



# FROM THE AIR PROGRAM

## FIRES AND VISIBILITY

### UNDERSTANDING THE IMPACTS

Since late June, multiple fires in California occurred. Most relevant are the Cedar Fire in Kern County (21,017 acres), Sand Fire in LA County (41,432 acres), Soberanes Fire (103,242 acres), and Erskine Fire in Kern County (48,019 acres). Other fires significant in proximity to the reservation but less in smoke impact were the Clark Fire, Rock Creek Fires, Spring Fire west of Mono Pass, Goose Fire in Fresno County, and 2 fires around Mono Lake.

The impacts on the Bishop Paiute Reservation can be seen in pictures taken by the Air Program's web camera images. However, smoke can have a larger impact on visibility than air quality because some particles disperse light whereas others absorb light. The net effect is reduced visibility.

Also, many of the high PM concentration values over summer were driven by weather, fronts, and local outdoor activity. PM<sub>2.5</sub> is generally used to approximate smoke impacts, e.g. for the Cedar Fire. As PM<sub>10</sub> values on the reservation were typically higher than PM<sub>2.5</sub> over much of the summer, it can be interpreted that some of the haze we saw was

caused by other airborne particles, possibly a result of storm activity (water particles also refract light) and general dust disturbance. Shown are images from August 25th, when 24-hour average measurements of particulate matter less than 2.5 microns in diameter (PM<sub>2.5</sub>) were highest, and the same for 10 micron (PM<sub>10</sub>) was significantly higher than the surrounding days. The 5 am picture shows that some particulates had settled overnight. The next picture shows that much of it had cleared by mid-morning. The sunset picture was during the highest concentration hours, after steady winds had been blowing from the SE up the 395 corridor, with some local gusts, and the color shows that particles in the air were refracting light.

Despite periods of poor visibility, the air quality could not be considered to be dangerous to the health of Reservation residents. The maximum hourly level of PM<sub>2.5</sub> on August 25th was 29.86 micrograms per cubic meter of air. The range for "good air quality" according to the EPA's Air Quality Index, is up to 30 micrograms for PM<sub>2.5</sub>. For comparison, PM<sub>10</sub> had reached higher levels, at over 65 micrograms, and the "good" range up to 170 micrograms.

Health effects of prolonged exposure to moderate air quality are less understood than effects of unhealthy air quality, but could include some inflammatory response such as asthma, or irritation to throat, eyes, and nose. Both of these particle sizes are designated as respirable. To see hourly visibility photos combined with air quality information, visit the Air Program's website at

[http://www.bishoptribeemo.com/index\\_air.htm](http://www.bishoptribeemo.com/index_air.htm)

Cedar Fire



Bishop Tribe EMO Aug 25 2016 05:01 PST Exp 9278



Bishop Tribe EMO Aug 25 2016 09:01 PST Exp 415



Bishop Tribe EMO Aug 25 2016 19:01 PST Exp 32385

