

Review of “Measurements of water droplets in a turbulent wind tunnel.”

General Comment:

This manuscript aims to understand the behavior of cloud droplets in the entrainment-mixing process. It provides an adequate description of the experimental setup, numerical simulations, instrumentation, and the associated uncertainties, as well as the strengths and limitations of both the measured and simulated data. The dataset enables investigations of mixing processes under well-controlled boundary conditions, providing a valuable framework for enhancing the understanding of entrainment at the cloud–clear air interface.

Overall, the manuscript is well-written and contributes a valuable dataset to the atmospheric community. To enhance clarity, I have a few major and minor comments that can be addressed in a timely manner. I would recommend acceptance for the publication if the following comments are addressed properly.

Major Comments

Comment 1: Line 163: It mentions that measurement from the vane anemometer has also been performed 25 cm below the top of the measurement section. Can you include it in Fig. 5?

Comment 2: Line 189: How do 20000 particles released into the domain per model second compare with the droplet concentration injected from MDG in experiments?

Comment 3: Although the size distribution from the OpenFOAM simulation deviates significantly from the experiments. It would be helpful for data users if one snapshot of size distribution from the simulation at different heights could be included in the Main text or the Appendix, as you prefer.

Minor comments:

Comment 1: The title seems a little vague. It does not convey the message that which properties of water droplets have been measured. Include keywords such as microphysical properties or size distribution.

Comment 2: Line 27: Include the relevant citations for “ it is homogeneous on small scales”

Comment 3: For clarity, mark the height of droplet injection in the left or middle subplot of Fig. 1.

Comment 4: Line 95-97: Also show the unit of pressure in hPa or a commonly used unit for the atmospheric science community.

Comment 5: Line 99: Does “as close as possible” represent $z=0$? Mention here also, although it is already in the Caption of Fig. 1 and later.