

## ***Interactive comment on “A Polarimetric Scattering Database for Non-spherical Ice Particles at Microwave Wavelengths” by Yinghui Lu et al.***

### **Anonymous Referee #2**

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#### General Comments:

This is a very timely and important paper for the scientific community. As the authors identify in the abstract there are a number of applications of the presented database. The manuscript is clearly written and the material is well presented. I have only one general comment that I hope the authors would address.

The single scattering properties of ice particles provide a link between physical properties of ice crystals, snowflakes and remote sensing observations. So for the use of single scattering properties, it is important to know physical properties of ice particles they represent. The authors present the method that have used to generate “realistic” ice particles, but it would be important to show mean microphysical properties, for example m-D relations, distribution of aspect and areal ratios. It would also be important

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to compare these properties to what is reported in literature and provide a connection to circumstances the presented database can be applied in.

This is also related to the comparison of the presented database and Leinonen et al. (2015) results. It would be important to know whether microphysical properties of the ice particles in both studies are actually comparable.

As the new scattering databases become public, it is not always clear how these databases will be utilized. One line of thinking is to select modeled ice particles with m-D relations as closely related to the ones observed in nature and to apply the corresponding single scattering properties. This approach implies that particle formation mechanisms used for the creation of the database and the one in nature are the same across all particle sizes. This may or may not be true. So it is interesting to hear the authors opinion on how do they foresee the presented database will be used. Connected to that, it would be important to provide enough information in the paper about the content of the database, in terms of the main microphysical properties of ice particles, to facilitate the database use.

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