

Atmos. Meas. Tech. Discuss., referee comment RC1
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Comment on amt-2021-267

Anonymous Referee #1

Referee comment on "Identification of concurrent clear-air and precipitation Doppler Profiles for VHF radar and an incorporating study of strongly convective precipitation with dual-polarized microwave radiometer" by Shih-Chiao Tsai et al., Atmos. Meas. Tech. Discuss., <https://doi.org/10.5194/amt-2021-267-RC1>, 2021

This paper studies estimation methods of Doppler spectral parameters from clear-air and precipitation echoes by the Chung-Li VHF radar. Then radar observations of strong convective precipitation are compared with the data of dual-polarized microwave radiometer etc. when the typhoon Trami passed through Taiwan in August 2013. The proposed method shows a good performance, but this paper needs to be the revision.

Specific Comments

L78 Contour-based approach

I cannot understand the benefits of this method because extending to the orthogonal spectral dimension with a Gaussian function does not increase any information. Please explain the theoretical background that shows the goodness of this method.

L155 multiple carrier-frequency mode ...

Only the data from the carrier frequency of 52 MHz are analyzed. But the data from all the five frequencies can be used for incoherent integrations of Doppler spectra, because the frequency difference is only within 1%.

L170 Figure 3

The horizontal axes of Figures (a) and (b) should be aligned.

L245 Figure 6(a)

The altitude variation of the mean profile of the spectral width seems to be too small. I think that the spectral width is mostly determined by the beam broadening effect. Was the

altitude change of the horizontal wind small at this time?

L344 Figure 9

The time intervals are different, how did you choose? In Section 5, although Figure 9 is referred to as radar data, it is better to add the time-height plots for the entire period.