Though amino acid composition has been regularly measured as an indicator of organic matter degradation, the varied sources and processes beyond heterotrophic degradation shift the AA composition and limited its application in diverse marine environments. It has been frequently found in recent publication that the DI index was inappropriately applied to samples that were clearly regulated by mechanisms different from Dauwi's dataset. However, the manuscript by Gaye et al. analyzed amino acid composition from amazingly abundant samples covering traps, sediment, suspended particles, the seawater and pore water from varied regions. This provides a complete dataset to reliably reflect the variation in amino acid composition among major pools of amino acids in the ocean. This work well fits the scopes of Biogeoscience. The manuscript was well written and the conclusion is convincing and informative. I would suggest the publication of this work with some minor editions as followings.

Reply: We thank the reviewer for taking the time to review our paper and for the very encouraging words.

We plan to respond to the specific comments in the following way:

Specific comments:

1. Considering the spatial coverage and large range of concentrations, whether it is suitable to calculate the decay functions (Fig. 3) using the entire dataset?

Reply: In Figure 3 we excluded Kara Sea samples as resuspended sediments was found to impact SPM and trap samples as we published Gaye et al. 2007. In a revised version we will do both calculations and check if it makes sense to use the entire data set or again exclude Kara Sea samples due to the bias.

2. Were Gluam and Galam measured simultaneously with the amino acids?

Reply: They were measured simultaneously with amino acids and we will clarify this in the methods section of the revised version.

3. One thing confused me a lot is where comes the amino acids enriched in pore water, if there is no exchange between pore water and sediment.

Reply: We will check the respective part of the manuscript and explain it in a better way and in more detail.

The following changes will be made

4. Line 268, "carbon and N" to "carbon and nitrogen"
5. Line 406 "Least degraded" to "most degraded"?
6. Line 436, "increasewith" to "increase with"
7. Line 725, "Tab. 1" to "Table. 1"