Manuscript number: acp-2021-208
Full title: Investigation of ice cloud modelling capabilities for the irregularly shaped Voronoi ice scattering models in climate simulations
Author(s): Li et al.

I appreciate that the authors have provided reasonable responses to most of my comments. Please find follow-up comments below to improve the manuscript. However, there are still numerous errors throughout the manuscript. I even doubt if the authors did proofread it in response to my previous comment! In particular, a number of grammatical errors, inconsistent Table numbers, and inconsistent captions are found, which should be corrected. The topic presented in this study is suitable for Atmospheric Chemistry and Physics, and a minor revision is required for publication.

Specific comments

1. Response to Comment #7: As the bulk mass extinction efficiency is a function of the bulk extinction efficiency, bulk geometric particle projected area and volume, and ice density. Since the geometric parameters do not change over spectral wavelengths, the bulk extinction efficiency should have a local minimum at the corresponding wavelength domain. The explanation that the authors have provided here makes physically no sense to me. If the minimum value of the real part of the ice refractive index leads to a minimum mass extinction coefficient, please provide the physical reason why it does.

2. Response to Comment #16: If CAM5 unable to treat liquid and ice clouds individually, the present analysis may involve potential uncertainty associated with the ice/liquid fraction, which should be mentioned in the manuscript.

3. Line 139 “The single-scattering albedo at both wavelengths is close to 1, which is

related to the high values of the imaginary part in the refractive index.": High value of the imaginary part of the refractive index indicates very absorptive, and therefore SSA should be low.

4. Line 159: "compared" should be "compare".

5. Line 228 "see Table 1": This should be Table 2, shouldn't be?

6. Line 240 "The CIESM is run in two ways:" it has two verbs. It seems to me that a proofread was inadequate. Please double check the grammar in the manuscript.

7. Captions in Figs. 4-5: Although the figures show spectral bulk optical properties between 0.2-15 μm, the captions indicate the 14 shortwave bands, which is inconsistent.

8. Lines 269–271: Why the Voronoi model has larger mass extinction coefficients than Fu, Yi, and Baum-yang05 model counterparts?