

Atmos. Chem. Phys. Discuss., referee comment RC1
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Comment on acp-2021-155

Anonymous Referee #1

Referee comment on "Geometric estimation of volcanic eruption column height from GOES-R near-limb imagery – Part 1: Methodology" by Ákos Horváth et al., Atmos. Chem. Phys. Discuss., <https://doi.org/10.5194/acp-2021-155-RC1>, 2021

General comments:

The authors present a geometric methodology for estimating the height of volcanic clouds using the near-limb portion of geostationary imagery. I think the manuscript is really very clear and detailed. This methodology is interesting and seems to provide good results.

Unfortunately, as pointed out by the authors themselves, this geometric method is not applicable in all cases:

- Only volcanoes in near-limb position
- Only daytime images and nearly vertical columns near the vent
- Pixels indicating the top of the cloud are chosen by visual inspection (difficult to automate, not in near-real time)

Anyway the method can be surely a useful complementary to established techniques.

Specific comments:

Row 40: just a comment to say that obviously the temperature profile can be obtained not only from a numerical forecast but also, for example, from a reliable measurement such as radiosounding if available in space and time concomitance with the eruption. Since we are here in the introduction of the paper, I would give a more general explanation to the BT method.

I have no other specific comments: the methodology is well presented and therefore clear enough even for those who do not have specific knowledge of the problems related to the geometry of satellite images. The validation with the altitude of the mountain peaks shows excellent results. The figures are ok.