TITLE: Seasonal variations in carbon dioxide exchange in an alpine wetland meadow on the Qinghai-Tibetan Plateau

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Comments: The eddy flux data collected at a high elevation of Qinghai-Tibetan Plateau for an alpine wetland meadow are useful for the FLUXNET community. However, the manuscript needs a major revision for publication. My major concerns are: (1) English writing must be improved, by finding a native English speaker to help modify it; (2) the authors did not respond to the comments from the editor with the excuses that they are ready to write another MS (to the point 1 of Dr. Chen's comments) and others published similar patterns (to the point 2 of Dr. Chen's comments). This paper cannot be published without serious responses to Dr. Chen's comments.

Specific comments:

(1) Authors did not respond to the first point of Dr. Chen's comments.

Dr. Chen's comment:
The reasons for the morning non-linear GPP-PPFD relationships and the afternoon linear relationships are not well described (Figures 5 and 6). Why is ecosystem respiration involved? Heterotrophic respiration should not be directly related to GPP. You may really mean autotrophic respiration. However, it is hard to believe that autotrophic respiration can play such a big role. You may need to examine the way you separate NEE into ER and GPP. I suspect that errors in this separation may be considerable. This is reflected in the low correlation between ER and T shown in Figure 4.

Authors' responses:
The Supplementary explanation as follows: Because of at afternoon the temperature increased resulted in the soil respiration increased. And we get ready to write another MS to elaborate the role of the ecosystem respiration in the ecosystem.

Authors did not answer the question: why is ecosystem respiration involved in the GPP-PPFD relationship? Soil respiration is not directly related to PPFD and either GPP. The sentence "the temperature increased resulted in the soil respiration increased"is nothing to answer the question. It is terribly wrong that a clarification of a new manuscript coming is considered as an excuse to not answer the question.

(2) Authors did not respond to the second point of Dr. Chen's comments.

Dr. Chen's comment:
The curve shape of GPP against LAI is rather odd (the upward trend with LAI instead of the tendency to level off). This is either due to errors in LAI measurements or in GPP measurements (again, it may be related to the separation of NEE into GPP and RE).

Authors' responses:

As shown in Fig.6, the relationship of daily total gross primary production (*GPP*) and leaf area index (*LAI*).The curve shape does display the upward trend, but it is normally. Because the figure plotted here is the relationship between daily total GPP and LAI, instead of their variation among seasons, and according to the literature (Xu, L., and D. D. Baldocchi, 2004, Seasonal variation in carbon dioxide exchange over a Mediterranean annual grassland in California: Agricultural and Forest Meteorology, v. 123, p. 79-96.), the trend was also upward (Fig.5)

You cannot defense in such a way that because someone have published a similar pattern and hence we are right.

(3) The correlation between GPP and Reco shown in Fig. 7 does not make sense because the GPP was derived by the equation GPP = -NEE + Reco. Of course, this equation makes the correlation much better because they are linked by the equation. Yes, Law et al. (2002) and Xu and Baldocchi (2004) have published similar patterns. However, you should not continue doing so as they did something wrongly. I suggest that you delete the Fig. 7.

Illustration of sentences with English problem:

P.2, L6: "…is critical important…", should be " …is critical…" or "…is important…" I do not have time to modify your English, but I will illustrate some sentences with English problems.

P.2, L9: "The measurements covered three years and were made using the eddy covariance method."

P.2, L10: Seasonal trends of both GPP and Reco followed closely changes in Leaf Area Index (LAI).

P.2, L11-13: Reco exhibited the same exponential variation as soil temperature with seasonally-dependent R10 at the soil temperature reach 283.16K.

P.2, L13: Although yearly average is used sometime, annual average is more common.
P.2, L14, 15: "for ×××× year" is better to be replaced by "in ××××"

P.2, L19: …alpine wetland meadow is a source of CO_2…is repeated as L16.

P.2, L20: it is unclear what do "the microclimatology areas" refers to.

P.3, L1: The result is contradicted observations in alpine shrubland meadow

P.4, L8: "The rate of decomposition of organic carbon, i.e., the CO2 flux from the plateau, is high because of the rich organic carbon load in the soil." There is a logical problem with this sentence. The good reason for the rich organic carbon stored in the soil is that the rate of decomposition of organic carbon is low.

P.6, L17: 'recoded' should be replaced by recorded.

P.6, L20: The grassland starts to green at…
P.8, L2: …considered as insignificant…

P.10, L21: …and ranged about…

P.11, L12: … the temperature dependence (of what variables) was higher….

P.12, L12: 'at afternoon' should be in the afternoon.

P.14, L1-3: 'The periods' is confusing. You used the A.M and P.M. in the text and used 0-24 in the Fig. 9. You should keep them consistent.

P.14, L4: NEE from 1:00 P.M to 5:00 P.M trend is not indicated in Fig. 9 where the data shows the 'diurnal sequence' (P.13, L.16).

P.14, 15: The word "uptake" has already specified the direction of CO2 flux, therefore, the negative sign should be omitted.

P16, L18: A seasonal variation occurred in NEE, which is the difference between two large CO2 fluxes of CO2 release by Reco and CO2 uptake by GPP.

P17, L3-4: The relationship between GPP and PPFD as shown in Fig.4 resulted from the fact that LAI was so small that the rate of canopy photosynthesis was smaller than the CO2 emission rate from both plant respiration and soil emission.

P17, L7: …did not changed…

P17, L8: That because…

P.17, L15: …that there apparently was no PPFD saturation in the afternoon (Figs. 3 and 4).

P.18, L10-11: Thus, the exponential function for ecosystem respiration holds for a limited time period when LAI and soil moisture are similar.

P.19, L3: Is 'The maximum values of…'referred to seasonal maximum?

P.20, L13: This values outside the range (1.3 – 3.3) reported by Rainch and Schlesinger (1992), but within the range (1.9 – 5.5) given in other reports for forest (Massman and Lee, 2002).

P.21, L10: Too many 'Therefore' in one sentence.

P.21, L19-22: These different conclusions regarding the coupling between Reco and rain events may explain the differences of opinion regarding the coupling between Reco and

rain events may explain the differences of opinion regarding the effect of soil moisture on Reco. The study site was icebound during the non-growing season, and the soil temperature was relatively steady. Did you carefully check your English? This is not an English problem but also an attitude problem!!!

P.22, L3: The abbreviation CR is not mentioned in previous chapters.

P.22, L15: We suppose that not only high soil organic matter (wetland: 28.06%; shrubland: 7.54%; Kobresia humilis meadow: 5.19%, Zhao et al. 2005) but also relatively low grazing intensity (wetland: 38.8-62.6 %; Kobresia humilis meadow: 82.7-87.1 %) promote ecosystem respiration, as a result, this ecosystem may release a substantial amount of C.

P.39: …soil temperature at a depth 5 and 40 cm…

P.40, 41: Data were from 2004 to 2006 season, and half-hourly during…

P. 46, check the units on the figure.

P.47, 48: You used Fc in Fig.9 and NEE in Fig. 10. I assume that both are the same. Please keep them consistent.