Earth Syst. Sci. Data Discuss., referee comment RC1
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Comment on essd-2021-37

Anonymous Referee #1

Referee comment on "The NY-Ålesund TurbulencE Fiber Optic eXperiment (NYTEFOX): investigating the Arctic boundary layer, Svalbard" by Marie-Louise Zeller et al., Earth Syst. Sci. Data Discuss., https://doi.org/10.5194/essd-2021-37-RC1, 2021

The manuscript addresses near-surface meteorological observations during an extensive field campaign carried out in Ny Ålesund, Svalbard, in late winter 2020. The focus is on the Fiber-Optic Distributed Sensing (FODS) technique, which is a rather novel method for wind observations (more used for temperature observations). The FODS system is very well integrated with other meteorological in-situ and remote sensing observations carried out during the campaign in Ny Ålesund. It is impressive that the FODS method worked so well in very low temperatures, down to -30 deg C. I consider the manuscript excellent, with an impressive clarity and organization in presenting the observations, data gathered, error sources, corrections, and post-processing of the data. Further, the scientific motivation is very well presented for all measurements taken and how they complement each other. The figures are well planned and clear. The link to the data set works, and the data are well organized and publicly available. Throughout the manuscript, the text is very carefully written and it is hard to find errrors or issues to be criticised. I only request to add a table summarizing the accuracy of various observations made during the campaign.