

The study by Chevassus et al. on Marine Organic Aerosols at Mace Head effectively highlights the influence of phytoplankton and source variability on different organic aerosols, analyzed using AMS. The manuscript is well-written and presents valuable findings, making it deserving of publication in the journal after addressing a few revisions.

1. The legibility of the text in the figures requires improvement, particularly in Figures 5 and 6. Ensure that labels and the fonts are clearly readable. Additionally, the labeling across all figures should be harmonized for consistency. For example, compare the font sizes of the labels in Figures 1 and 2. Introduce adequate spacing between panels to clearly distinguish factors and profiles.

We express our gratitude to the reviewer for their attention to these details. Figures resolution and formatting were improved throughout the manuscript.

2. The abstract does not mention whether the expected aim of obtaining elemental ratios for parameterization was achieved. If successful, explicitly state the derived ratios in the abstract and clarify their relevance. For which specific parameterizations can these ratios now be utilized?

Thank you for this question. Parametrisations from elemental ratios are beyond the scope of this paper and will be the subject of future work, the introduction was rewritten to reduce the emphasis on this aspect. Elemental ratios were still successfully obtained for each factor and showed aliphatic and lignin-like compounds contributing to more oxidised organic aerosol formation. This information was added up in the abstract:

“Elemental ratios (O:C-H:C) were derived for each of these factors: PMOA (0.66-1.16), MO-OOA (0.78-1.39), MSA-OA (0.66-1.39) and Peat-OA (0.43-1.34). The specific O:C-H:C range for MO-OOA hints at aliphatic and lignin-like compounds contributing to more oxidised organic aerosol formation”