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New Images from Space Spotlight Asian, Australian Pollution

BOULDER—A visualization of satellite data captured and processed January 1–20, 2003, by scientists at the National Center for Atmospheric Research (NCAR) shows heavy pollution from [China and Southeast Asia](#) blowing out over the Pacific Ocean. The near-real time capability represented by the image is a breakthrough for NCAR team members working with the Measurements of Pollution in the Troposphere (MOPITT) instrument aboard NASA's Terra satellite.

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The image shows levels of carbon monoxide (CO) in a region where pollution tends to begin increasing around January and continue rising through the spring. The sources include emissions from motor vehicles and industrial activities, the burning of wood and other vegetation for heat, and fires set to clear land for agriculture. Scientists are using satellite measurements along with data gathered in field campaigns to begin to untangle the different pollution sources.

In a second image, pollution from bush fires burning in southeast [Australia](#) is clearly visible. The data were captured above the fires January 15–20. The image shows levels of CO released by the fires. Because CO persists in the atmosphere for several weeks, it can be used to trace the path of pollution plumes above the fires as the plumes drift out thousands of miles into the usually pristine air over the southern Pacific Ocean.

"We're very pleased to unveil this new ability to provide images very soon after the satellite observations are made," says John Gille, NCAR scientist and U.S. principal investigator for MOPITT. "This means our data can be helpful in pollution situations as they unfold."

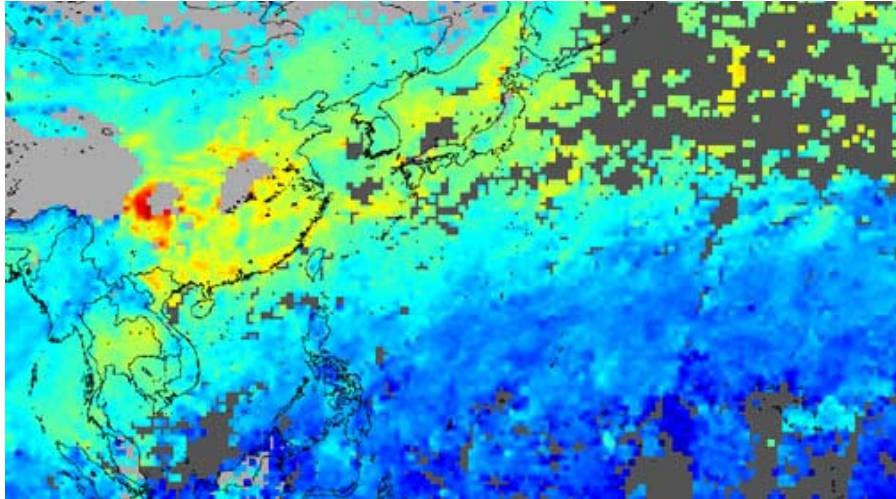
CO gas is a pollutant in its own right and a useful tracer for others, such as ozone at or near ground level. CO can also be used to calculate the level of pollutant-cleansing chemicals in the atmosphere, such as the hydroxyl radical. When CO levels are high, the level of hydroxyl radical is usually lower and fewer pollutants are removed from the atmosphere.

"CO is involved in much of the chemistry of the lower atmosphere, and it's now one of the few gases that we can measure from space, thanks to MOPITT," says NCAR scientist David Edwards. "The data give us a new window on chemical processes affecting the ability of the atmosphere to clean itself."

In the color images, the amount of CO mixed into a given quantity of air is represented as parts per billion by volume (ppbv). The concentrations range as high as 205 ppbv and as low as 50 ppbv. White areas indicate no data were collected, either due to lingering cloud cover or because the area falls in the gaps between MOPITT's orbit-path views. MOPITT is a project of NCAR and the University of Toronto, with funding from NASA and the Canadian Space Agency.

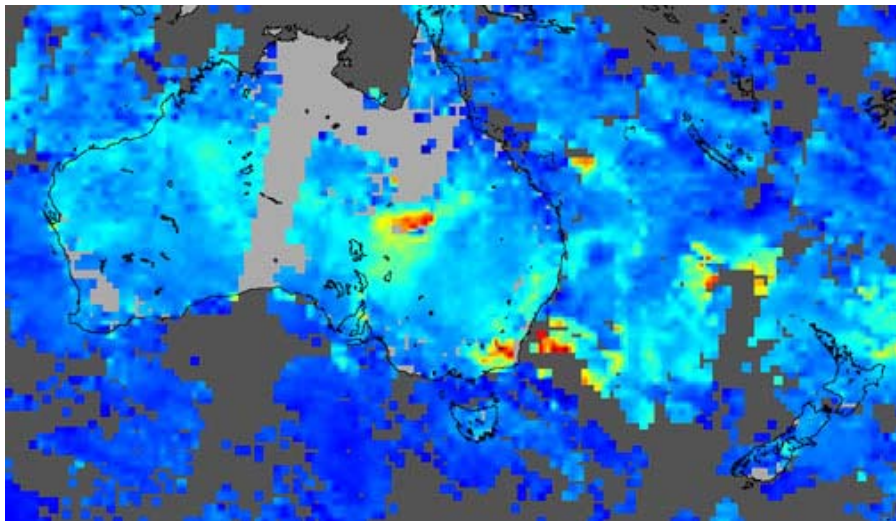
Please use the following credit: Image courtesy the NCAR MOPITT team.

high resolution image: [China](#) (1.05 MB, 1350 x 750)



January pollution from China and Southeast Asia

high resolution image: [Australia](#) (620.3 KB, 1050 x 607)



Bush fires in southeastern Australia

On the Web:

[Carbon monoxide over Houston and Galveston Bay, September 2002](#)

[Animation of MOPITT's orbital path](#)

[NCAR MOPITT team research](#)

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