

## The Sutter Buttes Ozone Monitor and Nonattainment Area

The Sutter Buttes Ozone Monitor became operational in 1993. The Monitor is located on the top of the South Butte in the Sutter Buttes Mountain Range, a circular complex of eroded volcanic lava domes rising above the flat agricultural plains of the Sacramento Valley.

In 2004 the U.S.EPA designated the Sutter Buttes mountain top area as its own nonattainment area based on an 11 factor analysis. EPA's technical support document stated "...The monitor on top of one of the mountains is the only one violating in the county. The purpose of that monitor is to detect air pollution transport from Sacramento. Transport from Sacramento causes this monitor to violate, however monitors in the populated lower elevations are under the standard and are not greatly impacted by Sacramento transport. Therefore, EPA is designating the area above 2000 feet as nonattainment."

In 2017 the US EPA reviewed the nonattainment area boundaries and retained the original boundary set in 2004 for the 1997 standard. The Technical Support Document for the 2015 Ozone NAAQS Designations<sup>1</sup> stated:

*"The Sutter Buttes air quality monitor in Sutter County indicates violations of the 2015 ozone NAAQS based on the 2016 design values, therefore this area is included in the intended nonattainment area. There are no large point sources of ozone precursors in Sutter County, and the county itself has relatively low NOx and VOC emissions. The meteorology factor indicates that days exceeding the 2015 NAAQS mostly occur when winds are coming from the south, meaning ozone is likely being transported from the Sacramento and San Francisco Bay areas, which EPA also intends to designate as nonattainment. The violating monitor is located on top of Sutter Buttes which is 2000 feet above the surrounding valley. Another monitor located on the valley floor in Yuba City has shown attainment with the 2015 NAAQS for the past several years, thus we conclude that the violating monitor is not affected by emissions originating within Sutter County. EPA's intended nonattainment boundary is not associated with a jurisdictional boundary other than the previous 1997 nonattainment area boundary. The boundary relates to consideration of the other four factors described above."*

The Sutter Buttes Nonattainment Area is the area above 2,000 foot elevation in the Sutter Buttes Mountain Range. There are no people or businesses residing in the nonattainment area, as you can see from the following view from the monitoring site. You cannot drive to the monitoring site as it is only accessible through a cable wench device that hauls cargo and people to the top of the mountain.



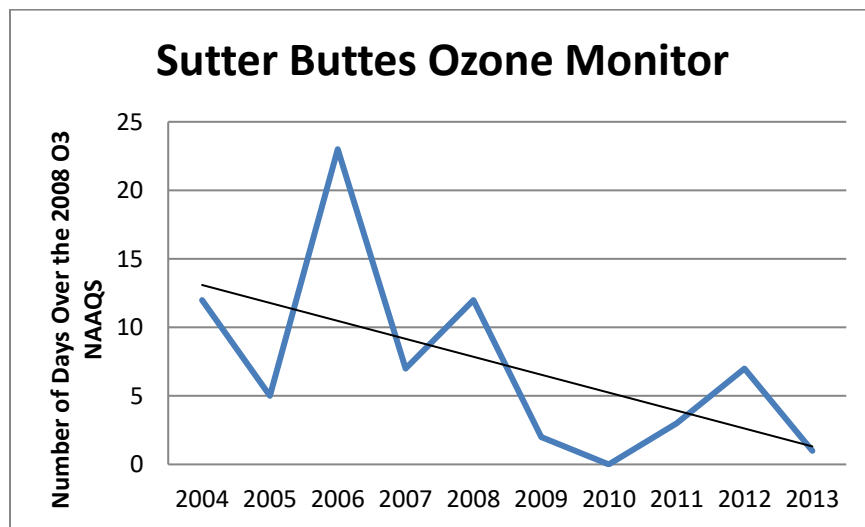
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<sup>1</sup> [https://www.epa.gov/sites/production/files/2017-12/documents/ca\\_120d\\_tsd\\_combined\\_final.pdf](https://www.epa.gov/sites/production/files/2017-12/documents/ca_120d_tsd_combined_final.pdf)

On April 28, 2010, the Air Resources Board requested that EPA find the Sutter Buttes are in attainment for the ozone standard<sup>2</sup> which at the time was 0.08 ppm (effectively 0.084 ppm with rounding). This was based on 2004-2006 monitoring data showing that the area met the standard. On March 12, 2008, the EPA strengthened the ozone standard from 0.08 ppm to 0.075 ppm<sup>3</sup>. When designations were finalized April 30, 2012, the Sutter Buttes area was found to be attaining the stricter standard<sup>4</sup>. On October 1, 2015, EPA strengthened the ozone standard from 0.075 ppm to 0.070 ppm<sup>5</sup>. The US EPA designated the Sutter Buttes as nonattainment for the 2015 standard in December 2017.

Ozone concentrations at the Sutter Buttes monitor are not indicative of the air people breathe at ground level. There is an ozone monitor located in Yuba City that represents air quality at ground level.

Since 2004, the number of days the Sutter Buttes Ozone Monitor has exceeded the 0.075 ppm standard has decreased, as presented in the following chart. Ozone levels depend on a number of factors, including emissions of precursors such as oxides of nitrogen and reactive organic gases, temperature, wind speed and wind direction. Overall, the trend has been towards decreasing ozone concentrations.



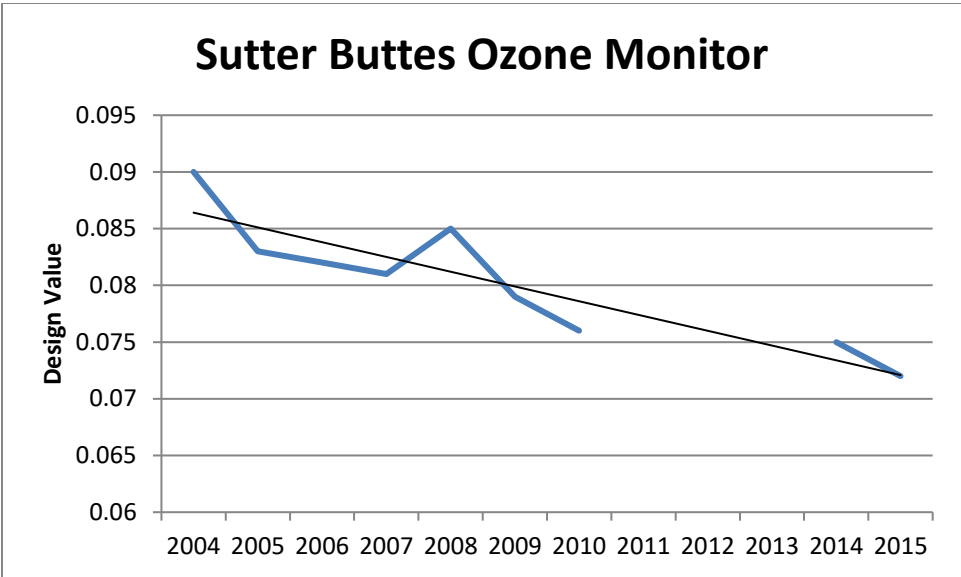
The 2004 to 2015 design values for Sutter Buttes Ozone Monitor are presented in the graph below. A design value is the three year average of the 4<sup>th</sup> highest 8-hour average ozone concentration measured at the monitor. The EPA uses design values to determine if an area is meeting the standard. In 2011, the Sutter Buttes Ozone Monitor was operated 70% of the required time and therefore that year's data is not usable which also prevents a design value from being calculated for 2012 and 2013.

<sup>2</sup> 1997 8-hour ozone standard was in effect at the time

<sup>3</sup> <http://www.epa.gov/airquality/ozonepollution/actions.html>

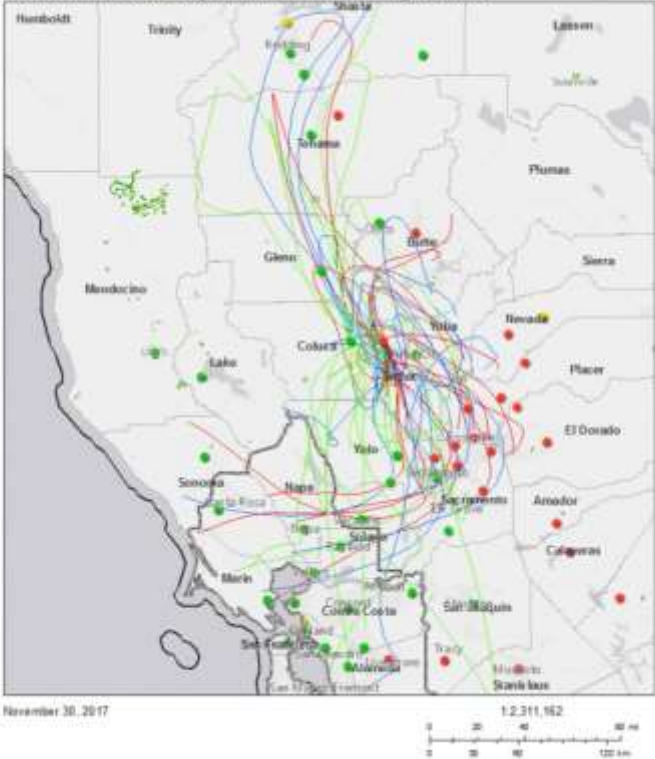
<sup>4</sup> <http://www.epa.gov/ozonedesignations/2008standards/final/region9f.htm>

<sup>5</sup> <https://www.epa.gov/ozone-pollution/2015-national-ambient-air-quality-standards-naaqs-ozone>



The HYSPLIT back-trajectories below show modeled air movements during exceedance days at the Sutter Buttes ozone monitor. The red lines indicate air movement at 100 meters above sea level; green lines at 500 meters; and blue lines at 1000 meters. The red dots are violating monitors and the green dots are ozone monitors showing attainment of the 2015 O3 NAAQS. For more information see the TSD for the 2015 O3 NAAQS Designations<sup>6</sup>.

Figure 18.6. HYSPLIT Back Trajectories for the Violating Monitor.



For more information please contact the FRAQMD at (530) 634-7659 or visit our website: [www.fraqmd.org](http://www.fraqmd.org).

<sup>6</sup> [https://www.epa.gov/sites/production/files/2017-12/documents/ca\\_120d\\_tsd\\_combined\\_final.pdf](https://www.epa.gov/sites/production/files/2017-12/documents/ca_120d_tsd_combined_final.pdf)