Quantification of Very Short Lived Halogens Reaching the Stratosphere

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Very short lived (VSL) halogens are thought to contribute a significant amount to the stratospheric burden of total reactive bromine and to be a new, growing component to the stratospheric burden of total reactive chlorine. VSL bromocarbons that reach the stratosphere likely originate primarily from natural, oceanic processes whereas VSL chlorocarbons that reach the stratosphere mainly result from various human activities including uses as solvents, foam blowing agents, and multiple applications in the food industry. In this presentation we’ll review the abundance of VSL bromine and chlorine reaching the stratosphere based on various in situ measurements in the tropical tropopause region, relate these in situ observations to satellite and ground-based observations of stratospheric inorganic bromine and chlorine gases, and conclude by assessing the implications of our latest understanding of VSL halogens on ozone in the stratosphere as well as the troposphere.