

North Pacific Marine Tropospheric Ozone at the West Coast of North America: Review of Long-Term Springtime Trends

D.D. Parrish

NOAA Earth System Research Laboratory, 325 Broadway, Boulder, CO 80305; 303-497-5274,
 Fax: 303-497-5126, E-mail: David.D.Parrish@noaa.gov

From data such as illustrated in Figure 1, Jaffe et al. [2003] and Parrish et al. [2004] concluded that tropospheric ozone entering the U.S. West Coast in spring had increased over the previous two decades, probably in response to increasing Asian emissions of ozone precursors. However, Oltmans et al. [2006a,b] from analysis of data from two other surface sites conclude that springtime ozone in this region has not increased, and that the trends in Figure 1, particularly at the Lassen site, could result from local ozone production over North America.

This presentation will review of all of the available data sets that can illuminate the marine tropospheric ozone concentrations entering North America and their temporal trends, particularly in springtime. Long-term temporal trends will be examined for confounding effects from North American influences, statistical significance, and consistency across all of the available data sets.

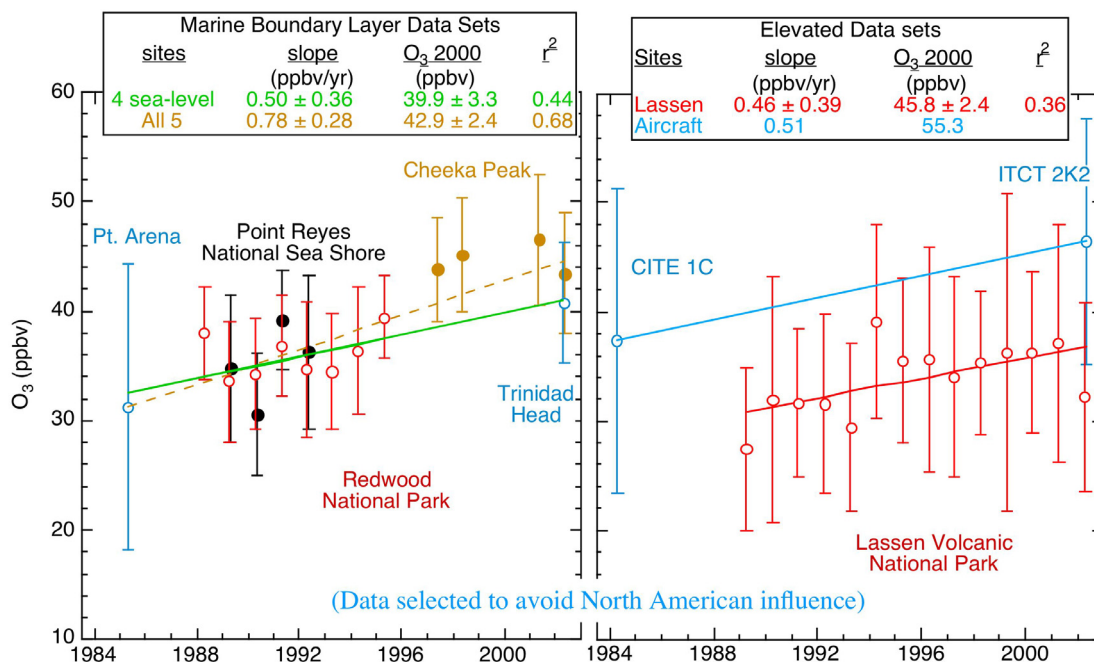


Figure 1. Trends in tropospheric ozone entering the U.S. West coast determined from measurements between 1984 and 2002 at surface sites and from aircraft (Figure adapted from Jaffe et al. [2003]).

References:

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- Oltmans, S.J., A.S. Lefohn, J.M. Harris, B.J. Johnson, and B. Vasil (2006a), Is the Tropospheric Ozone Entering the U.S. West Coast Changing? - Trinidad Head, California as a Site for Measuring Background Tropospheric Ozone, presentation at the 2006 ESRL Global Monitoring Annual Review.
- Oltmans, S.J., et al. (2006b), Long-term changes in tropospheric ozone, *Atmos. Environ.* *40*, 3156–3173.
- Parrish, D. D., et al. (2004), Changes in the photochemical environment of the temperate North Pacific troposphere in response to increased Asian emissions, *J. Geophys. Res.*, *109*, D23S18, doi:10.1029/2004JD004978.