

## ***Interactive comment on “Speciation and distribution of P associated with Fe and Al oxides in aggregate-sized fraction of an arable soil” by X. Jiang et al.***

### **Anonymous Referee #3**

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The current manuscript represents a very interesting and solid research work using sequential extraction approach and  $^{31}\text{P}$ -NMR spectroscopy to examine distribution and speciation of varying p species in different aggregate sizes; Furthermore, this study particularly explored the relationship between P and Fe or Al oxides. Global biogeochemical cyclings primarily focused on C and N, but that is not all about the global scale circulation. A study regarding potential role of Fe in regulating P like the current study is a good example for putting our eyes on nutrient cycles other than C/N as well. In particular, the current study relied on robust analytical methods and proper calculations and comparisons, the results well supported the conclusions. My only suggestion is that the study should help address Fe/P cycling on a broader scale (i.e. ecosystem scale).

For example, how the current results would help understand the P fertility management in croplands and forests; what role has Fe played on the P status in a fertilized arable or forests ecosystem. I applause this is a neat study nicely confined in traditional soil physiochemical study, but will it be a huge benefit if information obtained from this and other conventional studies help address ecological questions? here listed a few such citations that the authors may consider to include in the current ms to expand their introduction and/or discussion.

1. William H Schlesinger, Jonathan J Cole, Adrien C Finzi, and Elisabeth A Holland 2011. Introduction to coupled biogeochemical cycles. *Frontiers in Ecology and the Environment* 9: 5–8. <http://dx.doi.org/10.1890/090235>
2. Bioavailability of Slowly Cycling Soil Phosphorus: Major Restructuring of Soil P Fractions over Four Decades in an Aggrading Forest. Daniel D. Richter, H. Lee Allen, Jianwei Li, Daniel Markewitz and Jane Raikes. *Oecologia*. Vol. 150, No. 2 (Nov., 2006), pp. 259-271
3. Jianwei Li, Daniel deB Richter, Arlene Mendoza, and Paul Heine 2008. FOUR-DECADE RESPONSES OF SOIL TRACE ELEMENTS TO AN AGGRADING OLD-FIELD FOREST: B, MN, ZN, CU, AND FE. *Ecology* 89:2911–2923. <http://dx.doi.org/10.1890/07-1381.1>

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