



## **Observations of a bromine explosion event coincident with the arrival of Arctic haze in the Canadian high Arctic**

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Exponential build-up of bromine in the polar troposphere is linked to severe multi-day ozone depletion events in springtime. The exact origins of, and the meteorological conditions required for these 'bromine explosions' are, however, not well understood. On March 19-21, 2016, a bromine explosion was detected at Eureka, Nunavut, Canada (80.1°N, 86.4°W). BrO slant column densities were retrieved from measurements made by a Multi-Axis Differential Optical Absorption Spectroscopy spectrometer. Ozonesonde data indicate that a complete depletion of near-surface ozone also took place in the same period. The bromine explosion was initiated by strong winds and blowing snow, while a stable boundary layer returned for the last day of the event. It is likely that bromine release was localized near Eureka, and both the snowpack and aerosols contributed. Scanning Mobility Particle Sizer data show that the bromine enhancement coincided with the onset of an Arctic haze event. This work investigates whether acidification from the haze contributed to the local release of bromine.