

## ***Interactive comment on “Using cloud ice flux to parametrise large-scale lightning” by D. L. Finney et al.***

### **Anonymous Referee #2**

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P17818, line 15: Is the result of less high and low lightning extremes a fault of the lightning parameterization, or a fault of the convective cloud parameterization in the models?

Line 18-19: Is this improvement in all models, or only in the ERA model? This may be strongly model dependent.

P1720: lines 16-20: While reanalysis data give the best representation of the world, they do not include cloud data critical for the lightning parameterisations. All cloud parameters in the reanalysis are modeled. So the quality of the results depends on the modeling of clouds, ice flux, precip, etc in ERA.

Fig 2: see comments above

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Discussion and Conclusion: I think you need to address the above points in the discussion and conclusion of the paper. The presented new parameterization may be good in the ERA reanalysis, but what about other GCMs like ECHAM? All parameterisations are sensitive to the model parameters used, and the convective parameterisations. This point is extremely important, and just because the new parameterization is best in ERA does not mean it will be best in any other model.

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