

Review of the article:

### **Dissolved Organic Matter at the Fluvial-Marine Transition in the Laptev Sea Using in situ Data and Ocean Color Remote Sensing**

The manuscript addresses a relevant scientific issue: sources of dissolved organic matter and carbon cycle in the fluvial-marine transition zone of the Arctic Ocean. The database collected in situ is robust and collaborates to expand knowledge of the sources and processes that occur in the study region, as well as to expand the database. The tests of the various ocean color algorithms show the possibilities of method application and point to certain deficiencies that arise from the available atmospheric correction algorithms dedicated to the satellite image processing.

The estimation of the dissolved organic carbon using satellites images and the empirical algorithm developed by the authors significantly increases the possibility of exploration of ocean color data in the study area, giving the manuscript a substantial contribution to scientific progress within the scope of Biogeosciences.

The method used for DOC estimation was correctly addressed and the results were discussed in an appropriate manner, with figures, tables and graphs presented in a clear, concise and well structured manner. The results are sufficient to support the interpretations and conclusions. The manuscript has the desired scientific quality and follows unrestricted, except minor issues pointed out below.

#### *Specific Comments:*

##### **Page 1**

Line 15: inset point "." after "Laptev Sea"

Line 16: change "DOM" to "dissolved organic matter (DOM)"

##### **Page 2**

Line 2: change "dissolved organic matter (DOM)" to "DOM"

Line 10: change "dissolved organic carbon (DOC)" to "DOC"

Line 24: change "Ocean Color Remote Sensing (OCRS)" to "OCRS"

##### **Page 3**

Line 31: the first table to be quoted in the paper is table 2, instead of being table 1, please rename the tables so that the first table to be quoted is table 1.

##### **Page 4**

Line 9: please, see observation above (Page 3 – Line 31)

Line 31: please inform whether the cuvette is quartz or not

## Page 5

Line 3: please, insert a bibliographical reference that contextualizes the equation 2: “fitting the following equation (bibliographic reference):”

Line 7: change “ $a_{CDOM(440)}=a_{CDOM(440)}/DOC$ .” to “ $a_{CDOM(440)}=a_{CDOM(440)}/DOC$ .”

Line 12: after “high spectral resolution and spectroradiometric quality” insert a bibliographical reference

Line 13: Why was not used MERIS Full resolution images (300 m) ???

Line 20: please, explain what was the extraction window dimension (for instance, window of 3 x 3 pixels centered at the sampling points for Rrs median value)

## Page 7

Line 6: change “and 1.17 to 7.91  $m^{-1}$   $a_{CDOM(443)}$ ” to “and 1.17 to 7. 91  $m^{-1}$ ”

Line 9: change “from to 0.077” to “from 0.077”

Line 18: change “from river to offshore.” to “from river to offshore (Fig. 2).”

Line 25: please, inform what type of correlation (Pearson or Spearman or ...) was used. It may be better to insert in the paragraph "2.3.1 Functions for satellite retrieval evaluation" a paragraph mentioning the type of correlation used in the statistical analyzes.

## Page 8

Line 2: the same situation as Line 25, Page 7. Please, see the above comment.

Line 8: change “Nelson and Siegel, (2002) indicating...” to “Nelson and Siegel (2002), dashed lines in Figure 4c, indicating...”

Line 9: please, insert bibliographic reference after “higer aromaticity (bibliographic reference)”

Line 10: change “from (Matsuoka et al., 2012) deviates...” to “from (Matsuoka et al., 2012), solid line in Figure 4c, deviates...”

## Page 9

Line 18: I didn't find “Fig.11, A2”

## Page 10

Line 7: change “...DOC concentrations using...” to “...DOC concentrations (Fig. 8) using...”

Line 8: change “...the presented DOC- $a_{CDOM}(\lambda)$  model (Fig.8) and...” to “...the presented DOC- $a_{CDOM}(\lambda)$  model (Eq. 7) and...”

Line 24: change "...function of salinity, indicating..." To "...function of salinity (Fig 3), indicating..."

Line 25: delete "(Fig. 3)"

### **Page 11**

Line 12: please, insert a bibliographic reference here "... which is often used in the OCRS community (bibliographic reference),..."

### **Page 13**

Line 14: this acronym was quoted for the first time "TSM" ??? Please, write out the full text "total suspended matter (TSM) ..."

Line 17: I didn't find "Fig. 11b"

### **Page 14**

Line 2: change "low" to "lower"

Line 13: I didn't find "Fig 12b"