**Editor's Comments to the Author:**

Thanks for a well-received revision. The remaining minor points can be taken by editorial inspection without the need for further external review. We look forward to receiving your final revision.

**Deputy Editor: Santyr, Giles**

While the first reviewer is happy with the responses to the previous review, the second reviewer has some remaining minor criticisms, particularly regarding references.

*We very much appreciate the time spent by the editors and referees in improving our manuscript. In addition to addressing the minor criticisms from Referee 1, we also noticed that we did not fully address a suggestion from Referee 1 during the first round of reviews:*

2. Given the data is publicly available the authors may not have seen fit to include SNR details, however, given it plays such a key role in the analysis of HP gas MRI I would suggest the inclusion of some form of SNR reporting (of original images and distorted images – e.g. median (IQR))

*Although we included the median PSNR values in response, we neglected to include the IQRs for those values. This has been included with the most recent revision:*

The median and interquartile range (IQR) PSNR values for the simulated UVa dataset are noise: 20.7dB (IQR: 8.5dB), nonlinearities: 29.9dB (IQR: 5.9dB), and noise and nonlinearities: 19.6dB (IQR: 7.0dB). Analogous values for the Dataverse dataset are noise: 19.8dB (IQR: 7.2dB), nonlinearities: 26.6dB (IQR: 6.5dB), and noise and nonlinearities: 19.4dB (IQR: 6.3dB).

**Referee: 2**

Thank you to the authors for your revisions and your comprehensive and well-thought responses to my critiques. I have no further comments.

**Referee: 1**

Overall comments:

Many thanks for your detailed responses to the previous comments, I also thank you for the details regarding the Hausdorff distance and its availability in ANTs – with your response I am happy to accept the DSC alone as a measure for similarity in this context. As such I have only minor comments that I believe should be addressed prior to publication of this work.

Minor comments:

1. References seem to be out of order (e.g. refs 4, 5,6 and 7 point to fuzzy c-means papers but are first placed next to a sentence discussing binary thresholding and linear binning)

*The Referee is correct. Due to authorial preferences, the original document for this manuscript was written in latex and transferred over to Word prior to submission. This was the source of incorrect reference ordering. It has been fixed in the most recent version.*

2. Page 3 line 33 – Acronyms are defined once here and then again on page 5 line 13

*Fixed.*

3. page 6 line 18 – suggest to define VDP here and use acronym after

*Done.*

4. page 8 line 36 – Suggest adding “subjects” after numbers given

*Done.*