

China's pollution landing in Valley, research suggests

By Edward Ortiz The Sacramento
Bee

Consumer goods aren't the only products flooding into California from China; a significant amount of the air pollution in California's Central Valley also originates across the Pacific Ocean, a new UC Davis study concludes.

The study, unveiled Tuesday, found that pollutants from coal-fired power plants, factories and other sources in China travel high above the Pacific and over Northern California's coastal range before settling down in the Valley as ozone. This dirty air from China contributes to the poor air quality of the San Joaquin Valley, already home to some of the nation's most unhealthy ozone levels.

Ozone has been linked to a variety of health problems, including asthma.

A number of previous studies have found that some of the pollution in the Central Valley originates in Asia. The UC Davis study was commissioned by the San Joaquin Valley Air Pollution Control District.

As the U.S. Environmental Protection Agency tightens ozone standards, air districts have a growing incentive to identify the pollution that originates elsewhere.

"The Clean Air Act specifically says that we are to account for ozone, and it also makes it clear that we are not to be held responsible for foreign sources of pollution in ozone," said David Lighthall, research scientist with the San Joaquin air district. "The big challenge is trying to quantify that."

The San Joaquin Valley is among the regions struggling to meet current EPA standards, Lighthall said. Fresno County, which is in the district, exceeded the EPA's eight-hour standard for healthy ozone 38 times in 2013 and 57 times in 2012, he said.

UC Davis atmospheric scientist Ian Faloon led the three-year study. He said that between 5 percent and 10 percent of the ozone found in Fresno and elsewhere in the San Joaquin Valley has traveled from Asia at high altitudes and then mixed with air on the valley floor.

"Air that's traveling from afar tends to sink on its long journey across the Pacific as it approaches California," Faloon said.

Faloon and a graduate student analyzed the air collected at a mountaintop station in Los Padres National Forest called Chews Ridge. They also used planes to collect air samples above the Southern San Joaquin Valley.

To establish where pollutants originated, Faloon measured the aerosols – the tiny particles in the atmosphere – in the samples from the mountaintop and the plane.

"We looked at them and their size and we analyzed their elemental compositions," he said. Some of those particles showed elements from the earth's crust, and Faloon was able to establish that some of those crustal elements were of distinct Asian origin.

"We know these dust particles originated in Asia because they have different ratios (of elements) than local soil from North America," said Faloon.

He said the composition of the particles also suggested they came from coal-fired power plants and factories in China.

The data may provide a crucial piece of the air pollution puzzle at a time when the EPA is proposing tightening its ozone standards. The agency has proposed a National Ambient Air Quality Standard of 65 to 70 parts per billion of ozone, down from 75 parts per billion today.

Many communities in the Central Valley exceed the current EPA standard. The agency is expected to rule on the tougher standard by the end of the year.

Lighthall said he believes the UC Davis study moves the district one step closer to identifying what it cannot control.

“We do know that since 1984 we’ve seen a general background increase of ozone of about 12 to 24 parts per billion,” said Lighthall. “That reflects the expansion of fossil fuel combustion that has been taking place in Asia over the same time period.”

The California Air Resources Board and other agencies have been looking into overseas pollution sources for years, said board spokesman David Clegern. Although the great majority of the ozone and other air pollution in the region is produced locally, faraway sources are growing in importance, he said.

Not everyone is eager to blame Asia for fouling the Central Valley’s air. Larry Greene, executive director of the Sacramento Metropolitan Air Quality Management District, noted that most air pollution and ozone in the valley comes from the valley.

“The UC Davis study is an interesting area of research, but this does not mean we can point our finger at someone else,” said Greene. “We need to keep working on ourselves here in California.”