Atmos. Chem. Phys. Discuss., community comment CC3
https://doi.org/10.5194/acp-2021-123-CC3, 2021
© Author(s) 2021. This work is distributed under
the Creative Commons Attribution 4.0 License.

Comment on acp-2021-123

Alexei Korolev

Community comment on "Comment on "Review of experimental studies of secondary ice production" by Korolev and Leisner (2020)" by Vaughan T. J. Phillips et al., Atmos. Chem. Phys. Discuss., https://doi.org/10.5194/acp-2021-123-CC3, 2021

The comment in Phillips et al. (section 3.2, 2021) regarding the SIP mechanism due to fragmentation of sublimating ice particles is redundant. The comment attempts to explain the process of enhanced growth of secondary ice forming from ice sublimational breakup in undersaturated downdrafts with subsequent entrainment in a supersaturated updraft. This essentially repeats the statement from the Korolev and Leisner (2020) review paper (Section 9.2): "*Activation of SIP due to the fragmentation of sublimating ice requires spatial proximity of undersaturated and supersaturated cloud regions. In this case, secondary ice particles formed in the undersaturated cloud regions can be rapidly transported into the supersaturated regions prior to their sublimation*."

Korolev, A., and Leisner, T.: Review of experimental studies of secondary ice production. Atmos. Chem. Phys., 20, 11767–11797, https://doi.org/10.5194/acp-20-11767-2020, 2020.

Phillips, T.J., Yano, J.-I., Deshmukh, A., and Waman, D.: Comment on "Review of Experimental Studies of Secondary Ice Production" by Korolev and Leisner (2020), Atmos. Chem. Phys. Discussion, https://doi.org/10.5194/acp-2021-123, 2021