

Overall Statements

The manuscript "Impact of sedimentary alkalinity release on the water column CO₂ system in the North Sea" by H. Brenner, U. Braeckman, M. Le Guitton, and F.J.R. Meysman presents North Sea wide pelagic-benthic fluxes of TA, DIC and O₂ in the North Sea. The revised manuscript has been improved but there are still some mistakes in which must be corrected. My hint to compare the results with other papers was followed only partly in the introduction. This should be done in more detail in the discussion part. If, for example, Winder et al 2014 would be taken into account, it would have become clear that the Wadden Sea Alkalinity Export dominated the DIC Export and thus this must be included in the budgets.

Several other detailed points must be clarified before I would suggest publishing the manuscript in BG:

Discuss Spearman's rank correlation. It is used when normal correlation tests fail. This becomes clear in Figure 6: The reader of such a figure will never have the impression to see a reasonable correlation.

The notation "southern North Sea" or SNS for the region shown in Figure 1 is misleading. All other publications, even maps of the oil-industry limit the SNS at about 54 - 55 degree north.

L205: ")" missing

L281: Say that the correlation TOU rate at 40 RPM vs TOU rate at 80 RPM was performed. This should be before the hint to advective transport.

L317: These numbers differ substantially from the numbers of the previous manuscript. How can that be?

L439 omit "strongly"

L453 one mole DIC per one mole CaCO₃

L709 It is misleading to use different numbers when you mean the same value (45.45 vs 45.40 (L695)).

L591 and L612: It's not per carbon atom but "per mole C in POC"

L715 ",," -> ","

L720 ff: How is the pelagic nitrification included?

L729 using an area of 329.230 km² the 2.33 mmol m⁻² d⁻¹ turns into 280 Gmol yr⁻¹

L738 Schwichtenberg (2013) shows that the Alkalinity export strongly dominates the DIC export from the Wadden Sea.

L762 "2.3" -> "2.33"

L775 ff: How is F(out)(DIC) determined? It seems that is the closure term. But this was already F(air).

Figure 1: station 2 and station 7 are interchanged. (See Tab. 1)

Table 4: The month (4) is still wrong for “This Study”

Figure 6: I did not ask for label revising here.

Figure 8: There was no line removed.

Figure 9: dashed line is missing