

Linkages Between Ozone Depletion and Climate Change: Evolution of the Science  
And Connections to Public Policy

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Stratospheric ozone has been the subject of intense research since the mid-1970s, when the prospect of ozone depletion by human activities was first raised. This talk will show how the spectacular Antarctic ozone hole was unexpected, introduced new chemistry to the science of understanding ozone, and was a key factor in national and international policy decisions.

The massive ozone hole has more recently been shown to lead to changes in temperatures and hence the climate not only in the Antarctic stratosphere, but also in its troposphere. The unique characteristics of the Antarctic ozone hole and its links to surface climate trends in Antarctica will be described. In addition, the chlorofluorocarbons (CFCs) that are the root cause of the ozone hole are greenhouse gases, and the CFC gases thus have the potential to contribute to global warming together with other anthropogenic forcing agents, most notably carbon dioxide.

It will be shown how reductions in emissions of ozone-depleting gases mandated under the Montreal Protocol to protect the ozone layer have played and are continuing to play a surprising and major role in assisting the goals of climate protection under the Kyoto Protocol.