

General comment - The topic of the ms fits well with a publication in Ocean Sciences. Both the problematic and the methodology is well described and complete. I would suggest some changes, mainly on the figures, in order to better support the interpretations. In addition, some part of the discussion could be better explain. Taking into account my comments, I would suggest a moderate revision. See below the point-by-point review.

#### Point-by-point review

- Lines 27-29 page 2 and Fig. 1 - Introduction– I would suggest to present the vertical distribution of the water masses along the latitudes. It is difficult with the two figures to relate each coring site with a water mass.
- Line 8 page 2 – repetition of “occurs” to remove.
- Lines 18-19 page 3 - unclear sentence that must be rewritten (“*in such a way that they are exported to the deep ocean*”).
- Line 31 page 3 – the text into bracket “Cretaceous to Recent” to place before subsidence.
- Line 18 page 5 – Are you shure about the reservoir age “we applied a reservoir age of  $7\pm 200$  yrs”? I suggest to add the reservoir age in the table 2. May be useful to get the distribution of probability for the calendar ages, rather than just the interval.
- Figures 2-5 – The caption must be expanded. The relationship between each coring site and a specific current and/or water mass must be presented in a figure (see previous comment on figure 1). The figures 2, 3 and 4 may be merged or present in parallel.
- Figure 5 - The caption must be expanded to resume the significance of the relative position of the cores by respect with the position of the inorganic elements. How do you explain that Ca and Sr remain both quite close to zero along the x axis whereas some cores are plotted at -3 (64) or even -6 (65)?
- Figures 6 & 7 – By comparison with N/C, the  $\delta^{15}N$  is a less discriminant parameter. I would suggest to plot all data with different symbols on the same diagram as the y axis is the same.
- Figure 8 – Is this diagram really useful? The information on average TAR values may be given in the text.
- Figure 9 – same remark. I’m not shure this diagram is useful. If you keep it you should add the domains for C3 and C4 plant and labelled the cores according to their location (upper shelf/slope). For all figures, you could systematically use a sme symbol for the cores according to their location on the upper shelf, middle shelf and slope. It could help to better evidence the data clusters.
- Lines 2-5 page 8 – the section about relict sediment must be rewritten, it is not clear.
- Lines 3-9 page 10 – This section is unclear. What about the oxic/anoxic conditions of the bottom water column according to the measured Pr/Ph values? To better explain.
- Lines 14-18 page 11 - This text is confuse. You may develop your argumentation.
- Final remark – I would suggest to add at the end of the ms a synthetic figure to present the sedimentary transport and their relationships with current distribution.

Hoping this review will be useful,

Sincerely,

Nathalie Fagel