

Tropospheric Ozone: Past, Present and Future

G.P. Brasseur

Max Planck Institute for Meteorology, Hamburg, Germany

The chemical composition of the atmosphere has changed dramatically since the beginning of the industrial era primarily as a result of fossil fuel burning and land management. Increasing emissions of carbon monoxide, methane and other hydrocarbons as well as of nitrogen oxides have lead to enhanced levels of tropospheric ozone at the regional (Europe, North America, Asia) and even the global scale.

We use a global chemical transport model of the atmosphere to simulate the distribution of ozone and its precursors, and to derive the global budget of these chemical compounds. We investigate the sensitivity of these budgets to several controlling factors (such as different emission sources) and calculate the changes resulting from human activities. We use a simple scenario to assess the possible future evolution of ozone in the troposphere and highlight the large response expected in the tropics.