

## ***Interactive comment on “Impacts of droughts on carbon sequestration by China’s terrestrial ecosystems from 2000 to 2011” by Y. B. Liu et al.***

**Anonymous Referee #2**

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This manuscript is a study aimed at analyzing the impacts of droughts on terrestrial carbon sequestration in China, which is important for recognizing the spatial heterogeneity of NEP’s response to droughts, and the accumulative and lag effects of drought on carbon sequestration also is interesting. Nevertheless, there are still have some minor revisions should be considered: 1. As an important indicator for drought evaluation in this research, SPI should be given more detailed description or explanations: (1) Algorithm (2) What are the “temporal flexibility and spatial consistency” of SPI? (3) Why only 1, 3, 6, 9 and 12 months SPIs were selected for evaluation? (4) How the site-observed precipitation data was interpolated into each pixel?

2. This manuscript pointed out that “In drought years, the reductions of NEP might be caused by a larger decrease in gross primary productivity (GPP) than in respiration

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(RE) (2001 and 2011), a decrease in GPP and an increase in RE (2009), or a larger increase in RE than in GPP (2006)” both in result and abstract, however, why the effects of drought on NEP are so different within different years and different regions still do not have strong explanations or discussions in the article. 3. The article described that Radiation is a key factor driving the interannual variability of productivity (Nemani et al., 2003), which might be a possible cause of NEP decrease to some extent in humid Southeast and South China. Comparing the variation of radiation with NEP should support the authors’ consideration.

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