Thanks for addressing my comments, I think the manuscript has improved! Please see the comments below and address them before a possible publication!

Answer to review comments:

Answer to AR1-1B: I am still not convinced that just dividing the spectrum into 5 parts allows you to see 5 distinct hydrometeor types. It can very likely be that two hydrometeors (i.e. needles and aggregates as they can have the same fall velocity) are in the same part, therefore you will still see the combined effect of both species. I understand that applying a peak identification algorithm on the slant spectra is difficult, however, I would have tested a few more subjective ways of separation into n parts based on i.e. the shape of your Doppler spectrum (i.e. the slope of sZDR can tell you when another species is introduced, or some other measure). The arbitrary selection of 5, especially if you can not even distinguish between rimed particles and aggregates seems random. However, I am fine with having it published like this, as long as you make it clear that separating into these 5 parts does not mean that you do not have a mixture of ice particles in each part and can therefore miss e.g. the appearance of new species.

Answer to AR1-2: to me it was not clear that if you assume Rayleigh that then there is a direct relationship between the ZDR/RHV and the shape of the particle. Perhaps you can say that in one sentence in the manuscript. About the wind retrieval: See comment to Line 240

Line 240: if horizontal wind indicates inhomogeneity, then correcting for the wind does not solve that problem. Or are you using the wind field in some other way? If so please explain that in more detail. In your comment AR1-2 you say that you use the wind field as a measure of homogeneity, how do you do that? What are the criteria then that say the field is homogeneous enough to be considered for the retrieval? You further said in your comment AR1-4 that "moving the Doppler spectra to 0 does not have the same effect" how is that possible? With the wind correction you are doing exactly that: shifting the Doppler spectrum by an arbitrary number. The elevation dependency of the Doppler spectrum width has nothing to do with the horizontal wind, but with the viewing geometry of the radar. In fact, looking at our own data, the spectral width is exactly the same if viewed at e.g. 30° or 90° elevation without correcting for the wind. The width of the spectrum is influenced by wind shear and turbulence, not the wind speed. In comment AR1-4 you further say that you are using the Doppler spectrum width as a measure for homogeneity. This is not the same as the answer in AR1-2, where you say you use the wind field. Which of the two are you using and how exactly?

Specific comments:

Line 186: please define vdsp

Line 259: I would name the 5 shapes here specifically, so that the reader knows what you want to distinguish

Line 284: I still don't understand the word harmonize, or the sentence behind it, this was not made clear to me in AR1-4! Please elaborate on that further! First: what does harmonize mean. Second: why do you need to do that for retrieving the wind field?

Figure 1 and comment AR1-26: your statement that turbulence is represented by an upward motion of particles is wrong. Turbulence can go upwards and downwards. Folded with the particles movements, it broadens the spectrum. Most of the times this does not even result in an actual upward motion of your particles, so indicating turbulence in Figure 1 as the distance between the 0m/s and the slow edge is wrong. Further, turbulence flattens the spectrum. So if you want to include turbulence in the figure please include all aspects correctly or just don't put it in the figure!

Fig 9 is different from the preprint, why? Now you corrected line 474, but now it is clearly wrong again, if you take your new figure. Now I would say that part 1,5 have a pol. Ratio of 0.75 and part 2,3,4 of 1.25 (also clearly not 0.9 and 1.1 if you look at the figure)

Perhaps you can explain to me again why in case study 1 you come to the conclusion that you have no SIP and in case study 2 you say you have SIP. Just because you could not see a liquid layer in which ice crystals might have been nucleated does not mean it is not there, especially since you clearly have riming in case study 2. So your argument for no SIP in case study 1 can also be given here for case study 2.

Line 603-605: I don't understand this sentence! You assume Rayleigh, therefore your particles have to be small with respect to the wavelength. This does not mean that you can accurately model the scattering properties of all ice particles. The statement that it "ensures the proper treatment of scattering properties which is critical for precise radar measurements and interpretations" does not make sense to me. How does your assumption of Rayleigh ensure that? Anyway, maybe rephrasing that helps, or just leaving the entire sentence out, as all the important things are already said with the sentence before.

Line 611-614: I don't understand what you mean with "this was not applied yet in the present study"? I thought you separated into 5 parts already?

Line 615: What do the non-Rayleigh effects have to do with horizontal homogeneity?

Line 620: what does "appropriateness of horizontal wind correction" mean? Please be more specific with your methods!