

Biogeosciences Discuss., referee comment RC1
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Comment on bg-2021-283

Meric Srokosz (Referee)

Referee comment on "The impact of the South-East Madagascar bloom on the oceanic CO₂ sink" by Nicolas Metzl et al., Biogeosciences Discuss.,
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This is an interesting paper on the impact of the Southeast Madagascar Bloom on the oceanic CO₂ sink, a problem that has not been previously addressed (to my knowledge). The results are convincing but critically depend on the work of Chau et al. (2021) which is in review. As my expertise is more on the impact of physical processes on the bloom biology I am unable to make a judgment on the work of Chau et al. (2021) regarding the reconstruction of surface pCO₂ and air-sea CO₂ fluxes on which the results in this paper so much depend. Assuming that Chau et al. (2021) is correct / passes the review process and is published, I think that application of that approach to the Madagascar Bloom provides some new insights into its role as a CO₂ sink. The observational aspects of the paper clearly show the strong interannual variability associated with the bloom, but the interpretation of these in terms of CO₂ hinges on Chau et al. (2021). In light of this I am happy to recommend publication once the Chau et al. (2021) has passed peer review and been accepted for publication, after correction of a few minor issues (listed below).

Minor comments:

lines 275-277 - given that wind speed is spatially (as well as temporally) variable I am not sure how taking account of spatial variability would affect the calculations described here. Does it matter?

Figure 3 mark positions of eddies

Figure S2 add lat & long on axes, also Figure S6 bottom

Figure S3 mark positions of eddies