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Interactive comment on "Comparison of retrieved Noctilucent cloud particle properties from Odin tomography scans and model simulations" *by* L. Megner et al.

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Dear authors,

I found it very interesting to read your paper, in particular the results regarding the influence of background variability on NLC properties.

For improving the soundness of your conclusions, I have a suggestion regarding your CARMA simulations. While conducting CARMA simulations with gravity wave perturbed background fields, I found that different dynamical situations cause very different NLC properties, including very different size distributions. It seems that in your wave-simulation only one bright NLC can develop (probably due to the limited water vapor).

Therefore, it might be insightful to start the simulation also at later times. This could give you a larger variety of NLC properties and increase the number of datapoints in Fig. 4, in particular more datapoints for large ice water content.

The importance of dynamical fluctuations is nicely highlighted in your analysis. Similar results and a detailed discussion about the factors limiting the microphysics in gravity wave perturbed backgrounds can be found in our recent publication (Wilms et al., Nucleation of mesospheric cloud particles: Sensitivities and limits, JGR, 2016, doi: 10.1002/2015JA021764). In order to compare your result to the above mentioned study, it would be helpful to see the background temperature and wind fields which were used in your simulations, in addition to the mean properties and variances shown in Fig. 3. As one of your main conclusions refers to the importance of the variability of the background atmosphere, I believe it is important to characterize this variability more closely (e.g., dominant periods, wavelengths, phase relation between temperature and vertical wind).

I am looking forward to your new results.

Kind regards, Henrike Wilms