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Atmospheric Measurement Techniques Discussions

Interactive comment on "Applying machine learning methods to detect convection using GOES-16 ABI data" *by* Yoonjin Lee et al.

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1 Summary

The paper presents a deep learning model for the classification of convective precipitation regions using GOES-R satellite products as input and MRMS as ground truth. The model is a convolutional autoencoder (encoder-decoder structure).

2 General comments

The paper presents an interesting application of deep learning for image-to-image translation between satellite and radar products. Both the experimental setup and the choice of the evaluation scores are correct and fit for the purpose. However, the presentation has some deficiencies, and some technical details are missing: therefore, I recommend this study for publication after proper corrections are made.

3 Specific comments

1. Details about the training process are missing:
   (a) Number of epochs or iterations
   (b) Optimizer used (Adam, SGD, ...)
   (c) The switching criteria during training between the two loss functions is not very well specified (line 228 mentions "a low steady value" which is a too much generic statement)
   (d) It's not clear if the output/ground truth is a single image or 5 images, and what is the timestep of the MRMS data (the ground truth)
2. Many figures are very hard to read or details are missing:
   (a) Figures 6, 7, 8, 9, 10, 13 have too much useless white space. Please zoom the area to show only the relevant data.
   (b) Figure 1: insert the actual size of the input and output tensors (this helps clarifying also point 1.d)