Response to Referee #2 on the manuscript "Marine cloud base height retrieval from MODIS cloud properties using machine learning"

Julien Lenhardt, Johannes Quaas, and Dino Sejdinovic
31.05.2024

Dear anonymous referee,
We would like to thank you for the insightful comments and the constructive discussion. Please find our response below, in which the review comments are in bold and followed by our response.
In the revised manuscript, we include further details on the AE training and evaluation, gathering this information in a more centralised manner to hopefully better the understanding of the manuscript. Additionally, a more thorough presentation and evaluation of the ordinal regression model is incorporated to address the major comments. Overall, the comments regarding the coherence between sections and sentences were addressed, but the changes between the original and revised manuscripts are not included here as they are too substantial.

Best regards,

Julien Lenhardt on behalf of the authors

Summary

This is a useful and straightforward paper that develops a new algorithm for estimating marine cloud base height from MODIS data, employing a machine learning technique. Evaluations against surface ceilometer observations and CALIPSO data demonstrate its superior performance over previous methods for cloud-base height retrieval. Furthermore, the resulting cloud-base height products are made publicly available on Zenodo, facilitating their utilization by other researchers within the community.
Many thanks for this supportive summary of our study.

General comments

While the methodology and results are robust and convincing, the paper's presentation suffers from several shortcomings. There is a lack of coherence between sentences and paragraphs, making it challenging for readers to follow the logical flow. Additionally, the frequent use of phrases like "It is to be noted that" disrupts the clarity of the text. Grammar errors, such as the phrase "allow to properly quantify" in Line 363, further detract from the overall quality of the paper.
Therefore, I recommend that the authors undertake a comprehensive revision of the language to improve coherence, eliminate ambiguous phrasing, and rectify grammar errors. This revision will enhance the paper's suitability for publication in ACP.
We thank the reviewer for the evaluation of the manuscript. We hope that through the modifications made in the revised manuscript we addressed the language quality and improved the overall readability and coherence of the manuscript.