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Atmospheric Measurement Techniques Discussions

# *Interactive comment on* "Field-of-view characteristics and resolution matching for the Global Precipitation Measurement (GPM) Microwave Imager (GMI)" *by* Grant W. Petty and Ralf Bennartz

**Anonymous Referee #1**

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General Comments

This paper is well-written and describes a process for matching the resolutions of the low frequency channels on GMI. While similar processes have been applied to previous microwave radiometers (which the authors cite), this paper does provide value as the process is specific for GMI and includes more description than what is in previous papers. However, I think the paper would benefit from a more detailed discussion on the impact of this work.

I would have liked to see more discussion on the purpose and impact of resolution



matching. I could find just one sentence (page 2, line 3) that mentions geophysical retrievals. But the motivation behind the resolution matching should be emphasized a bit more so the reader easily understands why this is being done. How much does resolution matching reduce error in retrieval algorithms? What has been the impact for doing this with past radiometers? Including some references here would be good.

Since this is specific to GMI, are there plans to incorporate this process into the GMI precipitation retrieval algorithms? It would be good to mention what is currently being done with GMI retrieval algorithms and why applying a process like you describe here for resolution matching is better than what is currently being done. Has the retrieval team expressed desire to incorporate this in their algorithm? That would be good to include in the paper if they have.

Finally, what is the expected error reduction on precipitation estimates using this resolution matching? I realize this may be a bit beyond the scope of this paper to run a full retrieval algorithm and error analysis, but I think it would add value to the paper if you at least provided an expected outcome of this process and how much of a positive impact resolution matching would provide to precipitation estimates from GMI.

Specific Comments

The 23.8 GHz channel is missing from Figure 3 and Figure 7. Is there a reason for this? I see you're plotting H polarization in Figure 7 (I assume for the land/ocean contrast), but it would be good to see 23.8 as well for completeness.

Page 1, last paragraph starts with "additional blurring". What do you mean by "additional"? You haven't defined what blurring is at this point.

Technical Corrections

Page 1, line 7: "achieved in for the 10.65" change to "achieved for the 10.65"

Page 2, line 21-22: "which determines the both" change to "which determines both"

Page 3, line 13: EFOV and IFOV have already been defined, no need to write the acronym out here again

Page 4, line 16: “images” change to “imagers”

Page 6, line 20: “as well was some” change to “as well as some”

Page 7, line 18: “will suppressed” change to “will be suppressed”

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