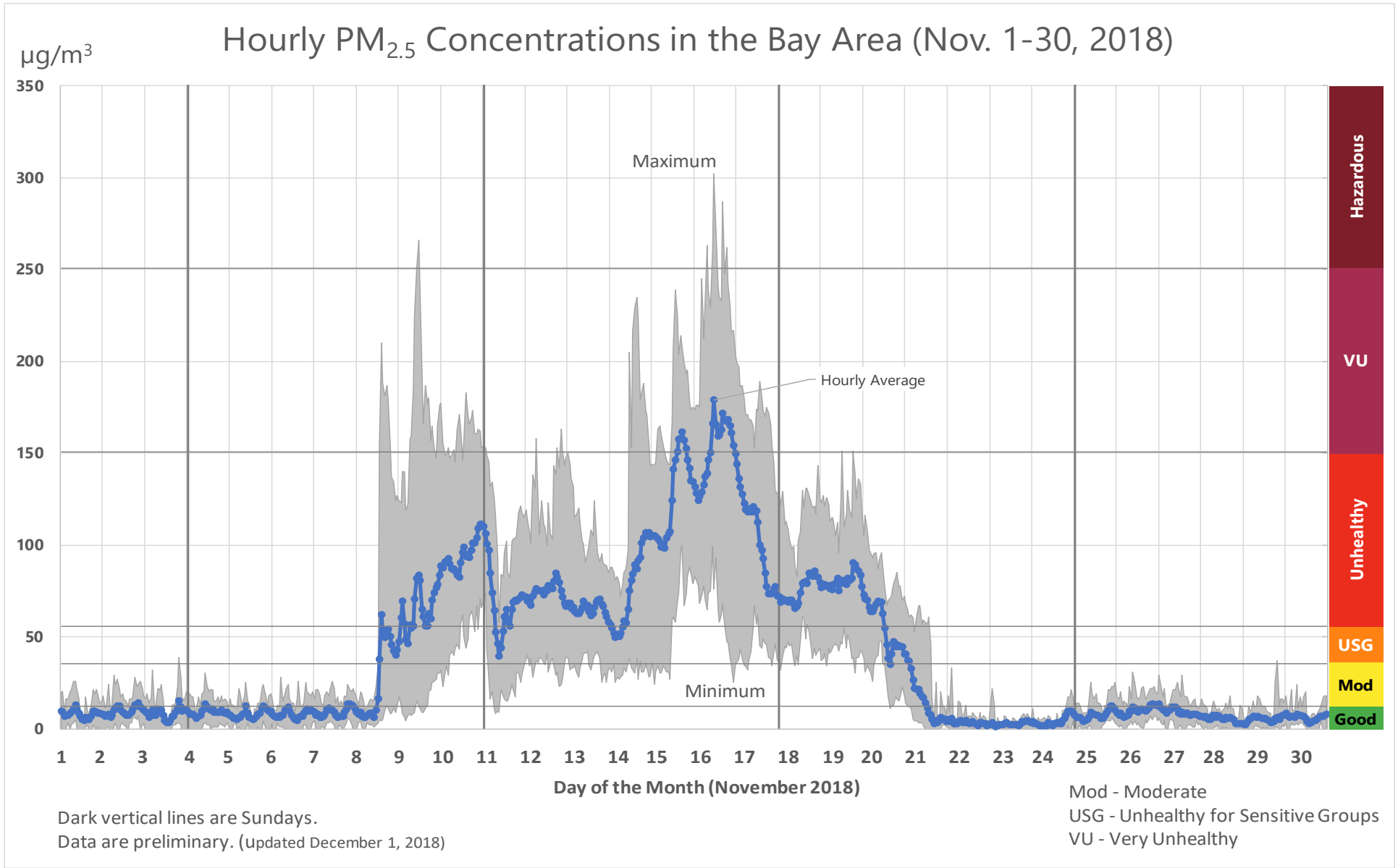
Data are in acreage and valid through Nov. 12, 2020.

$PM_{2.5}$ – Current Wildfires

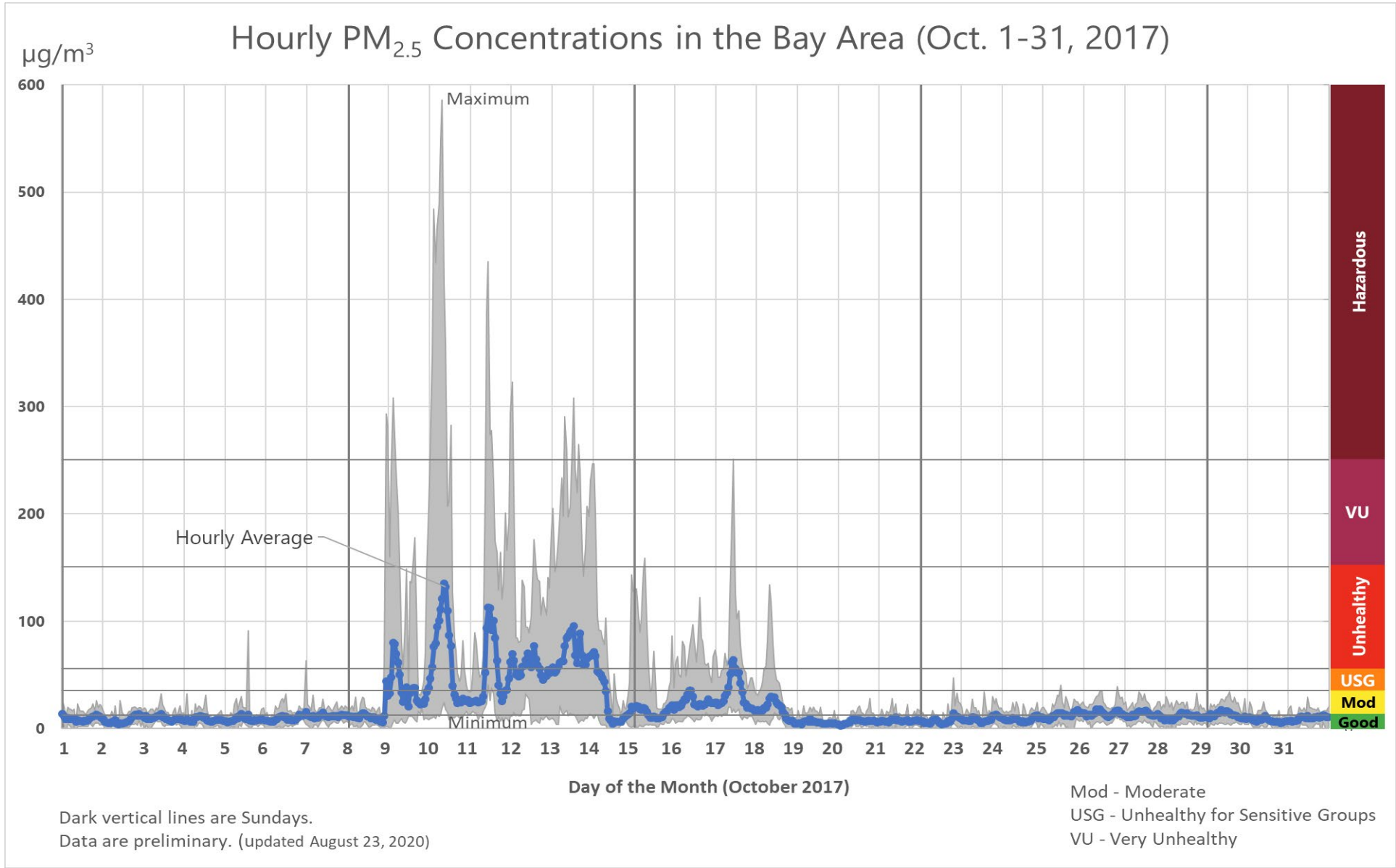



Satellite on September 11, 2020
2020-09-11 16:00:32 UTC
CIRA
RAMMB

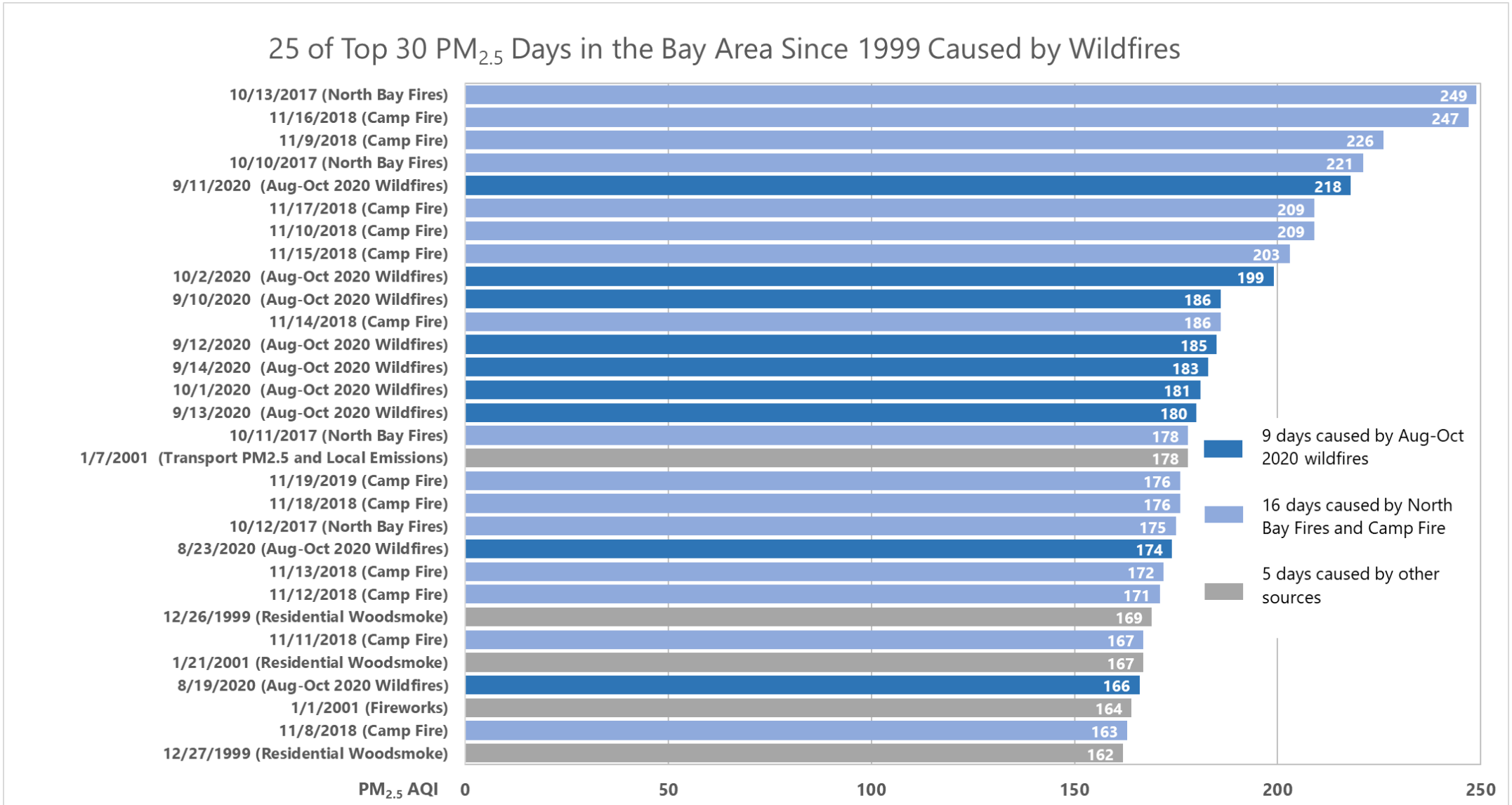
$PM_{2.5}$ – Camp Fire (2018)



$PM_{2.5}$ – North Bay Wildfires (2017)



Air Quality Impact due to Wildfires



Note: Data are preliminary. (updated on 10/20/2020)

Air Quality Forecasting

Traditional Sources

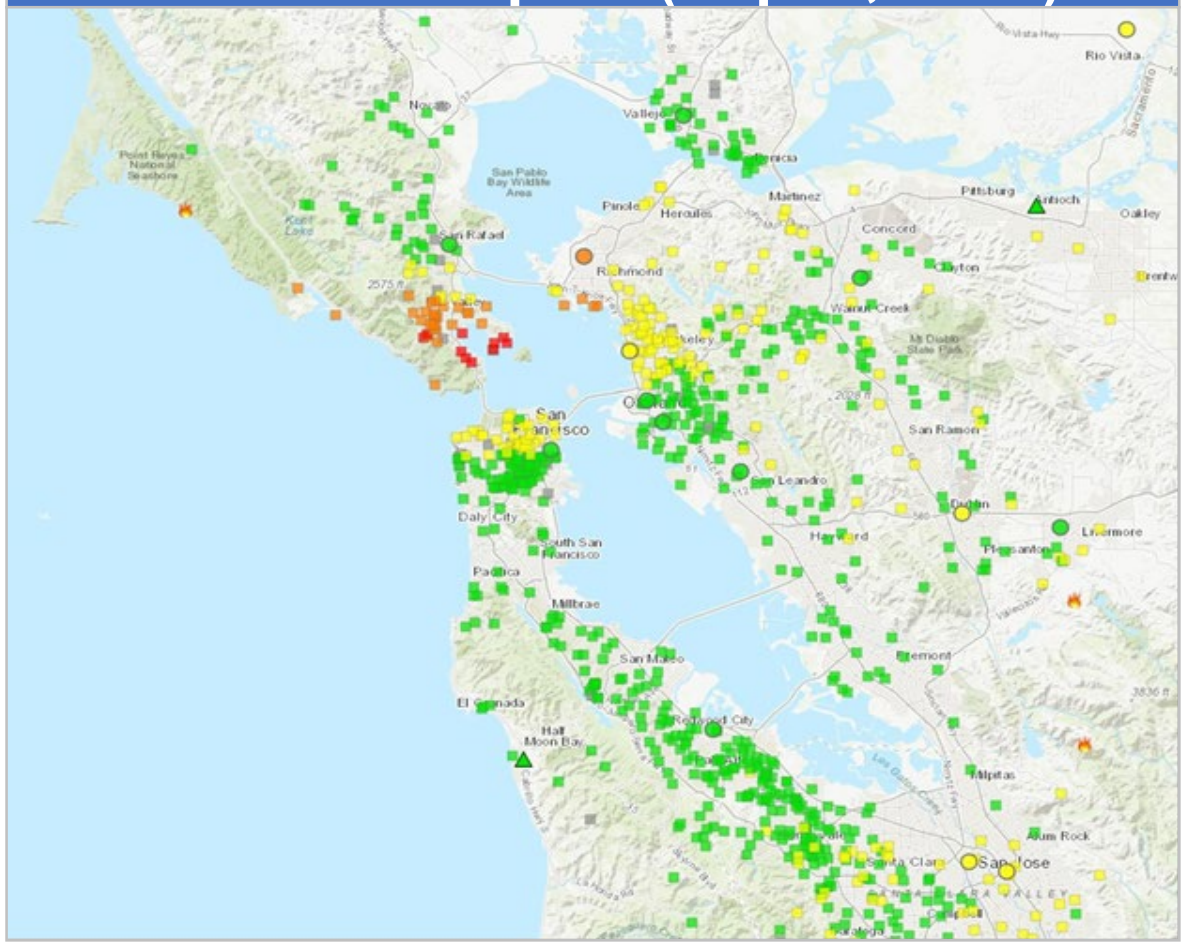
- Regression equations and air quality models
- Conceptual model
- Onshore vs offshore winds
- Time scale: 1 to 3 days
- Balance between exceedances vs forecast accuracy
- Daily AQI

Wildfires

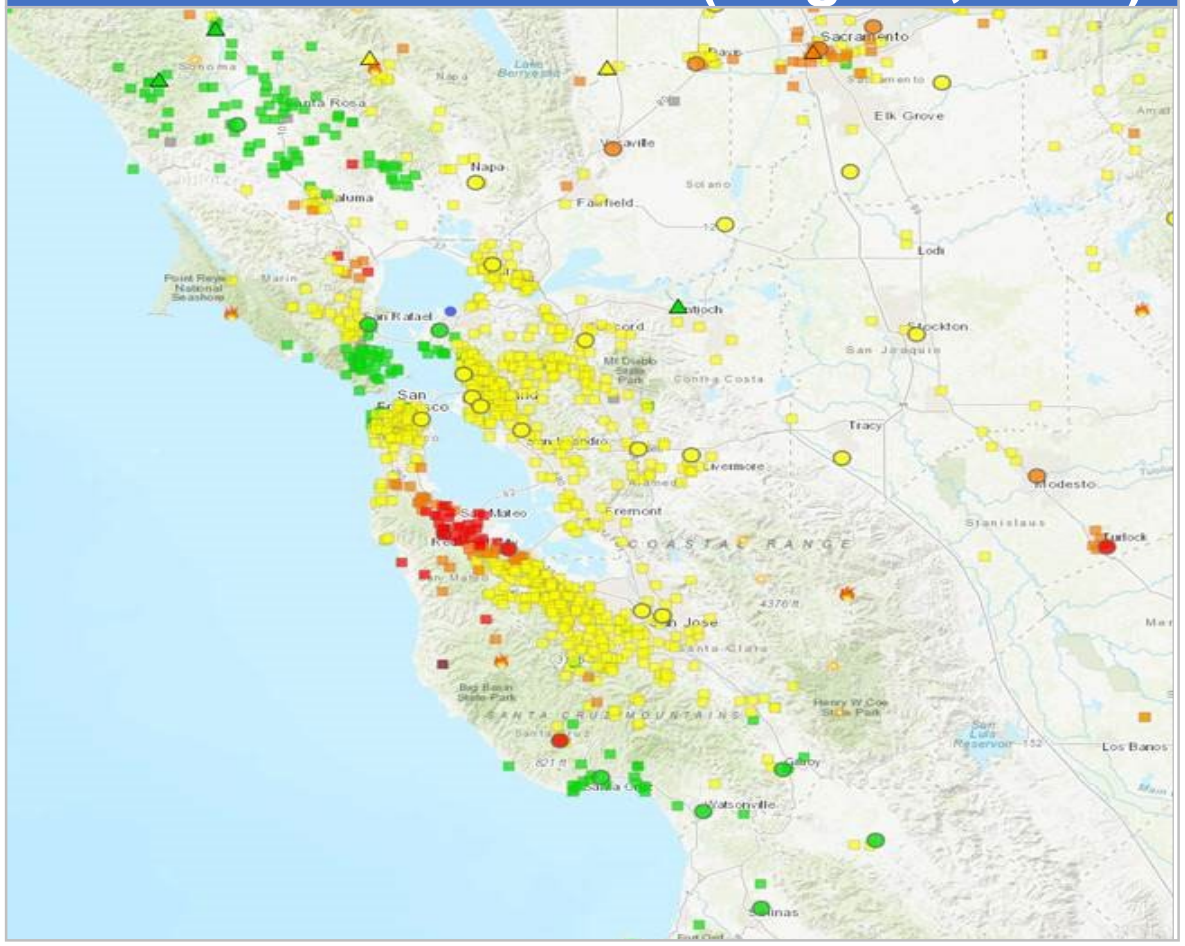
- HRRR-Smoke model, satellites, and cameras
- Local geography and wind flow
- Evolution of marine layer depth
- Time Scale: 1 to 7 days
- Communicating spatial impact accurately at shorter time scale
- Daily AQI becoming increasingly less-relevant

Local Geography and Wind Flow

Localized Impact (Sep. 3, 2020)

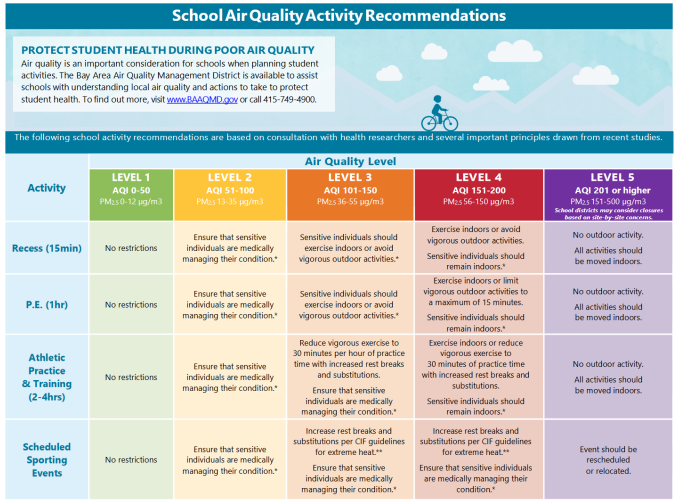


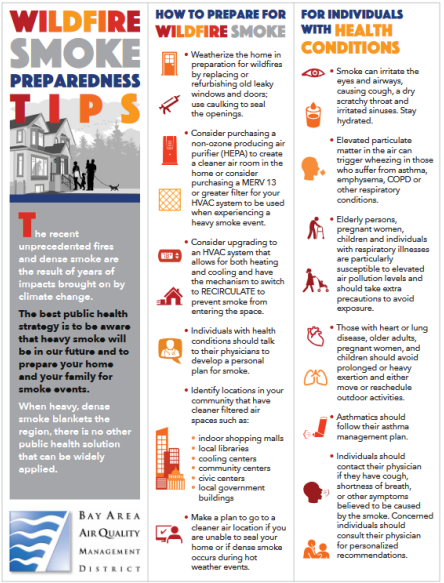
Terrain-Driven Winds (Aug. 28, 2020)



Operations' Response

- ✓Record-breaking string of Spare the Air Alerts
- ✓Simple & Consistent Messaging
  - ✓Broadcast video
  - ✓Talking points
  - ✓Forecast briefings
  - ✓Smoke emails
  - ✓Guidance on sensors
  - ✓FAQ and interviews
- ✓Partnerships/coordination
  - ✓CARB EBAM monitoring
  - ✓NOAA HRRR-Smoke model developer

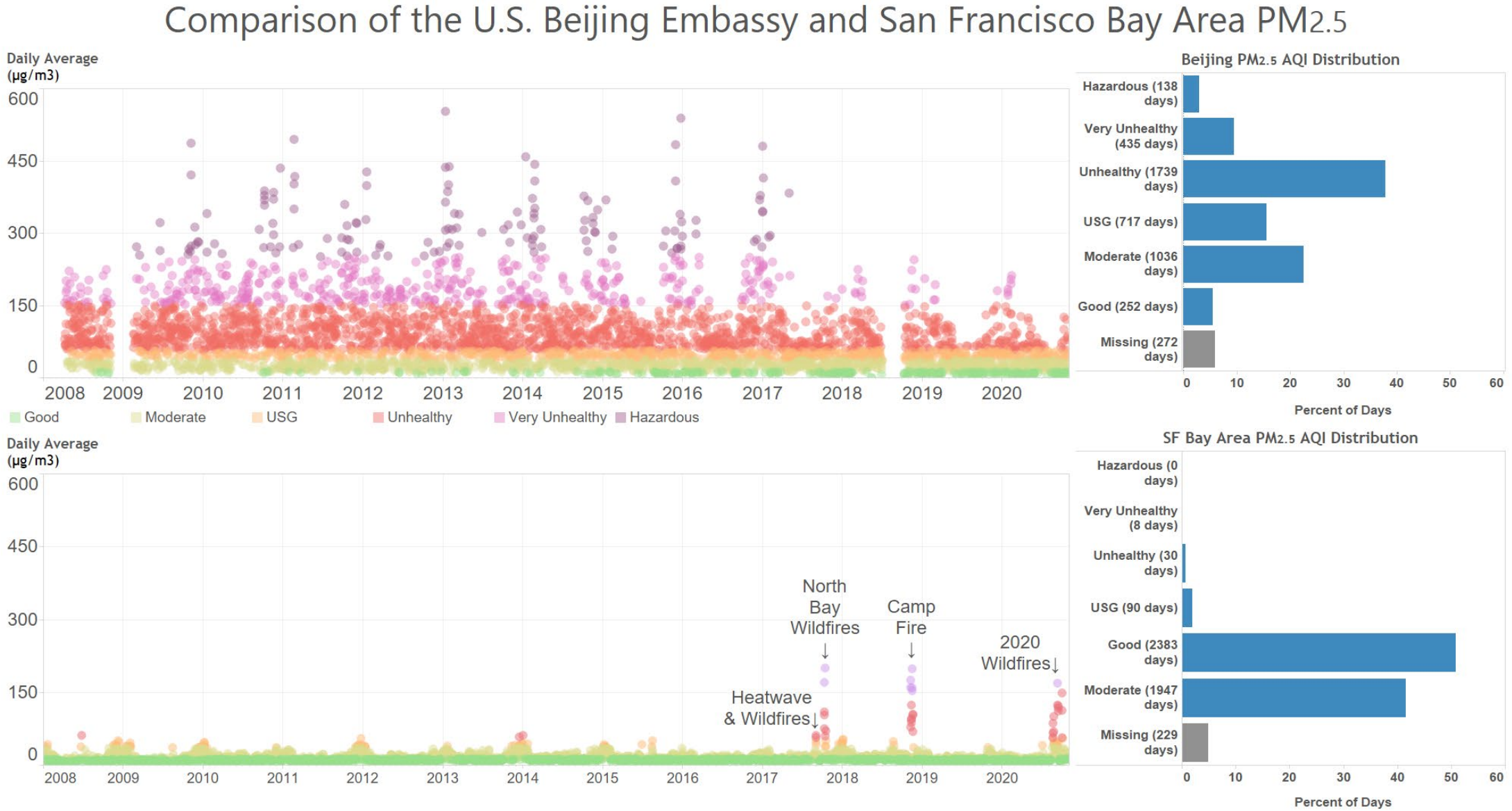




Air District Actions/Next Steps

- ❑ Continue to improve forecasting.
- ❑ Continue to work with CARB to locate temporary monitors.
- ❑ Enhance monitoring capabilities.
- ❑ Utilize sensor technology when applicable.
- ❑ Improve smoke health effects guidance and actions information.
- ❑ Enhance partnership by integrating Air District, federal and state programs.
- ❑ Continue to build coordination capability with local agencies.
- ❑ Define and address Air District role in wildfire response.
- ❑ Amend/develop regulations and guidance to aid in preparing, preventing, and responding to wildfires.
- ❑ Partnership with NWS and local media.
- ❑ **Increase prescribed burning.**
- ❑ **Short-term AQI.**

Air Quality Challenge for the Future …



Thanks for listening!

QUESTIONS / COMMENTS
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