

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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Dear Editor and Reviewer Thank you for sending the reviews of our manuscript (original ms#: bg-2017-8) entitled "Strong linkages between surface and deep water dissolved organic matter in the East/Japan Sea". Our response to each point suggested by the second reviewer is as follows:

Major comments:

There are no definition of THAA, DOC or DON in a explicit way. DOC and DON are maybe more obvious, but a short sentence with the main meaning of THAA would be appreciated.

=> In the revised version, we stated that “Filtered (0.7 μm) water samples were sub-

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jected to acid hydrolysis for determination of the total dissolved amino acid concentration and composition”.

Material and Methods should include info about error of the measurements. Same for the Tables 1 and 2. Certified Reference Materials are widely used nowadays for measurement validation, if they were not used should be said.

=> In the revised version, we stated that “Most values are expressed as the mean \pm standard deviation (SD) in this study” in Materials and Methods section.

=> We used reference materials for verifying DOC and DIN analysis. In the revised version, we stated that “The reliability of the measurements was verified on a daily basis by analysis of DIN and DOC-certified seawater samples (MOOS-1: $23.7 \pm 0.9 \mu\text{M}$ for DIN, National Research Council; DSR: $44\text{--}46 \mu\text{M}$ for DOC, University of Miami). The results were in good agreement with certified DSR values (deviation: $<5\%$)”.

Along the manuscript, decreasing concentrations are always related with utilization. What about the lateral advection? Don't should be discussed?

=> In the revised version, we stated that “There is no notable DOC anomaly in the EJS that would indicate significant lateral inputs from rivers or other sources (Kim et al., 2015). This is consistent with the fact that there are no major rivers that drain into the EJS, which is fed exclusively by the Pacific Ocean. Abyssal circulation in the EJS has relatively strong cyclonic flows along the basin periphery and sluggish flows in the interior region (Fig. 1; Senjyu et al., 2005). The lowest concentration of DOC was found in the southern area of the EJS along the abyssal circulation, with a similar trend of AOU (apparent oxygen utilization) (Kim et al., 2015)”.

Specific comments:

- Fig.1 - why is not Tsushima Current (TC) in the figure? Additionally, some color differentiation would be appreciated for the map A).

=> In the revised version, indicated the Tsushima Current (TC) and changed as sug-

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gested in Figure 1.

- Page 5 - Line 32 “ a significant, but weak, correlation” more info is needed

=> In the revised version, added r^2 value (0.001) and sample number ($n=66$).

- Page 6 Line 24 - Is the slight decrease significant?

=> In the revised version, t-tests were done in order to compare the ratios of D:L between the surface and deep waters. We stated that “the average D:L ratios between surface layer and deep layer were not significant differences ($p > 0.05$)”. Deleted “with a slight decrease observed at depth”.

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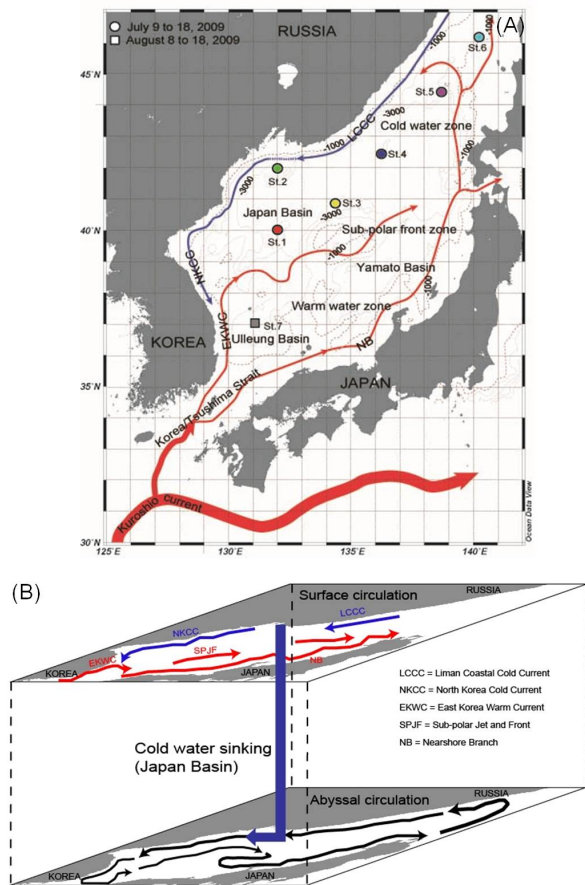


Fig. 1. Figure 1