

Interactive comment on “A decade of dissolved sulphur compounds measurements in the southwestern Baltic Sea” by Yanan Zhao et al.

Yanan Zhao et al.

yzhao@geomar.de

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We feel great thanks for the referee working on our manuscript and these comments are really helpful to improve the quality of this ms. According to these nice and precise suggestions, we have made corresponding corrections/additions to the ms (marked in yellow). Also, supplementary material of Chemtax in terms of input and output ratios is added. Our specific responses are as follows:

R1: Line 12 and entire document: What is the rationale in using the class name for prymnesiophyceae, while all other groups were kept unspecific? Please harmonize all phytoplankton groups throughout the manuscript to prymnesiophytes.

Authors: Yes, the referee is right. We should keep all phytoplankton groups unspecific.

C1

Corresponding changes from prymnesiophyceae to prymnesiophytes have been made throughout the ms.

R2: Line 101 how long after sampling was the filtration done?

Authors: Sampling of filtration was immediately started as soon as returning to the lab and this process usually took no more than one hour. Therefore, the entire time would be around 3 hours (2 h returning journey + 1 h filtration process).

R3: Line 116: Please give more details about the CHEMTAX[®] approach, did you use different depths, years etc. Please give input and output ratios for the data set.

Authors: All the phytoplankton pigments are dealt with the same input ratio matrix and we have added this information in the ms. Input and output ratios are given in Table S1 as supplementary material.

R4: Line 283 ff and Line 319ff Discussion about 4.3.1 The Major Baltic Inflow events and 4.3.2 Low oxygen events: The paper would benefit, if the two events would be better introduced at the beginning of each chapter including previous literature about associated findings with these type of events. This would be helpful to understand the rationale behind the expectation of changes also for the sulphur compounds.

Authors: We added text as well as relevant references to the ms at the beginning of sections 4.3.1 (The Major Baltic Inflow events) and 4.3.2 (Low oxygen events) in order to introduce these events.

R5: Please check the references for consistency

Authors: We have examined and corrected every reference in the ms to keep the consistency.

Please also note the supplement to this comment:

<https://bg.copernicus.org/preprints/bg-2020-431/bg-2020-431-AC2-supplement.pdf>

C2

