

## **China Pollution Crosses Sea to Hamper Air Cleanup Effort in U.S.**

By Alex Morales,

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(Bloomberg) -- Chinese air pollution is blowing across the Pacific Ocean and partly offsetting clean air measures taken in California, according to Dutch and U.S. researchers.

More than two-fifths of the expected benefits of anti-pollution controls in the western U.S. were canceled out by rising ozone pollution from China, scientists led by Willem Verstraeten at Wageningen University in the Netherlands said Monday in the journal *Nature Geoscience*.

The research highlights the need for countries around the world to collaborate in efforts to combat air pollution, because the effects can be felt beyond a country's borders. While ozone is important in the upper atmosphere to protect the planet from ultraviolet radiation, at ground level it's a harmful pollutant that causes respiratory problems in humans and damages plants, and in the lower atmosphere, or troposphere, it acts as a greenhouse gas.

"Global efforts may be required to address regional air quality and climate change," the researchers wrote. "Air quality and regional climate-change mitigation policies could eventually have limited impact if not considered in a global context."

Ozone is formed in the atmosphere when nitrogen oxides and some volatile organic compounds react in the presence of sunlight. Nitrogen oxides are included in tailpipe and factory emissions, and a product of thermal combustion.

Chinese officials have recognized the country's air pollution problem, and are taking measures including shutting down coal plants, restricting traffic and boosting renewable energy to rein in the rise in pollutants.

Using observations and computer models, the scientists found that China's emissions of nitrogen oxides rose 21 percent and its tropospheric ozone levels gained almost 7 percent from 2005 through 2010. They also found that increased amounts of ozone were being transported across the Pacific to the U.S., concluding that it offsets 43 percent of the expected air quality benefits on the west coast from domestic measures.

Researchers at the Royal Netherlands Meteorological Institute and NASA's Jet Propulsion Laboratory at the California Institute of Technology co-wrote the study.