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Comment

## ***Interactive comment on “A preliminary assessment of peat degradation in West Kalimantan” by G. Z. Anshari***

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Response 1. Yes, I agree with you about peat decline and tropical peat deforestation in this region, and the release of large amounts of Carbon to atmosphere and water.

Response 2. Tropical peats in Indonesia are estimated to be between 18 million Ha and 27 million Ha, which are mainly distributed in Kalimantan, Sumatra and Papua. In West Kalimantan, a total of tropical is approximately 1.6 million Ha. As you have indicated that peat studies in Indonesia largely focused in other coastal regions of Kalimantan, this peat study in West Kalimantan add some new findings about peat properties in this region. The distribution of peats in West Kalimantan is mainly in coastal region, and some marginal distribution occurs in the upper river basin. The radio Carbon date of coastal peat seems much younger than the age of inland peat. The field and laboratory

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work was laborious and long. I have a large data set. In this paper, I have shown selected results of the data. In order to improve the consistency of data presentation, I will present results of laboratory analyses from all sites.

Response 3: Table 1 presents recent peat ages from this study, and table 2 presents published peat ages of NF site. I have quoted 30,000 years age for the peat at 150 cm at the NF site. This data is from my previous study, which was published in *Palaeogeography, Palaeoclimatology, Palaeoecology*, and *Journal Quaternary Science* (Please see Anshari et al. 2001. A Late Pleistocene and Holocene pollen and charcoal record from peat swamp forest, Lake Sentarum Wildlife Reserve, West Kalimantan, Indonesia. *Palaeogeography, Palaeoclimatology, Palaeoecology*, Volume 171, Issues 3-4, 15 July 2001, Pages 213-228, and Anshari et al. 2004. Environmental change and peatland forest dynamics in the Lake Sentarum area, West Kalimantan, Indonesia. *Journal of Quaternary Science Special Issue: Late Quaternary ecosystem dynamics and carbon cycling in the tropics*. Volume 19, Issue 7, pages 637–655, October 2004). At that time, I retrieved several peat samples and dated at 150 cm depth, which was the longest core I did. Several years later (i.e. 2007), I came back to the site, and retrieved several core samples, and reached up to 900 cm peat depth. It was unfortunate that I did not have enough research fund to have a radio Carbon date for this 900 cm depth peat core. I admit that radio carbon data for this study is limited, and I will try to find more funds to assess several radio carbon ages for inland peats from West Kalimantan in near future.

Response 4: Yes, I will include information on regional environment of the study sites in the revised manuscript. I will also describe more details of how sample plots were made in this study.

Response 5: The climate of West Kalimantan Province is classified as an equatorial climate system, which has rain distribution all year. In this region, there is no clear distinction between dry and rainy seasons. Therefore, I think it is irrelevant to compare the hydrology on the sites in this study. I need to emphasize that the aim of this study is to

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assess selected chemical and physical peat properties that indicate peat degradation. I think, a study of peat hydrology is absolutely important, and need to be separately and individually conducted.

Response 6: Tables 5 and 6 present a summary of peat properties in the forested and open sites (i.e. SP and DSP sites). In addition to regional setting section that I will include in the revised manuscript, I will explain some more details of peat properties according to aerobic and anaerobic peat layers (acrotelm and catotelm) in all sites. This classification may guide me to analyze the differences between acrotelm and catotelm layers.

Response 7: Thank you very much for your valuable comments and excellent review.

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Interactive comment on Biogeosciences Discuss., 7, 3503, 2010.

**BGD**

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