

Interactive comment on “Use of polarimetric radar measurements to constrain simulated convective cell evolution: A pilot study with Lagrangian tracking” by Ann M. Fridlind et al.

Anonymous Referee #2

Received and published: 4 March 2019

Review: Use of polarimetric radar measurements to constrain simulated convective cell evolution: A pilot study with Lagrangian tracking

By authors: Ann M. Fridlind and Marcus van Lier-Walqui et al.

The study aims to illustrate the polarimetric weather radar observations, derived KDP and retrieved rain properties, can provide additional constraints to atmospheric model simulations. Cells observed in a single case study are first tracked, examined and compared with cells in regional model simulation. Then three-year climatology of isolated cell tracks is provided using Houston KHGX data. Overall, this manuscript is well written. I recommend it for publication in AMT if the authors take into account the following

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comments.

1. How did you define the initiation of a convective cell? Can S-band radar be used to define the initiation without any observations from satellite or X-band radar measurements?
2. Line 190. Explain the retrieval uncertainty is only 5 to 10% estimated from a 2012 paper, but the retrieval algorithm (for Dm and Nw) was developed in 2014.
3. Have difficulty in understanding the colorful lines in Figure 3. What is the meaning of different colors?
4. Would you like to summarize the differences between observations/retrievals and model simulations by providing quantity comparisons using all your tracked cases? How about generating a table or a summarized figure to discuss which variables model simulated best/most reasonable, which variables/cell signatures model cannot simulate well? How to improve the model simulations using radar measurements?

Interactive comment on Atmos. Meas. Tech. Discuss., doi:10.5194/amt-2018-454, 2019.

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