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GEORGIA TECH BACKGROUND:
MOBILE LABORATORY PROVIDES NEW
INFORMATION ON OZONE PRODUCTION

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Photography Available

Scientists at the Georgia Institute of Technology are working with the U.S. Environmental Protection Agency (EPA) to analyze levels of harmful ozone throughout the Southeast. The research should result in a better understanding of air pollution and more effective methods for improving air quality.

Information obtained from Georgia Tech's mobile laboratory has already helped explain how an abundance of trees in the South may contribute to air pollution problems by altering the balance of airborne chemicals that form ozone.

Supported by the EPA's Southern Oxidant Study, the Mobile Atmospheric Chemistry Laboratory (MACL) allows researchers to analyze air samples in both urban and rural areas. Although it looks like an ordinary tractor-trailer on the outside, the MACL is equipped with analytical instruments for measuring the substances that generate harmful ozone, a reactive form of oxygen.

When it occurs naturally in the upper atmosphere, Senior Research Scientist Dr. Mike Rodgers explained, ozone shields the earth from ultraviolet rays. Unfortunately, he added, ozone has a 'Dr. Jekyll and Mr. Hyde' personality; it can be good or bad.

"High in the atmosphere, ozone protects life," Rodgers said. "Paradoxically, near the surface of the earth, ozone is harmful to human health, crops, and other life forms because it is so reactive."

Ozone is made from hydrocarbons and nitrogen oxides in the presence of sunlight. If one of these components is absent, Rodgers said, ozone becomes a three-legged stool with only two legs.

Hydrocarbons come from motor vehicles, by evaporating motor fuels and various dry cleaning or industrial processes -- as well as natural sources like trees. Similarly, nitrogen oxides originate from combustion sources including automobiles and power plants, but they also occur naturally in the environment.

Studies have shown that harmful ozone causes a 6- to 7-percent loss of U.S. agricultural productivity each year, and Rodgers believes the problem may be especially severe