

Interactive comment on “Absolute Calibration method for FMCW Cloud Radars” by Felipe Toledo et al.

Anonymous Referee #1

Received and published: 6 April 2020

The paper addresses a very important and difficult topic - calibration of cloud radars. While the principle of radar calibration might be simple, the practical realization and procedures are far from easy. I applaud the authors for undertaking this challenge. The paper describes experiments with corner reflectors fixed on a mast at the Sirta observatory in Palaiseau.

In its current form the paper is not fit for publication. Major revisions are needed:

There is lack of consistency in the use of units; for instance in equation 1a and 1b: - What is unreferenced dB? P_t is in Watts, and P_r in dB. - In eq. 1a, the temperature is explicit, but implicit in eq. 1b - L_a is in dB/km, but r_0 is not specified.

Since BASTA is a FMCW radar, the FFT in the determination of the range is crucial.

C1

It introduces cross-talk, and usually time-windowing is applied to alleviate this at the expense of resolution. This needs more discussion in the paper.

To little is said about the properties of the calibration objects themselves. How well defined are they?

The temperature variation inside the radar is corrected for, but I do not think one can use the same temperature range for the calculation of K^2 . After all, the clouds are in an entirely different environment.

These fundamental aspects are missing in the paper. Since this can become a important reference paper for the European cloud radar community, I advise the authors to critically review it once more.

Interactive comment on Atmos. Meas. Tech. Discuss., doi:10.5194/amt-2019-498, 2020.

C2