



California Environmental Protection Agency

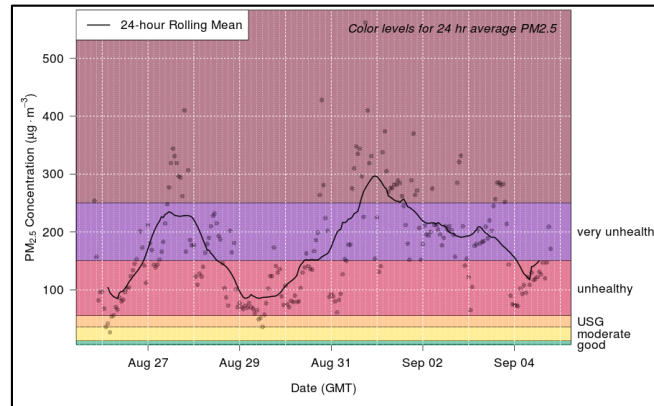
AIR RESOURCES BOARD

Office of Emergency Response

Wildfire Air Monitoring Response Coordination

U.S. EPA Wildfire Smoke and
Health Risk Communication Workshop
September 22, 2016

Air Response Model



Data



Data to
Message



Message to
Audience

California Wildfire Smoke Response Coordination Document

- Compilation of CA best practices and approaches.
- Describes agencies duties and roles.
- Concise: Ten pages of content (includes examples, templates and contact information)
- Lists recommended health actions.
- <https://www.arb.ca.gov/carpa/cawildfiresmokersponsecoordinationaug14.pdf>



Working Draft

Wildfire Smoke Response Coordination –
Best Practices Being Implemented by Agencies in California



August 2014

Data sharing and coordination

- Daily intelligence briefing (email & phone)
 - InciWEB, CALFIRE, USFS, Media, Twitter, PFIRS, firetracker.scpr.org
- 1300hrs Smoke Call
 - 12hr to 96hr outlook (regional reports, weather forecasts)
- 1400hrs Monitoring Call (decisions made)
 - Everyone on same call (affected districts, ARA, ARB)
 - Districts needs
 - Coordinate activities (12hr to 96hr)
 - ARA reports/needs
 - Weekend and Resource Staffing (Thurs)
- Weekly Cal/EPA Call (Tuesday @0900)

Data QA/QC

Raw data undergoes automated QA/QC macros:

Eliminates data

- during initial monitor stabilization (1st hour)
- improper flowrate
- abnormal temp or RH
- instruments electronic noise (negative values)
- duplicate data set

Current Status | Unit Locations Map | Administration | Export Data: Excel | Log off

Current Status

Alias	Date/Time	Location	Date/Time/GMT	ConcRT	ConcHr	Flow	W/S	W/D	AT	RHx	RHi	BV	FT
ARB 21 (offline)	10/5/15 11:04AM	2130 13th Street, Sacramento, CA 95818, USA	10/5/2015 7:00:00 PM	0.007	0.004	16.7	1.2	245	21.1	36	15	14.4	27.7
ARB 1 (offline)	8/25/15 9:00AM	U Street V Street Alley, Sacramento, CA 95818, USA	8/25/2015 5:00:00 PM	0.024	0.028	16.7	0.6	147	21.8	47	23	14.1	33.9
ARB 13 (offline)	11/10/15 9:04AM	2130 13th Street, Sacramento, CA 95818, USA	11/10/2015 5:00:00 PM	-0.005	-0.005	16.7	0.3	72	9.9	82	38	14.4	14.8
ARB 14 (offline)	10/6/15 8:04AM	2130 13th Street, Sacramento, CA 95818, USA	10/6/2015 4:00:00 PM	0.006	0.012	16.7	0.5	51	12.2	0	39	14.4	26.5
ARB 15 (offline)	10/6/15 9:04AM	2130 13th Street, Sacramento, CA 95818, USA	10/6/2015 5:00:00 PM	0.021	0.016	16.6	0.7	260	13.6	0	44	14.4	23.0
ARB 16 (offline)	10/6/15 11:04AM	2130 13th Street, Sacramento, CA 95818, USA	10/6/2015 7:00:00 PM	0.002	0.002	16.7	1.3	262	22.2	46	20	14.3	32.0
ARB 17 (offline)	10/6/15 8:04AM	2130 13th Street, Sacramento, CA 95818, USA	10/6/2015 4:00:00 PM	0.005	0.005	16.7	0.3	72	9.9	82	38	14.4	14.8
ARB 18 (offline)	10/5/15 9:04AM	2130 13th Street, Sacramento, CA 95818, USA	10/5/2015 5:00:00 PM	0.024	0.028	16.7	0.6	147	21.8	47	23	14.1	33.9
ARB 19 (offline)	10/14/15 12:04PM	2130 13th Street, Sacramento, CA 95818, USA	10/14/2015 8:00:00 AM	0.008	0.008	16.7	0.8	257	25.8	54	33	14.4	27.3
ARB 2 (offline)	10/6/15 7:04AM	2130 13th Street, Sacramento, CA 95818, USA	10/6/2015 3:00:00 PM	0.004	0.004	16.7	1.6	176	37.7	14	8	14.4	43.7
ARB 20 (offline)	11/10/15 9:04AM	2700-2798 K St, Sacramento, CA 95818, USA	11/10/2015 5:00:00 PM	0.006	0.006	16.7	1.3	251	36.8	20	11	14.4	42.8
ARB 22 (offline)	10/1/15 4:04AM	2130 13th Street, Sacramento, CA 95818, USA	10/1/2015 12:00:00 AM	0.002	0.005	16.7	1.7	256	34.5	27	15	14.4	40.3
ARB 23 (offline)	10/14/15 11:04AM	2130 13th Street, Sacramento, CA 95818, USA	10/14/2015 7:00:00 PM	0.004	0.004	16.7	1.6	226	31.7	38	21	14.4	36.3
ARB 24 (offline)	10/15/15 10:09AM	2130 13th Street, Sacramento, CA 95818, USA	10/15/2015 6:00:00 PM	0.008	0.011	16.7	1.8	227	28.5	48	27	14.4	31.6
ARB 25 (offline)	10/29/15 12:20PM	186 NE Green St, Sacramento, CA 95818, USA	10/29/2015 8:00:00 AM	0.012	0.005	16.7	1.4	233	26.8	53	31	14.4	28.6
ARB 26 (offline)	10/23/15 11:04AM	U Street V Street Alley, Sacramento, CA 95818, USA	10/23/2015 7:00:00 PM	0.006	0.008	16.7	0.8	257	25.8	54	33	14.4	27.3
ARB 27 (offline)	9/16/15 11:58AM	2130 13th Street, Sacramento, CA 95818, USA	9/16/2015 7:00:00 PM	0.007	0.009	16.7	0.6	309	24.6	55	33	14.4	26.3
ARB 28 (offline)	10/5/15 10:09AM	2130 13th Street, Sacramento, CA 95818, USA	10/5/2015 6:00:00 PM	0.015	0.012	16.6	0.5	117	22.1	65	37	14.4	24.6
ARB 29 (offline)	10/23/15 4:04PM	U Street V Street Alley, Sacramento, CA 95818, USA	10/23/2015 12:00:00 PM	0.013	0.017	16.7	0.6	126	20.5	71	41	14.4	22.8
ARB 3 (Clearlake)	11/4/15 11:04AM	Lat: 38° 47' 44" N, Long: 122° 54' 44" W	11/4/2015 7:00:00 PM	0.008	0.004	16.7	0.5	104	19.3	73	42	14.4	21.5
ARB 30 (offline)	9/21/15 2:04PM	2130 13th Street, Sacramento, CA 95818, USA	9/21/2015 12:00:00 PM	0.012	0.017	16.7	0.5	57	17.7	77	43	14.4	20.2
ARB 31 (offline)	11/6/15 2:52PM	2130 13th Street, Sacramento, CA 95818, USA	11/6/2015 12:00:00 PM	0.009	0.009	16.7	0.4	31	16.1	82	45	14.4	19.5
ARB 32 (offline)	10/5/15 11:04AM	2130 13th Street, Sacramento, CA 95818, USA	10/5/2015 7:00:00 PM	0.007	-0.001	16.7	0.5	84	15.9	84	45	14.4	19.9
ARB 33 (offline)	10/5/15 10:09AM	2130 13th Street, Sacramento, CA 95818, USA	10/5/2015 6:00:00 PM	0.007	0.015	16.7	0.9	121	16.6	79	45	14.4	19.8
ARB 4 (offline)	9/24/15 9:04AM	2130 13th Street, Sacramento, CA 95818, USA	9/24/2015 7:00:00 PM	-0.003	-0.005	16.7	1.1	129	18.5	70	42	14.4	21
Unit 1022 (offline)	10/6/15 11:04AM	2130 13th Street, Sacramento, CA 95818, USA	10/6/2015 7:00:00 PM	-0.005	-0.005	16.7	0.9	186	22.3	59	35	14.4	24.9
Unit 1023 (offline)	10/6/15 10:04AM	2130 13th Street, Sacramento, CA 95818, USA	10/6/2015 6:00:00 PM	0.003	0.004	16.7	0.8	238	24.9	54	28	14.4	29.8
			8/3/2015 18:00	0.007	0.012	16.7	1	238	26.9	49	23	14.4	33.5
			8/3/2015 19:00	0.011	0.003	16.7	1.1	243	28.9	44	20	14.4	36.4
			8/3/2015 20:00	0.017	0.018	16.7	1.6	194	33	29	15	14.4	39.4
			8/3/2015 21:00	0.008	0.011	16.7	1.9	154	34.4	22	12	14.4	39.8
			8/3/2015 22:00	0.003	0.003	16.7	2.4	138	34.9	19	11	14.4	40.3
			8/3/2015 23:00	0	-0.004	16.7	2.1	143	35.3	18	10	14.4	40.7
			8/4/2015 0:00	0.004	0.005	16.7	1.8	160	35.3	17	10	14.4	40.7
			8/4/2015 1:00	0.004	0.006	16.7	1.5	260	34.5	26	14	14.4	40.5
			8/4/2015 2:00	0.004	0.001	16.7	1.6	231	32.6	30	16	14.4	38.2
			8/4/2015 3:00	0.007	0.01	16.7	1.5	228	29.7	37	20	14.4	34.6
			8/4/2015 4:00	0.007	0.007	16.7	1.8	225	26.1	50	28	14.4	29.4
			8/4/2015 5:00	0.008	0.012	16.7	1.9	225	23.9	56	33	14.4	25.9
			8/4/2015 6:00	0.009	0.006	16.7	1.3	227	22.9	59	36	14.4	24.3
			8/4/2015 7:00	0.01	0.008	16.7	1	282	22.2	63	38	14.4	23.5

AirNow Wildfire Webpage

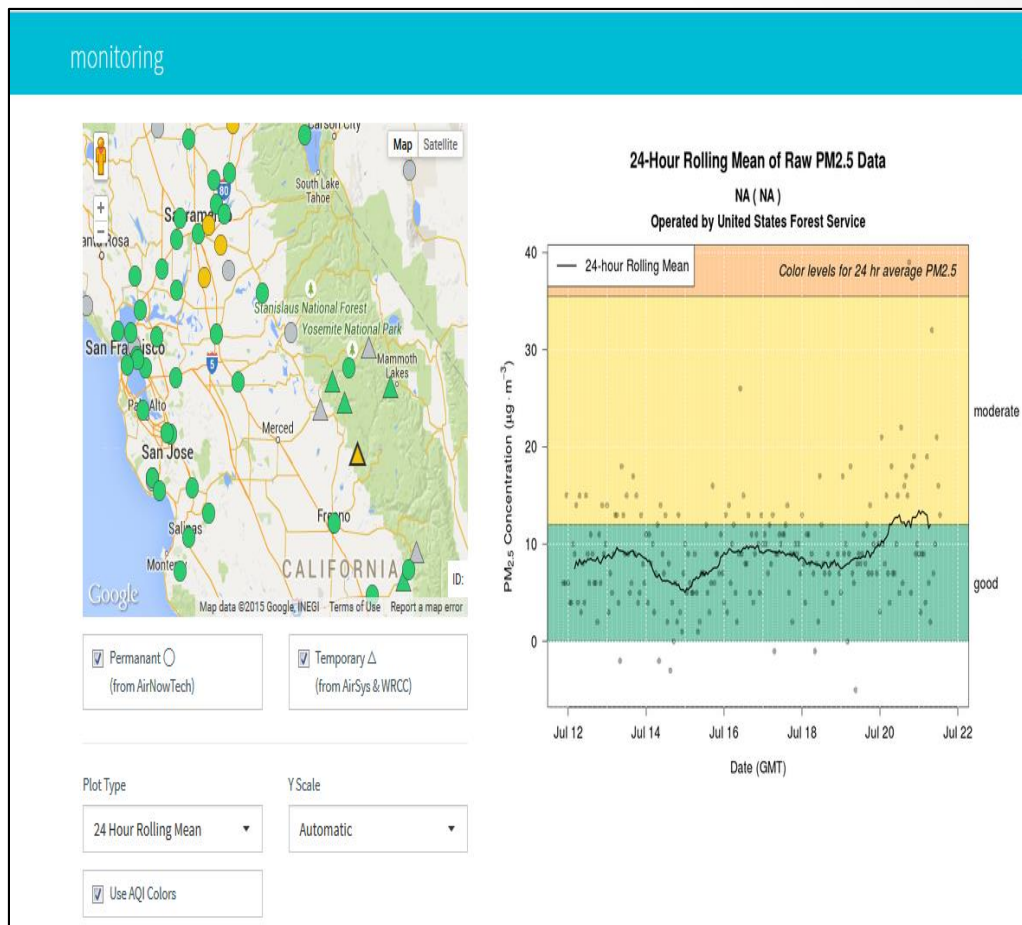
Dynamic map with selectable overlays:

- Nationwide
- Current PM2.5 AQI (Network & Portable)
- Fire locations
- Smoke plumes
- Incident information
- Scale able to include new data inputs



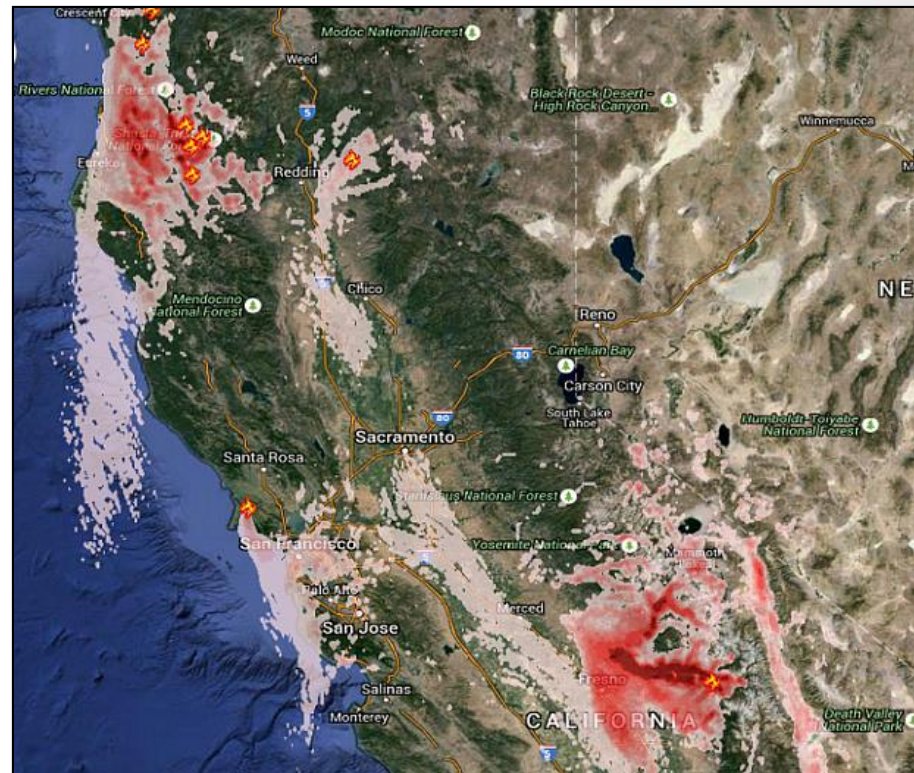
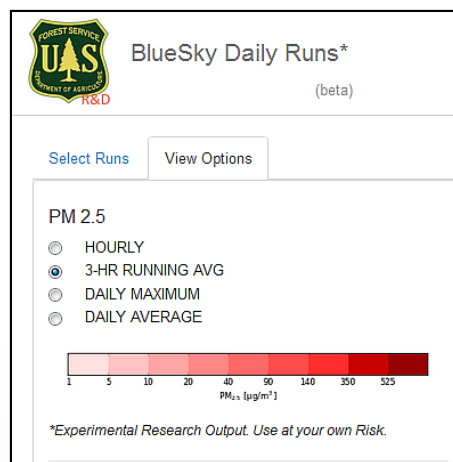
AirFire Webpage and Graphs

- Data available from all permanent, portable monitors (USFS, NPS, ARB, District, Tribal, others)
- Auto generates customizable reports
- Stable hyperlink
- Includes maps, PM concentration and daily trend data



Smoke Plume Model Runs

- Website automatically generates daily plume models twice a day.
- Estimated PM values.
- Animated 72-hour outlook.



Public Messaging Tools

- California Smoke Information (Blogspot)
- Smoke impact summaries
- Blog auto post to Twitter

California Smoke Information

This site is a voluntary effort by city, county, state, tribal and/or federal agencies to California communities affected by wildfire smoke.

HOME CURRENT AIR QUALITY WHERE'S THE FIRE SMOKE AND HEALTH MAPPING - WEBCAMS

TUESDAY, SEPTEMBER 8, 2015

Tuesday, September 8, 2015 - North Coast Unified AQMD Smoke PSA

The North Coast Unified Air Quality Management District had issued a Public Service Announcement smoke from current wildfires dated September 8, 2015. There are currently no Unhealthy Advisory Hazardous Alerts issued in our area. See the [district's website](#) for additional information.

Posted by North Coast Air Quality at 10:36 AM No comments:

Recommend this on Google



CA Smoke Blog
@CASmokeBlog
californiasmokeinfo.blogspot.com

TWEETS 96 FOLLOWING 3 FOLLOWERS 42

Tweets Tweets & replies

CA Smoke Blog @CASmokeBlog · Apr 20
Monday, April 20, 2015 Major wildfires in southern Siberia causing hazy skies in the western US. [dlvr.it/9THwLC](#)

Report

Issue Date: 09/08/2015
Josh Hall & Tod Johnson

Rough Fire. Contributions from

relative humidity. Most of the smoke Converse Basin, near Cedar Grove, and stained. fire today. Smoke will be slow to lift and sport winds are expected primarily from pothills northwest of the fire. Residual ing produced. Unhealthy to Hazardous pacts expected in the Owens Valley.

tomorrow
look
Hr AQI
ber 9, 2015

Worst Time of Day
Impacts
3-Hour AQI and
Period

Smoke Impact Summary # 11 - King Fire, September 26, 2014

Prepared by T.Johnson, (NPS) and Charles Sams (USFS)

Key Points for Consideration:

1. Last night drainage flows transported smoke overnight into the local nearby communities in the lower mountains and foothills. This diurnal dispersion flow or "bath tub slosh effect" will be a repetitive pattern while heavy interior fuels continue to burn. Yesterday's rainfall of 0.5 to 0.8 inches assisted crews with mop up and overall fire control, regardless, wildfire smoke will still persist for some time.

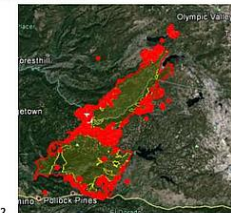


Figure1
Reviewing MODIS & infra-red flight information very little intense heat was indicated, but was noted on the W and E sides of fire perimeter.

The red dots represent isolated heat which is reflective of large down smoldering fuels. Suppression efforts were aided by yesterday's rainfall however, mop up will be very labor intensive to secure fireline and reduce smoke production which is now dominated by smoldering combustion versus flaming combustion.

- 2.
3. This morning's weather is dominated by clear sky, high humidity and cool temperatures. This afternoon, cloud cover, rainfall and potential thunderstorms and highs in the 50's will continue to aid firefighters to meet suppression objectives and prevent fire spread. There is no expectation of fire growth outside of perimeter lines today, as fire behavior is dominated by smoldering combustion. *These weather conditions are expected through the weekend.*
4. Yesterday's fire growth was minimal and was interior to control lines. Total acreage burned to date is 97,099 with 68% containment.
5. The Blue-Sky dispersion model runs estimates 2000 acres of interior smoldering combustion.
6. Light amounts of smoke were detected in fire camp this morning as a result of down drainage overnight smoke transport. The trend for fewer smoke impacts to firefighters in camp continues in a positive direction.

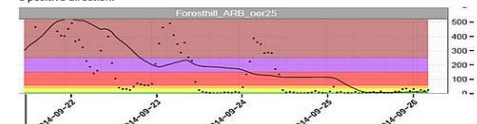


Figure 1 Blue-Sky Smoke model projection for September 26th @ 2:01pm. Yesterday's rains greatly abated fire spread and the production of smoke. Overnight, smoke remained in the drainages, slowly exiting, and moving to the E in the afternoon.

Sacramento Metropolitan AQMD
San Diego APCD

Page 1 of 2

Web Links

Incident Information

Inciweb (California) <http://inciweb.nwcg.gov/state/5/>

CalFire http://cdfdata.fire.ca.gov/incidents/incidents_current

Data Displays

Bluesky smoke plume model runs <http://viewer.smoke.airfire.org/>

AirNOW wildfire monitoring page http://airnow.gov/index.cfm?action=topics.smoke_wildfires

AirFire monitoring <http://smoke.airfire.org/monitoring/#/>

AirFire monitoring report <http://smoke.airfire.org/monitoringReport/#/>

Messaging

California Smoke Blog <http://californiasmokeinfo.blogspot.com/>

California Smoke Blog Twitter <https://twitter.com/CASmokeBlog>

Air Emergency Response Planning

CARPA website <http://www.arb.ca.gov/carpa/carpa.htm>

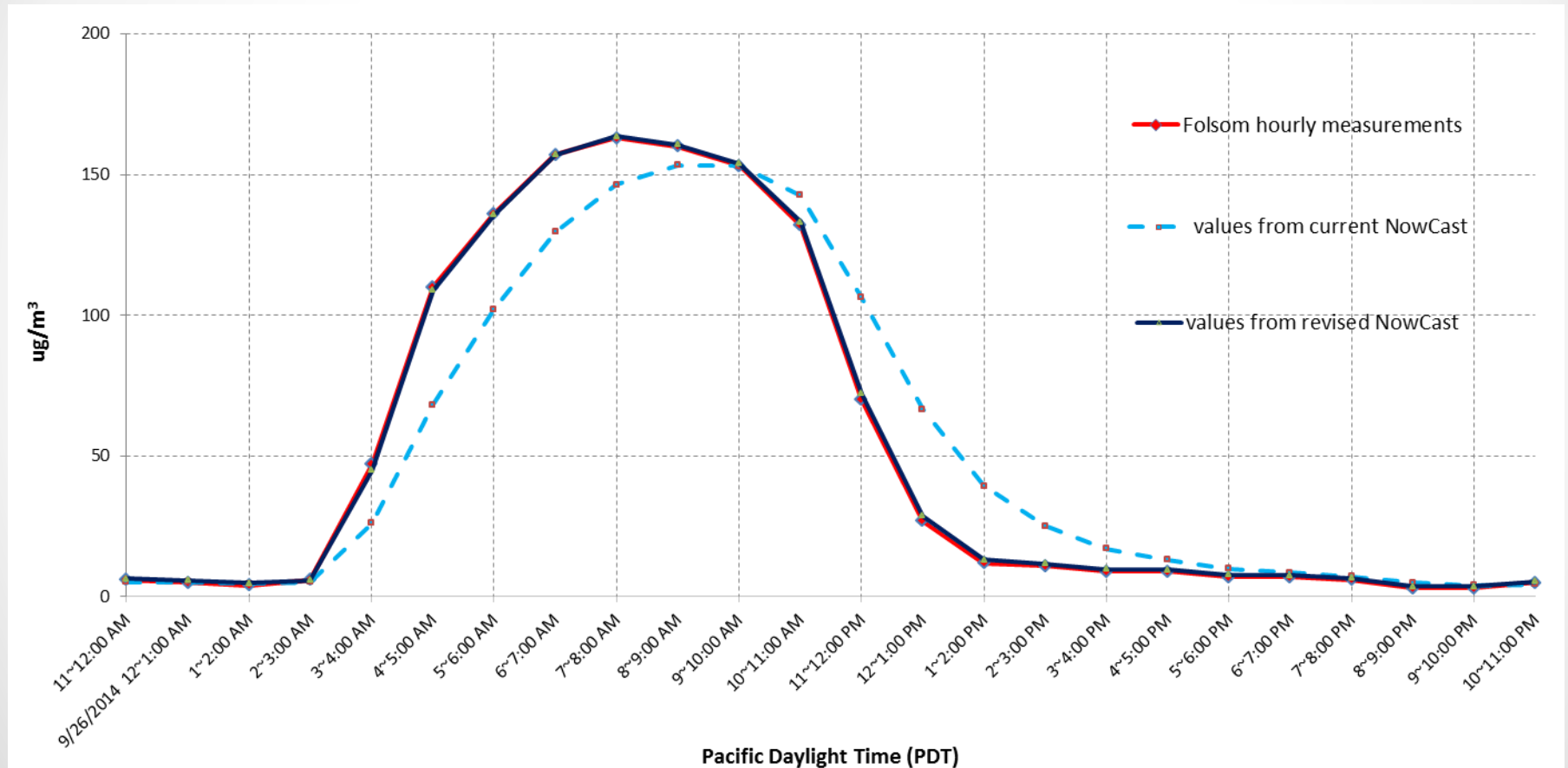
Comparison of Computed AQI

(Sept. 26, 2014 at Roseville and Folsom)

Time (PDT)	Roseville hourly Average	Values from current NowCast	Values from revised NowCast	Folsom hourly Average	Values from current NowCast	Values from revised NowCast
11~12:00 AM	11	11	11	6	5	6
9/26/2014 12~1:00 AM	12	11	12	5	5	5
1~2:00 AM	12	12	13	4	5	4
2~3:00 AM	28	20	23	6	5	5
3~4:00 AM	57	38	52	47	26	44
4~5:00 AM	68	53	66	110	68	108
5~6:00 AM	69	61	69	136	102	135
6~7:00 AM	71	66	71	157	130	156
7~8:00 AM	68	67	68	163	146	163
8~9:00 AM	80	74	78	160	153	160
9~10:00 AM	87	80	85	153	153	153
10~11:00 AM	37	59	43	132	143	133
11~12:00 PM	32	45	34	70	106	72
12~1:00 PM	13	29	16	27	67	28
1~2:00 PM	11	20	12	12	39	13
2~3:00 PM	6	13	6	11	25	11
3~4:00 PM	16	15	15	9	17	9
4~5:00 PM	10	12	10	9	13	9
5~6:00 PM	10	11	10	7	10	7
6~7:00 PM	8	10	8	7	8	7
7~8:00 PM	5	7	5	6	7	6
8~9:00 PM	7	7	7	3	5	3
9~10:00 PM	9	8	9	3	4	3
10~11:00 PM	10	9	10	5	5	5

Comparison of Computed AQI

(Sept. 26, 2014 at Folsom)



Comparison of Computed AQI

(Aug. 24, 2014 at San Andreas)

Time (PDT)	San Andreas hourly Average	Values from current NowCast	Values from revised NowCast
11~12:00 AM	9	8	9
8/24/2013 12~1:00 AM	11	10	10
1~2:00 AM	10	10	10
2~3:00 AM	7	8	8
3~4:00 AM	7	8	8
4~5:00 AM	6	7	7
5~6:00 AM	8	7	7
6~7:00 AM	12	10	10
7~8:00 AM	19	14	16
8~9:00 AM	21	18	20
9~10:00 AM	139	78	134
10~11:00 AM	169	124	168
11~12:00 PM	6	65	12
12~1:00 PM	5	35	5
1~2:00 PM	1	18	1
2~3:00 PM	3	10	3
3~4:00 PM	6	8	6
4~5:00 PM	6	7	6
5~6:00 PM	4	6	4
6~7:00 PM	0	3	0
7~8:00 PM	0	1	0
8~9:00 PM	5	3	5
9~10:00 PM	5	4	5
10~11:00 PM	4	4	4

Comparison of Computed AQI

(Aug. 24, 2013 at San Andreas)

