



Re-Evaluation of the Lifetimes of Ozone-Depleting Substances and Related Trace Gases

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Estimating the average lifetime of a chemical in the atmosphere is crucial to understanding their current and future atmospheric concentrations. Furthermore, for ozone depleting substances (ODSs) and greenhouse gases information on their lifetimes are of paramount importance for obtaining estimates for ozone depletion and climate forcing. Because the lifetimes of ODSs are also used to predict how the future concentrations change with emissions, they also have implications on policy decisions for limiting future release of hydrochlorofluorocarbons (HCFCs) and other replacement compounds under the Montreal Protocol.

During the last 25 years, various methods have been used to derive lifetimes of ODSs and values have changed accordingly. Within the last several years evidence is growing that the lifetimes of certain ODSs are possibly somewhat longer than published values. The “Lifetime of halogen source gases” activity under the World Climate Research Programme (WCRP)/Stratospheric Processes And their Role in Climate (SPARC) project has convened a working group to re-evaluate these ODS lifetimes. The goal was to estimate the numerical values for lifetimes and their uncertainties, and to quantify how the values may depend on factors such as the use of different lifetime definitions (e.g. steady-state/instantaneous lifetimes) and changing climate.

First results of the report will be shown and implications will be discussed.