

## **Review round 2 of ‘Analysis of properties of the 19 February 2018 volcanic eruption of Mount Sinabung in S5P/TROPOMI and Himawari satellite data’ by de Laat et al.**

Thank you for addressing my initial review comments. The majority of my comments have been adequately addressed and I believe the paper should be published after addressing some technical corrections attached below.

### **Technical corrections**

Why is ‘HIMAWARI-8’ capitalised? Why not just ‘Himawari-8’? The JMA themselves do not capitalise it (see Bessho et al., 2016). This is a minor grammatical issue, but easy to fix.

P3L87: ‘CALIPSO is part of the A-train constellation...’ - At the time of the Sinabung eruption this was true. But CALIPSO is now part of the ‘C-train’ - might be worth mentioning here. See here for more info: <https://atrain.nasa.gov/>.

P5L149: What does ‘nontrivial’ mean exactly? Theory predicts positive BTD values for liquid water droplets and ice particles. I suggest deleting ‘nontrivial’.

P6L163-164: Suggest replacing ‘ash plumes’ with ‘components’.

P9L261: ‘as the largest  $\Delta BT$ s do not occur for the largest aerosol concentrations’. I would re-word this slightly to ‘as large negative  $\Delta BT$ s do not necessarily occur for large aerosol concentrations’.

P10L302: ‘Furthermore,  $\Delta BT$  appears not to be a good indicator of either large AAI values or large  $SO_2$  columns.’ I would word this more carefully. I suggest changing to ‘Furthermore, for the present case study, large negative  $\Delta BT$  values appear not to be a good indicator of large AAI values (or large  $SO_2$  columns)’.

P10L302-303: ‘This is not surprising as  $\Delta BT$  is not a good indicator for ash optical depth [e.g. Prata and Prata, 2012; Pavolonis et al., 2016].’. This sentence is not correct because it implies that  $\Delta BT$  is not related to ash optical depth. Figure 2 of Prata and Prata (2012) shows the relationship between  $\Delta BT$ ,  $11 \mu m$  optical depth and effective radius. The three variables depend on each other. I suggest revising the sentence to ‘This is not surprising as highly negative  $\Delta BT$  values do not necessarily indicate high ash optical depths [e.g. Prata and Prata, 2012; Pavolonis et al., 2016].’.

P10L313-314: 'as generally the associated aerosol optical depth will be (much) larger than on [de Graaf et al., 2005]..'. This sentence doesn't make sense. 'than on' what?

P10L314: Replace 'The combination of UV/VIS cloud heights' with 'For the combination of UV/VIS cloud heights'.

## References

Bessho, K., Date, K., Hayashi, M., Ikeda, A., Imai, T., Inoue, H., Kumagai, Y., Miyakawa, T., Murata, H., Ohno, T., Okuyama, A., Oyama, R., Sasaki, Y., Shimazu, Y., Shimoji, K., Sumida, Y., Suzuki, M., Taniguchi, H., Tsuchiyama, H., Uesawa, D., Yokota, H. and Yoshida, R.: An Introduction to Himawari-8/9 Japans New-Generation Geostationary Meteorological Satellites, Journal of the Meteorological Society of Japan. Ser. II, 94(2), 151183, doi:10.2151/jmsj.2016-009, 2016.