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 #2

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Overall, it appears that the research was thorough and will add to the knowledge base of the field. Hence, I believe that after minor revisions, the paper should be published. However, there are some changes that I recommend to make the paper more readable and easier to understand:

** Line 2: "that require a whole volume radar data" should read as.... "that require a whole volume of radar data" Line 7: "with multiple precipitation events including two widespread mixture of stratiform and convective events" May read better as..... ""with multiple precipitation events including two widespread mixed stratiform and convective events"

line 10: "can accurately identify the convective cells from stratiform storms with the radar data only from the lowest scan in tilt. It can produce better results than using the separation index only." Would read better as....... "can accurately identify the convective cells from stratiform rain using radar data from the lowest scan tilt, and produced better results than using the separation index only." Line 15: "convective precipitation's are associated with" reads better as............ "convective precipitation is associated with" line 16: "while stratiform precipitations are associated" reads better as......... "while stratiform precipitation is associated"

line 17: what is meant by saying a convective system consists of large and dense raindrops?

Line 53: "of the DSD-based approaches depends on the environmental regime"....Could you expand upon this a little bit please?

Line 58 and 59: "classification results even it is operated"...... Reads better as.... "classification results even if it is operated" line 68: "together with other three single polarization"....Reads better as... "together with the other three single polarization" line 73: "for convective and stratiform precipitations, total 4306 minutes of DSD data"....Reads better as...... "for convective and stratiform precipitation, a total of 4306 minutes of DSD data"

line 81: "stratiform precipitations generally consist of condense of small to median raindrops"..... This sentence needs to be corrected and explained better.

Line 98: "using the separation index i to identify convective precipitation from stratiform" ... This may read better as "using the separation index i to identify convective from stratiform precipitation"

Line 100: I assume that N_w refers to liquid water concentration... Is this true?

Equation 5: it may help to list as equations 5a) and 5b)

Lines 157 – 160: I understand the authors using the MRMS precipitation classification

algorithm as ground truth. . ..However, it should be noted that there are many imperfections in the system, especially since it only uses single pole information to determine echo classes

Line 165: "total one hour data were used as the convective type training data in the training data are associated with the >20 dBZs". . ... What is meant by "total one hour data"?

Line 169: " the number of support vectors is selected as 1000 and the current work". . ..Not everyone who reads this article will be familiar with some of the machine learning/artificial intelligence setting of criteria. . . It may help to add a few more lines on this. . . You have done that in lines 170 through 172 but still it would help to go a little bit further into what is typically done for these types of learning algorithms.

Line 188: "results from RCMK. . .. . .and MRMS could be different as large as five minutes in time stamps". . .. . . This may read better if written as "results from RCMK. . .. . .and MRMS could be significantly different with timestamp differences as large as five minutes" line 190: "evaluation criteria of the possibility of detection" . . . Should read as "evaluation criteria of the probability of detection" line 197: "was first validated with two widespread mixture of stratiform and convective". . .. . . Should read as. . . "was first validated with two widespread stratiform and convective mixed"

Line 241: "it could found that the heavy precipitation band". . . Should read as "it was found that the heavy precipitation band"

Line 253: "different from some existing classification algorithms" would read better as "different from other classification algorithms"

Lines 273 – 274: "second, the performance of the proposed approach highly depends on the training data. It should be very careful to select the training data." This would read better as "second, the performance of the proposed approach depends highly on the training data which should be very carefully selected. "

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