

Clearing the Air

Poor visibility in the southwestern United States is primarily caused by fine particles, most of which originate from human activities. The fine particles usually consist of sulfates, soil particles, and ash from combustion of fossil fuels. Sulfates generally comprise up to half of the total mass of fine particles in the Southwest and are the major contributors to poor visibility. Sulfates are forerunners to acid rain. About a third of the fine particles is comprised of soil particles which come from wind blown dust. The dust is carried from sources such as agricultural fields, dirt roads, and mining operations.

What about here?

Poor visibility at Guadalupe Mountains is usually associated with air masses which arrive from northern Mexico and the southwestern United States. An identification of source types and areas which contribute visibility-reducing pollution to Guadalupe Mountains was accomplished through the use of a receptor model. This model identified the following factors which reduce visibility at Guadalupe Mountains:

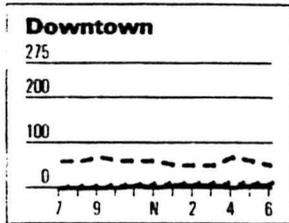
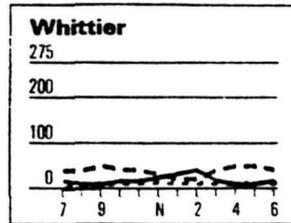
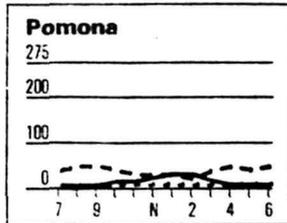
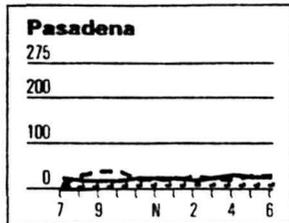
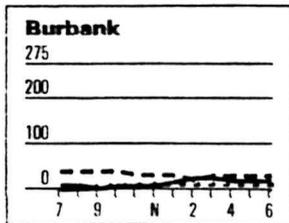
- A. Monterrey, Mexico, an urban and industrial region in north-central Mexico, contributes sulfates and zinc which suggests metal smelting as a source.
- B. Air masses transport air pollutants such as sulfates from the Los Angeles, California, area and the copper smelter regions of southern Arizona and New Mexico.
- C. South-central Texas and the United States Gulf Coast contribute sulfates. The many petroleum refineries in the area are probably the source.
- D. Sulfates from El Paso, Texas, area also contribute to visibility reduction at Guadalupe Mountains.
- E. Local windblown soil and dust.

Because of the lack of industrial and urban development and low humidity in the Southwest, the visibility conditions are generally among the best in the country. Geographically, the best visibility is found in northern Utah, northern Nevada and southern Idaho.

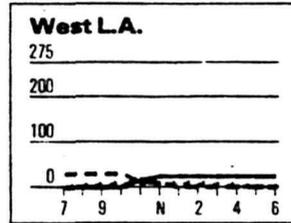
Many urban areas in the United States publish daily air quality information in local newspapers. Below, is air quality information for the Los Angeles region as it appeared in the Los Angeles Times, April 21, 1988.

WEDNESDAY'S AIR QUALITY

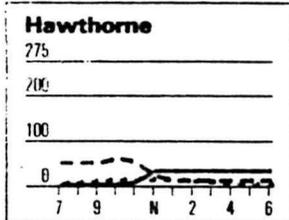
Hourly average pollution, 7 a.m. to 6 p.m.



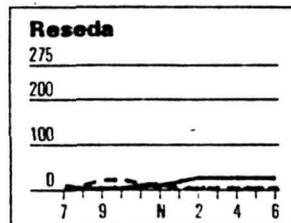
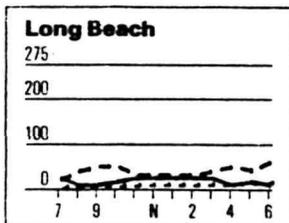
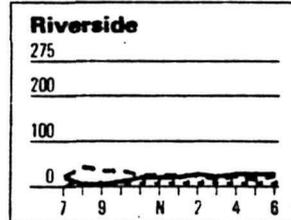
— Ozone (O₃): invisible, irritates and impairs breathing.
 --- Nitrogen dioxide (NO₂): brown, impairs breathing.
 - - - Carbon monoxide (CO): invisible, reduces blood's oxygen.



All measurements in pollutant standard index (PSI):
 0- 50 : good
 51-100 : moderate (100 is Federal standard)
 101-200 : unhealthful (200 is 1st stage episode)
 201-275 : very unhealthful (275 is 2nd stage episode)
 275+ : hazardous.



TODAY'S FORECAST			
Area	O ₃	NO ₂	CO
Metropolitan Los Angeles	42	40	40
Coastal areas	42	40	40
San Fernando, Santa Clarita	42	40	40
San Gabriel, Pomona	42	40	30
San Bernardino, Riverside	42	30	30
Hemet Elsinore area	42	20	15
Inland Orange County	42	20	15
Downtown San Diego	50	not forecast	
Escondido	50	not forecast	
High deserts	42	20	15
Low deserts	42	20	15
Big Bear Lake	42	20	15
Banning area	42	20	15



Blanks indicate missing data.

Source: South Coast Air Quality Management District

Los Angeles Times