

Major revision report of the manuscript with ref. no. bg-2018-181, titled “**Distribution of Fe isotopes in particles and colloids in the salinity gradient along the Lena River plume, Laptev Sea**” by Conrad et al.

The present manuscript has come to me after major revision. The MS looks good after revision and I believe it is recommend that the manuscript with few technical corrections can be published in BGD journal. Please find the comments below as page wise.

[Page 4](#)

Line 20: **The samples were collected in August 2008 during.....**

But the dates in the table 1 are something different and looks wrong.

[Page 8](#)

Line15: **Titan?**

I believe the authors must be referring to titanium. Typo error? I didn't see anything discussion related to either aluminium or titanium in the MS.

Line 19: Cu was eluted with 8 mL 5M Cl.

I this authors must be referring to HCl. Typo error?

[Page 10](#)

Line 5: **The methodology for pH and oxygen is described.....**

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[Page 11](#)

Line 1: The DOC concentrations show a small variation of between 320-442 uM in the surface.....

The DOC concentrations show a small variation ~~of~~ between 320-442  $\mu\text{M}$  in the surface.....

Line 27: The  $\delta^{56}\text{Fe}$  values in the particles varied between  $-0.05 \pm 0.11\text{‰}$  .....

The  $\delta^{56}\text{Fe}$  values in the **particulates** varied between  $-0.05 \pm 0.11\text{‰}$  .....

Line 30: The surface sediments from the Laptev Sea all had negative  $\delta^{56}\text{Fe}$  values ( $-0.23 \pm 0.08\text{‰}$  and  $-0.25 \pm 0.12\text{‰}$ ). Surface sediments obtained from 10 samples in other parts of the East Siberian Arctic Shelf (ESAS) showed only small variations (Fig 1 and Fig 6; Tab. 4; Tab. S2)

**The surface sediments from the Laptev Sea ~~all~~ had negative  $\delta^{56}\text{Fe}$  values ( $-0.23 \pm 0.08\text{‰}$  and  $-0.25 \pm 0.12\text{‰}$ ) and when compared with surface sediments from other parts of the East Siberian Arctic Shelf (ESAS) showed only small variations (Fig 1 and Fig 6; Tab. 4; Tab. S2).**

#### [Page 12](#)

Line 14-17: Within the Arctic Ocean, dissolved Fe (CFe+DFe) concentrations vary between 0.2 and 63 nM and the concentrations depend on distance to the shore and depths of sampling, with generally higher values in surface waters as well as close to the bottom sediments, which might be related to resuspension, sinking of brines, or resuspension from the sediment of Fe (Klunder et al., 2012).

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#### [Page 15](#)

Table 27: The Fe isotope compositions in the Lena River freshwater plume provide clear indications of which forms of Fe.....

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