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Climate of the Past Discussions

Interactive comment on "Biogeochemical records of past global iron connections" *by* Z. S. An et al.

Anonymous Referee #2

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1. Just because productivity increased in lakes (Figure 6), why should that mean productivity increased in the ocean?

2. It seems to be a big stretch to estimate the effect that increased dust input in the N. Pacific could have changed CO2. The estimate is based on only a couple of sediment cores and loess profiles. Additionally, the correlation with dust and CO2 is very causal. While we know a relationship does exist, many other factors such as changes in circulation and temperature are important. The biggest problem for me is to make this estimate without more data.

- First of all it needs to be better established that productivity actually increased in the North Pacific. Data is only showed from a few cores and only organic carbon burial rate is shown. I am not a paleoceanographer, but my understanding is that there are other proxys for biological productivity also.

- Secondly only one record of dust from Asia is shown (the loess sequence). I would want to see numerous records before trying to make a quantitative assessment of how much dust from Asia affected global Co2.

- Thirdly, as I mentioned before there are other factors that play a large role in regulating CO2 that are disregarded. Additionally, a paper of mine that came out recently in Paleo (Parekh et al, 2006) shows that adding dust can account for perhaps 8 ppm globally - and Bopp et al, 2003 also show a weak effect due to additional dust. Not that models are right, but some unpublished work of mine shows additional dust in the N. Pacific has very little effect on biological productivity and co2 drawdown.

Interactive comment on Clim. Past Discuss., 2, 233, 2006.