

Interactive comment on “Influence of physical and biological processes on the seasonal cycle of biogenic flux in the equatorial Indian Ocean” by P. J. Vidya et al.

P. J. Vidya et al.

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Reply to the comments of Referee #1

We wish to thank the reviewer for the constructive criticism. In the light of the comments, we modified the manuscript and point-wise modification is detailed below.

Referee's comment: This paper provides an analysis of a set of long-term flux and productivity data in the Indian Ocean. I found the paper in its current form was hard to get grips with. This was largely because of the organization of the paper combined with problems with the English in the paper. My two largest comments are that the authors should think seriously about re-writing the paper with a clearer organization of ideas

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(e.g. much of the introduction is confused and jumps around from one idea to the next, similarly with the discussion) and have a native English speaker check the writing for language usage.

Response: We have largely modified the introduction and discussion part in the text in the light of the comment. In addition, as suggested, we also have got the manuscript corrected from a Professor in English from Goa University.

Some detailed comments:

Referee's comment: The paper analyzes long term time series data and it would be very helpful to actually have plots of the original time series rather than just the climatologies. In the discussion, the authors refer to changes in the micro-zooplankton populations and yet data are only shown for only one time (August 2006). It's difficult to infer trophic dynamics and their impact on biogeochemical cycling over a long period from a single snap-shot. Indeed, there appears to be a significant mismatch in flux time series at one lasts 10 years and the other lasts only 1 year. So I'm rather confused about the robustness of the comparisons between the sites. Perhaps I missed something in the methods description.

Response: We understand both the concerns of the reviewer. 1. Before proceeding with the climatology, we have examined the original time series and were convinced that the dominant mode of variability in SBBT was seasonality, which was captured well in the climatology (see figure1 below). Therefore we have used climatology of the biogenic flux to bring out the seasonality and subsequently use this to examine the relevant processes responsible.

2. We do agree with the reviewer that it's difficult to infer trophic dynamics and their impact on biogeochemical cycling over a long period from a single snap-shot. But we have no other option as that is the only in situ data available at the trap location during summer monsoon period.

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Comment: Figure 13 needs to be re-thought. Pie charts are generally not the best form of visualization to use, and this is demonstrated by the authors in that actual numerical values are also given with each chart which creates a redundancy of information.

Response 3: Based on the comments we have replaced the Pie charts in Figure 13 with stack bars. The modified Figure 13 is reproduced below.

Interactive comment on Biogeosciences Discuss., 10, 2889, 2013.

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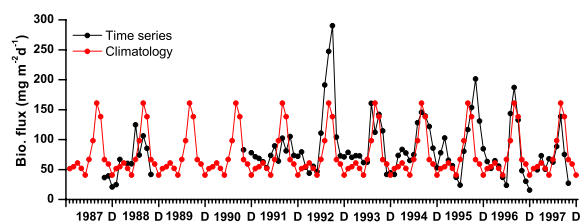


Fig. 1. Figure 1. Time series of biogenic flux data at SBBT for the period 1987 to 1997. Black and red lines represent time series and climatology respectively. Gap indicates non availability of flux data.

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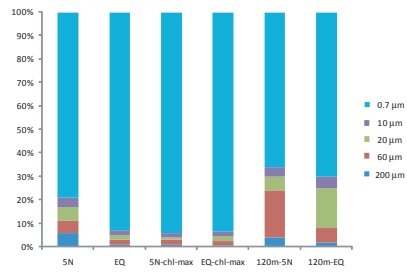


Fig. 2. Figure 2. Size fractionated phytoplankton biomass (mg Chl a m-3) in percentage during August 2006 at 5oN and equator along 77oE from surface, chlorophyll maximum and at 120m.

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