

Atmos. Chem. Phys. Discuss., referee comment RC1
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Comment on acp-2021-760

Anonymous Referee #1

Referee comment on "Secondary ice production processes in wintertime alpine mixed-phase clouds" by Paraskevi Georgakaki et al., Atmos. Chem. Phys. Discuss.,
<https://doi.org/10.5194/acp-2021-760-RC1>, 2021

I think the paper is well written, mostly and has some important results.

My suggestions are that

(1) the introduction could be more succinct and some of the literature in a separate literature synthesis section

(2) the Takahashi breakup scheme is applied for unrimed ice particles. I think this needs to be caveated because the paper suggested it was the rimed particles - as did Vardiman (1978)

(3) It should be more clear where the rimed fraction of ice crystals comes from - how this is extracted from the observations.

(4) there has been another study on mode 2, which is referred to. So the sentence about Latham and Warwicker being the only study should be revised.

See attached PDF

Please also note the supplement to this comment:

<https://acp.copernicus.org/preprints/acp-2021-760/acp-2021-760-RC1-supplement.pdf>