Review comments

Overall comments

This is the second review report on the paper, titled "A Microwave Scattering Database of Oriented Ice and Snow Particles: Supporting Habit-Dependent Growth Models and Radar Applications (McRadar 1.0.0)". Thanks to the authors' response to my comments and their effort to revise the manuscript, most of my major concerns have been solved. The quality of the revised manuscript has been improved, and the advantage of the present database compared with past database has become clearer. The revised manuscript would be acceptable for publication after fixing remaining minor points. In the following, I write my response to the authors' replies. I omit my first review comments and the authors' replies, leaving the number for each major comment.

Major comments

Comment 1

I'm satisfied with the authors' revision in the introduction.

Comment 2

I'm mostly satisfied with the authors' revision and the clarification that the authors used the Reiter algorithm implemented in the aggregation model software to generate ice crystal shapes.

Comment 3

I understand the authors' decision to keep the present style of visualization.

Comment 4

Thanks to the authors' response, I understand that the figure was copied from a different source and the description of zyz-conversion is correct. However, two minor points remain: the zyz-conversion is shown in Fig. 5a; the notation of the three rotation angles (α, β, γ) should be different from the parameters for Reiter algorithm.

Comment 5

I confirmed that explanations about the DDA have been added in Section 3.1, and the references for the simulation setup have been specified in the last paragraph of Section 3.1. The explanation about the accuracy of the DDA has also been added.

The discretization of particles is explained in the last part of Section 2.1.

I understand the reason why the authors avoid showing the full set of equations. The reference to Mishchenko (2002) would help the readers who are interested in it.

Comment 6

According to the authors' response, the authors did not assume that snowflakes fall by aligning the longest axis of inertia horizontally whereas they defined the Euler rotation angles with respect to the default orientation where the longest axis of inertia horizontally. In that sense, the sentence "we assumed that snowflakes fall by default by aligning their longest axis of inertia horizontally." Is quite confusing even in the revised manuscript, though it was good that the authors moved this sentence to the second paragraph. Since the authors use the word "fall" in this sentence, it seems that the authors assumed the physical condition about the particle settling. The orientation is not relevant to particle settling but only a relationship between two coordinates. The term "default fall configuration" should be written as "default orientation", and the description "we assumed that snowflakes fall by default by" should be just "the default orientation is defined as". Furthermore, the default orientation is not an assumption, it is a definition.

Comment 7

I'm satisfied with the authors' response since the accuracy is confirmed by numerical data. It would be good to explain this fact in the manuscript.

Comment 8

I'm satisfied with the authors' response, which clearly answered my question.

Comment 9

I'm satisfied with the authors' response and revision.

Comment 10

I'm satisfied with the authors' response and revision. It is good that the authors reported the numerical convergence changing the resolution.

Comment 11

The authors' response and revision are reasonable. The revised subsection title is fair.

Comment 12

I confirmed that the authors largely revised the discussion in Section 5.2. I think that the authors succeeded in showing the advantage of their database.

Comment 13

I'm satisfied with the authors' response. It is good that the authors added the new figure for the comparison of the dataset in parameter space in Appendix C.

Comment 14

In my first review report, my 14th comment was "Appendices should be referred to in the main part of the paper. The appendices should also contain main sentences that explain and discuss the figures and tables in the appendices."

There was no response to this comment from the authors, but I confirmed that the authors revised the manuscript partially responding to it. The remaining point is that the authors should refer to Appendix B in the main part of the manuscript.

Minor comments

The authors responded to all the minor comments in my first review report. I'm satisfied with those responses. Now I have some additional comments concerning revised sentences.

- [l. 61] Close the parentheses as "(see Section 5.1)".
- [l. 218] The Stokes vector: "S" should be capitalized.
- [l. 491] There is a strange symbol before 0.1. Is it "between -0.1 and $1.2°$ km^{-1}"?