

*Dear Editor and Reviewer,*

*Our response to Report #2 is provided first, followed by the response to editor comments.*

## Response to Report #2 on

Understanding the model representation of clouds based on visible and infrared satellite observations (<https://doi.org/10.5194/acp-2021-5>)

We appreciate the comments of the reviewer and have revised the manuscript to address all remarks. Our response is provided in black and the review in blue.

\* L.100: "cloud-concentration number" -> cloud droplet number concentration

Revised accordingly: "cloud-concentration number" -> "cloud droplet number concentration"

\* L.221: Please rephrase such that the -13 % difference between obs and sim can be partly interpreted as calibration offset and as model bias.

revised accordingly: "Through this, we found a model bias of -13% between observations and our reference simulation." -> "Through this, we found a deviation of -13 % between observations and our reference simulation, which can be partly attributed to a calibration offset (observation too dark) and a model bias."

\* L. 230: "calibrated observations" -> term not used elsewhere

we have removed the word "calibrated"

\* Fig. 10 caption: "using maximum-random instead of random ... overlap". It is exactly the other way around, right?

Thanks for spotting this! You are right. We have revised accordingly: "maximum-random instead of random" -> "random instead of maximum-random"

\* L.339: "Fig 2c": reference does not exist.

Thank you. We have removed the reference and changed "total column ice content is much smaller than the water content" -> "ice water path is much smaller than the liquid water path"

## Response to Editor comments

Understanding the model representation of clouds based on visible and infrared satellite observations (<https://doi.org/10.5194/acp-2021-5>)

Dear Philip Stier,

We appreciate your comments and have revised the manuscript to address all remarks. Our response is provided in black and the review in blue.

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Dear authors,

Thank you very much for addressing the comments raised in the reviews in the revised version of your manuscript. This has now undergone re-review and I am pleased to inform you that your manuscript is now accepted for publication subject to (very) minor revisions.

[Could you please address the few editing issues raised in reviewer report 2?](#)

We have revised the manuscript to address all the remarks in reviewer report 2.

[In addition, could you please also ensure that: all figure captions and labels are fully self-explanatory? Instead of relying on acronyms defined in the main text \(e.g. VIS006, IR108\), please define such terms in the captions. Captions and labels of Fig. 11 and 12 are not clear without searching the main text.](#)

We have updated and changed (almost) all captions.

[And finally, I would suggest - but not require - to change "verification" to "evaluation" as verification implies a binary true/false assessment, which is generally not possible to establish in model evaluation.](#)

Changed accordingly: verification > evaluation

Best regards,

Philip Stier