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*Supplement of*

## **Optimizing observations of drizzle onset with millimeter-wavelength radars**

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## 1 Distribution of moments for the non-drizzle case study of the 20 November 2014.

Here we present in Fig. S1 the normalized distributions of all moments derived for the non-drizzle case of the 20 November 2014.

## 2 Impact of fft: additional details

Here we present the effects of spectral resolution on the different moments for both non-drizzle and drizzle case studies. Doppler spectra derived with 256, 512, and 1024  $nfft$  and a constant integration time of 2 s based on identical time series of raw I/Q data are compared one-to-one for  $nfft$  256 versus 512 and 512 versus 1024 respectively for the drizzle (Fig. S2) and non-drizzle (Fig. S3) case.

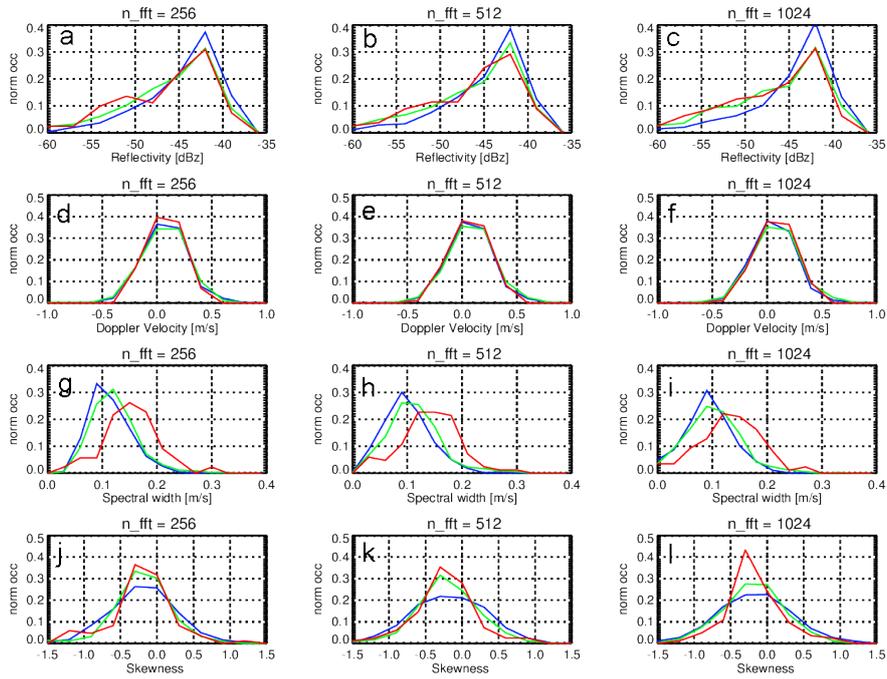


Figure S 1 – Distributions of moments for the case of the 20 November 2014. Each line of the figure shows the distribution for a given moment at the different fft lengths (from left to right 256, 512 and 1024): reflectivity ( $Z_e$ ) on the first line, mean Doppler velocity ( $V_d$ ) on the second line, Spectral Width ( $S_w$ ) on the third line, Skewness ( $S_k$ ) on the fourth line. Different colors correspond to different integration times: red (10 s), green (2 s) and blue (0.4 s).

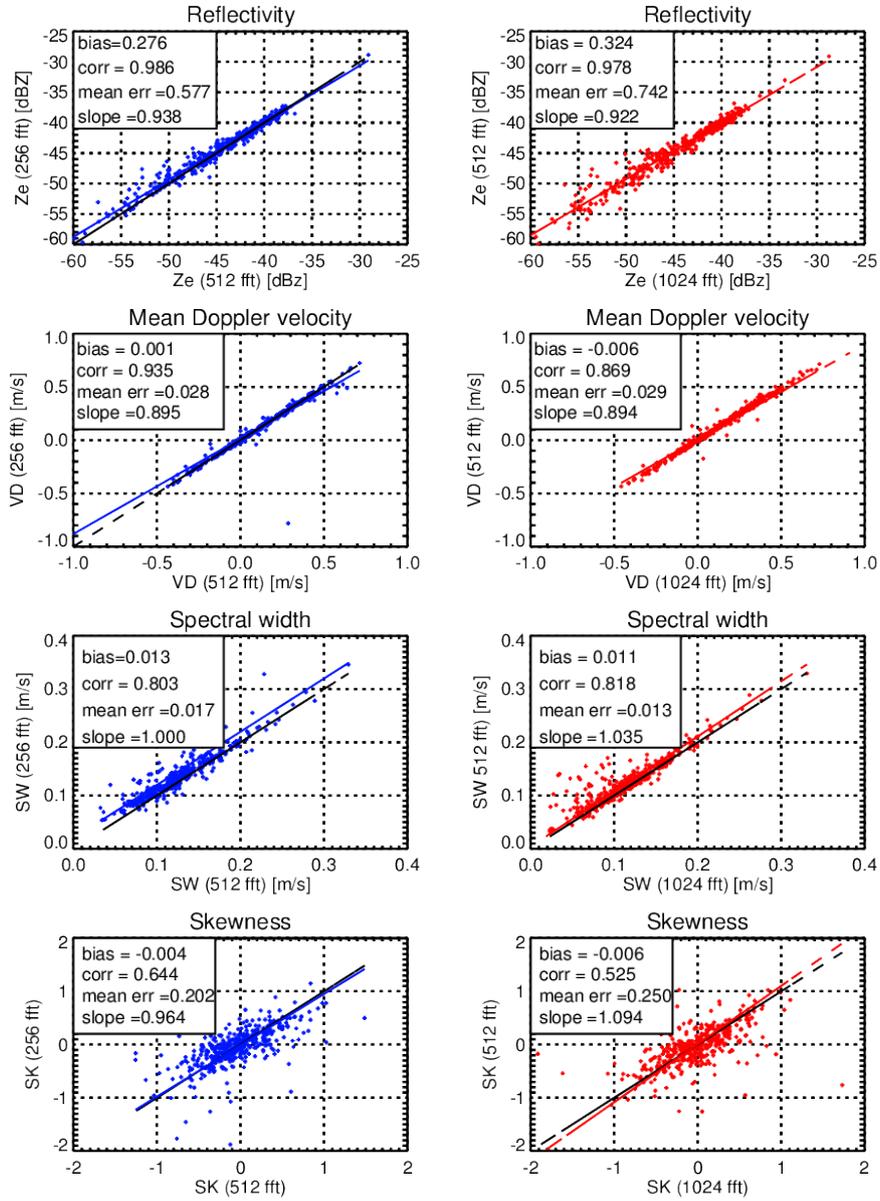


Figure S 2 – Effect of spectra resolution on moments: scatter plot of moments derived at 256 ft length with the corresponding ones derived using 512 ft length for the case of the 20 November 2014. All the spectra are calculated with 2 s integration time. The left column compares 512 with 256, while the right column compares the 1024 ft length with the 512 ft length.

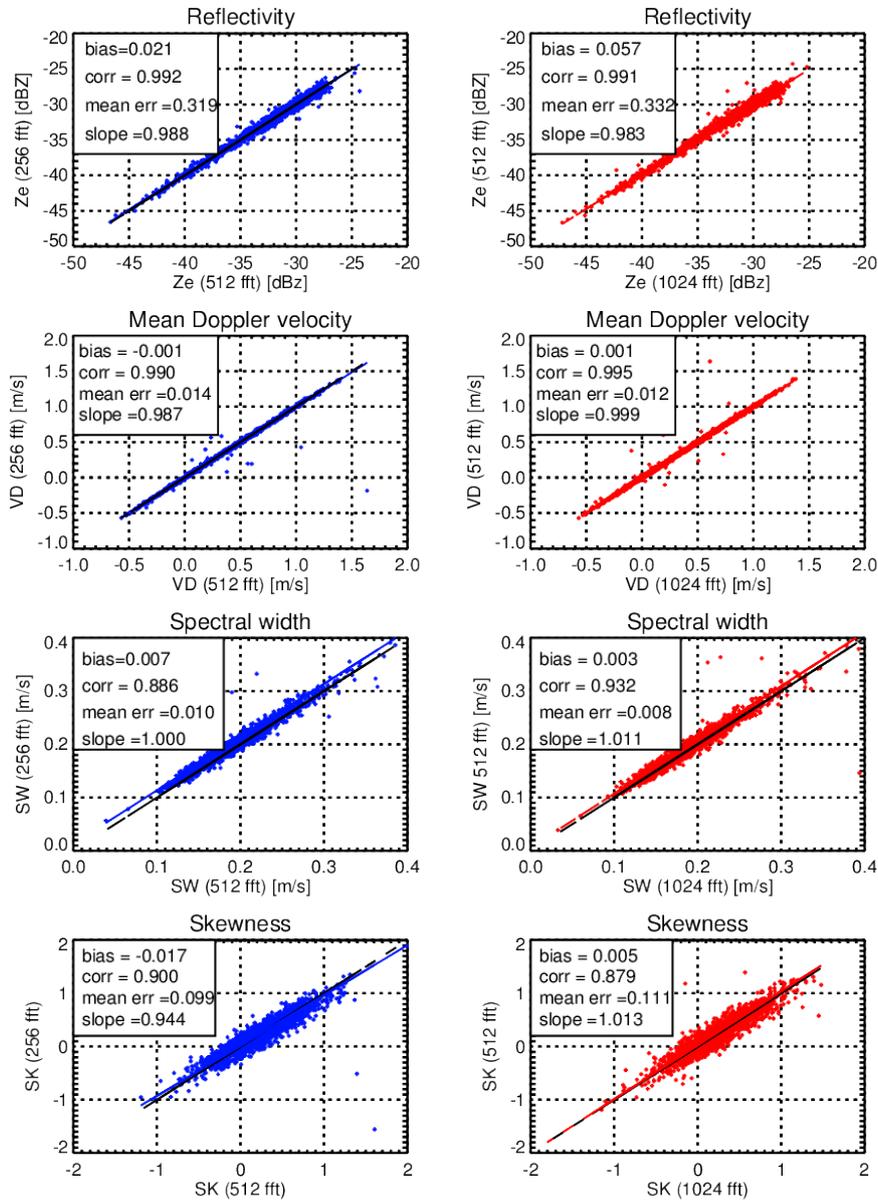


Figure S 3 – Effect of spectra resolution on moments: scatter plot of moments derived at 256 ft length with the corresponding ones derived using 512 ft length for the case of the 24 June 2015. All the spectra are calculated with 2 s integration time. The left column compares 512 with 256, while the right column compares the 1024 ft length with the 512 ft length.