

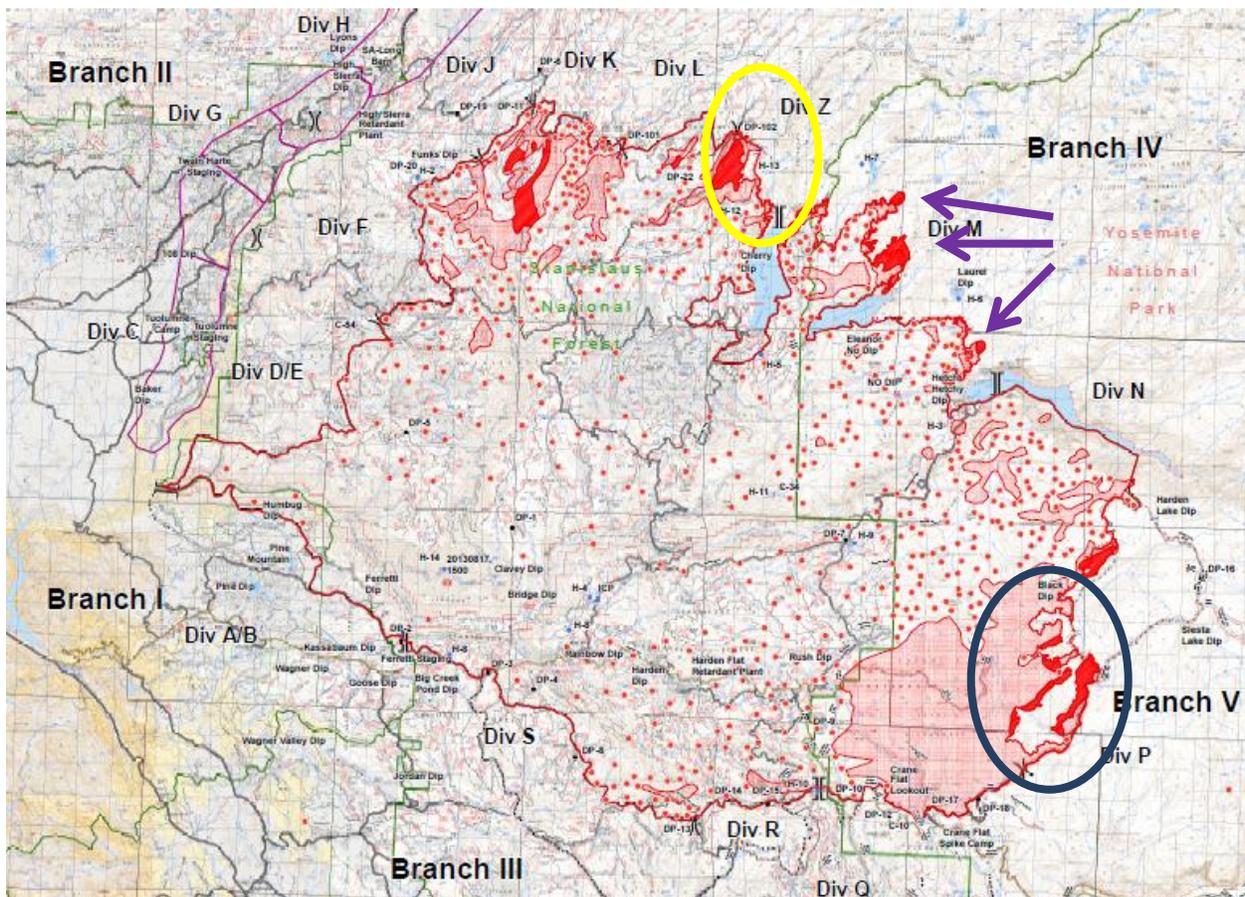
# Rim Fire, Air Quality Resource Advisor Report

Sunday, September 8, 2013

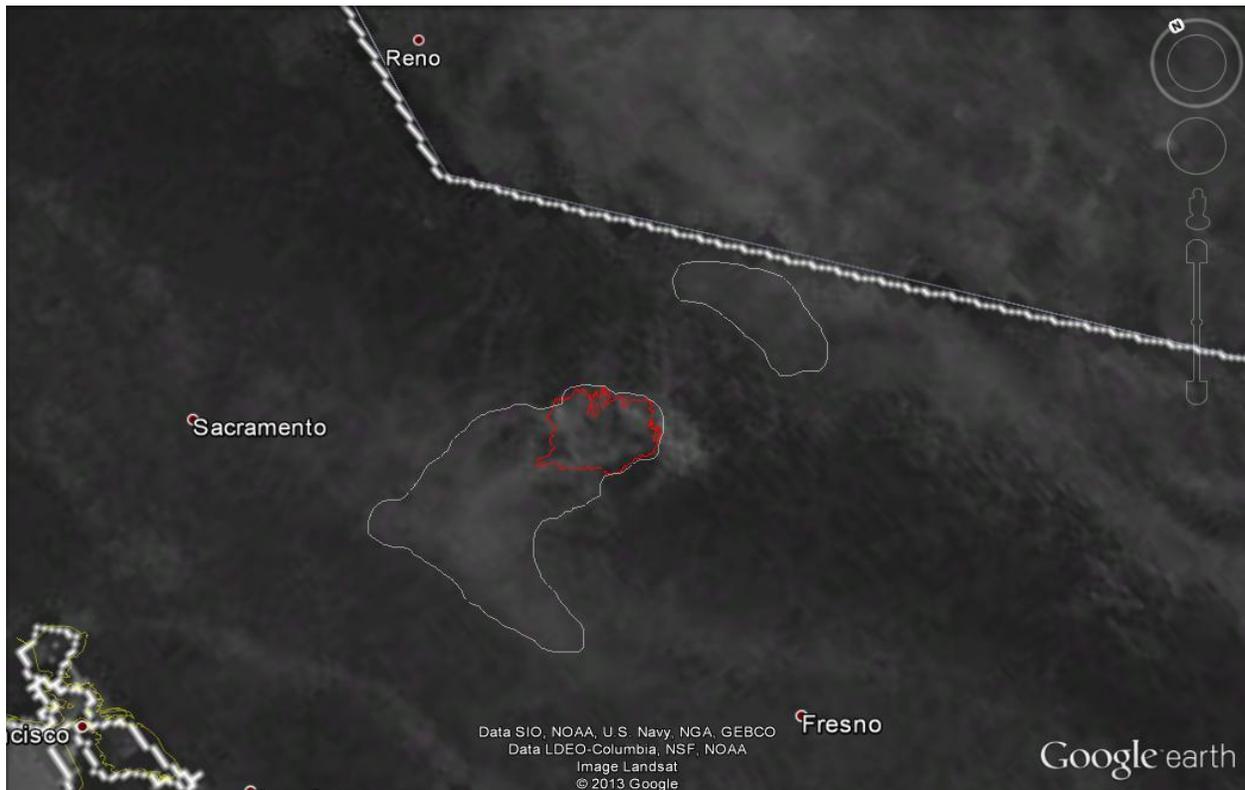
Prepared by: Ryan Bauer, Leland Tarnay, and Sharon Grant

## Key Points:

- The fire size has been updated to 253,332 acres and remains at 80% contained. About 1,200 acres of growth occurred yesterday, primarily within the current perimeter.
- High temperatures and very dry conditions will continue through today. A strong thermal belt kept humidity low at the higher elevations of the fire overnight, allowing for an earlier start to fire activity, as soon as the inversion breaks this morning. The Haines index is forecasted as 5 again today, indicating greater instability and potential for plume dominated fire behavior and increased spotting. Slope and drainage winds will remain breezy today and ridgetop winds will shift from southwesterly early to westerly and then north-westerly by late afternoon and evening.
- Most of the interior burnout is complete in Divisions J and K, and the change to westerly and north-westerly winds should reduce spotting potential. Efforts continue in Division Z to use direct fireline to contain the fires edge south toward Cherry Lake. Two Wildfire Use Modules continue working the eastern side of the fire to check the fires spread in several timber stringers that run up into the rocks. Firing continues in Branch V along with mop-up along the fires edge. All other Divisions continue mop-up, patrol, and suppression damage repair.

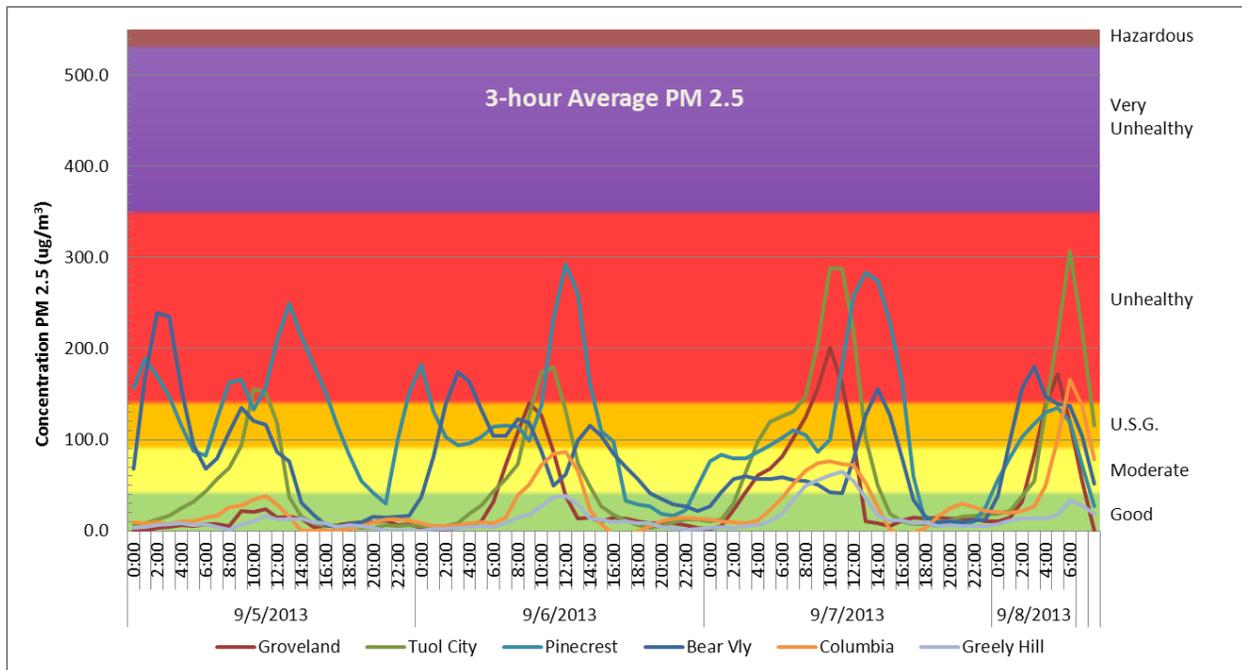


**Figure 1** Rim fire operations map for 9/8/2013 with infrared perimeter and heat detections from 01:30, 9/8/2013 showing location of the continuing burnout operation in Div P (blue), direct attack in Div Z (yellow), and fire activity in the timber stringers to the east (purple arrows).



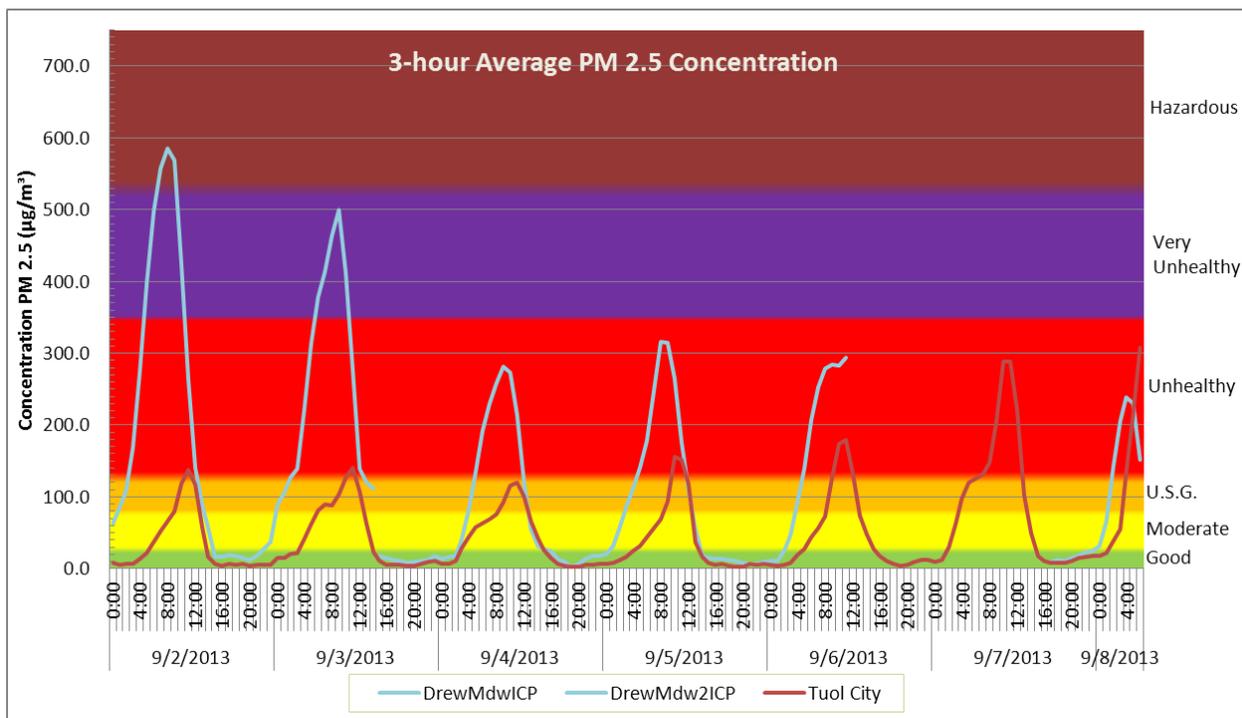
**Figure 2** Rim fire infrared perimeter from 9/8/2013 and satellite image from 08:00, 9/8/2013 of visible smoke in the Clavey and Tuolumne River drainages, central valley, and Mono Lake basin.

Satellite imagery from this morning shows smoke from the Rim Fire extending west, down the Tuolumne River drainage into the California Central Valley and an area of smoke in the Mono Lake Basin (Figure 2). Air quality monitors west of the fire in Tuolumne City, Groveland, and Columbia measured impacts in the unhealthy range this morning. Data were not available for La Grange, but impacts were reported there by Air Quality personnel as well. Smoke impacts continue to lessen in Markleeville and Minden as winds become westerly to north-westerly; both reached the unhealthy for sensitive groups range this morning.



**Figure 3** 3-hour average fine particulate (PM 2.5) concentration at six (6) monitoring locations impacted by the Rim fire with associated Air Quality Index (AQI) health hazard ranges and adjectives. All data are preliminary and have not undergone quality assurance review.

Air quality monitoring continues at the two incident base camps. Impacts continue to reach the unhealthy AQI range at both locations for a few hours each morning (Figure 4). Data collection has resumed at Drew Meadow after a loss of power.



**Figure 4** 3-hour average fine particulate (PM 2.5) concentration in the Drew Meadow and Tuolumne City Incident Base Camps with associated AQI ranges and adjectives. All data are preliminary and have not undergone quality assurance review.

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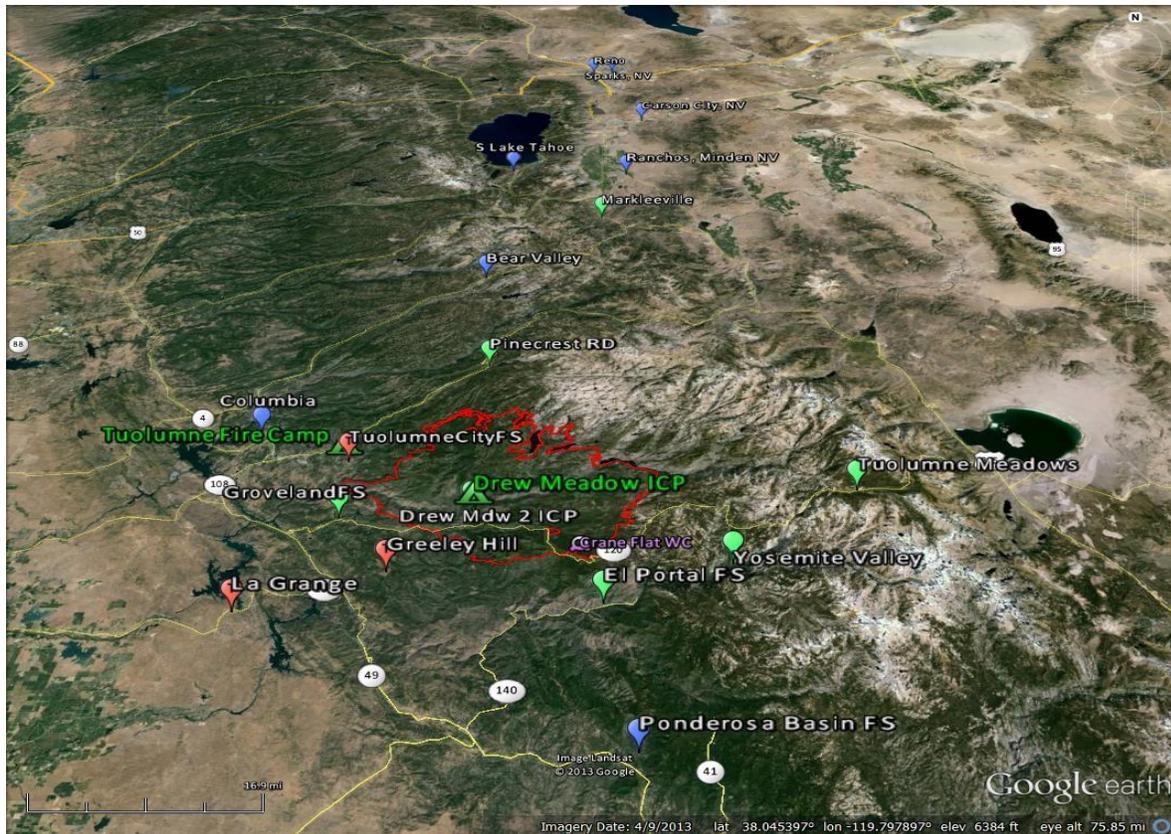


Figure 5 air quality monitoring sites in the Rim Fire area with Rim fire infrared perimeter from 9/3/2013.

Table 1 selected air quality monitor data and corresponding AQI rating, meanings, and recommendations with forecast levels for today. Data are preliminary and have not undergone quality assurance review.

Follow the links in the following table to view real-time air quality monitoring data for each site.

Site	24-hour Avg PM2.5 (µg/m³)	3-hour Max PM2.5 (µg/m³)	Level of Health Concern	Meaning	Actions to Protect Yourself	Forecast For Sunday, Sept. 8, 2013								
	Yesterday, Sept. 7, 2013													
Mariposa El Portal Yosemite Vly Tuol. Mdws	11 5 7 11	31-10:00 11-14:00 12-21:00 54-22:00	Good	Air quality is satisfactory and poses little or no health risk	None	<a href="#">Mariposa</a> <a href="#">Reno</a>								
Greeley Hill Reno S. Lk. Tahoe Columbia Carson City Minden	21 13 25 31 27 32	65-10:00 23-13:00 47-04:00 77-09:00 34-09:00 69-00:00					Moderate	Air quality is acceptable for most. There may be moderate health concern for a small number of sensitive people.	Unusually sensitive people should consider reducing prolonged or heavy outdoor exertion.	<a href="#">Minden</a> <a href="#">S. Lk. Tahoe</a> <a href="#">Carson City</a> La Grange Markleeville <a href="#">Greeley Hill</a> <a href="#">El Portal</a>				
Bear Valley Markleeville	55 35	156-13:00 82-15:00									Unhealthy for Sensitive Groups	Members of sensitive groups may experience health effects. The general public is not likely to be affected.	People with heart or lung disease, children and older adults should reduce prolonged or heavy outdoor exertion. Everyone else should limit prolonged or heavy exertion.	Columbia Yosemite Vly. <a href="#">Tuol. Mdws</a> Bear Valley
Groveland Tuol. City Pinecrest Drew Mdw ICP*	57 84 104	201-09:00 289-09:00 283-12:00												

Air Quality Index (AQI) ratings are derived based on the recommendations found in [Wildfire Smoke: A Guide for Public Health Officials](#).

\* Estimated based on partial or missing data.

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### Forecast:

#### Sunday, September 8, 2013

More fire activity yesterday and into the night, coupled with a stronger inversion caused smoke to drain down the Clavey and Tuolumne River drainages, into the Lake Don Pedro basin and further into the central valley than previous mornings. Morning air quality impacts were heaviest in Tuolumne City, Pinecrest, Bear Valley, Markleeville, and Columbia. Le Grange and Minden both experienced impacts this morning as well. The inversion should break by noon in all areas. Transport winds will shift through the day from southwesterly early, to west-northwesterly by late afternoon, likely bringing heavier smoke into the Tuolumne Meadows area, Yosemite Valley, El Portal, and the San Joaquin Valley later in the day. Nighttime impacts similar to yesterday are likely for Minden, and may increase further south in Bridgeport and Lee Vining.

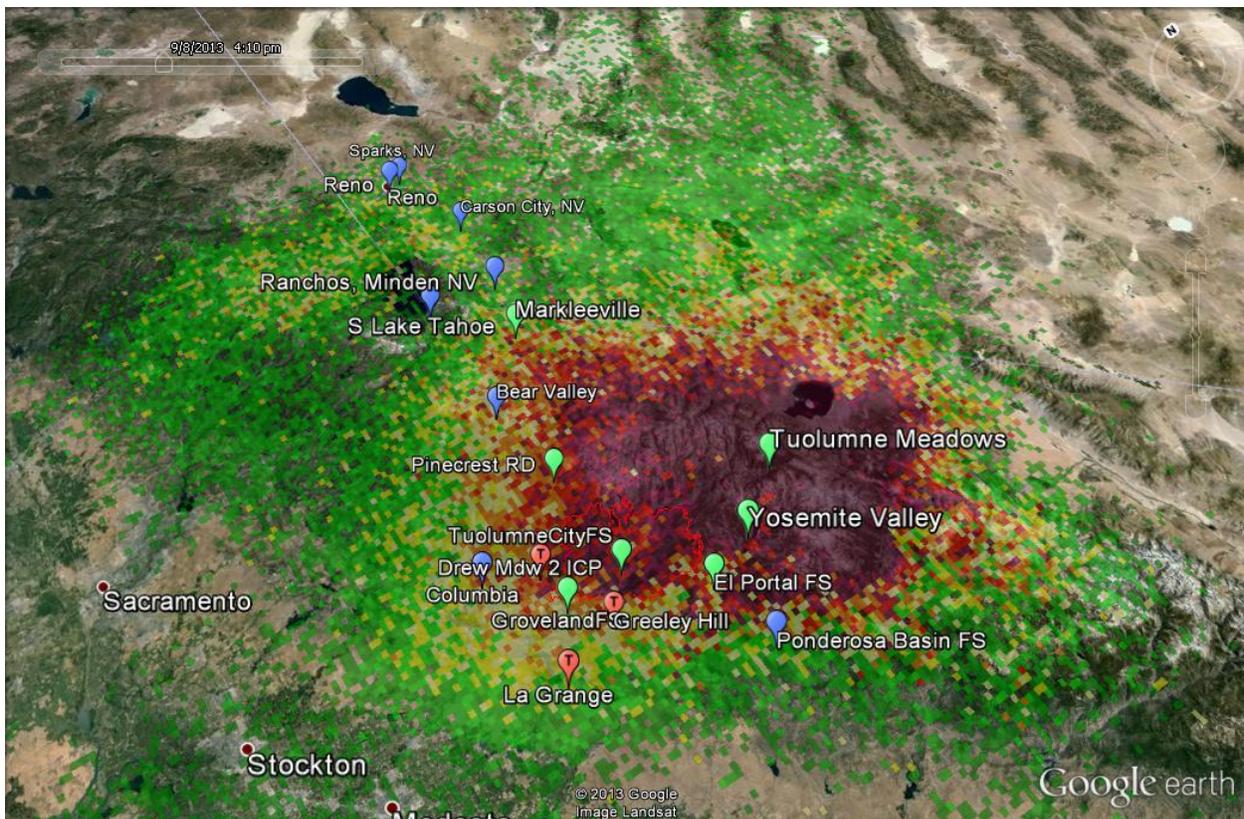


Figure 6 2km BlueSky particle model prediction for 16:00 9/8/2013.

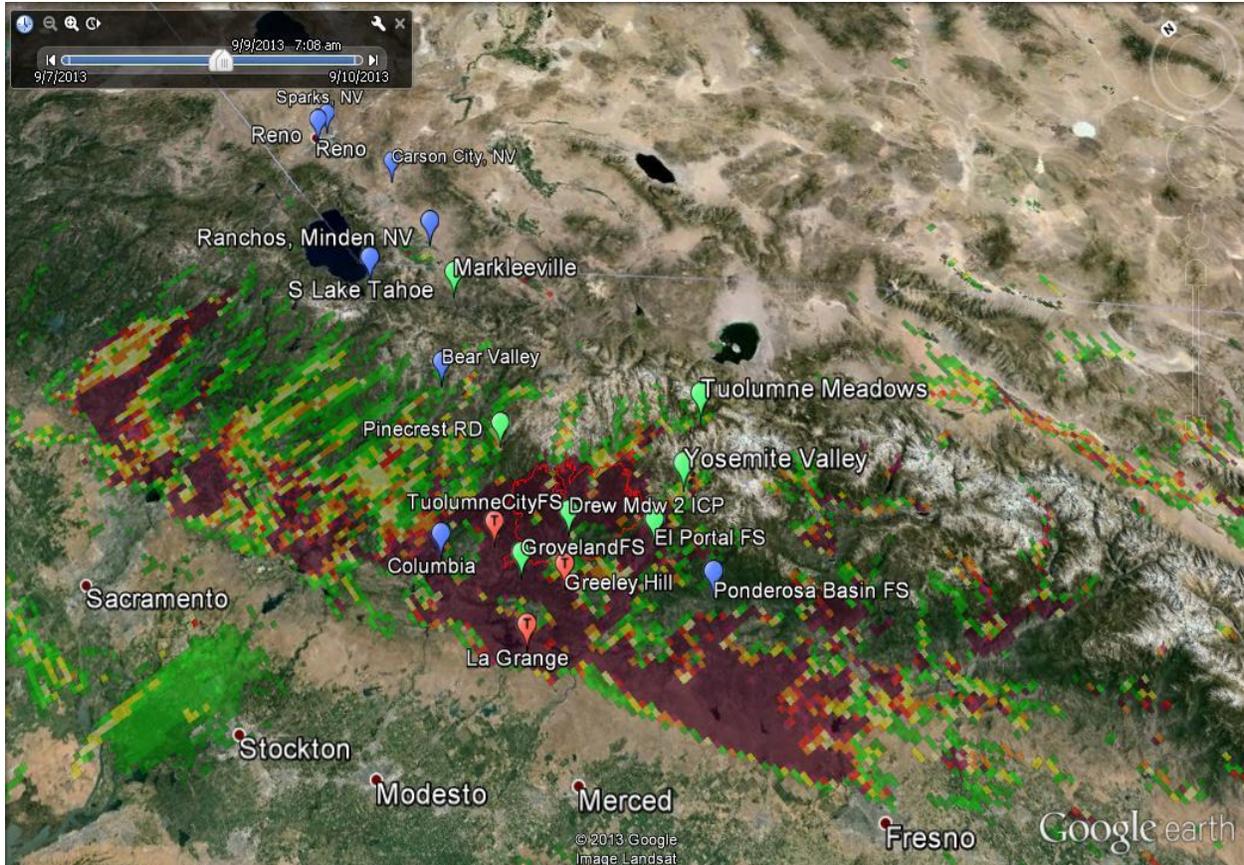


Figure 7 2km BlueSky particle model prediction for 07:00 9/9/2013.

### Monday, September 9, 2013

Significant morning impacts are likely to extend south into the Yosemite and San Joaquin Valleys possibly as far as Fresno (Figure 7). Tuolumne City, Sonora, Columbia, Groveland, La Grange, Yosemite Valley, Tuolumne Meadows, and El Portal will see impacts increase over previous days. The morning inversion is still forecast to be quite strong, and likely to persist until around noon. Transport winds will be weak westerly and possibly even northwesterly late in the day. Any relief should come in the afternoon, but by evening smoke will roll back into the Yosemite and San Joaquin Valleys and persist into the following morning (Figure 8). East side communities, including Markleeville, Minden, and Carson City should get a break from heavy smoke for a few days.

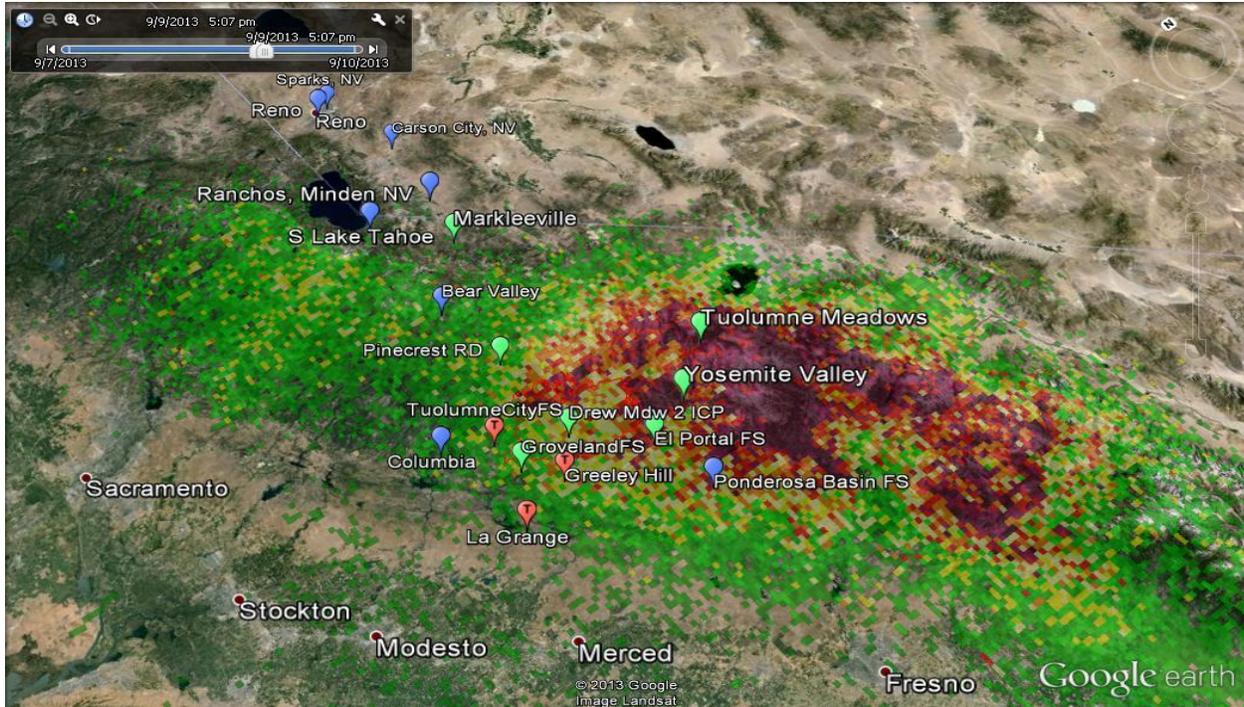


Figure 8 2km BlueSky particle model prediction for 17:00 9/9/2013.

**Tuesday, September 10, 2013**

Tuesday remains about the same, with morning impacts perhaps extending even further south to Visalia (Figure 9). Daytime transport winds remain light westerly to northwesterly. Diurnal slope and drainage winds in the Sierras should provide some clearing in the afternoon, but widespread smoke is predicted to linger over much of the region. Smoke impacts are likely to persist in areas south of the fire until the weather pattern changes, and depend largely on the amount of fire activity seen each day as the Rim fire nears full containment.

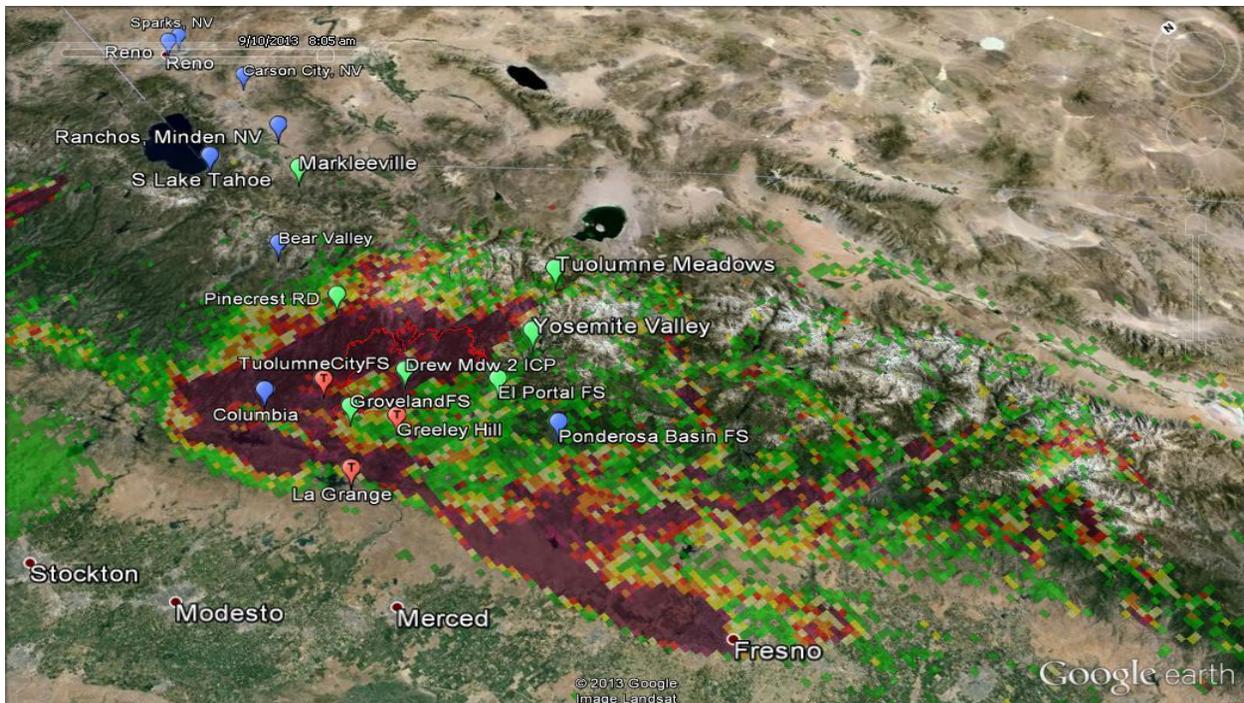
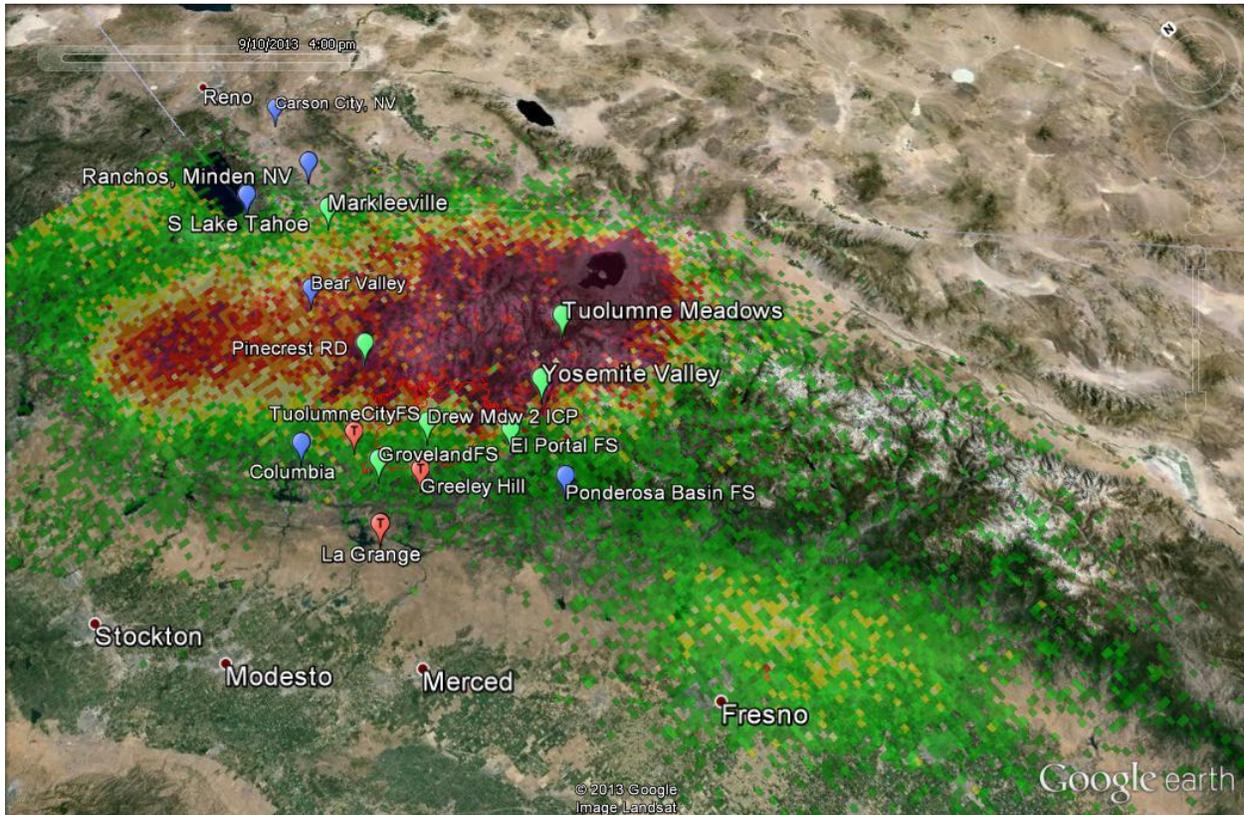


Figure 9 2km BlueSky particle model prediction for 08:00 9/10/2013.



**Figure 10** 2km BlueSky particle model prediction for 16:00 9/10/2013.

**Long Term Forecast:**

Winds will continue out of the west to west-northwest, turning east-northeast at night. Conditions during the burning period will remain hot and dry. Fire activity is likely to continue and may increase on the southeastern portion of the fire as west-northwest winds align with the drainages where the burnout continues.

END