

Virtual ACOM Seminar

Anthropogenic Impacts on Tropospheric Reactive Halogens: Implications for Climate and Air Pollution

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Links: <https://operations.ucar.edu/live-acom>

ABSTRACT

The impacts of halogen chemistry on stratospheric ozone have been reasonably well-understood for decades, but our understanding of halogen chemistry in the troposphere is still in its infancy. Observations and models show that reactive halogens reduce the oxidation capacity of the atmosphere via reductions in ozone and the hydroxyl radical, with implications for radiative forcing of ozone and air pollution. Looking into the past, models suggest that anthropogenic emissions have led to significant increases in tropospheric reactive halogens, but there has so far been no observational constraint. I will present ice-core observations of halogens that are consistent with model results, and explain the mechanism behind the anthropogenic effects. Looking into the future, I examine the halogen chemistry-induced radiative forcing and air pollution implications of the geoengineering strategy Marine Cloud Brightening.