Atmos. Meas. Tech. Discuss.,
doi:10.5194/amt-2019-343-RC2, 2020

Atmospheric Measurement Techniques Discussions

Interactive comment on "Characterization and first results from LACIS-T: A moist-air wind tunnel to study aerosol-cloud-turbulence interactions" *by* Dennis Niedermeier et al.

Anonymous Referee #1

Received and published: 6 January 2020

The design and performance of a new system for studying turbulent effect on cloud microphysics under short timescales up to a few seconds is presented, the LACIS-T system. CFDC simulations using large eddy simulations are also performed to help interpret the system's performance and experimental results. This is an important contribution to the atmospheric science community given the lack of experimental systems to directly study the effects of turbulence. I recommend it for publication, and make a few suggestions to further improve the manuscript below.

While the system's design and characterization are nicely presented in great detail, it stuck me that a discussion of how finely the revenant parameters can bee adjusted and

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Discussion paper

controlled in LACIS-T was not really presented. This would be a valuable addition to the paper.

In the introduction, more elaboration on the importance of atmospheric turbulence and its effects on important properties and phenomena such as cloud microphysics and particle deliquescence/growth and the resulting rather complex and intriguing size distributions is warranted. This will be the results presented in better context.

Line 91: Is there a reference for the "Göttingen type" of wind tunnel?

Lines 205-210: To make this more accessible to those less familiar with CFD simulations, please explain "periodic boundary conditions" and the significance and utility of the Courant–Friedrich–Lewy (CFL) number.

Line 225: What is the relevant particle size range and fluid velocity range being considered when evaluating the particle Reynolds number?

Fig. 1: Please indicate the air flow direction in the various channels.

Interactive comment on Atmos. Meas. Tech. Discuss., doi:10.5194/amt-2019-343, 2019.

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