

Interactive comment on “The TRIPLE-frequency and Polarimetric radar Experiment for improving process observation of winter precipitation” by José Dias Neto et al.

Anonymous Referee #1

Received and published: 30 January 2019

The TRIPLE-frequency and Polarimetric radar Experiment for improving process observation of winter precipitation By José Dias Neto et al. The authors present a two-months long dataset of collocated triple-frequency radar observations of clouds and precipitation collected at the Jülich Observatory. The main focus of the dataset is on the triple-frequency observations of ice clouds. The dataset is of definite scientific interest and the accompanying article should be published after minor modifications.

Comments: My main suggestion to the authors is to include a table with the list of the events and their description. Since this is a dataset article, such table is definitely needed. The table should also include information such as duration of events, precipi-

C1

tation rate, ground temperature, etc.

Minor comments:

p.4. line 22 “Unlike for the pulsed radars, the JOYRAD-94 range resolution is not fixed, but depends on the gate distance as a consequence of the use of different FMCW chirp settings for different heights.”

I would like to suggest that you reword this sentence. A range resolution of a FMCW radar can be selected in a more flexible manner than for a pulsed system, but it does not mean it is not fixed.

p. 7. line 4 “Our relative calibration approach follows the previous triple-frequency study by Kneifel et al. (2015)”

You are using reflectivity matching at the top of ice clouds to mitigate calibration mismatches and differential attenuation in rain, melting layer and ice clouds. Can you elaborate more what kind of impact this approach will have on DWR observations, because this approach implies that the specific attenuation is the same for all range gates. That also means that in some cases the attenuation is overestimated, while in others is underestimated. How important this mismatch for melting layer and ice cloud measurements?

p.16. lines 12-13 “The first triple-frequency signatures from ground-based radars (C, Ka, W band) were presented by Stein et al. (2015) for two case studies.”

I guess you meant S-band and not C-band.

Interactive comment on Earth Syst. Sci. Data Discuss., https://doi.org/10.5194/essd-2018-142, 2018.

C2