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www.atmos-chem-phys-discuss.net/14/C9031/2014/

Atmospheric Chemistry and Physics Discussions

Interactive comment on "OClO and BrO observations in the volcanic plume of Mt. Etna – implications on the chemistry of chlorine and bromine species in volcanic plumes" *by* Gliß et al.

Anonymous Referee #3

Received and published: 12 November 2014

In this manuscript, the authors present the results MAX-DOAS measurements targeting halogen oxides in the plume of Mt. Etna. What sets these measurements apart from most previous ones is that they were performed in geometries specifically targeting the spatial distribution and temporal evolution of halogen oxide concentrations within the plume. The results are interesting, as is the discussion about chemical formation mechanisms and implications for atmospheric chemistry at large (specifically methane destruction).

In my opinion, the manuscript has one fairly major overarching deficiency. Throughout the entire paper, spatial and temporal trends are interpreted that appear to be

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statistically insignificant. In several places, the authors argue that the trends might still be significant, even though the values either lie below the detection limit of their measurement technique, or the observed trends are smaller than the errors associated with the individual measurements. Such argumentation does not hold up to scientific standards and needs to be revised. Please see the supplementary material for additional comments, specific corrections and suggestions for improvement.

Please also note the supplement to this comment:
http://www.atmos-chem-phys-discuss.net/14/C9031/2014/acpd-14-C9031-2014-supplement.pdf

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Interactive comment on Atmos. Chem. Phys. Discuss., 14, 25213, 2014.