

The Interaction Between Ozone Depletion and Climate Change

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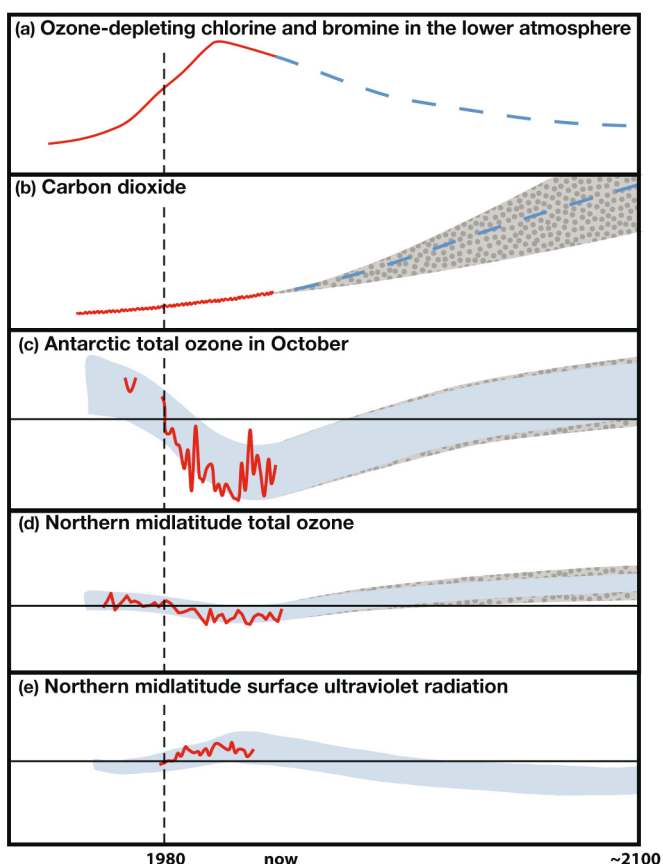
The 2010 WMO/UNEP Scientific Assessment of Ozone Depletion has now been publicly released on the UNEP web site:

http://www.unep.ch/ozone/Assessment_Panels/SAP/Scientific_Assessment_2010/index.shtml

The WCRP SPARC project, through its Chemistry Climate Model Validation (CCMVal) activity, made a major contribution to the 2010 Ozone Assessment through the coordination and analysis of CCM simulations performed in support of the Assessment. A detailed process-oriented evaluation of CCMs using performance metrics, as well as an objective and robust statistical analysis method, were developed as part of the peer-reviewed SPARC CCMVal Report (http://www.atmosp.physics.utoronto.ca/SPARC/ccmval_final/index.php). The CCMVal model results not only confirmed our understanding of past ozone depletion, but quantified the two-way interaction between ozone depletion and climate change. For the first time, meaningful statistical measures of uncertainty could be placed on the model projections used in the Ozone Assessment (see Figure).

The CCMVal results show that in the Antarctic, ozone depletion from anthropogenic halogens has been and will continue to be the dominant driver of the evolution of stratospheric ozone as the ozone hole recovers. Ozone depletion has also been the dominant driver of past changes in summertime surface climate, and will be a significant contributor to future changes. In other

parts of the atmosphere, climate change will be a major driver of the future evolution of ozone and of the associated changes in clear-sky UV radiation, which differ in different parts of the globe.



Schematic of the influence of ozone-depleting substances and climate change on the stratospheric ozone layer, and the influence of ozone changes on surface ultraviolet radiation. The red lines are based on observations to date. The blue dashed lines represent one commonly accepted scenario for the future. The blue shaded areas represent year-to-year variability and uncertainties in simulations of the past and future as derived from CCMVal simulations. From the Executive Summary of the 2010 Ozone Assessment.