

Interactive comment on “Analyzing the major drivers of NEE in an alpine Mediterranean shrubland” by B. R. Reverter et al.

Anonymous Referee #2

Received and published: 24 February 2010

The paper by Reverter et al. , “Analyzing the major drivers of NEE in an alpine Mediterranean shrubland” compared the eddy covariance NEE fluxes data measured from two full years over a Mediterranean shrubland in Spain, with some analysis of diurnal and seasonal dynamics and related environmental drivers. There is a need for additional knowledge about the carbon exchange in alpine grassland systems and those located in high altitude area, as they have not been studied as much as forests and temperate grassland. This study does a good job of examining the drivers of NEE in alpine shrubland ecosystem. The paper is well-written in English and well-organized in structure, which makes it read clear.

The major concern I have is same with reviewer #1: the magnitude of the sensor surface heating correction (i.e. the Burba correction) seems to be wrongly magnified,

C113

which resulted the annual sums of NEE unconvincing. Authors may need to consider double-checking the calculations of the correction for CO₂ and H₂O.

Other minor comments: (1) P677, Line 1-2: These gap-filling approaches are widely used to calculate the daily, monthly and annually accumulated values of carbon fluxes. But the specific technique differed among studies. Please provide more details about gap-filling method, including the respiration equation used for gap-filling, the window size for night time and daytime gaps, and the statistics on the relationships used for gap filling. . . (2) P689 and P690: please unify the style of plots in Figure 1 and Figure 2, use the same line for the frame of those plots. Further more, it's hard to differentiate the two lines for 2007 and 2008 in Figure 1, please change them. (3) P677, Line 10-14: are there any other precipitation measurements near to the flux site? It would be better to fill this gap other than hypothesis that the precipitation during this period in 2008 is similar to 2007. The difference in soil moisture during this period might contribute to the difference in NEE (as shown in Figure 2), given that the air temperature were similar between the two year. (4) P690: Could the author tell us the NEE values shown in Figure 2 is with Burba correction or without? (5) P678: Could the author explain the reason that large difference in NEE during Spring (round about DOY 80~110 shown in Figure 2c and 2d)? (6) P679, Line 15-16: It seems that a shorter second growing season also occurred in 2008 (around DOY 300, as shown in Figure 2d)? (7) P681, Line 15: Please double check the calculation of Burba correction and re-evaluate the annual carbon budget.

Interactive comment on Biogeosciences Discuss., 7, 671, 2010.

C114