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Comment

## ***Interactive comment on “OCIO 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 #2**

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This manuscript presents results about the chemistry of halogens in volcanic plumes, focusing on the formation of reactive halogen species (RHS, e.g. BrO, ClO, OCIO) from the primarily emitted species (e.g. HCl, HBr) and their evolution in the ageing plume. This very important topic was initiated when bromine monoxide (BrO) was detected in the plume of Soufrière Hills volcano, Montserrat (Bobrowski et al., 2003). Up to now BrO was detected in plumes of many volcanoes. Most of the authors of published papers agree that numerous aspects of photochemistry of RHS are still not properly understood due to difficulties of the measurements, sporadic nature of the studies conducted and at last but not least the complexity of the chemical processes

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related with RHS genesis and transformations. The experiments in this study have been conducted by means of multy axes DOAS, which is probably the best way to investigate RHS in volcanic plumes. However, the descriptions of experimental technique and some discussions in this manuscript are rather poorly justified and sometimes misleading, in particular for the ever increasing number of DOAS users in the volcanology society. The manuscript is an interesting contribution to the topic of RHS photochemistry and deserves to be published in the journal Atmospheric Chemistry and Physics pending some moderate to major revisions. See attached pdf for the full series of comments and suggestions.

Please also note the supplement to this comment:

<http://www.atmos-chem-phys-discuss.net/14/C8790/2014/acpd-14-C8790-2014-supplement.pdf>

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

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