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Sharon Keeler

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UNH Researchers Study Local Air Pollution from Asian Dust Storm

By David Howland

Contact: [Sharon Keeler](#)
UNH News Bureau

May 10, 2001 Editors/News Directors: For more information, contact Bob Talbot, director UNH Climate Change Research Center, at (603) 862-1546, or Cameron Wake, assistant research professor CCRC, at (603) 862-2329.

by David Howland

DURHAM, N.H. -- University of New Hampshire researchers are studying tiny particles showered on New England by an enormous dust storm that last month swept from Asia across the Pacific and over the northeastern United States. They are interested in how the storm, which may have carried industrial pollution thousands of miles from factories in China, affected air quality here in New Hampshire.

"This storm was bigger than New England," Bob Talbot, director of the Climate Change Research Center in UNH's Institute for the Study of Earth, Oceans, and Space, said as he looked at color satellite images on his computer. "It was continental-sized -- about one-third to half the size of the United States."

The storm, which emerged from the deserts of western China in the first week of April, enveloped some eastern Chinese cities in a fog of dust. By the time it reached New England, between April 17 and 20, the dust was barely noticeable, diluted by strong winds on its journey over the ocean and most of North America. But using sensitive instruments, UNH researchers have collected samples of the dust that fell on ground stations in three parts of the state -- at Highland Farm in Durham, at Castle Springs, and at the Mount Washington Observatory.

The study of the Asian dust cloud is one of many investigations underway at AIRMAP, a National Oceanic and Atmospheric Administration (NOAA) funded multi-institutional research project focussing on air quality, weather and climate related issues in New England.

Talbot, AIRMAP's principle investigator, said data from the dust storm could help improve computer models used to predict the effects of different levels of pollution in Asia on the United States. The models could benefit from two valuable types of information: the composition of

the pollutants carried by the storm, and the behavior of the air currents that brought them eastward.

A glance at the data has already confirmed that the storm brought an increased level of fine particles to New Hampshire, which will be examined for their chemical composition. In addition, researchers will try to determine if the dust storm carried carbon monoxide and ozone, both pollutants at ground level. Measurements during the dust storm will be compared to baseline data for the sites.

Talbot said that data could be compared to measurements he took of another dust storm in March while recording air quality measurements over the western Pacific for a separate study. He said such storms are not uncommon in the spring, when atmospheric conditions are right for carrying air to the United States from Asia. But the April storm was unusually large.

"The unique thing about this dust storm is that as long as we have had satellites around to look at this, this is the largest event we've witnessed," Talbot said.

The National Aeronautics and Space Administration (NASA) and the Naval Research Laboratory, based in Monterey, Calif., have posted satellite images and photographs on the Web about the April storm's journey. The following sites have several images and QuickTime movies of the storm recorded by the Total Ozone Mapping Satellite (TOMS) and the SeaWiFS Satellite:

http://toms.gsfc.nasa.gov/aerosols/today_plus/asia_dust.html and
http://kelvin.nrlmry.navy.mil:9999/aerosol/Case_studies/20010413_epac.

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