

Reply to Reviewer 2:

This paper describes a new observatory of clouds, precipitation and blowing snow in Antarctica. The instruments which are used will allow the scientific community to study in more details polar clouds and more specifically mixed phase clouds. The experimental set-up is well illustrated by the analysis of case studies. In this sense the paper is very original. It is also very clear and well written. I have only a few minor comments that have to be addressed before the paper is published.

We thank the Reviewer for his/her positive feedback and appreciation of the paper. Below we address each point raised by the Reviewer in detail with our replies in blue and the *corrected/new text highlighted in magenta both in the replies below and in the revised manuscript*.

p. 4213, 2nd para. The 2nd sentence should be clarified : what do you mean by most frequent (which frequency/ies) ?

We provide frequency estimates in the revised text: *"Precipitation intensity near the surface (400 m agl) is most frequent within $-5 < Z_e < 10$ dBz (78% of snowfall values at this range)..."*

p. 4214, 2nd full para. The criteria used to exclude snowfall should be recalled.

In this paragraph we discuss vertical range of ice and liquid-containing clouds, and think that recalling snowfall exclusion criteria here would divert the focus.

p. 4216. have you installed an acoustic snow height ranger at Princess Elizabeth ?

Yes, snow height is measured using SR50 sonic height ranger. We have reiterated this information in Section 4.2.3 and also added to Section 3.1 (observatory overview).

p. 4217, 3rd line. The reference Gallée et al. (2005, Ann. Glac.) should be also appropriate.

We thank the reviewer for this useful reference for drifting snow sublimation discussion - it has been added (the statement has been moved to the Introduction).

Figures: Characters size of figures 1 and 6 should be increased

Figures have been updated as requested.