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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 #1

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Fu et al. investigated the response of ecosystem respiration of three alpine grassland sites along an elevational gradient in Tibet to experimental warming and clipping. The research question, experimental approach and main conclusions are fairly mainstream, the manuscript however nevertheless represents a useful addition to the existing literature and thus merits publication. Major comments: (1) The introduction in my view fails to fully motivate the experimental design, in particular the clipping treatment and the arrangement of study sites along the elevational gradient. What is the idea behind the clipping treatments? Is it to simulate the effect of grazing and are there ongoing/projected changes in grazing pressures in that area that motivate the clipping treatment? Or is this merely to modify above-ground biomass and study the result-

ing effects? What is the motivation for the elevational gradient? Do ongoing/projected temperature changes differ with elevation, e.g. more warming at higher elevations? Are changes in pressure different at these elevations? Elevation is inversely related to temperature and thus transplanting experiments are often used to simulate warming - is this a motivation for the study design? If so, the latter should be emphasised and in fact the results show that such transplantation experiments may problematic due to confounding effects. (2) Given that the discussion and conclusions sections are centred on the confounding effects of soil moisture, I think soil moisture data (by site, treatment and year) are actually underrepresented in the manuscript. (3) In the conclusions section I am missing a paragraph elaborating on the implications of the results of this study given ongoing/projected changes in climate and land use on the Tibetan plateau.

Minor comments: (1) English style and grammar need to be thoroughly checked throughout the manuscript (2) Abstract: here I am missing the link between soil moisture, plant productivity and Reco (3) P. 13016, l. 25: "few studies" –which ones? (4) P. 13017, l. 3: "inconsistent" – in what sense? (5) P. 13019, l. 18-24: move to results section (6) P. 13020, l. 5-9: move to results section (7) P. 13021, l. 4: remove reference to Fig. 1 here (necessitates renumbering of figures) (8) P. 13023, l. 16-17: worth mentioning that these differences occurred after 4 years of treatment (9) P. 13025, l. 22-27: need to say something about direction of change here (10) P. 13026, l. 21-22: avoid repeating this major misinterpretation of Q10 concept! (11) P. 13029, l. 16-24: all figures need to be introduced first in the results section – Figs. 6 and 7 are mentioned here for the first time! (12) Table 1: units of precipitation should be mm (13) All figures: the use of different letters for not significantly different results is confusing in busy figures such as Fig. 1, or just redundant where all results are not significant, such as Fig.2 – maybe the authors can find a way to avoid this

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