

## Responses to Reviewer 1

We thank the reviewer for the comments and review.

**Comments:** In Section 2.3 the authors present the equations that are used to estimate snowpack quantities, such as SWE and SLR. I think it would be good to explicitly point out that DEID measures falling snow properties and the observed liquid equivalent precipitation rate and bulk-snow hydrometeor density are proxies for the SWE and SLR. There are processes that take place at the surface that are neglected in the presented equations. You discuss this on page 20, but it would be good to also explicitly mention it here.

**Response:** We agree with the reviewer. We have changed the document accordingly.

**Added in manuscript [L-165] in section 2.3.** Note that the bulk density of a fresh snowpack and the height of snowpack can differ from the average density of individual snowflakes ( $\bar{\rho}_{MS}$ ) and  $H$ , respectively, because snowflake settling and compaction on the ground depend on considerations such as their settling characteristics, fall angle, wind speed, the structure of snowflakes, and ambient temperature. We do not account for these processes in the calculation of the volume of freshly fallen snow layers as the impacts are largely unknown. Hence, these variables are proxies for those in the actual snowpack.