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Clouds Caused By Aircraft Exhaust May Warm The U.S. Climate

NASA scientists have found that cirrus clouds, formed by contrails from aircraft engine exhaust, are capable of increasing average surface temperatures enough to account for a warming trend in the United States that occurred between 1975 and 1994.

"This result shows the increased cirrus coverage, attributable to air traffic, could account for nearly all of the warming observed over the United States for nearly 20 years starting in 1975, but it is important to acknowledge contrails would add to and not replace any greenhouse gas effect," said Patrick Minnis, senior research scientist at NASA's Langley Research Center in Hampton, Va. The study was published April 15 in the Journal of Climate. "During the same period, warming occurred in many other areas where cirrus coverage decreased or remained steady," he added.

"This study demonstrates that human activity has a visible and significant impact on cloud cover and, therefore, on climate. It indicates that contrails should be included in climate change scenarios," Minnis said.

Minnis determined the observed one percent per decade increase in cirrus cloud cover over the United States is likely due to air traffic-induced contrails. Using published results from NASA's Goddard Institute for Space Studies (New York) general circulation model, Minnis and his colleagues estimated contrails and their resulting cirrus clouds would increase surface and lower atmospheric temperatures by 0.36 to 0.54 degrees Fahrenheit per decade. Weather service data reveal surface and lower atmospheric temperatures across North America rose by almost 0.5 degree Fahrenheit per decade between 1975 and 1994.

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