



Bromine isotopes and methyl bromide in the atmosphere

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Anthropogenic methyl bromide production is now constrained by international agreements, yet the natural production and loss pathways of this gas are very poorly understood, and its budget is not balanced. As part of the HVOCSIA (Halogenated Volatile Organic Compound Specific Isotope Analysis) project, we use recently developed compound-specific isotope analysis techniques to examine the $\delta^{81}\text{Br}$ of anthropogenic methyl bromide, and natural methyl bromide sampled from various arctic and marine environments. The various production and loss processes are expected to imprint themselves on the bromine isotopic composition of methyl bromide. In combination with other isotope systems ($\delta^{37}\text{Cl}$, $\delta^{13}\text{C}$, δD and $\Delta^{14}\text{C}$), this allows for precise improved studies of both source apportionment and reactions of halogenated gases in the atmosphere. We report here our first results with the bromine isotope system.