

We again would like to thank the editor for handling our manuscript, as well as reviewer #1 for reading our manuscript a second time.

Please find our point-by-point response to reviewer #1 below. Here, the reviewer's general remarks, as well as the specific questions/comments, are formatted to be left-aligned text in bold font. Our responses are indented and formatted in regular font.

General comments:

This revised paper nicely illustrates that the implementation of machine learning to MLS cloud classification leads to an impressive improvement in MLS cloud detection, compared to current operational techniques.

The authors have responded admirably to the comments written in the first review. The revised paper reads very well, and only minor suggestions are contained in this second review.

The paper should be published following very minor suggested changes and clarifications.

Very minor suggestions:

Line 34. For some reason my copy of the paper has “Di Girolamo” outside of the right block margin.

We fixed this issue.

Line 81 change to “four example scenes”

Fixed, following the reviewer's suggestion.

After equation (3) identify ω as a weight. Though the symbol is identified in Figure 1, as a reader I personally like to have symbols identified (and defined) also in the main text the first time they are encountered in the text.

We added the following description to the revised manuscript: “Here, the weights ω connect the observed brightness temperatures (and the bias) to the neurons in the first hidden layer.”

Similarly, we added these descriptions:

“..., where the weights ϖ connect the neuron output from the first hidden layer, as well as the bias, to the neurons in the second hidden layer. “

And: “... connected to the single vector \mathbf{L} in the output layer via weights Ω .”

Line 145 replace “These values” with specifically named symbols.

Changed, following the reviewer's suggestion.

Line 265-269 I stumbled over the band counting in the current text. Should “three different bands” be replaced by “nine different bands”? The use of “For most of the ten bands”

(instead of “For most bands” on lines 268-269) would clearly tell the reader that a total of ten bands are utilized.

We changed these sentences to:

“Instead, ten different bands are chosen in total. Those are bands 2, 3, 6; bands 7, 8, 33; and bands 10, 14, 28 for the 190, 240, and 640 GHz spectral regions, respectively.”

And: “For most of the ten bands, every second channel... “

We again would like to thank the editor for handling our manuscript, as well as reviewer #2 for reading the manuscript a second time.

Please find our response to reviewer #2 below. Here, the reviewer's general remarks, as well as the specific questions/comments, are formatted to be left-aligned text in bold font. Our responses are indented and formatted in regular font.

The authors have done a good job addressing my major concerns, and the paper is more balanced in terms of presenting results for both variables investigated. Still, I'm left with the feeling that the paper could have been made written in a more concise form to facilitate its reading, but the authors have chosen to report their technical setup and findings with a great level of detail. In my view it is ready for publication, apart from some very minor technical corrections (e.g., L623 "As mentioned in the 1", or L625 HNO₃ (e.g., ??)" that can be corrected while proof-reading the manuscript.

We compiled the Latex file again, which fixed the missing reference. "As mentioned in the 1..." was changed to "As mentioned in the introduction..."

We carefully reviewed the manuscript again and checked for similarly misplaced labels and missing references.