

Comment on amt-2020-515

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Community comment on "Drone measurements of surface-based winter temperature inversions in the High Arctic at Eureka" by Alexey B. Tikhomirov et al., Atmos. Meas. Tech. Discuss., <https://doi.org/10.5194/amt-2020-515-CC1>, 2021

There is very few research conducted in High Arctic, due to the high cost of travel, short field season and being difficult to access. This particular paper seeks to improve the measurement technologies in this area. I have some comments for this preprint.

- In line 43, I understand the need to express units in SI units. However, it's preferable to express the inversion lapse rate in metre or 100 metres. Same for lapse rates in lines 48 and 50. The authors already express lapse rate in metre on lines 275 and 276
- In line 179, CYEU should be written as CYEU. C-YEU would be an aircraft registration number, not an airport designation code
- In line 185, the Eureka Climate station name should be spelled out in full at least in the first instance, not abbreviated as "Eureka C"
- From line 185 to 188, when the manuscript is referring to Nav Canada's Eureka A station, it is unclear if the authors are referring to the data from the automatic platform (which runs 24/7) or the staffed platform (which runs 22 hours a day during their study period, with no staff present for 04:00 and 05:00 UTC observations). Both the automatic station share the same instruments (e.g. temperature, wind, pressure) but staffed site also provide hourly weather conditions and visibility, and 6-hr precip amounts. If authors used the staffed site, then the statement "both stations provide hourly weather reports" is not accurate. The manuscript should clarify which platform they used in their study
- In lines 208 to 209, do you have the source for the ice surveys? These information should be available on Canadian Ice Service website
- Just a thought, since the authors built insulation to protect the battery against extreme cold as stated in line 225, was the battery temperature measured or tracked during the flight?
- It would be ideal to clarify in line 236 that the pilot is the drone pilot
- Figures 3, 4 and 6 are labelled as products copyrighted by Google Earth. It is not compatible with the Creative Commons (CC-BY-4.0) license. If alternative imagery (e.g. NASA) in public domain are available, they should be used instead
- In Figures 3 and 4, it is unclear to me what those alphabets on the map pins represent. For example, I see two pins labelled as "E". Their meanings were not explained in figure captions