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Interactive comment on "Separation of Convective and Stratiform Precipitation Using Polarimetric Radar Data with A Support Vector Machine Method" *by* Yadong Wang et al.

Anonymous Referee #4

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This is an interesting paper, that is well written. The authors specifically call this a prototype approach and name some limitations in the conclusion. The results of this machine learning approach are convincing, but I miss some discussion which would help to present a clearer picture to me. If those aspects are addressed, this work can be published.

ZDR is a moment that needs to be calibrated. How stable is the ZDR calibration with time for the C-Band you are using. Usually one attempts to be within +/- 0.2 dB. Do you use birdbath scans to calibrate ZDR? How sensitive is the separation index (eq2) to a ZDR bias? Are radome effects an issue (especially for the typhoon case you present; is

it possible that part of the somewhat unusual ZDR pattern in Fig 10 may be attributed to such a source?)?. You assume implicitly a perfect radar (hardware wise), where only attenuation corrections need to be applied (if necessary). I wonder how sensitive your method is to some radar hardware influences or issues. Or can you rule out any influence from the radar hardware? A discussion is needed here.

l 164 can you motivate why using such a large rhohv (> 0.98) as a criterion? You seem to throw away a lot of data e.g. if you have mixed phase precipitation with hail. Is there no hail in Taiwan? How much of the data are not considered? What happens if you observe rhohv < 0.98? How is the performance degrading if you have data ranges present that where considered for training. Those rangebins cannot be classified, since you trained the data for only specific ranges? Explain what consequence this choice of threshold has, how sensitive your results are, and before that, how the training results are dependent on this choice. Did you make sensitivity studies? L 166: what is exactly a "data set"? A range bin with all the moments you use satisfying the criteria for Z, RHOHV? Would be helpful to the reader who is not so familiar with this method. L 234: the intrinsic ZDR for stratiform precipitation: isn't it something around 0.2 dB.... Or is this different in Taiwan? Fig 10: ZDR looks biased to me.... There seem sector based (az range) biases for 270 - > 90°. ... You mention this in l 250 ff, but Z looks relatively reasonable here.