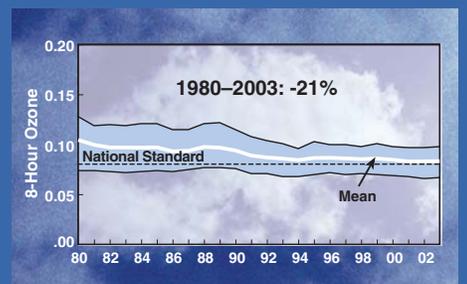
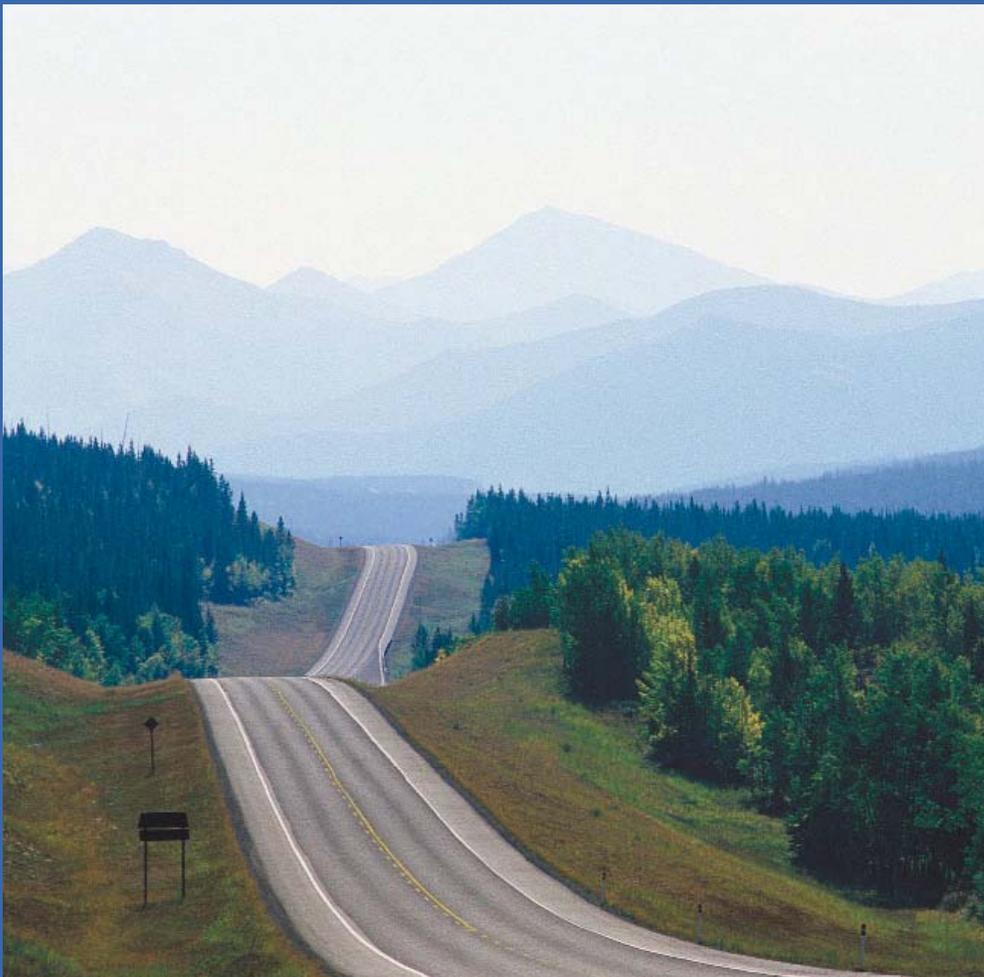




United States
Environmental Protection
Agency

The Ozone Report

Measuring Progress through 2003



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The Formation of Ozone

Ozone is a gas composed of three oxygen atoms. It occurs naturally in the stratosphere approximately 10 to 30 miles above the earth's surface and forms a layer that protects life on earth from the sun's harmful rays. Ozone is also formed at ground level by a chemical reaction of various air pollutants combined with sunlight. "Ground-level" ozone is an air pollutant that damages human health and the environment.



Ozone is rarely emitted directly into the air. The pollutants that contribute to ozone formation are oxides of nitrogen (NO_x) and volatile organic compounds (VOCs). Some of the major sources of these pollutants are vehicle and engine exhaust, emissions from industrial facilities, combustion from electric utilities, gasoline vapors, chemical solvents, and biogenic emissions from natural sources. Intense sunlight, which usually occurs in the summer, causes ground-level ozone to form in harmful concentrations in the air. Many urban areas tend to have higher levels of ozone, but even rural areas with relatively low amounts of local emissions may experience high ozone levels because the wind transports ozone and the pollutants that form it hundreds of miles away from their original sources.

Throughout this report, the ozone discussed is ground-level ozone.