

Interactive comment on “The tropospheric processing of acidic gases and hydrogen sulphide in volcanic gas plumes as inferred from field and model investigations” by A. Aiuppa et al.

Anonymous Referee #2

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This paper provides new and significant insights into the interaction of volcanic plumes with the atmosphere. It basically shows that the decrease of acidic components in a passively degassing plume (not eruptive) is due to dilution of the plume with air. Some minor loss of HCl due to reaction with water vapor in the air has been observed, as has some minor oxidation of H₂S. The main process, however, under the conditions investigated is dilution.

This is consistent with earlier studies and the proposed conversion of SO₂ to H₂SO₄ and resulting depletion of SO₂ from passively degassing volcanic plumes still needs to be quantified beyond measurement uncertainties.

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