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Atmospheric Chemistry and Physics Discussions

Interactive comment on "The Quasi-Liquid Layer of ice revisited: the role of temperature gradients and tip chemistry in AFM studies" *by* Julián Gelman Constantin et al.

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The thickness of the QLL is a current and on-going research topic of high interest to the atmospheric science community. This manuscript adds timely data to the discussion. The study is very detailed, the conclusions well justified, and the discussion is very balanced. I therefore accept the manuscript for publication in ACP after dealing with minor comments from the referee.

Additionally, I'd ask you to comment on the following point and modify the manuscript accordingly. It is not entirely clear to me how the AFM measurement are calibrated relative to the ice sample thickness. If I understood correctly, the distance of the solid ice

is z=0, How is that determined? In other words, measuring the force-distance how do you determine the thickness of the QLL without determining the samples topography, or thickness. It appears to me that this calibration is a central issue in AFM and I would ask you to comment on this in more detail.

Small comments Page 1, Line 25: melted layer -> pre-melted layer Page 9, Line 6ff: Apparently, Bluhm probed nm thick ice growing on a support. I would argue that the structure of that ice does not reflect the surface of bulk ice crystals, but rather of nano-films on a support being influence on that support. So, I would suggest to highlight more specifically that this study did not probe the QLL on ice.

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