

Interactive comment on “Shipborne measurements of Antarctic submicron organic aerosols: an NMR perspective linking multiple sources and bioregions” by Stefano Decesari et al.

Anonymous Referee #2

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This manuscript provide the detail information about ambient aerosol composition and possible origin of the aerosol in Antarctic region throughout state-of-the-art high resolution NMR and HRHPLC-MS analysis with the composition of marine aerosols and bubbling aerosol generated from suspended seawater. This paper especially provide unique information on the presence of creatinine as a new marker of marine organic aerosols. Understanding the origin of the marine organic aerosol is of importance to clearly understand the effect of aerosol on climate change, especially in Antarctic and Arctic region. However, the limitation of assessment of these region, the studies relating to the understanding physical and chemical characteristics of aerosol in these regions are poorly understood. Thus, I believe this manuscript provide the valuable data and

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result to solve the puzzle for organic aerosol composition in Antarctic region. So, I think this paper is suitable to be published in ACP with minor revision that I will comment in below.

Comment and Suggestion. 1. In section 2.5 of the manuscript, the details for the operating method and condition of UHPLC-HESI-Orbitrap-MS are provided. However, the information for the target compounds including creatinine is not provided. The analytical method for the target compounds including calibration results, QA/QC should be included in this section. 2. This study analyzed seawater generating aerosol using bubble chamber. However, the methodology and information how to generate aerosol from seawater is not available in this manuscript. 3. In 3.3.1. Ambient aerosols from the Weddell Sea: Check the sample labeling. In Figure 1. There are no information for sample A-0911 4. English expression is ambiguous in the manuscript. Please revise the whole of the paper to improve English expression.

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