Atmospheric Measurement Techniques Discussions

Atmos. Meas. Tech. Discuss., referee comment RC1
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Comment on amt-2021-234

Anonymous Referee #1

Referee comment on "The Antarctic Stratospheric Aerosol Observation and Sample-Return System Using Two-Stage Separation Method of a Balloon-Assisted Unmanned Aerial Vehicle" by Shin-Ichiro Higashino et al., Atmos. Meas. Tech. Discuss., https://doi.org/10.5194/amt-2021-234-RC1, 2021

This too short paper presents a description of aerosols measurements from a balloon and an UAV in the troposphere and in the stratosphere. The paper is more a technical note than a scientific paper. I am sorry to be so negative, but no real scientific objectives are presented, no valuable scientific introduction is proposed, no significant result are provided, and no correct scientific interpretations are conducted. Also, the authors give reference to Japanese papers only. Although the authors are honest because they always said :"preliminary results" and " further investigation is necessary", the scientific analysis is not well conducted ant the paper is very far from the AMT standards. Thus, major revision with more work to do are needed before submitted a possible revised version. Or the authors could submitted such revised version to another journal with lower standards.

Specific comments:

Line 30-31: Can you provide a reference ? I think the authors make a confusion. I agree that the aerosols content in the boundary layer could be lower in Antarctica than in the polluted areas, but this is not true in the stratosphere.

Lune 32-33: This comment is to general. Can the authors be more precise?

Line 35: It not acceptable to give only one reference (to a Japanese paper). There are many publications on this subject. The authors must conducted and provide a serious bibliography.

Line 35-36: This comment is also valid for other place in the world! I suggest to remove it.

Lines 38-39: It is strange that the authors has given reference only to Japanese works (some of them are old). They have omitted the work performed in other countries. Regular flights are conducted mainly by two teams in the word, an American one and a French one. One again, the bibliography on the subject is not well conducted.

Line 48: Can you provide a reference?

Line 149: I am not sure that part 4.1 is necessary to be provided. Several tools for such purpose already exist, and the present description does not provide something new.

Line 189-19': It is obvious that no /no-go decisions are based on meteorological conditions: this paragraph must be removed.

Line 201-208: These kind of information, usual for such kind of flight, are unnecessary for a paper in AMT and must be removed (note that the meaning of the red arrows in figure 7 is not provided).

Line 210 -220: Giving a reference to a paper in Japanese is not serious. There are many papers on the vertical profiles of stratospheric aerosols mainly written by the French and American teams. The authors must conduct a serious analysis of their measurements and perform a comparison to these other works. How are they sure that their measurements are valid and that the instruments work well in the stratosphere ? Also, they must provide errors bars. Finally, the authors must give references to other works on the Kelut eruption.

Line 223-238: Several paper of collected aerosols are existing (mainly form German and Italian teams). Again, the authors must conducted a serious bibliography before providing their conclusions. Also, are they sure that no contamination are present in their sample ? The analysis is too short and the results in table 7 are no really significant. Indeed, further analyses are necessary.