

Interactive comment on “Improved Micro Rain Radar snow measurements using Doppler spectra post-processing” by M. Maahn and P. Kollias

Anonymous Referee #2

Received and published: 20 August 2012

Review of the article titled “Improved Micro Rain Radar Snow Measurements Using Doppler Spectra Post-processing” by M. Maahn and P. Kollias for publication in Atmospheric Measurement Techniques. The authors have proposed a new processing technique for a 24 GHz radar which corrects for the dynamic aliasing due to targets with velocities greater than the Nyquist velocity. Also, by comparing the data from the new processing technique with that from a Ka-band radar, the authors have shown an improvement in the MRR sensitivity by about 10 dBZ. The authors have demonstrated that the new processing technique which is freely available will be of great use to retrieve size distribution parameters of snow. I recommend this article for publication with minor revisions. Below are my comments in detail.

C1842

Major Comment: A sensitivity of -14 dBZ is good as it is closer to -17 dBZ, a threshold used for drizzle detection. Hence, with the new processing the MRR would be able to observe all types of precipitation. But as pointed out by the authors, the sensitivity is also dependant on the number of spectra averaged (58 in this study) and the number of FFT points used to calculate the spectra (page 4793, line 15). I wish the authors could elaborate a little more on how the sensitivity, temporal resolution and spectral resolution interplay in the MRR. Eventually, it will be great to have a MRR with finer spectral and temporal resolution with same sensitivity. I understand if the authors would have to speculate a little addressing the issue as data at finer resolutions might not be available.

Minor Comments: A number of minor comments have been pointed out by the other reviewer, so I will not echo them here again. Below are few which did not overlap with the other reviewer.

1) Page 4772, line 23; The absorption in snow is negligible at 24 GHz, but not at 35 GHz or 95 GHz. Please mention the frequency in this line. 2) Page 4786, line 7; Instead of saying “no.”, I would say “Data from the second (32nd) range gate was not used for data processing . . .”

Interactive comment on Atmos. Meas. Tech. Discuss., 5, 4771, 2012.

C1843