

The manuscript “Evaluation of polarimetric ice microphysical retrievals with OLYMPEX campaign data” is satisfactorily written, and the content is within the journal's scope. The authors introduce a new way of radar data processing, RSVP. They compare polarimetric and standard X-band radar retrievals with in situ aircraft measurements of IWC, D_m , and N_t , suggesting that dual-pol information improves the microphysical retrievals. Minor revision is the recommendation.

Specific comments:

Lines 140-145: Brown and Francis (1995) (BF) relation derived for cirrus clouds may not represent IWC properly in different cloud types and environmental temperatures. Authors may want to comment a bit more on the BF usage (there is only a short comment in section 5 beginning about the uncertainty of the assumed mass-dimension relation – line 285).

Line 167: Reword the part about the “confusion among the experts”; it is probably a typo in Murphy et al. (2020) – their multiplier is reciprocal to multiplier in (8).

Lines 224-229: The factor α_0 does not vary with the degree of riming f_{rim} ; it is constant. The authors probably wanted to emphasize that the prefactor α in the snow density relation, $\rho_s = \alpha D^{-1} = \alpha_0 f_{rim} D^{-1}$, varies with the degree of riming.

Line 231: There is no reference to Table 2 in the body text.

Line 311: Provide a reference for the temperatures - the text is difficult to follow this way.

Line 318: The same comment as for Line 311.

Line 320: Did the authors mean $Kdp < 0.01$ deg/km here?

Line 388: Remove “as” from the sentence.