Atmospheric Measurement Techniques Discussions

Atmos. Meas. Tech. Discuss., referee comment RC2
https://doi.org/10.5194/amt-2021-100-RC2, 2021

Comment on amt-2021-100

Anonymous Referee #2

Referee comment on "Inpainting radar missing data regions with deep learning" by Andrew Geiss and Joseph C. Hardin, Atmos. Meas. Tech. Discuss., https://doi.org/10.5194/amt-2021-100-RC2, 2021

Manuscript ID: amt-2021-100

Title: Inpainting Radar Missing Data Regions with Deep Learning

Overall Comment: This manuscript presents a thorough analysis of inpainting weather radar data using deep learning techniques. Several methods are investigated for different scenarios, including low level blind zone, blocked beams, and data outage. The results show that the deep learning techniques based on CNN and CGAN perform better than conventional interpolation approaches.

Overall, this manuscript is very well written, and the topic is a good fit for *Atmospheric Measurement Techniques*. I only have a few minor comments that need further clarifications from the authors.

Specific Comments:

- It looks like all the test cases shown in the manuscript are masked manually. I wonder if the authors could include some real cases (with missing/damaged data) to illustrate the practical application performance.
- Page 7, Line 175: The authors left a gap of 0.5 between clear and cloudy (reflectivity) values, and then use a reflectivity threshold to mask other two fields. I wonder if it is worth adopting a similar strategy for other two fields, instead of masking the output using reflectivity threshold. Please comment!
- In Fig. 2, I do not really see any beam blockages. Am I missing anything?
- Page 21, Line 485-490: I understand that the data are trimmed to range gates by

azimuth angles so they can be processed at the native resolution. But I do not quite understand why the data were trimmed to 128 degrees and then rotated (why not use the whole scan?). Please clarify!

- Page 19, Paragraph 470: “prevalance” should be “prevalence”