

Second review of Coral reef exposure increases aerosol and cloud condensation nuclei over the Great Barrier Reef, Sulo et al.,

Thank you for the revised manuscript as well as detailed responses to my comments. I consider that the paper can be published after some minor comments are addressed.

In general, the added text requires editing, to improve readability. There are some errors and repetition of words.

Page 2, 164 leading to “an’ increase in CCN concentration”s”

Page 3, 250 (and again page 12, section Cloud processing): For the third objective. Cloud processing. I consider that basing this analysis only on particle size distributions is difficult. This bi-modal distribution can also exist depending on the emission of primary and secondary sources.

As part of your HYPLIT analysis, or through ECMWF analysis, it is possible to determine the % of time that the airmass was exposed to cloud liquid water (or ice water). This would provide a more robust indicator of the time the airmass spent in cloud.

Page 3 254: Repetition of line 250.

Page 4, 305: repetition of the word different in the same sentence. A reorganization of this sentence is necessary.

Page5, 390: Please define what “agree fairly well” is in terms of correlations.

Page 6, 458: are assumed to “be” active as...

Page 6, 467: Both critical diameter and CCN activation ratio can only be calculated whenever data is available. This information was already mentioned in line 461.

Page 6, 469: For consistency, “only” the CCN...

Page 6, 475: Reword to indicate that a specific algorithm was developed to detect and remove ship plume sampling aboard the RV investigator (Humphries et al.). *As it is not the RV itself that uses this algorithm.*

Page 6, 481: , “that have” values larger (this sentence needs to be rephrased).

Page 6, 484: “remove” per hour or rephrase the sentence.

Page 7, 586: Specify which high concentrations you are referring to. It might read better if this sentence was removed or placed at the end of the paragraph (line 592).

Page 8, Line 645: rephrase this sentence, specifically “exceeded a factor of severalorders of magnitude (?)”

Page 11, Line 810: How was the difference between the 2016 and the 2023 data determined? What statistic tool was used to determine the significance? Mann-Whitney?

Page 12: 810: As mentioned above, I feel that discussing cloud processing based only on size distribution is not sufficient and would require a more in-depth analysis on air mass history based on HYSPLIT reanalysis or ECMWF. Also in this section, low, medium, and high activation ratios are discussed without being defined.

Page 21: Figure 6: The green and black areas in A to D need to be defined. The axis to these figures also requires labeling.

Page 22: For the conclusion, it is mentioned twice in the first part of the conclusion that long term measurements at a fixed station are required. It might be better to separate the conclusion and perspectives more distinctly and include these long term measurement requirements at the end of the conclusion.