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Interactive comment on "Strong linkages between surface and deep water dissolved organic matter in the East/Japan Sea" *by* Tae-Hoon Kim et al.

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This article provides new bulk concentration data on amino acids, DOC and DON in the East/Japan Sea. The results are compared with the BATS and HOT oceanographic stations, which provides a useful reference for the relative levels of the various analytes measured. The data support recent findings that suggest that DOM is transported to the deep EJS in higher concentrations than is oceanographically typical, which is an interesting result and makes this a fascinating study region. The data are of a good quality and the discussion is appropriate. Some aspects need to be clarified before publication in Biogeosciences.

Major comments: -Page 2 line 30: There is no mention of the use of reference materials (e.g. the seawater reference material from Hansell's lab). If no references were used,

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this should be mentioned. Maybe the results can be compared with another study from the same waters.

- Page 4 Line 15 and many other places: When values are stated as ± something, are they referring to one standard deviation? This should be stated (i.e. (mean ± SD)). If this is the case, I don't think the values are significantly different on page 4 line 15

-Page 4 Line 31 onwards: They talk about the reactivity of THAAs in the EJS compared with BATS and HOT, but there is no indication of how long a time passes between the sampling points in each case. A comparison of decrease in concentration alone cannot be used to talk about reactivity, without time. This needs an extra paragraph of discussion.

-Page 5 Line 31 onwards: They mention a 'significant but weak' correlation between two variables without providing any statistical data or graphs, only a table. I think this sentence should include at least an rˆ2, p value and n.

-Page 6 lines 9-25: They state that D-amino acids are more resistant to decomposition, yet the ratio of D:L is lower in the deep water than surface water. These two things don't seem to connect, please clarify.

-Section 3.5: I don't understand how they make the step from the reported data to the statement: "our results suggest that the shallowing or slowdown of deep-water formation in response to atmospheric warming would bring about a considerable decrease in the oceanic storage of bioavailable DOM and a consequent positive feedback in the climate system". This needs to be discussed more thoroughly

General comment: There is a lot of discussion of the trends in shallow vs. deep waters, but very little discussion of the lateral data between stations (i.e. figures 2,3 and 5). Some of the stations seem to be significantly different from each other and I would like to see a little discussion on whether these changes fit with the other trends, for example degradation of L-amino acids in comparison to D- or loss of DON preferentially

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over DOC. What is the circulation time difference between the different stations in deep water?

Minor comments:

- Page 1 Line 26: Should this read 'surrounded by the Korean Peninsula...?' - The Authors presumably know better than I.

- Page 1 Line 29: The Korea/Tsushima Strait is not indicated on the map, which would be useful

- Page 2 Line 30: 'Based on colorimetric analysis' (no 'the'). Is it possible to reference the method used here?

-Page 3 Line 22-23: This implicitly assumes that all organic matter in these deep waters comes from surface waters. Can this be substantiated?

-Page 4 Lines 10-11: Amino acids are stated in μM, I think this should be nM.

-Page 4 Line 24: I don't think the 'normalized yield of THAA' is a commonly understood concept, so it should be briefly explained here.

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