

***Interactive comment on “Multicopter measurements of volcanic gas emissions at Masaya (Nicaragua), Turrialba (Costa Rica) and Stromboli (Italy) volcanoes: Applications for volcano monitoring and insights into halogen speciation” by Julian Rüdiger et al.***

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In order to reference another Sunkist application for volcanic gas measurements and the related data evaluation with the response time correction by Arellano et al. (2017) we want to revise section 3.5.1 as follows and add the reference:

Page 11 line 4: “To adapt the response times of the two sensors, the CO<sub>2</sub> signal was smoothed through convolution with a first order transfer function.”

Revision: “To adjust the response times of the two sensors, the CO<sub>2</sub> signal was smoothed through convolution with a first order transfer function adapted after Arellano et al. (2017), who also applied the Sunkist instrument in gas measurements in Papua New Guinea in 2016.”

Figure text Fig. 5 “Figure 5: (a) Example of time series for mixing ratios of SO<sub>2</sub> and CO<sub>2</sub> (original data in red, resampled data in black), showing discrete gas masses at Stromboli volcano (1st flight on 05th April 2016), (b) Correlation plot for the determination of the relative time response factor for the CO<sub>2</sub> gas sensor with a maximum at a relative time response factor of 1.7, (c) CO<sub>2</sub> over SO<sub>2</sub> mixing ratios, showing the outcome of the resampling of the fast CO<sub>2</sub> with a relative time response factor of 1.7 (lower plot), linear regression results CO<sub>2</sub>/SO<sub>2</sub> ratios of  $64 \pm 16$  the first peak and  $42 \pm 4$  for the second.”

Revision: “Figure 5: (a) Example of time series for mixing ratios of SO<sub>2</sub> and CO<sub>2</sub> (original data in red, resampled data in black), showing discrete gas masses at Stromboli volcano (1st flight on 05th April 2016), (b) Correlation plot for the determination of the relative time response factor for the CO<sub>2</sub> gas sensor with a maximum at a relative time response factor of 1.7 (adapted after Arellano et al. (2017)), (c) CO<sub>2</sub> over SO<sub>2</sub> mixing ratios, showing the outcome of the resampling of the fast CO<sub>2</sub> with a relative time response factor of 1.7 (lower plot), linear regression results CO<sub>2</sub>/SO<sub>2</sub> ratios of  $64 \pm 16$  the first peak and  $42 \pm 4$  for the second.”

Reference:

Arellano, S., Galle B., Mulina K., Wallius, J., McCormick, B., Salem, L., D'aleo, R., Itikarai I., Tirpitz, L., Bobrowski, N., and Aiuppa, A.: Recent observations of carbon and sulfur gas emissions from Tavurvur, Bagana and Ulawun (Papua New Guinea) with a combination of ground and air-borne direct and remote sensing techniques, Abstract EGU2017-13644 presented at 2017 General Assembly, EGU, Vienna, Austria, 23-28 April.

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