

Review of: **Processing reflectivity and Doppler velocity from EarthCARE's cloud profiling radar: the C-FMR, C-CD and C-APC products**, Pavlos Kollias et al.

Overall Recommendation: Publish with minor changes

Specific Comments:

- Line 21: Is it a good idea to mention a launch date within the paper?
- Line 52: Maybe mention already why this frequency varies and in which way (intentionally, technically,...).
- Line 70: A lot of a-priori knowledge is assumed. Estimation from autocovariance could actually be considered mathematical trivial, but a reference to a paper highlighting the technique would be really fruitful at this position. Actually, this technique only works if spectral leakage is avoided (i.e. the spectrum is fully and unambiguously recorded). So it should at least be shortly mentioned that it actually is applicable in the presence of all the adverse effects on the velocity measurement (NUBF etc...) and that it is representing the actual spectral width of the final velocity spectrum.
- Line 164: dBZint: please specify if this represents integrated Z values or the integrated linear values. I'm questioning if it is really necessary to define a new unit (dbZint) if a representation in actual physical units would be available.
- Figure 4: The classification of "Strong MS" is retrieved for areas where there is no signal in the ideal simulation (at around 2700km below 5km). It should be noted in the figure that it depicts the multiple scattering influence on the measured values and not the multiple scattering originating at the given location. This disambiguation is implicitly made in the text, but it should also be contained in the figure.