Atmospheric Measurement Techniques Discussions

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# Reply on RC1

Louis Jaffeux et al.

Author comment on "Ice crystal images from optical array probes: classification with convolutional neural networks" by Louis Jaffeux et al., Atmos. Meas. Tech. Discuss., https://doi.org/10.5194/amt-2022-72-AC1, 2022

Thank you for your review on our article "Ice crystals images from Optical Array Probes: classification with Convolutional Neural Networks". Adressing your major comment on Figure 5 and 6, I added a clearer description of the mentionned figures in the text below it (sections 4.2.1 and 4.2.2):

"Figure 5 details the overall results of the random inspections, 5a displays all 4000 responses from the ten operators, normalized, while 5b shows how the 400 images are classified by humans and the network in numbers, in this second case a majority rule is used to determine the class attributed by humans, if majority (more than 50%) is not reached for a given image then it is considered unidentified by humans."

The train of thought behind these two plots is to be able to strictly confront human inspections with the network with the first subfigure and to be able to look more closely at images in particular with the second one, such as the ones displayed in the Appendix (A3,A4,A5), in order to see whether the images themselves are problematic, or if the network is producing inaccurate results or even if there were flaws in the way operators were trained.

Concerning your first minor comment on the multi-label classification approach:

you bring up an interesting alternative approach that surely has a couple of advantanges concerning the assumed porosities between our classes.

Finally, thank you for highlighting the typos in the joined PDF, it will make our work that much faster.