

1. General comments

The present paper is of high scientific quality and with significant contribution to our understanding of the biogeochemical processes in the rivers and other water bodies in the Western Russian Arctic. The idea of this work is excellent and its fulfilment is on the high level. The authors cover very great area by sampling of river water and SPM in 33(!) rivers along 1700 km from south to north in difficult region for sampling -the Western Siberian Lowland. The most modern methods and apparatus for nutrient analyses and mathematical statistic methods were used to obtain and interpret the multitude of analytical results. All these together can help to obtain very new and important data and conclusions related to the climate change problem with non-evident predictions. I am glad to give the high estimation to this manuscript.

I know many excellent publications by Dr.O.S.Pokrovsky and under his leadership during the last 15-20 years in the field of biogeochemistry and sedimentology of the rivers, mainly in the Arctic basin. His contribution to our science is very significant and his hand is feeling in this work.

Now I have an access to the comments of the referee 1 and the answers of the authors and I wish to present some my vision of them. I consider that the comments and suggestions of referee 1 are very valuable and constructive and they helped to improve manuscript. At the same time I should wish to explain why I restricted my comments by common sentences. The referee 1 requested to give more details in several positions (watershed characteristics of rivers, hydrological conditions, more deep using of ratio P/N). The authors included at least 4 references with information about watersheds. I believe the authors have definite level of freedom to decide to add additional information or restrict it by the references. The authors accepted the advices and gave very exhausted answers. To my opinion the consideration of the available role of ratio P/N to indicate different sources of P and N origin was significant enough.

The referee 1 considers that the conclusions in the work bear speculative character. I think it's not bad in several times. Very rich experience of the authors in the research works in the Arctic region gives them a possibility to foresee some future trends even without exhausted factual base (the great scientists have possessed by this talent). In this case is necessary only to indicate what part of the conclusion is based on the facts and what part on the feelings.

I will wait for publication of this work with impatience.

2. In the full review and interactive discussion, the referees and other interested members of the scientific community are asked to take into account all of the following aspects:

1. Does the paper address relevant scientific questions within the scope of BG?	Yes
2. Does the paper present novel concepts, ideas, tools, or data?	Yes
3. Are substantial conclusions reached?	Yes
4. Are the scientific methods and assumptions valid and clearly outlined?	Yes
5. Are the results sufficient to support the interpretations and conclusions?	Yes

6. Is the description of experiments and calculations sufficiently complete and precise to allow their reproduction by fellow scientists (traceability of results)?	Yes
7. Do the authors give proper credit to related work and clearly indicate their own new/original contribution?	Yes
8. Does the title clearly reflect the contents of the paper?	Yes
9. Does the abstract provide a concise and complete summary?	Yes
10. Is the overall presentation well structured and clear?	Yes
11. Is the language fluent and precise?	Yes
12. Are mathematical formulae, symbols, abbreviations, and units correctly defined and used?	No formulae
13. Should any parts of the paper (text, formulae, figures, tables) be clarified, reduced, combined, or eliminated?	No
14. Are the number and quality of references appropriate?	Yes
15. Is the amount and quality of supplementary material appropriate?	Yes

3. Technical corrections.

3.1 I found one erratum on page 9, lines 219-221. "Generally, a 2 to 3-fold **decrease** (instead of increase) in Corg"

3.2 I should wish to include into the text the tables and figures that are given under index S (supplementary materials). I think the volume of the paper will not be much higher but the readers may have more simple access to the factual additional unpublished data.