

Comment on **essd-2021-163**

Anonymous Referee #2

Referee comment on "Remote and autonomous measurements of precipitation for the northwestern Ross Ice Shelf, Antarctica" by Mark W. Seefeldt et al., Earth Syst. Sci. Data Discuss., <https://doi.org/10.5194/essd-2021-163-RC2>, 2021

Synopsis / General comments

The paper presents a dataset of a two-year installation of autonomous precipitation measurements in Antarctica. The paper is generally well-written and explains the measurement setup and the challenges of observing precipitation in this adverse environment.

Some points are however missing (partly also addressed in the specific comments below):

- How were the quality control criteria defined?
- How do the disdrometer data compare to the OPD count during "events"? It would be good to get some information on that.
- How did the different Pluvio shielding perform? Which setup do you consider as best?
- The conclusions are very short and do not contain much useful information. Which lessons did you learn, which instruments provided particularly useful data, and which recommendations do you have for future precipitation observations in Antarctica?

Specific comments:

- Fig. 1: The choice of colors for the background is not very intuitive. I would suggest blue for water, white for ice shelf and grey for the land area.
- Tables 1 and 2: The station is called "Willie Field", in the map it is marked as "Williams Field", please be consistent with names.
- Line 254-255: "This snow height measurement is similar to that of the snow height measurement from the sonic ranging sensor except with very different characteristics": What do you mean with that? To me this is a contradictory statement. The GPS method is definitely not similar to the ultrasonic one.
- Line 353-355: How did you define the unique thresholds? How and where are the

thresholds documented? Please comment on that!

- Line 419-421: Is there any explanation that the two events with the highest windspeed also have the highest accumulation? Are precipitation and wind speed really correlated or does the wind bring large amounts of snow from the surroundings into the bucket? That would explain that snow height does not change much during these events.

- Line 434-436: You show a light wind period to compare between the different Pluvio instruments. Which results does the different shielding bring at higher wind speeds? Would be good to show an example in Fig. 7 with wind speeds well above 10 m/s to get a better impression on the differences.