

## **China's pollution landing in Valley, research suggests significant amount crosses the Pacific, says UC Davis study**

By Edward Ortiz

Sacramento Bee and Modesto Bee, Wednesday, April 1, 2015

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 Faloona 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," Faloona said.

Faloona 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, Faloona 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 Faloona 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 Faloona.

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."

### **One-tenth of Central Valley's smog from Asia, scholars say**

From the Associated Press

In the Lodi News Sentinel, San Diego Union Tribune and Contra Costa Times, Wednesday, April 1, 2015

DAVIS, Calif. (AP) — Up to 10 percent of the smog in California's polluted San Joaquin Valley is coming from outside the state — much of it from 6,000 miles away, in Asia, researchers in California said Tuesday.

Ian Faloona, an atmospheric scientist at the University of California at Davis, presented the findings at a conference of air quality experts and regulators near Yosemite National Park.

Researchers with the California university spent three years gathering air samples from monitoring systems in a plane and near Point Sur on the California coast. Scientists said they were able to determine signature traits of pollutants from different areas, allowing them to determine their origin.

In a statement, Faloona said the study on alleged secondhand smog from China and other Asian countries was not about just assigning blame.

"Traditionally, air pollution has always been considered an issue to be handled locally — 'It's your backyard, it's your problem.' But we're going to have to treat air pollution to some extent how we treat greenhouse gases" globally, Faloona said.

The San Joaquin Valley, home to 3 million people and 2 million vehicles, as well as a transit route for the state's two main north-south routes, regularly falls short of air-quality standards. Residents suffer asthma at a rate twice as high as the rest of California.

### **Some of Central Valley's air pollution imported from Asia**

Central Valley Business Times, Tuesday, March 31, 2015

About 10 percent of ozone pollution in the San Joaquin Valley is coming from outside of California, particularly from Asia, according to preliminary research presented Tuesday by the University of California, Davis.

UC Davis atmospheric scientist Ian Faloona shared his research — paid for by the San Joaquin Valley Air Quality Control District — with air quality regulators and scientists at a transboundary pollution conference near Yosemite National Park.

"To me, it's an exciting new chapter of how we think of air pollution," says Mr. Faloona. "How do we deal with this not just as an air district of a couple of counties, but as a nation and a global citizen of the planet? Traditionally, air pollution has always been considered an issue to be

handled locally. But we're going to have to treat air pollution to some extent how we treat greenhouse gases."

Scientists have long known that a portion of ozone pollution was coming from overseas, but attempts to quantify just how much were hamstrung by coarse computer models that overlooked or broadly simplified California's complex terrain.

Mr. Faloon describes California as if it were a human body: The Golden Gate bridge is the mouth, breathing in air from across the Pacific Ocean, sucking it through the throat of the Bay Area and into the lungs of the San Joaquin Valley.

Previously unknown is how much air comes over the coastal mountain range and mixes from above into the bathtub that is the San Joaquin Valley.

UC Davis researchers have spent the past three years trying to measure that contribution from a mountaintop air quality monitoring station near California's Point Sur. They've also gathered it from a plane equipped with scientific instruments that measure air pollutant levels -- a flying air monitoring station of sorts. The combined data has allowed them to analyze the "signature" of the sources and quantify how much of the valley's ozone pollution is locally produced, and how much is drifting across from international sources.

The research comes as the U.S. Environmental Protection Agency has proposed tightening ozone limits from 75 parts per billion to between 65 and 70 parts per billion later this year. In the San Joaquin Valley, which includes the cities of Fresno, Stockton and Bakersfield, such a change by the EPA is expected to push much of the valley further out of compliance.

Air districts are financially penalized and considered out of compliance for going over federal ozone pollution thresholds, known as National Ambient Air Quality Standards.

"In addressing the tremendous public health challenge we face in reducing ozone, it is critical to accurately identify the sources of ozone pollution so that solutions can be appropriately targeted," says Seyed Sadredin, executive director of the San Joaquin Valley Air Pollution Control District. "The scientific information being discussed at the transboundary ozone conference will be invaluable to many regions throughout the nation."

Mr. Faloon notes that the majority of the air pollution in California is coming from local sources, which requires further work. He says his research is not about pointing fingers but about having a clearer picture of where pollution comes from -- and how a global community can help reduce it.

## **Is Pollution From Asia Making the Central Valley's Bad Air Even Worse?**

By Alice Daniel

The California Report, Wednesday, April 1, 2015

California's Central Valley grapples with some of the dirtiest air in the nation. The culprits range from its vast agriculture industry to trucks on Highway 99. But one local air district is tagging a source far away: Asia.

"The world in so many ways is getting smaller in respect to what we always thought was our own backyard issue: ozone," says David Lighthall, the health science advisor for the San Joaquin Valley Air Pollution Control District.

Lighthall is one of the organizers of an ozone pollution conference starting Tuesday where scientists from California, China, Colorado and other places will discuss trends in global ozone.

Scientists say pollutants from fast-growing Asian countries like China are blowing across the Pacific Ocean and increasing ozone levels in vulnerable areas that include parts of California. But how much of a difference that foreign — or "transboundary" — ozone makes in the Central Valley is debatable.

Lighthall says that on some days this additional pollution is enough to prevent the district from meeting federal clean air health standards. The Valley's bowl-shaped geography traps pollutants, sometimes for days at a time — and that includes pollutants from other places, Lighthall says.

He says there's an "upward trend" in transboundary ozone and the ozone is now "mixing down and really making a difference on certain days as to whether we actually meet the standard ... or whether we don't meet it," Lighthall says.