

RESPONSE TO THE EDITOR

We are grateful to the editor for the very detailed examination of our manuscript. We have addressed all the corrections suggested below:

There is a very recent study: Zhao et al. ACP (2021) "Impacts of secondary ice production on Arctic mixed-phase clouds based on ARM observations and CAM6 single-column model simulations", which found that ice-ice collision is not an efficient process compared to other ice formation in the single-layer stratus with cloud-top temperatures between -10 and -15C. They also studied the relative importance of other SIP mechanisms in relation to primary ice nucleation. This work is highly relevant to your study and needs to be introduced in your paper.

Zhao et al (2021) is now referred in the introduction section and section 3.2.2

There are a few corrections needed in the manuscript: 1. Line 61: "indentified" to "identified".

Corrected

2. Line 66: "18% these cases" to "18% of these cases"

Corrected

3. Line 538: the formula for C multiplication efficiency needs to be rewritten

thank you, subscripts are now corrected in the formula