



Measurements of reactive organic halogen compounds in the lower and free troposphere across the ITCZ.

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Organic bromine species are responsible for carrying bromine to the stratosphere, where on a per-atom basis, bromine is up to 60 times more effective in depleting ozone than chlorine. Although methyl bromide is the single largest carrier of bromine to the stratosphere there is increasing evidence that short-lived reactive bromine species such as the brominated methanes can collectively contribute to stratospheric reactive bromine. There has also been recent interest in the possible influence of iodine on ozone in the upper troposphere and lower stratosphere, and iodocarbons have been directly implicated in ozone destruction in the marine boundary layer.

Air samples collected in the lower and free troposphere have been analyzed using GCMS for a variety of reactive organic halogen compounds including bromoform (CHBr_3), methyl bromide (CH_3Br), methyl iodide (CH_3I), methyl chloride (CH_3Cl) and the bromochloromethanes (dibromochloromethane (CHBr_2Cl), bromochloromethane (CH_2BrCl), bromodichloromethane (CHBrCl_2), and dibromomethane (CH_2Br_2)). A combination of samples from the CARIBIC project (Civil Aircraft for Regular Investigation of the Atmosphere Based on an Instrument Container) which regularly samples the lower and free stratosphere across the ITCZ and ground based field campaigns in the U.K and Brazil have been analyzed. This data provides valuable information on the tropospheric distribution of reactive halogen com-

pounds and has been used to further our understanding of the sources and sinks of these species and their vertical and latitudinal transport.