



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
RESEARCH TRIANGLE PARK, NC 27711

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OFFICE OF
AIR QUALITY PLANNING
AND STANDARDS

MEMORANDUM

SUBJECT: Resources for Meteorological Adjustment of Ozone Trends

FROM: Richard A. Wayland, Acting Director *Richard A. Wayland*
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To: Regional Air Division Directors, Regions 1-10

This memo is to provide information regarding the availability of resources for meteorological adjustment of ozone trends. Because ozone levels can vary significantly from year-to-year due to weather conditions, meteorological adjustments help to reveal the underlying effect of control programs and may be useful in assessing progress in attaining the ozone NAAQS. For an area in attainment, adjusted trends may help assess whether a problem is developing.

As you may be aware, OAQPS has been refining and applying meteorological adjustment techniques to ozone data for over 10 years to better understand and quantify national and regional ozone trends. Results are routinely presented in our National Air Quality Trends report and are also available at the Air Trends web site at <http://www.epa.gov/air/airtrends/weather.html>. Composite trend lines are shown for each EPA Region as well as individual trend lines for many urban areas. Results are also shown for selected rural areas using data from the Clean Air Status and Trends Network (CASTNET). The statistical methods used to perform these analyses were developed in-house by statisticians in the Air Quality Analysis Group. A recently published peer-reviewed journal article that describes the technical approach we use, including a discussion of the most important meteorological conditions conducive to elevated ozone, can be found at <http://dx.doi.org/10.1016/j.atmosenv.2007.04.061>.¹

Our technical approach is based on developing a statistical model for all the monitoring in an individual metropolitan area. The computer code used to compute weather-adjusted ozone concentrations is fairly specialized. It has already been distributed by request to a few data analysts outside of EPA. We now want to make the computer code available to Regional Office

¹ Camalier, L., Cox, W., Dolwick, P., 2007. The Effects of Meteorology on Ozone in Urban Areas and Their Use in Assessing Ozone Trends. Atmospheric Environment 41, 7127-7137.

staff and to any interested State/local air agency staff. We have placed the computer code, along with sample input data and output data, on the Air Trends web site at <http://www.epa.gov/air/airtrends/weather.html>. The code is written in a language known as "R" which can be obtained via internet download from <http://cran.r-project.org>. Since R is "shareware," users wishing to test this code will not need to purchase a software license. I would appreciate your help in informing State and local agencies of these resources.

If any of your staff or any State or local staff would like further information on the statistical method or data used in preparing the meteorological adjusted trends, please contact either Bill Cox (919-541-5563) or Louise Camalier (919-541-0200) in the Air Quality Analysis Group.

cc: Monitoring Air Program Managers, Regions 1-10
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