

Interactive comment on “Response of ecosystem respiration to experimental warming and clipping in Tibetan alpine meadow at three elevations” by G. Fu et al.

Anonymous Referee #2

Received and published: 11 September 2013

The manuscript entitled, “Response of Ecosystem respiration to experimental warming and clipping in Tibetan alpine meadow at three elevations”. Takes on the challenging and important task of trying to develop an understanding of changes in ecosystem physiological process associated with predictions of climate change. Although this subject matter is extremely important and the Tibetan Plateau is a dynamics and important region that needs additional research, the current manuscript lacks detail that makes it unacceptable for publication in its current format.

Overall the paper is very short and does not clearly develop a story line on why the study is important and why the study advances our understanding of carbon dynamics. For this paper to be considered for publication the authors must completely rethink the

C4941

development and organization of the manuscript.

Abstract:

The abstract is ok in its detail. I would suggest however that the authors added a sentence at the beginning of the abstract to set the stage for their experimental warming study. This sentence should be related to grasslands, climate change and carbon cycling.

Introduction:

The introduction does not develop a storyline for the study. The authors need to place the study into the greater scientific arena by focusing on grassland ecosystem and climate change. When the authors redevelop the manuscript they must find literature to cite that is more related and relevant to their study. The authors cite studies by Welker and Oberbauer that are conducted in true arctic tundra. These sites are high latitude but are not high altitude ecosystem and the finding of these studies do not relate very well to those of the TP. In addition the authors use citation from studies that have no relationship to their finding. One example that stands out is their use of Allaire et al 2008, which focuses on urban turf grasses. The authors need to search the literature and use the appropriate studies that give support to their findings. It is also unclear in the introduction the importance of the clipping manipulation, is this simulation associated with herbivory since the authors do mention the TP is used for grazing?

The hypotheses also need additional detail. How do the authors think their sites will respond to warming and clipping and why? Please justify your reasoning.

Materials and methods:

Experimental manipulation should focus on the study development. On page 13019 lines 17 – 24 and page 13020, line 5 – 13 should be moved to a new section in the results and stats should be run on the temperature sensors.

The soil sampling section gives very little information to the study since measurements

C4942

were taken at the end of the last year of the study. For this data to add value to the manuscript the authors would have needed baseline data prior to the start of their manipulations. I would suggest the authors remove this data from the manuscript and focus the manuscript on the ecosystem respiration.

The authors also need to reanalyze their results since they should have considered their design, a split plot design, with elevation as their main treatment effect since elevation cannot be fully randomized. This is reflected in elevation having the same denominator degrees of freedom at the other treatments in table 2.

Results:

Until the stats are run based on the suggested study design the finding of the study cannot be concluded.

Discussion:

The discussion rehashes the results without giving much support from other studies. Again there is not a storyline developed and the paper does not have a logical organization.

Although this manuscript needs a complete reorganization and data needs to be reanalyzed, I do believe that the data can contribute to advancing the scientific communities understanding of the grassland carbon dynamics and I encourage the authors to make the suggested revisions.

Interactive comment on Biogeosciences Discuss., 10, 13015, 2013.

C4943