

Interactive comment on “Multiyear precipitation reduction strongly decrease carbon uptake over North China” by W. P. Yuan et al.

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Received and published: 6 March 2013

Response to Referee 1 Comments

General Comments

This manuscript presents the results of a set of analyses investigating the impacts of drought on carbon budget of terrestrial ecosystems in North China over the period 1999-2011 using multiply data sources and multiply methods including long-term meteorology data, carbon models, eddy covariance measurements, remote sensing data, and statistical data etc.. They found North China experienced a multiyear precipitation reduction, and mean GPP, NEP and corn yield decreased as well over the same period (1999-2011) compared to a longer time span (i.e., 1982-2011), suggesting that recent

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climate change, especially drought-induced water stress, is the dominant reason of the reduction in the terrestrial carbon uptake. This is an interesting paper and should be of interest to the researchers in science and policy of carbon cycle and climate change. The escalating impacts of drought have drawn widespread attentions over the past few decades, and some previous studies reported the impacts of drought on ecosystem carbon budget in Europe, North America and South America etc.. This study revealed the impacts of drought on ecosystem carbon budget in China where the ecosystem productivity is strongly influenced by the vagaries of the monsoon, should be more vulnerable to drought. My recommendation is to accept the manuscript after minor revision, and only one specific comment below that I hope the authors can address.

Authors' response: Thank you for your positive comments.

Specific Comments

The unit of corn yield ($\text{kg ha}^{-1} \text{ yr}^{-1}$) in Figure 7a and the whole context is not comparable with those of other fluxes, and I suggest to convert the unit to be Pg yr^{-1} or Tg yr^{-1} by multiplying the area of corn.

Authors' response: We will add the total corn yield in Figure 7 with the unit of Tg yr^{-1} .

Interactive comment on Biogeosciences Discuss., 10, 1605, 2013.

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