Biogeosciences Discuss., 10, C6829–C6831, 2013
www.biogeosciences-discuss.net/10/C6829/2013/

Biogeosciences
Discussions
Open Access

Interactive comment on "Characteristics and assessment of biogenic phosphorus in sediments from the multi-polluted Haihe River, China, using phosphorus fractionation and phosphorus-31 nuclear magnetic resonance (^{31}P-NMR)" *by* W. Q. Zhang et al.

Anonymous Referee #1

Received and published: 26 November 2013

The paper presents the characterization of phosphorus in sediments of the Haihe River (China). Phosphorus has been investigated using sequential leaching and 31P-NMR. Despite the paper tackled a very interesting topic, this paper does not address relevant scientific questions within the scope of Biogeosciences. I would recommend to the author to submit in another journal such as Environmental Pollution, Science of the Total Environment, etc.. Moreover, I think that the analytical work has not been carried out carefully since some crucial data are missing. For example, quality controls, blanks,

limit of detection and quantification, mass balance are just completely omitted. Furthermore I would recommend to revised the paper by a native English speaker before to submit it next time. Therefore, I recommend to reject this manuscript and suggest to follow the modifications before any resubmission.

p.16269 Title Change "Characteristics and assessment of biogenic phosphorus in sediments from the multi-polluted Haihe River, China, using phosphorus fractionation and phosphorus-31 nuclear magnetic resonance (31P-NMR)" to " Characteristics and assessment of biogenic phosphorus in sediments from the multi-polluted Haihe River, China, using sequential leaching 31P-NMR"

p.16270 Abstract l.4: change "P fractionation" to "sequential leaching" l.6 change "accumulate" to "accumulated" l.19-21 modify the sentence. Mineralization of Po into ortho-P would not lead actually to algal bloom since P concentrations in the Haihe water are very high and P is far to be the limiting nutrients (In fact there is really no limiting nutrients in these waters for the algal development).

p.16271 l.2 add some references like: Yong Jiang, China's water scarcity, Journal of Environmental Management, Volume 90, Issue 11, August 2009, Pages 3185-3196 Xie, J. (2009). "Addressing China's Water Scarcity." The International Bank for Reconstruction and Development, The World Bank: 160p. l.21 add an "s" to "pyrophosphates" and "polyphosphates"

p.16272 l.1 change "sewage water" to "treated and/or untreated wastewaters" l.2 change "was inflow" to "were discharged into" l.8 change "high nutrient (P)" to "high nutrients (P & N)" l.11 delete "study the relationships between P species in sediment and river water quality" since this has not been really done. l.12 delete "This study will provide useful information to help control P sources and manage river eutrophication." since no recommendation are given to help in P control and river management.

p.16273 l.3 add a reference l.19 please add the reference of the probe and the pH-meter as well as the accuracy to ensure values given in table 1. l.21 provide the amount

of sediment used for the OM and the accuracy of this measurements. I wonder if author could really be able (and if it is really necessary?) to calculate OM % with 2 digits. l.22 provide at least ratios and volumes of acids used for the sediment digestion in order to determine Fe, Al Mg, Mn and Ca. Provide also blank values and limit of detection and quantification of these elements by ICP-OES l.26 provide limit of detection and blank values for P measurement by the molybdenum blue method.

p.16274 l.1-2 If three replicates were analyzed then authors should not only give the mean value but also the standard deviation. l.4-16. Blanks are not given, control and certified material were not analyzed. Mass balance were not performed to check out if the sequential leaching procedure was ok. All these parameters are crucial to ensure the validity of the results and then to interpret them.

p.16276 l.15 usually, concentrations in water are given in mg L-1 please change the unit.

p.16278 l.6and7 please add some references.

p.16281 l.22 please provide some examples of the measures taken by the government to improve the water quality. Then authors should try to give few measure to improve the situation since P-contaminated sediments may support algal bloom.

p.16282-16283 l.26-l.2 modify the sentence since mineralization of Po into ortho-P would not lead actually to algal bloom. Indeed P concentrations in water are very high and P is far to be the limiting nutrients.

Interactive comment on Biogeosciences Discuss., 10, 16269, 2013.