

Biogeosciences Discuss., referee comment RC2
<https://doi.org/10.5194/bg-2022-106-RC2>, 2022
© Author(s) 2022. This work is distributed under
the Creative Commons Attribution 4.0 License.

Comment on bg-2022-106

Anonymous Referee #2

Referee comment on "Winter season Southern Ocean distributions of climate-relevant trace gases" by Li Zhou et al., Biogeosciences Discuss.,
<https://doi.org/10.5194/bg-2022-106-RC2>, 2022

This manuscript by Zhou et al. entitled "Winter season Southern Ocean distributions of climate-relevant trace gases" describes measured concentrations of dimethylsulphide (DMS, and related sulphur compounds) and isoprene in the Atlantic sector of the Southern Ocean during the winter. This is the first time the distribution of isoprene has been observed in winter. Based on these and previous publications in the journal, this paper is appropriate for Biogeosciences. However, there are still some minor points that need to be illustrated. Therefore, the publication of this manuscript is supported if the authors can properly address my comments.

Specific comments:

- The abstract should focus on the research results of this paper rather than its significance.
- Page 1, line 30-32, 'Here we focus on two typical marine biogenic gases, i.e. dimethylsulphide (DMS) and isoprene...' The article discusses not only marine biogenic gases but also related sulphur compounds, I suggest to add a sentence of the relevant sulfides here.
- Page 2, line 53, At the end of this paragraph, the article has been discussing the change data of radiation, and it is recommended to add a concluding sentence.
- Page 2, line 55, 'accounting for 50% of all BVOCs coming from terrestrial ecosystems.' Is the information unclear here? Is it 50% of the species or the quantity?
- Page 2, line 58, 'Most isoprene in the atmosphere is produced by terrestrial ecosystems...' How much is the most here? It is recommended to add data. If not, please delete 'most'.
- Page 2, line 61, Add a transition sentence between the source and flux sentences.
- Page 3, line 74-75, 'Therefore, trace gas fluxes are computed using measured wind speed, measured atmospheric concentrations, and measured seawater concentrations.' It is repeated with the method below, it is recommended to delete it here.
- Page 12, line 314, '...over the cruise track area are lower than the climatological concentrations,' How much percent lower is Lana's concentration?

- In general, headings should not be followed directly by figures and tables.
- What does DOY stand for? Shouldn't it be DAY?