

Reviewer's comment

The manuscript by Moturi et al. presents an extensive database on the DIC fluxes to the Indian Ocean from the monsoonal rivers in the Indian subcontinent. It is clearly the outcome of very hard work, which resulted in this important dataset. As such, this work is valuable, and I can imagine that if published, this dataset would be used by modelers and other researchers.

Author's Response

Thank you very much.

Reviewer's comment

However, at its current form, the manuscript suffers from two essential drawbacks, which in my opinion, should be corrected before the manuscript can be published or even properly reviewed.

Author's Response

The manuscript will be modified/corrected to overcome these two drawbacks you mentioned

Reviewer's comment

My first and main concern is with the quality of the presentation, namely the writing. The manuscript is heavily burdened by numerous grammatical mistakes, redundancies, and unintelligible sentences. Since English is not my native language, I am well aware of how hard it is to write in a foreign language, and therefore, I strongly urge the authors to have their manuscript edited by a native English speaker and/or by a professional editor.

Author's Response

Since English is not our native language, we have a limited control on English language and therefore there are mistakes in grammar, phrasing, syntax and connecting words in the manuscript. We would like to use the services of an expert in English language editing and therefore we will submit the revised manuscript with a better English language

Reviewer's comment

My second concern is with the somewhat superficial interpretation of the data. The authors relay heavily on correlations to investigate the relations between different characteristics of the rivers, but correlation do not necessarily imply cause/effect relations or, as the author argue in the discussion section. Therefore, the conclusions the authors draw are rather general, and do not go much beyond the data itself. Consequently, the manuscript has more resemblance to a report, and may be more appropriate to publication as such. I would recommend the authors to consider more carefully how this dataset can advance what we have already learned from previous works. At its present form, it is very hard to evaluate the scientific contribution of this work, and therefore, I recommend that this discussion paper be withdrawn, and perhaps submitted ab-initio after it has been thoroughly edited and revised.

Author's Response

Since one of the objectives of this work is to understand the influence of river/catchment characteristics on the export and yield of DIC, we have used correlations between various parameters to explain the role or impact of different characteristics of rivers on

the export and yield of DIC from the Indian monsoonal rivers to the northern Indian Ocean. Though the correlation do not necessarily imply cause/effect relations, as you said, we performed the correlations to check the statistical significance of river characteristics on DIC export to the northern Indian Ocean. Here, we made an attempt to identify the statistically significant parameters controlling the DIC export by the Indian monsoonal rivers which will be subsequently used by the modellers, as you mentioned earlier, and it is not in the scope of this paper.

Reviewer's comment

The text is laden with grammatical errors. The first sentence in the abstract, for example, is flawed. So are lines 19-22, 65-68, 177-178 and many more. The usage of connectors (“However”, “Though”, “Despite” etc.) is wrong throughout the text.

Author's Response

Mistakes associated with English language such as grammar, phrasing, syntax and connecting words will be rectified in the revised submission as we would like to use the services of an expert in English language.

Reviewer's comment

Many sentences in the text are excessively long and incomprehensible (e.g. lines 30-35, lines 225-232). Reading sentences that contain more than 80 words, 11 values and more than 10 references (lines 225-232) is extremely demanding, and prevents the reader from understanding the messages that the authors try to convey.

Author's Response

Long and incomprehensible sentences will be modified to obtain the clarity in conveying the message to readers.

Reviewer's comment

Cumbersomeness and redundancies: Far too many results are incorporated in the text, instead of being presented as figures (e.g. lines 225-232, 247-250). This makes the manuscript cumbersome and turns the reading into a very demanding task.

Author's Response

Results mentioned in the text will be deleted to maintain the focus of the manuscript. These results will be provided in a table.

Reviewer's comment

Some statements repeat themselves along the text (e.g. lines 176-177 and lines 216-217), making the text needlessly long.

Author's Response

Repeated statements will be deleted throughout the manuscript

Reviewer's comment

In some parts of the manuscript, there are no references to existing figures. Instead, the authors re-cite the values (see previous comment), whereas in others, the authors refer to relationships which should have been presented as figures (e.g. lines 263-264. See also detailed comment #22).

Author's Response

All figures will be cited in text. All relationships mentioned in the text will be given as figures in one or two panels.

Reviewer's comment

Units: The authors report most of their DIC data in mg l⁻¹. This unit is somewhat archaic, and unclear. To what does the “mg” refer? Bicarbonate? Carbon? The more explicit concentration units of mol l⁻¹ or mol kg⁻¹ are much more common in the current literature. The authors themselves use mol kg⁻¹ in the methods section. In the same section, they use percentage to describe the accuracy. This usage of multiple units for the same parameter is needlessly confusing. I recommend reporting all the results in mol l⁻¹ or mol kg⁻¹.

Author's Response

Unit mol kg⁻¹ will be used throughout the text as you suggested

Reviewer's comment

Error propagation and significant figures: In the methods sections, the authors report the analytical errors associated with their concentrations measurements. However, they do not propagate these errors to the DIC fluxes. In addition, the authors report too many significant figure compared to the error they report.

Author's Response

The errors associated with flux and yield estimations will be given and provided in Figures 1 and 2 also in the revised submission. Significant figure will also be followed.

Reviewer's comment

Figures and missing figures: Figures 1 and 2 are clear and informative. The rest of the figures are correlations, and could be presented in one or two panels. For some reason the authors did not include figures for some of the correlations they describe in the text. I cannot understand why.

Author's Response

All correlations will be presented in the form of figures in one or two panels as you suggested

Reviewer's comment

Line 10: change to “rivers are an/a important/significance source of : :”

Author's Response

It will be changed to ‘rivers are an important source of’ ...

Reviewer's comment

Line 19-22: revise this sentence. The usage of connectors is grammatically wrong. Use “enriched” instead of “caused the enrichment”. Also, the “stable isotopic composition” cannot be “enriched”. Use either “enriched in ¹³C” or “increase ₁₃CDIC values”

Author's Response

The sentence will be revised and ‘enriched in ¹³C’ will be used as you suggested

Reviewer's comment

Line 25: The sentence is grammatically wrong

Author's Response

The sentence will be corrected

Reviewer's comment

Line 30: define “yield of DIC”

Author's Response

DIC will be defined

Reviewer's comment

Lines 30-35: This sentence is too long and unintelligible

Author's Response

The sentence will be shortened and may be presented in two sentences

Reviewer's comment

Line 56: “The Mississippi river”

Author's Response

It will be corrected

Reviewer's comment

Line 65: How do the fresh water discharge, and suspended sediment load relate to the fluvial carbon fluxes?

Author's Response

Sediment load will be deleted as it will not directly influence the fluvial carbon fluxes. However, freshwater discharge significantly influences the fluvial carbon fluxes to estuaries and coastal region as it scours terrestrial carbon from carbonate rocks and soils. Nevertheless, this sentence will be modified in the revision to convey the message more clearly

Reviewer's comment

Line 67: The sentence is grammatically wrong

Author's Response

The sentence will be corrected

Reviewer's comment

Line 71: change “estimating” to “estimations”

Author's Response

It will be changed to ‘estimations’

Reviewer's comment

Lines 73-76: Most of the rivers mentioned in this paragraph are located between 30°S - 30°N. So why do the authors claim for “: : paucity of data” (line 72) for this region?

Author's Response

Here, we meant to say that many of the medium rivers from this region were not included in the global DIC estimations due to the paucity of data. The rivers mentioned in lines 73-76 (Mississippi, Congo, Changjiang and Pearl) are the large rivers in the world. However, to obtain the clarity, these sentences will be modified.

Reviewer's comment

Lines 76-81: The sentence is grammatically wrong

Author's Response

The sentence will be corrected

Reviewer's comment

Line 82: The phrasing of this sentence is awkward, consider revising

Author's Response

The phrasing of this sentence will be modified (rephrased)

Reviewer's comment

Line 154: The units here are different from the units used in the text. Please be consistent. It is advised to use mol kg⁻¹ throughout the text

Author's Response

Unit 'mol kg⁻¹' will be used throughout the text as you suggested

Reviewer's comment

Line 155: change "Scripts" to "Scripps"

Author's Response

Sorry for the mistake. It will be corrected

Reviewer's comment

Line 157: If the CRM from Andrew Dickson lab is used, 0.3 % equals approximately ±6 μmol l⁻¹. This is considerably larger than the precision the authors report in line 154. This error should be propagated along with other sources of error, to calculate the error on the flux estimations

Author's Response

Here, we mentioned the precision but not accuracy. As mentioned earlier, errors associated with determination of DIC concentrations and the other errors will be propagated to DIC export flux and yield calculations. These errors will be shown in figures (1 and 2) also.

Reviewer's comment

Line 177-178: This sentence's phrasing is awkward, consider rephrasing

Author's Response

The sentence will be rephrased as you suggested

Reviewer's comment

Line 179: If the error is in the second significant figure, it makes no sense to report 4 significant figure. Change 30.86 ± 1.23 °C to 31 ± 1 °C (and throughout the rest of the manuscript)

Author's Response

It will be corrected during revision

Reviewer's comment

Line 205: remove the comma after “The estuaries”

Author's Response

Comma will be removed after “The estuaries”

Reviewer's comment

Lines 216-217: This was already stated in lines 176-177.

Author's Response

The sentence will be deleted to avoid repetition

Reviewer's comment

Line 232: These values were already mentioned in line 224.

Author's Response

These values will be deleted to avoid repetition

Reviewer's comment

Line 236: I suggest that the mean values be added to figure 1 or to figure 2

Author's Response

Mean values will be added in figures 1 and 2 as you suggested

Reviewer's comment

Lines 247-250: There are way too many values in this sentence.

Author's Response

All these values will be deleted from the text and will be given in a table

Reviewer's comment

Lines 255-277: The authors describe 4 correlations here. None of them is shown in a figure, whereas other correlations are. Why did the authors chose not to show there correlations in figures?

Author's Response

All correlations will be provided as figures

Reviewer's comment

Since the readers cannot see the fit the authors used, there is no point in mentioning the (very poor) R^2 values.

Author's Response

Fit will be provided in the form of figures in two panels as you suggested above

Reviewer's comment

Line 328: The sentence is grammatically wrong

Author's Response

The sentence will be corrected

Reviewer's comment

Line 501: Add the NIO number or remove this sentence

Author's Response

Contribution number will be added only after the manuscript has been accepted for publication (during galley proof correction).