

2018 Wildfire Campus Closure

Sacramento State and the Cal/OSHA Emergency Wildfire Smoke Regulation



Fitting the Pieces Together Conference
November 6-7, 2019

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The Cause

Camp Fire, Butte County, California

- November 8, 2018
- Largest and most deadly wildfire in California History
 - 85 fatalities, >153,000 Acres, >18,000 Structures destroyed
- 100% Containment took over 2 weeks



Air Quality Index

Air Quality Index Levels of Health Concern	Numerical Value	Meaning
Good	0-50	Air quality is considered satisfactory, and air pollution poses little or no risk.
Moderate	51-100	Air quality is acceptable; however, for some pollutants there may be a moderate health concern for a very small number of people who are unusually sensitive to air pollution.
Unhealthy for Sensitive Groups	101-150	Members of sensitive groups may experience health effects. The general public is not likely to be affected.
Unhealthy	151-200	Everyone may begin to experience health effects; members of sensitive groups may experience more serious health effects.
Very Unhealthy	201-300	Health alert: everyone may experience more serious health effects.
Hazardous	> 300	Health warnings of emergency conditions. The entire population is more likely to be affected.

City Average Particulate Air Pollution (PM_{2.5})

Most Polluted Cities

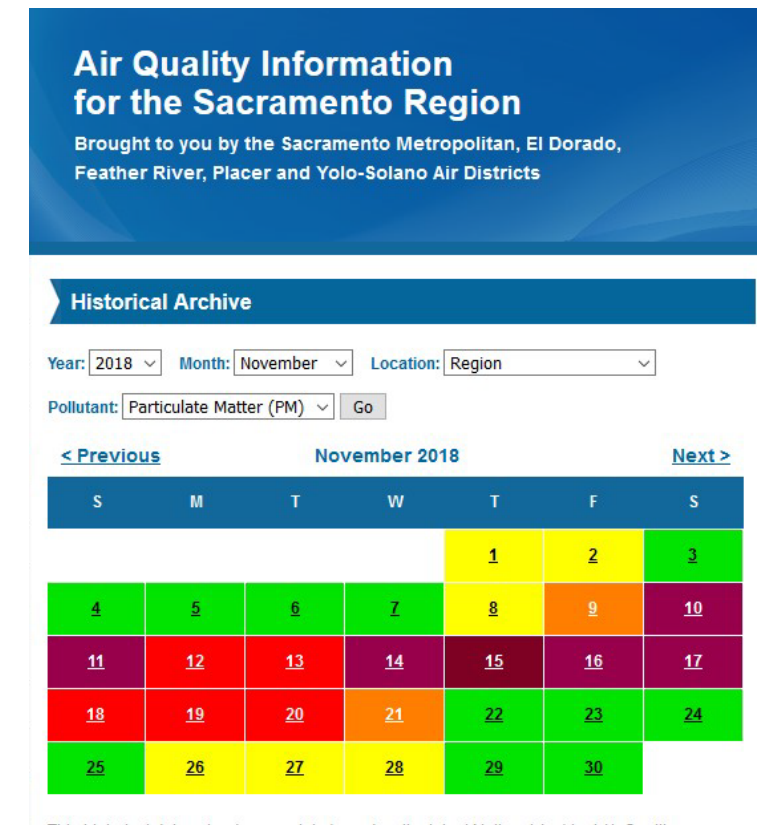
	City	Country	Last Hour	Last Day	Last 7 Days	Last 30 Days	Last 365 Days	Me
1	Sacramento	United States	225.4	152.9	77.2	24.5	12.1	
2	Faridabad	India	183.8	122.9	173.4	173.8	100.6	
3	Greater Noida	India	173.5	128.3	196.5	184	102	
4	San Francisco	United States	170.5	126.3	80.4	26.5	11.6	
5	Agra	India	169.9	124	163.8	141.7	91.9	
6	Oakland	United States	166.4	141.7	84.3	27.9	12.8	
7	Mathura	India	164.3	115.3	149.7	136	88.5	
8	San Jose	United States	162.8	108.9	68.3	24.1	11.3	
9	Aligarh	India	160.4	117.7	166.2	152.5	92.5	
10	Firozabad	India	156.8	119.4	159.3	141.3	89.9	
11	New Delhi	India	150.3	127.3	197	177.5	105.5	
12	Stockton	United States	149.3	119.2	71.5	25.8	15	
13	Noida	India	142.7	123.8	203.1	186.8	102.2	
14	Xinyang	China	140.7	90.2	76.3	50.3	52.8	

- Data Recorded on Thursday, November 15, 2018.
- All Values are in ug/m³
- Last Day Average was 152.9, translates to AQI of 202

The Action

Sacramento State Campus Closure

- Closed from November 13-21st
 - Initially closed on day-to-day status, with EOC meetings and decisions made daily
 - Campus notified community about closures through social media and email notifications
 - Decision made over weekend to continue closure from 19-21st
 - Students could leave for the holiday



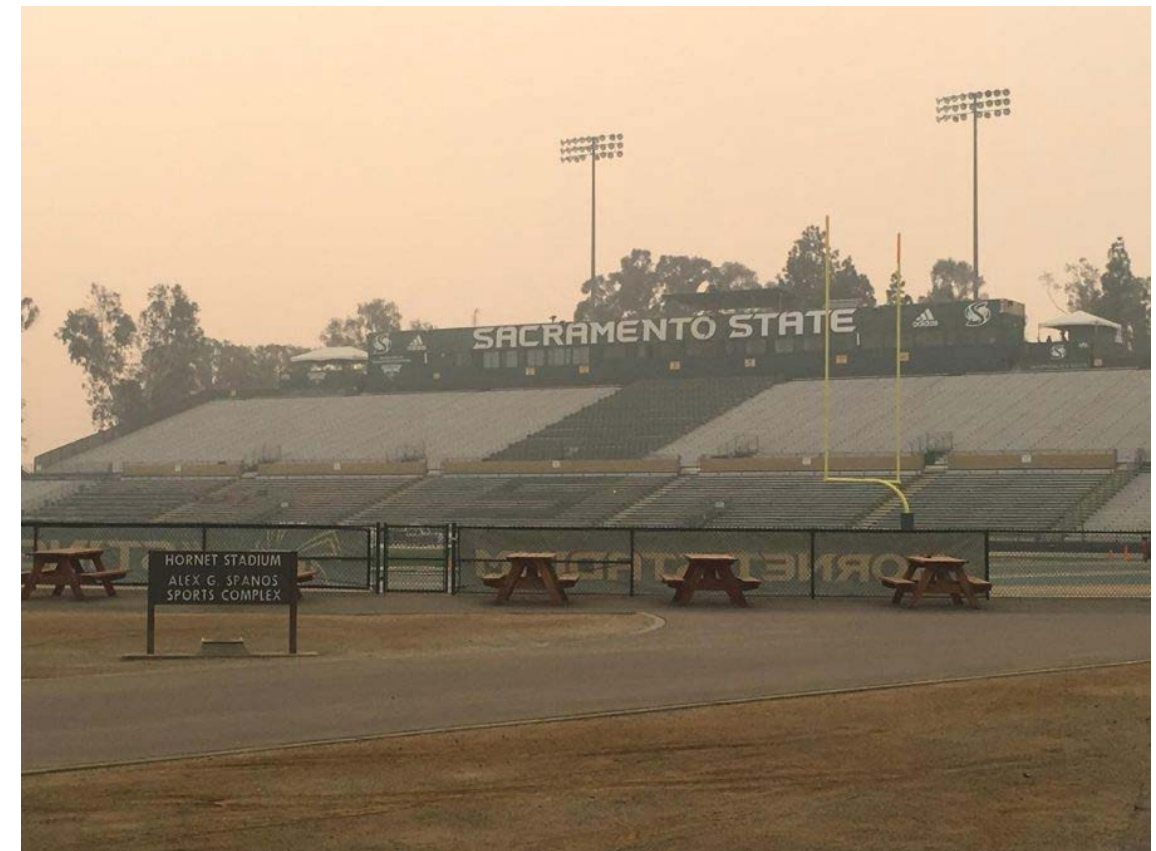
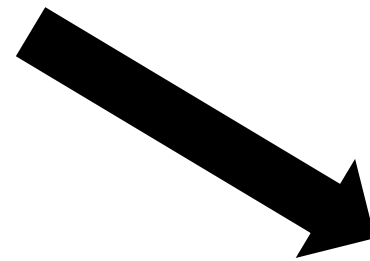
The Action



- Sacramento State EH&S and Public Safety provided voluntary use N95 respirators to campus community
- EH&S monitored real time PM 2.5 concentrations in buildings where essential personnel would be working during the closures
- Data was collected using the Dustrak DRX and SidePak Personal Aerosol Monitors

Air Monitoring Data

Friday November 16, 2018		
Location	PM 2.5 Concentration (ug/m ³)	Calculated AQI
Exterior	225.1	275
Lassen Hall (Administration)	215	265
The Well (Student Wellness Center)	75 (Medical Areas) 125 (Recreation Areas)	160 187
Police Station	125	187
Del Norte Hall (Human Resources and Payroll)	215	265
ASI Children's Center	75	161



Sunday November 18th		
Location	PM 2.5 Concentration (ug/m ³)	Calculated AQI
Exterior	131	190
Lassen Hall (Administration)	40	112
The Well (Student Wellness Center)	25 (Medical Areas) 65 (Recreation Areas)	78 156
Police Station	60	153
Del Norte Hall (Human Resources and Payroll)	70	158
ASI Children's Center	50	137

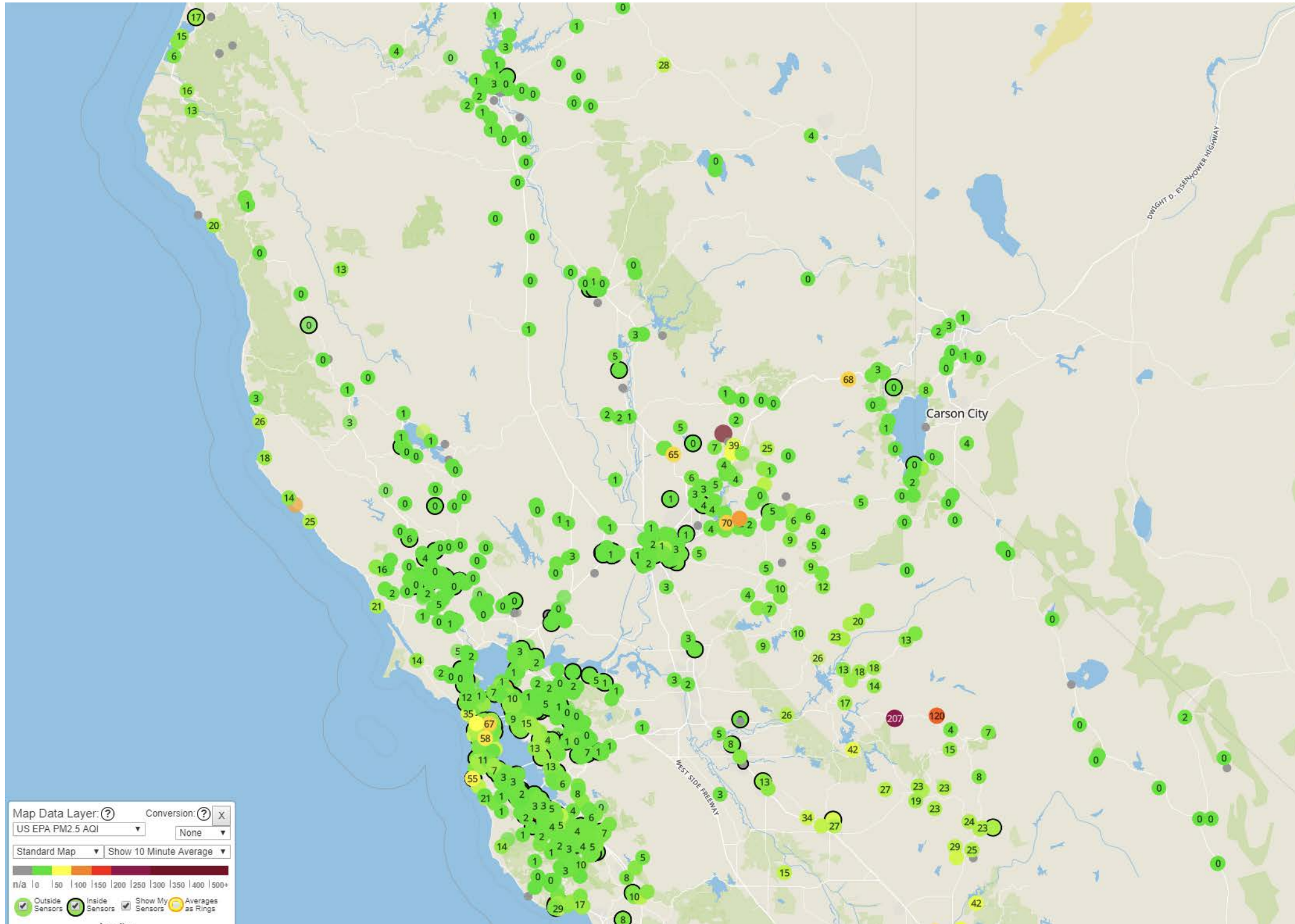
What Has Occurred Since?

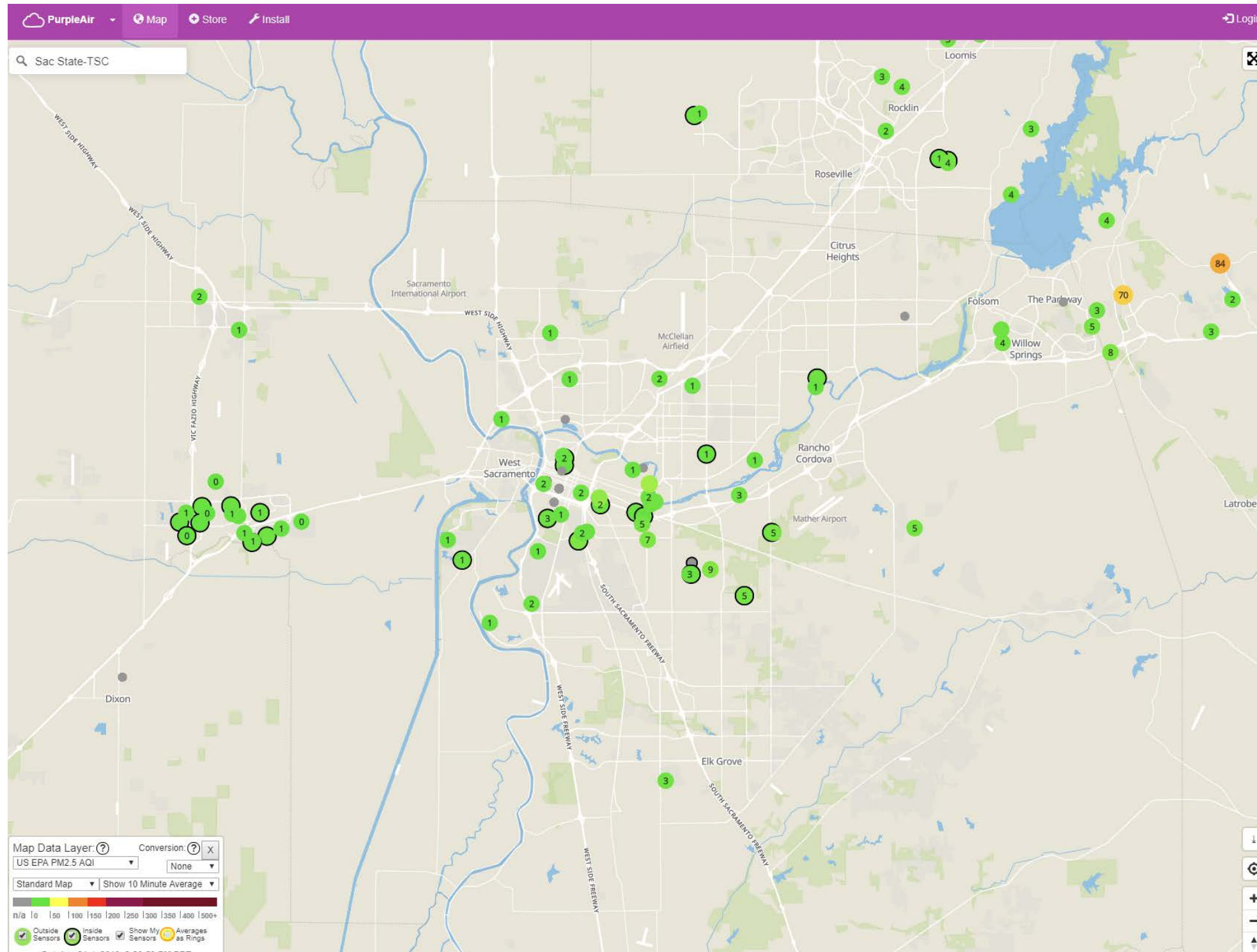
- Campus Wide Air Monitoring
- 3 Air Monitors located around campus
- Real Time AQI, PM2.5, PM10 Concentrations
- Able to view air monitoring data from locations around the world, including near each CSU Campus

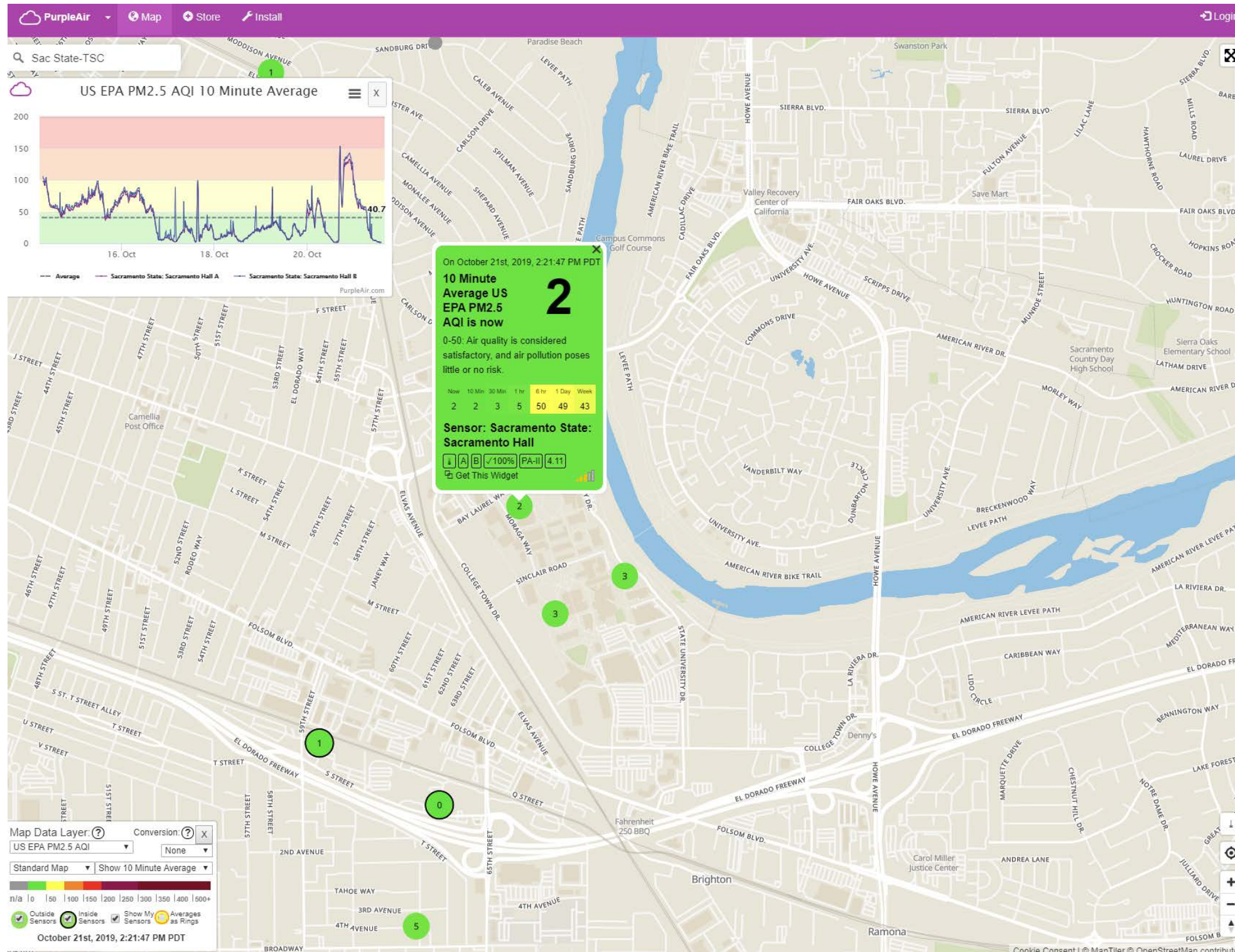
Sacramento State Air Monitoring

- PurpleAir Database and Network
- Cost is one-time, \$229 per monitoring unit
- Triangulated around populated campus areas

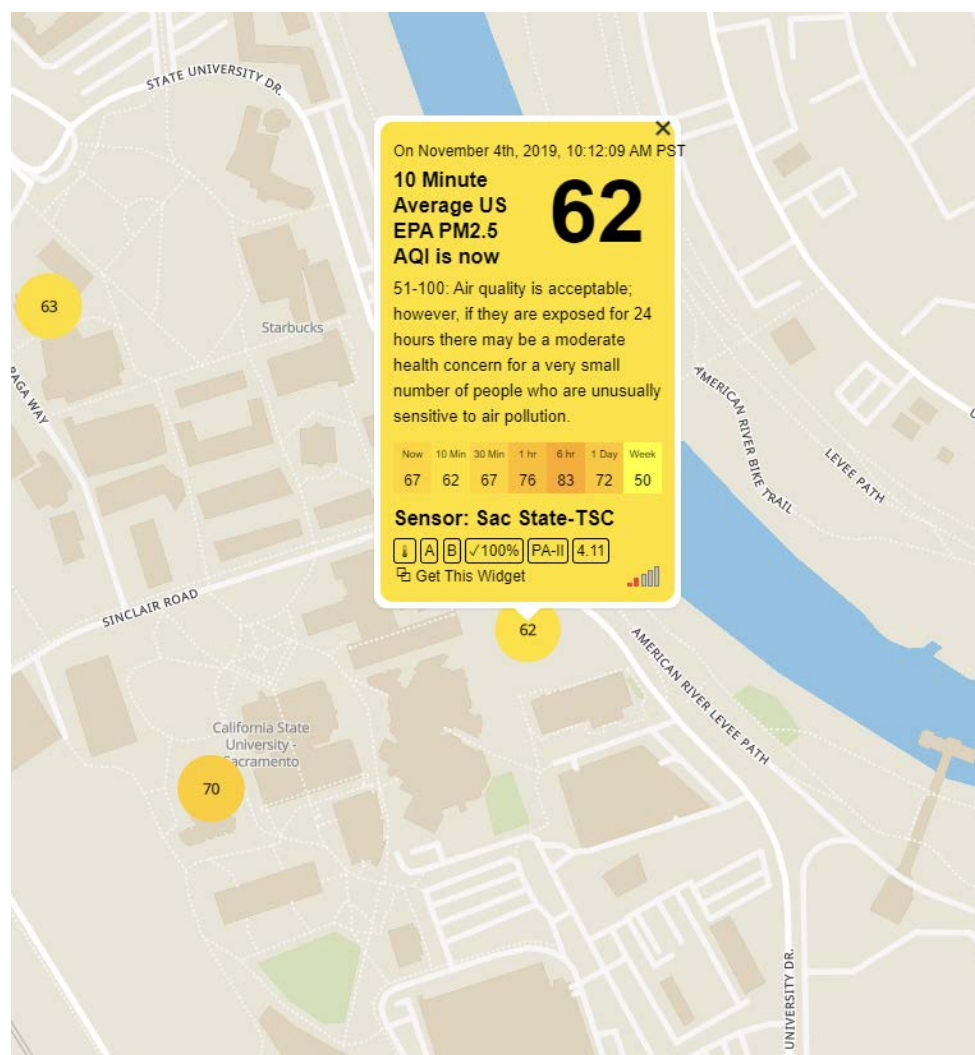








PurpleAir Versus Sacramento Air Quality



Ozone	PM2.5	
AQI Look-up Table for PM2.5 concentrations		
November 4, 2019 10 a.m. (PST)		
<p>Current AQI values represent potential health impacts within a short time period based on PM2.5 and ozone hourly averages. These values are recalculated hourly as more data become available throughout the day.</p>		
Site Name	Current PM2.5 AQI	Max PM2.5 AQI (PST)
Arden Arcade - Del Paso Manor	60	71 at 4 a.m.

Lessons Learned

- Emergency Preparedness is critical
- Communication plans to students and employees needed to be enhanced
- Need to develop specified areas for critical employees to be able to work in case of closures
 - Include Sampling Plan to determine current air quality levels

Wildfire Smoke Events Resource Guide

Considerations for curtailing campus activities

- Lessons-learned could benefit the entire system.
- EHS, RM & Emergency Management input.
- It was meant as guidance not prescriptive.
- Finalization is pending the Cal/OSHA permanent rule.
- It assumes established campus emergency processes.

Additional Elements of the Guide

Things to consider and useful attachments

- Background
- Resources and references
- Decision process
- Preparing for closure and curtailed activities
- Post event
- Attachments

What is Cal/OSHA Smoking?

They deviated from established rulemaking processes.

- They now require voluntary and mandatory respirator use based on EPA thresholds rather than occupational thresholds.
- The public comment meetings were fairly contentious.
- The emergency rule will expire on Jan. 28.
- CSU commented on the temporary and emergency rules.

UC Policy Issued in October

The Workgroup report was promptly issued as policy.

- UCOP asked the CSU to align with them.
- The [report](#) was shared with CSU stakeholders.
- It recommends and requires actions based on AQI.
- They consolidated their recommendations into an [appendix](#).
- Their matrix listed actions recommended and required per AQI.

Thank You!

Questions?