

## ***Interactive comment on “Assessing the potential for DMS enrichment at the sea-surface and its influence on air–sea flux” by C. F. Walker et al.***

### **Anonymous Referee #2**

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Walker and colleagues present an important study that adds to our knowledge of air-sea interaction and the central importance of microbial assemblages in determining global biogeochemical cycles.

General comments: Bacterioplankton are also an important source of DMS, which they produce from phytoplankton-derived DMSP. This needs to be considered within your proposed paradigm. Did you count bacterioplankton and/or bacterioneuston?

DMS as a source of CCN - has this ever been proven? A more contemporary view of marine CCN sources needs to be acknowledged. What about carbohydrate-based microgels?

I appreciate that cruise-based studies are often ‘sliced’ into multiple outputs/papers, but some expansion on the phytoplankton data would be insightful. Did you quantify

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phytoneuston? Please explain how dinoflagellates, coccolithophores and other phytoplankton were counted and identified?

Given 'biological conditions' (Page 10 L24) are a key factor in your conclusions, then I think that some biological data should be included.

Specific comments: Page 1 L25 This statements needs a reference. Page 2 L 20 Natural degassing or methodological degassing? Page 3 L1 What is the 'challenge'? Please explain. Page 12 L27 Dinoflagellates are DMSP producers. OK, but what about DMS?

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