HESS-2024-78 Leveraging a Disdrometer Network to Develop a Probabilistic Precipitation Phase Model in Eastern Canada

1 Response to anonymous referee 1

The authors have addressed my review comments. I noted a few typographical corrections while reading this revised manuscript, but I do not need to see it again before publication.

Thank you for your final feedback, it is greatly appreciated. Please note that the line numbers in this section refer to the lines in the new version of the manuscript submitted with this response document.

1.1 Line 90: "droplets" refers to liquid precipitation only

Thank you, "droplets" was replaced by "precipitation particles".

1.2 Line 92: "the hydrometeors exchange latent and sensible heat with their surroundings"

Thank you, the sentence was fixed.

1.3 Line 130: "hourly or shorter timesteps"?

Thank you for pointing out this mistake, it was fixed.

1.4 Line 257: "noise and diurnal oscillations in the precipitation data"

This was fixed, thank you.

1.5 Line 559: "The thinner air in low-pressure environments"

This was fixed, thank you.

2   Additional changes made to the manuscript

Please note that the line numbers in this section refer to the lines in the new version of the manuscript submitted with this response document. Additions to the manuscript are shown in bold.

2.1   Typographical corrections

Line 153: "observations" to "observation"

Line 196, 204, 262 and 710: "identifications" to "identification"

Line 228: "atmosphere" to "atmospheric levels"

Line 263: removed the second "respectively" at the end of the sentence

Line 280: "results" to "result"

Line 466: "best performing" to "best-performing"

Line 534: "increases" to "increase"

Line 724: "large amount of stations" to "large number of stations"

Line 1075: "station" to "stations"

Line 1080: "modeled" to "modelled"

Line 1081: added "(" before figure subsections in caption for consistency

2.2   Technical corrections

2.2.1   Line 176: The network lies between latitudes 47.23 and 52.13 °N, and longitudes 63.17 to 75.29° W, spanning an area of roughly 1,138,000 km^2.

The projected area was corrected to be more accurate at the latitudes of the study:

Lines 175-176: *The network lies between latitudes 47.23 and 52.13 °N, and longitudes 63.17 to 75.29° W, spanning an area of roughly **532,594** km^2.*

2.2.2   Lines 788-789

A sentence to introduce Table A1 was added:

Lines 788-789: **Table A1 shows the details for the study sites used from the Hydro-Québec observational network.**